OPERATION AND MAINTENANCE MANUAL

MECHANICAL SERVICES

THE SINCLAIR

130 – 148 WELLINGTON ROAD

EAST BRISBANE QLD 4169

mosaic construction

Snowdonia HVAC

Document Verification

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CONTENTS

1. PROJECT DESCRIPTION

1.1. INTRODUCTION

The development involves the construction of two new residential towers with basement carparking, retail space and common use areas.

1.2. Scope of Works

- Design and installation of apartment air conditioning using ducted FCU's to each room connected to a condensing unit on the roof or ground level plant area for each apartment.
- Motorised dampers and control system for zone control.
- Filtered outside air systems to apartments affected by the Transport Air Quality Overlay Code using low profile ducting.
- Ducted air conditioning to the retail tenancy.
- Ducted air conditioning to the ground floor lobby, library and gym.
- Wall mounted split systems for the store room, Managers office and bin rooms.
- Electrical power and control cabling between DBs and air conditioning condensers.
- The entire installation is fully commissioned and includes 12 months warranty.
- Acoustic treatment achieves specified noise levels.
- Installation complies with acoustic engineer's requirements.

Apartment Air Conditioning

- Each apartment is provided with an individual reverse cycle split ducted air conditioning system serving the living areas and all bedrooms.
- Zone control is provided for all apartment AC systems so that any unoccupied room can be shut off, independently of other rooms. The FCU automatically adjusts the fan speed according to the number of active zones.
- The system is able to control the temperature in each room of a multi-zone system by varying the flow of air via the motorised damper in response to a space temperature sensor.
- Condensing units are located in designated areas on the roof and at ground level.
- Condensate drains are fully insulated to a tundish in the laundry cupboard.

Common Area and Gymnasium Air Conditioning

- Ducted split systems are provided for common use areas including all ducting and grilles fitted into ceilings. Controllers are located in coordination with the developers.

Retail Air Conditioning

- Ducted split systems are provided including FCU's, hard ducting, flexible duct, grilles and cushion boxes suspended from open ceiling.

Outside Air Systems

- Apartments affected by the Transport Air Quality overlay Code are have filtered outside air systems.
- The outside air fan is interlocked with the FCU fan to run whenever the AC is operating or if the FCU is operating in fan only mode. Low profile ducting is used. Outside air is ducted into the return air plenum of the FCU.

Managers Office, Store Room & Bin Rooms

- The Managers office, Store room and Bin rooms have their own reverse cycle split system air conditioner.

2. OPERATING INSTRUCTIONS

- A full functional description of operation can be found in Appendix 1 of this manual.

3. FUNCTIONAL DESCRIPTION of OPERATION

Refer to ***Appendix 1: Functional Description of Operation***

4. EQUIPMENT SCHEDULES & TECHNICAL DATA

Refer to ***Appendix 2: Equipment Schedules & Technical Data***

5. COMMISSIONING RESULTS & CERTIFICATION

Refer to ***Appendix 3: Commissioning Results & Certification*** associated with the installation works, testing and commissioning.
Certificates provided as part of the project is Form 16 only.

6. WARRANTIES

Refer to ***Appendix 4: Warranties*** for product warranty certificates from manufacturers and suppliers.

7. SERVICE & MAINTENANCE PROCEDURES

Refer to ***Appendix 5: Service and Maintenance Procedures***
Maintenance shall be provided to the installed equipment in accordance in compliance with regulatory requirements and standards. Only qualified service technicians and licenced personnel with current and up to date certifications and qualifications are to carry out Maintenance works to the installed equipment.
Min. level requirements for maintenance practices are to be in compliance with AIRAH DA19.

8. AS-BUILT DRAWINGS

Refer to ***Appendix 6: As Built Drawings*** for drawing lists and drawings

9. CONTACTS

The table below nominates the contact details for companies associated with various components of the project.

CONTACT DETAILS	
Company Contact Details	Snowdonia HVAC 3/26 Flinders Parade, North Lakes QLD 4509 P: 07 3482 0700 E: info@snowdonia.com.au
Emergency, After Hours Contact	Snowdonia HVAC P: 07 3482 0700 – 24hr hotline E: service@snowdonia.com.au W: www.snowdonia.com.au
POST WARRANTY CONTACTS	
Air Conditioning	Mitsubishi Electric Australia Pty Ltd P: 07 3623 2000 E: service@meaust.meap.com W: www.mitsubishielectric.com.au

Ventilation - Fans (Carpark, Stair Press, Lobby Relief)	Pacific Ventilation P: 07 3219 4222 E: peter.morris@pacificventilation.com.au W: www.pacificventilation.com
Grilles & Louvres	Shapeair P: 07 3102 1212 E: brisbane@shapeair.com.au W: www.shapeair.com.au
Passive Fire	FyrePro P: 1800FYRE E: kieran@fyrepro.com.au W: www.fyrepro.com.au
Fire Dampers	Bullock Industries P: 07 3271 2088 E: dampers@bullockqld.com.au W: www.bullockmfg.com.au
Exhaust Fans	Sigrist Design Pty Ltd P: 07 3271 4415 E: sales@sigristdesign.com.au
MyZone Controls	Reece P: 07 5431 1670 E: sales@reece.com.au W: www.reece.com.au

Table 1: Contacts

10. APPENDICES

APPENDIX 1

FUNCTIONAL DESCRIPTION

&

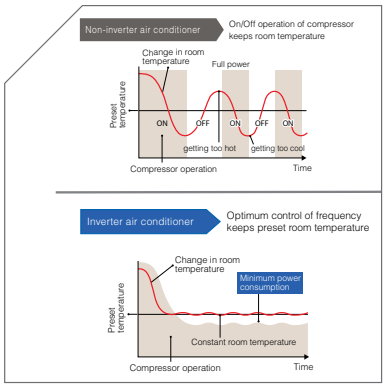
TECHNICAL DATA

Mr Slim Outdoor Units

PUZ-M Inverter Series

PRODUCT FLYER

Mitsubishi Electric has expanded its Mr Slim line-up, introducing the new **INVERTER** M Series, PUZ-M100/125/140VKMD-A, 10-14kW. The PUZ-M100 and PUZ-M125 have undergone design improvements and are now available in single fan models, designed to be less intrusive and easier to handle. The PUZ-M series is connectable to our PEA-M100/125/140GAA and PEAD-M100/125/140JAAD ducted indoor units.

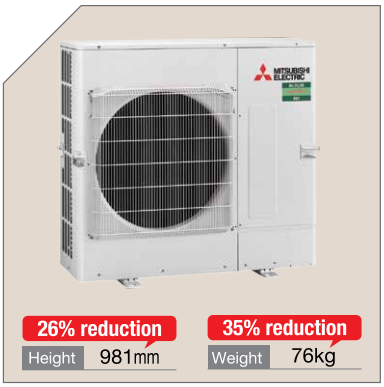


Full inverter contol

Mitsubishi Electric inverters ensure a high level of performance, including the optimum control of operation frequency. As a result, optimum power is applied in all heating/cooling ranges, and maximum comfort is achieved while consuming minimal energy.

Compact design & less intrusive

Compared to our current Twin Fan model, PUZ-M100/125 is now a smaller unit for the same capacity. Due to its size it is less obtrusive and more easily hidden from view. Provides flexibility with installations depending on location of the unit.



Easier transportation & installation

The PUZ-M100/125 have a 26% reduction in height and 35% reduction in weight, compared to our Twin Fan model. Making it easier to transport and handle during installation.

Features

- Single fan: PUZ-M100/125
- Twin fan: PUZ-M140
- Wi-Fi compatible (optional adapter required per indoor unit)
- Demand response capable
- Full Inverter technology
- R32 refrigerant for lower GWP (Global warming potential), compared to R140a
- Single phase power
- Compact and light weight: PUZ-M100/125

SPECIFICATIONS

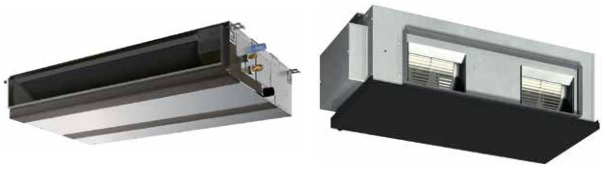
Indoor Unit			PEAD-M100JAAD	PEAD-M125JAAD	PEAD-M140JAAD	PEA-M100GAA	PEA-M125GAA	PEA-M140GAA
Outdoor Unit			PUZ-M100VKA-A	PUZ-M125VKA-A	PUZ-M140VKA-A	PUZ-M100VKA-A	PUZ-M125VKA-A	PUZ-M140VKA-A
Refrigerant			R32					
Power Source			230V, Single phase, 50Hz					
Cooling	Capacity (Min-Rated-Max)	kw	4.0-10.0-10.6	6.0-12.0-13.5	6.2-14.0-15.3	4.0-10.0-10.6	6.0-12.0-13.5	6.2-14.0-15.3
	Total input (Rated)	kw	3.06	3.83	4.40	3.08	3.81	4.22
	EER/AEER		3.26/3.13	3.13/3.03	3.18/3.09	3.24/3.12	3.14/3.04	3.31/3.22
	AEER (part-load%) *1		4.40	3.78	4.01	4.40	3.83	-
	Running current (Rated)	A	14.1	17.8	20.4	14.5	18.5	20.4
	Sound Pressure Level	In (Lo-Mid-Hi)	33-38-42	36-40-44	40-44-49	33-38-42	42-45	
		Out (PWL)	52(71)	54(72)	53(71)	52(71)	54(72)	53(71)
	Air Volume (In) Lo-Mid-Hi	L/S	400-483-567	492-592-700	533-660-767	567-700	800-1000	
Heating	Capacity (Min-Rated-Max)	kw	2.8-12.5-12.5	4.1-14.0-15.5	5.7-16.0-18.0	2.8-12.5-12.5	4.1-14.0-15.5	5.7-16.0-18.0
	Total input (Rated)	kw	3.35	3.68	4.30	3.36	3.54	4.20
	COP/ACOP		3.73/3.59	3.8/3.67	3.72/3.61	3.72/3.58	3.95/3.81	3.80/3.69
	Running current (Rated)	A	16.5	17.1	20.0	15.8	17.3	20.3
	Sound Pressure Level	In (Lo-Mid-Hi)	33-38-42	36-40-44	40-44-49	39-42	42-45	
		Out (PWL)	54(72)	56(74)	54(72)	54(72)	56(74)	54(72)
	Air Volume (In) Lo-Mid-Hi	L/S	400-483-567	492-592-700	533-650-767	567-700	800-1000	
Max. Running Current		A	29.00	29.30	29.64	23.28	29.78	30.86
Indoor unit	Input [cool/heat] (Rated)	kw	0.25/0.23	0.36/0.34	0.39/0.37	0.21/0.21	0.49/0.49	
	Dimensions (HxWxD)	mm	250x1400x732		250x1600x732	400x1400x634		
	Weight	kg	39	40	44	63		
	Static Pressure	Pa	35/50/70/100/125			50/100/150		
Outdoor unit	Dimensions (HxWxD)	mm	981-1050-330(+40)		338-1050-330(+40)	981-1050-330(+40)		1338-1050-330(+40)
	Weight	kg	76	84	99	76	84	99
Piping	Diameter (Gas/Liquid)	mm	15.88/9.52			15.88/9.52		
	Max. Length/Height	m	55/30			55/30		
Guaranteed Operating Range (outdoor)		Cooling (°C)*2	-15 - 46			-15 - 46		
		Heating (°C)	-5 (-15*2) - 21			-5 (-15*2) - 21		
Spigot Sizes	Supply air		178x1360			250x921		
	Return air		210x1358		210x1558	330x1102		

*1 MEPS compliant at part load
*2 Optional air protection guide is required where ambient temperature is lower than -5°C.

OUTDOOR UNITS

PUZ-M100/125VKA-A PUZ-M140VKA-A

INDOOR UNITS



PEAD-M100/125/140JAAD PEA-M100/125/140GAA

CONTROLLERS

ZONE CONTROLLER

PAC-ZC4(8)0H-E
PAC-ZC4(8)0L-E
Optional

WALL CONTROLLER

PAR-40MAA
Optional

BLUETOOTH CONTROLLER

PAR-CT01MAA
-S/SB/PB
Optional

amazon alexa ENABLED

works with the Google Assistant

Wi-Fi CONTROL

*Optional upgrade adapter required per unit. Requires an Internet connection and the App downloaded from the App Store or Google Play Store on your smartphone or tablet with the latest Operating System available.
*To use Amazon Alexa to control your air conditioner, you will need an Amazon Alexa Echo device.
*To use Google Assistant to control your air conditioner, you will need a Google Home smart speaker.

MITSUBISHI ELECTRIC

MitsubishiElectric.com.au

MITSUBISHI ELECTRIC

SPLIT-TYPE AIR CONDITIONERS

INDOOR UNIT

SERVICE MANUAL

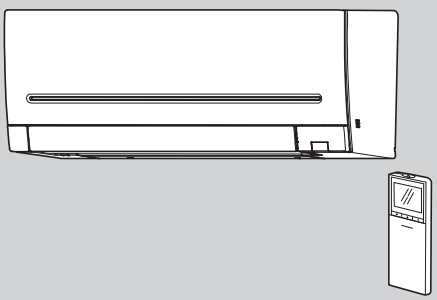
No. OBH824

Models

MSZ-AP22VGD - A1
MSZ-AP25VGD - A1
MSZ-AP35VGD - A1
MSZ-AP42VGD - A1
MSZ-AP50VGD - A1
MSZ-AP60VGD - A1
MSZ-AP71VGD - A1
MSZ-AP80VGD - A1

MSZ-AP22VGKD - A1
MSZ-AP25VGKD - A1
MSZ-AP35VGKD - A1
MSZ-AP42VGKD - A1
MSZ-AP50VGKD - A1
MSZ-AP60VGKD - A1
MSZ-AP71VGKD - A1
MSZ-AP80VGKD - A1

Outdoor unit service manual
MUZ-AP·VG(D) Series (OBH825)
MXZ-D·VA Series (OBH687)
MXZ-E·VAD(2) Series (OBH758)



CONTENTS

3 SPECIFICATION

Indoor model					MSZ-AP22VGD MSZ-AP22VGKD	MSZ-AP25VGD MSZ-AP25VGKD	MSZ-AP35VGD MSZ-AP35VGKD	MSZ-AP42VGD MSZ-AP42VGKD	MSZ-AP50VGD MSZ-AP50VGKD
Power supply					Single phase 230 V, 50 Hz/ 60 Hz				
Electrical data	Power input ✻1		Cooling	W	23		29		43
			Heating		19		26	33	43
	Running current ✻1		Cooling	A	0.23		0.28		0.39
			Heating		0.19		0.26	0.31	0.39
Fan motor	Model				RC0J30-CV				
	Current ✻1		Cooling	A	0.23		0.28		0.39
			Heating		0.19		0.26	0.31	0.39
Dimensions W × H × D				mm	798 × 299 × 219				
Weight				kg	10.5				
Special remarks	Air direction				5				
	Airflow	Cooling	Super High	m^3/h	738		804		930
			High		522			558	600
			Med.		426			462	504
			Low		354			390	432
			Quiet		294			324	360
		Heating	Super High	m^3/h	684		774	840	966
			High		534			564	600
			Med.		438			462	492
			Low		354			366	390
			Quiet		294			318	336
	Sound level	Cooling	Super High	dB(A)	44		45	46	49
			High		38			40	44
			Med.		31			35	39
			Low		24			29	33
			Quiet		19			26	28
		Heating	Super High	dB(A)	42		45	46	48
			High		38			40	43
			Med.		31			35	38
			Low		25			29	33
			Quiet		18		19	26	28
	Fan speed	Cooling	Super High	rpm	1,030		1,100		1,050
			High		790			830	880
			Med.		670			720	770
			Low		580			630	680
			Quiet		500			540	590
		Heating	Super High	rpm	970		1,070	1,140	1,270
			High		800			840	880
			Med.		690			720	750
			Low		580			600	630
			Quiet		500			530	560
	Fan speed regulator				5				
Remote controller model					SG17B				

NOTE: Test conditions are based on AS/NZS3823.1.1.

Cooling: Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C
Outdoor Dry-bulb temperature 35°C Wet-bulb temperature 24°C
Heating: Indoor Dry-bulb temperature 20°C
Outdoor Dry-bulb temperature 7°C Wet-bulb temperature 6°C

✻1 Measured under rated operating frequency.

Specifications and rated conditions of main electric parts

Fuse	(F11)	T3.15AL250V
Horizontal vane motor	(MV1)	12 V DC
	(MV2)	12 V DC
Vertical vane motor	(MV3)	12 V DC
Varistor	(NR11)	470 V
Terminal block	(TB)	3P

Indoor model					MSZ-AP60VGD MSZ-AP60VGKD	MSZ-AP71VGD MSZ-AP71VGKD	MSZ-AP80VGD MSZ-AP80VGKD
Power supply					Single phase 230 V, 50 Hz/ 60 Hz		
Electrical data	Power input ✻1		Cooling	W	45	42	55
			Heating		49	45	
	Running current ✻1		Cooling	A	0.40	0.38	0.47
			Heating		0.43	0.40	
Fan motor	Model				RC0J56-AH		
	Current ✻1		Cooling	A	0.40	0.38	0.47
			Heating		0.43	0.40	
Dimensions W × H × D				mm	1100 × 325 × 257		
Weight				kg	16	17	
Special remarks	Air direction				5		
	Airflow	Cooling	Super High	m³/h	1,134	1,116	1,236
			High		960	918	
			Med.		792		
			Low		660	690	
			Quiet		564	576	
		Heating	Super High	m³/h	1,218	1,152	
			High		1,044	918	
			Med.		924	792	
			Low		804	690	
			Quiet		648	612	
	Sound level	Cooling	Super High	dB(A)	48	49	53
			High		45		
			Med.		41		
			Low		37		
			Quiet		29	30	
		Heating	Super High	dB(A)	48	51	
			High		45		
			Med.		41		
			Low		37		
			Quiet		30		
	Fan speed	Cooling	Super High	rpm	1,100	1,140	1,240
			High		960	970	
			Med.		820	860	
			Low		710	770	
			Quiet		630	670	
		Heating	Super High	rpm	1,170		
			High		1,030	970	
			Med.		930	860	
			Low		830	770	
			Quiet		700		
	Fan speed regulator				5		
Remote controller model					SG18D		

NOTE: Test conditions are based on AS/NZS3823.1.1.

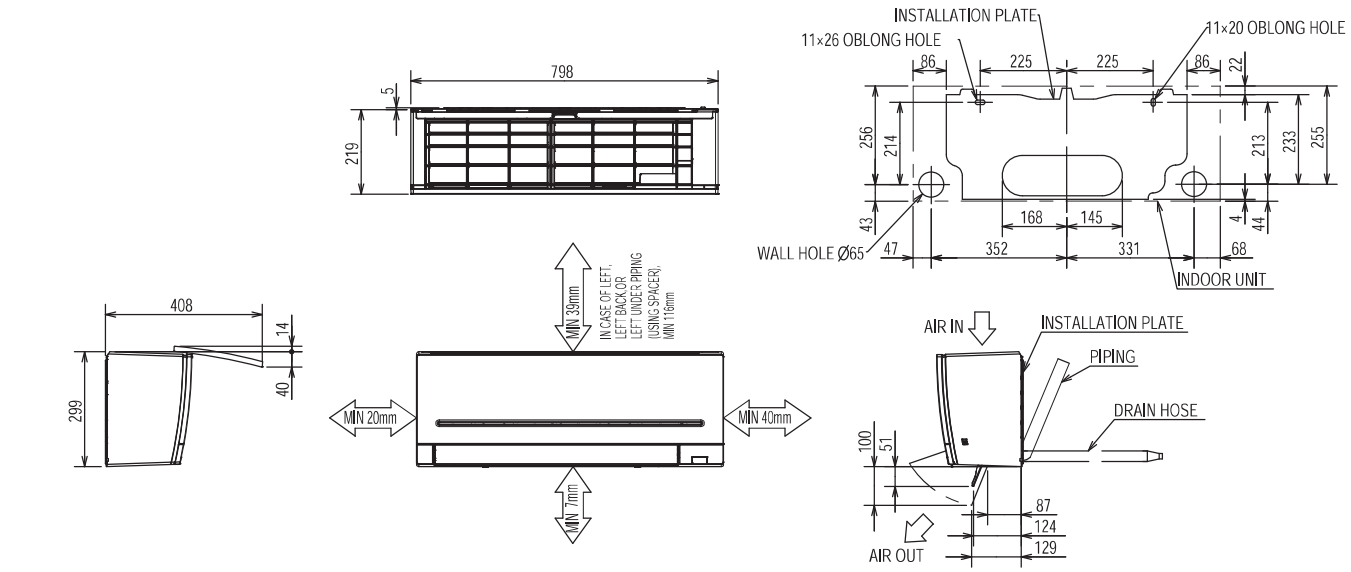
Cooling: Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C
Outdoor Dry-bulb temperature 35°C Wet-bulb temperature 24°C
Heating: Indoor Dry-bulb temperature 20°C
Outdoor Dry-bulb temperature 7°C Wet-bulb temperature 6°C

✻1 Measured under rated operating frequency.

5 OUTLINES AND DIMENSIONS

Unit: mm

MSZ-AP22VGD MSZ-AP25VGD MSZ-AP35VGD MSZ-AP42VGD MSZ-AP50VGD
MSZ-AP22VGKD MSZ-AP25VGKD MSZ-AP35VGKD MSZ-AP42VGKD MSZ-AP50VGKD



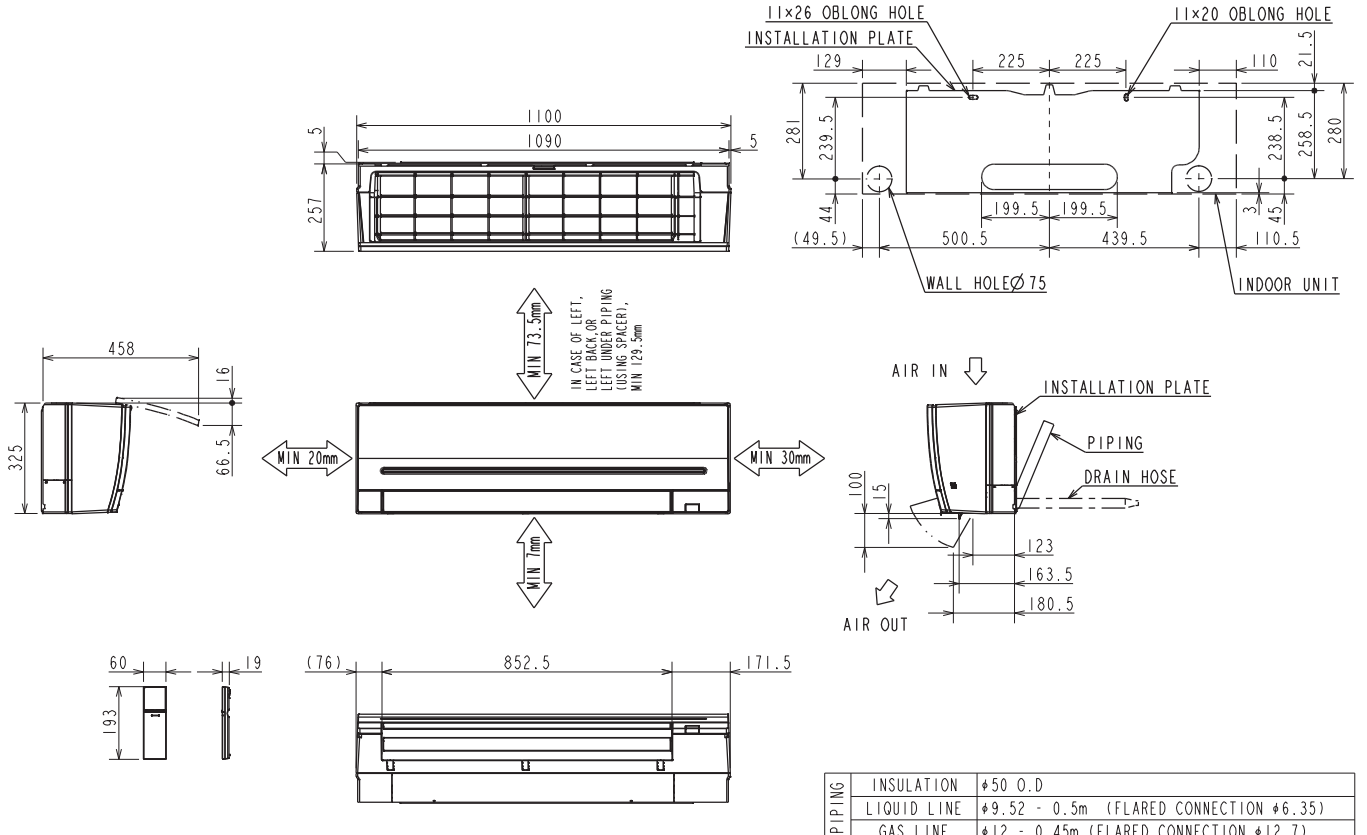
(MSZ-AP22/25/35/42VG(K)D)

PIPING	INSULATION	Ø37 O.D
	LIQUID LINE	Ø6.35 - 0.5m (FLARED CONNECTION Ø6.35)
	GAS LINE	Ø9.52 - 0.45m (FLARED CONNECTION Ø9.52)
DRAIN HOSE		INSULATION Ø29 CONNECTED PART Ø16 O.D

(MSZ-AP50VG(K)D)

PIPING	INSULATION	Ø37 O.D
	LIQUID LINE	Ø6.35 - 0.5m (FLARED CONNECTION Ø6.35)
	GAS LINE	Ø9.52 - 0.45m (FLARED CONNECTION Ø12.7)
DRAIN HOSE		INSULATION Ø29 CONNECTED PART Ø16 O.D

MSZ-AP60VGD MSZ-AP71VGD MSZ-AP80VGD
MSZ-AP60VGKD MSZ-AP71VGKD MSZ-AP80VGKD



PIPING	INSULATION	ø50 O.D
	LIQUID LINE	ø9.52 - 0.5m (FLARED CONNECTION ø6.35)
	GAS LINE	ø12 - 0.45m (FLARED CONNECTION ø12.7)
DRAIN HOSE		INSULATION ø29 CONNECTED PART ø16 O.D

MITSUBISHI ELECTRIC

SPLIT-TYPE AIR CONDITIONERS

OUTDOOR UNIT

SERVICE MANUAL

HFC utilized R32

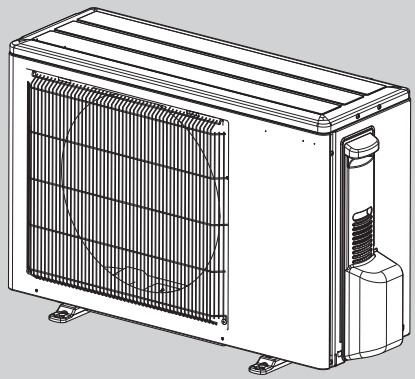
No. OBH825

Models

MUZ-AP25VG - A1
MUZ-AP35VG - A1
MUZ-AP42VG - A1
MUZ-AP50VG - A1
MUZ-AP60VG - A1
MUZ-AP71VG - A1
MUZ-AP80VG - A1

MUZ-AP25VGD - A1
MUZ-AP35VGD - A1
MUZ-AP42VGD - A1
MUZ-AP50VGD - A1
MUZ-AP60VGD - A1
MUZ-AP71VGD - A1
MUZ-AP80VGD - A1

Indoor unit service manual
MSZ-AP•VG Series (OBH824)
MSZ-AP•VGD Series (OBH824)



MUZ-AP25VG MUZ-AP25VGD
MUZ-AP35VG MUZ-AP35VGD
MUZ-AP42VG MUZ-AP42VGD

CONTENTS

Use the specified refrigerant only

Never use any refrigerant other than that specified.

Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.
Correct refrigerant is specified in the manuals and on the spec labels provided with our products.
We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

1 TECHNICAL CHANGES

MUZ-AP25VG -A1 **MUZ-AP25VGD -A1**
MUZ-AP35VG -A1 **MUZ-AP35VGD -A1**
MUZ-AP42VG -A1 **MUZ-AP42VGD -A1**
MUZ-AP50VG -A1 **MUZ-AP50VGD -A1**
MUZ-AP60VG -A1 **MUZ-AP60VGD -A1**
MUZ-AP71VG -A1 **MUZ-AP71VGD -A1**
MUZ-AP80VG -A1 **MUZ-AP80VGD -A1**

1. New model

2 SERVICING PRECAUTIONS FOR UNITS USING REFRIGERANT R32

Servicing precautions for units using refrigerant R32

⚠ WARNING

This unit uses a flammable refrigerant.
If refrigerant leaks and comes in contact with fire or heating part, it will create harmful gas and there is risk of fire.

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.)
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.
- Pipe-work shall be protected from physical damage.
- The installation of pipe-work shall be kept to a minimum.
- Compliance with national gas regulations shall be observed.
- Keep any required ventilation openings clear of obstruction.
- Servicing shall be performed only as recommended by the manufacturer.
- The appliance shall be stored so as to prevent mechanical damage from occurring.

Basic work procedures are the same as those for conventional units using refrigerant R410A.
However, pay careful attention to the following points.

1. Information on servicing

① Checks on the Area
Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized.

② Work Procedure
Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.

③ General Work Area
All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

④ Checking for Presence of Refrigerant
The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

⑤ Presence of Fire Extinguisher
If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand.
Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

⑥ No Ignition Sources
No person carrying out work in relation to a refrigeration system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

⑦ Ventilated Area
Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

⑧ Checks on the Refrigeration Equipment
Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.
The following checks shall be applied to installations using flammable refrigerants:
- The charge size is in accordance with the room size within which the refrigerant containing parts are installed.
- The ventilation machinery and outlets are operating adequately and are not obstructed.
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
- Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being corroded.

⑨ Checks on Electrical Devices
Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.
Initial safety checks shall include that:
- capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- no live electrical components and wiring are exposed while charging, recovering or purging the system;
- there is continuity of earth bonding

2. Repairs to Sealed Components

① During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

② Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
Ensure that the apparatus is mounted securely.
Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.
Replacement parts shall be in accordance with the manufacturer's specifications.

3. Repair to intrinsically Safe Components
Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.
Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

4. Cabling
Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

5. Detection of Flammable Refrigerants
   Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

6. Leak Detection Methods
   Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.
   Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
   If a leak is suspected, all naked flames shall be removed/extinguished.
   If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. For appliances containing flammable refrigerants, oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

7. Removal and Evacuation
   When breaking into the refrigerant circuit to make repairs - or for any other purpose conventional procedures shall be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:
   - remove refrigerant
   - purge the circuit with inert gas
   - evacuate
   - purge again with inert gas
   - open the circuit by cutting or brazing.

   The refrigerant charge shall be recovered into the correct recovery cylinders. For appliances containing flammable refrigerants, the system shall be "flushed" with OFN to render the unit safe. This process may need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.
   For appliances containing flammable refrigerants, flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.
   Ensure that the outlet for the vacuum pump is not close to any ignition sources and that ventilation is available.

8. Charging Procedures
   In addition to conventional charging procedures, the following requirements shall be followed:
   - Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
   - Cylinders shall be kept upright.
   - Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
   - Label the system when charging is complete (if not already).
   - Extreme care shall be taken not to overfill the refrigeration system.

   Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

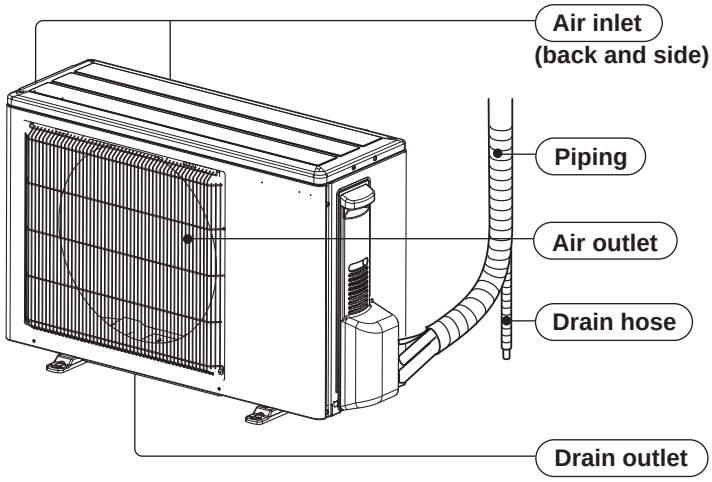
9. Decommissioning
   Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.
   a) Become familiar with the equipment and its operation.
   b) Isolate system electrically.
   c) Before attempting the procedure, ensure that:
      - mechanical handling equipment is available, if required, for handling refrigerant cylinders;
      - all personal protective equipment is available and being used correctly;
      - the recovery process is supervised at all times by a competent person;
      - recovery equipment and cylinders conform to the appropriate standards.
   d) Pump down refrigerant system, if possible.
   e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
   f) Make sure that cylinder is situated on the scales before recovery takes place.
   g) Start the recovery machine and operate in accordance with manufacturer's instructions.
   h) Do not overfill cylinders. (no more than 80 % volume liquid charge).
   i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
   j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
   k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

10. Labeling
    Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

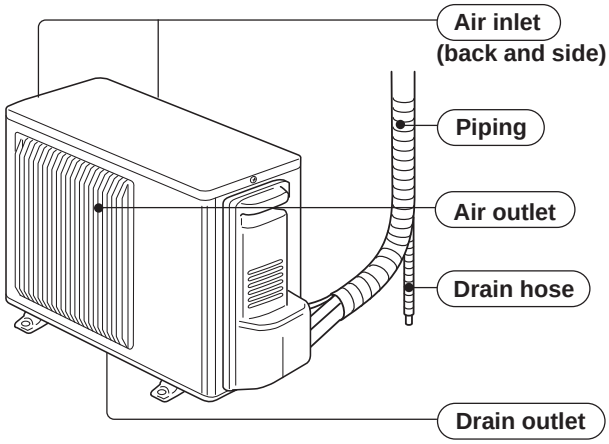
11. Recovery
    When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
    The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.
    The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
    If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

3 PART NAMES AND FUNCTIONS

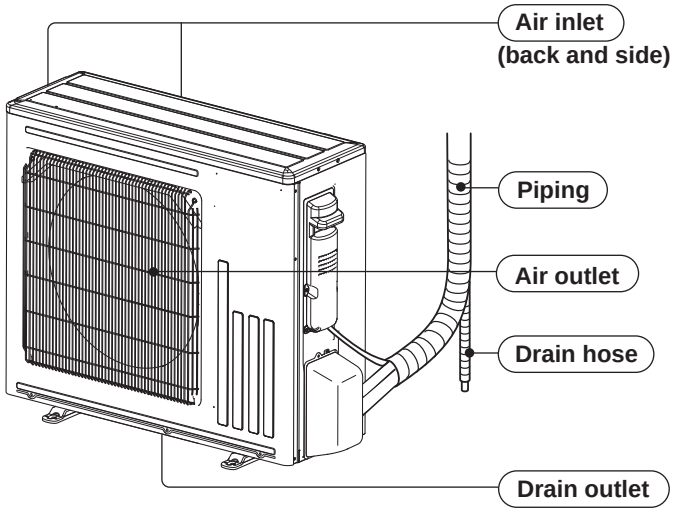
MUZ-AP25VG
MUZ-AP35VG
MUZ-AP42VG



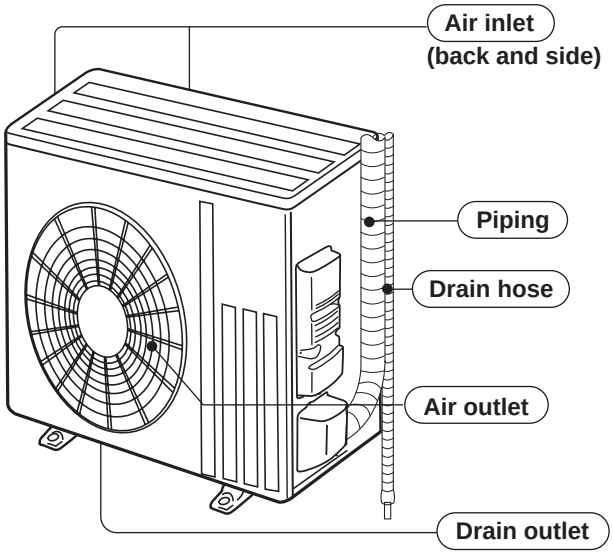
MUZ-AP25VGD
MUZ-AP35VGD
MUZ-AP42VGD



MUZ-AP50VG MUZ-AP50VGD
MUZ-AP60VG MUZ-AP60VGD



MUZ-AP71VG MUZ-AP71VGD
MUZ-AP80VG MUZ-AP80VGD



ACCESSORIES

Model	MUZ-AP25VG MUZ-AP25VGD MUZ-AP35VG MUZ-AP35VGD MUZ-AP42VG MUZ-AP42VGD MUZ-AP50VG MUZ-AP50VGD MUZ-AP60VG MUZ-AP60VGD MUZ-AP71VG MUZ-AP71VGD MUZ-AP80VG MUZ-AP80VGD
Drain socket	1

4 SPECIFICATION

Outdoor model					MUZ-AP25VG MUZ-AP25VGD	MUZ-AP35VG MUZ-AP35VGD	MUZ-AP42VG MUZ-AP42VGD
Power supply					Single phase, 230 V, 50 Hz / 60 Hz		
Capacity Rated frequency (Min.-Max.)			Cooling	kW	2.5 (1.1 - 3.6)	3.5 (1.1 - 4.1)	4.2 (0.9 - 4.8)
			Heating		3.2 (1.3 - 5.0)	3.7 (1.3 - 5.1)	5.4 (1.3 - 6.0)
Breaker Capacity				A	10		
Electrical data	Power input ✻1 (Set)		Cooling	W	500	870	1,190
			Heating		670	810	1,430
	Running current ✻1 (Set)		Cooling	A	2.60	4.10	5.30
			Heating		3.30	3.80	6.30
	Power factor ✻1 (Set)		Cooling	%	83	92	97
			Heating		88	92	98
	Starting current ✻1 (Set)			A	3.3	4.1	6.3
Coefficient of performance (COP) ✻1 (Set)			Cooling		5.00	4.02	3.53
			Heating		4.78	4.57	3.78
Compressor	Model				KVB073FYXMC		SVB130FBBMT
	Output			W	470		900
	Current ✻1		Cooling	A	2.19	3.56	4.76
			Heating		2.91	3.31	5.76
	Refrigeration oil (Model)			L	0.27 (FW68S)		0.35 (FW68S)
Fan motor	Model				RC0J50-MC		
	Current ✻1		Cooling	A	0.18	0.26	
			Heating		0.20	0.23	
Dimensions W × H × D				mm	800 × 550 × 285		
Weight				kg	34 (**VG**) / 35 (**VGD**)		35 (**VG**) / 36 (**VGD**)
Special remarks	Dehumidification		Cooling	L/h	0.1	0.7	1.3
	Air flow ✻1	Cooling	High	m^3/h	2,096	2,056	
			Med.		2,096	2,056	
			Low		955	935	909
		Heating	High		2,002	1,963	
			Med.		1,719	1,686	
			Low		1,384	1,358	
	Sound level ✻1		Cooling	dB(A)	46	50	51
			Heating		49	50	52
	Fan speed	Cooling	High	rpm	940		
			Med.		940		
			Low		470		460
		Heating	High		900		
			Med.		780		
			Low		640		
	Fan speed regulator				3		
	Refrigerant filling capacity (R32)			kg	0.70		

NOTE: Test conditions are based on AS/NZS3823.1.1.

Cooling: Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C
Outdoor Dry-bulb temperature 35°C Wet-bulb temperature 24°C
Heating: Indoor Dry-bulb temperature 20°C
Outdoor Dry-bulb temperature 7°C Wet-bulb temperature 6°C

✻1 Measured under rated operating frequency.

Outdoor model					MUZ-AP50VG MUZ-AP50VGD	MUZ-AP60VG MUZ-AP60VGD	MUZ-AP71VG MUZ-AP71VGD	MUZ-AP80VG MUZ-AP80VGD
Power supply					Single phase, 230 V, 50 Hz / 60 Hz			
Capacity Rated frequency (Min. - Max.)			Cooling	kW	5.0 (1.4 - 6.2)	6.0 (1.4 - 7.3)	7.1 (2.0 - 8.7)	7.8 (2.0 - 9.2)
			Heating		6.0 (1.4 - 8.0)	6.8 (2.0 - 8.6)	8.0 (2.2 - 9.9)	9.0 (2.2 - 11.0)
Breaker Capacity				A	16		20	
Electrical data	Power input ✻1 (Set)		Cooling	W	1,320	1,590	2,010	2,360
			Heating		1,620	1,670	2,090	2,550
	Running current ✻1 (Set)		Cooling	A	5.90	7.10	8.80	10.80
			Heating		7.10	7.40	9.10	11.30
	Power factor ✻1 (Set)		Cooling	%	97	97	99	95
			Heating		99	98	99	98
	Starting current ✻1 (Set)			A	7.1	7.4	9.1	11.3
Coefficient of performance (COP) ✻1 (Set)			Cooling		3.79	3.77	3.53	3.31
			Heating		3.70	4.07	3.83	3.53
Compressor	Model				SVB130FBBMT		SVB172FCKMT	
	Output			W	900		1,200	
	Current ✻1		Cooling	A	5.15	6.23	7.49	9.40
			Heating		6.35	6.47	7.82	10.02
	Refrigeration oil (Model)			L	0.35 (FW68S)		0.40 (FW68S)	
Fan motor	Model				RC0J50-RA		RC0J77-AG	
	Current ✻1		Cooling	A	0.36	0.50	0.93	
			Heating		0.36	0.50	0.88	
Dimensions W × H × D				mm	800 × 714 × 285		840 × 880 × 330	
Weight				kg	40 (**VG**) / 41 (**VGD**)		55	
Special remarks	Dehumidification		Cooling	L/h	1.7	1.5	2.4	2.6
	Air flow ✻1	Cooling	High	m^3/h	2,430	3,126	3,246	
			Med.		2,430	2,748	2,958	
			Low		1,320	1,320	1,566	
		Heating	High		2,430	3,126	2,958	
			Med.		2,238	2,238	2,874	
			Low		1,704	1,704	2,334	
	Sound level ✻1		Cooling	dB(A)	54	56		
			Heating		56	57	55	
	Fan speed	Cooling	High	rpm	840	1,060	950	
			Med.		840	940	840	
			Low		490	490	450	
		Heating	High		840	1,060	840	
			Med.		780	780	810	
			Low		610	610	650	
	Fan speed regulator				3			
	Refrigerant filling capacity (R32)			kg	1.00	1.05	1.50	

NOTE: Test conditions are based on AS/NZS3823.1.1.

Cooling: Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C
Outdoor Dry-bulb temperature 35°C Wet-bulb temperature 24°C
Heating: Indoor Dry-bulb temperature 20°C
Outdoor Dry-bulb temperature 7°C Wet-bulb temperature 6°C

✻1 Measured under rated operating frequency.

Specifications and rated conditions of main electric parts

Item \ Model		MUZ-AP25VG MUZ-AP25VGD	MUZ-AP35VG MUZ-AP35VGD	MUZ-AP42VG MUZ-AP42VGD
Smoothing capacitor	(C62, C63)	600 µF/ 620 µF 420 V		—
	(C61, C62, C63)	—		600 µF/ 620 µF 420 V
Diode module	(DB61)	15 A 600 V		
	(DB65)	25 A 600 V		
Fuse	(F701, F801, F901)	T3.15AL250V		
	(F911)	VG: — VGD: T3.15AL250V		
	(F921)	VG: — VGD: T5AL250V		
	(F61)	25 A 250 V		
	(F62)	15 A 250 V		
Power module	(IC700)	15 A 600 V		20 A 600 V
	(IC932)	5 A 600 V		
Expansion valve coil	(LEV)	12 V DC		
Reactor	(L61)	18 mH	23 mH	
Switching power transistor	(Q821)	30/37 A 600 V		
Circuit protection	(PTC64, PTC65)	33 Ω		
Terminal block	(TB1)	5 P		
	(TB9)	VG: — VGD: 4 P		
Relay	(X63)	3 A 250 V		
	(X64)	20 A 250 V		
	(X69)	10 A 230 V		
R.V. coil	(21S4)	220-240 V AC		

Specifications and rated conditions of main electric parts

Item \ Model		MUZ-AP50VG MUZ-AP50VGD	MUZ-AP60VG MUZ-AP60VGD
Smoothing capacitor	(C61, C62, C63)	600 µF/ 620 µF 420 V	
Diode module	(DB61)	25 A 600 V	
	(DB65)	25 A 600 V	
Fuse	(F61)	25A 250V	
	(F62)	15A 250V	
	(F701, F801,F901)	T3.15AL250V	
	(F911)	VG: — VGD: T3.15AL250V	
	(F921)	VG: — VGD: T5AL250V	
Power module	(IC700)	20 A 600 V	
	(IC932)	5 A 600 V	
Expansion valve coil	(LEV)	12 V DC	
Reactor	(L61)	23 mH	
Switch power transistor	(Q821)	30 A 600 V	
Circuit protection	(PTC64, PTC65)	33 Ω	
Terminal block	(TB1)	5 P	
	(TB9)	VG: — VGD: 4 P	
Relay	(X63)	3 A 250 V	
	(X64)	20 A 250 V	
	(X69)	10 A 230 V	
R.V.coil	(21S4)	220 - 240 V AC	

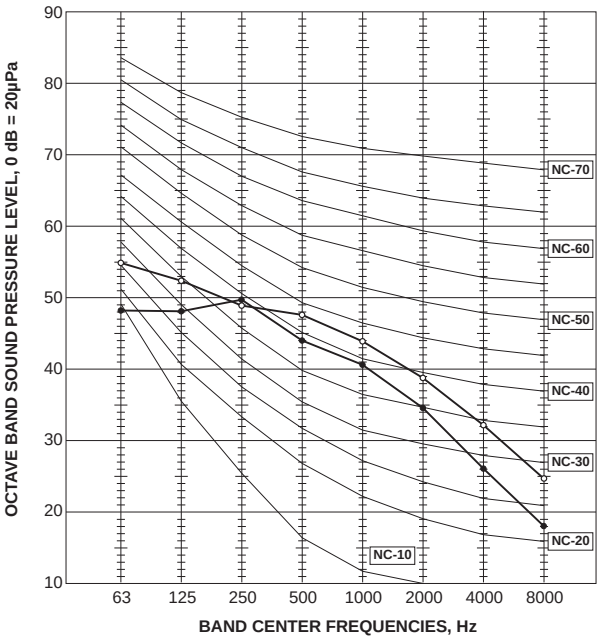
Specifications and rated conditions of main electric parts

Item \ Model		MUZ-AP71VG MUZ-AP71VGD	MUZ-AP80VG MUZ-AP80VGD
Smoothing capacitor	(CB1, CB2, CB3)	560 µF 450 V	
Fuse	(F601, F880, F901)	T3.15AL250V	
	(F911)	VG: — VGD: T3.15AL250V	
	(F921)	VG: — VGD: T5AL250V	
Switching power transistor	(Q3A, Q3B)	21 A 650 V	
Power module	(IC932)	5 A 600 V	
	(IC700)	20 A 600 V	
Expansion valve coil	(LEV)	12 V DC	
Reactor	(L)	282 µH	
Diode	(D3A, D3B)	20 A 600 V	
Diode module	(DB41A, DB41B)	20 A 600 V	
Circuit protection	(PTC64, PTC65)	33 Ω	
Terminal block	(TB1, TB2)	3 P	
	(TB9)	VG: — VGD: 4 P	
Relay	(X64)	20 A 250 V	
	(X65)	20 A 250 V	
	(X69)	10 A 250 V	
	(X601)	3 A 250 V	
	(X602)	3 A 250 V	
R.V. coil	(21S4)	220-240 V AC	

5 NOISE CRITERIA CURVES

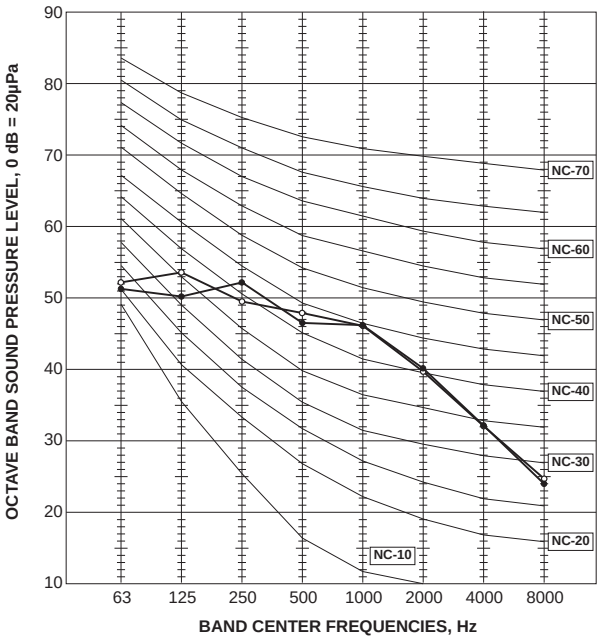
MUZ-AP25VG
MUZ-AP25VGD

FUNCTION	SPL(dB(A))	LINE
COOLING	46	●—●
HEATING	49	○—○



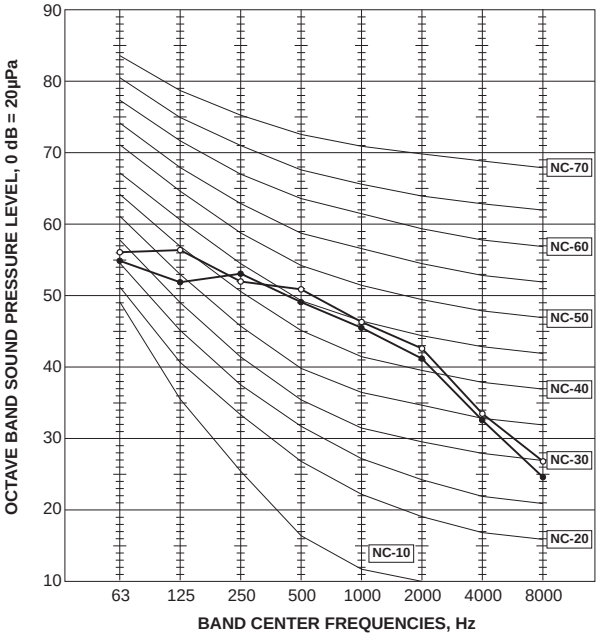
MUZ-AP35VG
MUZ-AP35VGD

FUNCTION	SPL(dB(A))	LINE
COOLING	50	●—●
HEATING	50	○—○



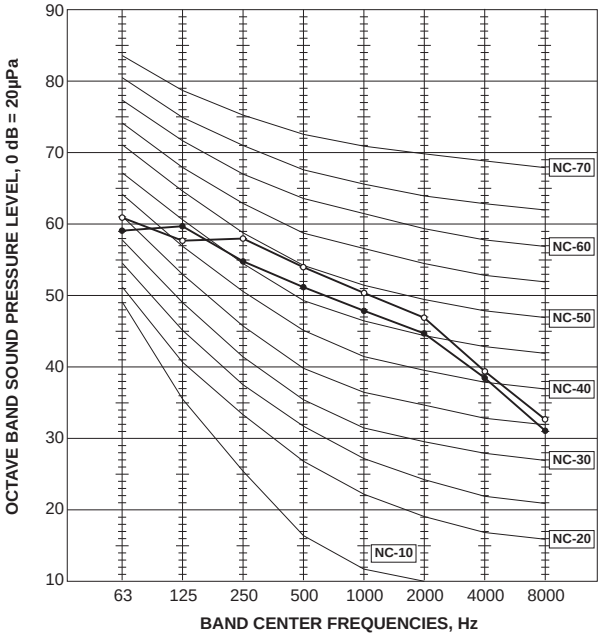
MUZ-AP42VG
MUZ-AP42VGD

FUNCTION	SPL(dB(A))	LINE
COOLING	51	●—●
HEATING	52	○—○

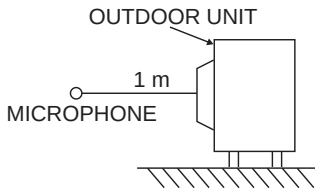


MUZ-AP50VG
MUZ-AP50VGD

FUNCTION	SPL(dB(A))	LINE
COOLING	54	●—●
HEATING	56	○—○

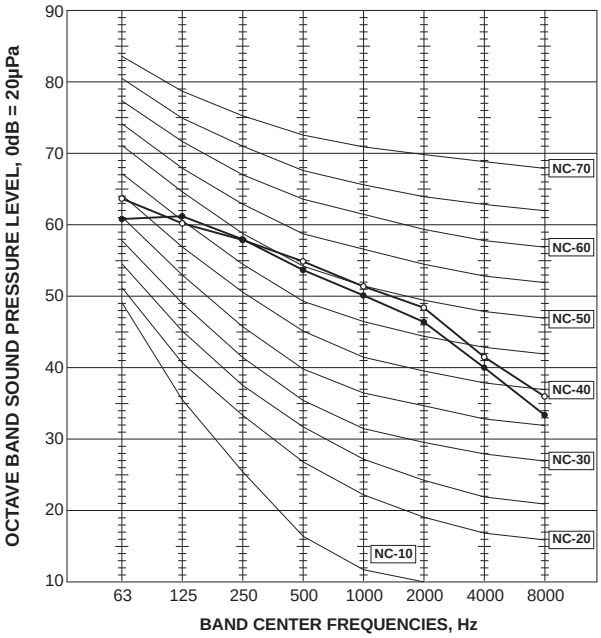


Test conditions
Cooling: Dry-bulb temperature 35°C
Heating: Dry-bulb temperature 7°C Wet-bulb temperature 6°C



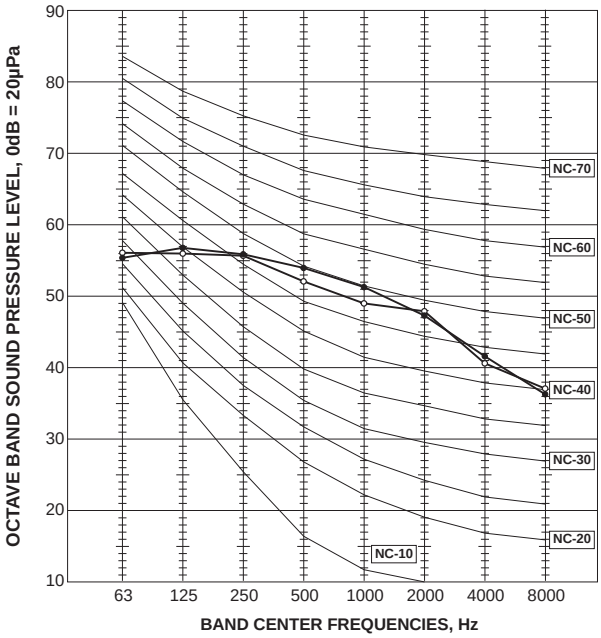
MUZ-AP60VG
MUZ-AP60VGD

FUNCTION	SPL(dB(A))	LINE
COOLING	56	●—●
HEATING	57	○—○



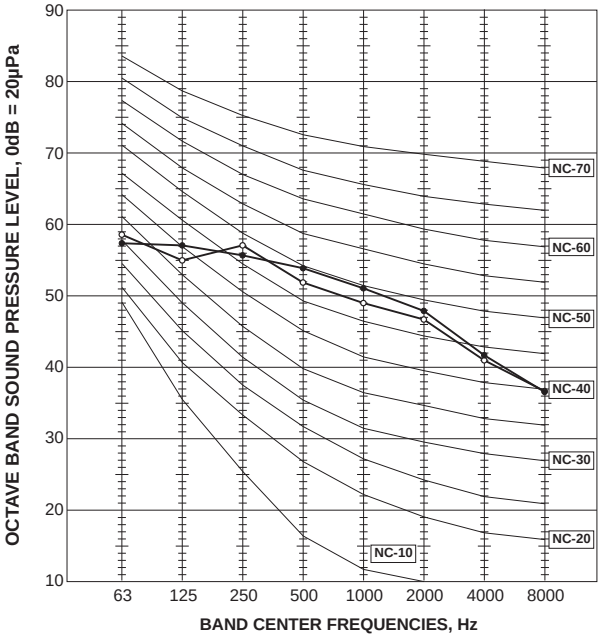
MUZ-AP71VG
MUZ-AP71VGD

FUNCTION	SPL(dB(A))	LINE
COOLING	56	●—●
HEATING	55	○—○



MUZ-AP80VG
MUZ-AP80VGD

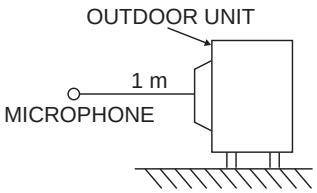
FUNCTION	SPL(dB(A))	LINE
COOLING	56	●—●
HEATING	55	○—○



Test conditions

Cooling: Dry-bulb temperature 35°C

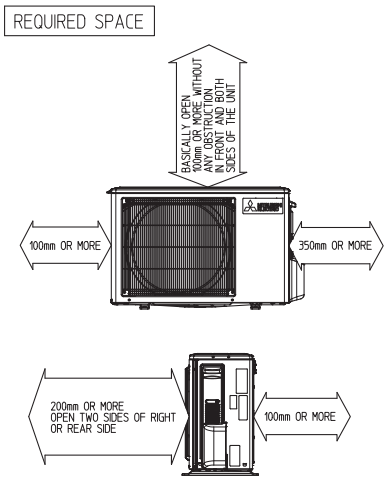
Heating: Dry-bulb temperature 7°C Wet-bulb temperature 6°C

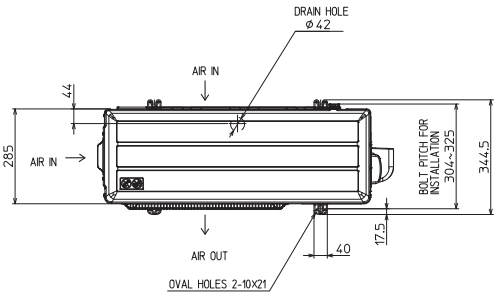


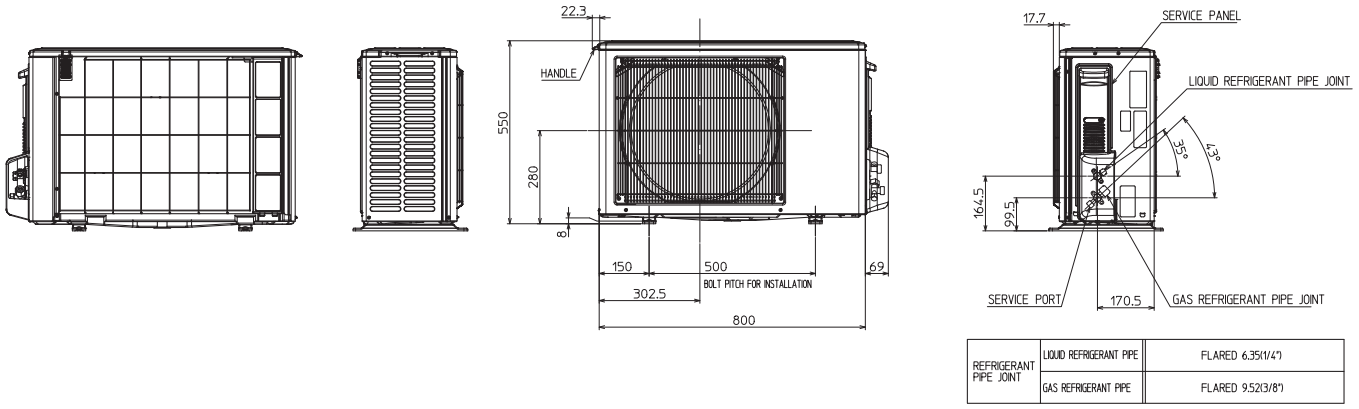
6 OUTLINES AND DIMENSIONS

MUZ-AP25VG MUZ-AP35VG MUZ-AP42VG

Unit: mm



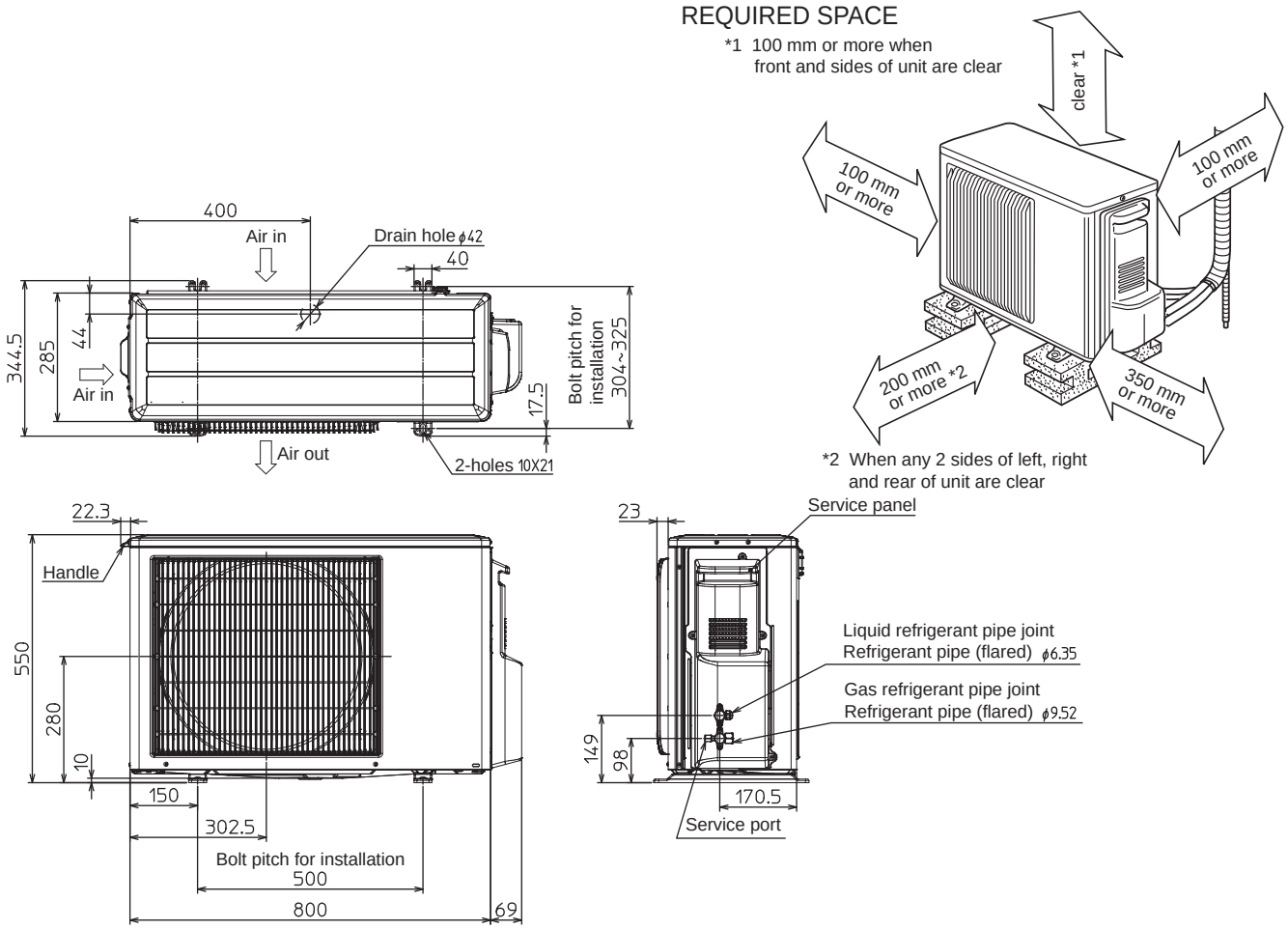




REFRIGERANT PIPE JOINT	LIQUID REFRIGERANT PIPE	FLARED 6.35(1/4")
	GAS REFRIGERANT PIPE	FLARED 9.52(3/8")

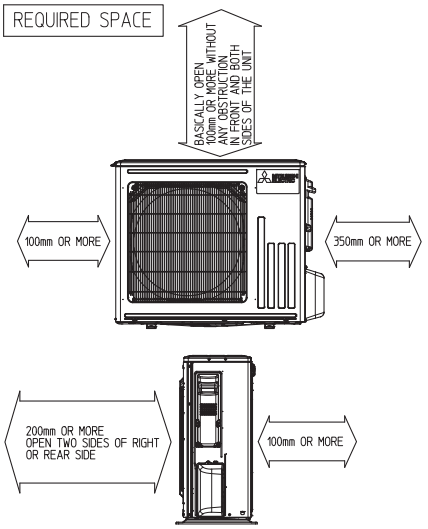
MUZ-AP25VGD MUZ-AP35VGD MUZ-AP42VGD

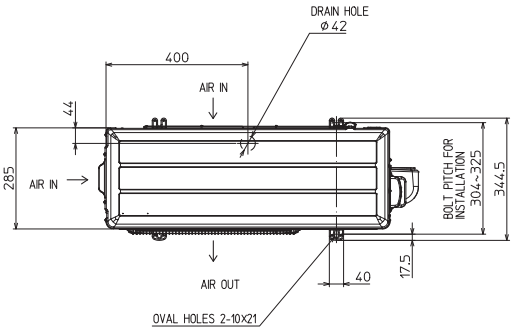
Unit: mm

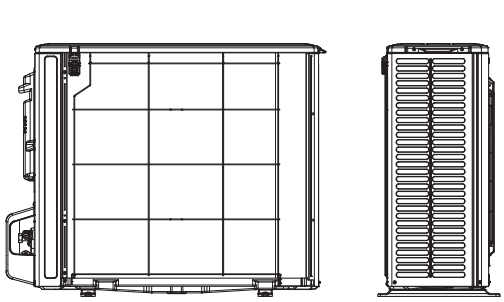


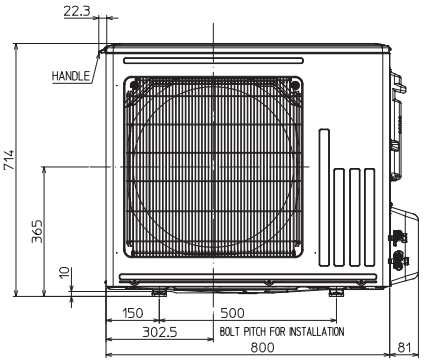
MUZ-AP50VG MUZ-AP50VGD
MUZ-AP60VG MUZ-AP60VGD

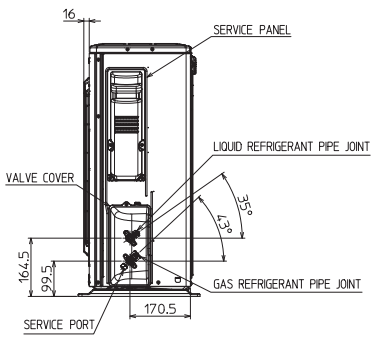
Unit: mm







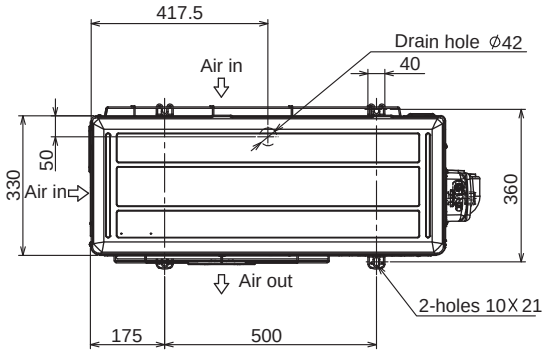


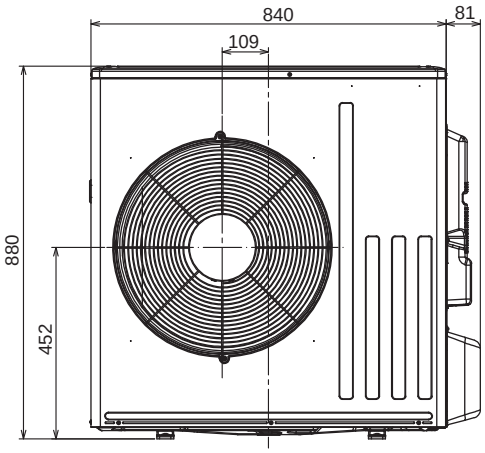


REFRIGERANT PIPE JOINT	LIQUID REFRIGERANT PIPE	FLARED 6.35(1/4")
	GAS REFRIGERANT PIPE	FLARED12.7(1/2")

MUZ-AP71VG MUZ-AP71VGD
MUZ-AP80VG MUZ-AP80VGD

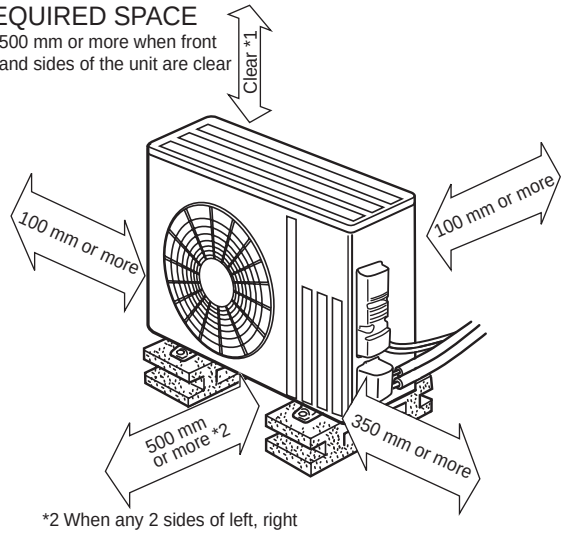
Unit: mm



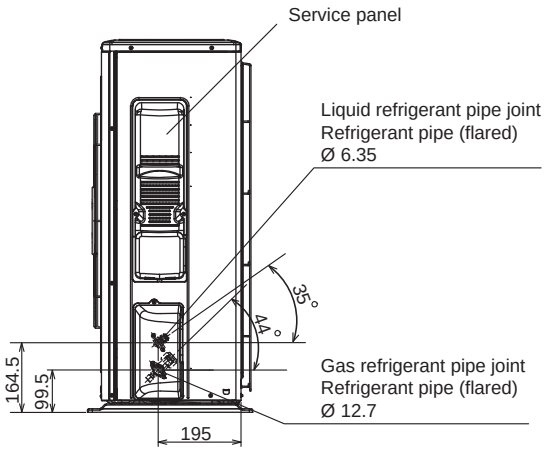


REQUIRED SPACE

*1 500 mm or more when front and sides of the unit are clear

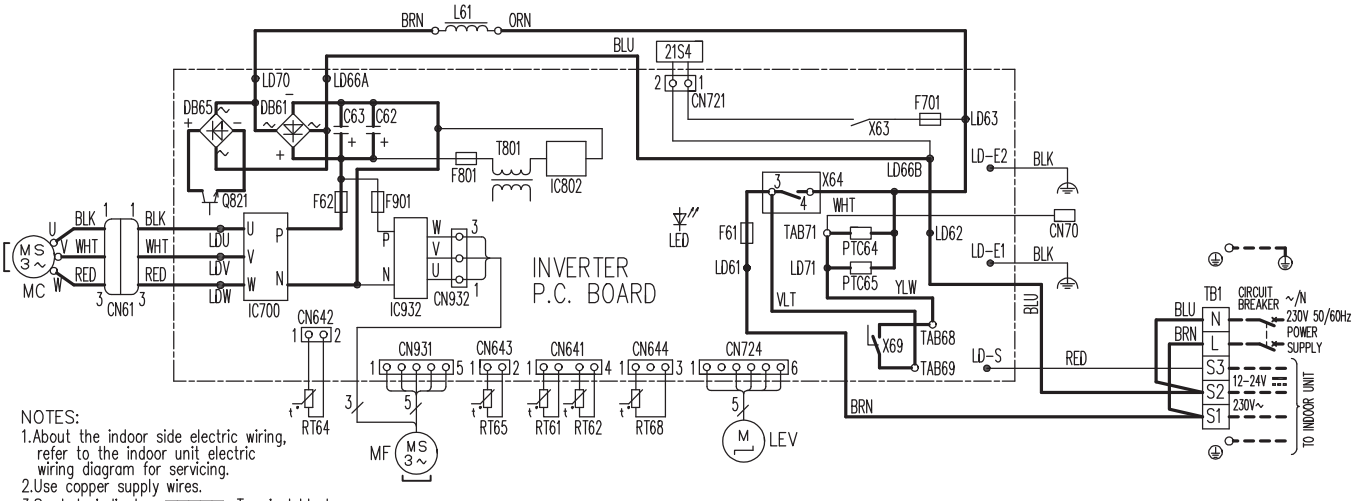


*2 When any 2 sides of left, right and rear of the unit are clear



7 WIRING DIAGRAM

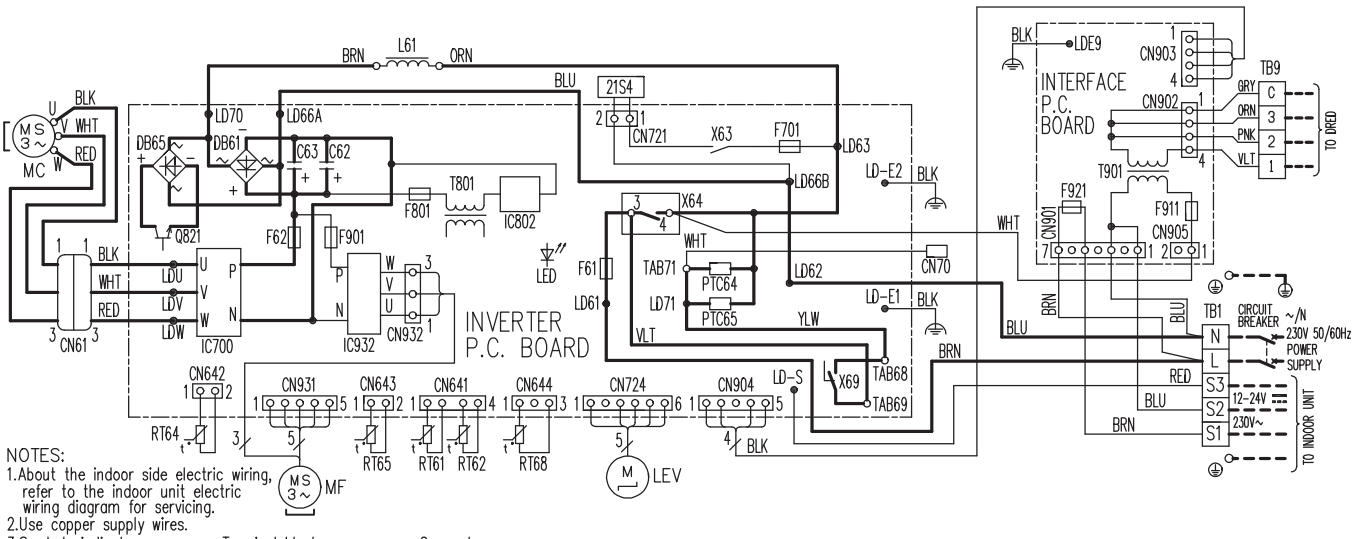
MUZ-AP25VG MUZ-AP35VG



NOTES:
1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper supply wires.
3. Symbols indicate, □□□□□ : Terminal block, ○○○○○ : Connector

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR
C62, C63	SMOOTHING CAPACITOR	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F61	FUSE (25A 250V)	MF	FAN MOTOR	TB1	TERMINAL BLOCK
F62	FUSE (15A 250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
F701, F801, F901	FUSE (T3.15AL250V)	Q821	SWITCHING POWER TRANSISTOR	X63, X64, X69	RELAY
IC700, IC932	POWER MODULE	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR		
LED	LED	RT64	FIN TEMP. THERMISTOR		

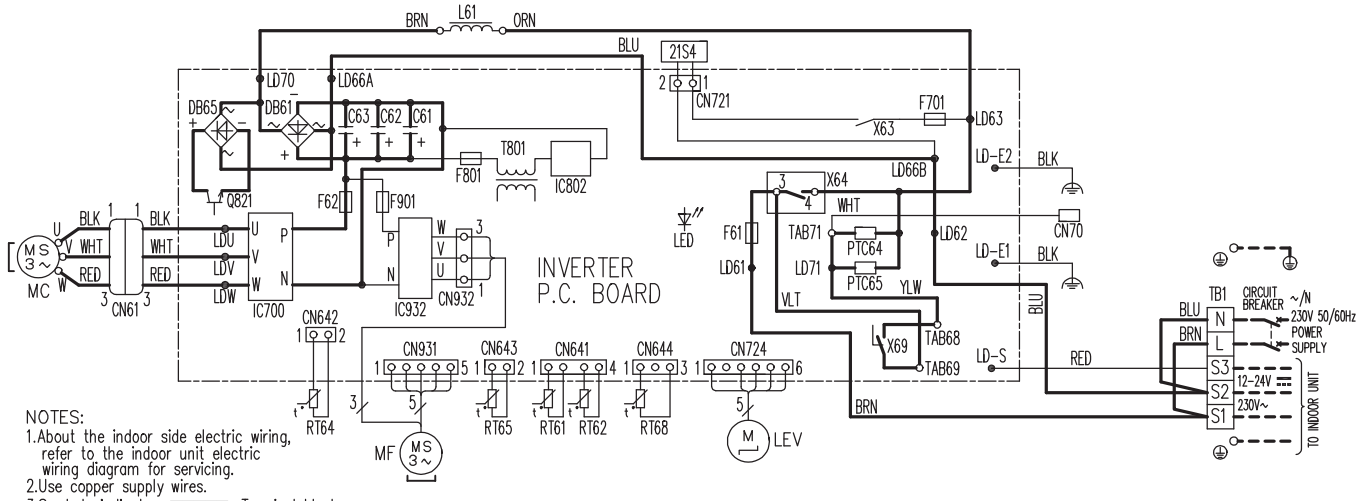
MUZ-AP25VGD MUZ-AP35VGD



NOTES:
1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper supply wires.
3. Symbols indicate, □□□□□ : Terminal block, ○○○○○ : Connector

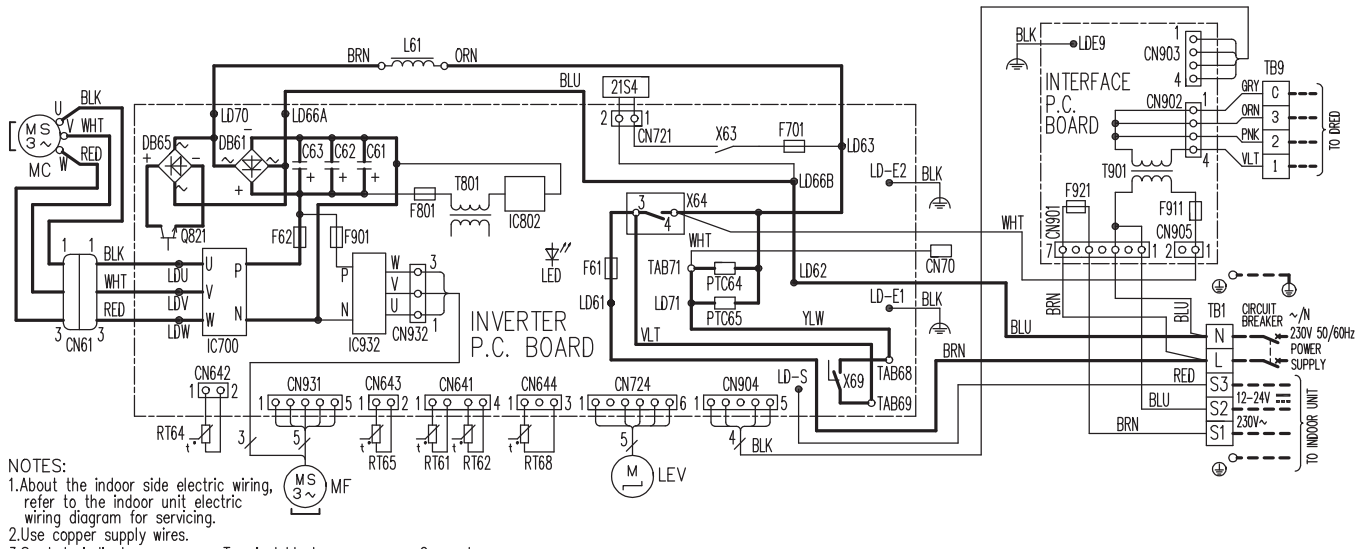
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR
C62, C63	SMOOTHING CAPACITOR	LED	LED	RT64	FIN TEMP. THERMISTOR
DB61, DB65	DIODE MODULE	LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR
F61	FUSE (25A 250V)	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
F62	FUSE (15A 250V)	MC	COMPRESSOR		
F701, F801, F901 F911	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB9	TERMINAL BLOCK
		PTC64, PTC65	CIRCUIT PROTECTION	T801, T901	TRANSFORMER
F921	FUSE (T5AL250V)	Q821	SWITCHING POWER TRANSISTOR	X63, X64, X69	RELAY
IC700, IC932	POWER MODULE	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL

MUZ-AP42VG



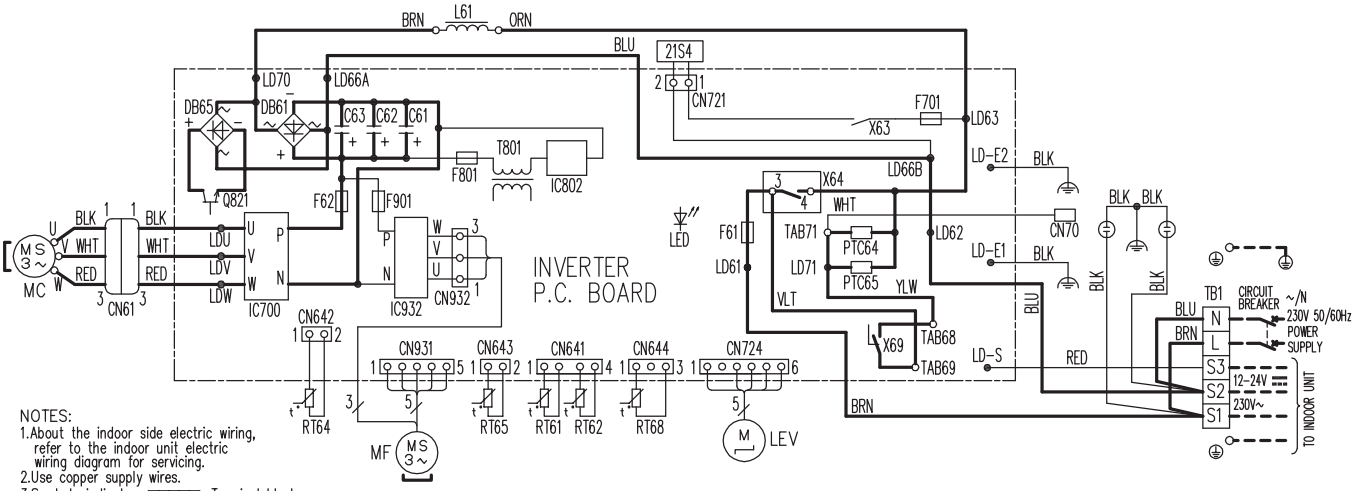
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR
C61, C62, C63	SMOOTHING CAPACITOR	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F61	FUSE (25A 250V)	MF	FAN MOTOR	TB1	TERMINAL BLOCK
F62	FUSE (15A 250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
F701, F801, F901	FUSE (T3.15AL250V)	Q821	SWITCHING POWER TRANSISTOR	X63, X64, X69	RELAY
IC700, IC932	POWER MODULE	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR		
LED	LED	RT64	FIN TEMP. THERMISTOR		

MUZ-AP42VGD



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR
C61, C62, C63	SMOOTHING CAPACITOR	LED	LED	RT64	FIN TEMP. THERMISTOR
DB61, DB65	DIODE MODULE	LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR
F61	FUSE (25A 250V)	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
F62	FUSE (15A 250V)	MC	COMPRESSOR		
F701, F801, F901 F911	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB9	TERMINAL BLOCK
		PTC64, PTC65	CIRCUIT PROTECTION	T801, T901	TRANSFORMER
F921	FUSE (T5AL250V)	Q821	SWITCHING POWER TRANSISTOR	X63, X64, X69	RELAY
IC700, IC932	POWER MODULE	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL

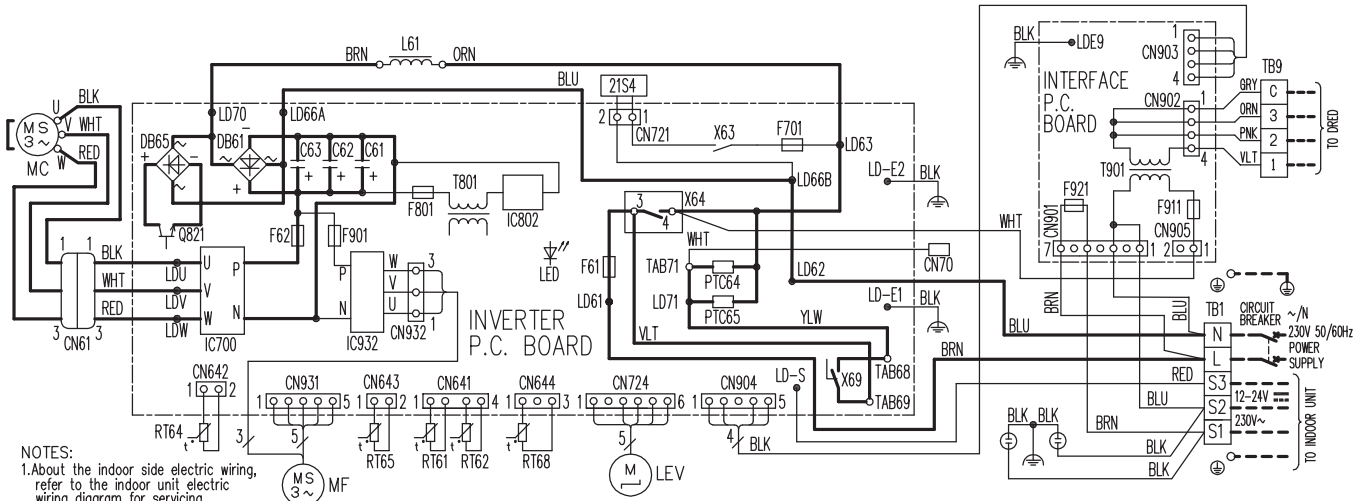
MUZ-AP50VG
MUZ-AP60VG



NOTES:
1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper supply wires.
3. Symbols indicate, ▭▭▭ : Terminal block, ▭▭▭ : Connector

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR
C61, C62, C63	SMOOTHING CAPACITOR	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F61	FUSE (25A 250V)	MF	FAN MOTOR	TB1	TERMINAL BLOCK
F62	FUSE (15A 250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
F701, F801, F901	FUSE (T3.15AL250V)	Q821	SWITCHING POWER TRANSISTOR	X63, X64, X69	RELAY
IC700, IC932	POWER MODULE	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR		
LED	LED	RT64	FIN TEMP. THERMISTOR		

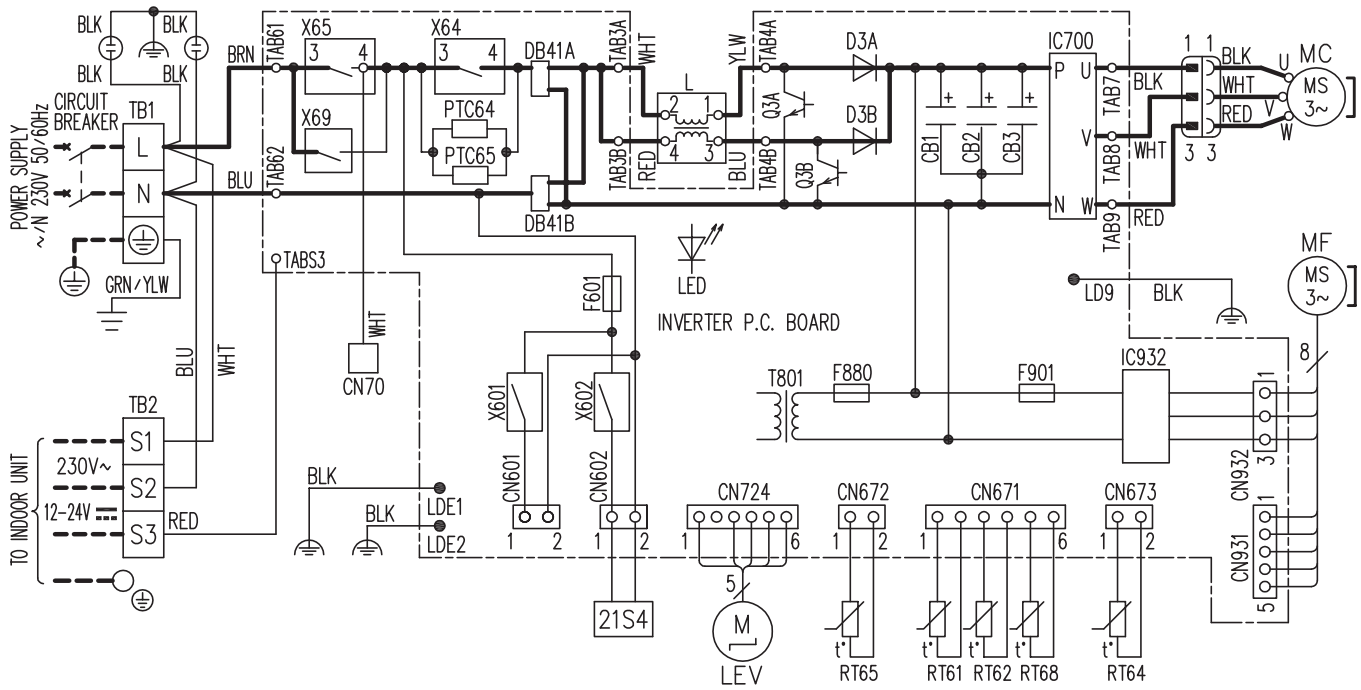
MUZ-AP50VGD
MUZ-AP60VGD



NOTES:
1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper supply wires.
3. Symbols indicate, ▭▭▭ : Terminal block, ▭▭▭ : Connector

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR
C61, C62, C63	SMOOTHING CAPACITOR	LED	LED	RT64	FIN TEMP. THERMISTOR
DB61, DB65	DIODE MODULE	LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR
F61	FUSE (25A 250V)	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
F62	FUSE (15A 250V)	MC	COMPRESSOR		
F701, F801, F901 F911	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB9	TERMINAL BLOCK
		PTC64, PTC65	CIRCUIT PROTECTION	T801, T901	TRANSFORMER
F921	FUSE (T5AL250V)	Q821	SWITCHING POWER TRANSISTOR	X63, X64, X69	RELAY
IC700, IC932	POWER MODULE	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL

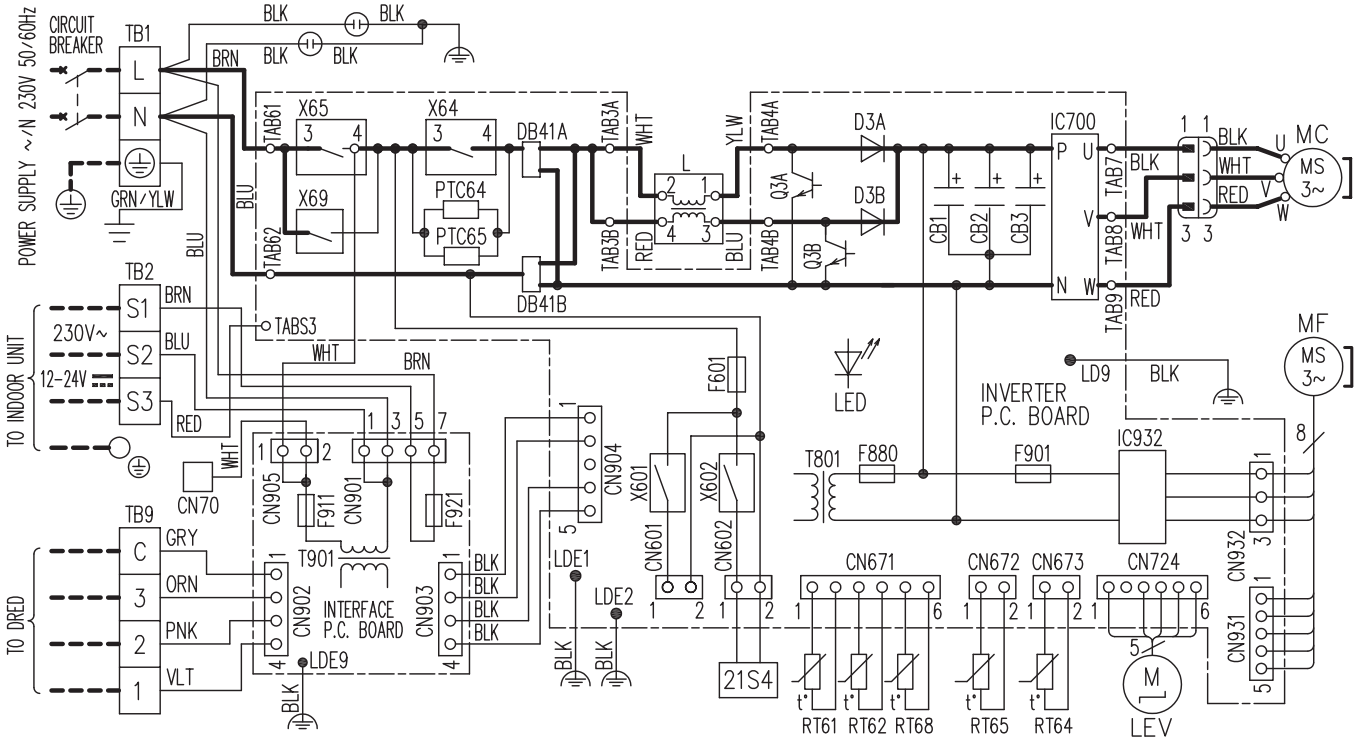
MUZ-AP71VG
MUZ-AP80VG



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1, CB2, CB3	SMOOTHING CAPACITOR	L	REACTOR	RT61	DEFROST THERMISTOR	T801	TRANSFORMER
DB41A, DB41B	DIODE MODULE	LED	LED	RT62	DISCHARGE TEMP.THERMISTOR	X64, X65, X69	RELAY
D3A, D3B	DIODE	LEV	EXPANSION VALVE COIL	RT64	FIN TEMP.THERMISTOR	X601, X602	RELAY
F601	FUSE (T3.15AL250V)	MC	COMPRESSOR	RT65	AMBIENT TEMP.THERMISTOR	21S4	REVERSING VALVE COIL
F880	FUSE (T3.15AL250V)	MF	FAN MOTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP.THERMISTOR		
F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION				
IC700, IC932	POWER MODULE	Q3A, Q3B	SWITCHING POWER TRANSISTOR	TB1, TB2	TERMINAL BLOCK		

NOTES 1.About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2.Use copper supply wires. 3.Symbols indicate, □□□ : Terminal block ⊙⊙⊙ : Connector

MUZ-AP71VGD
MUZ-AP80VGD



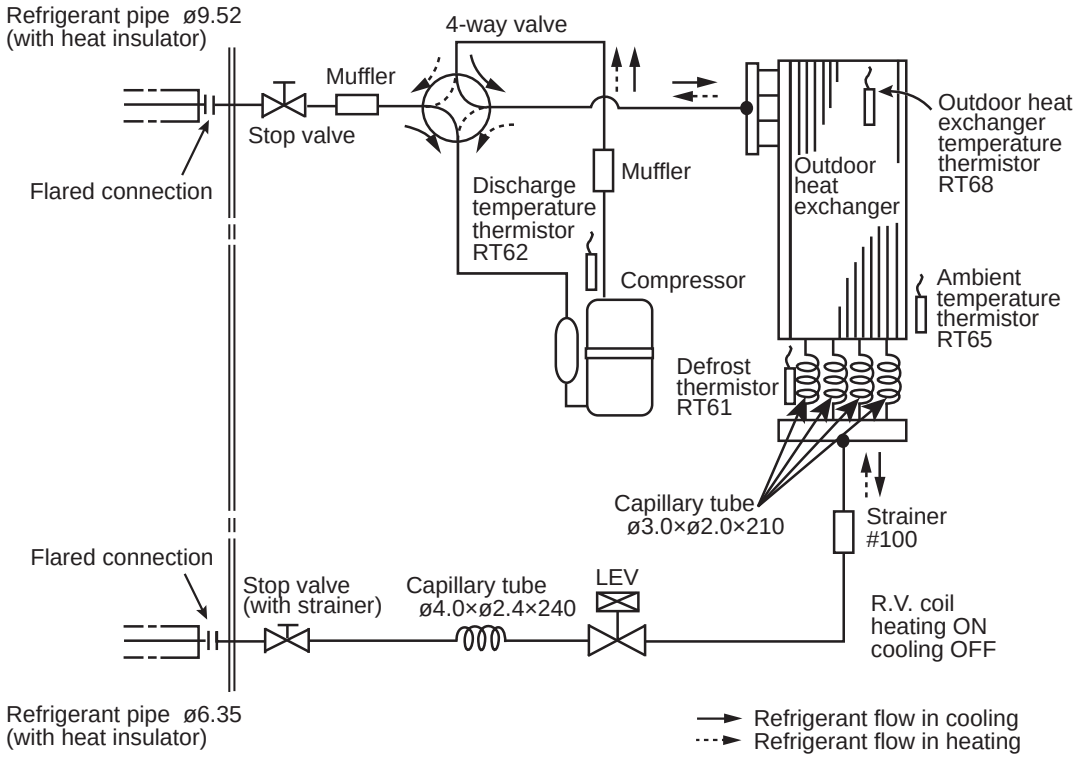
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1, CB2, CB3	SMOOTHING CAPACITOR	F921	FUSE (T5AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	TB1, TB2, TB9	TERMINAL BLOCK
CN70	CONNECTOR	IC700	POWER MODULE	Q3A, Q3B	SWITCHING POWER TRANSISTOR	T801	TRANSFORMER
DB41A, DB41B	DIODE MODULE	IC932	POWER MODULE	RT61	DEFROST THERMISTOR	T901	TRANSFORMER
D3A, D3B	DIODE	L	REACTOR	RT62	DISCHARGE TEMP.THERMISTOR	X601, X602	RELAY
F601	FUSE (T3.15AL250V)	LED	LED	RT64	FIN TEMP.THERMISTOR	X64, X65, X69	RELAY
F880	FUSE (T3.15AL250V)	LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP.THERMISTOR	21S4	REVERSING VALVE COIL
F901	FUSE (T3.15AL250V)	MC	COMPRESSOR	RT68	OUTDOOR HEAT EXCHANGER TEMP.THERMISTOR		
F911	FUSE (T3.15AL250V)	MF	FAN MOTOR				

NOTES 1.About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2.Use copper supply wires. 3.Symbols indicate, : Terminal block : Connector

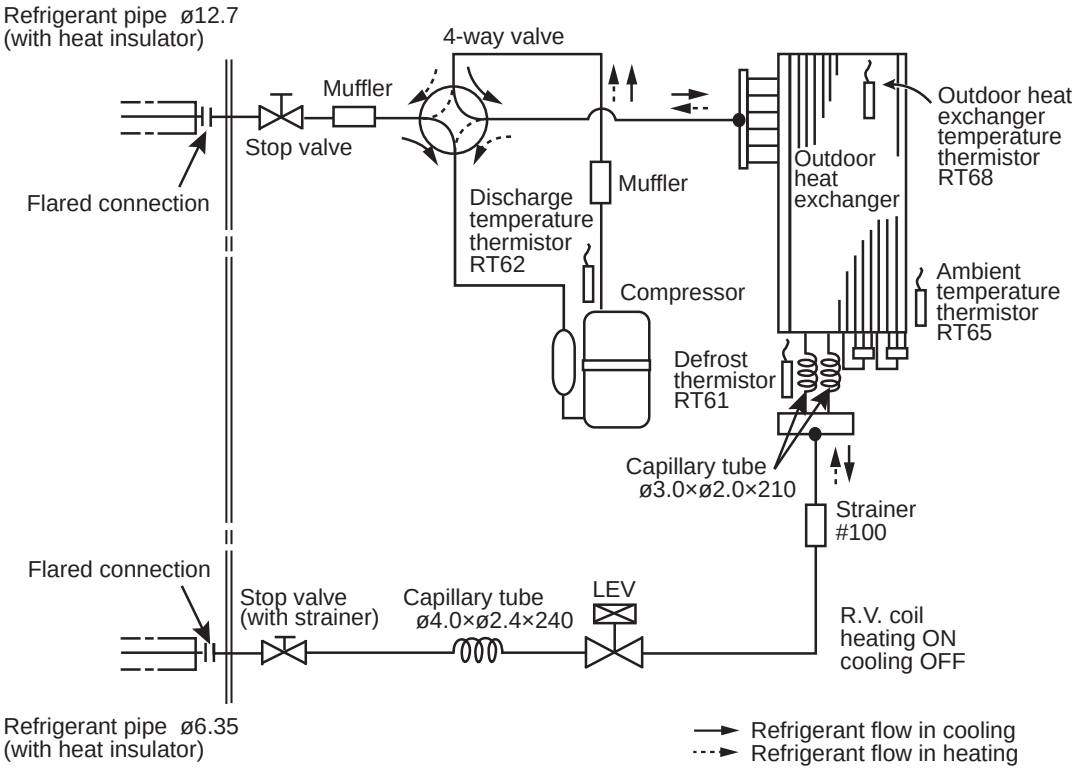
8 REFRIGERANT SYSTEM DIAGRAM

MUZ-AP25VG MUZ-AP35VG MUZ-AP42VG
MUZ-AP25VGD MUZ-AP35VGD MUZ-AP42VGD

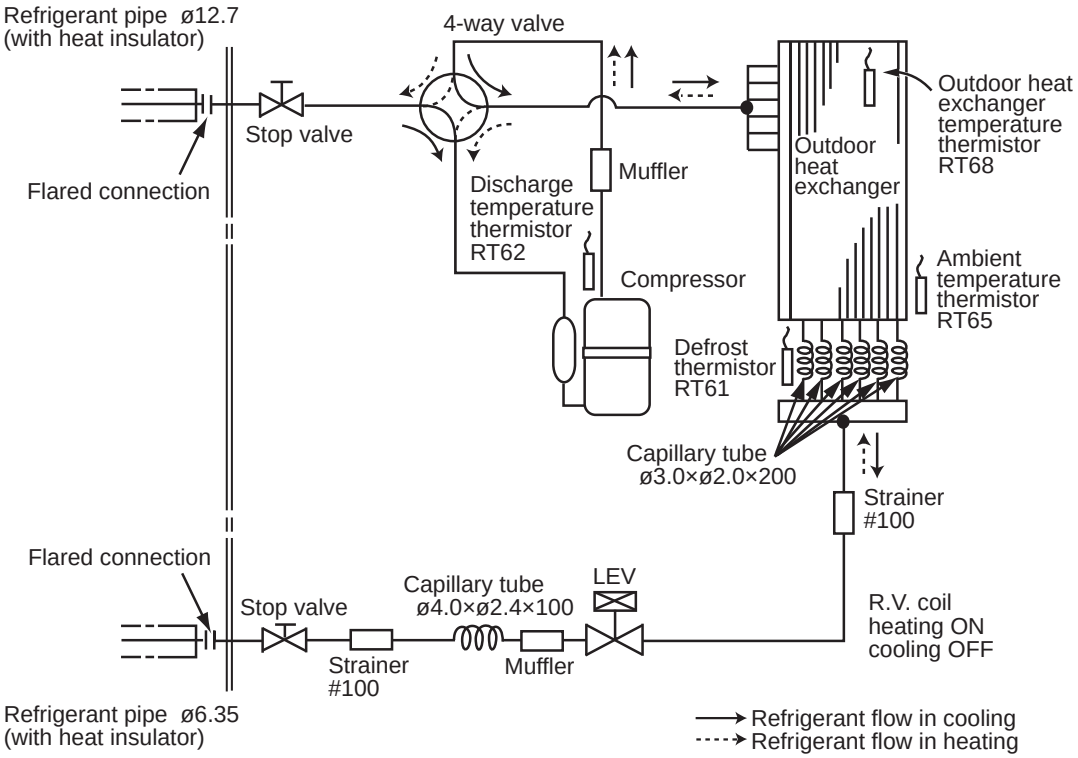
Unit: mm



MUZ-AP50VG MUZ-AP60VG
MUZ-AP50VGD MUZ-AP60VGD

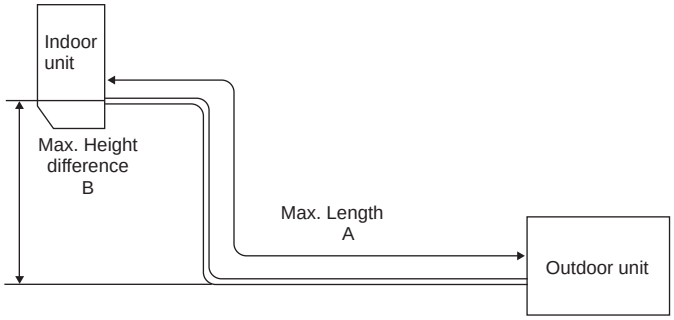


MUZ-AP71VG MUZ-AP80VG
MUZ-AP71VGD MUZ-AP80VGD



MAX. REFRIGERANT PIPING LENGTH and MAX. HEIGHT DIFFERENCE

Model	Refrigerant piping: m		Piping size O.D: mm	
	Max. Length A	Max. Height difference B	Gas	Liquid
MUZ-AP25/35/42VG **MUZ-AP25/35/42VGD**	20	12	9.52	6.35
MUZ-AP50VG **MUZ-AP50VGD**	20	12	12.7	6.35
MUZ-AP60VG **MUZ-AP60VGD**	30	15	12.7	6.35
MUZ-AP71/80VG **MUZ-AP71/80VGD**	30	15	12.7	6.35



ADDITIONAL REFRIGERANT CHARGE (R32: g)

Model	Outdoor unit precharged	Refrigerant piping length (one way)									
		10 m	11 m	12 m	13 m	14 m	15 m	16 m	17 m	18 m	20 m
MUZ-AP25/35/42VG **MUZ-AP25/35/42VGD**	700	0	20	40	60	80	100	120	140	160	200

Calculation: X g = 20 g/m × (Refrigerant piping length (m) - 10)

Model	Outdoor unit precharged	Refrigerant piping length (one way)					
		15 m	16 m	17 m	20 m	25 m	30 m
MUZ-AP50VG **MUZ-AP50VGD**	1,000	0	20	40	100		
MUZ-AP60VG **MUZ-AP60VGD**	1,050	0	20	40	100	200	300
MUZ-AP71/80VG **MUZ-AP71/80VGD**	1,500						

Calculation: X g = 20 g/m × (Refrigerant piping length (m) – 15)

9 PERFORMANCE CURVES

MUZ-AP25VG MUZ-AP35VG MUZ-AP42VG MUZ-AP50VG MUZ-AP60VG MUZ-AP71VG MUZ-AP80VG
MUZ-AP25VGD MUZ-AP35VGD MUZ-AP42VGD MUZ-AP50VGD MUZ-AP60VGD MUZ-AP71VGD MUZ-AP80VGD

The standard specifications apply only to the operation of the air conditioner under normal conditions. Since operating conditions vary according to the areas where these units are installed, the following information has been provided to clarify the operating characteristics of the air conditioner under the conditions indicated by the performance curve.

(1) GUARANTEED VOLTAGE

198 ~ 264 V, 50 Hz

(2) AIR FLOW

Air flow should be set at MAX.

(3) MAIN READINGS

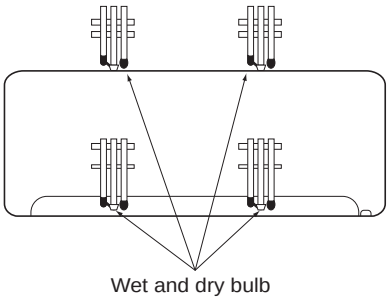
(1) Indoor intake air wet-bulb temperature:	°C [WB]	Cooling
(2) Indoor outlet air wet-bulb temperature:	°C [WB]	
(3) Outdoor intake air dry-bulb temperature:	°C [DB]	
(4) Total input:	W	
(5) Indoor intake air dry-bulb temperature:	°C [DB]	Heating
(6) Outdoor intake air wet-bulb temperature:	°C [WB]	
(7) Total input:	W	

Indoor air wet and dry bulb temperature difference on the left side of the following chart shows the difference between the indoor intake air wet and dry bulb temperature and the indoor outlet air wet and dry bulb temperature for your reference at service.

How to measure the indoor air wet and dry bulb temperature difference

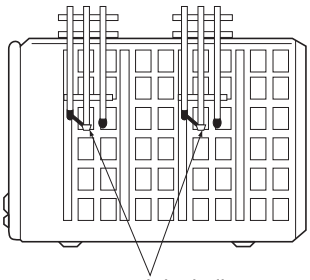
1. Attach at least 2 sets of wet and dry bulb thermometers to the indoor air intake as shown in the figure, and at least 2 sets of wet and dry bulb thermometers to the indoor air outlet. The thermometers must be attached to the position where air speed is high.
2. Attach at least 2 sets of wet and dry bulb thermometers to the outdoor air intake. Cover the thermometers to prevent direct rays of the sun.
3. Check that the air filter is cleaned.
4. Open windows and doors of room.
5. Press the EMERGENCY OPERATION switch once (twice) to start the EMERGENCY COOL (HEAT) MODE.
6. When system stabilizes after more than 15 minutes, measure temperature and take an average temperature.
7. 10 minutes later, measure temperature again and check that the temperature does not change.

INDOOR UNIT



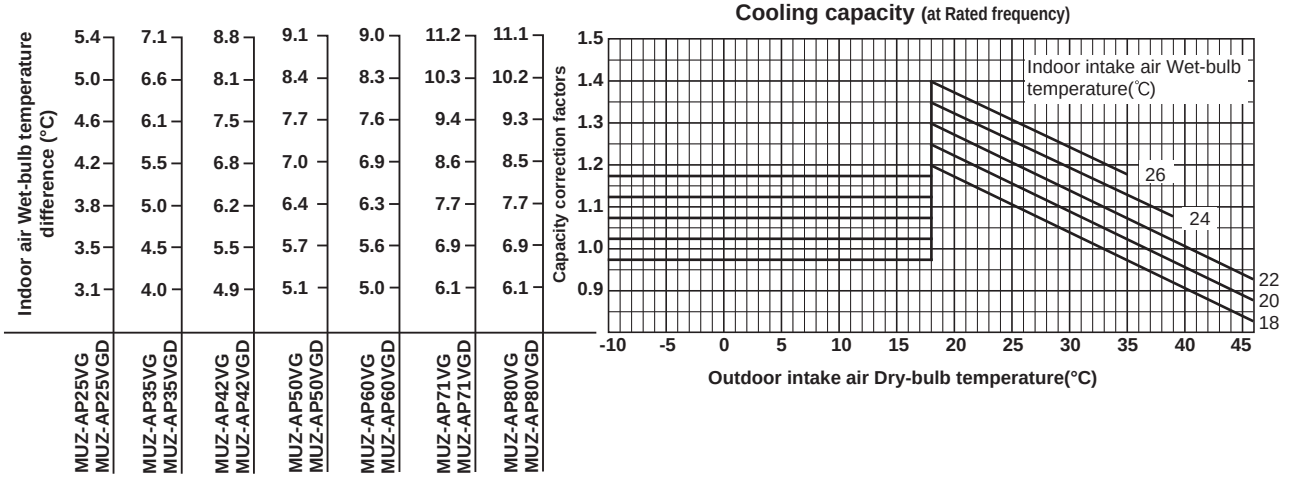
Wet and dry bulb thermometers
FRONT VIEW

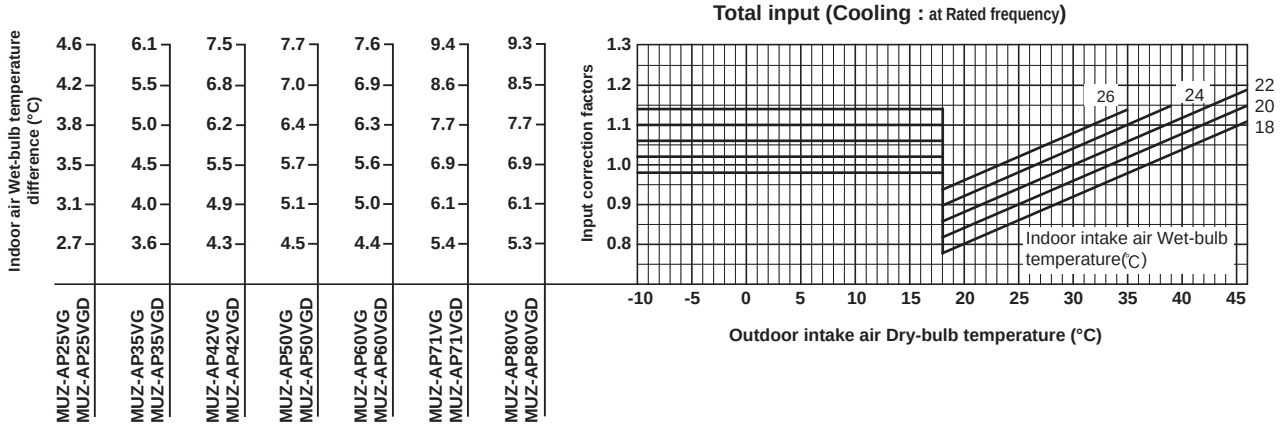
OUTDOOR UNIT

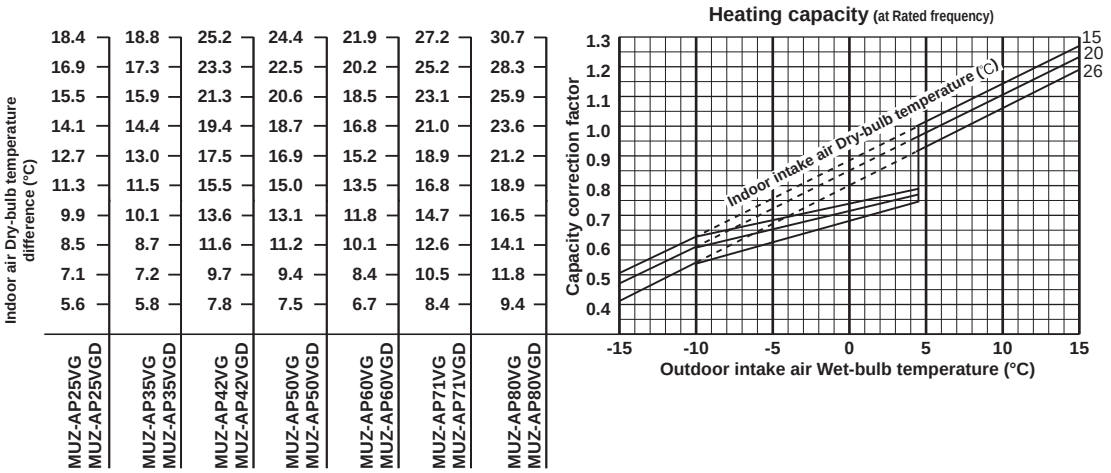


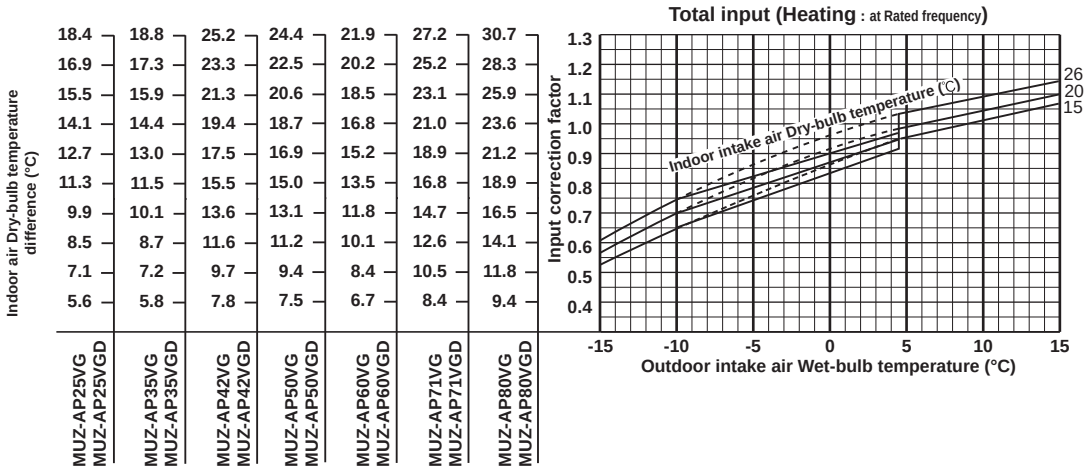
Wet and dry bulb thermometers
BACK VIEW

9-1. CAPACITY AND INPUT CURVES





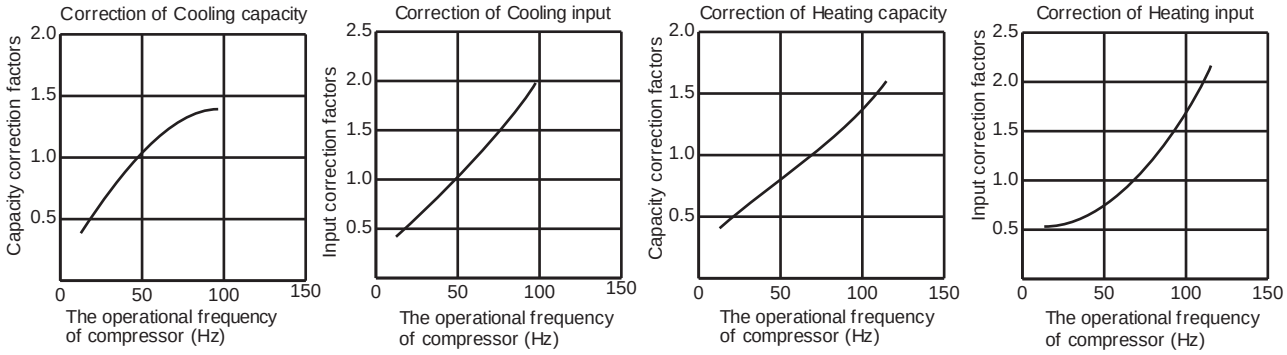




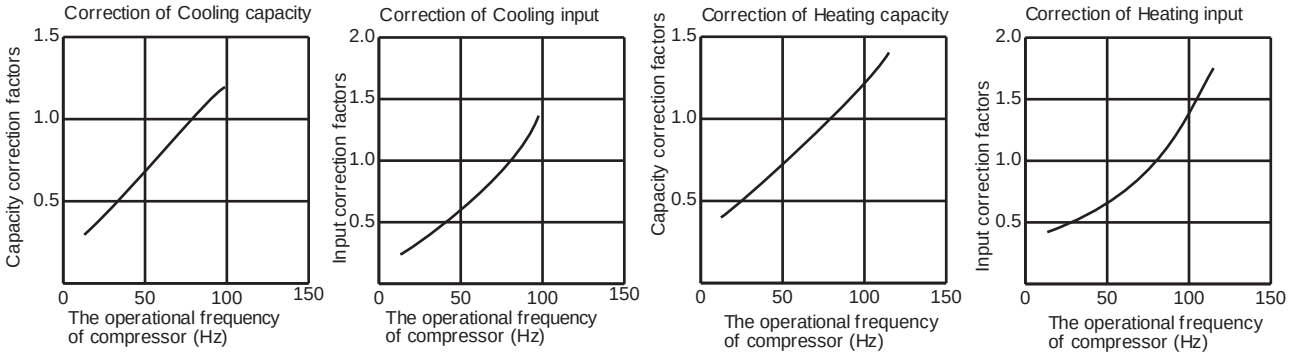
NOTE: The above broken lines are for the heating operation without any frost and defrost operation.

9-2. CAPACITY AND INPUT CORRECTION BY OPERATIONAL FREQUENCY OF COMPRESSOR

MUZ-AP25VG MUZ-AP25VGD



MUZ-AP35VG MUZ-AP35VGD



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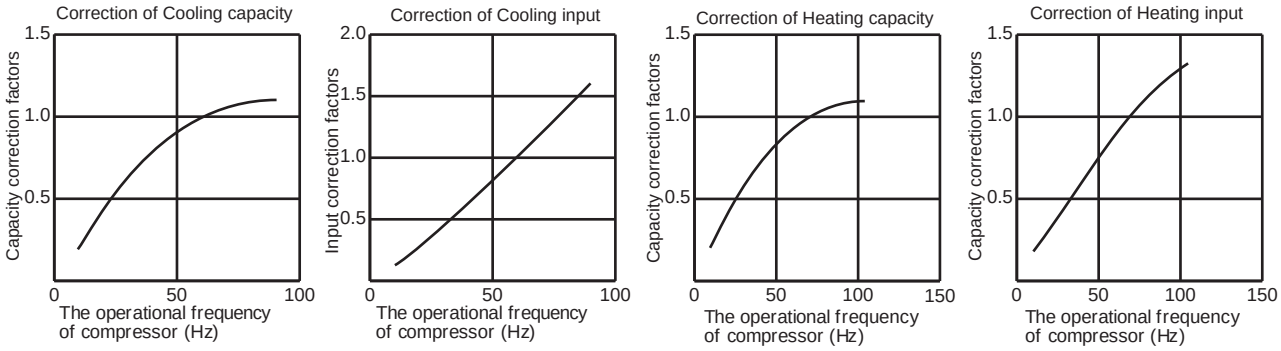
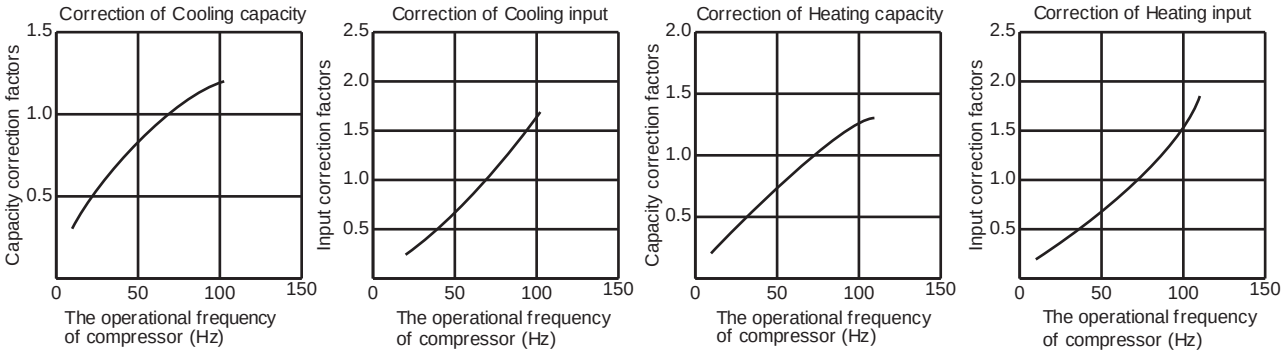
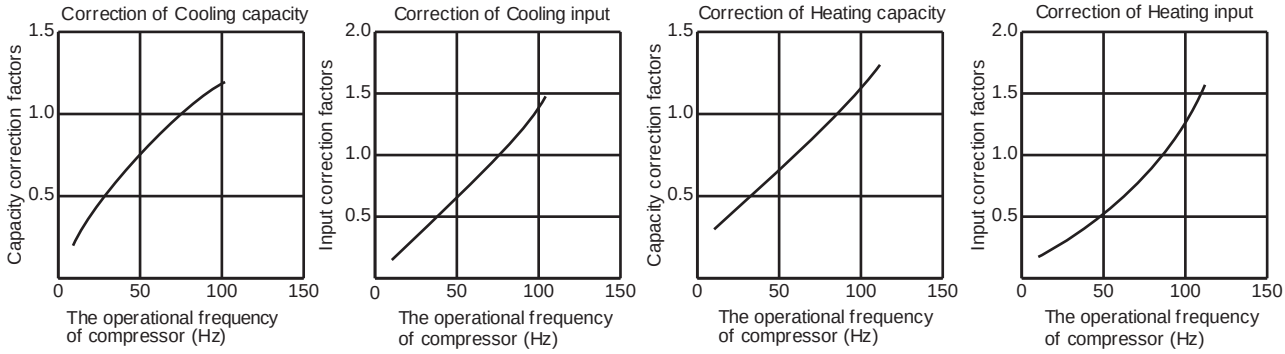


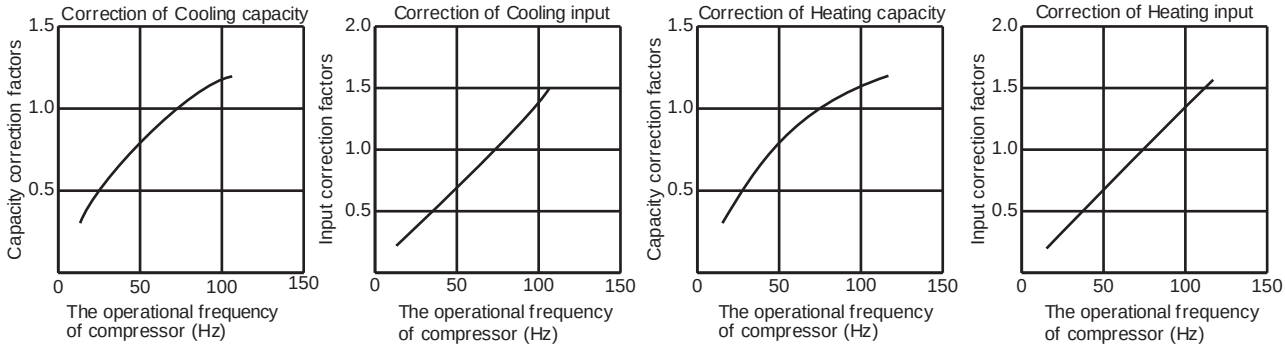
MUZ-AP50VG MUZ-AP50VGD



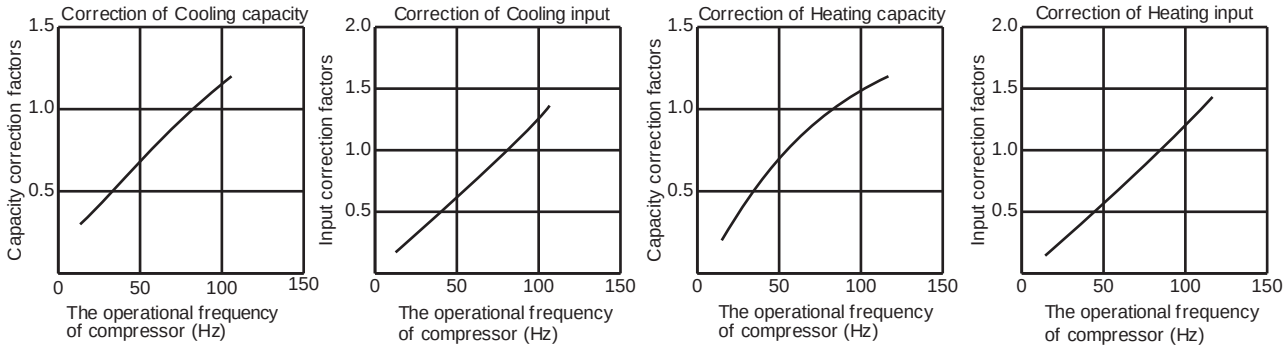
MUZ-AP60VG MUZ-AP60VGD



MUZ-AP71VG MUZ-AP71VGD



MUZ-AP80VG MUZ-AP80VGD



9-3. HOW TO OPERATE FIXED-FREQUENCY OPERATION

<Test run operation>

1. Press EMERGENCY OPERATION switch to start COOL or HEAT mode (COOL: Press once, HEAT: Press twice).
2. Test run operation starts and continues to operate for 30 minutes.
3. Compressor operates at rated frequency in COOL mode or 58 Hz in HEAT mode.
4. Indoor fan operates at High speed.
5. After 30 minutes, test run operation finishes and EMERGENCY OPERATION starts (operation frequency of compressor varies).
6. To cancel test run operation (EMERGENCY OPERATION), press EMERGENCY OPERATION switch or any button on remote controller.

9-4. OUTDOOR LOW PRESSURE AND OUTDOOR UNIT CURRENT

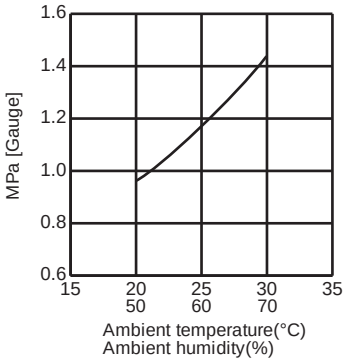
COOL operation

① Both indoor and outdoor unit are under the same temperature/ humidity condition.
② Operation: TEST RUN OPERATION (Refer to 9-3.)

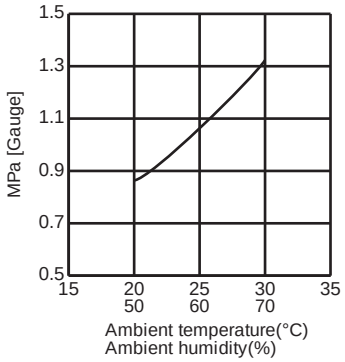
Dry-bulb temperature (°C)	Relative humidity (%)
20	50
25	60
30	70

Outdoor low pressure

MUZ-AP25VG
MUZ-AP25VGD



MUZ-AP35VG
MUZ-AP35VGD



MUZ-AP42VG
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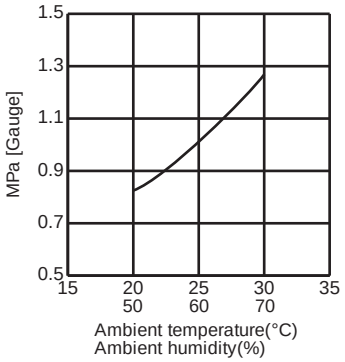
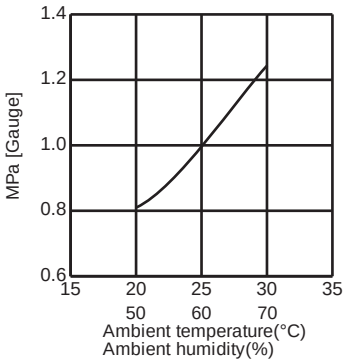


MUZ-AP50VG
MUZ-AP50VGD



MUZ-AP60VG
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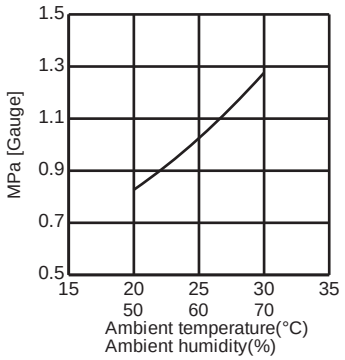

MUZ-AP71VG
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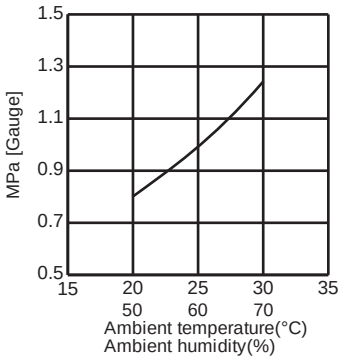

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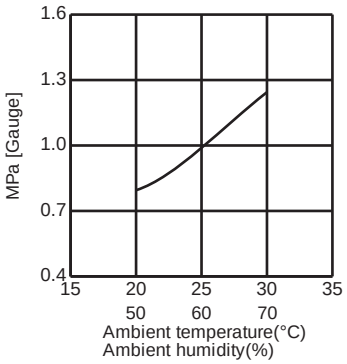
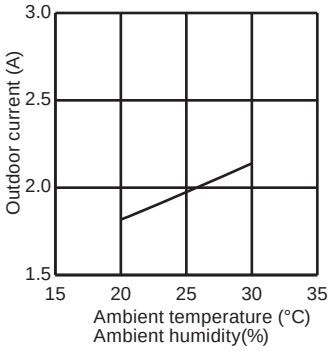
MUZ-AP80VGD



Outdoor unit current

MUZ-AP25VG
MUZ-AP25VGD



MUZ-AP35VG
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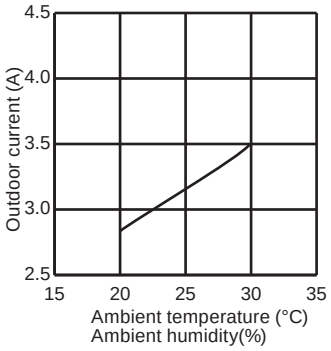

MUZ-AP42VG
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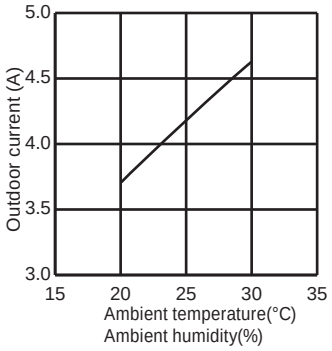
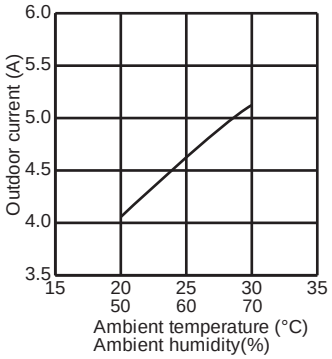
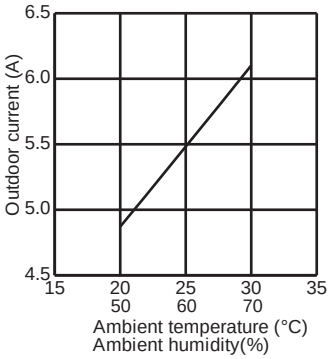


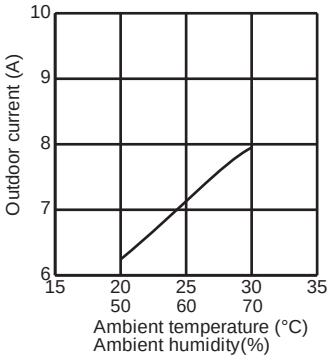
MUZ-AP50VG
MUZ-AP50VGD



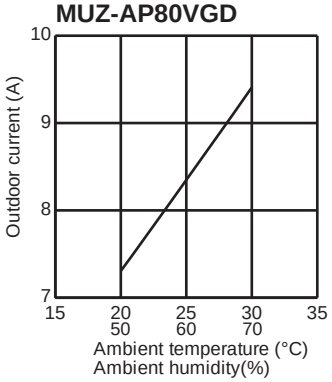
MUZ-AP60VG
MUZ-AP60VGD



MUZ-AP71VG
MUZ-AP71VGD



MUZ-AP80VG
MUZ-AP80VGD



HEAT operation

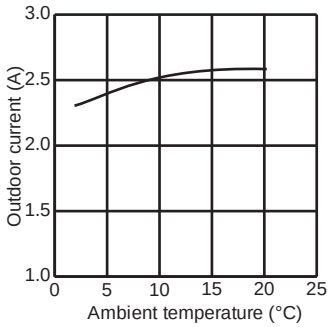
① Condition:

	Indoor	Outdoor			
Dry bulb temperature (°C)	20.0	2	7	15	20.0
Wet bulb temperature (°C)	14.5	1	6	12	14.5

② Operation: Test run operation (Refer to 9-3.)

Outdoor unit current

MUZ-AP25VG
MUZ-AP25VGD



MUZ-AP35VG
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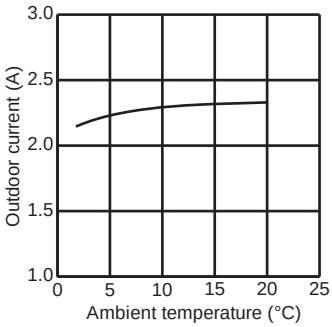

MUZ-AP42VG
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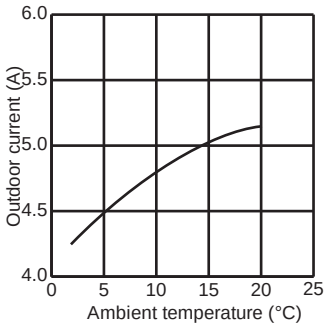
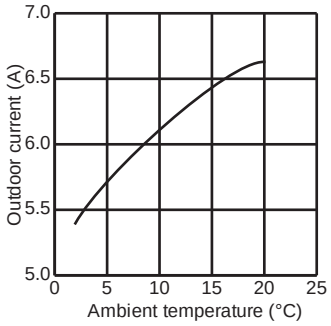
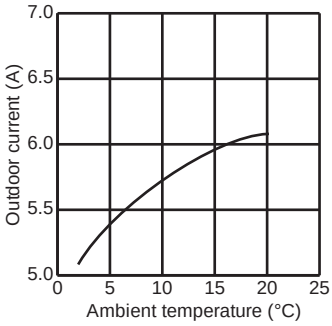


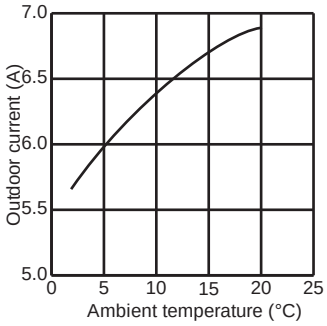
MUZ-AP50VG
MUZ-AP50VGD



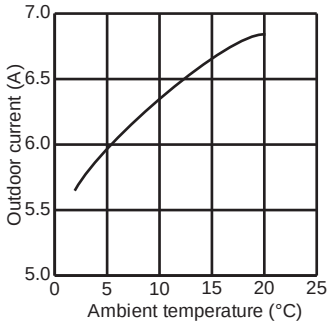
MUZ-AP60VG
MUZ-AP60VGD



MUZ-AP71VG
MUZ-AP71VGD



MUZ-AP80VG
MUZ-AP80VGD



PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP25VG MUZ-AP25VGD

CAPACITY: 2.5 kW SHF: 0.99 INPUT: 500 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)															
		21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.94	2.38	0.81	400	2.81	2.28	0.81	420	2.70	2.19	0.81	440	2.60	2.11	0.81	460
21	20	3.06	2.11	0.69	420	2.94	2.03	0.69	445	2.85	1.97	0.69	455	2.75	1.90	0.69	475
22	18	2.94	2.50	0.85	400	2.81	2.39	0.85	420	2.70	2.30	0.85	440	2.60	2.21	0.85	460
22	20	3.06	2.24	0.73	420	2.94	2.14	0.73	445	2.85	2.08	0.73	455	2.75	2.01	0.73	475
22	22	3.19	1.94	0.61	435	3.08	1.88	0.61	463	3.00	1.83	0.61	475	2.88	1.75	0.61	495
23	18	2.94	2.61	0.89	400	2.81	2.50	0.89	420	2.70	2.40	0.89	440	2.60	2.31	0.89	460
23	20	3.06	2.36	0.77	420	2.94	2.26	0.77	445	2.85	2.19	0.77	455	2.75	2.12	0.77	475
23	22	3.19	2.07	0.65	435	3.08	2.00	0.65	463	3.00	1.95	0.65	475	2.88	1.87	0.65	495
24	18	2.94	2.73	0.93	400	2.81	2.62	0.93	420	2.70	2.51	0.93	440	2.60	2.42	0.93	460
24	20	3.06	2.48	0.81	420	2.94	2.38	0.81	445	2.85	2.31	0.81	455	2.75	2.23	0.81	475
24	22	3.19	2.20	0.69	435	3.08	2.12	0.69	463	3.00	2.07	0.69	475	2.88	1.98	0.69	495
24	24	3.35	1.91	0.57	455	3.23	1.84	0.57	480	3.15	1.80	0.57	495	3.05	1.74	0.57	520
25	18	2.94	2.85	0.97	400	2.81	2.73	0.97	420	2.70	2.62	0.97	440	2.60	2.52	0.97	460
25	20	3.06	2.60	0.85	420	2.94	2.50	0.85	445	2.85	2.42	0.85	455	2.75	2.34	0.85	475
25	22	3.19	2.33	0.73	435	3.08	2.24	0.73	463	3.00	2.19	0.73	475	2.88	2.10	0.73	495
25	24	3.35	2.04	0.61	455	3.23	1.97	0.61	480	3.15	1.92	0.61	495	3.05	1.86	0.61	520
26	18	2.94	2.94	1.00	400	2.81	2.81	1.00	420	2.70	2.70	1.00	440	2.60	2.60	1.00	460
26	20	3.06	2.73	0.89	420	2.94	2.61	0.89	445	2.85	2.54	0.89	455	2.75	2.45	0.89	475
26	22	3.19	2.45	0.77	435	3.08	2.37	0.77	463	3.00	2.31	0.77	475	2.88	2.21	0.77	495
26	24	3.35	2.18	0.65	455	3.23	2.10	0.65	480	3.15	2.05	0.65	495	3.05	1.98	0.65	520
26	26	3.45	1.83	0.53	480	3.35	1.78	0.53	505	3.30	1.75	0.53	520	3.20	1.70	0.53	535
27	18	2.94	2.94	1.00	400	2.81	2.81	1.00	420	2.70	2.70	1.00	440	2.60	2.60	1.00	460
27	20	3.06	2.85	0.93	420	2.94	2.73	0.93	445	2.85	2.65	0.93	455	2.75	2.56	0.93	475
27	22	3.19	2.58	0.81	435	3.08	2.49	0.81	463	3.00	2.43	0.81	475	2.88	2.33	0.81	495
27	24	3.35	2.31	0.69	455	3.23	2.23	0.69	480	3.15	2.17	0.69	495	3.05	2.10	0.69	520
27	26	3.45	1.97	0.57	480	3.35	1.91	0.57	505	3.30	1.88	0.57	520	3.20	1.82	0.57	535
28	18	2.94	2.94	1.00	400	2.81	2.81	1.00	420	2.70	2.70	1.00	440	2.60	2.60	1.00	460
28	20	3.06	2.97	0.97	420	2.94	2.85	0.97	445	2.85	2.76	0.97	455	2.75	2.67	0.97	475
28	22	3.19	2.71	0.85	435	3.08	2.61	0.85	463	3.00	2.55	0.85	475	2.88	2.44	0.85	495
28	24	3.35	2.45	0.73	455	3.23	2.35	0.73	480	3.15	2.30	0.73	495	3.05	2.23	0.73	520
28	26	3.45	2.10	0.61	480	3.35	2.04	0.61	505	3.30	2.01	0.61	520	3.20	1.95	0.61	535
29	18	2.94	2.94	1.00	400	2.81	2.81	1.00	420	2.70	2.70	1.00	440	2.60	2.60	1.00	460
29	20	3.06	3.06	1.00	420	2.94	2.94	1.00	445	2.85	2.85	1.00	455	2.75	2.75	1.00	475
29	22	3.19	2.84	0.89	435	3.08	2.74	0.89	463	3.00	2.67	0.89	475	2.88	2.56	0.89	495
29	24	3.35	2.58	0.77	455	3.23	2.48	0.77	480	3.15	2.43	0.77	495	3.05	2.35	0.77	520
29	26	3.45	2.24	0.65	480	3.35	2.18	0.65	505	3.30	2.15	0.65	520	3.20	2.08	0.65	535
30	18	2.94	2.94	1.00	400	2.81	2.81	1.00	420	2.70	2.70	1.00	440	2.60	2.60	1.00	460
30	20	3.06	3.06	1.00	420	2.94	2.94	1.00	445	2.85	2.85	1.00	455	2.75	2.75	1.00	475
30	22	3.19	2.96	0.93	435	3.08	2.86	0.93	463	3.00	2.79	0.93	475	2.88	2.67	0.93	495
30	24	3.35	2.71	0.81	455	3.23	2.61	0.81	480	3.15	2.55	0.81	495	3.05	2.47	0.81	520
30	26	3.45	2.38	0.69	480	3.35	2.31	0.69	505	3.30	2.28	0.69	520	3.20	2.21	0.69	535
31	18	2.94	2.94	1.00	400	2.81	2.81	1.00	420	2.70	2.70	1.00	440	2.60	2.60	1.00	460
31	20	3.06	3.06	1.00	420	2.94	2.94	1.00	445	2.85	2.85	1.00	455	2.75	2.75	1.00	475
31	22	3.19	3.09	0.97	435	3.08	2.98	0.97	463	3.00	2.91	0.97	475	2.88	2.79	0.97	495
31	24	3.35	2.85	0.85	455	3.23	2.74	0.85	480	3.15	2.68	0.85	495	3.05	2.59	0.85	520
31	26	3.45	2.52	0.73	480	3.35	2.45	0.73	505	3.30	2.41	0.73	520	3.20	2.34	0.73	535
32	18	2.94	2.94	1.00	400	2.81	2.81	1.00	420	2.70	2.70	1.00	440	2.60	2.60	1.00	460
32	20	3.06	3.06	1.00	420	2.94	2.94	1.00	445	2.85	2.85	1.00	455	2.75	2.75	1.00	475
32	22	3.19	3.19	1.00	435	3.08	3.08	1.00	463	3.00	3.00	1.00	475	2.88	2.88	1.00	495
32	24	3.35	2.98	0.89	455	3.23	2.87	0.89	480	3.15	2.80	0.89	495	3.05	2.71	0.89	520
32	26	3.45	2.66	0.77	480	3.35	2.58	0.77	505	3.30	2.54	0.77	520	3.20	2.46	0.77	535

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP25VG MUZ-AP25VGD

CAPACITY: 2.5 kW SHF: 0.99 INPUT: 500 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)											
		35				40				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.45	1.98	0.81	490	2.25	1.82	0.81	520	2.08	1.68	0.81	540
21	20	2.58	1.78	0.69	510	2.40	1.66	0.69	535	2.23	1.54	0.69	565
22	18	2.45	2.08	0.85	490	2.25	1.91	0.85	520	2.08	1.76	0.85	540
22	20	2.58	1.88	0.73	510	2.40	1.75	0.73	535	2.23	1.62	0.73	565
22	22	2.73	1.66	0.61	530	2.55	1.56	0.61	560	2.38	1.45	0.61	580
23	18	2.45	2.18	0.89	490	2.25	2.00	0.89	520	2.08	1.85	0.89	540
23	20	2.58	1.98	0.77	510	2.40	1.85	0.77	535	2.23	1.71	0.77	565
23	22	2.73	1.77	0.65	530	2.55	1.66	0.65	560	2.38	1.54	0.65	580
24	18	2.45	2.28	0.93	490	2.25	2.09	0.93	520	2.08	1.93	0.93	540
24	20	2.58	2.09	0.81	510	2.40	1.94	0.81	535	2.23	1.80	0.81	565
24	22	2.73	1.88	0.69	530	2.55	1.76	0.69	560	2.38	1.64	0.69	580
24	24	2.88	1.64	0.57	550	2.70	1.54	0.57	575	2.55	1.45	0.57	600
25	18	2.45	2.38	0.97	490	2.25	2.18	0.97	520	2.08	2.01	0.97	540
25	20	2.58	2.19	0.85	510	2.40	2.04	0.85	535	2.23	1.89	0.85	565
25	22	2.73	1.99	0.73	530	2.55	1.86	0.73	560	2.38	1.73	0.73	580
25	24	2.88	1.75	0.61	550	2.70	1.65	0.61	575	2.55	1.56	0.61	600
26	18	2.45	2.45	1.00	490	2.25	2.25	1.00	520	2.08	2.08	1.00	540
26	20	2.58	2.29	0.89	510	2.40	2.14	0.89	535	2.23	1.98	0.89	565
26	22	2.73	2.10	0.77	530	2.55	1.96	0.77	560	2.38	1.83	0.77	580
26	24	2.88	1.87	0.65	550	2.70	1.76	0.65	575	2.55	1.66	0.65	600
26	26	3.03	1.60	0.53	570	2.85	1.51	0.53	595	2.68	1.42	0.53	620
27	18	2.45	2.45	1.00	490	2.25	2.25	1.00	520	2.08	2.08	1.00	540
27	20	2.58	2.39	0.93	510	2.40	2.23	0.93	535	2.23	2.07	0.93	565
27	22	2.73	2.21	0.81	530	2.55	2.07	0.81	560	2.38	1.92	0.81	580
27	24	2.88	1.98	0.69	550	2.70	1.86	0.69	575	2.55	1.76	0.69	600
27	26	3.03	1.72	0.57	570	2.85	1.62	0.57	595	2.68	1.52	0.57	620
28	18	2.45	2.45	1.00	490	2.25	2.25	1.00	520	2.08	2.08	1.00	540
28	20	2.58	2.50	0.97	510	2.40	2.33	0.97	535	2.23	2.16	0.97	565
28	22	2.73	2.32	0.85	530	2.55	2.17	0.85	560	2.38	2.02	0.85	580
28	24	2.88	2.10	0.73	550	2.70	1.97	0.73	575	2.55	1.86	0.73	600
28	26	3.03	1.85	0.61	570	2.85	1.74	0.61	595	2.68	1.63	0.61	620
29	18	2.45	2.45	1.00	490	2.25	2.25	1.00	520	2.08	2.08	1.00	540
29	20	2.58	2.58	1.00	510	2.40	2.40	1.00	535	2.23	2.23	1.00	565
29	22	2.73	2.43	0.89	530	2.55	2.27	0.89	560	2.38	2.11	0.89	580
29	24	2.88	2.21	0.77	550	2.70	2.08	0.77	575	2.55	1.96	0.77	600
29	26	3.03	1.97	0.65	570	2.85	1.85	0.65	595	2.68	1.74	0.65	620
30	18	2.45	2.45	1.00	490	2.25	2.25	1.00	520	2.08	2.08	1.00	540
30	20	2.58	2.58	1.00	510	2.40	2.40	1.00	535	2.23	2.23	1.00	565
30	22	2.73	2.53	0.93	530	2.55	2.37	0.93	560	2.38	2.21	0.93	580
30	24	2.88	2.33	0.81	550	2.70	2.19	0.81	575	2.55	2.07	0.81	600
30	26	3.03	2.09	0.69	570	2.85	1.97	0.69	595	2.68	1.85	0.69	620
31	18	2.45	2.45	1.00	490	2.25	2.25	1.00	520	2.08	2.08	1.00	540
31	20	2.58	2.58	1.00	510	2.40	2.40	1.00	535	2.23	2.23	1.00	565
31	22	2.73	2.64	0.97	530	2.55	2.47	0.97	560	2.38	2.30	0.97	580
31	24	2.88	2.44	0.85	550	2.70	2.30	0.85	575	2.55	2.17	0.85	600
31	26	3.03	2.21	0.73	570	2.85	2.08	0.73	595	2.68	1.95	0.73	620
32	18	2.45	2.45	1.00	490	2.25	2.25	1.00	520	2.08	2.08	1.00	540
32	20	2.58	2.58	1.00	510	2.40	2.40	1.00	535	2.23	2.23	1.00	565
32	22	2.73	2.73	1.00	530	2.55	2.55	1.00	560	2.38	2.38	1.00	580
32	24	2.88	2.56	0.89	550	2.70	2.40	0.89	575	2.55	2.27	0.89	600
32	26	3.03	2.33	0.77	570	2.85	2.19	0.77	595	2.68	2.06	0.77	620

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP35VG MUZ-AP35VGD

CAPACITY: 3.5 kW SHF: 0.86 INPUT: 870 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)															
		21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.11	2.80	0.68	696	3.94	2.68	0.68	731	3.78	2.57	0.68	766	3.64	2.48	0.68	800
21	20	4.29	2.40	0.56	731	4.11	2.30	0.56	774	3.99	2.23	0.56	792	3.85	2.16	0.56	827
22	18	4.11	2.96	0.72	696	3.94	2.84	0.72	731	3.78	2.72	0.72	766	3.64	2.62	0.72	800
22	20	4.29	2.57	0.60	731	4.11	2.47	0.60	774	3.99	2.39	0.60	792	3.85	2.31	0.60	827
22	22	4.46	2.14	0.48	757	4.31	2.07	0.48	805	4.20	2.02	0.48	827	4.03	1.93	0.48	861
23	18	4.11	3.13	0.76	696	3.94	2.99	0.76	731	3.78	2.87	0.76	766	3.64	2.77	0.76	800
23	20	4.29	2.74	0.64	731	4.11	2.63	0.64	774	3.99	2.55	0.64	792	3.85	2.46	0.64	827
23	22	4.46	2.32	0.52	757	4.31	2.24	0.52	805	4.20	2.18	0.52	827	4.03	2.09	0.52	861
24	18	4.11	3.29	0.80	696	3.94	3.15	0.80	731	3.78	3.02	0.80	766	3.64	2.91	0.80	800
24	20	4.29	2.92	0.68	731	4.11	2.80	0.68	774	3.99	2.71	0.68	792	3.85	2.62	0.68	827
24	22	4.46	2.50	0.56	757	4.31	2.41	0.56	805	4.20	2.35	0.56	827	4.03	2.25	0.56	861
24	24	4.69	2.06	0.44	792	4.52	1.99	0.44	835	4.41	1.94	0.44	861	4.27	1.88	0.44	905
25	18	4.11	3.45	0.84	696	3.94	3.31	0.84	731	3.78	3.18	0.84	766	3.64	3.06	0.84	800
25	20	4.29	3.09	0.72	731	4.11	2.96	0.72	774	3.99	2.87	0.72	792	3.85	2.77	0.72	827
25	22	4.46	2.68	0.60	757	4.31	2.58	0.60	805	4.20	2.52	0.60	827	4.03	2.42	0.60	861
25	24	4.69	2.25	0.48	792	4.52	2.17	0.48	835	4.41	2.12	0.48	861	4.27	2.05	0.48	905
26	18	4.11	3.62	0.88	696	3.94	3.47	0.88	731	3.78	3.33	0.88	766	3.64	3.20	0.88	800
26	20	4.29	3.26	0.76	731	4.11	3.13	0.76	774	3.99	3.03	0.76	792	3.85	2.93	0.76	827
26	22	4.46	2.86	0.64	757	4.31	2.76	0.64	805	4.20	2.69	0.64	827	4.03	2.58	0.64	861
26	24	4.69	2.44	0.52	792	4.52	2.35	0.52	835	4.41	2.29	0.52	861	4.27	2.22	0.52	905
26	26	4.83	1.93	0.40	835	4.69	1.88	0.40	879	4.62	1.85	0.40	905	4.48	1.79	0.40	931
27	18	4.11	3.78	0.92	696	3.94	3.62	0.92	731	3.78	3.48	0.92	766	3.64	3.35	0.92	800
27	20	4.29	3.43	0.80	731	4.11	3.29	0.80	774	3.99	3.19	0.80	792	3.85	3.08	0.80	827
27	22	4.46	3.03	0.68	757	4.31	2.93	0.68	805	4.20	2.86	0.68	827	4.03	2.74	0.68	861
27	24	4.69	2.63	0.56	792	4.52	2.53	0.56	835	4.41	2.47	0.56	861	4.27	2.39	0.56	905
27	26	4.83	2.13	0.44	835	4.69	2.06	0.44	879	4.62	2.03	0.44	905	4.48	1.97	0.44	931
28	18	4.11	3.95	0.96	696	3.94	3.78	0.96	731	3.78	3.63	0.96	766	3.64	3.49	0.96	800
28	20	4.29	3.60	0.84	731	4.11	3.45	0.84	774	3.99	3.35	0.84	792	3.85	3.23	0.84	827
28	22	4.46	3.21	0.72	757	4.31	3.10	0.72	805	4.20	3.02	0.72	827	4.03	2.90	0.72	861
28	24	4.69	2.81	0.60	792	4.52	2.71	0.60	835	4.41	2.65	0.60	861	4.27	2.56	0.60	905
28	26	4.83	2.32	0.48	835	4.69	2.25	0.48	879	4.62	2.22	0.48	905	4.48	2.15	0.48	931
29	18	4.11	4.11	1.00	696	3.94	3.94	1.00	731	3.78	3.78	1.00	766	3.64	3.64	1.00	800
29	20	4.29	3.77	0.88	731	4.11	3.62	0.88	774	3.99	3.51	0.88	792	3.85	3.39	0.88	827
29	22	4.46	3.39	0.76	757	4.31	3.27	0.76	805	4.20	3.19	0.76	827	4.03	3.06	0.76	861
29	24	4.69	3.00	0.64	792	4.52	2.89	0.64	835	4.41	2.82	0.64	861	4.27	2.73	0.64	905
29	26	4.83	2.51	0.52	835	4.69	2.44	0.52	879	4.62	2.40	0.52	905	4.48	2.33	0.52	931
30	18	4.11	4.11	1.00	696	3.94	3.94	1.00	731	3.78	3.78	1.00	766	3.64	3.64	1.00	800
30	20	4.29	3.94	0.92	731	4.11	3.78	0.92	774	3.99	3.67	0.92	792	3.85	3.54	0.92	827
30	22	4.46	3.57	0.80	757	4.31	3.44	0.80	805	4.20	3.36	0.80	827	4.03	3.22	0.80	861
30	24	4.69	3.19	0.68	792	4.52	3.07	0.68	835	4.41	3.00	0.68	861	4.27	2.90	0.68	905
30	26	4.83	2.70	0.56	835	4.69	2.63	0.56	879	4.62	2.59	0.56	905	4.48	2.51	0.56	931
31	18	4.11	4.11	1.00	696	3.94	3.94	1.00	731	3.78	3.78	1.00	766	3.64	3.64	1.00	800
31	20	4.29	4.12	0.96	731	4.11	3.95	0.96	774	3.99	3.83	0.96	792	3.85	3.70	0.96	827
31	22	4.46	3.75	0.84	757	4.31	3.62	0.84	805	4.20	3.53	0.84	827	4.03	3.38	0.84	861
31	24	4.69	3.38	0.72	792	4.52	3.25	0.72	835	4.41	3.18	0.72	861	4.27	3.07	0.72	905
31	26	4.83	2.90	0.60	835	4.69	2.81	0.60	879	4.62	2.77	0.60	905	4.48	2.69	0.60	931
32	18	4.11	4.11	1.00	696	3.94	3.94	1.00	731	3.78	3.78	1.00	766	3.64	3.64	1.00	800
32	20	4.29	4.29	1.00	731	4.11	4.11	1.00	774	3.99	3.99	1.00	792	3.85	3.85	1.00	827
32	22	4.46	3.93	0.88	757	4.31	3.79	0.88	805	4.20	3.70	0.88	827	4.03	3.54	0.88	861
32	24	4.69	3.56	0.76	792	4.52	3.43	0.76	835	4.41	3.35	0.76	861	4.27	3.25	0.76	905
32	26	4.83	3.09	0.64	835	4.69	3.00	0.64	879	4.62	2.96	0.64	905	4.48	2.87	0.64	931

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP35VG MUZ-AP35VGD

CAPACITY: 3.5 kW SHF: 0.86 INPUT: 870 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)											
		35				40				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.43	2.33	0.68	853	3.15	2.14	0.68	905	2.91	1.98	0.68	940
21	20	3.61	2.02	0.56	887	3.36	1.88	0.56	931	3.12	1.74	0.56	983
22	18	3.43	2.47	0.72	853	3.15	2.27	0.72	905	2.91	2.09	0.72	940
22	20	3.61	2.16	0.60	887	3.36	2.02	0.60	931	3.12	1.87	0.60	983
22	22	3.82	1.83	0.48	922	3.57	1.71	0.48	974	3.33	1.60	0.48	1009
23	18	3.43	2.61	0.76	853	3.15	2.39	0.76	905	2.91	2.21	0.76	940
23	20	3.61	2.31	0.64	887	3.36	2.15	0.64	931	3.12	1.99	0.64	983
23	22	3.82	1.98	0.52	922	3.57	1.86	0.52	974	3.33	1.73	0.52	1009
24	18	3.43	2.74	0.80	853	3.15	2.52	0.80	905	2.91	2.32	0.80	940
24	20	3.61	2.45	0.68	887	3.36	2.28	0.68	931	3.12	2.12	0.68	983
24	22	3.82	2.14	0.56	922	3.57	2.00	0.56	974	3.33	1.86	0.56	1009
24	24	4.03	1.77	0.44	957	3.78	1.66	0.44	1001	3.57	1.57	0.44	1044
25	18	3.43	2.88	0.84	853	3.15	2.65	0.84	905	2.91	2.44	0.84	940
25	20	3.61	2.60	0.72	887	3.36	2.42	0.72	931	3.12	2.24	0.72	983
25	22	3.82	2.29	0.60	922	3.57	2.14	0.60	974	3.33	2.00	0.60	1009
25	24	4.03	1.93	0.48	957	3.78	1.81	0.48	1001	3.57	1.71	0.48	1044
26	18	3.43	3.02	0.88	853	3.15	2.77	0.88	905	2.91	2.56	0.88	940
26	20	3.61	2.74	0.76	887	3.36	2.55	0.76	931	3.12	2.37	0.76	983
26	22	3.82	2.44	0.64	922	3.57	2.28	0.64	974	3.33	2.13	0.64	1009
26	24	4.03	2.09	0.52	957	3.78	1.97	0.52	1001	3.57	1.86	0.52	1044
26	26	4.24	1.69	0.40	992	3.99	1.60	0.40	1035	3.75	1.50	0.40	1079
27	18	3.43	3.16	0.92	853	3.15	2.90	0.92	905	2.91	2.67	0.92	940
27	20	3.61	2.88	0.80	887	3.36	2.69	0.80	931	3.12	2.49	0.80	983
27	22	3.82	2.59	0.68	922	3.57	2.43	0.68	974	3.33	2.26	0.68	1009
27	24	4.03	2.25	0.56	957	3.78	2.12	0.56	1001	3.57	2.00	0.56	1044
27	26	4.24	1.86	0.44	992	3.99	1.76	0.44	1035	3.75	1.65	0.44	1079
28	18	3.43	3.29	0.96	853	3.15	3.02	0.96	905	2.91	2.79	0.96	940
28	20	3.61	3.03	0.84	887	3.36	2.82	0.84	931	3.12	2.62	0.84	983
28	22	3.82	2.75	0.72	922	3.57	2.57	0.72	974	3.33	2.39	0.72	1009
28	24	4.03	2.42	0.60	957	3.78	2.27	0.60	1001	3.57	2.14	0.60	1044
28	26	4.24	2.03	0.48	992	3.99	1.92	0.48	1035	3.75	1.80	0.48	1079
29	18	3.43	3.43	1.00	853	3.15	3.15	1.00	905	2.91	2.91	1.00	940
29	20	3.61	3.17	0.88	887	3.36	2.96	0.88	931	3.12	2.74	0.88	983
29	22	3.82	2.90	0.76	922	3.57	2.71	0.76	974	3.33	2.53	0.76	1009
29	24	4.03	2.58	0.64	957	3.78	2.42	0.64	1001	3.57	2.28	0.64	1044
29	26	4.24	2.20	0.52	992	3.99	2.07	0.52	1035	3.75	1.95	0.52	1079
30	18	3.43	3.43	1.00	853	3.15	3.15	1.00	905	2.91	2.91	1.00	940
30	20	3.61	3.32	0.92	887	3.36	3.09	0.92	931	3.12	2.87	0.92	983
30	22	3.82	3.05	0.80	922	3.57	2.86	0.80	974	3.33	2.66	0.80	1009
30	24	4.03	2.74	0.68	957	3.78	2.57	0.68	1001	3.57	2.43	0.68	1044
30	26	4.24	2.37	0.56	992	3.99	2.23	0.56	1035	3.75	2.10	0.56	1079
31	18	3.43	3.43	1.00	853	3.15	3.15	1.00	905	2.91	2.91	1.00	940
31	20	3.61	3.46	0.96	887	3.36	3.23	0.96	931	3.12	2.99	0.96	983
31	22	3.82	3.20	0.84	922	3.57	3.00	0.84	974	3.33	2.79	0.84	1009
31	24	4.03	2.90	0.72	957	3.78	2.72	0.72	1001	3.57	2.57	0.72	1044
31	26	4.24	2.54	0.60	992	3.99	2.39	0.60	1035	3.75	2.25	0.60	1079
32	18	3.43	3.43	1.00	853	3.15	3.15	1.00	905	2.91	2.91	1.00	940
32	20	3.61	3.61	1.00	887	3.36	3.36	1.00	931	3.12	3.12	1.00	983
32	22	3.82	3.36	0.88	922	3.57	3.14	0.88	974	3.33	2.93	0.88	1009
32	24	4.03	3.06	0.76	957	3.78	2.87	0.76	1001	3.57	2.71	0.76	1044
32	26	4.24	2.71	0.64	992	3.99	2.55	0.64	1035	3.75	2.40	0.64	1079

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP42VG MUZ-AP42VGD

CAPACITY: 4.2 kW SHF: 0.79 INPUT: 1190 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)															
		21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.94	3.01	0.61	952	4.73	2.88	0.61	1000	4.54	2.77	0.61	1047	4.37	2.66	0.61	1095
21	20	5.15	2.52	0.49	1000	4.94	2.42	0.49	1059	4.79	2.35	0.49	1083	4.62	2.26	0.49	1131
22	18	4.94	3.21	0.65	952	4.73	3.07	0.65	1000	4.54	2.95	0.65	1047	4.37	2.84	0.65	1095
22	20	5.15	2.73	0.53	1000	4.94	2.62	0.53	1059	4.79	2.54	0.53	1083	4.62	2.45	0.53	1131
22	22	5.36	2.20	0.41	1035	5.17	2.12	0.41	1101	5.04	2.07	0.41	1131	4.83	1.98	0.41	1178
23	18	4.94	3.41	0.69	952	4.73	3.26	0.69	1000	4.54	3.13	0.69	1047	4.37	3.01	0.69	1095
23	20	5.15	2.93	0.57	1000	4.94	2.81	0.57	1059	4.79	2.73	0.57	1083	4.62	2.63	0.57	1131
23	22	5.36	2.41	0.45	1035	5.17	2.32	0.45	1101	5.04	2.27	0.45	1131	4.83	2.17	0.45	1178
24	18	4.94	3.60	0.73	952	4.73	3.45	0.73	1000	4.54	3.31	0.73	1047	4.37	3.19	0.73	1095
24	20	5.15	3.14	0.61	1000	4.94	3.01	0.61	1059	4.79	2.92	0.61	1083	4.62	2.82	0.61	1131
24	22	5.36	2.62	0.49	1035	5.17	2.53	0.49	1101	5.04	2.47	0.49	1131	4.83	2.37	0.49	1178
24	24	5.63	2.08	0.37	1083	5.42	2.00	0.37	1142	5.29	1.96	0.37	1178	5.12	1.90	0.37	1238
25	18	4.94	3.80	0.77	952	4.73	3.64	0.77	1000	4.54	3.49	0.77	1047	4.37	3.36	0.77	1095
25	20	5.15	3.34	0.65	1000	4.94	3.21	0.65	1059	4.79	3.11	0.65	1083	4.62	3.00	0.65	1131
25	22	5.36	2.84	0.53	1035	5.17	2.74	0.53	1101	5.04	2.67	0.53	1131	4.83	2.56	0.53	1178
25	24	5.63	2.31	0.41	1083	5.42	2.22	0.41	1142	5.29	2.17	0.41	1178	5.12	2.10	0.41	1238
26	18	4.94	4.00	0.81	952	4.73	3.83	0.81	1000	4.54	3.67	0.81	1047	4.37	3.54	0.81	1095
26	20	5.15	3.55	0.69	1000	4.94	3.41	0.69	1059	4.79	3.30	0.69	1083	4.62	3.19	0.69	1131
26	22	5.36	3.05	0.57	1035	5.17	2.94	0.57	1101	5.04	2.87	0.57	1131	4.83	2.75	0.57	1178
26	24	5.63	2.53	0.45	1083	5.42	2.44	0.45	1142	5.29	2.38	0.45	1178	5.12	2.31	0.45	1238
26	26	5.80	1.91	0.33	1142	5.63	1.86	0.33	1202	5.54	1.83	0.33	1238	5.38	1.77	0.33	1273
27	18	4.94	4.19	0.85	952	4.73	4.02	0.85	1000	4.54	3.86	0.85	1047	4.37	3.71	0.85	1095
27	20	5.15	3.76	0.73	1000	4.94	3.60	0.73	1059	4.79	3.50	0.73	1083	4.62	3.37	0.73	1131
27	22	5.36	3.27	0.61	1035	5.17	3.15	0.61	1101	5.04	3.07	0.61	1131	4.83	2.95	0.61	1178
27	24	5.63	2.76	0.49	1083	5.42	2.65	0.49	1142	5.29	2.59	0.49	1178	5.12	2.51	0.49	1238
27	26	5.80	2.14	0.37	1142	5.63	2.08	0.37	1202	5.54	2.05	0.37	1238	5.38	1.99	0.37	1273
28	18	4.94	4.39	0.89	952	4.73	4.21	0.89	1000	4.54	4.04	0.89	1047	4.37	3.89	0.89	1095
28	20	5.15	3.96	0.77	1000	4.94	3.80	0.77	1059	4.79	3.69	0.77	1083	4.62	3.56	0.77	1131
28	22	5.36	3.48	0.65	1035	5.17	3.36	0.65	1101	5.04	3.28	0.65	1131	4.83	3.14	0.65	1178
28	24	5.63	2.98	0.53	1083	5.42	2.87	0.53	1142	5.29	2.80	0.53	1178	5.12	2.72	0.53	1238
28	26	5.80	2.38	0.41	1142	5.63	2.31	0.41	1202	5.54	2.27	0.41	1238	5.38	2.20	0.41	1273
29	18	4.94	4.59	0.93	952	4.73	4.39	0.93	1000	4.54	4.22	0.93	1047	4.37	4.06	0.93	1095
29	20	5.15	4.17	0.81	1000	4.94	4.00	0.81	1059	4.79	3.88	0.81	1083	4.62	3.74	0.81	1131
29	22	5.36	3.69	0.69	1035	5.17	3.56	0.69	1101	5.04	3.48	0.69	1131	4.83	3.33	0.69	1178
29	24	5.63	3.21	0.57	1083	5.42	3.09	0.57	1142	5.29	3.02	0.57	1178	5.12	2.92	0.57	1238
29	26	5.80	2.61	0.45	1142	5.63	2.53	0.45	1202	5.54	2.49	0.45	1238	5.38	2.42	0.45	1273
30	18	4.94	4.79	0.97	952	4.73	4.58	0.97	1000	4.54	4.40	0.97	1047	4.37	4.24	0.97	1095
30	20	5.15	4.37	0.85	1000	4.94	4.19	0.85	1059	4.79	4.07	0.85	1083	4.62	3.93	0.85	1131
30	22	5.36	3.91	0.73	1035	5.17	3.77	0.73	1101	5.04	3.68	0.73	1131	4.83	3.53	0.73	1178
30	24	5.63	3.43	0.61	1083	5.42	3.30	0.61	1142	5.29	3.23	0.61	1178	5.12	3.13	0.61	1238
30	26	5.80	2.84	0.49	1142	5.63	2.76	0.49	1202	5.54	2.72	0.49	1238	5.38	2.63	0.49	1273
31	18	4.94	4.94	1.00	952	4.73	4.73	1.00	1000	4.54	4.54	1.00	1047	4.37	4.37	1.00	1095
31	20	5.15	4.58	0.89	1000	4.94	4.39	0.89	1059	4.79	4.26	0.89	1083	4.62	4.11	0.89	1131
31	22	5.36	4.12	0.77	1035	5.17	3.98	0.77	1101	5.04	3.88	0.77	1131	4.83	3.72	0.77	1178
31	24	5.63	3.66	0.65	1083	5.42	3.52	0.65	1142	5.29	3.44	0.65	1178	5.12	3.33	0.65	1238
31	26	5.80	3.07	0.53	1142	5.63	2.98	0.53	1202	5.54	2.94	0.53	1238	5.38	2.85	0.53	1273
32	18	4.94	4.94	1.00	952	4.73	4.73	1.00	1000	4.54	4.54	1.00	1047	4.37	4.37	1.00	1095
32	20	5.15	4.78	0.93	1000	4.94	4.59	0.93	1059	4.79	4.45	0.93	1083	4.62	4.30	0.93	1131
32	22	5.36	4.34	0.81	1035	5.17	4.18	0.81	1101	5.04	4.08	0.81	1131	4.83	3.91	0.81	1178
32	24	5.63	3.88	0.69	1083	5.42	3.74	0.69	1142	5.29	3.65	0.69	1178	5.12	3.54	0.69	1238
32	26	5.80	3.30	0.57	1142	5.63	3.21	0.57	1202	5.54	3.16	0.57	1238	5.38	3.06	0.57	1273

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP42VG MUZ-AP42VGD

CAPACITY: 4.2 kW SHF: 0.79 INPUT: 1190 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)											
		35				40				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.12	2.51	0.61	1166	3.78	2.31	0.61	1238	3.49	2.13	0.61	1285
21	20	4.33	2.12	0.49	1214	4.03	1.98	0.49	1273	3.74	1.83	0.49	1345
22	18	4.12	2.68	0.65	1166	3.78	2.46	0.65	1238	3.49	2.27	0.65	1285
22	20	4.33	2.29	0.53	1214	4.03	2.14	0.53	1273	3.74	1.98	0.53	1345
22	22	4.58	1.88	0.41	1261	4.28	1.76	0.41	1333	3.99	1.64	0.41	1380
23	18	4.12	2.84	0.69	1166	3.78	2.61	0.69	1238	3.49	2.41	0.69	1285
23	20	4.33	2.47	0.57	1214	4.03	2.30	0.57	1273	3.74	2.13	0.57	1345
23	22	4.58	2.06	0.45	1261	4.28	1.93	0.45	1333	3.99	1.80	0.45	1380
24	18	4.12	3.00	0.73	1166	3.78	2.76	0.73	1238	3.49	2.54	0.73	1285
24	20	4.33	2.64	0.61	1214	4.03	2.46	0.61	1273	3.74	2.28	0.61	1345
24	22	4.58	2.24	0.49	1261	4.28	2.10	0.49	1333	3.99	1.96	0.49	1380
24	24	4.83	1.79	0.37	1309	4.54	1.68	0.37	1369	4.28	1.59	0.37	1428
25	18	4.12	3.17	0.77	1166	3.78	2.91	0.77	1238	3.49	2.68	0.77	1285
25	20	4.33	2.81	0.65	1214	4.03	2.62	0.65	1273	3.74	2.43	0.65	1345
25	22	4.58	2.43	0.53	1261	4.28	2.27	0.53	1333	3.99	2.11	0.53	1380
25	24	4.83	1.98	0.41	1309	4.54	1.86	0.41	1369	4.28	1.76	0.41	1428
26	18	4.12	3.33	0.81	1166	3.78	3.06	0.81	1238	3.49	2.82	0.81	1285
26	20	4.33	2.98	0.69	1214	4.03	2.78	0.69	1273	3.74	2.58	0.69	1345
26	22	4.58	2.61	0.57	1261	4.28	2.44	0.57	1333	3.99	2.27	0.57	1380
26	24	4.83	2.17	0.45	1309	4.54	2.04	0.45	1369	4.28	1.93	0.45	1428
26	26	5.08	1.68	0.33	1357	4.79	1.58	0.33	1416	4.49	1.48	0.33	1476
27	18	4.12	3.50	0.85	1166	3.78	3.21	0.85	1238	3.49	2.96	0.85	1285
27	20	4.33	3.16	0.73	1214	4.03	2.94	0.73	1273	3.74	2.73	0.73	1345
27	22	4.58	2.79	0.61	1261	4.28	2.61	0.61	1333	3.99	2.43	0.61	1380
27	24	4.83	2.37	0.49	1309	4.54	2.22	0.49	1369	4.28	2.10	0.49	1428
27	26	5.08	1.88	0.37	1357	4.79	1.77	0.37	1416	4.49	1.66	0.37	1476
28	18	4.12	3.66	0.89	1166	3.78	3.36	0.89	1238	3.49	3.10	0.89	1285
28	20	4.33	3.33	0.77	1214	4.03	3.10	0.77	1273	3.74	2.88	0.77	1345
28	22	4.58	2.98	0.65	1261	4.28	2.78	0.65	1333	3.99	2.59	0.65	1380
28	24	4.83	2.56	0.53	1309	4.54	2.40	0.53	1369	4.28	2.27	0.53	1428
28	26	5.08	2.08	0.41	1357	4.79	1.96	0.41	1416	4.49	1.84	0.41	1476
29	18	4.12	3.83	0.93	1166	3.78	3.52	0.93	1238	3.49	3.24	0.93	1285
29	20	4.33	3.50	0.81	1214	4.03	3.27	0.81	1273	3.74	3.03	0.81	1345
29	22	4.58	3.16	0.69	1261	4.28	2.96	0.69	1333	3.99	2.75	0.69	1380
29	24	4.83	2.75	0.57	1309	4.54	2.59	0.57	1369	4.28	2.44	0.57	1428
29	26	5.08	2.29	0.45	1357	4.79	2.15	0.45	1416	4.49	2.02	0.45	1476
30	18	4.12	3.99	0.97	1166	3.78	3.67	0.97	1238	3.49	3.38	0.97	1285
30	20	4.33	3.68	0.85	1214	4.03	3.43	0.85	1273	3.74	3.18	0.85	1345
30	22	4.58	3.34	0.73	1261	4.28	3.13	0.73	1333	3.99	2.91	0.73	1380
30	24	4.83	2.95	0.61	1309	4.54	2.77	0.61	1369	4.28	2.61	0.61	1428
30	26	5.08	2.49	0.49	1357	4.79	2.35	0.49	1416	4.49	2.20	0.49	1476
31	18	4.12	4.12	1.00	1166	3.78	3.78	1.00	1238	3.49	3.49	1.00	1285
31	20	4.33	3.85	0.89	1214	4.03	3.59	0.89	1273	3.74	3.33	0.89	1345
31	22	4.58	3.53	0.77	1261	4.28	3.30	0.77	1333	3.99	3.07	0.77	1380
31	24	4.83	3.14	0.65	1309	4.54	2.95	0.65	1369	4.28	2.78	0.65	1428
31	26	5.08	2.69	0.53	1357	4.79	2.54	0.53	1416	4.49	2.38	0.53	1476
32	18	4.12	4.12	1.00	1166	3.78	3.78	1.00	1238	3.49	3.49	1.00	1285
32	20	4.33	4.02	0.93	1214	4.03	3.75	0.93	1273	3.74	3.48	0.93	1345
32	22	4.58	3.71	0.81	1261	4.28	3.47	0.81	1333	3.99	3.23	0.81	1380
32	24	4.83	3.33	0.69	1309	4.54	3.13	0.69	1369	4.28	2.96	0.69	1428
32	26	5.08	2.90	0.57	1357	4.79	2.73	0.57	1416	4.49	2.56	0.57	1476

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP50VG MUZ-AP50VGD

CAPACITY: 5.0 kW SHF: 0.77 INPUT: 1320 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)															
		21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	5.88	3.47	0.59	1056	5.63	3.32	0.59	1109	5.40	3.19	0.59	1162	5.20	3.07	0.59	1214
21	20	6.13	2.88	0.47	1109	5.88	2.76	0.47	1175	5.70	2.68	0.47	1201	5.50	2.59	0.47	1254
22	18	5.88	3.70	0.63	1056	5.63	3.54	0.63	1109	5.40	3.40	0.63	1162	5.20	3.28	0.63	1214
22	20	6.13	3.12	0.51	1109	5.88	3.00	0.51	1175	5.70	2.91	0.51	1201	5.50	2.81	0.51	1254
22	22	6.38	2.49	0.39	1148	6.15	2.40	0.39	1221	6.00	2.34	0.39	1254	5.75	2.24	0.39	1307
23	18	5.88	3.94	0.67	1056	5.63	3.77	0.67	1109	5.40	3.62	0.67	1162	5.20	3.48	0.67	1214
23	20	6.13	3.37	0.55	1109	5.88	3.23	0.55	1175	5.70	3.14	0.55	1201	5.50	3.03	0.55	1254
23	22	6.38	2.74	0.43	1148	6.15	2.64	0.43	1221	6.00	2.58	0.43	1254	5.75	2.47	0.43	1307
24	18	5.88	4.17	0.71	1056	5.63	3.99	0.71	1109	5.40	3.83	0.71	1162	5.20	3.69	0.71	1214
24	20	6.13	3.61	0.59	1109	5.88	3.47	0.59	1175	5.70	3.36	0.59	1201	5.50	3.25	0.59	1254
24	22	6.38	3.00	0.47	1148	6.15	2.89	0.47	1221	6.00	2.82	0.47	1254	5.75	2.70	0.47	1307
24	24	6.70	2.35	0.35	1201	6.45	2.26	0.35	1267	6.30	2.21	0.35	1307	6.10	2.14	0.35	1373
25	18	5.88	4.41	0.75	1056	5.63	4.22	0.75	1109	5.40	4.05	0.75	1162	5.20	3.90	0.75	1214
25	20	6.13	3.86	0.63	1109	5.88	3.70	0.63	1175	5.70	3.59	0.63	1201	5.50	3.47	0.63	1254
25	22	6.38	3.25	0.51	1148	6.15	3.14	0.51	1221	6.00	3.06	0.51	1254	5.75	2.93	0.51	1307
25	24	6.70	2.61	0.39	1201	6.45	2.52	0.39	1267	6.30	2.46	0.39	1307	6.10	2.38	0.39	1373
26	18	5.88	4.64	0.79	1056	5.63	4.44	0.79	1109	5.40	4.27	0.79	1162	5.20	4.11	0.79	1214
26	20	6.13	4.10	0.67	1109	5.88	3.94	0.67	1175	5.70	3.82	0.67	1201	5.50	3.69	0.67	1254
26	22	6.38	3.51	0.55	1148	6.15	3.38	0.55	1221	6.00	3.30	0.55	1254	5.75	3.16	0.55	1307
26	24	6.70	2.88	0.43	1201	6.45	2.77	0.43	1267	6.30	2.71	0.43	1307	6.10	2.62	0.43	1373
26	26	6.90	2.14	0.31	1267	6.70	2.08	0.31	1333	6.60	2.05	0.31	1373	6.40	1.98	0.31	1412
27	18	5.88	4.88	0.83	1056	5.63	4.67	0.83	1109	5.40	4.48	0.83	1162	5.20	4.32	0.83	1214
27	20	6.13	4.35	0.71	1109	5.88	4.17	0.71	1175	5.70	4.05	0.71	1201	5.50	3.91	0.71	1254
27	22	6.38	3.76	0.59	1148	6.15	3.63	0.59	1221	6.00	3.54	0.59	1254	5.75	3.39	0.59	1307
27	24	6.70	3.15	0.47	1201	6.45	3.03	0.47	1267	6.30	2.96	0.47	1307	6.10	2.87	0.47	1373
27	26	6.90	2.42	0.35	1267	6.70	2.35	0.35	1333	6.60	2.31	0.35	1373	6.40	2.24	0.35	1412
28	18	5.88	5.11	0.87	1056	5.63	4.89	0.87	1109	5.40	4.70	0.87	1162	5.20	4.52	0.87	1214
28	20	6.13	4.59	0.75	1109	5.88	4.41	0.75	1175	5.70	4.28	0.75	1201	5.50	4.13	0.75	1254
28	22	6.38	4.02	0.63	1148	6.15	3.87	0.63	1221	6.00	3.78	0.63	1254	5.75	3.62	0.63	1307
28	24	6.70	3.42	0.51	1201	6.45	3.29	0.51	1267	6.30	3.21	0.51	1307	6.10	3.11	0.51	1373
28	26	6.90	2.69	0.39	1267	6.70	2.61	0.39	1333	6.60	2.57	0.39	1373	6.40	2.50	0.39	1412
29	18	5.88	5.35	0.91	1056	5.63	5.12	0.91	1109	5.40	4.91	0.91	1162	5.20	4.73	0.91	1214
29	20	6.13	4.84	0.79	1109	5.88	4.64	0.79	1175	5.70	4.50	0.79	1201	5.50	4.35	0.79	1254
29	22	6.38	4.27	0.67	1148	6.15	4.12	0.67	1221	6.00	4.02	0.67	1254	5.75	3.85	0.67	1307
29	24	6.70	3.69	0.55	1201	6.45	3.55	0.55	1267	6.30	3.47	0.55	1307	6.10	3.36	0.55	1373
29	26	6.90	2.97	0.43	1267	6.70	2.88	0.43	1333	6.60	2.84	0.43	1373	6.40	2.75	0.43	1412
30	18	5.88	5.58	0.95	1056	5.63	5.34	0.95	1109	5.40	5.13	0.95	1162	5.20	4.94	0.95	1214
30	20	6.13	5.08	0.83	1109	5.88	4.88	0.83	1175	5.70	4.73	0.83	1201	5.50	4.57	0.83	1254
30	22	6.38	4.53	0.71	1148	6.15	4.37	0.71	1221	6.00	4.26	0.71	1254	5.75	4.08	0.71	1307
30	24	6.70	3.95	0.59	1201	6.45	3.81	0.59	1267	6.30	3.72	0.59	1307	6.10	3.60	0.59	1373
30	26	6.90	3.24	0.47	1267	6.70	3.15	0.47	1333	6.60	3.10	0.47	1373	6.40	3.01	0.47	1412
31	18	5.88	5.82	0.99	1056	5.63	5.57	0.99	1109	5.40	5.35	0.99	1162	5.20	5.15	0.99	1214
31	20	6.13	5.33	0.87	1109	5.88	5.11	0.87	1175	5.70	4.96	0.87	1201	5.50	4.79	0.87	1254
31	22	6.38	4.78	0.75	1148	6.15	4.61	0.75	1221	6.00	4.50	0.75	1254	5.75	4.31	0.75	1307
31	24	6.70	4.22	0.63	1201	6.45	4.06	0.63	1267	6.30	3.97	0.63	1307	6.10	3.84	0.63	1373
31	26	6.90	3.52	0.51	1267	6.70	3.42	0.51	1333	6.60	3.37	0.51	1373	6.40	3.26	0.51	1412
32	18	5.88	5.88	1.00	1056	5.63	5.63	1.00	1109	5.40	5.40	1.00	1162	5.20	5.20	1.00	1214
32	20	6.13	5.57	0.91	1109	5.88	5.35	0.91	1175	5.70	5.19	0.91	1201	5.50	5.01	0.91	1254
32	22	6.38	5.04	0.79	1148	6.15	4.86	0.79	1221	6.00	4.74	0.79	1254	5.75	4.54	0.79	1307
32	24	6.70	4.49	0.67	1201	6.45	4.32	0.67	1267	6.30	4.22	0.67	1307	6.10	4.09	0.67	1373
32	26	6.90	3.80	0.55	1267	6.70	3.69	0.55	1333	6.60	3.63	0.55	1373	6.40	3.52	0.55	1412

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP50VG MUZ-AP50VGD

CAPACITY: 5.0 kW SHF: 0.77 INPUT: 1320 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)											
		35				40				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.90	2.89	0.59	1294	4.50	2.66	0.59	1373	4.15	2.45	0.59	1426
21	20	5.15	2.42	0.47	1346	4.80	2.26	0.47	1412	4.45	2.09	0.47	1492
22	18	4.90	3.09	0.63	1294	4.50	2.84	0.63	1373	4.15	2.61	0.63	1426
22	20	5.15	2.63	0.51	1346	4.80	2.45	0.51	1412	4.45	2.27	0.51	1492
22	22	5.45	2.13	0.39	1399	5.10	1.99	0.39	1478	4.75	1.85	0.39	1531
23	18	4.90	3.28	0.67	1294	4.50	3.02	0.67	1373	4.15	2.78	0.67	1426
23	20	5.15	2.83	0.55	1346	4.80	2.64	0.55	1412	4.45	2.45	0.55	1492
23	22	5.45	2.34	0.43	1399	5.10	2.19	0.43	1478	4.75	2.04	0.43	1531
24	18	4.90	3.48	0.71	1294	4.50	3.20	0.71	1373	4.15	2.95	0.71	1426
24	20	5.15	3.04	0.59	1346	4.80	2.83	0.59	1412	4.45	2.63	0.59	1492
24	22	5.45	2.56	0.47	1399	5.10	2.40	0.47	1478	4.75	2.23	0.47	1531
24	24	5.75	2.01	0.35	1452	5.40	1.89	0.35	1518	5.10	1.79	0.35	1584
25	18	4.90	3.68	0.75	1294	4.50	3.38	0.75	1373	4.15	3.11	0.75	1426
25	20	5.15	3.24	0.63	1346	4.80	3.02	0.63	1412	4.45	2.80	0.63	1492
25	22	5.45	2.78	0.51	1399	5.10	2.60	0.51	1478	4.75	2.42	0.51	1531
25	24	5.75	2.24	0.39	1452	5.40	2.11	0.39	1518	5.10	1.99	0.39	1584
26	18	4.90	3.87	0.79	1294	4.50	3.56	0.79	1373	4.15	3.28	0.79	1426
26	20	5.15	3.45	0.67	1346	4.80	3.22	0.67	1412	4.45	2.98	0.67	1492
26	22	5.45	3.00	0.55	1399	5.10	2.81	0.55	1478	4.75	2.61	0.55	1531
26	24	5.75	2.47	0.43	1452	5.40	2.32	0.43	1518	5.10	2.19	0.43	1584
26	26	6.05	1.88	0.31	1505	5.70	1.77	0.31	1571	5.35	1.66	0.31	1637
27	18	4.90	4.07	0.83	1294	4.50	3.74	0.83	1373	4.15	3.44	0.83	1426
27	20	5.15	3.66	0.71	1346	4.80	3.41	0.71	1412	4.45	3.16	0.71	1492
27	22	5.45	3.22	0.59	1399	5.10	3.01	0.59	1478	4.75	2.80	0.59	1531
27	24	5.75	2.70	0.47	1452	5.40	2.54	0.47	1518	5.10	2.40	0.47	1584
27	26	6.05	2.12	0.35	1505	5.70	2.00	0.35	1571	5.35	1.87	0.35	1637
28	18	4.90	4.26	0.87	1294	4.50	3.92	0.87	1373	4.15	3.61	0.87	1426
28	20	5.15	3.86	0.75	1346	4.80	3.60	0.75	1412	4.45	3.34	0.75	1492
28	22	5.45	3.43	0.63	1399	5.10	3.21	0.63	1478	4.75	2.99	0.63	1531
28	24	5.75	2.93	0.51	1452	5.40	2.75	0.51	1518	5.10	2.60	0.51	1584
28	26	6.05	2.36	0.39	1505	5.70	2.22	0.39	1571	5.35	2.09	0.39	1637
29	18	4.90	4.46	0.91	1294	4.50	4.10	0.91	1373	4.15	3.78	0.91	1426
29	20	5.15	4.07	0.79	1346	4.80	3.79	0.79	1412	4.45	3.52	0.79	1492
29	22	5.45	3.65	0.67	1399	5.10	3.42	0.67	1478	4.75	3.18	0.67	1531
29	24	5.75	3.16	0.55	1452	5.40	2.97	0.55	1518	5.10	2.81	0.55	1584
29	26	6.05	2.60	0.43	1505	5.70	2.45	0.43	1571	5.35	2.30	0.43	1637
30	18	4.90	4.66	0.95	1294	4.50	4.28	0.95	1373	4.15	3.94	0.95	1426
30	20	5.15	4.27	0.83	1346	4.80	3.98	0.83	1412	4.45	3.69	0.83	1492
30	22	5.45	3.87	0.71	1399	5.10	3.62	0.71	1478	4.75	3.37	0.71	1531
30	24	5.75	3.39	0.59	1452	5.40	3.19	0.59	1518	5.10	3.01	0.59	1584
30	26	6.05	2.84	0.47	1505	5.70	2.68	0.47	1571	5.35	2.51	0.47	1637
31	18	4.90	4.85	0.99	1294	4.50	4.46	0.99	1373	4.15	4.11	0.99	1426
31	20	5.15	4.48	0.87	1346	4.80	4.18	0.87	1412	4.45	3.87	0.87	1492
31	22	5.45	4.09	0.75	1399	5.10	3.83	0.75	1478	4.75	3.56	0.75	1531
31	24	5.75	3.62	0.63	1452	5.40	3.40	0.63	1518	5.10	3.21	0.63	1584
31	26	6.05	3.09	0.51	1505	5.70	2.91	0.51	1571	5.35	2.73	0.51	1637
32	18	4.90	4.90	1.00	1294	4.50	4.50	1.00	1373	4.15	4.15	1.00	1426
32	20	5.15	4.69	0.91	1346	4.80	4.37	0.91	1412	4.45	4.05	0.91	1492
32	22	5.45	4.31	0.79	1399	5.10	4.03	0.79	1478	4.75	3.75	0.79	1531
32	24	5.75	3.85	0.67	1452	5.40	3.62	0.67	1518	5.10	3.42	0.67	1584
32	26	6.05	3.33	0.55	1505	5.70	3.14	0.55	1571	5.35	2.94	0.55	1637

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP60VG MUZ-AP60VGD

CAPACITY: 6.0 kW SHF: 0.83 INPUT: 1590 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)															
		21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	7.05	4.58	0.65	1272	6.75	4.39	0.65	1336	6.48	4.21	0.65	1399	6.24	4.06	0.65	1463
21	20	7.35	3.90	0.53	1336	7.05	3.74	0.53	1415	6.84	3.63	0.53	1447	6.60	3.50	0.53	1511
22	18	7.05	4.86	0.69	1272	6.75	4.66	0.69	1336	6.48	4.47	0.69	1399	6.24	4.31	0.69	1463
22	20	7.35	4.19	0.57	1336	7.05	4.02	0.57	1415	6.84	3.90	0.57	1447	6.60	3.76	0.57	1511
22	22	7.65	3.44	0.45	1383	7.38	3.32	0.45	1471	7.20	3.24	0.45	1511	6.90	3.11	0.45	1574
23	18	7.05	5.15	0.73	1272	6.75	4.93	0.73	1336	6.48	4.73	0.73	1399	6.24	4.56	0.73	1463
23	20	7.35	4.48	0.61	1336	7.05	4.30	0.61	1415	6.84	4.17	0.61	1447	6.60	4.03	0.61	1511
23	22	7.65	3.75	0.49	1383	7.38	3.62	0.49	1471	7.20	3.53	0.49	1511	6.90	3.38	0.49	1574
24	18	7.05	5.43	0.77	1272	6.75	5.20	0.77	1336	6.48	4.99	0.77	1399	6.24	4.80	0.77	1463
24	20	7.35	4.78	0.65	1336	7.05	4.58	0.65	1415	6.84	4.45	0.65	1447	6.60	4.29	0.65	1511
24	22	7.65	4.05	0.53	1383	7.38	3.91	0.53	1471	7.20	3.82	0.53	1511	6.90	3.66	0.53	1574
24	24	8.04	3.30	0.41	1447	7.74	3.17	0.41	1526	7.56	3.10	0.41	1574	7.32	3.00	0.41	1654
25	18	7.05	5.71	0.81	1272	6.75	5.47	0.81	1336	6.48	5.25	0.81	1399	6.24	5.05	0.81	1463
25	20	7.35	5.07	0.69	1336	7.05	4.86	0.69	1415	6.84	4.72	0.69	1447	6.60	4.55	0.69	1511
25	22	7.65	4.36	0.57	1383	7.38	4.21	0.57	1471	7.20	4.10	0.57	1511	6.90	3.93	0.57	1574
25	24	8.04	3.62	0.45	1447	7.74	3.48	0.45	1526	7.56	3.40	0.45	1574	7.32	3.29	0.45	1654
26	18	7.05	5.99	0.85	1272	6.75	5.74	0.85	1336	6.48	5.51	0.85	1399	6.24	5.30	0.85	1463
26	20	7.35	5.37	0.73	1336	7.05	5.15	0.73	1415	6.84	4.99	0.73	1447	6.60	4.82	0.73	1511
26	22	7.65	4.67	0.61	1383	7.38	4.50	0.61	1471	7.20	4.39	0.61	1511	6.90	4.21	0.61	1574
26	24	8.04	3.94	0.49	1447	7.74	3.79	0.49	1526	7.56	3.70	0.49	1574	7.32	3.59	0.49	1654
26	26	8.28	3.06	0.37	1526	8.04	2.97	0.37	1606	7.92	2.93	0.37	1654	7.68	2.84	0.37	1701
27	18	7.05	6.27	0.89	1272	6.75	6.01	0.89	1336	6.48	5.77	0.89	1399	6.24	5.55	0.89	1463
27	20	7.35	5.66	0.77	1336	7.05	5.43	0.77	1415	6.84	5.27	0.77	1447	6.60	5.08	0.77	1511
27	22	7.65	4.97	0.65	1383	7.38	4.80	0.65	1471	7.20	4.68	0.65	1511	6.90	4.49	0.65	1574
27	24	8.04	4.26	0.53	1447	7.74	4.10	0.53	1526	7.56	4.01	0.53	1574	7.32	3.88	0.53	1654
27	26	8.28	3.39	0.41	1526	8.04	3.30	0.41	1606	7.92	3.25	0.41	1654	7.68	3.15	0.41	1701
28	18	7.05	6.56	0.93	1272	6.75	6.28	0.93	1336	6.48	6.03	0.93	1399	6.24	5.80	0.93	1463
28	20	7.35	5.95	0.81	1336	7.05	5.71	0.81	1415	6.84	5.54	0.81	1447	6.60	5.35	0.81	1511
28	22	7.65	5.28	0.69	1383	7.38	5.09	0.69	1471	7.20	4.97	0.69	1511	6.90	4.76	0.69	1574
28	24	8.04	4.58	0.57	1447	7.74	4.41	0.57	1526	7.56	4.31	0.57	1574	7.32	4.17	0.57	1654
28	26	8.28	3.73	0.45	1526	8.04	3.62	0.45	1606	7.92	3.56	0.45	1654	7.68	3.46	0.45	1701
29	18	7.05	6.84	0.97	1272	6.75	6.55	0.97	1336	6.48	6.29	0.97	1399	6.24	6.05	0.97	1463
29	20	7.35	6.25	0.85	1336	7.05	5.99	0.85	1415	6.84	5.81	0.85	1447	6.60	5.61	0.85	1511
29	22	7.65	5.58	0.73	1383	7.38	5.39	0.73	1471	7.20	5.26	0.73	1511	6.90	5.04	0.73	1574
29	24	8.04	4.90	0.61	1447	7.74	4.72	0.61	1526	7.56	4.61	0.61	1574	7.32	4.47	0.61	1654
29	26	8.28	4.06	0.49	1526	8.04	3.94	0.49	1606	7.92	3.88	0.49	1654	7.68	3.76	0.49	1701
30	18	7.05	7.05	1.00	1272	6.75	6.75	1.00	1336	6.48	6.48	1.00	1399	6.24	6.24	1.00	1463
30	20	7.35	6.54	0.89	1336	7.05	6.27	0.89	1415	6.84	6.09	0.89	1447	6.60	5.87	0.89	1511
30	22	7.65	5.89	0.77	1383	7.38	5.68	0.77	1471	7.20	5.54	0.77	1511	6.90	5.31	0.77	1574
30	24	8.04	5.23	0.65	1447	7.74	5.03	0.65	1526	7.56	4.91	0.65	1574	7.32	4.76	0.65	1654
30	26	8.28	4.39	0.53	1526	8.04	4.26	0.53	1606	7.92	4.20	0.53	1654	7.68	4.07	0.53	1701
31	18	7.05	7.05	1.00	1272	6.75	6.75	1.00	1336	6.48	6.48	1.00	1399	6.24	6.24	1.00	1463
31	20	7.35	6.84	0.93	1336	7.05	6.56	0.93	1415	6.84	6.36	0.93	1447	6.60	6.14	0.93	1511
31	22	7.65	6.20	0.81	1383	7.38	5.98	0.81	1471	7.20	5.83	0.81	1511	6.90	5.59	0.81	1574
31	24	8.04	5.55	0.69	1447	7.74	5.34	0.69	1526	7.56	5.22	0.69	1574	7.32	5.05	0.69	1654
31	26	8.28	4.72	0.57	1526	8.04	4.58	0.57	1606	7.92	4.51	0.57	1654	7.68	4.38	0.57	1701
32	18	7.05	7.05	1.00	1272	6.75	6.75	1.00	1336	6.48	6.48	1.00	1399	6.24	6.24	1.00	1463
32	20	7.35	7.13	0.97	1336	7.05	6.84	0.97	1415	6.84	6.63	0.97	1447	6.60	6.40	0.97	1511
32	22	7.65	6.50	0.85	1383	7.38	6.27	0.85	1471	7.20	6.12	0.85	1511	6.90	5.87	0.85	1574
32	24	8.04	5.87	0.73	1447	7.74	5.65	0.73	1526	7.56	5.52	0.73	1574	7.32	5.34	0.73	1654
32	26	8.28	5.05	0.61	1526	8.04	4.90	0.61	1606	7.92	4.83	0.61	1654	7.68	4.68	0.61	1701

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP60VG MUZ-AP60VGD

CAPACITY: 6.0 kW SHF: 0.83 INPUT: 1590 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)											
		35				40				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	5.88	3.82	0.65	1558	5.40	3.51	0.65	1654	4.98	3.24	0.65	1717
21	20	6.18	3.28	0.53	1622	5.76	3.05	0.53	1701	5.34	2.83	0.53	1797
22	18	5.88	4.06	0.69	1558	5.40	3.73	0.69	1654	4.98	3.44	0.69	1717
22	20	6.18	3.52	0.57	1622	5.76	3.28	0.57	1701	5.34	3.04	0.57	1797
22	22	6.54	2.94	0.45	1685	6.12	2.75	0.45	1781	5.70	2.57	0.45	1844
23	18	5.88	4.29	0.73	1558	5.40	3.94	0.73	1654	4.98	3.64	0.73	1717
23	20	6.18	3.77	0.61	1622	5.76	3.51	0.61	1701	5.34	3.26	0.61	1797
23	22	6.54	3.20	0.49	1685	6.12	3.00	0.49	1781	5.70	2.79	0.49	1844
24	18	5.88	4.53	0.77	1558	5.40	4.16	0.77	1654	4.98	3.83	0.77	1717
24	20	6.18	4.02	0.65	1622	5.76	3.74	0.65	1701	5.34	3.47	0.65	1797
24	22	6.54	3.47	0.53	1685	6.12	3.24	0.53	1781	5.70	3.02	0.53	1844
24	24	6.90	2.83	0.41	1749	6.48	2.66	0.41	1829	6.12	2.51	0.41	1908
25	18	5.88	4.76	0.81	1558	5.40	4.37	0.81	1654	4.98	4.03	0.81	1717
25	20	6.18	4.26	0.69	1622	5.76	3.97	0.69	1701	5.34	3.68	0.69	1797
25	22	6.54	3.73	0.57	1685	6.12	3.49	0.57	1781	5.70	3.25	0.57	1844
25	24	6.90	3.11	0.45	1749	6.48	2.92	0.45	1829	6.12	2.75	0.45	1908
26	18	5.88	5.00	0.85	1558	5.40	4.59	0.85	1654	4.98	4.23	0.85	1717
26	20	6.18	4.51	0.73	1622	5.76	4.20	0.73	1701	5.34	3.90	0.73	1797
26	22	6.54	3.99	0.61	1685	6.12	3.73	0.61	1781	5.70	3.48	0.61	1844
26	24	6.90	3.38	0.49	1749	6.48	3.18	0.49	1829	6.12	3.00	0.49	1908
26	26	7.26	2.69	0.37	1813	6.84	2.53	0.37	1892	6.42	2.38	0.37	1972
27	18	5.88	5.23	0.89	1558	5.40	4.81	0.89	1654	4.98	4.43	0.89	1717
27	20	6.18	4.76	0.77	1622	5.76	4.44	0.77	1701	5.34	4.11	0.77	1797
27	22	6.54	4.25	0.65	1685	6.12	3.98	0.65	1781	5.70	3.71	0.65	1844
27	24	6.90	3.66	0.53	1749	6.48	3.43	0.53	1829	6.12	3.24	0.53	1908
27	26	7.26	2.98	0.41	1813	6.84	2.80	0.41	1892	6.42	2.63	0.41	1972
28	18	5.88	5.47	0.93	1558	5.40	5.02	0.93	1654	4.98	4.63	0.93	1717
28	20	6.18	5.01	0.81	1622	5.76	4.67	0.81	1701	5.34	4.33	0.81	1797
28	22	6.54	4.51	0.69	1685	6.12	4.22	0.69	1781	5.70	3.93	0.69	1844
28	24	6.90	3.93	0.57	1749	6.48	3.69	0.57	1829	6.12	3.49	0.57	1908
28	26	7.26	3.27	0.45	1813	6.84	3.08	0.45	1892	6.42	2.89	0.45	1972
29	18	5.88	5.70	0.97	1558	5.40	5.24	0.97	1654	4.98	4.83	0.97	1717
29	20	6.18	5.25	0.85	1622	5.76	4.90	0.85	1701	5.34	4.54	0.85	1797
29	22	6.54	4.77	0.73	1685	6.12	4.47	0.73	1781	5.70	4.16	0.73	1844
29	24	6.90	4.21	0.61	1749	6.48	3.95	0.61	1829	6.12	3.73	0.61	1908
29	26	7.26	3.56	0.49	1813	6.84	3.35	0.49	1892	6.42	3.15	0.49	1972
30	18	5.88	5.88	1.00	1558	5.40	5.40	1.00	1654	4.98	4.98	1.00	1717
30	20	6.18	5.50	0.89	1622	5.76	5.13	0.89	1701	5.34	4.75	0.89	1797
30	22	6.54	5.04	0.77	1685	6.12	4.71	0.77	1781	5.70	4.39	0.77	1844
30	24	6.90	4.49	0.65	1749	6.48	4.21	0.65	1829	6.12	3.98	0.65	1908
30	26	7.26	3.85	0.53	1813	6.84	3.63	0.53	1892	6.42	3.40	0.53	1972
31	18	5.88	5.88	1.00	1558	5.40	5.40	1.00	1654	4.98	4.98	1.00	1717
31	20	6.18	5.75	0.93	1622	5.76	5.36	0.93	1701	5.34	4.97	0.93	1797
31	22	6.54	5.30	0.81	1685	6.12	4.96	0.81	1781	5.70	4.62	0.81	1844
31	24	6.90	4.76	0.69	1749	6.48	4.47	0.69	1829	6.12	4.22	0.69	1908
31	26	7.26	4.14	0.57	1813	6.84	3.90	0.57	1892	6.42	3.66	0.57	1972
32	18	5.88	5.88	1.00	1558	5.40	5.40	1.00	1654	4.98	4.98	1.00	1717
32	20	6.18	5.99	0.97	1622	5.76	5.59	0.97	1701	5.34	5.18	0.97	1797
32	22	6.54	5.56	0.85	1685	6.12	5.20	0.85	1781	5.70	4.85	0.85	1844
32	24	6.90	5.04	0.73	1749	6.48	4.73	0.73	1829	6.12	4.47	0.73	1908
32	26	7.26	4.43	0.61	1813	6.84	4.17	0.61	1892	6.42	3.92	0.61	1972

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP71VG MUZ-AP71VGD

CAPACITY: 7.1 kW SHF: 0.77 INPUT: 2010 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)															
		21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	8.34	4.92	0.59	1608	7.99	4.71	0.59	1688	7.67	4.52	0.59	1769	7.38	4.36	0.59	1849
21	20	8.70	4.09	0.47	1688	8.34	3.92	0.47	1789	8.09	3.80	0.47	1829	7.81	3.67	0.47	1910
22	18	8.34	5.26	0.63	1608	7.99	5.03	0.63	1688	7.67	4.83	0.63	1769	7.38	4.65	0.63	1849
22	20	8.70	4.44	0.51	1688	8.34	4.25	0.51	1789	8.09	4.13	0.51	1829	7.81	3.98	0.51	1910
22	22	9.05	3.53	0.39	1749	8.73	3.41	0.39	1859	8.52	3.32	0.39	1910	8.17	3.18	0.39	1990
23	18	8.34	5.59	0.67	1608	7.99	5.35	0.67	1688	7.67	5.14	0.67	1769	7.38	4.95	0.67	1849
23	20	8.70	4.78	0.55	1688	8.34	4.59	0.55	1789	8.09	4.45	0.55	1829	7.81	4.30	0.55	1910
23	22	9.05	3.89	0.43	1749	8.73	3.76	0.43	1859	8.52	3.66	0.43	1910	8.17	3.51	0.43	1990
24	18	8.34	5.92	0.71	1608	7.99	5.67	0.71	1688	7.67	5.44	0.71	1769	7.38	5.24	0.71	1849
24	20	8.70	5.13	0.59	1688	8.34	4.92	0.59	1789	8.09	4.78	0.59	1829	7.81	4.61	0.59	1910
24	22	9.05	4.25	0.47	1749	8.73	4.10	0.47	1859	8.52	4.00	0.47	1910	8.17	3.84	0.47	1990
24	24	9.51	3.33	0.35	1829	9.16	3.21	0.35	1930	8.95	3.13	0.35	1990	8.66	3.03	0.35	2090
25	18	8.34	6.26	0.75	1608	7.99	5.99	0.75	1688	7.67	5.75	0.75	1769	7.38	5.54	0.75	1849
25	20	8.70	5.48	0.63	1688	8.34	5.26	0.63	1789	8.09	5.10	0.63	1829	7.81	4.92	0.63	1910
25	22	9.05	4.62	0.51	1749	8.73	4.45	0.51	1859	8.52	4.35	0.51	1910	8.17	4.16	0.51	1990
25	24	9.51	3.71	0.39	1829	9.16	3.57	0.39	1930	8.95	3.49	0.39	1990	8.66	3.38	0.39	2090
26	18	8.34	6.59	0.79	1608	7.99	6.31	0.79	1688	7.67	6.06	0.79	1769	7.38	5.83	0.79	1849
26	20	8.70	5.83	0.67	1688	8.34	5.59	0.67	1789	8.09	5.42	0.67	1829	7.81	5.23	0.67	1910
26	22	9.05	4.98	0.55	1749	8.73	4.80	0.55	1859	8.52	4.69	0.55	1910	8.17	4.49	0.55	1990
26	24	9.51	4.09	0.43	1829	9.16	3.94	0.43	1930	8.95	3.85	0.43	1990	8.66	3.72	0.43	2090
26	26	9.80	3.04	0.31	1930	9.51	2.95	0.31	2030	9.37	2.91	0.31	2090	9.09	2.82	0.31	2151
27	18	8.34	6.92	0.83	1608	7.99	6.63	0.83	1688	7.67	6.36	0.83	1769	7.38	6.13	0.83	1849
27	20	8.70	6.18	0.71	1688	8.34	5.92	0.71	1789	8.09	5.75	0.71	1829	7.81	5.55	0.71	1910
27	22	9.05	5.34	0.59	1749	8.73	5.15	0.59	1859	8.52	5.03	0.59	1910	8.17	4.82	0.59	1990
27	24	9.51	4.47	0.47	1829	9.16	4.30	0.47	1930	8.95	4.20	0.47	1990	8.66	4.07	0.47	2090
27	26	9.80	3.43	0.35	1930	9.51	3.33	0.35	2030	9.37	3.28	0.35	2090	9.09	3.18	0.35	2151
28	18	8.34	7.26	0.87	1608	7.99	6.95	0.87	1688	7.67	6.67	0.87	1769	7.38	6.42	0.87	1849
28	20	8.70	6.52	0.75	1688	8.34	6.26	0.75	1789	8.09	6.07	0.75	1829	7.81	5.86	0.75	1910
28	22	9.05	5.70	0.63	1749	8.73	5.50	0.63	1859	8.52	5.37	0.63	1910	8.17	5.14	0.63	1990
28	24	9.51	4.85	0.51	1829	9.16	4.67	0.51	1930	8.95	4.56	0.51	1990	8.66	4.42	0.51	2090
28	26	9.80	3.82	0.39	1930	9.51	3.71	0.39	2030	9.37	3.66	0.39	2090	9.09	3.54	0.39	2151
29	18	8.34	7.59	0.91	1608	7.99	7.27	0.91	1688	7.67	6.98	0.91	1769	7.38	6.72	0.91	1849
29	20	8.70	6.87	0.79	1688	8.34	6.59	0.79	1789	8.09	6.39	0.79	1829	7.81	6.17	0.79	1910
29	22	9.05	6.07	0.67	1749	8.73	5.85	0.67	1859	8.52	5.71	0.67	1910	8.17	5.47	0.67	1990
29	24	9.51	5.23	0.55	1829	9.16	5.04	0.55	1930	8.95	4.92	0.55	1990	8.66	4.76	0.55	2090
29	26	9.80	4.21	0.43	1930	9.51	4.09	0.43	2030	9.37	4.03	0.43	2090	9.09	3.91	0.43	2151
30	18	8.34	7.93	0.95	1608	7.99	7.59	0.95	1688	7.67	7.28	0.95	1769	7.38	7.01	0.95	1849
30	20	8.70	7.22	0.83	1688	8.34	6.92	0.83	1789	8.09	6.72	0.83	1829	7.81	6.48	0.83	1910
30	22	9.05	6.43	0.71	1749	8.73	6.20	0.71	1859	8.52	6.05	0.71	1910	8.17	5.80	0.71	1990
30	24	9.51	5.61	0.59	1829	9.16	5.40	0.59	1930	8.95	5.28	0.59	1990	8.66	5.11	0.59	2090
30	26	9.80	4.61	0.47	1930	9.51	4.47	0.47	2030	9.37	4.40	0.47	2090	9.09	4.27	0.47	2151
31	18	8.34	8.26	0.99	1608	7.99	7.91	0.99	1688	7.67	7.59	0.99	1769	7.38	7.31	0.99	1849
31	20	8.70	7.57	0.87	1688	8.34	7.26	0.87	1789	8.09	7.04	0.87	1829	7.81	6.79	0.87	1910
31	22	9.05	6.79	0.75	1749	8.73	6.55	0.75	1859	8.52	6.39	0.75	1910	8.17	6.12	0.75	1990
31	24	9.51	5.99	0.63	1829	9.16	5.77	0.63	1930	8.95	5.64	0.63	1990	8.66	5.46	0.63	2090
31	26	9.80	5.00	0.51	1930	9.51	4.85	0.51	2030	9.37	4.78	0.51	2090	9.09	4.63	0.51	2151
32	18	8.34	8.34	1.00	1608	7.99	7.99	1.00	1688	7.67	7.67	1.00	1769	7.38	7.38	1.00	1849
32	20	8.70	7.91	0.91	1688	8.34	7.59	0.91	1789	8.09	7.37	0.91	1829	7.81	7.11	0.91	1910
32	22	9.05	7.15	0.79	1749	8.73	6.90	0.79	1859	8.52	6.73	0.79	1910	8.17	6.45	0.79	1990
32	24	9.51	6.37	0.67	1829	9.16	6.14	0.67	1930	8.95	5.99	0.67	1990	8.66	5.80	0.67	2090
32	26	9.80	5.39	0.55	1930	9.51	5.23	0.55	2030	9.37	5.15	0.55	2090	9.09	5.00	0.55	2151

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP71VG MUZ-AP71VGD

CAPACITY: 7.1 kW SHF: 0.77 INPUT: 2010 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)											
		35				40				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	6.96	4.11	0.59	1970	6.39	3.77	0.59	2090	5.89	3.48	0.59	2171
21	20	7.31	3.44	0.47	2050	6.82	3.20	0.47	2151	6.32	2.97	0.47	2271
22	18	6.96	4.38	0.63	1970	6.39	4.03	0.63	2090	5.89	3.71	0.63	2171
22	20	7.31	3.73	0.51	2050	6.82	3.48	0.51	2151	6.32	3.22	0.51	2271
22	22	7.74	3.02	0.39	2131	7.24	2.82	0.39	2251	6.75	2.63	0.39	2332
23	18	6.96	4.66	0.67	1970	6.39	4.28	0.67	2090	5.89	3.95	0.67	2171
23	20	7.31	4.02	0.55	2050	6.82	3.75	0.55	2151	6.32	3.48	0.55	2271
23	22	7.74	3.33	0.43	2131	7.24	3.11	0.43	2251	6.75	2.90	0.43	2332
24	18	6.96	4.94	0.71	1970	6.39	4.54	0.71	2090	5.89	4.18	0.71	2171
24	20	7.31	4.31	0.59	2050	6.82	4.02	0.59	2151	6.32	3.73	0.59	2271
24	22	7.74	3.64	0.47	2131	7.24	3.40	0.47	2251	6.75	3.17	0.47	2332
24	24	8.17	2.86	0.35	2211	7.67	2.68	0.35	2312	7.24	2.53	0.35	2412
25	18	6.96	5.22	0.75	1970	6.39	4.79	0.75	2090	5.89	4.42	0.75	2171
25	20	7.31	4.61	0.63	2050	6.82	4.29	0.63	2151	6.32	3.98	0.63	2271
25	22	7.74	3.95	0.51	2131	7.24	3.69	0.51	2251	6.75	3.44	0.51	2332
25	24	8.17	3.18	0.39	2211	7.67	2.99	0.39	2312	7.24	2.82	0.39	2412
26	18	6.96	5.50	0.79	1970	6.39	5.05	0.79	2090	5.89	4.66	0.79	2171
26	20	7.31	4.90	0.67	2050	6.82	4.57	0.67	2151	6.32	4.23	0.67	2271
26	22	7.74	4.26	0.55	2131	7.24	3.98	0.55	2251	6.75	3.71	0.55	2332
26	24	8.17	3.51	0.43	2211	7.67	3.30	0.43	2312	7.24	3.11	0.43	2412
26	26	8.59	2.66	0.31	2291	8.09	2.51	0.31	2392	7.60	2.36	0.31	2492
27	18	6.96	5.78	0.83	1970	6.39	5.30	0.83	2090	5.89	4.89	0.83	2171
27	20	7.31	5.19	0.71	2050	6.82	4.84	0.71	2151	6.32	4.49	0.71	2271
27	22	7.74	4.57	0.59	2131	7.24	4.27	0.59	2251	6.75	3.98	0.59	2332
27	24	8.17	3.84	0.47	2211	7.67	3.60	0.47	2312	7.24	3.40	0.47	2412
27	26	8.59	3.01	0.35	2291	8.09	2.83	0.35	2392	7.60	2.66	0.35	2492
28	18	6.96	6.05	0.87	1970	6.39	5.56	0.87	2090	5.89	5.13	0.87	2171
28	20	7.31	5.48	0.75	2050	6.82	5.11	0.75	2151	6.32	4.74	0.75	2271
28	22	7.74	4.88	0.63	2131	7.24	4.56	0.63	2251	6.75	4.25	0.63	2332
28	24	8.17	4.16	0.51	2211	7.67	3.91	0.51	2312	7.24	3.69	0.51	2412
28	26	8.59	3.35	0.39	2291	8.09	3.16	0.39	2392	7.60	2.96	0.39	2492
29	18	6.96	6.33	0.91	1970	6.39	5.81	0.91	2090	5.89	5.36	0.91	2171
29	20	7.31	5.78	0.79	2050	6.82	5.38	0.79	2151	6.32	4.99	0.79	2271
29	22	7.74	5.19	0.67	2131	7.24	4.85	0.67	2251	6.75	4.52	0.67	2332
29	24	8.17	4.49	0.55	2211	7.67	4.22	0.55	2312	7.24	3.98	0.55	2412
29	26	8.59	3.69	0.43	2291	8.09	3.48	0.43	2392	7.60	3.27	0.43	2492
30	18	6.96	6.61	0.95	1970	6.39	6.07	0.95	2090	5.89	5.60	0.95	2171
30	20	7.31	6.07	0.83	2050	6.82	5.66	0.83	2151	6.32	5.24	0.83	2271
30	22	7.74	5.49	0.71	2131	7.24	5.14	0.71	2251	6.75	4.79	0.71	2332
30	24	8.17	4.82	0.59	2211	7.67	4.52	0.59	2312	7.24	4.27	0.59	2412
30	26	8.59	4.04	0.47	2291	8.09	3.80	0.47	2392	7.60	3.57	0.47	2492
31	18	6.96	6.89	0.99	1970	6.39	6.33	0.99	2090	5.89	5.83	0.99	2171
31	20	7.31	6.36	0.87	2050	6.82	5.93	0.87	2151	6.32	5.50	0.87	2271
31	22	7.74	5.80	0.75	2131	7.24	5.43	0.75	2251	6.75	5.06	0.75	2332
31	24	8.17	5.14	0.63	2211	7.67	4.83	0.63	2312	7.24	4.56	0.63	2412
31	26	8.59	4.38	0.51	2291	8.09	4.13	0.51	2392	7.60	3.87	0.51	2492
32	18	6.96	6.96	1.00	1970	6.39	6.39	1.00	2090	5.89	5.89	1.00	2171
32	20	7.31	6.65	0.91	2050	6.82	6.20	0.91	2151	6.32	5.75	0.91	2271
32	22	7.74	6.11	0.79	2131	7.24	5.72	0.79	2251	6.75	5.33	0.79	2332
32	24	8.17	5.47	0.67	2211	7.67	5.14	0.67	2312	7.24	4.85	0.67	2412
32	26	8.59	4.73	0.55	2291	8.09	4.45	0.55	2392	7.60	4.18	0.55	2492

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP80VG MUZ-AP80VGD

CAPACITY: 7.8 kW SHF: 0.77 INPUT: 2360 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)															
		21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	9.17	5.41	0.59	1888	8.78	5.18	0.59	1982	8.42	4.97	0.59	2077	8.11	4.79	0.59	2171
21	20	9.56	4.49	0.47	1982	9.17	4.31	0.47	2100	8.89	4.18	0.47	2148	8.58	4.03	0.47	2242
22	18	9.17	5.77	0.63	1888	8.78	5.53	0.63	1982	8.42	5.31	0.63	2077	8.11	5.11	0.63	2171
22	20	9.56	4.87	0.51	1982	9.17	4.67	0.51	2100	8.89	4.53	0.51	2148	8.58	4.38	0.51	2242
22	22	9.95	3.88	0.39	2053	9.59	3.74	0.39	2183	9.36	3.65	0.39	2242	8.97	3.50	0.39	2336
23	18	9.17	6.14	0.67	1888	8.78	5.88	0.67	1982	8.42	5.64	0.67	2077	8.11	5.44	0.67	2171
23	20	9.56	5.26	0.55	1982	9.17	5.04	0.55	2100	8.89	4.89	0.55	2148	8.58	4.72	0.55	2242
23	22	9.95	4.28	0.43	2053	9.59	4.13	0.43	2183	9.36	4.02	0.43	2242	8.97	3.86	0.43	2336
24	18	9.17	6.51	0.71	1888	8.78	6.23	0.71	1982	8.42	5.98	0.71	2077	8.11	5.76	0.71	2171
24	20	9.56	5.64	0.59	1982	9.17	5.41	0.59	2100	8.89	5.25	0.59	2148	8.58	5.06	0.59	2242
24	22	9.95	4.67	0.47	2053	9.59	4.51	0.47	2183	9.36	4.40	0.47	2242	8.97	4.22	0.47	2336
24	24	10.45	3.66	0.35	2148	10.06	3.52	0.35	2266	9.83	3.44	0.35	2336	9.52	3.33	0.35	2454
25	18	9.17	6.87	0.75	1888	8.78	6.58	0.75	1982	8.42	6.32	0.75	2077	8.11	6.08	0.75	2171
25	20	9.56	6.02	0.63	1982	9.17	5.77	0.63	2100	8.89	5.60	0.63	2148	8.58	5.41	0.63	2242
25	22	9.95	5.07	0.51	2053	9.59	4.89	0.51	2183	9.36	4.77	0.51	2242	8.97	4.57	0.51	2336
25	24	10.45	4.08	0.39	2148	10.06	3.92	0.39	2266	9.83	3.83	0.39	2336	9.52	3.71	0.39	2454
26	18	9.17	7.24	0.79	1888	8.78	6.93	0.79	1982	8.42	6.65	0.79	2077	8.11	6.41	0.79	2171
26	20	9.56	6.40	0.67	1982	9.17	6.14	0.67	2100	8.89	5.96	0.67	2148	8.58	5.75	0.67	2242
26	22	9.95	5.47	0.55	2053	9.59	5.28	0.55	2183	9.36	5.15	0.55	2242	8.97	4.93	0.55	2336
26	24	10.45	4.49	0.43	2148	10.06	4.33	0.43	2266	9.83	4.23	0.43	2336	9.52	4.09	0.43	2454
26	26	10.76	3.34	0.31	2266	10.45	3.24	0.31	2384	10.30	3.19	0.31	2454	9.98	3.10	0.31	2525
27	18	9.17	7.61	0.83	1888	8.78	7.28	0.83	1982	8.42	6.99	0.83	2077	8.11	6.73	0.83	2171
27	20	9.56	6.78	0.71	1982	9.17	6.51	0.71	2100	8.89	6.31	0.71	2148	8.58	6.09	0.71	2242
27	22	9.95	5.87	0.59	2053	9.59	5.66	0.59	2183	9.36	5.52	0.59	2242	8.97	5.29	0.59	2336
27	24	10.45	4.91	0.47	2148	10.06	4.73	0.47	2266	9.83	4.62	0.47	2336	9.52	4.47	0.47	2454
27	26	10.76	3.77	0.35	2266	10.45	3.66	0.35	2384	10.30	3.60	0.35	2454	9.98	3.49	0.35	2525
28	18	9.17	7.97	0.87	1888	8.78	7.63	0.87	1982	8.42	7.33	0.87	2077	8.11	7.06	0.87	2171
28	20	9.56	7.17	0.75	1982	9.17	6.87	0.75	2100	8.89	6.67	0.75	2148	8.58	6.44	0.75	2242
28	22	9.95	6.27	0.63	2053	9.59	6.04	0.63	2183	9.36	5.90	0.63	2242	8.97	5.65	0.63	2336
28	24	10.45	5.33	0.51	2148	10.06	5.13	0.51	2266	9.83	5.01	0.51	2336	9.52	4.85	0.51	2454
28	26	10.76	4.20	0.39	2266	10.45	4.08	0.39	2384	10.30	4.02	0.39	2454	9.98	3.89	0.39	2525
29	18	9.17	8.34	0.91	1888	8.78	7.99	0.91	1982	8.42	7.67	0.91	2077	8.11	7.38	0.91	2171
29	20	9.56	7.55	0.79	1982	9.17	7.24	0.79	2100	8.89	7.02	0.79	2148	8.58	6.78	0.79	2242
29	22	9.95	6.66	0.67	2053	9.59	6.43	0.67	2183	9.36	6.27	0.67	2242	8.97	6.01	0.67	2336
29	24	10.45	5.75	0.55	2148	10.06	5.53	0.55	2266	9.83	5.41	0.55	2336	9.52	5.23	0.55	2454
29	26	10.76	4.63	0.43	2266	10.45	4.49	0.43	2384	10.30	4.43	0.43	2454	9.98	4.29	0.43	2525
30	18	9.17	8.71	0.95	1888	8.78	8.34	0.95	1982	8.42	8.00	0.95	2077	8.11	7.71	0.95	2171
30	20	9.56	7.93	0.83	1982	9.17	7.61	0.83	2100	8.89	7.38	0.83	2148	8.58	7.12	0.83	2242
30	22	9.95	7.06	0.71	2053	9.59	6.81	0.71	2183	9.36	6.65	0.71	2242	8.97	6.37	0.71	2336
30	24	10.45	6.17	0.59	2148	10.06	5.94	0.59	2266	9.83	5.80	0.59	2336	9.52	5.61	0.59	2454
30	26	10.76	5.06	0.47	2266	10.45	4.91	0.47	2384	10.30	4.84	0.47	2454	9.98	4.69	0.47	2525
31	18	9.17	9.07	0.99	1888	8.78	8.69	0.99	1982	8.42	8.34	0.99	2077	8.11	8.03	0.99	2171
31	20	9.56	8.31	0.87	1982	9.17	7.97	0.87	2100	8.89	7.74	0.87	2148	8.58	7.46	0.87	2242
31	22	9.95	7.46	0.75	2053	9.59	7.20	0.75	2183	9.36	7.02	0.75	2242	8.97	6.73	0.75	2336
31	24	10.45	6.58	0.63	2148	10.06	6.34	0.63	2266	9.83	6.19	0.63	2336	9.52	6.00	0.63	2454
31	26	10.76	5.49	0.51	2266	10.45	5.33	0.51	2384	10.30	5.25	0.51	2454	9.98	5.09	0.51	2525
32	18	9.17	9.17	1.00	1888	8.78	8.78	1.00	1982	8.42	8.42	1.00	2077	8.11	8.11	1.00	2171
32	20	9.56	8.70	0.91	1982	9.17	8.34	0.91	2100	8.89	8.09	0.91	2148	8.58	7.81	0.91	2242
32	22	9.95	7.86	0.79	2053	9.59	7.58	0.79	2183	9.36	7.39	0.79	2242	8.97	7.09	0.79	2336
32	24	10.45	7.00	0.67	2148	10.06	6.74	0.67	2266	9.83	6.58	0.67	2336	9.52	6.38	0.67	2454
32	26	10.76	5.92	0.55	2266	10.45	5.75	0.55	2384	10.30	5.66	0.55	2454	9.98	5.49	0.55	2525

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-AP80VG MUZ-AP80VGD

CAPACITY: 7.8 kW SHF: 0.77 INPUT: 2360 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)											
		35				40				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	7.64	4.51	0.59	2313	7.02	4.14	0.59	2454	6.47	3.82	0.59	2549
21	20	8.03	3.78	0.47	2407	7.49	3.52	0.47	2525	6.94	3.26	0.47	2667
22	18	7.64	4.82	0.63	2313	7.02	4.42	0.63	2454	6.47	4.08	0.63	2549
22	20	8.03	4.10	0.51	2407	7.49	3.82	0.51	2525	6.94	3.54	0.51	2667
22	22	8.50	3.32	0.39	2502	7.96	3.10	0.39	2643	7.41	2.89	0.39	2738
23	18	7.64	5.12	0.67	2313	7.02	4.70	0.67	2454	6.47	4.34	0.67	2549
23	20	8.03	4.42	0.55	2407	7.49	4.12	0.55	2525	6.94	3.82	0.55	2667
23	22	8.50	3.66	0.43	2502	7.96	3.42	0.43	2643	7.41	3.19	0.43	2738
24	18	7.64	5.43	0.71	2313	7.02	4.98	0.71	2454	6.47	4.60	0.71	2549
24	20	8.03	4.74	0.59	2407	7.49	4.42	0.59	2525	6.94	4.10	0.59	2667
24	22	8.50	4.00	0.47	2502	7.96	3.74	0.47	2643	7.41	3.48	0.47	2738
24	24	8.97	3.14	0.35	2596	8.42	2.95	0.35	2714	7.96	2.78	0.35	2832
25	18	7.64	5.73	0.75	2313	7.02	5.27	0.75	2454	6.47	4.86	0.75	2549
25	20	8.03	5.06	0.63	2407	7.49	4.72	0.63	2525	6.94	4.37	0.63	2667
25	22	8.50	4.34	0.51	2502	7.96	4.06	0.51	2643	7.41	3.78	0.51	2738
25	24	8.97	3.50	0.39	2596	8.42	3.29	0.39	2714	7.96	3.10	0.39	2832
26	18	7.64	6.04	0.79	2313	7.02	5.55	0.79	2454	6.47	5.11	0.79	2549
26	20	8.03	5.38	0.67	2407	7.49	5.02	0.67	2525	6.94	4.65	0.67	2667
26	22	8.50	4.68	0.55	2502	7.96	4.38	0.55	2643	7.41	4.08	0.55	2738
26	24	8.97	3.86	0.43	2596	8.42	3.62	0.43	2714	7.96	3.42	0.43	2832
26	26	9.44	2.93	0.31	2690	8.89	2.76	0.31	2808	8.35	2.59	0.31	2926
27	18	7.64	6.34	0.83	2313	7.02	5.83	0.83	2454	6.47	5.37	0.83	2549
27	20	8.03	5.70	0.71	2407	7.49	5.32	0.71	2525	6.94	4.93	0.71	2667
27	22	8.50	5.02	0.59	2502	7.96	4.69	0.59	2643	7.41	4.37	0.59	2738
27	24	8.97	4.22	0.47	2596	8.42	3.96	0.47	2714	7.96	3.74	0.47	2832
27	26	9.44	3.30	0.35	2690	8.89	3.11	0.35	2808	8.35	2.92	0.35	2926
28	18	7.64	6.65	0.87	2313	7.02	6.11	0.87	2454	6.47	5.63	0.87	2549
28	20	8.03	6.03	0.75	2407	7.49	5.62	0.75	2525	6.94	5.21	0.75	2667
28	22	8.50	5.36	0.63	2502	7.96	5.01	0.63	2643	7.41	4.67	0.63	2738
28	24	8.97	4.57	0.51	2596	8.42	4.30	0.51	2714	7.96	4.06	0.51	2832
28	26	9.44	3.68	0.39	2690	8.89	3.47	0.39	2808	8.35	3.25	0.39	2926
29	18	7.64	6.96	0.91	2313	7.02	6.39	0.91	2454	6.47	5.89	0.91	2549
29	20	8.03	6.35	0.79	2407	7.49	5.92	0.79	2525	6.94	5.48	0.79	2667
29	22	8.50	5.70	0.67	2502	7.96	5.33	0.67	2643	7.41	4.96	0.67	2738
29	24	8.97	4.93	0.55	2596	8.42	4.63	0.55	2714	7.96	4.38	0.55	2832
29	26	9.44	4.06	0.43	2690	8.89	3.82	0.43	2808	8.35	3.59	0.43	2926
30	18	7.64	7.26	0.95	2313	7.02	6.67	0.95	2454	6.47	6.15	0.95	2549
30	20	8.03	6.67	0.83	2407	7.49	6.22	0.83	2525	6.94	5.76	0.83	2667
30	22	8.50	6.04	0.71	2502	7.96	5.65	0.71	2643	7.41	5.26	0.71	2738
30	24	8.97	5.29	0.59	2596	8.42	4.97	0.59	2714	7.96	4.69	0.59	2832
30	26	9.44	4.44	0.47	2690	8.89	4.18	0.47	2808	8.35	3.92	0.47	2926
31	18	7.64	7.57	0.99	2313	7.02	6.95	0.99	2454	6.47	6.41	0.99	2549
31	20	8.03	6.99	0.87	2407	7.49	6.51	0.87	2525	6.94	6.04	0.87	2667
31	22	8.50	6.38	0.75	2502	7.96	5.97	0.75	2643	7.41	5.56	0.75	2738
31	24	8.97	5.65	0.63	2596	8.42	5.31	0.63	2714	7.96	5.01	0.63	2832
31	26	9.44	4.81	0.51	2690	8.89	4.53	0.51	2808	8.35	4.26	0.51	2926
32	18	7.64	7.64	1.00	2313	7.02	7.02	1.00	2454	6.47	6.47	1.00	2549
32	20	8.03	7.31	0.91	2407	7.49	6.81	0.91	2525	6.94	6.32	0.91	2667
32	22	8.50	6.72	0.79	2502	7.96	6.29	0.79	2643	7.41	5.85	0.79	2738
32	24	8.97	6.01	0.67	2596	8.42	5.64	0.67	2714	7.96	5.33	0.67	2832
32	26	9.44	5.19	0.55	2690	8.89	4.89	0.55	2808	8.35	4.59	0.55	2926

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA HEAT operation at Rated frequency

MUZ-AP25VG MUZ-AP25VGD

CAPACITY: 3.2 kW INPUT: 670 W

INDOOR DB (°C)	OUTDOOR WB (°C)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	2.02	436	2.43	523	2.85	590	3.26	637	3.68	677	4.06	697	4.48	710
21	1.92	469	2.30	556	2.72	616	3.10	663	3.52	697	3.90	717	4.30	744
26	1.73	503	2.14	590	2.53	650	2.94	697	3.36	730	3.74	750	4.16	771

MUZ-AP35VG MUZ-AP35VGD

CAPACITY: 3.7 kW INPUT: 810 W

INDOOR DB (°C)	OUTDOOR WB (°C)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	2.33	527	2.81	632	3.29	713	3.77	770	4.26	818	4.70	842	5.18	859
21	2.22	567	2.66	672	3.15	745	3.59	802	4.07	842	4.51	867	4.98	899
26	2.00	608	2.48	713	2.92	786	3.40	842	3.89	883	4.33	907	4.81	932

MUZ-AP42VG MUZ-AP42VGD

CAPACITY: 5.4 kW INPUT: 1430 W

INDOOR DB (°C)	OUTDOOR WB (°C)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	3.40	930	4.10	1115	4.81	1258	5.51	1359	6.21	1444	6.86	1487	7.56	1516
21	3.24	1001	3.89	1187	4.59	1316	5.24	1416	5.94	1487	6.59	1530	7.26	1587
26	2.92	1073	3.62	1258	4.27	1387	4.97	1487	5.67	1559	6.32	1602	7.02	1645

MUZ-AP50VG MUZ-AP50VGD

CAPACITY: 6.0 kW INPUT: 1620 W

INDOOR DB (°C)	OUTDOOR WB (°C)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	3.78	1053	4.56	1264	5.34	1426	6.12	1539	6.90	1636	7.62	1685	8.40	1717
21	3.60	1134	4.32	1345	5.10	1490	5.82	1604	6.60	1685	7.32	1733	8.07	1798
26	3.24	1215	4.02	1426	4.74	1571	5.52	1685	6.30	1766	7.02	1814	7.80	1863

MUZ-AP60VG MUZ-AP60VGD

CAPACITY: 6.8 kW INPUT: 1670 W

INDOOR DB (°C)	OUTDOOR WB (°C)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	4.28	1086	5.17	1303	6.05	1470	6.94	1587	7.82	1687	8.64	1737	9.52	1770
21	4.08	1169	4.90	1386	5.78	1536	6.60	1653	7.48	1737	8.30	1787	9.15	1854
26	3.67	1253	4.56	1470	5.37	1620	6.26	1737	7.14	1820	7.96	1870	8.84	1921

MUZ-AP71VG MUZ-AP71VGD

CAPACITY: 8.0 kW INPUT: 2090 W

INDOOR DB (°C)	OUTDOOR WB (°C)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	5.04	1359	6.08	1630	7.12	1839	8.16	1986	9.20	2111	10.16	2174	11.20	2215
21	4.80	1463	5.76	1735	6.80	1923	7.76	2069	8.80	2174	9.76	2236	10.76	2320
26	4.32	1568	5.36	1839	6.32	2027	7.36	2174	8.40	2278	9.36	2341	10.40	2404

MUZ-AP80VG MUZ-AP80VGD

CAPACITY: 9.0 kW INPUT: 2550 W

INDOOR DB (°C)	OUTDOOR WB (°C)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	5.67	1658	6.84	1989	8.01	2244	9.18	2423	10.35	2576	11.43	2652	12.60	2703
21	5.40	1785	6.48	2117	7.65	2346	8.73	2525	9.90	2652	10.98	2729	12.11	2831
26	4.86	1913	6.03	2244	7.11	2474	8.28	2652	9.45	2780	10.53	2856	11.70	2933

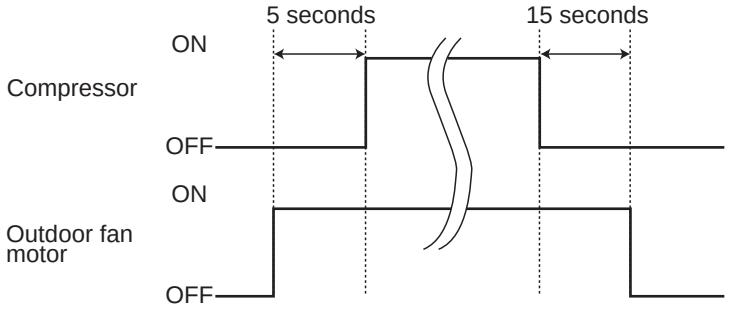
NOTE: Q: Total capacity (kW) INPUT : Total power input (W) DB: Dry-bulb temperature WB: Wet-bulb temperature

10 ACTUATOR CONTROL

MUZ-AP25VG MUZ-AP35VG MUZ-AP42VG MUZ-AP50VG MUZ-AP60VG
MUZ-AP71VG MUZ-AP80VG
MUZ-AP25VGD MUZ-AP35VGD MUZ-AP42VGD MUZ-AP50VGD MUZ-AP60VGD
MUZ-AP71VGD MUZ-AP80VGD

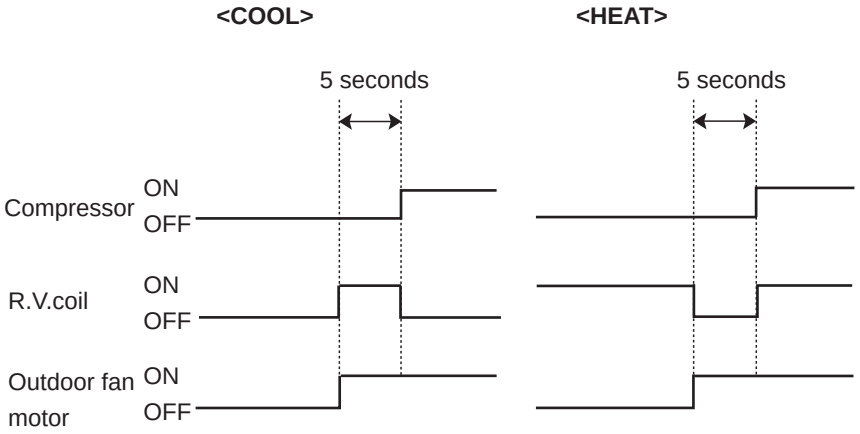
10-1. OUTDOOR FAN MOTOR CONTROL

The fan motor turns ON/OFF, interlocking with the compressor.
[ON] The fan motor turns ON 5 seconds before the compressor starts up.
[OFF] The fan motor turns OFF 15 seconds after the compressor has stopped running.



10-2. R.V. COIL CONTROL

Heating · · · · · · · · · · · · · · · · ON
Cooling · · · · · · · · · · · · · · · · OFF
Dry · · · · · · · · · · · · · · · · · · OFF
NOTE: The 4-way valve reverses for 5 seconds right before start-up of the compressor.



10-3. RELATION BETWEEN MAIN SENSOR AND ACTUATOR

Sensor	Purpose	Actuator				
		Compressor	LEV	Outdoor fan motor	R.V.coil	Indoor fan motor
Discharge temperature thermistor	Protection	○	○			
Indoor coil temperature thermistor	Cooling: Coil frost prevention	○				
	Heating: High pressure protection	○	○			
Defrost thermistor	Heating: Defrosting	○	○	○	○	○
Fin temperature thermistor	Protection	○		○		
Ambient temperature thermistor	Cooling: Low ambient temperature operation	○	○	○		
Outdoor heat exchanger temperature thermistor	Cooling: Low ambient temperature operation	○	○	○		
	Cooling: High pressure protection	○	○	○		

11 SERVICE FUNCTIONS

MUZ-AP25VG MUZ-AP35VG MUZ-AP42VG MUZ-AP50VG MUZ-AP60VG
MUZ-AP71VG MUZ-AP80VG
MUZ-AP25VGD MUZ-AP35VGD MUZ-AP42VGD MUZ-AP50VGD MUZ-AP60VGD
MUZ-AP71VGD MUZ-AP80VGD

11-1. CHANGE IN DEFROST SETTING

Changing defrost finish temperature

<JS> To change the defrost finish temperature, cut/solder the JS wire of the outdoor inverter P.C. board.
(Refer to 12-6-1.)

Jumper wire		Defrost finish temperature (°C)	
		MUZ-AP25/35/42/50/60VG MUZ-AP25/35/42/50/60VGD	MUZ-AP71/80VG MUZ-AP71/80VGD
JS	Soldered (Initial setting)	5	10
	None (Cut)	10	18

11-2. PRE-HEAT CONTROL SETTING

PRE-HEAT CONTROL

MUZ-AP25/35/42/50/60

When moisture gets into the refrigerant cycle, it may interfere the start-up of the compressor at low outside temperature. The pre-heat control prevents this interference. The pre-heat control turns ON when the discharge temperature thermistor is 20°C or below. When the pre-heat control turns ON, the compressor is energized. (About 50 W)

MUZ-AP71/80

Prolonged low load operation, in which the thermostat is OFF for a long time, at low outside temperature (0°C or less) may cause the following troubles. To prevent those troubles, activate the pre-heat control.

1) If moisture gets into the refrigerant cycle and freezes, it may interfere the start-up of the compressor.
2) If liquid refrigerant collects in the compressor, a failure in the compressor may occur.

The pre-heat control turns ON when the compressor temperature is 20°C or below. When the pre-heat control turns ON, the compressor is energized. (About 70 W)

Pre-heat control setting

<JK>
ON: To activate the pre-heat control, cut the JK wire of the inverter P.C. board.
OFF: To deactivate the pre-heat control, solder the JK wire of the inverter P.C. board.
(Refer to 12-6.1)

NOTE: When the inverter P.C. board is replaced, check the jumper wires, and cut/solder them if necessary.

12 TROUBLESHOOTING

MUZ-AP25VG MUZ-AP35VG MUZ-AP42VG MUZ-AP50VG MUZ-AP60VG MUZ-AP71VG MUZ-AP80VG
MUZ-AP25VGD MUZ-AP35VGD MUZ-AP42VGD MUZ-AP50VGD MUZ-AP60VGD MUZ-AP71VGD MUZ-AP80VGD

12-1. CAUTIONS ON TROUBLESHOOTING

1. Before troubleshooting, check the following

1) Check the power supply voltage.
2) Check the indoor/outdoor connecting wire for miswiring.

2. Take care of the following during servicing

1) Before servicing the air conditioner, be sure to turn OFF the main unit first with the remote controller, and then after confirming the horizontal vane is closed, turn OFF the breaker and/or disconnect the power plug.
2) Be sure to turn OFF the power supply before removing the front panel, the cabinet, the top panel, and the electronic control P.C. board.
3) When removing the electrical parts, be careful of the residual voltage of smoothing capacitor.
4) When removing the electronic control P.C. board, hold the edge of the board with care NOT to apply stress on the components.
5) When connecting or disconnecting the connectors, hold the connector housing. DO NOT pull the lead wires.

<Incorrect> <Correct>

Lead wiring **Connector housing**

3. Troubleshooting procedure

1) Check if the OPERATION INDICATOR lamp on the indoor unit is blinking on and off to indicate an abnormality. To make sure, check how many times the OPERATION INDICATOR lamp is blinking on and off before starting service work.
2) Before servicing, check that the connector and terminal are connected properly.
3) When the electronic control P.C. board seems to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.
4) Refer to 12-2 and 12-3.

12-2. FAILURE MODE RECALL FUNCTION

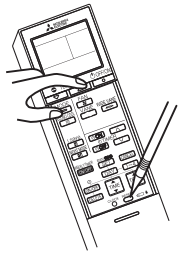
Outline of the function

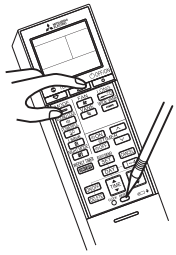
This air conditioner can memorize the abnormal condition which has occurred once.

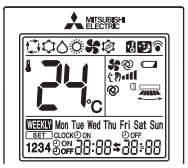
Even though LED indication listed on the troubleshooting check table (12-3.) disappears, the memorized failure details can be recalled.

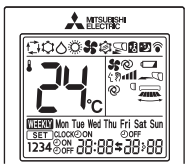
1. Flow chart of failure mode recall function for the indoor/outdoor unit

MSZ-AP22/25/35/42/50VG(K)D **MSZ-AP60/71/80VG(K)D**









Operational procedure

The cause of abnormality cannot be found because the abnormality does not recur.

Setting up the failure mode recall function

Turn ON the power supply.
<Preparation of the remote controller>
① While pressing OPERATION SELECT button and TEMP ⊕ button on the remote controller at the same time, press RESET button.
② First, release RESET button.
Hold down the other 2 buttons for another 3 seconds. Make sure that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons.

Press STOP/OPERATE (OFF/ON) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1

※1. Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.

Does the upper lamp of OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: Either indoor or outdoor unit is abnormal. Beep is emitted at the same timing as the blinking of the upper lamp on the indoor unit. ※2

No (OFF) → Indoor unit is normal.
But the outdoor unit might be abnormal because there are some abnormalities that cannot be recalled with this way.
Check if outdoor unit is abnormal according to the detailed outdoor unit failure mode recall function. (Refer to 12-2.2)

Yes (Blinks)

Judgment of indoor/outdoor abnormality

Before blinking, does the upper lamp on the indoor unit stay ON for 3 seconds? When it stays ON for 3 seconds (without beep):The outdoor unit is abnormal.

Yes → The outdoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to the table of outdoor unit failure mode recall function. (Refer to 12-2.3)
Make sure to check at least 2 consecutive blinking cycles. ※3

No → The indoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to the table of indoor unit failure mode recall function. (Refer to indoor unit service manual.)
Make sure to check at least 2 consecutive blinking cycles. ※2

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

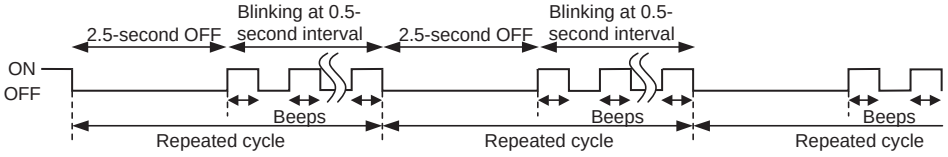
Repair the failure parts.

Deleting the memorized abnormal condition

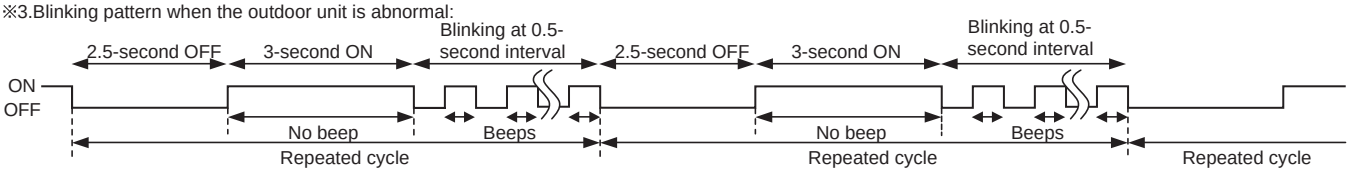
① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" mentioned above.
② Press STOP/OPERATE (OFF/ON) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

※2. Blinking pattern when the indoor unit is abnormal:



※3.Blinking pattern when the outdoor unit is abnormal:



2. Flow chart of the detailed outdoor unit failure mode recall function

Operational procedure

The outdoor unit might be abnormal.
Check if outdoor unit is abnormal according to the following procedures.

Make sure that the remote controller is set to the failure mode recall function.

With the remote controller headed towards the indoor unit, press TEMP ⊕ button to adjust the set temperature to 25°C. ※1

※1. Regardless of normal or abnormal condition, 2 short beeps are emitted as the signal is received.

NOTE: It takes up to 1 minute to indicate the outdoor unit abnormality.
Even if the upper lamp on the indoor unit is not lighting, keep checking at least 1 minute or longer.

Does the upper lamp of OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: The outdoor unit is abnormal. Beep is emitted at the same timing as the blinking of the upper lamp on the indoor unit. ※2

No (OFF)

Yes (Blinks)

The outdoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to the table of outdoor unit failure mode recall function (12-2.3.).
Make sure to check at least 2 consecutive blinking cycles. ※2

The outdoor unit is normal.

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

Release the failure mode recall function according to the left mentioned procedure.

Repair the failure parts.

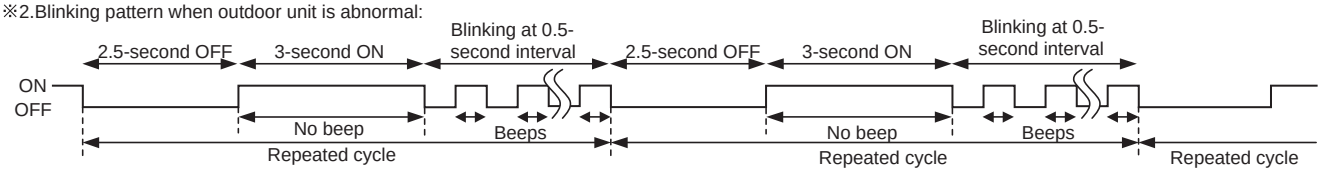
Deleting the memorized abnormal condition

① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" (12-2.1.).
② Press STOP/OPERATE (OFF/ON) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted. ※3
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

※3 The information regarding whether the connected outdoor unit is a low-standby-power model or a non-low-standby-power model will also be initialized.
(Default= compatible with a low-standby-power model)

NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

※2.Blinking pattern when outdoor unit is abnormal:



3. Table of outdoor unit failure mode recall function

NOTE: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (12-3.).

Upper lamp (Indoor unit)	Abnormal point (Failure mode/protection)	LED indication (Outdoor P.C. board)	Condition	Remedy	Indoor/outdoor unit failure mode recall function	Outdoor unit failure mode recall function
OFF	None (Normal)	—	—	—	—	—
1-time blink 2.5 seconds OFF	Indoor/outdoor communication, receiving error	—	Any signals from the inverter P.C. board cannot be received normally for 3 minutes.	•Refer to 12-5. Ⓜ How to check miswiring and serial signal error.	○	○
	Indoor/outdoor communication, receiving error	—	Although the inverter P.C. board sends signal "0", signal "1" has been received 30 consecutive times.	•Refer to 12-5. Ⓜ How to check miswiring and serial signal error.		
2-time blink 2.5 seconds OFF	Outdoor power system	—	Overcurrent protection cut-out operates 3 consecutive times within 1 minute after the compressor gets started.	•Reconnect connectors. •Refer to 12-5. Ⓐ"How to check inverter/ compressor". •Check stop valve.	○	○
3-time blink 2.5 seconds OFF	Discharge temperature thermistor	1-time blink every 2.5 seconds	Thermistor shorts or opens during compressor running.	•Refer to 12-5.Ⓖ "Check of outdoor thermistors". Defective outdoor thermistors can be identified by checking the blinking pattern of LED.	○	○
	Defrost thermistor					
	Fin temperature thermistor	3-time blink 2.5 seconds OFF				
	P.C. board temperature thermistor	4-time blink 2.5 seconds OFF				
	Ambient temperature thermistor	2-time blink 2.5 seconds OFF				
	Outdoor heat exchanger temperature thermistor	—				
4-time blink 2.5 seconds OFF	Overcurrent	11-time blink 2.5 seconds OFF	Large current flows into power module (IC700).	•Reconnect compressor connector. •Refer to 12-5.Ⓐ"How to check inverter/ compressor". •Check stop valve.	—	○
	Compressor synchronous abnormality (Compressor startup failure protection)	12-time blink 2.5 seconds OFF	Waveform of compressor current is distorted.	•Reconnect compressor connector. •Refer to 12-5.Ⓐ"How to check inverter/ compressor".	—	○
5-time blink 2.5 seconds OFF	Discharge temperature	—	Temperature of discharge temperature thermistor exceeds 116°C, compressor stops. Compressor can restart if discharge temperature thermistor reads 100°C or less 3 minutes later.	•Check refrigerant circuit and refrigerant amount. •Refer to 12-5.Ⓚ"Check of LEV".	—	○
6-time blink 2.5 seconds OFF	High pressure	—	Temperature of indoor coil thermistor exceeds 70°C in HEAT mode. Temperature of defrost thermistor exceeds 70°C in COOL mode.	•Check refrigerant circuit and refrigerant amount. •Check stop valve.	—	○
7-time blink 2.5 seconds OFF	Fin temperature/P.C. board temperature	7-time blink 2.5 seconds OFF	Temperature of fin temperature thermistor on the inverter P.C. board exceeds 75 ~ 86°C (**MUZ-AP25/35/42/50/60**) / 75 ~ 80°C (**MUZ-AP71/80**), or temperature of P.C. board temperature thermistor on the inverter P.C. board exceeds 72 ~ 85°C (**MUZ-AP25/35/42/50/60**) / 70 ~ 75°C (**MUZ-AP71/80**).	•Check around outdoor unit. •Check outdoor unit air passage. •Refer to 12-5.Ⓘ"Check of outdoor fan motor".	—	○
8-time blink 2.5 seconds OFF	Outdoor fan motor	—	Outdoor fan has stopped 3 times in a row within 30 seconds after outdoor fan startup.	•Refer to 12-5.Ⓘ"Check of outdoor fan motor". Refer to 12-5.Ⓛ"Check of inverter P.C. board".	—	○
9-time blink 2.5 seconds OFF	Nonvolatile memory data	5-time blink 2.5 seconds OFF	Nonvolatile memory data cannot be read properly.	•Replace the inverter P.C. board.	○	○
	Power module (IC700)	6-time blink 2.5 seconds OFF	The interface short circuit occurs in the output of the power module (IC700). The compressor winding shorts circuit.	•Refer to 12-5. Ⓐ"How to check inverter/ compressor".	—	

NOTE: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (12-3.).

Upper lamp (Indoor unit)	Abnormal point (Failure mode/protection)	LED indication (Outdoor P.C. board)	Condition	Remedy	Indoor/outdoor unit failure mode recall function	Outdoor unit failure mode recall function
10-time blink 2.5 seconds OFF	Discharge temperature	—	Temperature of discharge temperature thermistor has been 50°C or less for 20 minutes.	•Refer to 12-5.Ⓚ"Check of LEV". •Check refrigerant circuit and refrigerant amount.	—	○
11-time blink 2.5 seconds OFF	Bus-bar voltage (DC)	8-time blink 2.5 seconds OFF	Bus-bar voltage of inverter cannot be detected normally.	•Refer to 12-5.Ⓐ"How to check inverter/ compressor".	—	○
	Each phase current of compressor	9-time blink 2.5 seconds OFF	Each phase current of compressor cannot be detected normally.			
14-time blink 2.5 seconds OFF	Stop valve (Closed valve)	14-time blink 2.5 seconds OFF	Closed valve is detected by compressor current.	•Check stop valve.	○	○
	4-way valve/ Pipe temperature	16-time blink 2.5 seconds OFF	The 4-way valve does not work properly. The indoor coil thermistor detects an abnormal temperature.	•Check the 4-way valve. •Replace the inverter P.C. board.		
16-time blink 2.5 seconds OFF	Outdoor refrigerant system abnormality	1-time blink 2.5 seconds OFF	A closed valve and air trapped in the refrigerant circuit are detected based on the temperature sensed by the indoor and outdoor thermistors and the current of the compressor.	•Check for a gas leak in a connecting piping etc. •Check the stop valve. •Refer to 12-5. Ⓝ "Check of outdoor refrigerant circuit".	○	○

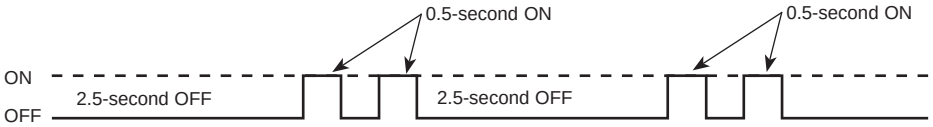
12-3. TROUBLESHOOTING CHECK TABLE

No.	Symptom	LED indication	Abnormal point/ Condition	Condition	Remedy
1		1-time blink every 2.5 seconds	Outdoor power system	Overcurrent protection cut-out operates 3 consecutive times within 1 minute after the compressor gets started.	•Reconnect connector of compressor. •Refer to 12-5.Ⓐ "How to check inverter/compressor". •Check stop valve.
2			Outdoor thermistors	Discharge temperature thermistor, fin temperature thermistor, defrost thermistor, P.C. board temperature thermistor, outdoor heat exchanger temperature thermistor or ambient temperature thermistor shorts or opens during compressor running.	•Refer to 12-5.Ⓖ "Check of outdoor thermistors".
3			Outdoor control system	Nonvolatile memory data cannot be read properly. (Upper lamp of OPERATION INDICATOR lamp on the indoor unit lights up or blinks 7-time.)	•Replace inverter P.C. board.
4		6-time blink 2.5 seconds OFF	Serial signal	The communication fails between the indoor and outdoor unit for 3 minutes.	•Refer to 12-5.Ⓜ "How to check miswiring and serial signal error.
5		11-time blink 2.5 seconds OFF	Stop valve/ Closed valve	Closed valve is detected by compressor current.	•Check stop valve.
6		14-time blink 2.5 seconds OFF	Outdoor unit (Other abnormality)	Outdoor unit is defective.	•Refer to 12-2.2. "Flow chart of the detailed outdoor unit failure mode recall function".
7		16-time blink 2.5 seconds OFF	4-way valve/ Pipe temperature	The 4-way valve does not work properly. The indoor coil thermistor detects an abnormal temperature.	•Refer to 12-5.Ⓗ "Check of R.V. coil". •Replace the inverter P.C. board.
8		17-time blink 2.5 seconds OFF	Outdoor refrigerant system abnormality	A closed valve and air trapped in the refrigerant circuit are detected based on the temperature sensed by the indoor and outdoor thermistors and the current of the compressor.	•Check for a gas leak in a connecting piping etc. •Check the stop valve. •Refer to 12-5. Ⓝ "Check of outdoor refrigerant circuit".
9	'Outdoor unit stops and restarts 3 minutes later' is repeated.	2-time blink 2.5 seconds OFF	Overcurrent protection	Large current flows into power module (IC700).	•Reconnect connector of compressor. •Refer to 12-5.Ⓐ "How to check inverter/compressor". •Check stop valve.
10		3-time blink 2.5 seconds OFF	Discharge temperature overheat protection	Temperature of discharge temperature thermistor exceeds 116°C, compressor stops. Compressor can restart if discharge temperature thermistor reads 100°C or less 3 minutes later.	•Check refrigerant circuit and refrigerant amount. •Refer to 12-5.Ⓚ "Check of LEV".
11		4-time blink 2.5 seconds OFF	Fin temperature / P.C. board temperature thermistor overheat protection	Temperature of fin temperature thermistor on the heat sink exceeds 75 ~ 86°C (**MUZ-AP25/35/42/50/60**)/75 ~ 80°C (**MUZ-AP71/80**) or temperature of P.C. board temperature thermistor on the inverter P.C. board exceeds 72 ~ 85°C (**MUZ-AP25/35/42/50/60**)/70 ~ 75°C (**MUZ-AP71/80**).	•Check around outdoor unit. •Check outdoor unit air passage. •Refer to 12-5.Ⓘ "Check of outdoor fan motor".
12		5-time blink 2.5 seconds OFF	High pressure protection	Indoor coil thermistor exceeds 70°C in HEAT mode. Defrost thermistor exceeds 70°C in COOL mode.	•Check refrigerant circuit and refrigerant amount. •Check stop valve.
13		8-time blink 2.5 seconds OFF	Compressor synchronous abnormality	The waveform of compressor current is distorted.	•Reconnect connector of compressor. •Refer to 12-5.Ⓐ "How to check inverter/compressor".
14		10-time blink 2.5 seconds OFF	Outdoor fan motor	Outdoor fan has stopped 3 times in a row within 30 seconds after outdoor fan startup.	•Refer to 12-5.Ⓘ "Check of outdoor fan motor. •Refer to 12-5.Ⓛ "Check of inverter P.C. board.
15		12-time blink 2.5 seconds OFF	Each phase current of compressor	Each phase current of compressor cannot be detected normally.	•Refer to 12-5.Ⓐ "How to check inverter/compressor".
16		13-time blink 2.5 seconds OFF	Bus-bar voltage (DC)	Bus-bar voltage of inverter cannot be detected normally.	•It occurs with following case. Instantaneous power voltage drop. (Short time power failure) (**MUZ-AP71/80**) •Refer to 12-5. Ⓙ "Check of power supply". (**MUZ-AP71/80**) •Refer to 12-5.Ⓐ "How to check inverter/compressor".
17	Outdoor unit operates.	1-time blink 2.5 seconds OFF	Frequency drop by current protection	MUZ-AP25/35/42/50/60: When the input current exceeds approximately 10A, compressor frequency lowers. **MUZ-AP71/80**: Current from power outlet is nearing breaker capacity.	The unit is normal, but check the following. •Check if indoor filters are clogged. •Check if refrigerant is short. •Check if indoor/outdoor unit air circulation is short cycled.
18		3-time blink 2.5 seconds OFF	Frequency drop by high pressure protection	Temperature of indoor coil thermistor exceeds 55°C in HEAT mode, compressor frequency lowers.	
			Frequency drop by defrosting in COOL mode	Indoor coil thermistor reads 8°C or less in COOL mode, compressor frequency lowers.	
19		4-time blink 2.5 seconds OFF	Frequency drop by discharge temperature protection	Temperature of discharge temperature thermistor exceeds 111°C, compressor frequency lowers.	•Check refrigerant circuit and refrigerant amount. •Refer to 12-5.Ⓚ "Check of LEV". •Refer to 12-5.Ⓖ "Check of outdoor thermistors".
20		**MUZ-AP25/35/42** 5-time blink 2.5 seconds OFF	Outside temperature thermistor protection	When the outside temperature thermistor shorts or opens, protective operation without that thermistor is performed.	•Refer to 12-5. Ⓖ Check of outdoor thermistors.

No.	Symptom	LED indication	Abnormal point/ Condition	Condition	Remedy
21	Outdoor unit operates.	7-time blink 2.5 seconds OFF	Low discharge temperature protection	Temperature of discharge temperature thermistor has been 50°C or less for 20 minutes.	•Refer to 12-5.Ⓚ "Check of LEV". •Check refrigerant circuit and refrigerant amount.
22		8-time blink 2.5 seconds OFF	**MUZ-AP25/35/42/50/60** PAM protection PAM: Pulse Amplitude Modulation	The overcurrent flows into PFC (Power factor correction: IC820) or the bus-bar voltage reaches 394 V or more, PAM stops and restarts.	This is not malfunction. PAM protection will be activated in the following cases: 1 Instantaneous power voltage drop. (Short time power failure) 2 When the power supply voltage is high.
			MUZ-AP71/80 Zero cross detecting circuit	Zero cross signal cannot be detected.	•It occurs with following cases. 1 Instantaneous power voltage drop. (Short time power failure) 2 Distortion of primary voltage •Refer to 12-5. Ⓙ "Check of power supply".
23		9-time blink 2.5 seconds OFF	Inverter check mode	The connector of compressor is disconnected, inverter check mode starts.	•Check if the connector of the compressor is correctly connected. Refer to 12-5.Ⓐ "How to check inverter/compressor".

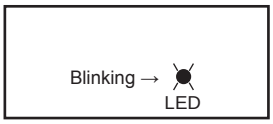
NOTE: 1. The location of LED is illustrated at the right figure. Refer to 12-6.1.
2. LED is lighted during normal operation.

The flashing frequency shows the number of times the LED blinks after every 2.5-second OFF.
(Example) When the flashing frequency is “2”.

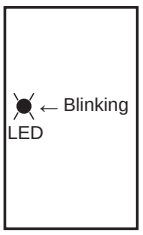


Inverter P.C. board

MUZ-AP25/35/42/50/60VG
MUZ-AP25/35/42/50/60VGD



MUZ-AP71/80VG
MUZ-AP71/80VGD



12-4. TROUBLE CRITERION OF MAIN PARTS

MUZ-AP25VG MUZ-AP35VG MUZ-AP42VG MUZ-AP50VG MUZ-AP60VG MUZ-AP71VG MUZ-AP80VG
MUZ-AP25VGD MUZ-AP35VGD MUZ-AP42VGD MUZ-AP50VGD MUZ-AP60VGD MUZ-AP71VGD MUZ-AP80VGD

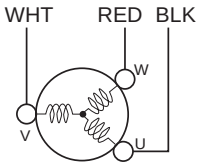
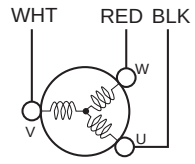
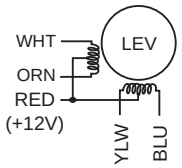
<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Defrost thermistor (RT61)

Fin temperature thermistor (RT64)

Ambient temperature thermistor (RT65)

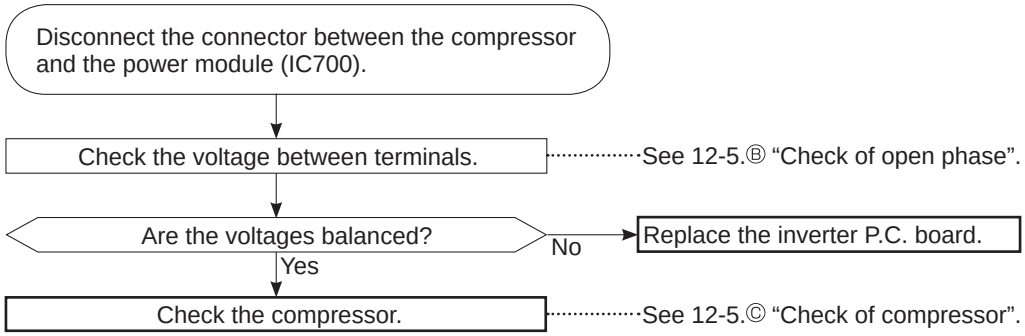
Outdoor heat exchanger temperature thermistor (RT68)</td><td>Measure the resistance with a tester.

Refer to 12-6. “Test point diagram and voltage”, 1. “Inverter P.C. board”, for the chart of thermistor.</td><td></td></tr>
<tr><td>Discharge temperature thermistor (RT62)</td><td>Measure the resistance with a tester. Before measurement, hold the thermistor with your hands to warm it up.

Refer to 12-6. “Test point diagram and voltage”, 1. “Inverter P.C. board”, for the chart of thermistor.</td><td></td></tr>
<tr><td>Compressor (MC)</td><td>Measure the resistance between terminals using a tester. (Temperature: -10 ~ 40°C)
<table>
<tr><th rowspan="2"></th><th colspan="3">Normal (Ω)</th></tr>
<tr><th>MUZ-AP25/35VG
MUZ-AP25/35VGD</th><th>MUZ-AP42/50/60VG
MUZ-AP42/50/60VGD</th><th>MUZ-AP71/80VG
MUZ-AP71/80VGD</th></tr>
<tr><td>U-V
U-W
V-W</td><td>1.59 ~ 2.16</td><td>0.82 ~ 1.11</td><td>0.87 ~ 1.18</td></tr>
</table></td><td> 
</td></tr>
<tr><td>Outdoor fan motor (MF)</td><td>Measure the resistance between lead wires using a tester. (Temperature: -10 ~ 40°C)
<table>
<tr><th rowspan="2">Color of lead wire</th><th colspan="2">Normal (Ω)</th></tr>
<tr><th>MUZ-AP25/35/42/50/60VG
MUZ-AP25/35/42/50/60VGD</th><th>MUZ-AP71/80VG
MUZ-AP71/80VGD</th></tr>
<tr><td>RED – BLK
BLK – WHT
WHT – RED</td><td>32 ~ 43</td><td>25 ~ 34</td></tr>
</table></td><td> 
</td></tr>
<tr><td>R. V. coil (21S4)</td><td>Measure the resistance using a tester. (Temperature: -10 ~ 40°C)
<table>
<tr><th colspan="2">Normal (kΩ)</th></tr>
<tr><th>MUZ-AP25/35/42/50/60VG
MUZ-AP25/35/42/50/60VGD</th><th>MUZ-AP71/80VG
MUZ-AP71/80VGD</th></tr>
<tr><td>1.41 ~ 2.00</td><td>1.17 ~ 1.66</td></tr>
</table></td><td></td></tr>
<tr><td>Expansion valve coil (LEV)</td><td>Measure the resistance using a tester. (Temperature: -10 ~ 40°C)
<table>
<tr><th>Color of lead wire</th><th>Normal (Ω)</th></tr>
<tr><td>RED – ORN</td><td rowspan="4">37 ~ 54</td></tr>
<tr><td>RED – WHT</td></tr>
<tr><td>RED – BLU</td></tr>
<tr><td>RED – YLW</td></tr>
</table></td><td> 
</td></tr>
</table>

12-5. TROUBLESHOOTING FLOW

Ⓐ How to check inverter/compressor



Ⓑ Check of open phase

- With the connector between the compressor and the power module (IC700) disconnected, activate the inverter and check if the inverter is normal by measuring **the voltage balance** between the terminals.

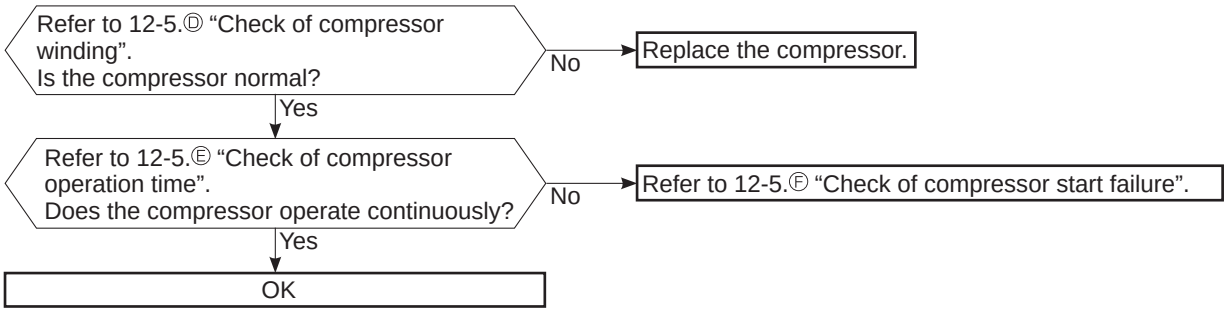
Output voltage is 50 - 130 V. (The voltage may differ according to the tester.)

<< Operation method>>
Start cooling or heating operation by pressing EMERGENCY OPERATION switch on the indoor unit. (TEST RUN OPERATION: Refer to 9-3.)
<<Measurement point>>
At 3 points
BLK (U)-WHT (V)
BLK (U)-RED (W)
WHT(V)-RED (W)

※ Measure AC voltage between the lead wires at 3 points.

NOTE: 1. Output voltage varies according to power supply voltage.
2. Measure the voltage by analog type tester.
3. During this check, LED of the inverter P.C. board flashes 9 times. (Refer to 12-6.1.)

Ⓒ Check of compressor



Ⓓ Check of compressor winding

● Disconnect the connector between the compressor and the power module (IC700), and measure the resistance between the compressor terminals.

<<Measurement point>>

At 3 points
BLK-WHT
BLK-RED
WHT-RED

※ Measure the resistance between the lead wires at 3 points.

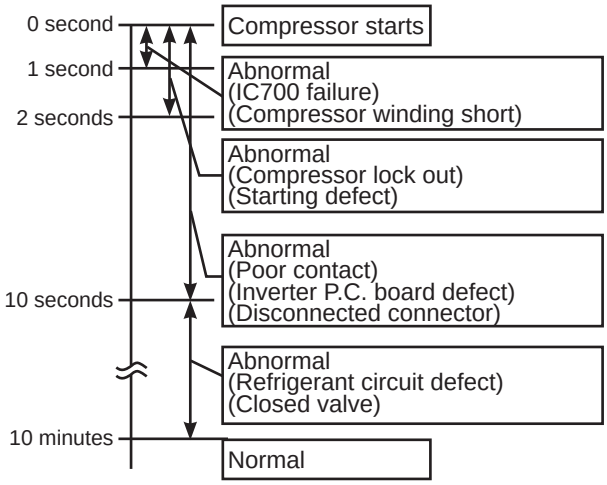
<<Judgement>>

Refer to 12-4.
0 [Ω] ·····Abnormal [short]
Infinite [Ω] ·····Abnormal [open]
NOTE: Be sure to zero the ohmmeter before measurement.

Ⓔ Check of compressor operation time

● Connect the compressor and activate the inverter. Then measure the time until the inverter stops due to overcurrent.
<<Operation method>>
Start heating or cooling operation by pressing EMERGENCY OPERATION switch on the indoor unit. (TEST RUN OPERATION: Refer to 9-3.)
<<Measurement>>
Measure the time from the start of compressor to the stop of compressor due to overcurrent.

<<Judgement>>



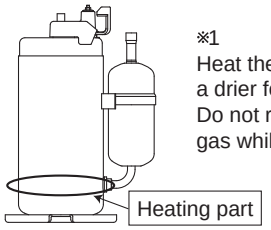
Ⓕ Check of compressor start failure

Confirm that ①~④ is normal.
•Electrical circuit check
①. Contact of the compressor connector
②. Output voltage of inverter P.C. board and balance of them (See 12-5.Ⓑ)
③. Direct current voltage between DB61(+) and (-) (**MUZ-AP25/35/42/50/60VG, MUZ-AP25/35/42/50/60VGD**)/IC700 (P) and (N) (**MUZ-AP71/80VG, MUZ-AP71/80VGD**) on the inverter P.C. board
④. Voltage between outdoor terminal block S1-S2

Does the compressor run for 10 seconds or more after it starts?
Yes → Check the refrigerant circuit. Check the stop valve.
No

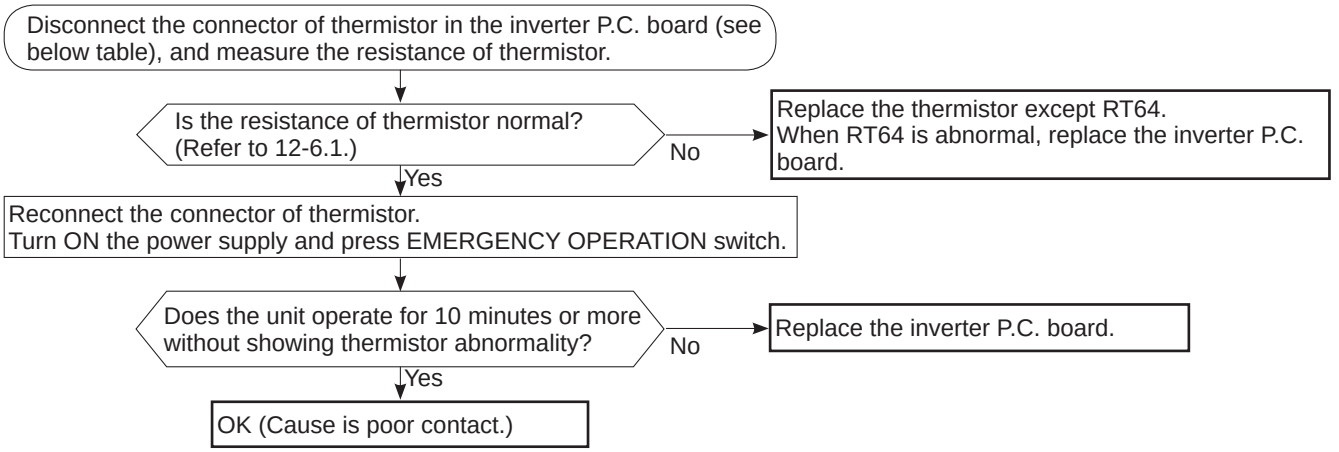
After the compressor is heated with a drier, does the compressor start? ※1
No → Replace the compressor.
Yes

Compressor start failure. Activate pre-heat control. (Refer to 11-2. "PRE-HEAT CONTROL SETTING")



※1
Heat the compressor with a drier for about 20 minutes. Do not recover refrigerant gas while heating.

Ⓖ Check of outdoor thermistors



MUZ-AP25/35/42/50/60VG, MUZ-AP25/35/42/50/60VGD

Thermistor	Symbol	Connector, Pin No.	Board
Defrost	RT61	Between CN641 pin1 and pin2	Inverter P.C. board
Discharge temperature	RT62	Between CN641 pin3 and pin4	
Fin temperature	RT64	Between CN642 pin1 and pin2	
Ambient temperature	RT65	Between CN643 pin1 and pin2	
Outdoor heat exchanger temperature	RT68	Between CN644 pin1 and pin3	

MUZ-AP71/80VG, MUZ-AP71/80VGD

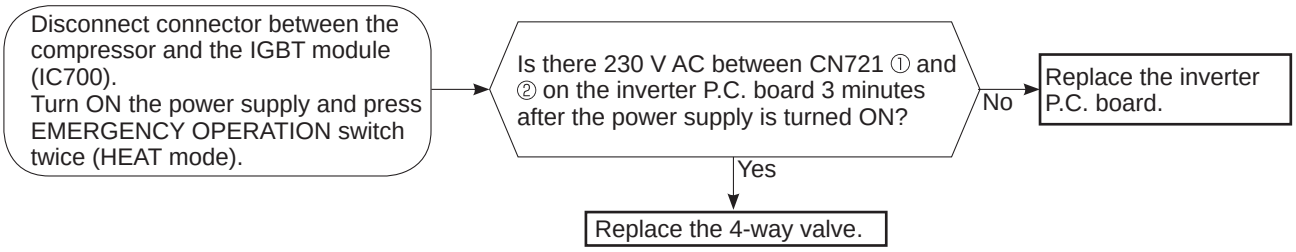
Thermistor	Symbol	Connector, Pin No.	Board
Defrost	RT61	Between CN671 pin1 and pin2	Inverter P.C. board
Discharge temperature	RT62	Between CN671 pin3 and pin4	
Fin temperature	RT64	Between CN673 pin1 and pin2	
Ambient temperature	RT65	Between CN672 pin1 and pin2	
Outdoor heat exchanger temperature	RT68	Between CN671 pin5 and pin6	

Ⓗ Check of R.V. coil

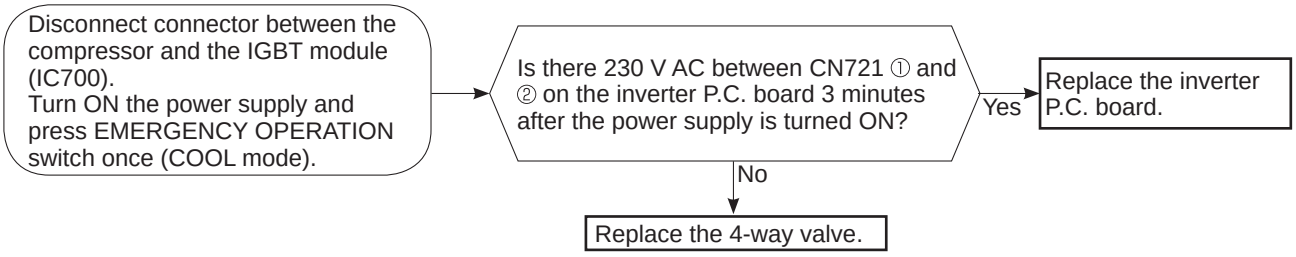
MUZ-AP25/35/42/50/60VG, MUZ-AP25/35/42/50/60VGD

※ First of all, measure the resistance of R.V. coil to check if the coil is defective. Refer to 12-4.
※ In case CN721 is disconnected or R.V. coil is open, voltage is generated between the terminal pins of the connector although no signal is being transmitted to R.V. coil.
Check if CN721 is connected.

Unit operates COOL mode even if it is set to HEAT mode.



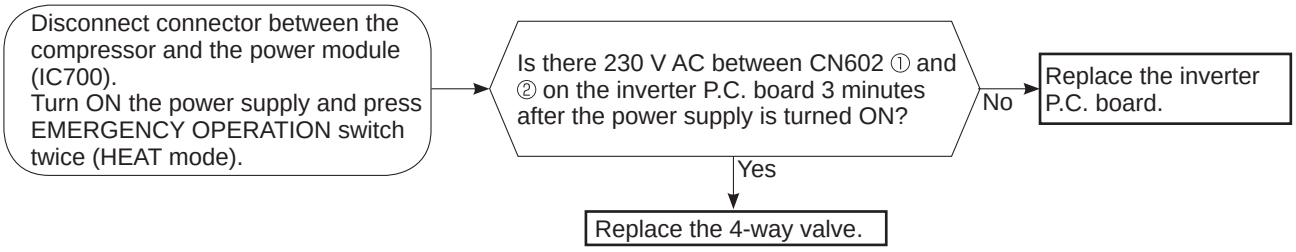
Unit operates HEAT mode even if it is set to COOL mode.



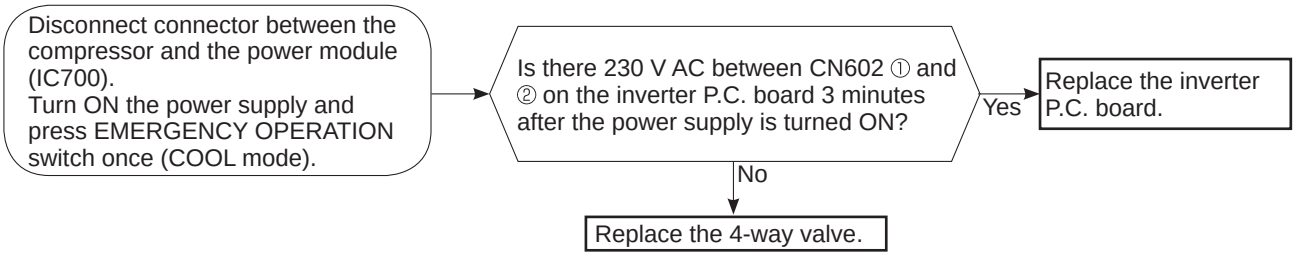
MUZ-AP71/80VG, MUZ-AP71/80VGD

※ First of all, measure the resistance of R.V. coil to check if the coil is defective. Refer to 12-4.
※ In case CN602 is disconnected or R.V. coil is open, voltage is generated between the terminal pins of the connector although no signal is being transmitted to R.V. coil.
Check if CN602 is connected.

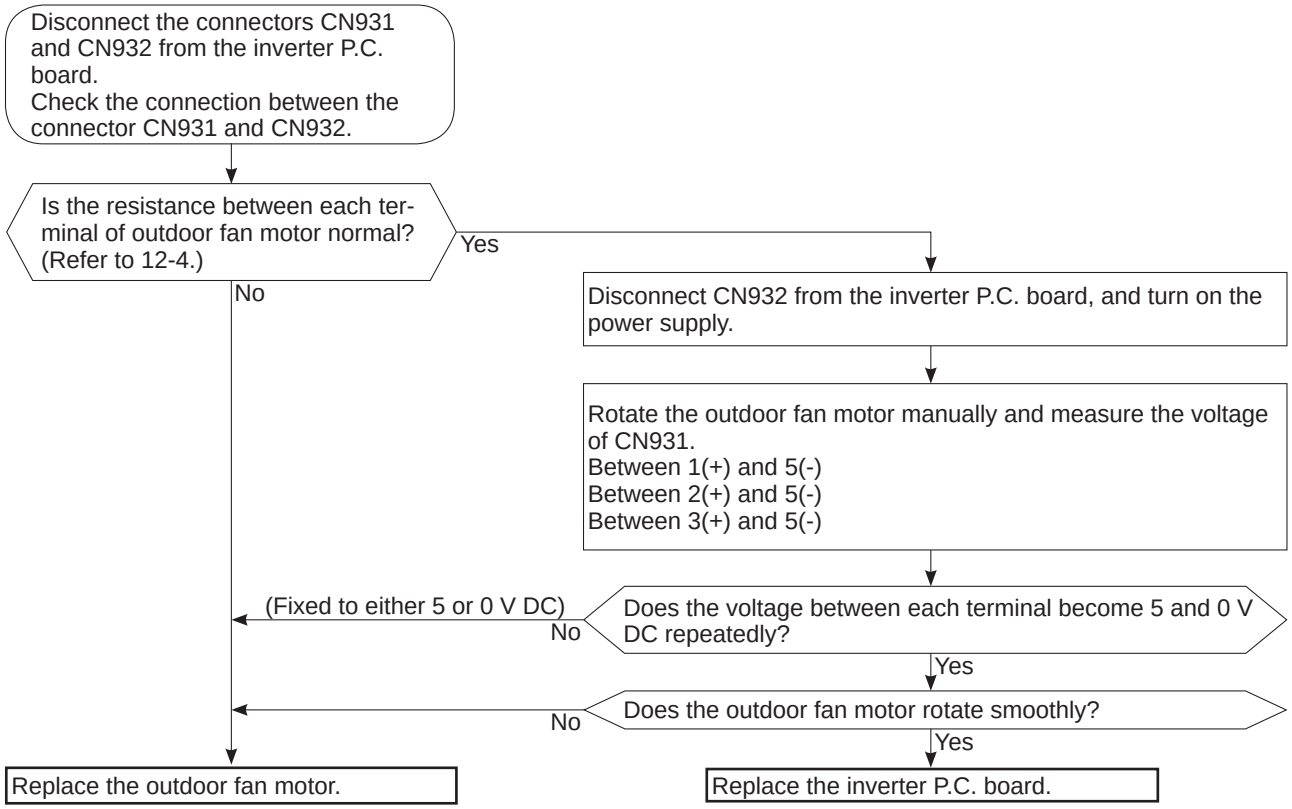
Unit operates COOL mode even if it is set to HEAT mode.



Unit operates HEAT mode even if it is set to COOL mode.



ⓘ Check of outdoor fan motor



Ⓙ Check of power supply

Disconnect the connector between the compressor and the power module (IC700). Turn ON power supply and press EMERGENCY OPERATION switch.

Does the upper lamp of OPERATION INDICATOR lamp on the indoor unit light up?

No → Is there voltage 230 V AC between the indoor terminal block S1 and S2?

Yes → Rectify indoor/outdoor connecting wire.

No → Replace the indoor electronic control P.C. board.

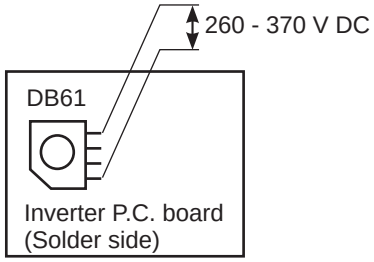
Yes → Is there bus-bar voltage 260 - 370 V DC between DB61 (+) and DB61 (–) (**MUZ-AP25/35/42/50/60VG, MUZ-AP25/35/42/50/60VGD**)/325 - 370 V DC between IC700 (P) and (N) (**MUZ-AP71/80VG, MUZ-AP71/80VGD**) on the inverter P.C. board? (Refer to 12-6.1.)

Yes → Does LED on the inverter P.C. board light up or blink? (Refer to 12-6.1.)

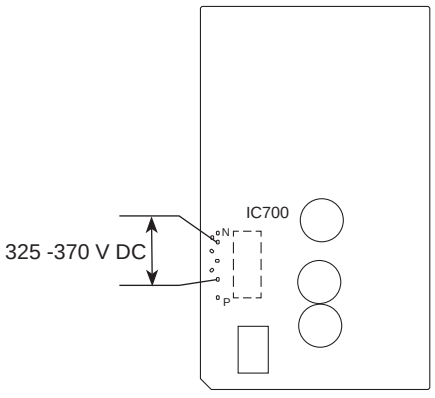
No → Replace the inverter P.C. board.

Yes → If lights up, OK.
If flashes, refer to 12-3.

No → Check the electric parts in main circuit.



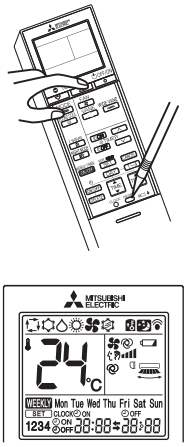
MUZ-AP25/35/42/50/60VG
MUZ-AP25/35/42/50/60VGD



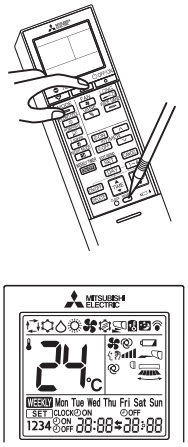
MUZ-AP71/80VG
MUZ-AP71/80VGD

Ⓚ Check of LEV (Expansion valve)

MSZ-AP22/25/35/42/50VG(K)D



MSZ-AP60/71/80VG(K)D



Turn ON the power supply.
<Preparation of the remote controller>
① While pressing both OPERATION SELECT button and TEMP ⊕ button on the remote controller at the same time, press RESET button.
② First, release RESET button.
Hold down the other 2 buttons for another 3 seconds. Make sure that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons.

Press STOP/OPERATE (OFF/ON) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1

Expansion valve operates in full-opening direction.

Do you hear the expansion valve "click, click·····"?
Do you feel the expansion valve vibrate when touching it ?

Yes → OK

No

Is LEV coil properly fixed to the expansion valve?

No → Properly fix the LEV coil to the expansion valve.

Yes

Does the resistance of LEV coil have the characteristics? (Refer to 12-4.)

Yes → Measure each voltage between connector pins of CN724 on the inverter P.C. board.
1. Pin③(-) — Pin①(+)
2. Pin④(-) — Pin①(+)
3. Pin⑤(-) — Pin①(+)
4. Pin⑥(-) — Pin①(+)

Is there about 3 - 5 V AC between each?
NOTE: Measure the voltage by an analog tester.

No → Replace the inverter P.C. board.

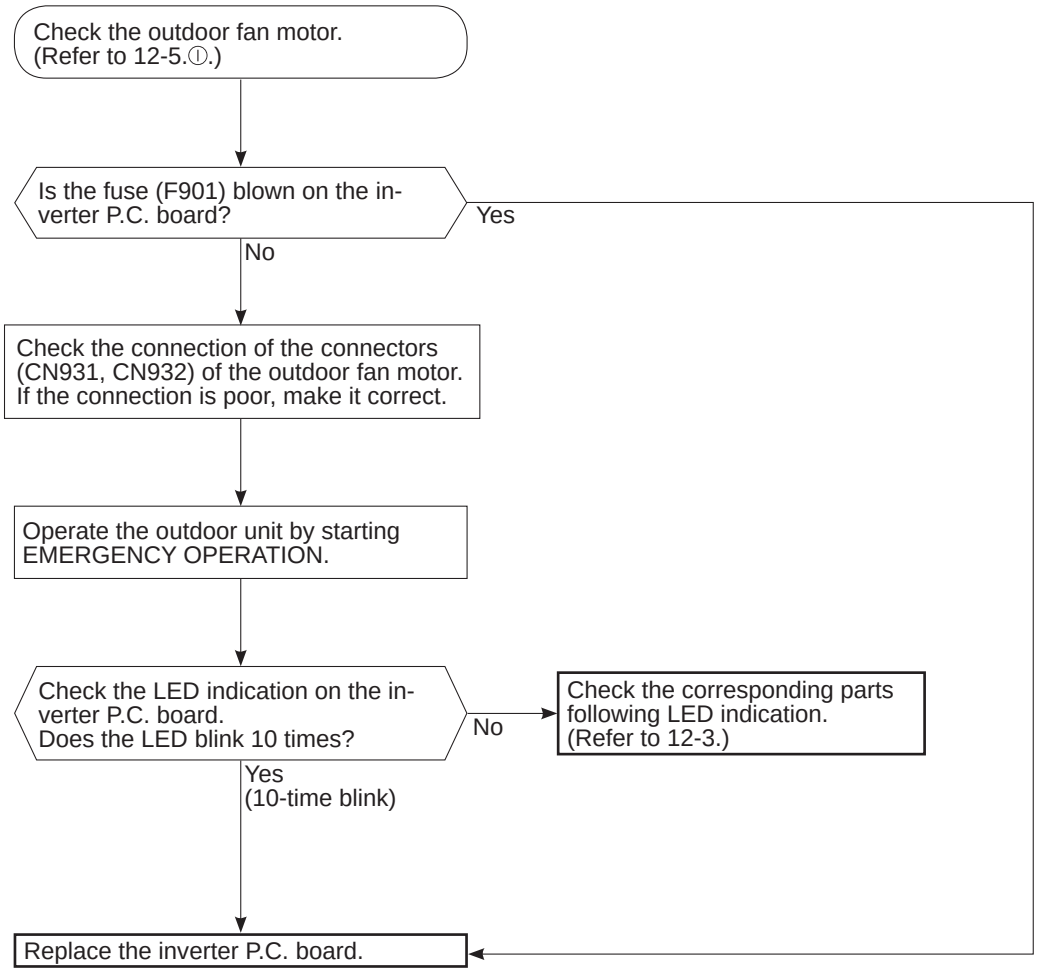
Yes → Replace the expansion valve.

No → Replace the LEV coil.

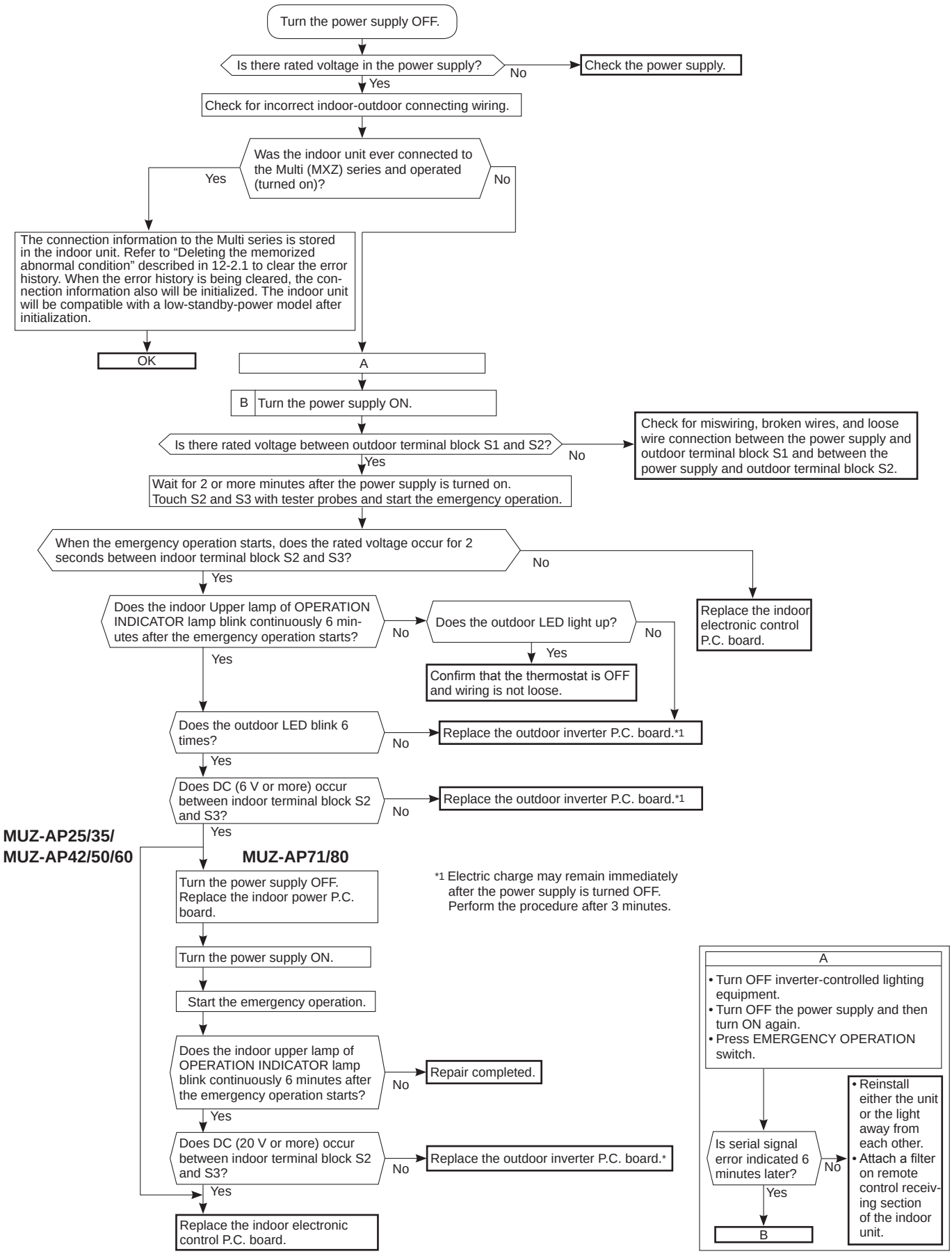
※1. Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.

NOTE: After check of LEV, take the following steps.
1. Turn OFF the power supply and turn it ON again.
2. Press RESET button on the remote controller.

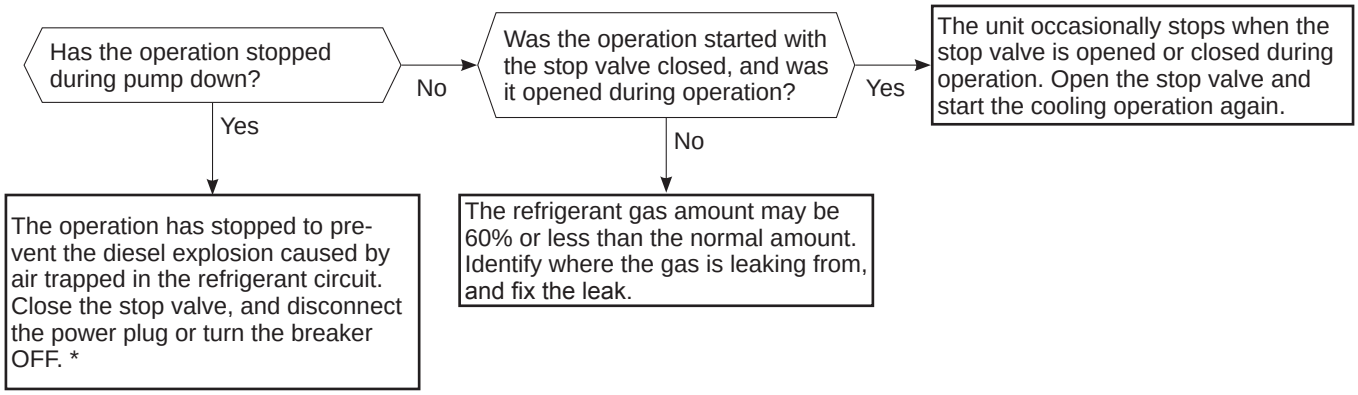
Ⓛ Check of inverter P.C. board



Ⓜ How to check miswiring and serial signal error

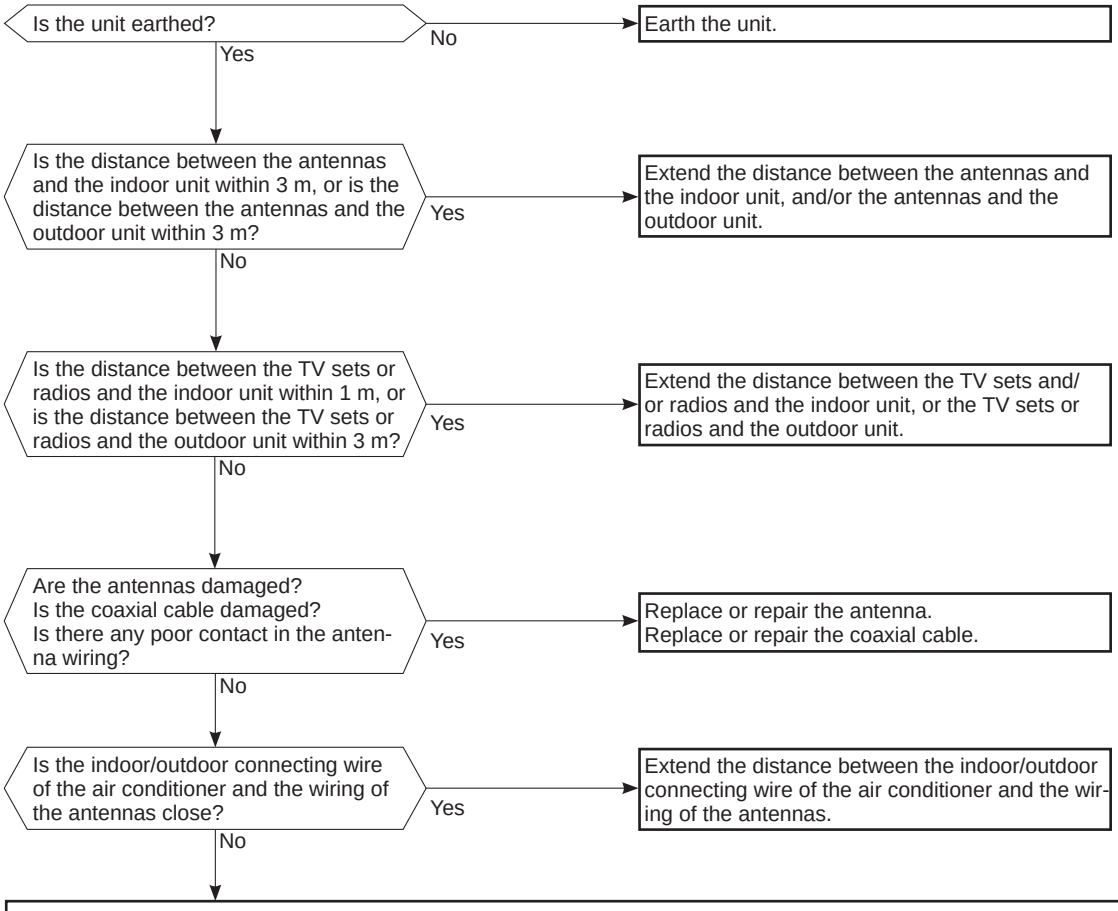


Ⓝ Check of the outdoor refrigerant circuit



* **CAUTION : Do not start the operation again to prevent hazards.**

Ⓞ Electromagnetic noise enters into TV sets or radios



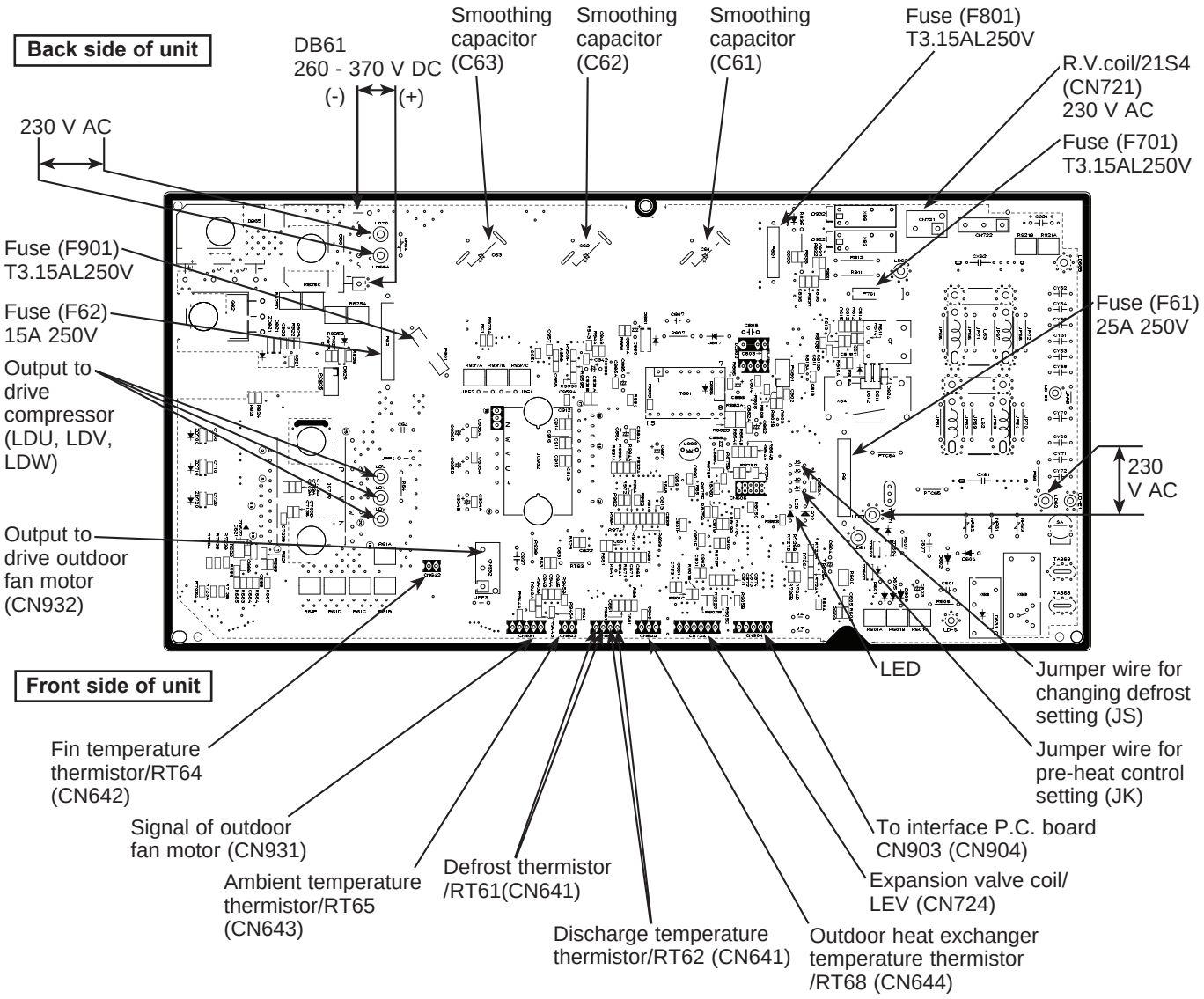
Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).
Check the following before asking for service.

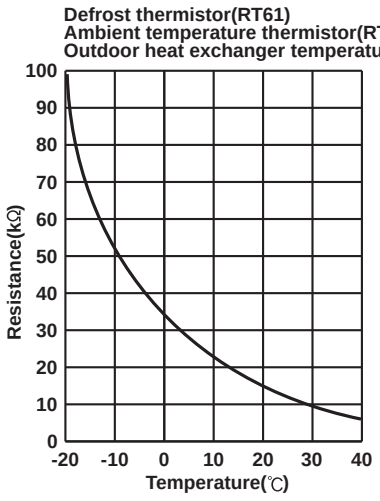
1. Devices affected by the electromagnetic noise
   TV sets, radios (FM/AM broadcast, shortwave)
2. Channel, frequency, broadcast station affected by the electromagnetic noise
3. Channel, frequency, broadcast station unaffected by the electromagnetic noise
4. Layout of:
   indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, earth wire, antennas, wiring from antennas, receiver
5. Electric field intensity of the broadcast station affected by the electromagnetic noise
6. Presence or absence of amplifier such as booster
7. Operation condition of air conditioner when the electromagnetic noise enters in
   1) Turn OFF the power supply once, and then turn ON the power supply. In this situation, check for the electromagnetic noise.
   2) Within 3 minutes after turning ON the power supply, press STOP/OPERATE (OFF/ON) button on the remote controller for power ON, and check for the electromagnetic noise.
   3) After a short time (3 minutes later after turning ON), the outdoor unit starts running. During operation, check for the electromagnetic noise.
   4) Press STOP/OPERATE (OFF/ON) button on the remote controller for power OFF, when the outdoor unit stops but the indoor/outdoor communication still runs on. In this situation, check for the electromagnetic noise.

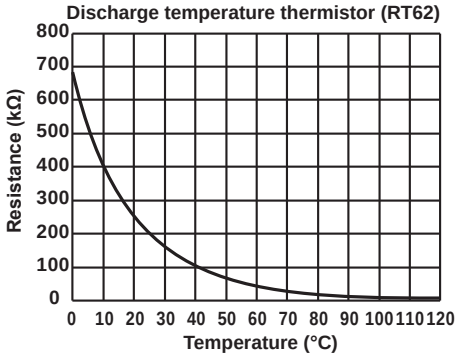
12-6. TEST POINT DIAGRAM AND VOLTAGE

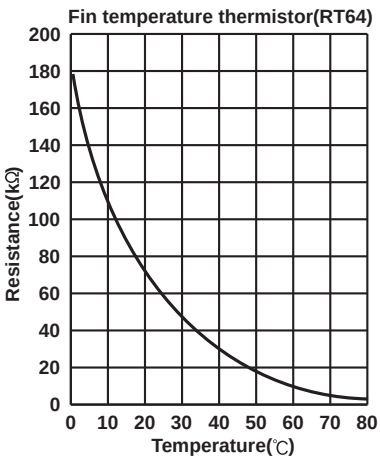
1. Inverter P.C. board

MUZ-AP25VG MUZ-AP35VG MUZ-AP42VG MUZ-AP50VG MUZ-AP60VG
MUZ-AP25VGD MUZ-AP35VGD MUZ-AP42VGD MUZ-AP50VGD MUZ-AP60VGD

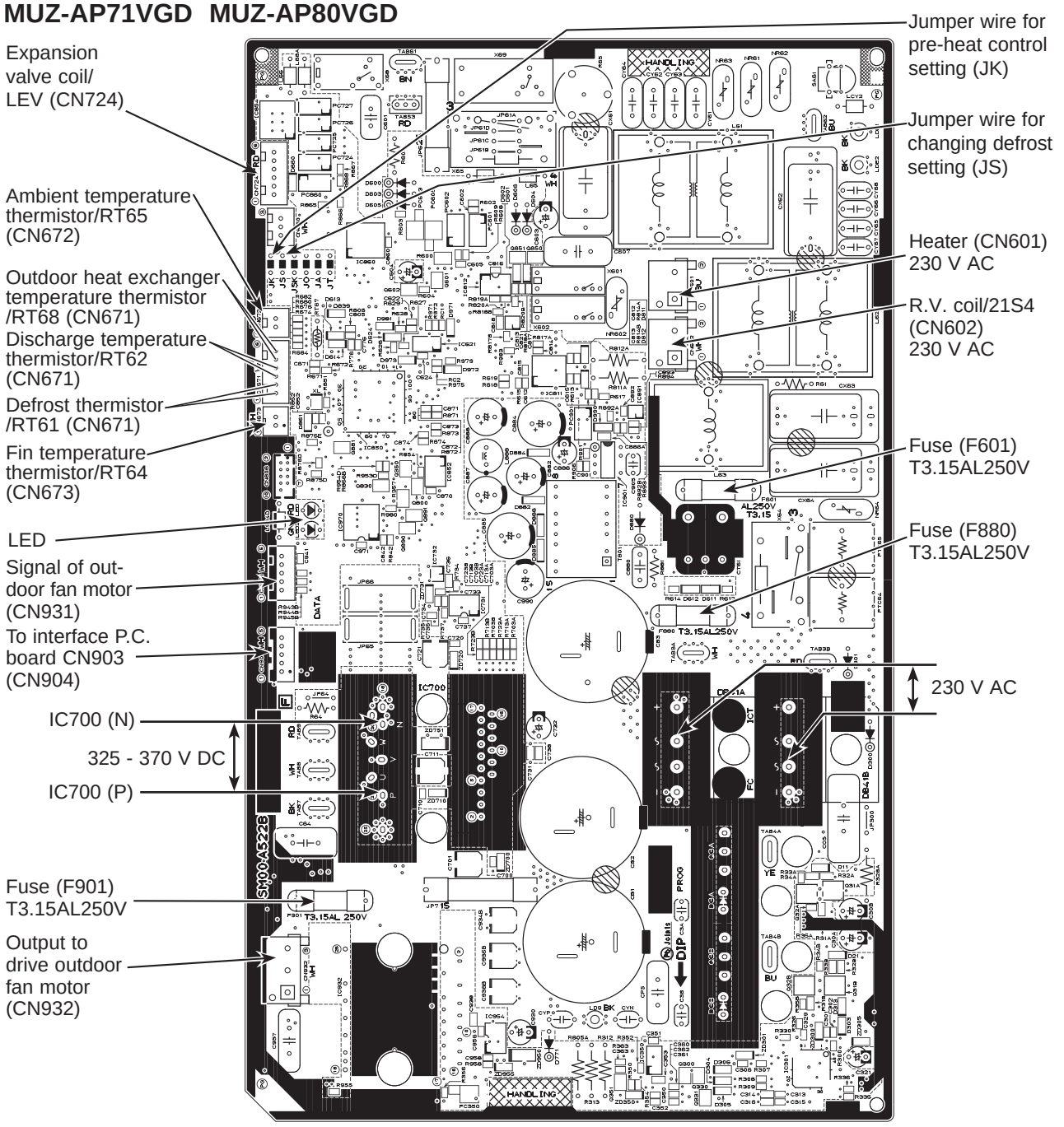


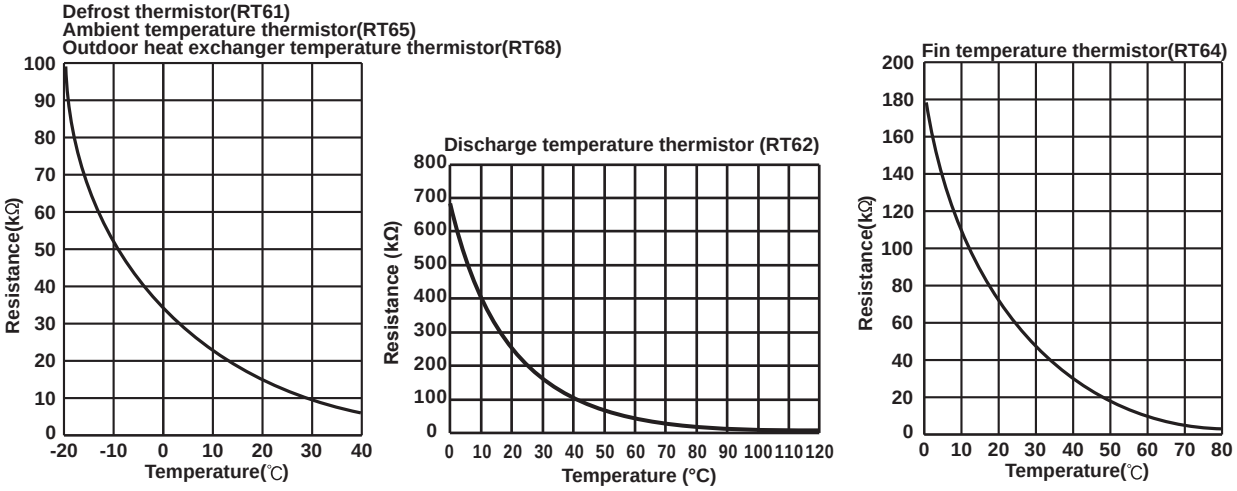






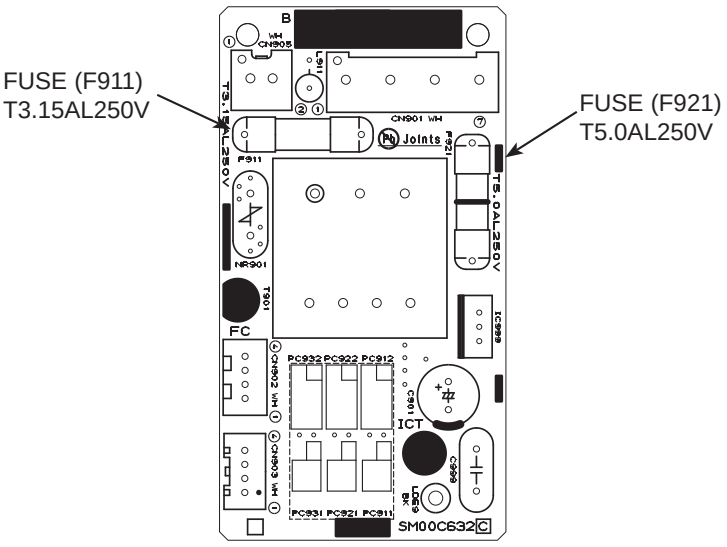
MUZ-AP71VG MUZ-AP80VG
MUZ-AP71VGD MUZ-AP80VGD





2. Interface P.C. board

MUZ-AP25VGD MUZ-AP35VGD MUZ-AP42VGD
MUZ-AP50VGD MUZ-AP60VGD MUZ-AP71VGD MUZ-AP80VGD

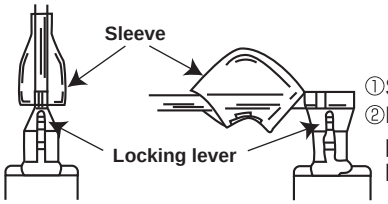


13 DISASSEMBLY INSTRUCTIONS

<Detaching method of the terminal with locking mechanism>

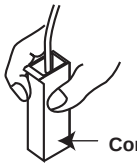
The terminal which has the locking mechanism can be detached as shown below.
There are following 2 types of the terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

(1) Slide the sleeve and check if there is a locking lever or not.



①Slide the sleeve.
②Pull the terminal while pushing the locking lever.

(2) The terminal with this connector shown below has the locking mechanism.

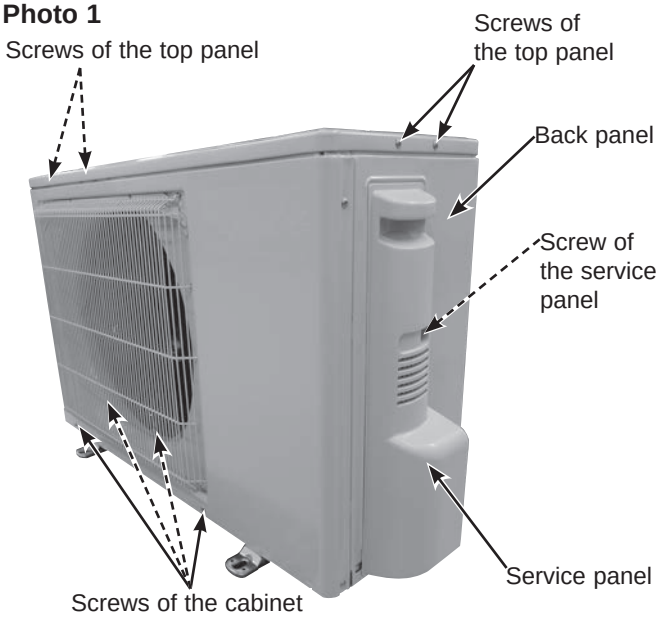
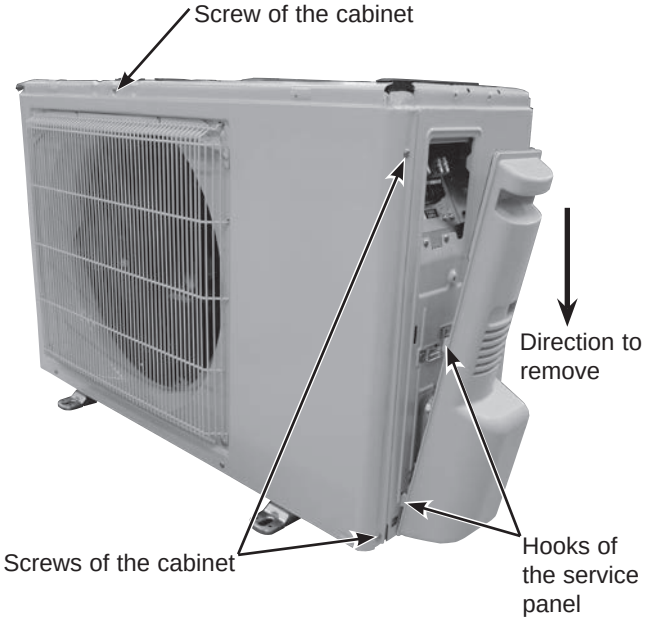
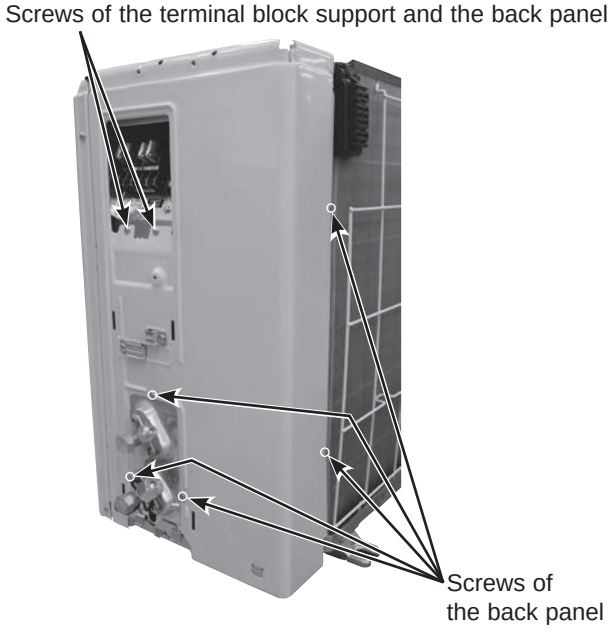


①Hold the sleeve, and pull out the terminal slowly.

13-1. MUZ-AP25VG MUZ-AP35VG MUZ-AP42VG

NOTE: Turn OFF the power supply before disassembly.

——→: Indicates the visible parts in the photos/figures.
- - - - - →: Indicates the invisible parts in the photos/figures.

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the cabinet (1) Remove the screws fixing the service panel. (2) Pull down the service panel and remove it. (3) Disconnect the power supply and indoor/outdoor connecting wire. (4) Remove the screws fixing the top panel. (5) Remove the top panel. (6) Remove the screws fixing the cabinet. (7) Remove the cabinet. (8) Remove the screws fixing the back panel. (9) Remove the screws of the terminal block support and the back panel. (10) Remove the back panel.	**Photo 1** 
Photo 2  	**Photo 3** 

OPERATING PROCEDURE

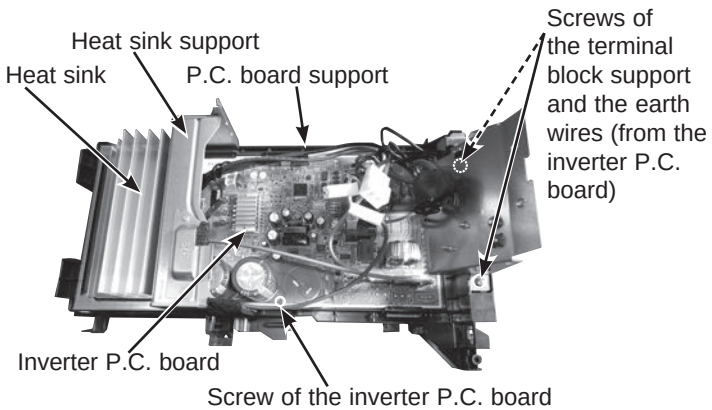
2. Removing the inverter assembly and inverter P.C. board

(1) Remove the cabinet and panels. (Refer to section 1.)
(2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN721 (R.V. coil)
CN931, CN932 (Fan motor)
CN641 (Defrost thermistor and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
CN724 (LEV)
(3) Remove the compressor connector (CN61).
(4) Remove the screws fixing the heat sink support and the separator.
(5) Remove the fixing screw of the P.B. support and the separator.
(6) Remove the fixing screws of the terminal block support and the back panel.
(7) Remove the inverter assembly.
(8) Remove the heat sink support from the P.C. board support.
(9) Remove the screw of the inverter P.C. board and remove the inverter P.C. board from the P.C. board support.

∗ Connection procedure when attaching the inverter P.C. board (Photo 5)

1. Connect the lead wires of the heat exchanger temperature thermistor to the connector on the inverter P.C. board. Pull the lead wires of the heat exchanger temperature thermistor toward you and put them on the left hook on the P.C. board support so that the other lead wires are bundled up as shown in Photo 5.
2. Connect the lead wires of the expansion valve coil to the connector on the inverter P.C. board. Pull the lead wires of the expansion valve coil toward you and put them on the right hook on the P.C. board support so that the other lead wires are bundled up as shown in Photo 5.

Photo 6 (Inverter assembly)



PHOTOS/FIGURES

Photo 4

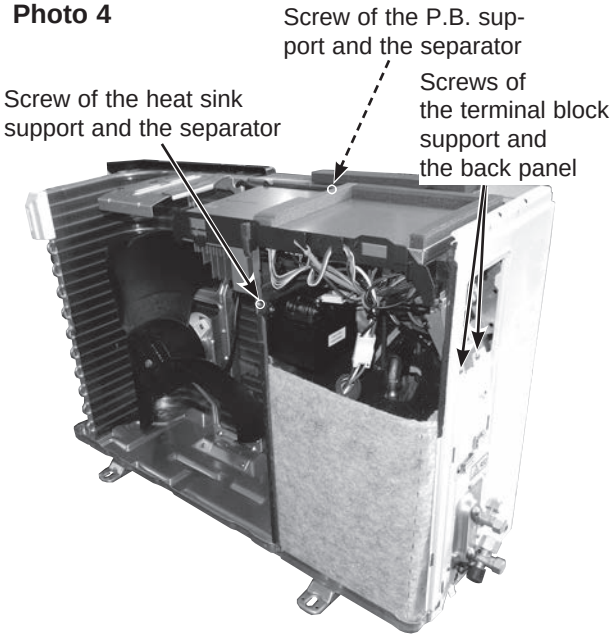
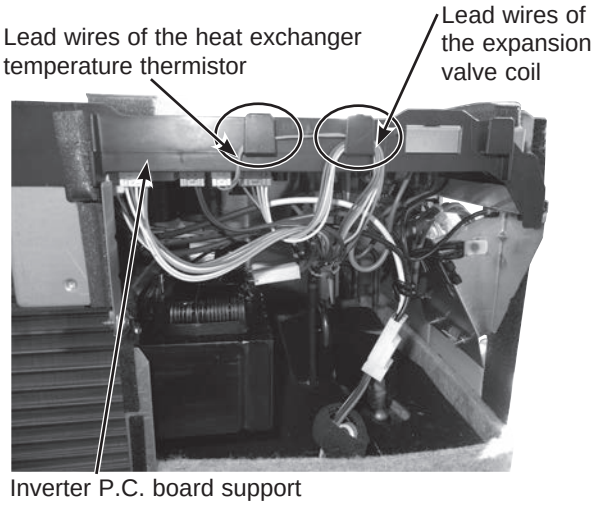
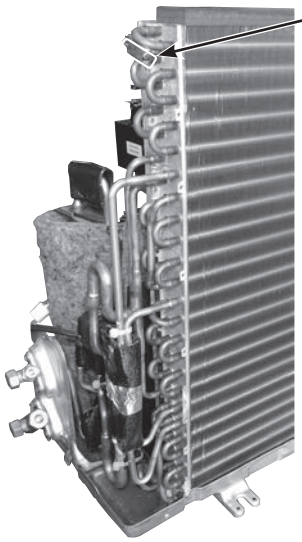
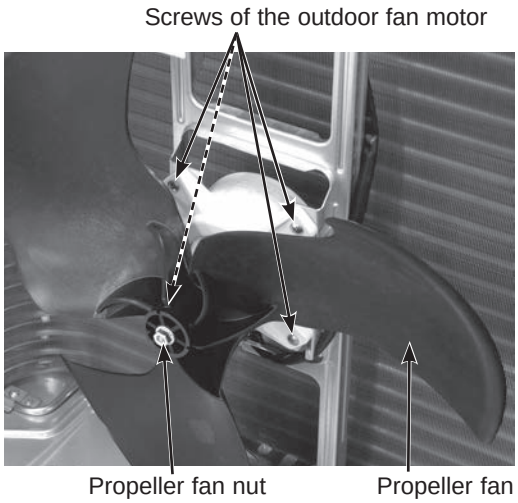
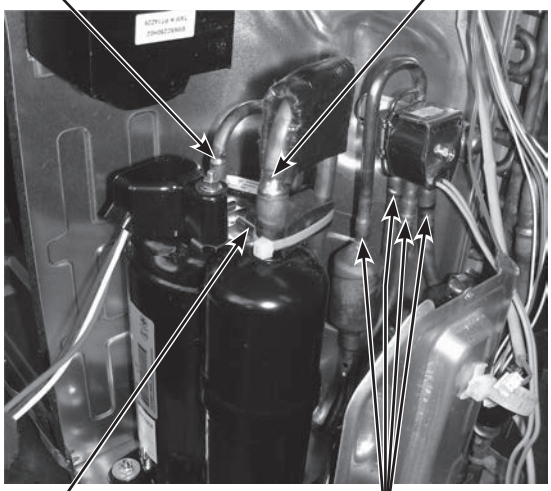


Photo 5



OPERATING PROCEDURE	PHOTOS/FIGURES
3. Removing R. V. coil (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN721 (R.V. coil) (3) Remove the R.V. coil.	**Photo 7** 
4. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN641 (Defrost thermistor and discharge temperature thermistor) CN643 (Ambient temperature thermistor) CN644 (Outdoor heat exchanger temperature thermistor) (3) Pull out the discharge temperature thermistor from its holder. (4) Pull out the defrost thermistor from its holder. (5) Pull out the outdoor heat exchanger temperature thermistor from its holder. (6) Pull out the ambient temperature thermistor from its holder.	**Photo 8** 
5. Removing outdoor fan motor (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN931, CN932 (Fan motor) (3) Remove the propeller fan nut. (4) Remove the propeller fan. (5) Remove the screws fixing the fan motor. (6) Remove the fan motor.	

OPERATING PROCEDURE	PHOTOS/FIGURES
6. Removing the compressor and 4-way valve (1) Remove the cabinet and panels. (Refer to section 1.) (2) Remove the inverter assembly. (Refer to section 2.) (3) Recover gas from the refrigerant circuit. **NOTE:** Recover gas from the pipes until the pressure gauge shows 0 MPa. (4) Detach the brazed part of the suction and the discharge pipe connected with compressor. (5) Remove the compressor nuts. (6) Remove the compressor. (7) Detach the brazed part of pipes connected with 4-way valve.	**Photo 9** Discharge pipe brazed part Suction pipe brazed part  Discharge temperature thermistor Brazed parts of 4-way valve

13-2. MUZ-AP25VGD MUZ-AP35VGD MUZ-AP42VGD

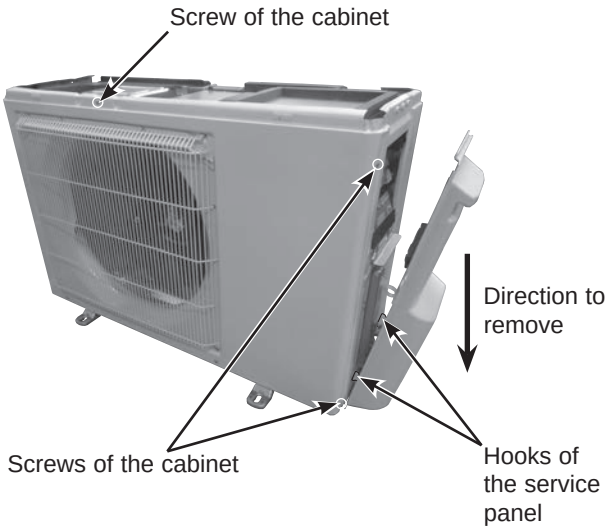
NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE

1. Removing the cabinet

(1) Remove the screws fixing the service panel.
(2) Pull down the service panel and remove it.
(3) Disconnect the power supply and indoor/outdoor connecting wire and the demand control signal transmission cable.
(4) Remove the screws fixing the top panel.
(5) Remove the top panel.
(6) Remove the screws fixing the cabinet.
(7) Remove the cabinet.
(8) Remove the screws fixing the back panel.
(9) Remove the screws of the terminal block support and the back panel.
(10) Remove the back panel.

Photo 2



PHOTOS

Photo 1

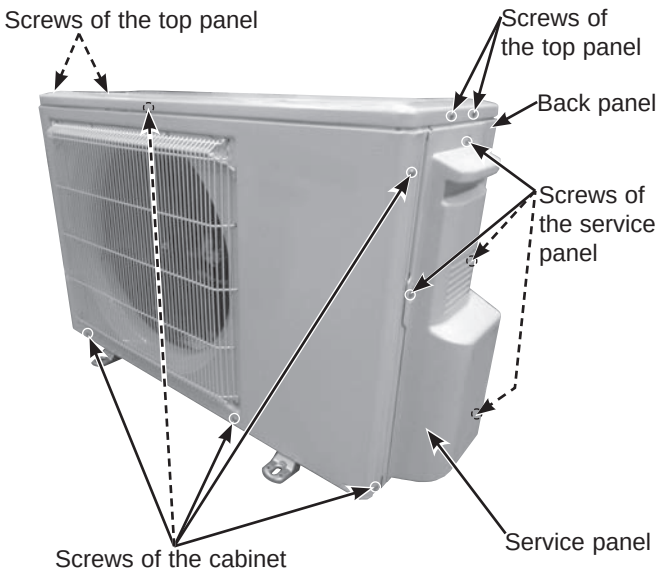
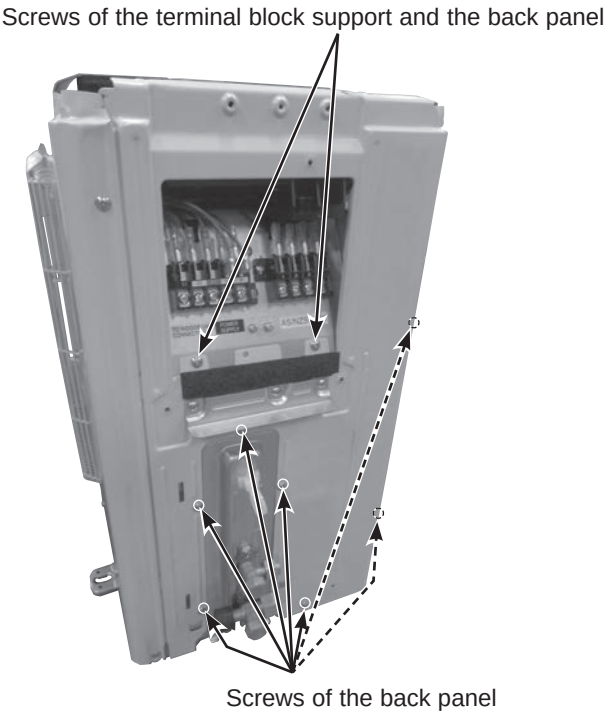


Photo 3



OPERATING PROCEDURE

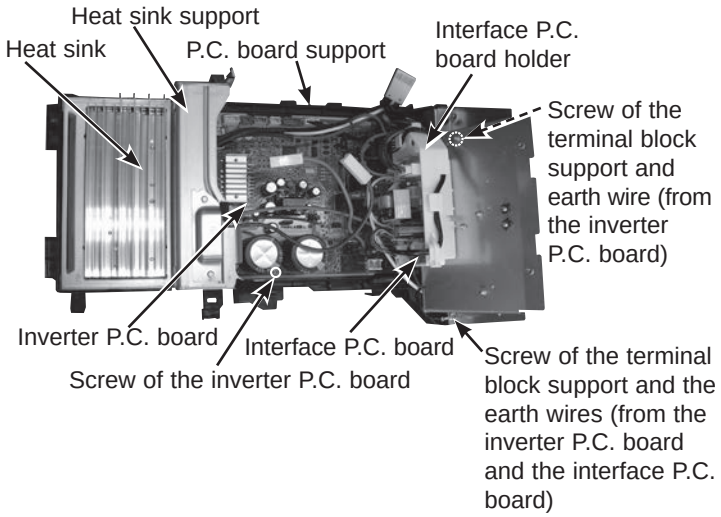
2. Removing the inverter assembly and inverter P.C. board

(1) Remove the cabinet and panels. (Refer to section 1.)
(2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN721 (R.V. coil)
CN931, CN932 (Fan motor)
CN641 (Defrost thermistor and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
CN724 (LEV)
CN904 (Interface P.C. board)
(3) Remove the compressor connector (CN61).
(4) Remove the screws fixing the heat sink support and the separator.
(5) Remove the fixing screw of the P.B. support and the separator.
(6) Remove the fixing screws of the terminal block support and the back panel.
(7) Remove the inverter assembly.
(8) Remove the heat sink support from the P.C. board support.
(9) Remove the screw of the inverter P.C. board and remove the inverter P.C. board from the P.C. board support.

∗ Connection procedure when attaching the inverter P.C. board (Photo 5)

1. Connect the lead wires of the heat exchanger temperature thermistor to the connector on the inverter P.C. board. Pull the lead wires of the heat exchanger temperature thermistor toward you and put them on the left hook on the P.C. board support so that the other lead wires are bundled up as shown in Photo 5.
2. Connect the lead wires of the expansion valve coil to the connector on the inverter P.C. board. Pull the lead wires of the expansion valve coil toward you and put them on the right hook on the P.C. board support so that the other lead wires are bundled up as shown in Photo 5.

Photo 6 (Inverter assembly)



PHOTOS

Photo 4

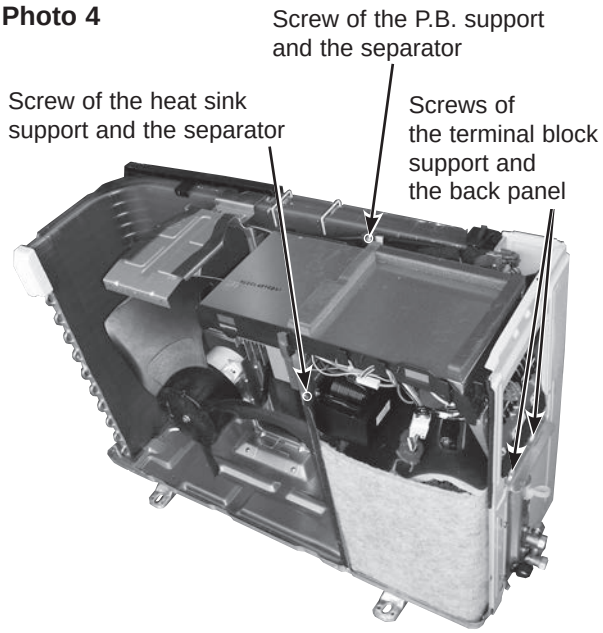
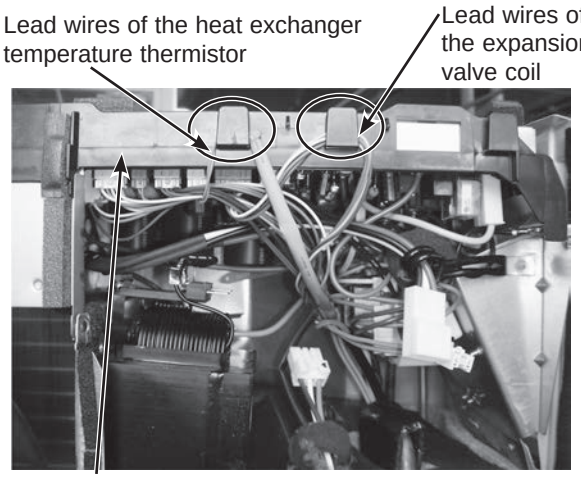


Photo 5



OPERATING PROCEDURE

3. Removing the interface P.C. board

(1) Remove the cabinet and panels. (Refer to section 1.)
(2) Disconnect the lead wire to the reactor and the inverter P.C. board connectors. (Refer to section 2. (2))
(3) Remove the compressor connector (CN61).
(4) Remove the screws fixing the heat sink support and the separator.
(5) Remove the fixing screw of the P.B. support and the separator.
(6) Remove the fixing screws of the terminal block support and the back panel.
(7) Remove the inverter assembly.
(8) Remove the disconnect the following connectors:
<Interface P.C. board>
NOTE: Leave the lead wires secured to the hooks when disconnecting the connectors.
CN901, CN902 (Terminal block)
CN903, CN905 (Inverter P.C. board)
(9) Remove the screws of the earth wires and the screws of the terminal block support. (Photo 6, 8)
(10) Remove the screw of the inverter P.C. board holder. (Photo 7)
(11) Remove the interface P.C. board from the interface P.C. board holder.

* **Note about attaching the interface P.C. board**
After attaching the interface P.C. board, make sure that the lead wires are connected and placed as shown in Photo 8.

4. Removing R.V. coil

(1) Remove the cabinet and panels. (Refer to section 1.)
(2) Disconnect the following connectors:
<Inverter P.C. board>
CN721 (R.V. coil)
(3) Remove the R.V. coil.

PHOTOS

Photo 7

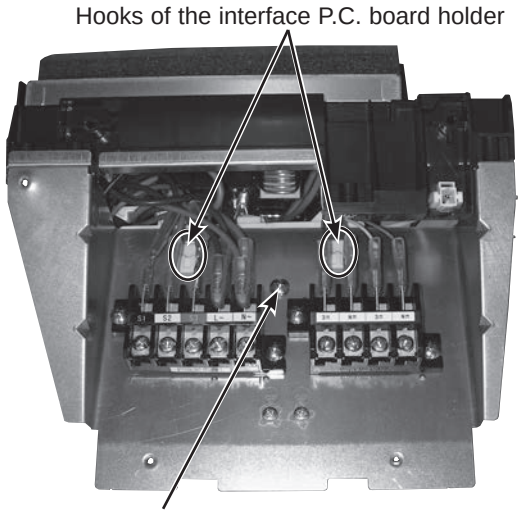


Photo 8

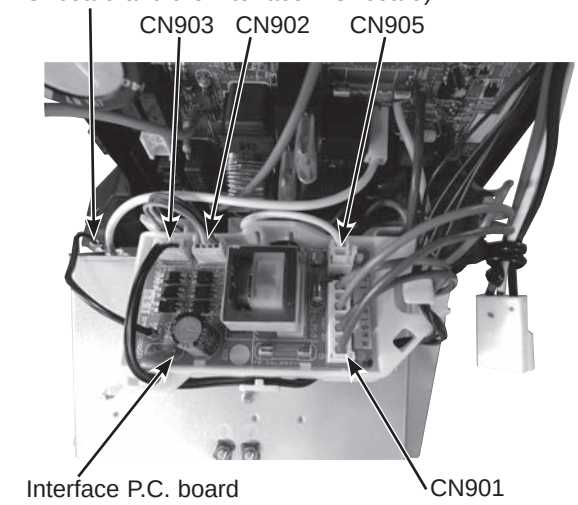
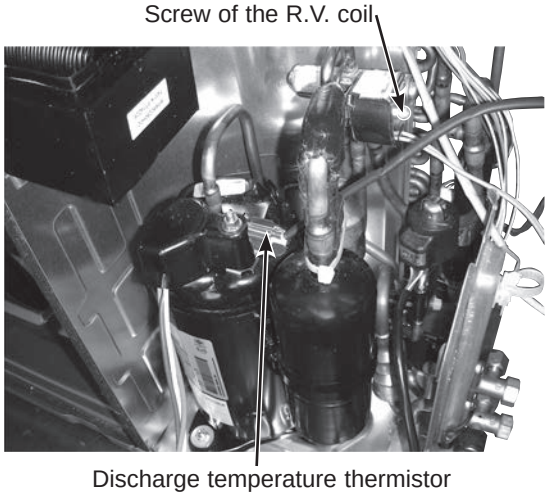
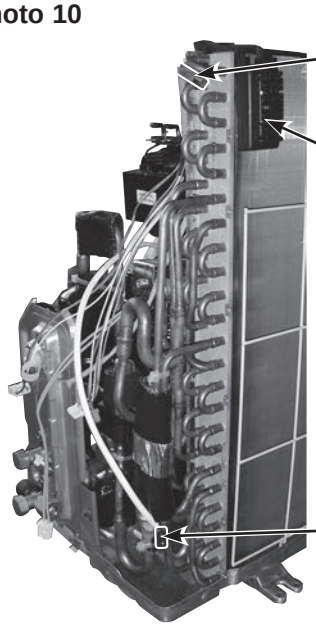
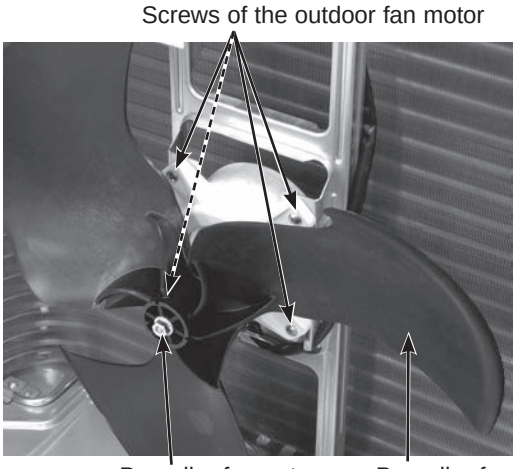
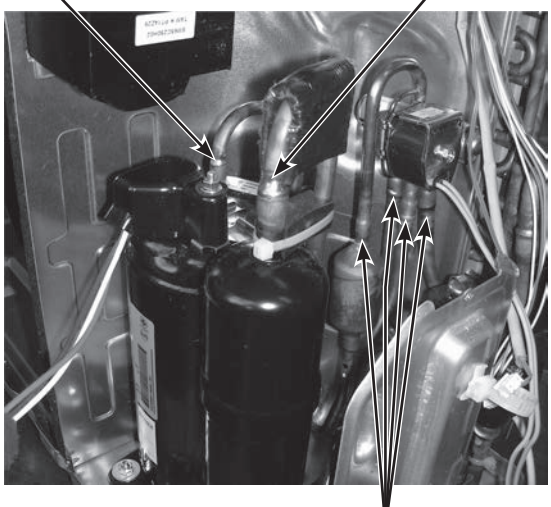


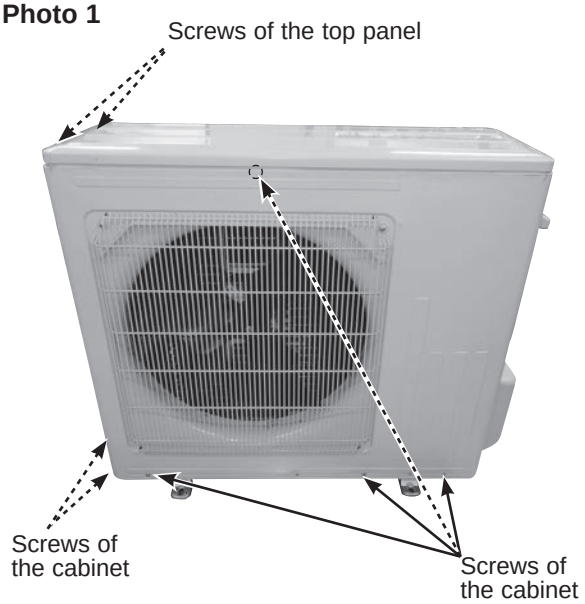
Photo 9



OPERATING PROCEDURE	PHOTOS
5. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN641 (Defrost thermistor and discharge temperature thermistor) CN643 (Ambient temperature thermistor) CN644 (Outdoor heat exchanger temperature thermistor) (3) Pull out the discharge temperature thermistor from its holder. (4) Pull out the defrost thermistor from its holder. (5) Pull out the outdoor heat exchanger temperature thermistor from its holder. (6) Pull out the ambient temperature thermistor from its holder.	**Photo 10** 
6. Removing outdoor fan motor (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN931, CN932 (Fan motor) (3) Remove the propeller fan nut. (4) Remove the propeller fan. (5) Remove the screws fixing the fan motor. (6) Remove the fan motor.	**Photo 11** 
7. Removing the compressor and 4-way valve (1) Remove the cabinet and panels. (Refer to section 1.) (2) Remove the inverter assembly. (Refer to section 2.) (3) Recover gas from the refrigerant circuit. **NOTE:** Recover gas from the pipes until the pressure gauge shows 0 MPa. (4) Detach the brazed part of the suction and the discharge pipe connected with compressor. (5) Remove the compressor nuts. (6) Remove the compressor. (7) Detach the brazed part of pipes connected with 4-way valve.	**Photo 12** 

13-3. MUZ-AP50VG MUZ-AP60VG

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the cabinet (1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the screw of the valve cover. (4) Remove the service panel. (5) Remove the top panel. (6) Remove the valve cover. (7) Disconnect the power supply and indoor/outdoor connecting wire. (8) Remove the screws of the cabinet. (9) Remove the cabinet. (10) Remove the screws of the back panel. (11) Remove the back panel.	**Photo 1** 
Photo 2  	

OPERATING PROCEDURE

2. Removing the inverter assembly and inverter P.C. board

(1) Remove the cabinet and panels. (Refer to section 1.)
(2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN721 (R.V. coil)
CN931, CN932 (Fan motor)
CN641 (Defrost thermistor and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
CN724 (LEV)
(3) Remove the compressor connector (CN61).
(4) Remove the screws fixing the heat sink support and the separator.
(5) Remove the fixing screw of the P.B. support and the separator.
(6) Remove the fixing screws of the terminal block support and the back panel.
(7) Remove the inverter assembly.
(8) Remove the heat sink support from the P.C. board support.
(9) Remove the screw of the inverter P.C. board and remove the inverter P.C. board from the P.C. board support.

∗ Connection procedure when attaching the inverter P.C. board (Photo 4)

1. Connect the lead wires of the heat exchanger temperature thermistor, the defrost thermistor and discharge temperature thermistor to the connector on the inverter P.C. board. Pull the lead wires toward you and put them on the right hook on the P.C. board support.
2. Connect the lead wires of the LEV to the connector on the inverter P.C. board. Pull the lead wires toward you and put them on the right hook on the P.C. board support.
3. Connect the lead wires of the ambient temperature thermistor to the connector on the inverter P.C. board. Pull the lead wires toward you and put them on the left hook on the P.C. board support so that the fan motor lead wires are bundled up as shown in Photo 4.

PHOTOS/FIGURES

Photo 3

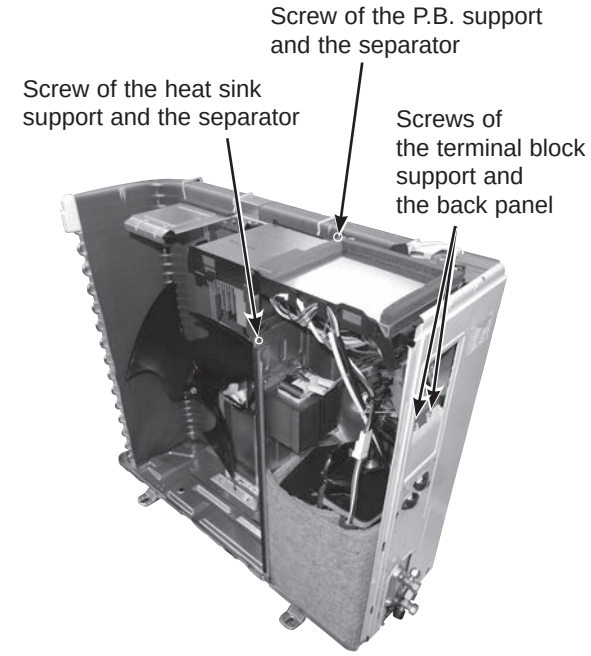


Photo 4

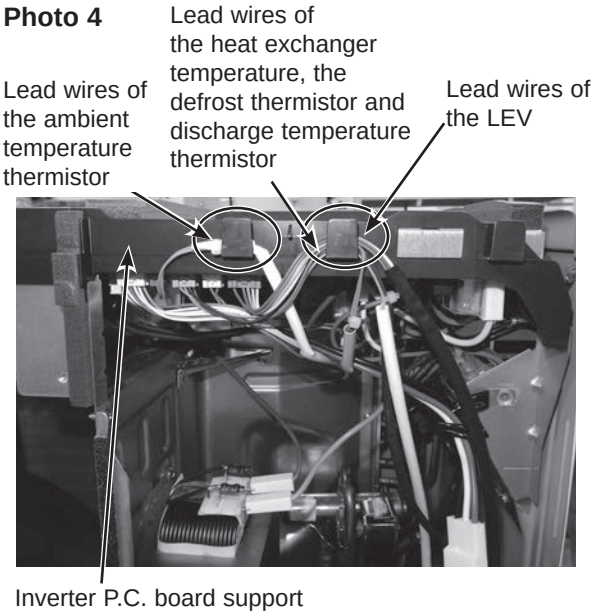
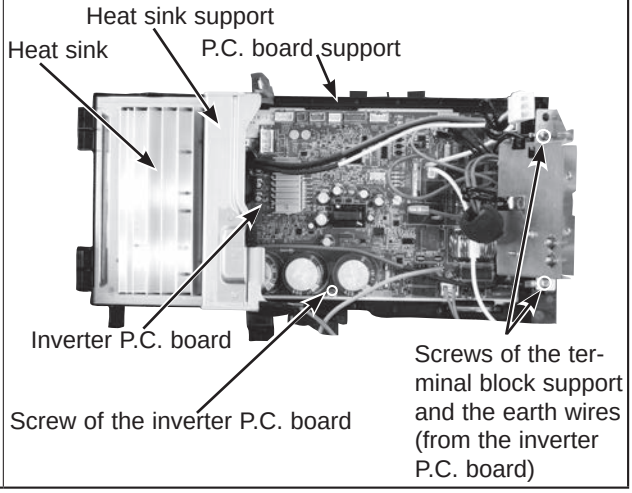
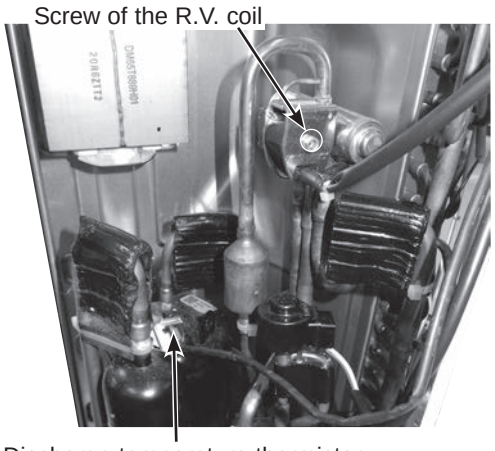
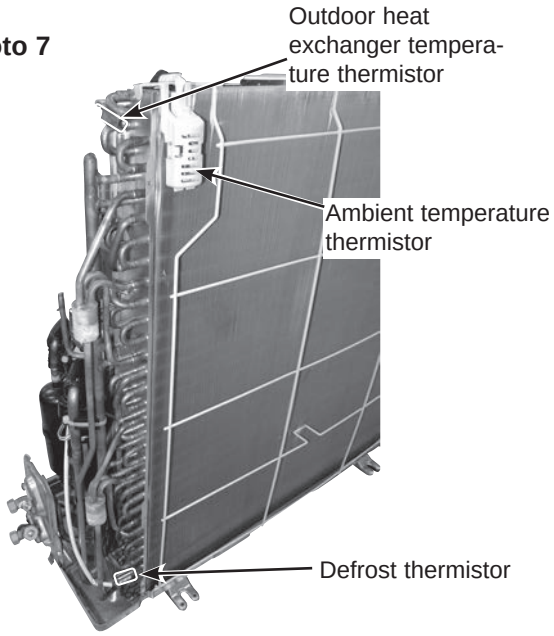
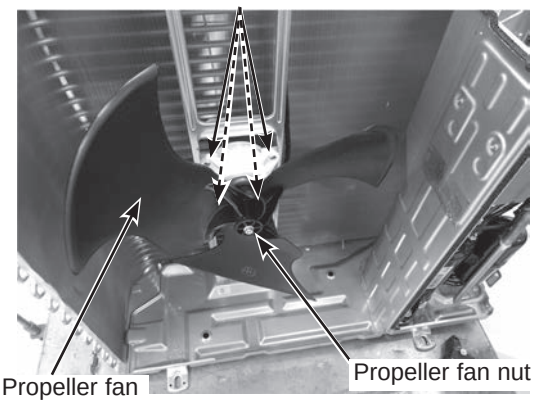
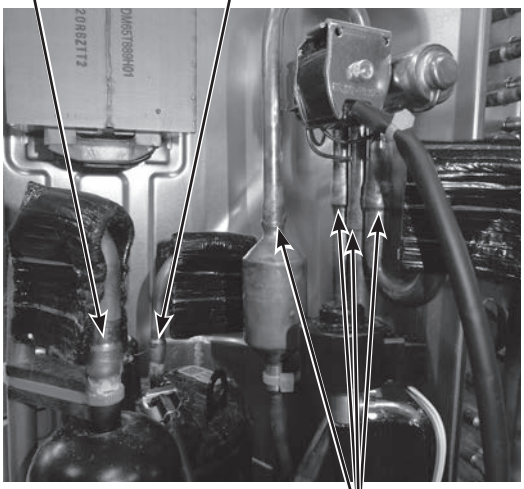


Photo 5 (Inverter assembly)

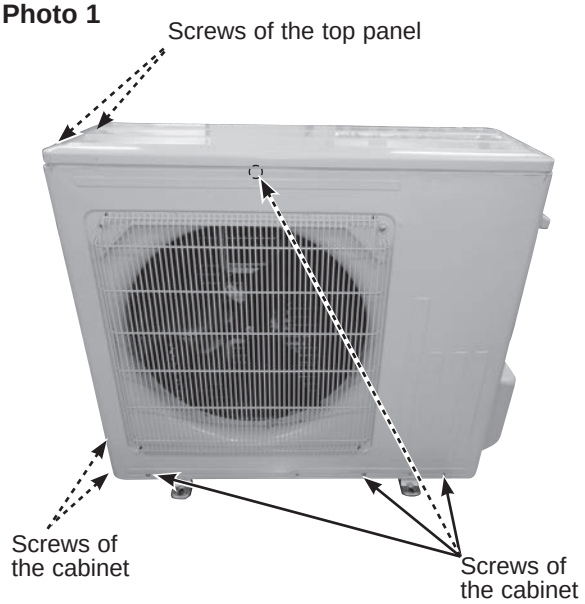


OPERATING PROCEDURE	PHOTOS/FIGURES
3. Removing R. V. coil (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN721 (R.V. coil) (3) Remove the R.V. coil.	**Photo 6** 
4. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN641 (Defrost thermistor and discharge temperature thermistor) CN643 (Ambient temperature thermistor) CN644 (Outdoor heat exchanger temperature thermistor) (3) Pull out the discharge temperature thermistor from its holder. (4) Pull out the defrost thermistor from its holder. (5) Pull out the outdoor heat exchanger temperature thermistor from its holder. (6) Pull out the ambient temperature thermistor from its holder.	**Photo 7** 
5. Removing outdoor fan motor (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN931, CN932 (Fan motor) (3) Remove the propeller fan nut. (4) Remove the propeller fan. (5) Remove the screws fixing the fan motor. (6) Remove the fan motor.	**Photo 8** 

OPERATING PROCEDURE	PHOTOS/FIGURES
6. Removing the compressor and 4-way valve (1) Remove the cabinet and panels. (Refer to section 1.) (2) Remove the inverter assembly. (Refer to section 2.) (3) Recover gas from the refrigerant circuit. **NOTE:** Recover gas from the pipes until the pressure gauge shows 0 MPa. (4) Detach the brazed part of the suction and the discharge pipe connected with compressor. (5) Remove the compressor nuts. (6) Remove the compressor. (7) Detach the brazed part of pipes connected with 4-way valve.	**Photo 9** Suction pipe brazed part Discharge pipe brazed part  Brazed parts of 4-way valve

13-4. MUZ-AP50VGD MUZ-AP60VGD

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the cabinet (1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the screw of the valve cover. (4) Remove the service panel. (5) Remove the top panel. (6) Remove the valve cover. (7) Disconnect the power supply and indoor/outdoor connecting wire. (8) Remove the screws of the cabinet. (9) Remove the cabinet. (10) Remove the screws of the back panel. (11) Remove the back panel. **Photo 2**  	**Photo 1** 

OPERATING PROCEDURE

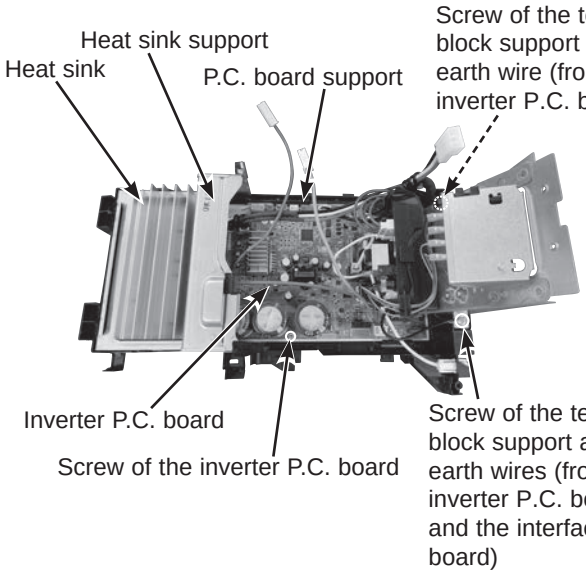
2. Removing the inverter assembly and inverter P.C. board

(1) Remove the cabinet and panels. (Refer to section 1.)
(2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN721 (R.V. coil)
CN931, CN932 (Fan motor)
CN641 (Defrost thermistor and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
CN724 (LEV)
CN904 (Interface P.C. board)
(3) Remove the compressor connector (CN61).
(4) Remove the screws fixing the heat sink support and the separator.
(5) Remove the fixing screw of the P.B. support and the separator.
(6) Remove the fixing screws of the terminal block support and the back panel.
(7) Remove the inverter assembly.
(8) Remove the heat sink support from the P.C. board support.
(9) Remove the screw of the inverter P.C. board and remove the inverter P.C. board from the P.C. board support.

∗ Connection procedure when attaching the inverter P.C. board (Photo 4)

1. Connect the lead wires of the heat exchanger temperature thermistor, the defrost thermistor and discharge temperature thermistor to the connector on the inverter P.C. board. Pull the lead wires toward you and put them on the right hook on the P.C. board support.
2. Connect the lead wires of the LEV to the connector on the inverter P.C. board. Pull the lead wires toward you and put them on the right hook on the P.C. board support.
3. Connect the lead wires of the ambient temperature thermistor to the connector on the inverter P.C. board. Pull the lead wires toward you and put them on the left hook on the P.C. board support so that the fan motor lead wires are bundled up as shown in Photo 4.

Photo 5 (Inverter assembly)



PHOTOS/FIGURES

Photo 3

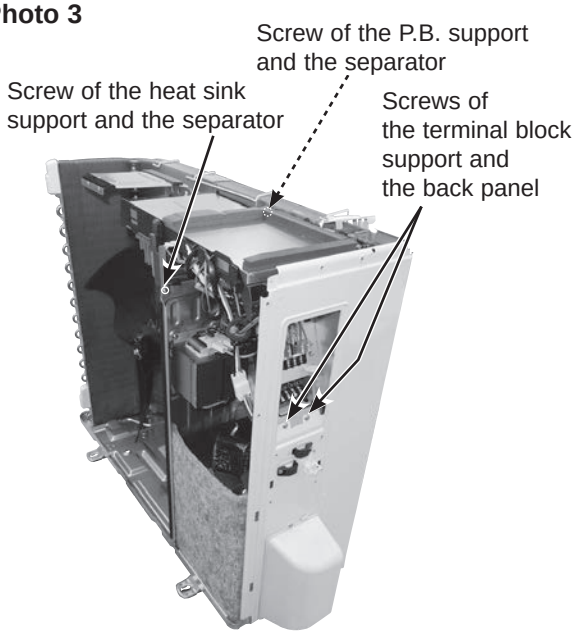
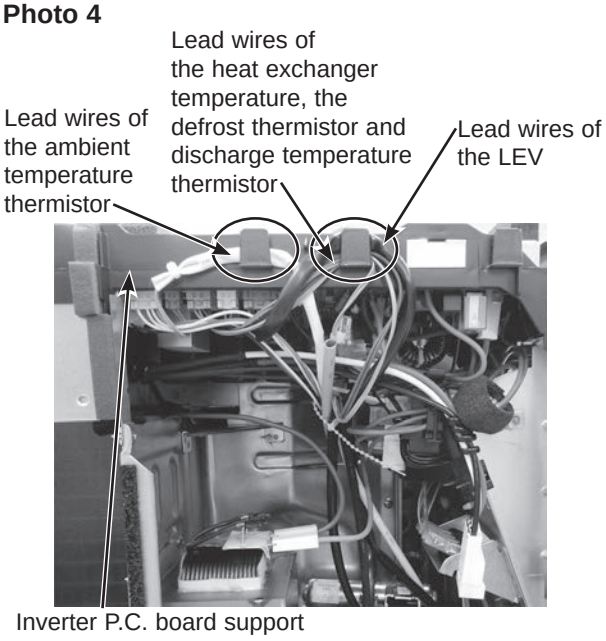


Photo 4



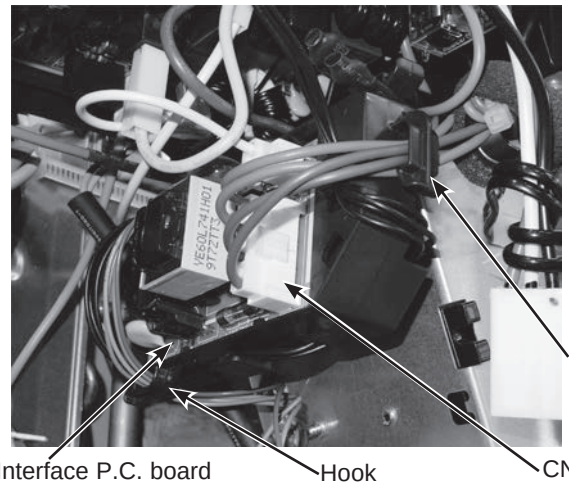
OPERATING PROCEDURE

3. Removing the interface P.C. board

(1) Remove the cabinet and panels. (Refer to section 1.)
(2) Disconnect the lead wire to the reactor and the inverter P.C. board connectors. (Refer to section 2. (2))
(3) Remove the compressor connector (CN61).
(4) Remove the screws fixing the heat sink support and the separator.
(5) Remove the fixing screw of the P.B. support and the separator.
(6) Remove the fixing screws of the terminal block support and the back panel.
(7) Remove the inverter assembly.
(8) Remove the disconnect the following connectors:
<Interface P.C. board>
NOTE: Leave the lead wires secured to the hooks when disconnecting the connectors.
CN901, CN902 (Terminal block)
CN903, CN905 (Inverter P.C. board)
(9) Remove the screw of the earth wire and the screws of the terminal block support. (Photo 5, 7)
(10) Remove the screw of the inverter P.C. board holder and earth wires. (Photo 6)
(11) Remove the interface P.C. board from the interface P.C. board holder.

*** Note about attaching the interface P.C. board**
After attaching the interface P.C. board, make sure that the lead wires are connected and placed as shown in Photo 7 and 8.

Photo 8

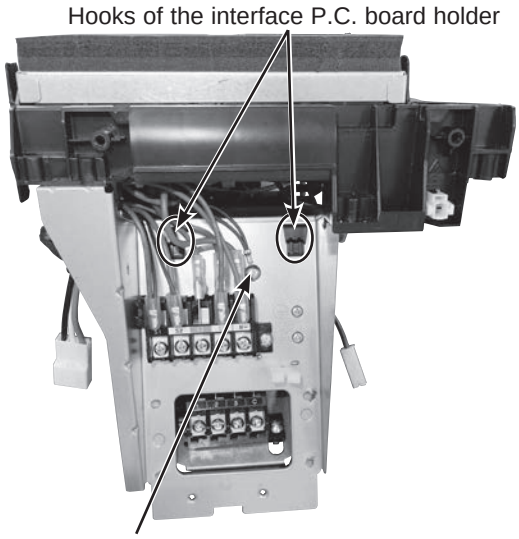


4. Removing R. V. coil

(1) Remove the cabinet and panels. (Refer to section 1.)
(2) Disconnect the following connectors:
<Inverter P.C. board>
CN721 (R.V. coil)
(3) Remove the R.V. coil.

PHOTOS/FIGURES

Photo 6



Screw of the interface P.C. board holder and earth wire

*When installing the screw, screw the earth wire.

Photo 7

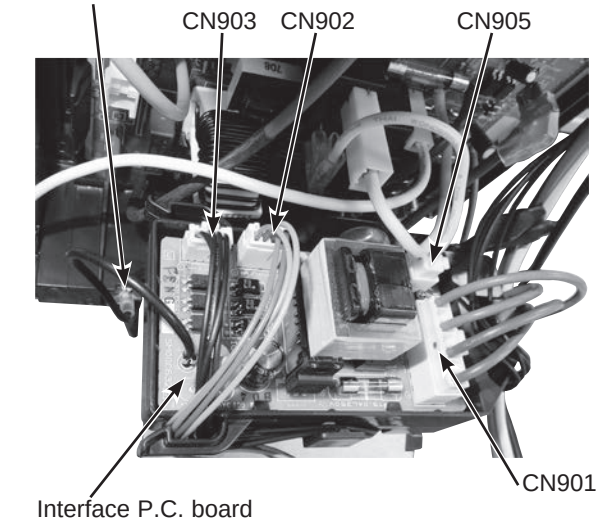
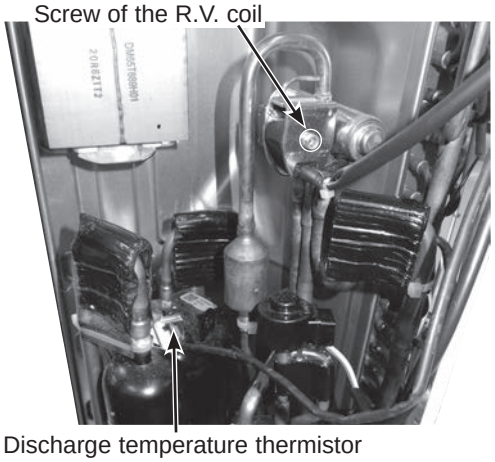
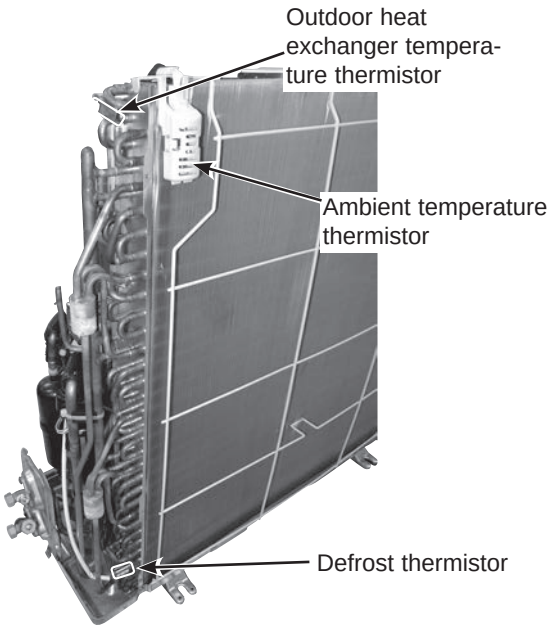
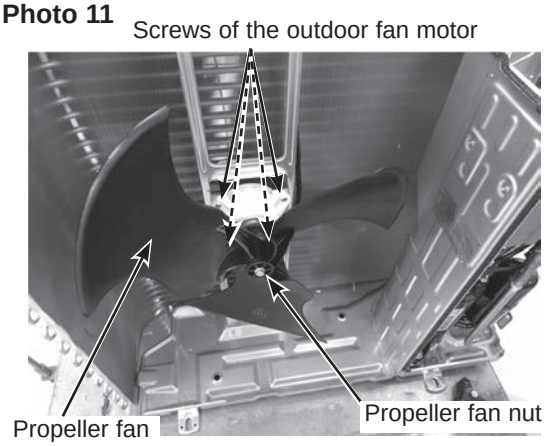
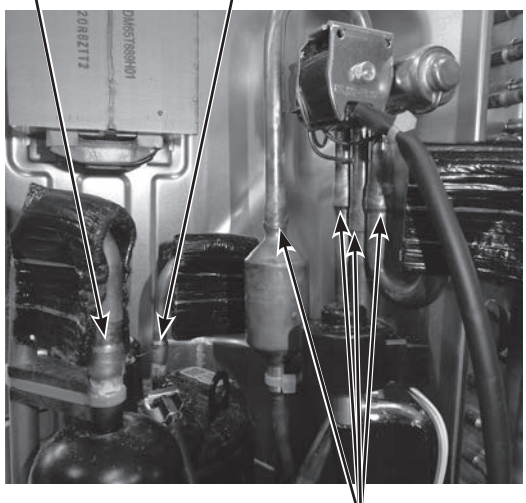


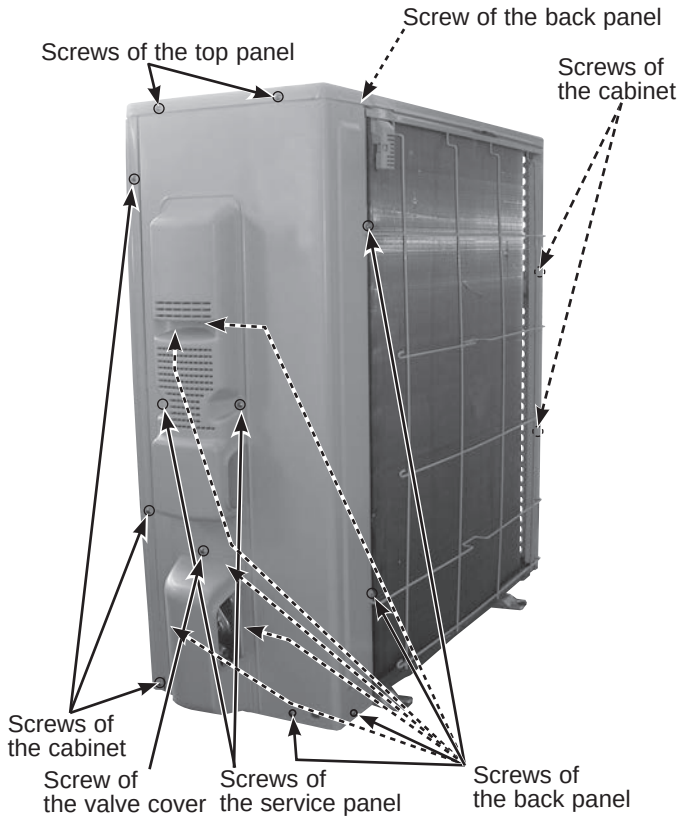
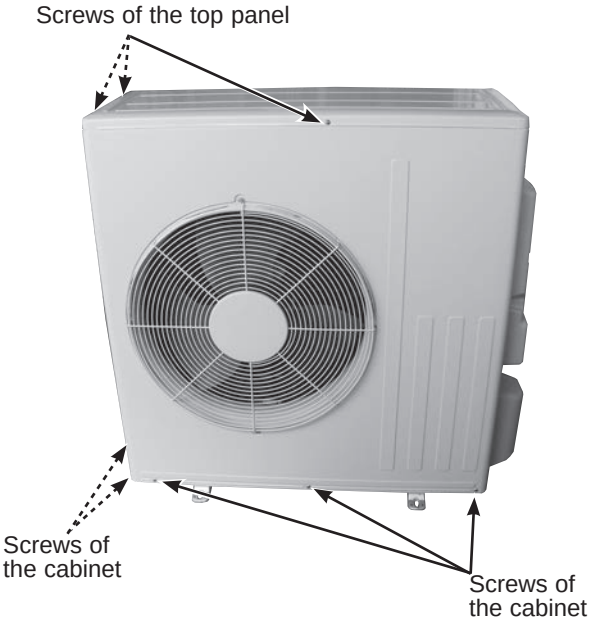
Photo 9

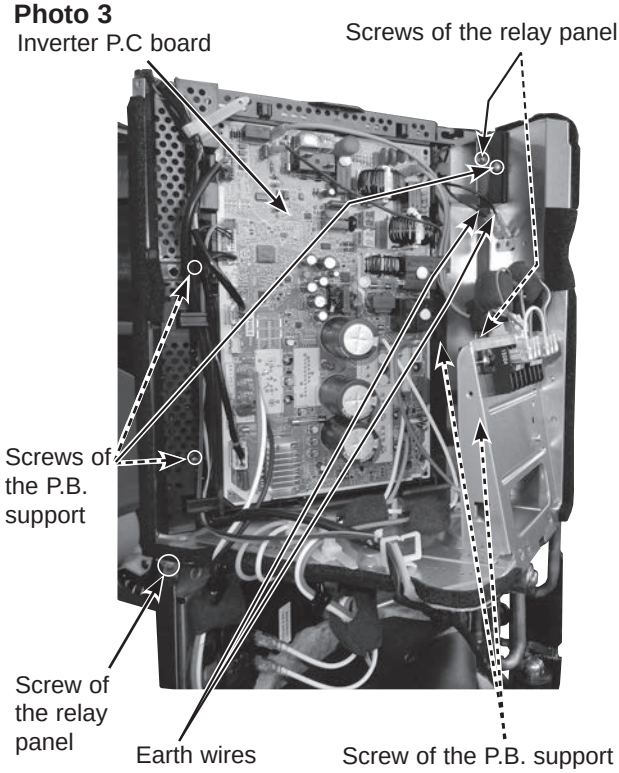
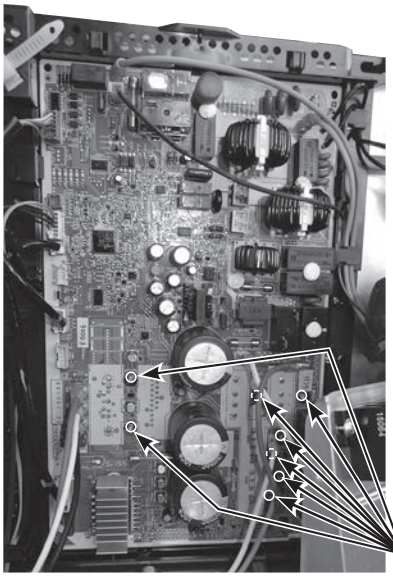


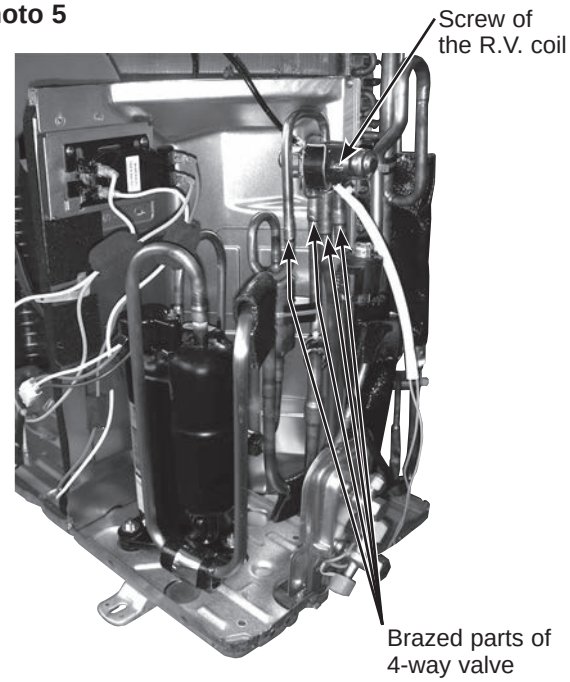
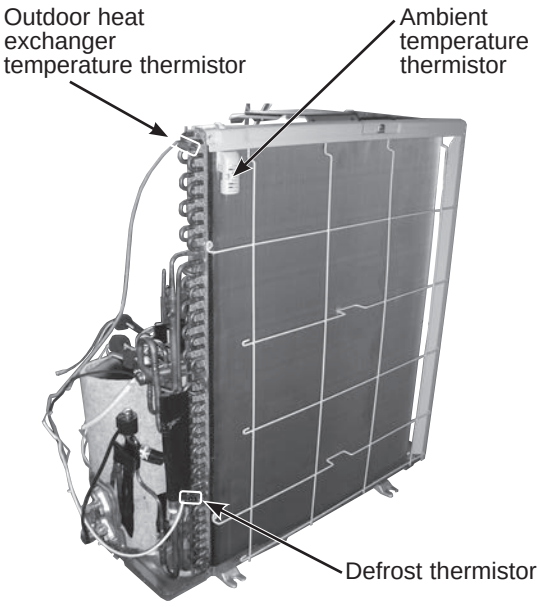
OPERATING PROCEDURE	PHOTOS/FIGURES
5. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN641 (Defrost thermistor and discharge temperature thermistor) CN643 (Ambient temperature thermistor) CN644 (Outdoor heat exchanger temperature thermistor) (3) Pull out the discharge temperature thermistor from its holder. (4) Pull out the defrost thermistor from its holder. (5) Pull out the outdoor heat exchanger temperature thermistor from its holder. (6) Pull out the ambient temperature thermistor from its holder.	**Photo 10** 
6. Removing outdoor fan motor (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN931, CN932 (Fan motor) (3) Remove the propeller fan nut. (4) Remove the propeller fan. (5) Remove the screws fixing the fan motor. (6) Remove the fan motor.	**Photo 11** 
7. Removing the compressor and 4-way valve (1) Remove the cabinet and panels. (Refer to section 1.) (2) Remove the inverter assembly. (Refer to section 2.) (3) Recover gas from the refrigerant circuit. **NOTE:** Recover gas from the pipes until the pressure gauge shows 0 MPa. (4) Detach the brazed part of the suction and the discharge pipe connected with compressor. (5) Remove the compressor nuts. (6) Remove the compressor. (7) Detach the brazed part of pipes connected with 4-way valve.	**Photo 12** 

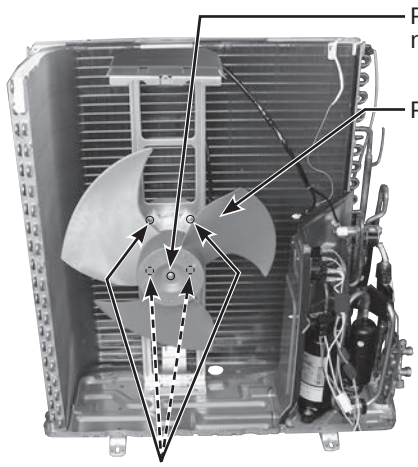
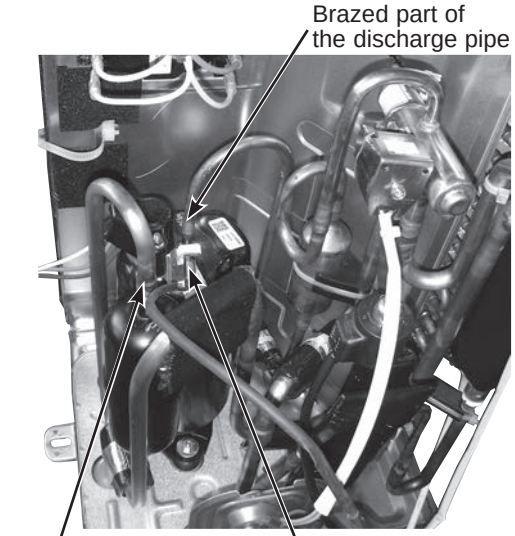
13-5. MUZ-AP71VG MUZ-AP80VG

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the cabinet (1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the screw of the valve cover. (4) Remove the service panel. (5) Remove the top panel. (6) Remove the valve cover. (7) Disconnect the power supply and indoor/outdoor connecting wire. (8) Remove the screws of the cabinet. (9) Remove the cabinet. (10) Remove the screws of the back panel. (11) Remove the back panel. **Photo 2**  	**Photo 1** 

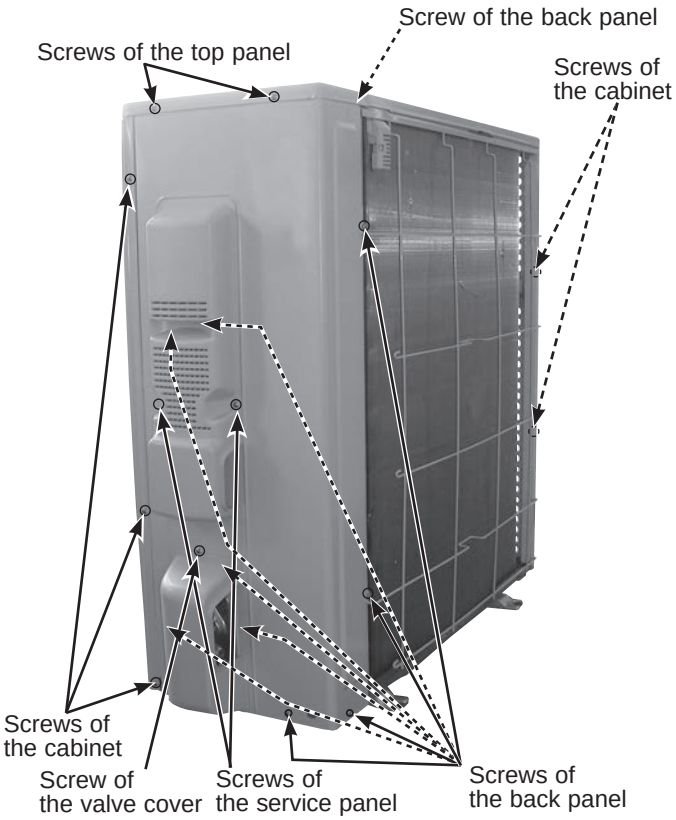
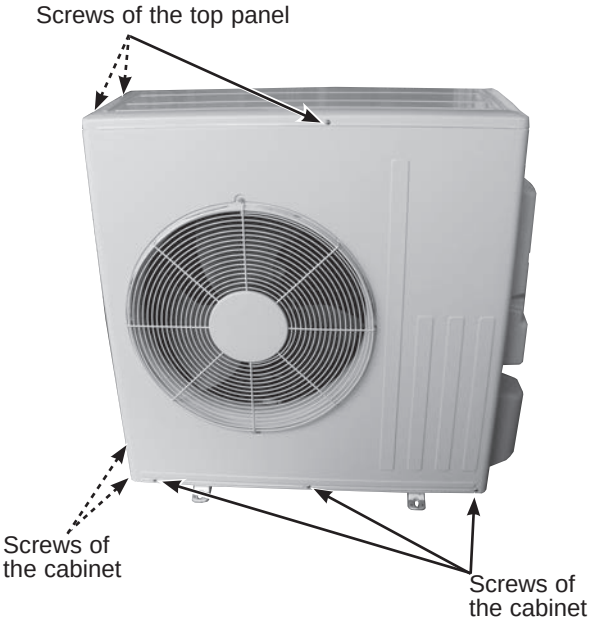
OPERATING PROCEDURE	PHOTOS/FIGURES
2. Removing the inverter assembly and inverter P.C. board (1) Remove the cabinet and the service panel. (Refer to section 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN602 (R.V. coil) CN931, CN932 (Fan motor) CN671 (Defrost thermistor, discharge temperature thermistor and outdoor heat exchanger temperature thermistor) CN672 (Ambient temperature thermistor) CN724 (LEV) (3) Remove the compressor connector. (4) Remove the earth wires and the lead wires of the inverter P.C. board. (5) Remove the screws of the P.B. support. (6) Remove the P.B. support from the relay panel. (7) Remove the screws of the inverter P.C. board. (8) Remove the inverter P.C. board from P.B. support. **∗ Notes about attaching the inverter P.C. board** 1. When attaching the inverter P.C. board, clip the lead wires of the reactor to the wire saddles on the bottom of relay panel. 2. After attaching the inverter P.C. board, make sure that the lead wires are connected and placed as shown in Photo 3.	**Photo 3**  **Photo 4** 

OPERATING PROCEDURE	PHOTOS/FIGURES
3. Removing R.V. coil (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the following connector: <Inverter P.C. board> CN602 (R.V. coil) (3) Remove the R.V. coil.	**Photo 5** 
4. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN671 (Defrost thermistor, discharge temperature thermistor and outdoor heart exchanger temperature thermistor) CN672 (Ambient temperature thermistor) (3) Pull out the discharge temperature thermistor from its holder. (Photo 9) (4) Pull out the defrost thermistor from its holder. (5) Pull out the outdoor heat exchanger temperature thermistor from its holder. (6) Pull out the ambient temperature thermistor from its holder.	**Photo 6** 

OPERATING PROCEDURE	PHOTOS/FIGURES
5. Removing outdoor fan motor (1) Remove the top panel, cabinet and service panel. (Refer to section 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN931, CN932 (Fan motor) (3) Remove the propeller fan nut. (4) Remove the propeller fan. (5) Remove the screws fixing the fan motor. (6) Remove the fan motor.	**Photo 7**  Screws of the outdoor fan motor
6. Removing the compressor and 4-way valve (1) Remove the top panel, cabinet and service panel. (Refer to section 1.) (2) Remove the back panel. (Refer to section 1.) (3) Remove the screws fixing the relay panel. (4) Remove the relay panel. (5) Remove the inverter assembly. (Refer to section 2.) (6) Recover gas from the refrigerant circuit. **NOTE:** Recover gas from the pipes until the pressure gauge shows 0 MPa. (7) Detach the brazed part of the suction and the discharge pipe connected with compressor. (8) Remove the compressor nuts. (9) Remove the compressor. (10) Detach the brazed parts of 4-way valve and pipe. (Photo 6)	**Photo 8** 

13-6. MUZ-AP71VGD MUZ-AP80VGD

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the screw of the valve cover. (4) Remove the service panel. (5) Remove the top panel. (6) Remove the valve cover. (7) Disconnect the power supply and indoor/outdoor connecting wire and the demand control signal transmission cable. (8) Remove the screws of the cabinet. (9) Remove the cabinet. (10) Remove the screws of the back panel. (11) Remove the back panel. **Photo 2**  	**Photo 1** 

OPERATING PROCEDURE

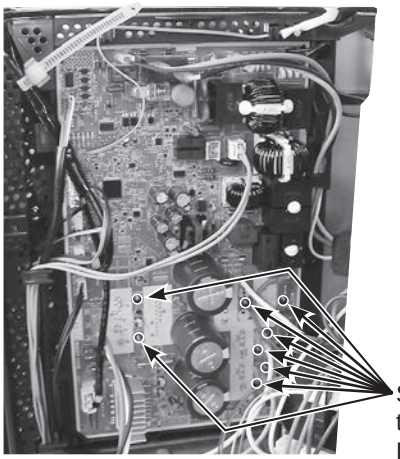
2. Removing the inverter assembly and inverter P.C. board

(1) Remove the cabinet and the service panel. (Refer to section 1.)
(2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN602 (R.V. coil)
CN931, CN932 (Fan motor)
CN671 (Defrost thermistor, discharge temperature thermistor and outdoor heat exchanger temperature thermistor)
CN672 (Ambient temperature thermistor)
CN724 (LEV)
CN904 (Interface P.C. board)
(3) Remove the compressor connector.
(4) Remove the earth wires and the lead wires of the inverter P.C. board.
(5) Remove the screws of the P.B. support.
(6) Remove the P.B. support from the relay panel.
(7) Remove the screws of the inverter P.C. board.
(8) Remove the inverter P.C. board from P.B. support.

*** Notes about attaching the inverter P.C. board**

1. When attaching the inverter P.C. board, clip the lead wires of the reactor to the wire saddles on the bottom of relay panel.
2. After attaching the inverter P.C. board, make sure that the lead wires are connected and placed as shown in Photo 3.

Photo 4



3. Removing the interface P.C. board

(1) Remove the cabinet and the service panel. (Refer to section 1.)
(2) Disconnect the lead wire to the reactor and the inverter connectors. (Refer to section 2. (2).)
(3) Remove the compressor connector.
(4) Remove the screw of the earth wire and disconnect the following connectors:
<Interface P.C. board>
NOTE: Leave the lead wires secured to the hooks when disconnecting the connectors.
CN901 (Terminal block)
CN902 (Terminal block)
CN903 (Inverter P.C. board)
CN905 (Inverter P.C. board)
(5) Remove the interface P.C. board from the P.B. holder.

*** Notes about attaching the interface P.C. board**

1. After attaching the interface P.C. board, make sure that the lead wires are connected and placed as shown in Photo 5.

PHOTOS

Photo 3

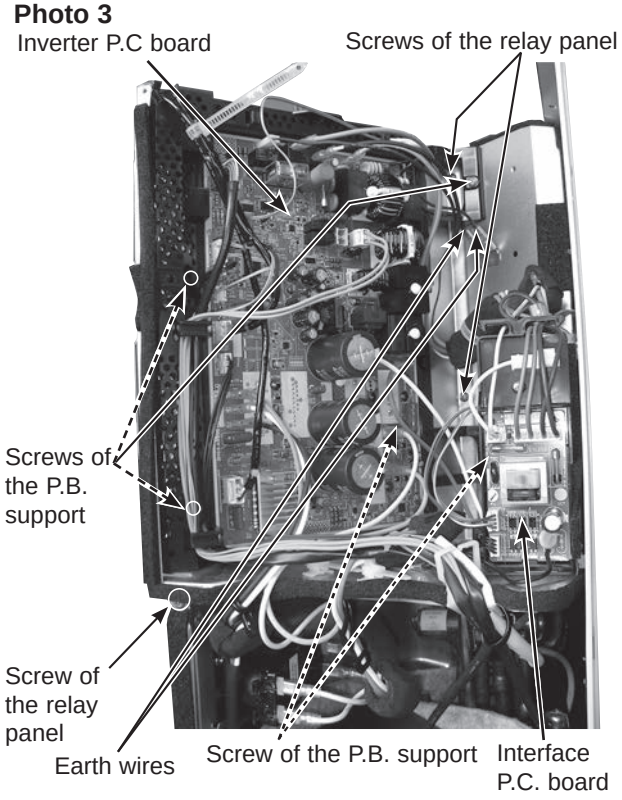
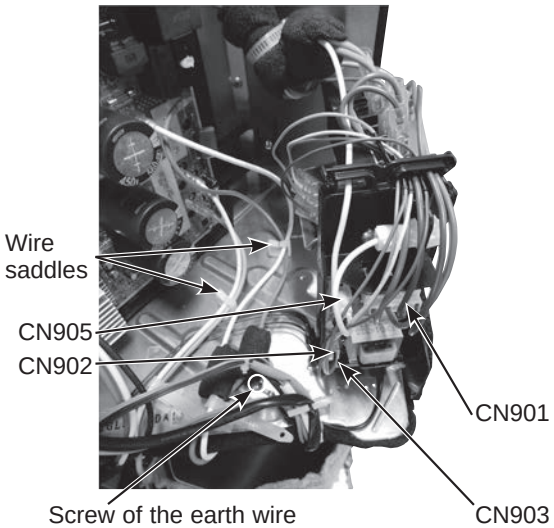
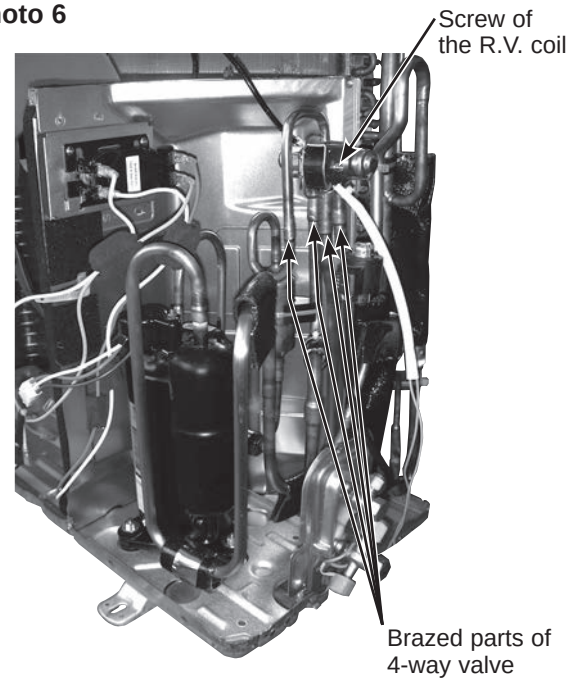
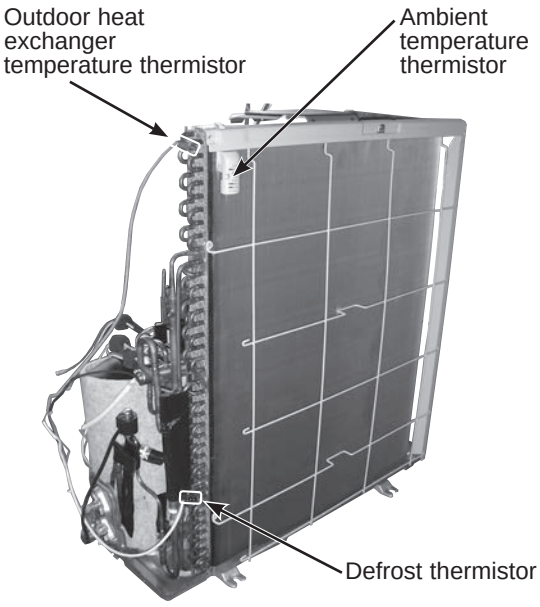
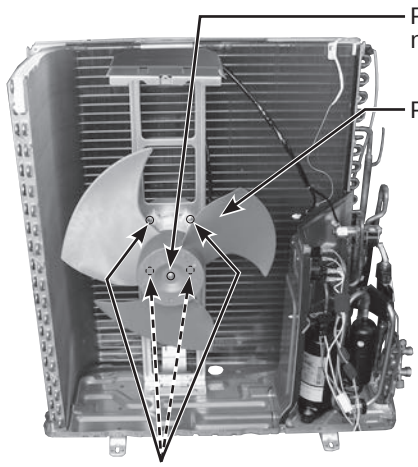
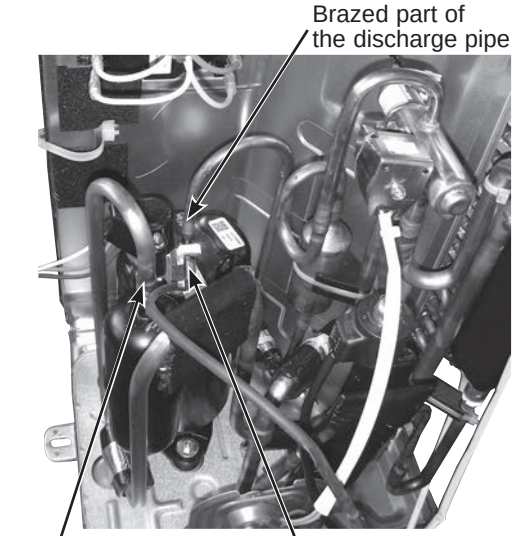


Photo 5



OPERATING PROCEDURE	PHOTOS
4. Removing R.V. coil (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the following connector: <Inverter P.C. board> CN602 (R.V. coil) (3) Remove the R.V. coil.	**Photo 6** 
5. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor (1) Remove the cabinet and panels. (Refer to section 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN671 (Defrost thermistor, discharge temperature thermistor and outdoor heart exchanger temperature thermistor) CN672 (Ambient temperature thermistor) (3) Pull out the discharge temperature thermistor from its holder. (Photo 9) (4) Pull out the defrost thermistor from its holder. (5) Pull out the outdoor heat exchanger temperature thermistor from its holder. (6) Pull out the ambient temperature thermistor from its holder.	**Photo 7** 

OPERATING PROCEDURE	PHOTOS
6. Removing outdoor fan motor (1) Remove the top panel, cabinet and service panel. (Refer to section 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN931, CN932 (Fan motor) (3) Remove the propeller fan nut. (4) Remove the propeller fan. (5) Remove the screws fixing the fan motor. (6) Remove the fan motor.	**Photo 8**  Screws of the outdoor fan motor
7. Removing the compressor and 4-way valve (1) Remove the top panel, cabinet and service panel. (Refer to section 1.) (2) Remove the back panel. (Refer to section 1.) (3) Remove the screws fixing the relay panel. (4) Remove the relay panel. (5) Remove the inverter assembly. (Refer to section 2.) (6) Recover gas from the refrigerant circuit. **NOTE:** Recover gas from the pipes until the pressure gauge shows 0 MPa. (7) Detach the brazed part of the suction and the discharge pipe connected with compressor. (8) Remove the compressor nuts. (9) Remove the compressor. (10) Detach the brazed parts of 4-way valve and pipe. (Photo 6)	**Photo 9** 

MITSUBISHI ELECTRIC CORPORATION

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Made in Japan

MITSUBISHI ELECTRIC

Changes for the Better

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

2020

R32/R410A

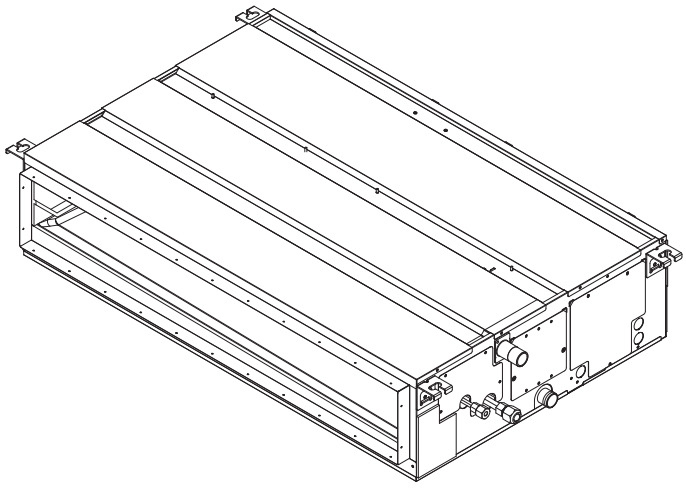
TECHNICAL & SERVICE MANUAL

Series PEAD Ceiling Concealed

Model name

<Indoor unit>

PEAD-M50JAA(D)
PEAD-M60JAA(D)
PEAD-M71JAA(D)
PEAD-M100JAA(D)
PEAD-M125JAA(D)
PEAD-M140JAA(D)



INDOOR UNIT

Mr.SLIM™

CONTENTS

[1] Safety Precaution

MEANINGS OF SYMBOLS DISPLAYED ON THE UNIT

	**WARNING** (Risk of fire)	This mark is for R32 refrigerant only. Refrigerant type is written on nameplate of outdoor unit. In case that refrigerant type is R32, this unit uses a flammable refrigerant. If refrigerant leaks and comes in contact with fire or heating part, it will create harmful gas and there is risk of fire.
	Read the OPERATION MANUAL carefully before operation.	
	Service personnel are required to carefully read the OPERATION MANUAL and INSTALLATION MANUAL before operation.	
	Further information is available in the OPERATION MANUAL, INSTALLATION MANUAL, and the like.	

1. Always observe for safety

Before obtaining access to terminal, all supply circuits must be disconnected.

2. Cautions related to new refrigerant

Cautions for units utilizing refrigerant R32/R410A

Use new refrigerant pipes.

In case of using the existing pipes for R22, be careful with the followings.
· For M100, 125 and 140, be sure to perform replacement operation before test run.
· Change flare nut to the one provided with this product. Use a newly flared pipe.
· Avoid using thin pipes.

Make sure that the inside and outside of refrigerant piping is clean and it has no contamination such as sulfur hazardous for use, oxides, dirt, shaving particles, etc.
In addition, use pipes with specified thickness.

Contamination inside refrigerant piping can cause deterioration of refrigerant oil etc.

Store the piping to be used indoors during installation and both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Use ester oil, ether oil or alkylbenzene oil (small amount) as the refrigerant oil applied to flares and flange connections.

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R32/R410A.

If other refrigerant (R22 etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil etc.

Use the following tools specifically designed for use with R32/R410A refrigerant.

The following tools are necessary to use R32/R410A refrigerant.

Tools for R32/R410A	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Handle tools with care.

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

[1] Warning for service

(1) Do not alter the unit.
(2) For installation and relocation work, follow the instructions in the Installation Manual and use tools and pipe components specifically made for use with refrigerant specified in the outdoor unit installation manual.
(3) Ask a dealer or an authorized technician to install, relocate and repair the unit.
(4) This unit should be installed in rooms which exceed the floor space specified in outdoor unit installation manual. Refer to outdoor unit installation manual.
(5) Install the indoor unit at least 2.5 m above floor or grade level.
For appliances not accessible to the general public.
(6) Refrigerant pipes connection shall be accessible for maintenance purposes.
(7) If the air conditioner is installed in a small room or closed room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. Should the refrigerant leak and cause the concentration limit to be exceeded, hazards due to lack of oxygen in the room may result.
(8) Keep gas-burning appliances, electric heaters, and other fire sources (ignition sources) away from the location where installation, repair, and other air conditioner work will be performed.
If refrigerant comes into contact with a flame, poisonous gases will be released.
(9) When installing or relocating, or servicing the air conditioner, use only the specified refrigerant written on outdoor unit to charge the refrigerant lines.
Do not mix it with any other refrigerant and do not allow air to remain in the lines.
If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
(10) After installation has been completed, check for refrigerant leaks. If refrigerant leaks into the room and comes into contact with the flame of a heater or portable cooking range, poisonous gases will be released.
(11) Do not use low temperature solder alloy in case of brazing the refrigerant pipes.
(12) When performing brazing work, be sure to ventilate the room sufficiently. Make sure that there are no hazardous or flammable materials nearby.
When performing the work in a closed room, small room, or similar location, make sure that there are no refrigerant leaks before performing the work.
If refrigerant leaks and accumulates, it may ignite or poisonous gases may be released.
(13) Do not install the unit in places where refrigerant may build-up or places with poor ventilation such as a semi-basement or a sunken place in outdoor: Refrigerant is heavier than air, and inclined to fall away from the leak source.
(14) Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
(15) The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
(16) Do not pierce or burn.
(17) Be aware that refrigerants may not contain an odour.
(18) Pipe-work shall be protected from physical damage.
(19) The installation of pipe-work shall be kept to a minimum.
(20) Compliance with national gas regulations shall be observed.
(21) Keep any required ventilation openings clear of obstruction.
(22) Servicing shall be performed only as recommended by the manufacturer.
(23) The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
(24) Maintenane, service and repair operations shall be performed by authorized technician with required qualification.

[2] Cautions for service

(1) Perform service after recovering the refrigerant left in unit completely.
(2) Do not release refrigerant in the air.
(3) After completing service, charge the cycle with specified amount of refrigerant.
(4) When performing service, install a filter drier simultaneously.
Be sure to use a filter drier for new refrigerant.

[3] Additional refrigerant charge

When charging directly from cylinder
(1) Check that cylinder for R32/R410A available on the market is a syphon type.
(2) Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)

[4] Cautions for unit using R32 refrigerant

Basic work procedures are the same as those for conventional units using refrigerant R410A. However, pay careful attention to the following points.

(1) Information on servicing

(1-1) Checks on the Area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized.

For repair to the refrigeranting systems, (1-3) to (1-7) shall be completed prior to conducting work on the systems.

(1-2) Work Procedure

Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.

(1-3) General Work Area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

(1-4) Checking for Presence of Refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

(1-5) Presence of Fire Extinguisher

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand.

Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

(1-6) No Ignition Sources

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.

(1-7) Ventilated Area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

(1-8) Checks on the Refrigerantion Equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance.

The following checks shall be applied to installations using flammable refrigerants:

- The charge size is in accordance with the room size within which the refrigerant containing parts are installed.
- The ventilation machinery and outlets are operating adequately and are not obstructed.
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
- Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being corroded.

(1-9) Checks on Electrical Devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include that:

- capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- no live electrical components and wiring are exposed while charging, recovering or purging the system;
- there is continuity of earth bonding

(2) Repairs to Sealed Components

(2-1) During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

(2-2) Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

Ensure that the apparatus is mounted securely.

Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.

Replacement parts shall be in accordance with the manufacturer’s specifications.

(3) Repair to intrinsically Safe Components
Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.
Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

(4) Cabling
Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

(5) Detection of Flammable Refrigerants
Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks.
A halide torch (or any other detector using a naked flame) shall not be used.

(6) Leak Detection Methods
Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.)
Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed.
Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
If a leak is suspected, all naked flames shall be removed/extinguished.
If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. For appliances containing flammable refrigerants, oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

(7) Removal and Evacuation
When breaking into the refrigerant circuit to make repairs – or for any other purpose conventional procedures shall be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:
- remove refrigerant
- purge the circuit with inert gas
- evacuate
- purge again with inert gas
- open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. For appliances containing flammable refrigerants, the system shall be “flushed” with OFN to render the unit safe. This process may need to be repeated several times.
Compressed air or oxygen shall not be used for purging refrigerant systems.
For appliances containing flammable refrigerants, flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.
Ensure that the outlet for the vacuum pump is not close to any ignition sources and that ventilation is available.

(8) Charging Procedures
In addition to conventional charging procedures, the following requirements shall be followed:
- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept upright.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigeration system.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

(9) Decommissioning
Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.
a) Become familiar with the equipment and its operation.

Continued to the next page

b) Isolate system electrically.
c) Before attempting the procedure, ensure that:
· mechanical handling equipment is available, if required, for handling refrigerant cylinders;
· all personal protective equipment is available and being used correctly;
· the recovery process is supervised at all times by a competent person;
· recovery equipment and cylinders conform to the appropriate standards.
d) Pump down refrigerant system, if possible.
e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
f) Make sure that cylinder is situated on the scales before recovery takes place.
g) Start the recovery machine and operate in accordance with manufacturer's instructions.
h) Do not overfill cylinders. (No more than 80 % volume liquid charge).
i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

(10) Labelling

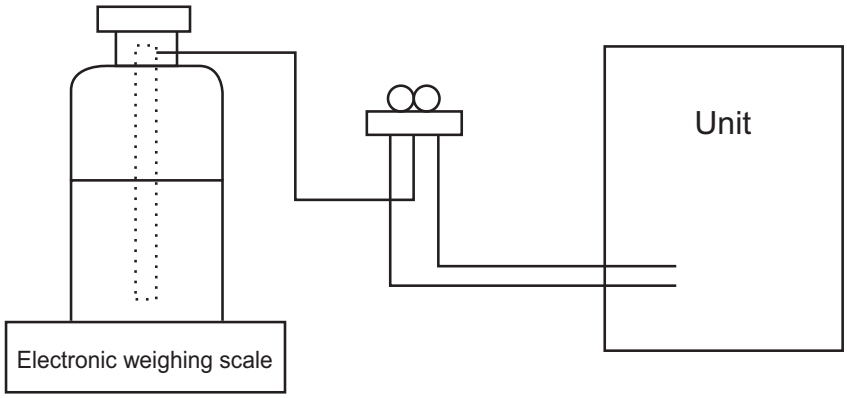
Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

(11) Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders. If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.



[5] Service tools

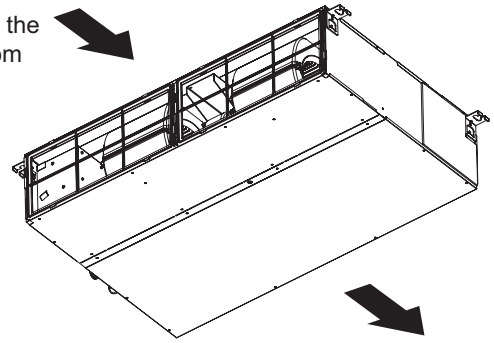
Use the below service tools as exclusive tools for R32/R410A refrigerant.
Refer to the spec name plate on outdoor unit for the type of refrigerant being used.

No.	Tool name	Specifications
1.	Gauge manifold	· Use the existing fitting specifications. (UNF1/2)
		· Use high-tension side pressure of 5.3MPa·G or over.
2.	Charge hose	· Use pressure performance of 5.09MPa·G or over.
3.	Electronic weighing scale	—
4.	Gas leak detector	· Use the detector for R134a, R407, R410A, or R32.
5.	Adaptor for reverse flow check	· Attach on vacuum pump.
6.	Refrigerant charge base	—
7.	Refrigerant cylinder	· R32 or R410A refrigerant · Cylinder with syphon
8.	Refrigerant recovery equipment	—

[1] Part Names and Functions

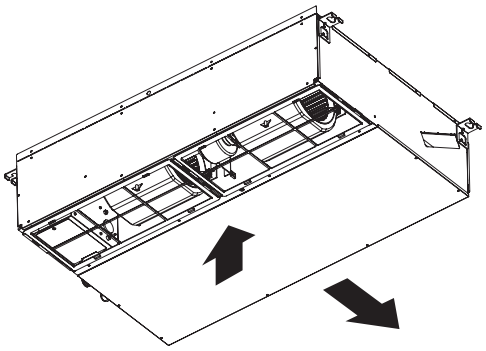
• Indoor Unit

Air intake (sucks the air inside the room into the unit)



Air outlet

In case of rear inlet



In case of bottom inlet

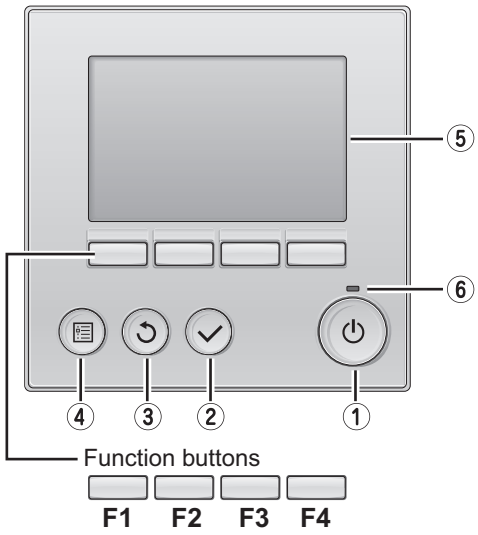
● Wired remote controller (option)

Wired remote controller function

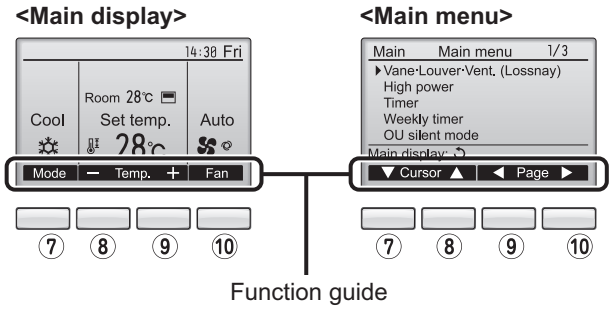
* The functions which can be used are restricted according to the model.

○ : Supported ✕ : Unsupported

	Function	PAR-30MAA/PAR-31MAA		PAR-21MAA
		Slim	City multi	
Body	Product size H × W × D (mm)	120 × 120 × 19		120 × 130 × 19
	LCD	Full Dot LCD		Partial Dot LCD
	Backlight	○		✕
Energy-saving	Energy-saving operation schedule	○	✕	✕
	Automatic return to the preset temperature	○		✕
Restriction	Setting the temperature range restriction	○		○
Function	Operation lock function	○		○
	Weekly timer	○		✕
	On / Off timer	○		○
	High Power	○	✕	✕
	Manual vane angle	○		○



The functions of the function buttons change depending on the screen. Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.
When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.



① ON / OFF button

Press to turn ON/OFF the indoor unit.

② SELECT button

Press to save the setting.

③ RETURN button

Press to return to the previous screen.

④ MENU button

Press to bring up the Main menu.

⑤ Backlit LCD

Operation settings will appear.
When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the ⏻ (ON / OFF) button)

⑥ ON / OFF lamp

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

⑦ Function button F1

Main display : Press to change the operation mode.
Main menu : Press to move the cursor down.

⑧ Function button F2

Main display : Press to decrease temperature.
Main menu : Press to move the cursor up.

⑨ Function button F3

Main display : Press to increase temperature.
Main menu : Press to go to the previous page.

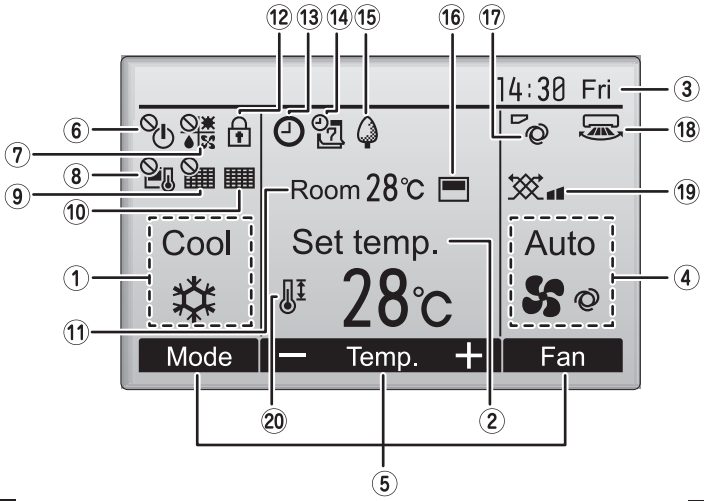
⑩ Function button F4

Main display : Press to change the fan speed.
Main menu : Press to go to the next page.

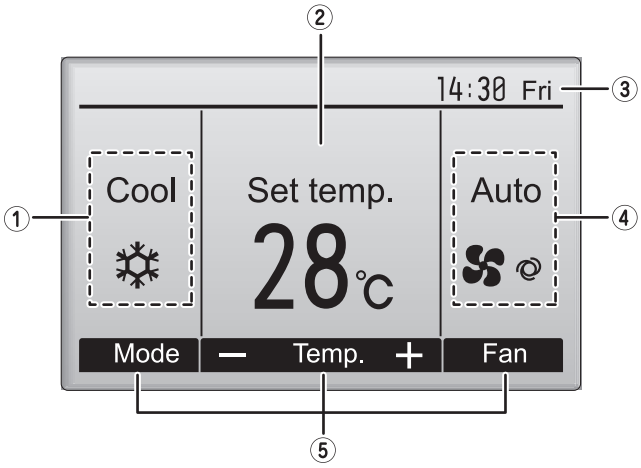
The main display can be displayed in two different modes: "Full" and "Basic".
The initial setting is "Full". To switch to the "Basic" mode, change the setting on the Main display setting.

<Full mode>

* All icons are displayed for explanation.



<Basic mode>



① Operation mode

Indoor unit operation mode appears here.

② Preset temperature

Preset temperature appears here.

③ Clock (See the Installation Manual.)

Current time appears here.

④ Fan speed

Fan speed setting appears here.

⑤ Button function guide

Functions of the corresponding buttons appear here.

⑥

Appears when the ON/OFF operation is centrally controlled.

⑦

Appears when the operation mode is centrally controlled.

⑧

Appears when the preset temperature is centrally controlled.

⑨

Appears when the filter reset function is centrally controlled.

⑩

Indicates when filter needs maintenance.

⑪ Room temperature (See the Installation Manual.)

Current room temperature appears here.

⑫

Appears when the buttons are locked.

⑬

Appears when the On/Off timer or Night setback function is enabled.

⑭

Appears when the Weekly timer is enabled.

⑮

Appears while the units are operated in the energy-save mode.

⑯

Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature.
appears when the thermistor on the indoor unit is activated to monitor the room temperature.

⑰

Indicates the vane setting.

⑱

Indicates the louver setting.

⑲

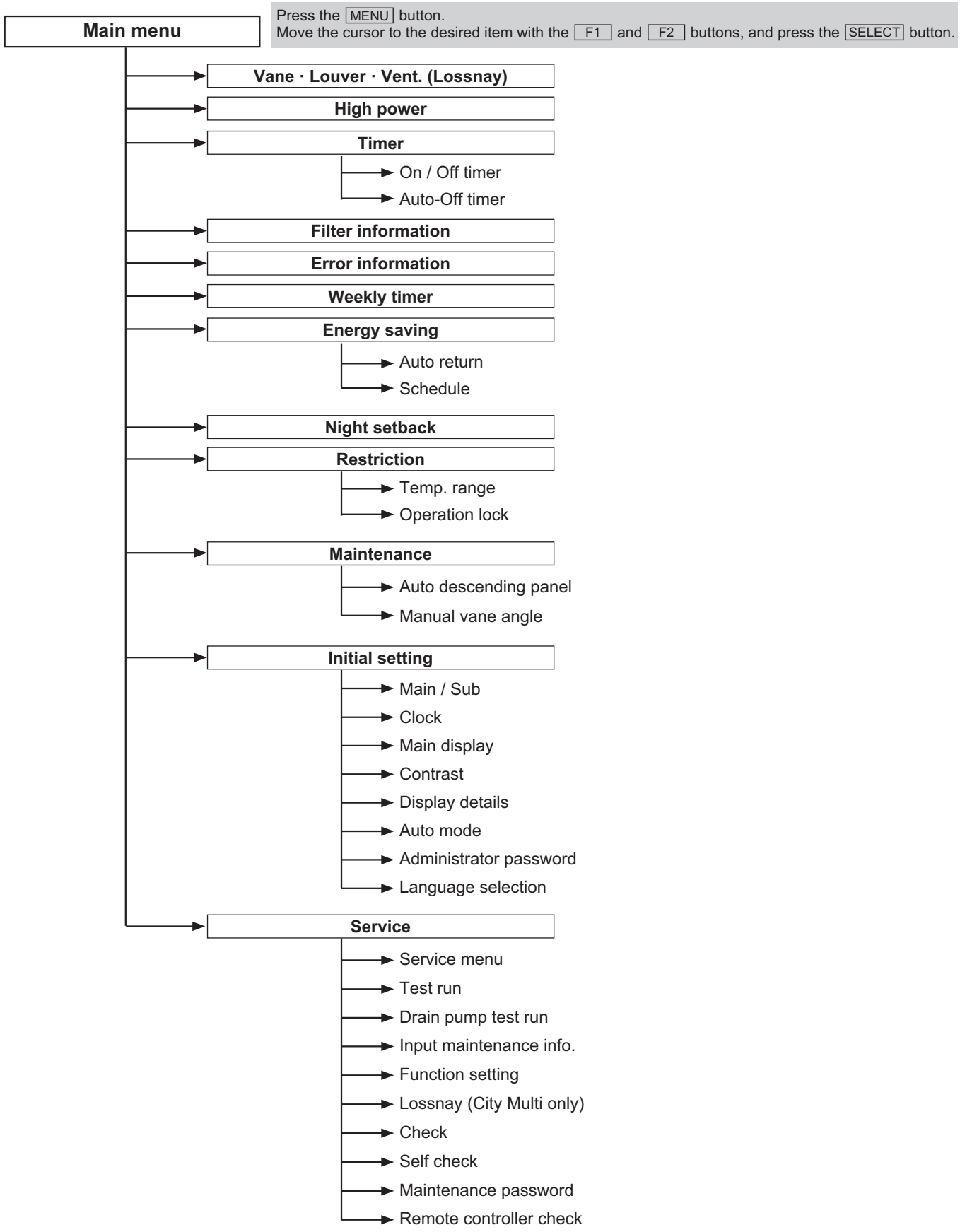
Indicates the ventilation setting.

⑳

Appears when the preset temperature range is restricted.

Most settings (except ON / OFF, mode, fan speed, temperature) can be made from the Menu screen.

Menu structure



Not all functions are available on all models of indoor units.

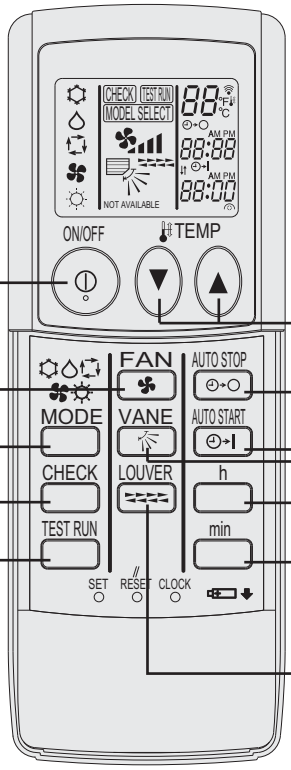
Main menu list

Setting and display items		Setting details
Vane · Louver · Vent. (Lossnay)		**Use to set the vane angle.** • Select a desired vane setting from five different settings. **Use to turn ON / OFF the louver.** • Select a desired setting from "ON" and "OFF." **Use to set the amount of ventilation.** • Select a desired setting from "Off," "Low," and "High."
High power		**Use to reach the comfortable room temperature quickly.** • Units can be operated in the High-power mode for up to 30 minutes.
Timer	**On/Off timer**	**Use to set the operation On/Off times.** • Time can be set in 5-minute increments. * Clock setting is required.
	Auto-Off timer	**Use to set the Auto-Off time.** • Time can be set to a value from 30 to 240 in 10-minute increments.
Filter information		**Use to check the filter status.** • The filter sign can be reset.
Error information		**Use to check error information when an error occurs.** • Error code, error source, refrigerant address, unit model, manufacturing number, contact information (dealer's phone number) can be displayed. * The unit model, manufacturing number, and contact information need to be registered in advance to be displayed.
Weekly timer		**Use to set the weekly operation On / Off times.** • Up to eight operation patterns can be set for each day. * Clock setting is required. * Not valid when the On/Off timer is enabled.
Energy saving	**Auto return**	**Use to get the units to operate at the preset temperature after performing energy-save operation for a specified time period.** • Time can be set to a value from 30 and 120 in 10-minute increments. * This function will not be valid when the preset temperature ranges are restricted.
	Schedule	**Set the start/stop times to operate the units in the energy-save mode for each day of the week, and set the energy-saving rate.** • Up to four energy-save operation patterns can be set for each day. • Time can be set in 5-minute increments. • Energy-saving rate can be set to a value from 0% or 50 to 90% in 10% increments. * Clock setting is required.
Night setback		**Use to make Night setback settings.** • Select "Yes" to enable the setting, and "No" to disable the setting. The temperature range and the start/stop times can be set. * Clock setting is required.
Restriction	**Temp. range**	**Use to restrict the preset temperature range.** • Different temperature ranges can be set for different operation modes.
	Operation lock	**Use to lock selected functions.** • The locked functions cannot be operated.
Maintenance	**Auto descending panel**	**Auto descending panel (Optional parts) Up / Down you can do.**
	Manual vane angle	**Use to set the vane angle for each vane to a fixed position.**
Initial setting	**Main/Sub**	**When connecting two remote controllers, one of them needs to be designated as a sub controller.**
	Clock	**Use to set the current time.**
	Main display	**Use to switch between "Full" and "Basic" modes for the Main display.** • The initial setting is "Full."
	Contrast	**Use to adjust screen contrast.**

Setting and display items		Setting details
Initial setting	**Display details**	**Make the settings for the remote controller related items as necessary.** **Clock:** The initial settings are "Yes" and "24h" format. **Temperature:** Set either Celsius (˚C) or Fahrenheit (˚F). **Room temp. :** Set Show or Hide. **Auto mode:** Set the Auto mode display or Only Auto display.
	Auto mode	**Whether or not to use the AUTO mode can be selected by using the button.** **This setting is valid only when indoor units with the AUTO mode function are connected.**
	Administrator password	**The administrator password is required to make the settings for the following items.** •Timer setting •Energy-save setting •Weekly timer setting •Restriction setting •Outdoor unit silent mode setting •Night set back
	Language selection	**Use to select the desired language.**
Service	**Test run**	**Select "Test run" from the Service menu to bring up the Test run menu.** •Test run •Drain pump test run
	Input maintenance	**Select "Input maintenance Info." from the Service menu to bring up the Maintenance information screen.** **The following settings can be made from the Maintenance Information screen.** •Model name input •Serial No. input •Dealer information input
	Function setting	**Make the settings for the indoor unit functions via the remote controller as necessary.**
	LOSSNAY setting (City Multi only)	**This setting is required only when the operation of City Multi units is interlocked with LOSSNAY units.**
	Check	**Error history:** Display the error history and execute delete error history. **Refrigerant leak check:** Refrigerant leaks can be judged. **Smooth maintenance:** The indoor and outdoor maintenance data can be displayed. **Request cord:** Details of the operation data including each thermistor temperature and error history can be checked.
	Self check	**Error history of each unit can be checked via the remote controller.**
	Maintenance password	**Change the maintenance password according to the manual of the remote controller.**
	Remote controller check	**When the remote controller does not work properly, use the remote controller checking function to troublushoot the problem.**

Wireless remote controller (option)

● Operation buttons



ON/OFF button
Pushing button starts operation. Pushing again stops operation.

FAN SPEED button
This button is used to set fan speed to low, medium or high.

MODE SELECT button
This button is used to change between auto, cooling, heating and drying operation modes.

CHECK button

TEST RUN button

SET TEMPERATURE button
SET TEMPERATURE button sets and any desired room temperature.

AUTO STOP/AUTO START button
Used for selecting timed starting or stopping.

VANE CONTROL button
Used to change the airflow direction.

h button
Used for setting the current time.

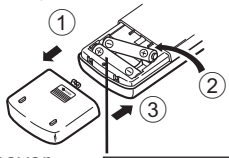
min button
Used for setting the current time.

LOUVER button
Used for adjusting the airflow direction.

- When using the wireless remote controller, point it towards the receiver on the indoor unit.
- If the remote controller is operated within approximately two minutes after power is supplied to the indoor unit, the indoor unit may beep twice as the unit is performing the initial automatic check.
- The indoor unit beeps to confirm that the signal transmitted from the remote controller has been received. Signals can be received up to approximately 7 meters in a direct line from the indoor unit in an area 45° to the left and right of the unit. However, illumination such as fluorescent lights and strong light can affect the ability of the indoor unit to receive signals.
- If the operation lamp near the receiver on the indoor unit is flashing, the unit needs to be inspected. Consult your dealer for service.
- Handle the remote controller carefully. Do not drop the remote controller or subject it to strong shocks. In addition, do not get the remote controller wet or leave it in a location with high humidity.
- To avoid misplacing the remote controller, install the holder included with the remote controller on a wall and be sure to always place the remote controller in the holder after use.

Battery installation/replacement

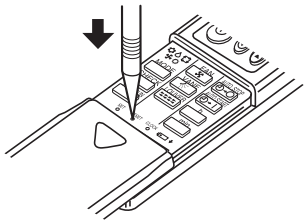
1. Remove the top cover, insert two AAA batteries, and then install the top cover.



Top cover

Two AAA batteries
Insert the negative (–) end of each battery first. Install the batteries in the correct directions (+, –).

2. Press the Reset button.



Press the Reset button with an object that has a narrow end.

[1] Specification

INDOOR UNIT	Model name				**PEAD-M50JAA(D)**	
	Mode				Cooling	Heating
	Power supply				Single phase, 50Hz/60Hz, 220-240V	
		Input	*1	kW	0.09 (0.11)	0.09
		Running Current	*1	A	0.79 (0.90)	0.79
	External finish				Galvanized sheets	
	Heat exchanger				Plate fin coil	
	Fan	Fan (drive) × No.			Sirocco fan × 1	
		Fan motor output		kW	0.085	
		Airflow (Low-Mid-High)		m^3/min (CFM)	12.0-14.5-17.0 (424-512-600)	
		External static pressure		Pa	35-50-70-100-125	
	Booster heater			kW	-	
	Operation control & Thermostat				Remote controller & built-in	
	Sound pressure level (Low-Mid-High)		35Pa	dB (A)	29-34-38	
			50Pa		30-35-39	
			70Pa		32-36-40	
			100Pa		33-37-41	
			125Pa		35-39-43	
	Field drain pipe O.D			mm (in.)	32 (1-1/4)	
	Dimensions		W	mm (in.)	900 (35-7/16)	
			D	mm (in.)	732 (28-7/8)	
			H	mm (in.)	250 (9-7/8)	
	Weight		*1	kg	26 (27)	
				lbs	58 (60)	

INDOOR UNIT	Model name				**PEAD-M60JAA(D)**	
	Mode				Cooling	Heating
	Power supply				Single phase, 50Hz/60Hz, 220-240V	
		Input	*1	kW	0.10 (0.12)	0.10
		Running Current	*1	A	0.89 (1.00)	0.89
	External finish				Galvanized sheets	
	Heat exchanger				Plate fin coil	
	Fan	Fan (drive) × No.			Sirocco fan × 2	
		Fan motor output		kW	0.121	
		Airflow (Low-Mid-High)		m^3/min (CFM)	14.5-18.0-21.0 (512-636-742)	
		External static pressure		Pa	35-50-70-100-125	
	Booster heater			kW	-	
	Operation control & Thermostat				Remote controller & built-in	
	Sound pressure level (Low-Mid-High)		35Pa	dB (A)	30-32-36	
			50Pa		30-33-37	
			70Pa		30-34-38	
			100Pa		31-36-39	
			125Pa		33-38-42	
	Field drain pipe O.D			mm (in.)	32 (1-1/4)	
	Dimensions		W	mm (in.)	1100 (43-5/16)	
			D	mm (in.)	732 (28-7/8)	
			H	mm (in.)	250 (9-7/8)	
	Weight		*1	kg	29 (30)	
				lbs	64 (67)	

INDOOR UNIT	Model name				**PEAD-M71JAA(D)**	
	Mode				Cooling	Heating
	Power supply				Single phase, 50Hz/60Hz, 220-240V	
		Input	*1	kW	0.15 (0.17)	0.15
		Running Current	*1	A	1.17 (1.28)	1.17
	External finish				Galvanized sheets	
	Heat exchanger				Plate fin coil	
	Fan	Fan (drive) × No.			Sirocco fan × 2	
		Fan motor output		kW	0.121	
		Airflow (Low-Mid-High)		m^3/min (CFM)	17.5-21.0-25.0 (618-742-883)	
		External static pressure		Pa	35-50-70-100-125	
	Booster heater			kW	-	
	Operation control & Thermostat				Remote controller & built-in	
	Sound pressure level (Low-Mid-High)		35Pa	dB (A)	30-33-38	
			50Pa		30-34-39	
			70Pa		31-35-39	
			100Pa		32-37-40	
			125Pa		34-39-43	
	Field drain pipe O.D			mm (in.)	32 (1-1/4)	
	Dimensions		W	mm (in.)	1100 (43-5/16)	
			D	mm (in.)	732 (28-7/8)	
			H	mm (in.)	250 (9-7/8)	
	Weight		*1	kg	29 (30)	
				lbs	64 (67)	

*1 Figures in the parentheses indicate with drainpump Model (D).

INDOOR UNIT	Model name				**PEAD-M100JAA(D)**	
	Mode				Cooling	Heating
	Power supply				Single phase, 50Hz/60Hz, 220-240V	
		Input	*1	kW	0.23 (0.25)	0.23
		Running Current	*1	A	1.57 (1.68)	1.57
	External finish				Galvanized sheets	
	Heat exchanger				Plate fin coil	
	Fan	Fan (drive) × No.			Sirocco fan × 2	
		Fan motor output		kW	0.244	
		Airflow (Low-Mid-High)		m^3/min (CFM)	24.0-29.0-34.0 (847-1024-1201)	
		External static pressure		Pa	35-50-70-100-125	
	Booster heater			kW	-	
	Operation control & Thermostat				Remote controller & built-in	
	Sound pressure level (Low-Mid-High)		35Pa	dB (A)	32-38-42	
			50Pa		33-38-42	
			70Pa		34-39-43	
			100Pa		36-40-44	
			125Pa		38-42-45	
	Field drain pipe O.D			mm (in.)	32 (1-1/4)	
	Dimensions		W	mm (in.)	1400 (55-1/8)	
			D	mm (in.)	732 (28-7/8)	
			H	mm (in.)	250 (9-7/8)	
	Weight		*1	kg	38 (39)	
				lbs	84 (86)	

INDOOR UNIT	Model name				**PEAD-M125JAA(D)**	
	Mode				Cooling	Heating
	Power supply				Single phase, 50Hz/60Hz, 220-240V	
		Input	*1	kW	0.34 (0.36)	0.34
		Running Current	*1	A	2.29 (2.40)	2.29
	External finish				Galvanized sheets	
	Heat exchanger				Plate fin coil	
	Fan	Fan (drive) × No.			Sirocco fan × 2	
		Fan motor output		kW	0.244	
		Airflow (Low-Mid-High)		m^3/min (CFM)	29.5-35.5-42.0 (1042-4254-1483)	
		External static pressure		Pa	35-50-70-100-125	
	Booster heater			kW	-	
	Operation control & Thermostat				Remote controller & built-in	
	Sound pressure level (Low-Mid-High)		35Pa	dB (A)	36-40-44	
			50Pa		36-40-44	
			70Pa		36-41-45	
			100Pa		37-43-46	
			125Pa		39-44-47	
	Field drain pipe O.D			mm (in.)	32 (1-1/4)	
	Dimensions		W	mm (in.)	1400 (55-1/8)	
			D	mm (in.)	732 (28-7/8)	
			H	mm (in.)	250 (9-7/8)	
	Weight		*1	kg	39 (40)	
				lbs	86 (89)	

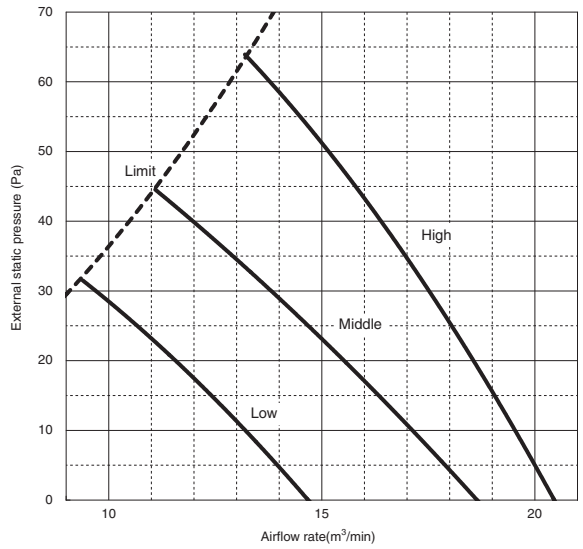
INDOOR UNIT	Model name				**PEAD-M140JAA(D)**	
	Mode				Cooling	Heating
	Power supply				Single phase, 50Hz/60Hz, 220-240V	
		Input	*1	kW	0.37 (0.39)	0.37
		Running Current	*1	A	2.49 (2.60)	2.49
	External finish				Galvanized sheets	
	Heat exchanger				Plate fin coil	
	Fan	Fan (drive) × No.			Sirocco fan × 2	
		Fan motor output		kW	0.244	
		Airflow (Low-Mid-High)		m^3/min (CFM)	32.0-39.0-46.0 (1130-1377-1624)	
		External static pressure		Pa	35-50-70-100-125	
	Booster heater			kW	-	
	Operation control & Thermostat				Remote controller & built-in	
	Sound pressure level (Low-Mid-High)		35Pa	dB (A)	39-43-49	
			50Pa		40-44-49	
			70Pa		40-45-50	
			100Pa		42-46-51	
			125Pa		44-48-52	
	Field drain pipe O.D			mm (in.)	32 (1-1/4)	
	Dimensions		W	mm (in.)	1600 (63)	
			D	mm (in.)	732 (28-7/8)	
			H	mm (in.)	250 (9-7/8)	
	Weight		*1	kg	43 (44)	
				lbs	95 (98)	

*1 Figures in the parentheses indicate with drainpump Model (D).

[1] Fan Performance and Corrected Air Flow

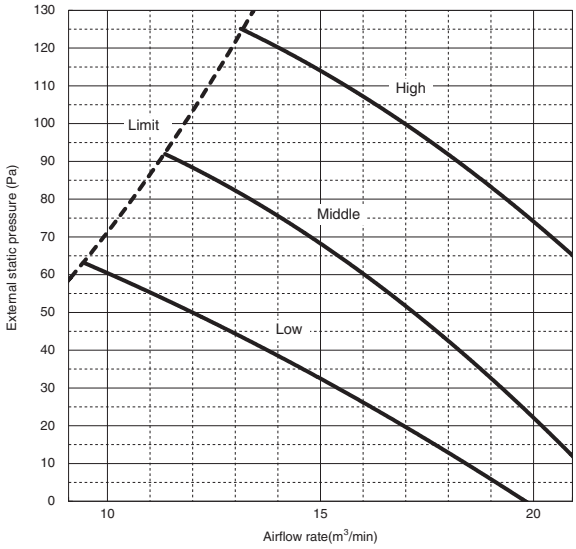
PEAD-M50JAA(D)

(External static pressure 35Pa) 230V 50Hz



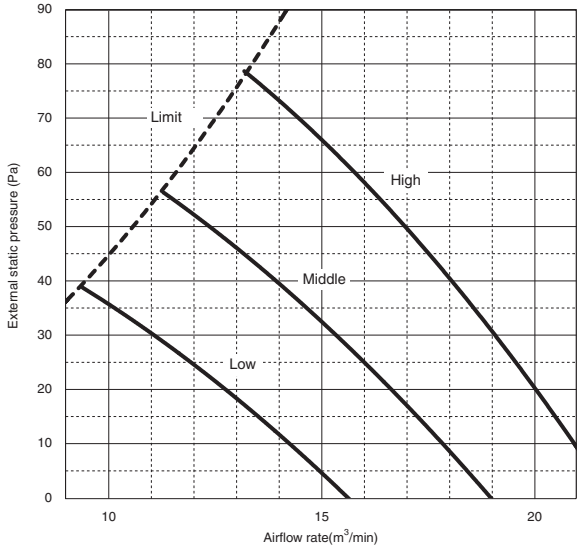
PEAD-M50JAA(D)

(External static pressure 100Pa) 230V 50Hz



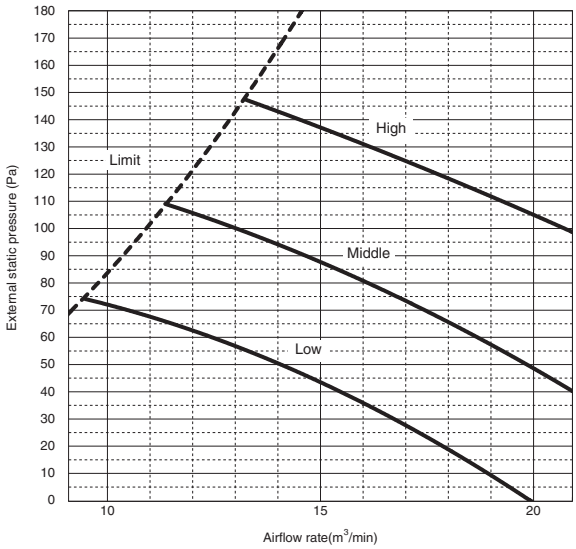
PEAD-M50JAA(D)

(External static pressure 50Pa) 230V 50Hz



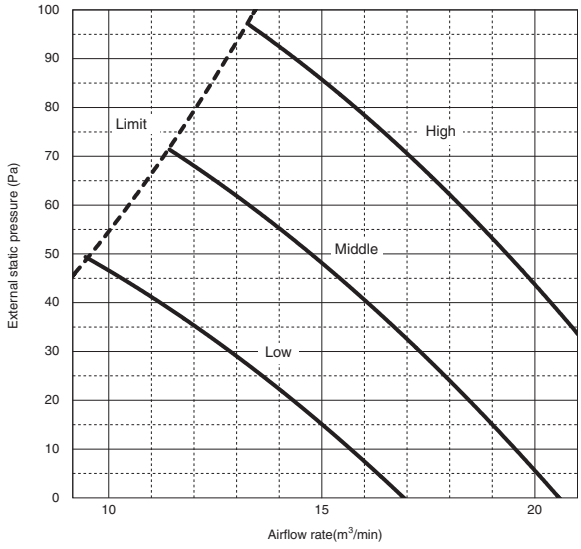
PEAD-M50JAA(D)

(External static pressure 125Pa) 230V 50Hz



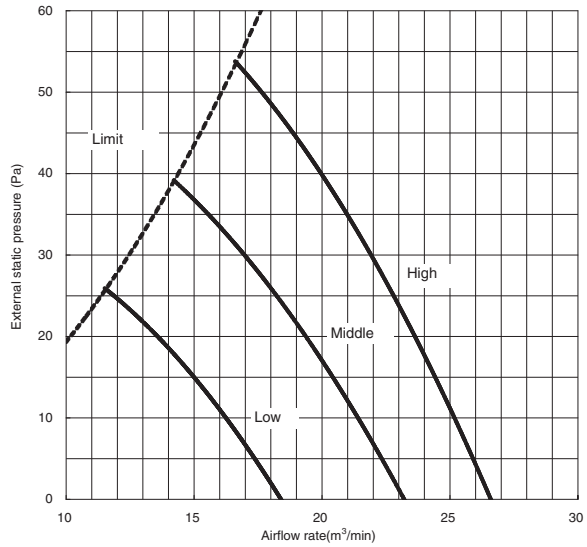
PEAD-M50JAA(D)

(External static pressure 70Pa) 230V 50Hz



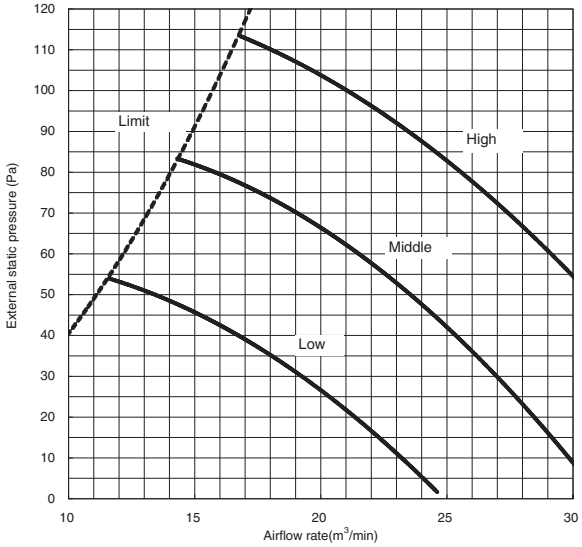
PEAD-M60JAA(D)

(External static pressure 35Pa) 220-240V 50Hz



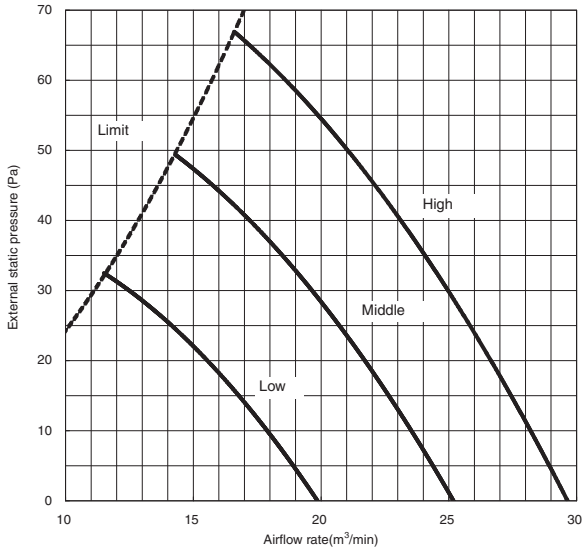
PEAD-M60JAA(D)

(External static pressure 100Pa) 220-240V 50Hz



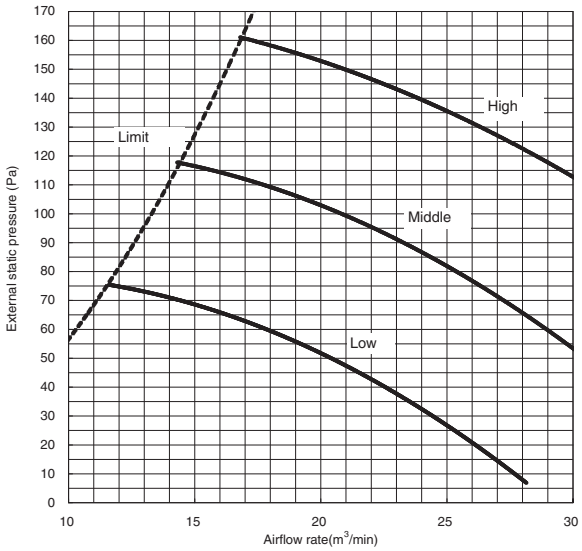
PEAD-M60JAA(D)

(External static pressure 50Pa) 220-240V 50Hz



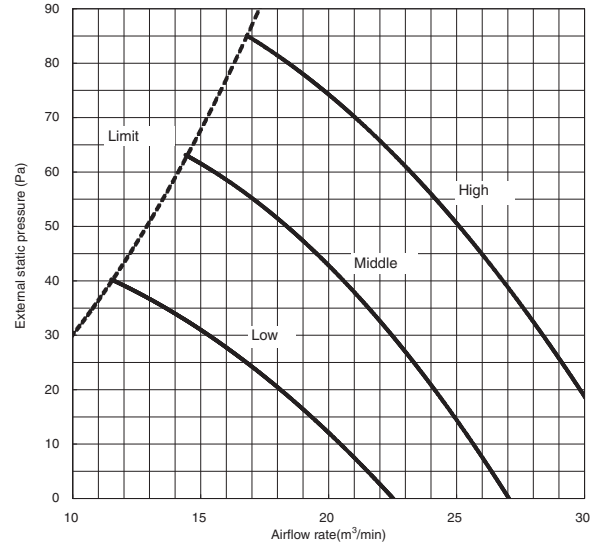
PEAD-M60JAA(D)

(External static pressure 125Pa) 220-240V 50Hz



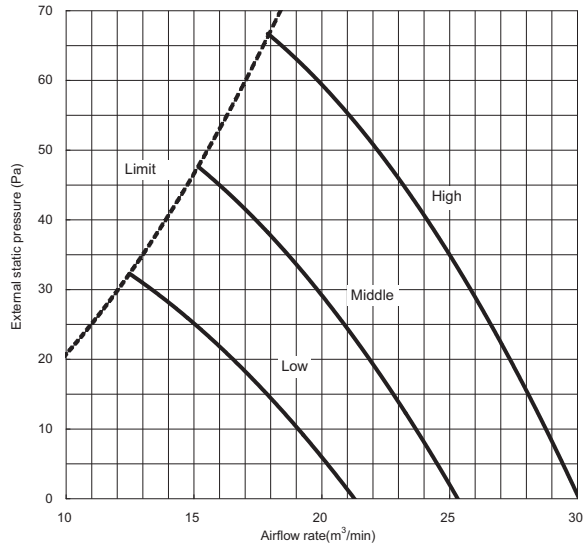
PEAD-M60JAA(D)

(External static pressure 70Pa) 220-240V 50Hz



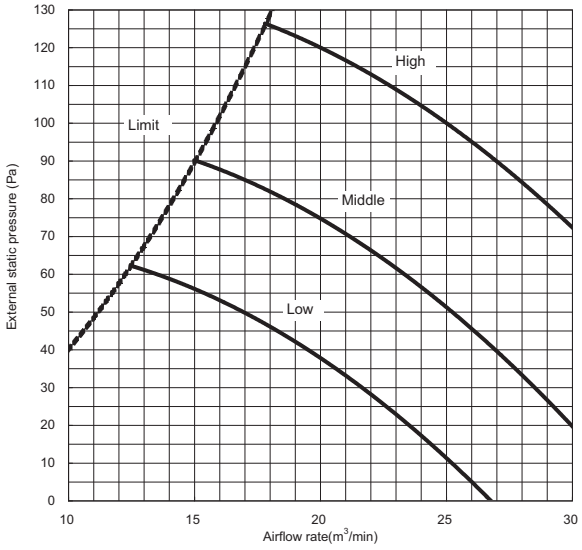
PEAD-M71JAA(D)

(External static pressure 35Pa) 220-240V 50Hz



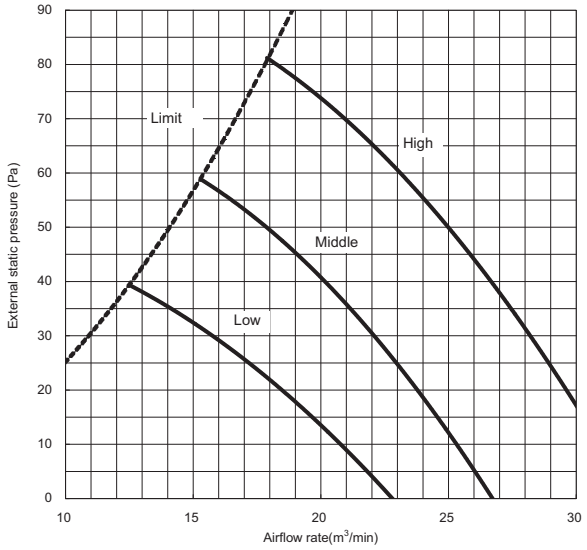
PEAD-M71JAA(D)

(External static pressure 100Pa) 220-240V 50Hz



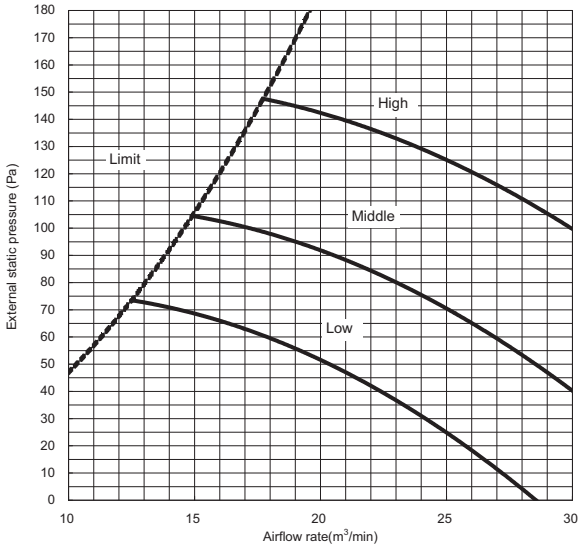
PEAD-M71JAA(D)

(External static pressure 50Pa) 220-240V 50Hz



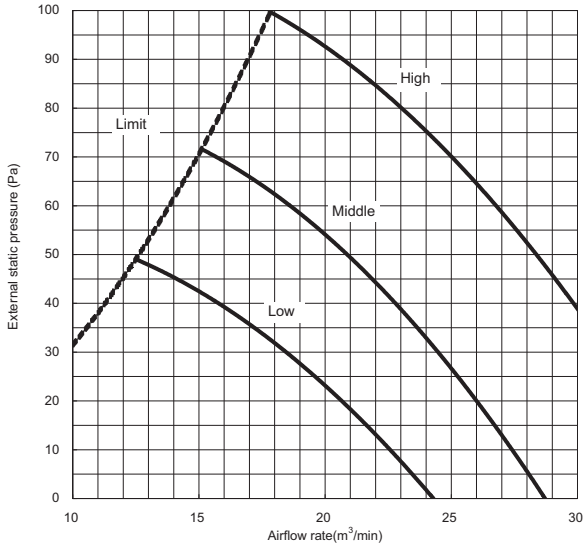
PEAD-M71JAA(D)

(External static pressure 125Pa) 220-240V 50Hz



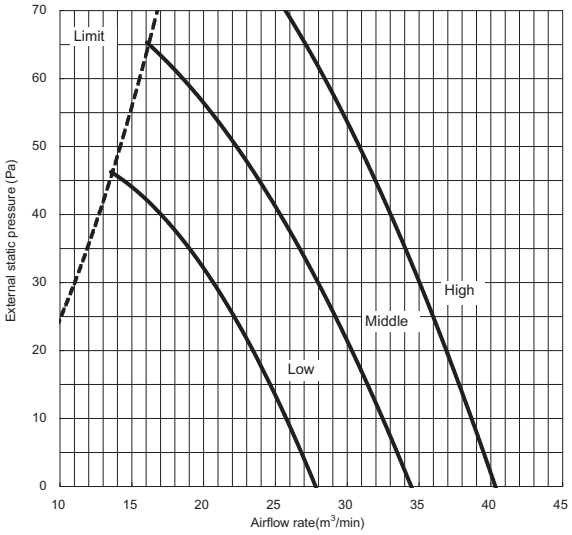
PEAD-M71JAA(D)

(External static pressure 70Pa) 220-240V 50Hz



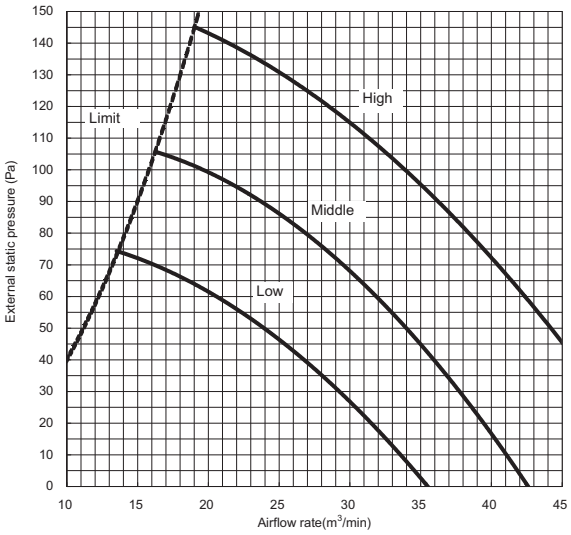
PEAD-M100JAA(D)

(External static pressure 35Pa) 220-240V 50Hz



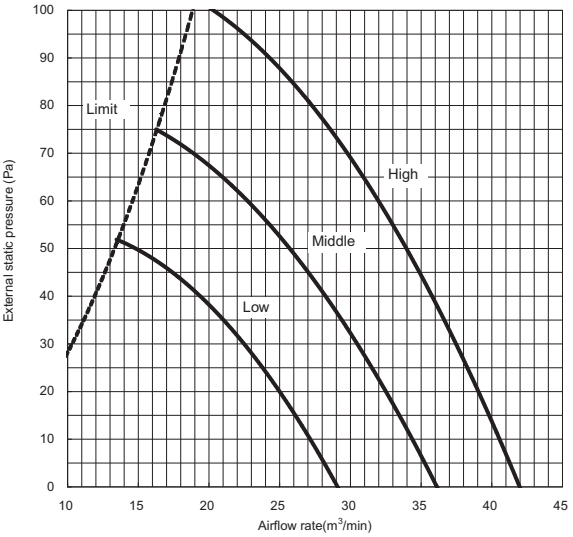
PEAD-M100JAA(D)

(External static pressure 100Pa) 220-240V 50Hz



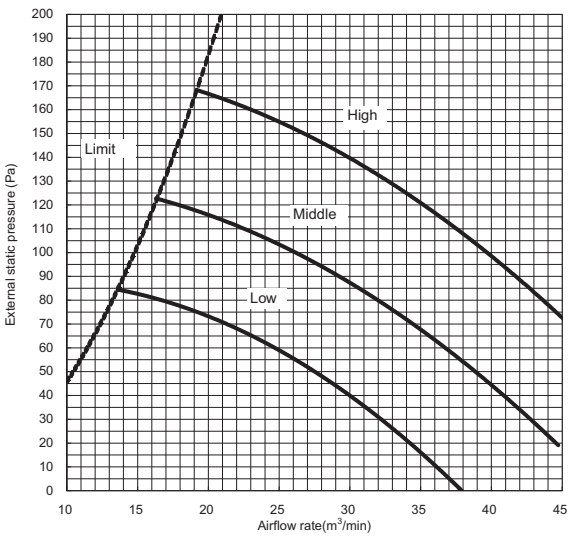
PEAD-M100JAA(D)

(External static pressure 50Pa) 220-240V 50Hz



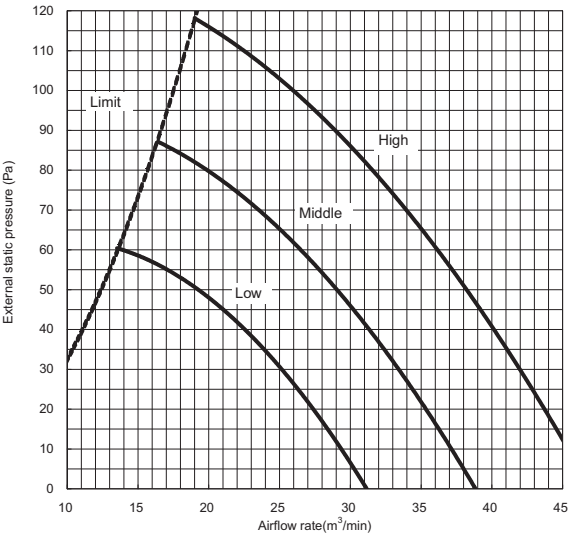
PEAD-M100JAA(D)

(External static pressure 125Pa) 220-240V 50Hz



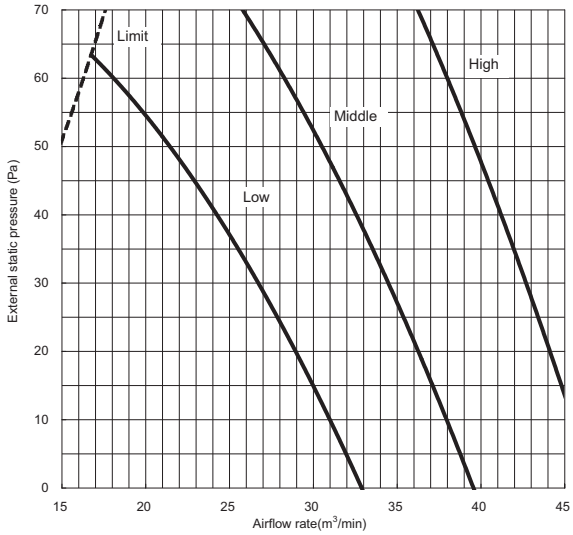
PEAD-M100JAA(D)

(External static pressure 70Pa) 220-240V 50Hz



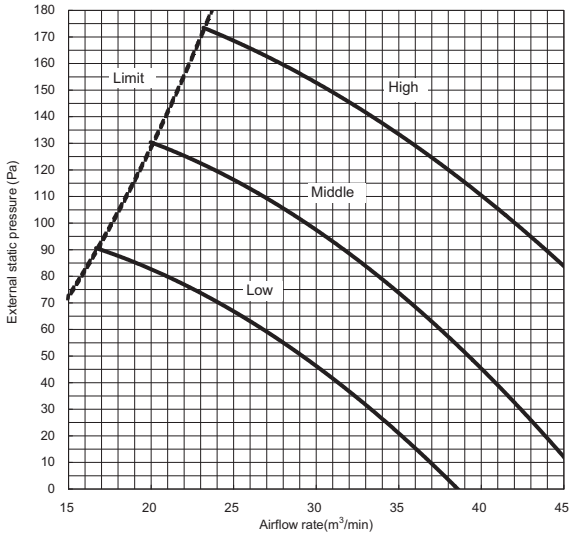
PEAD-M125JAA(D)

(External static pressure 35Pa) 220-240V 50Hz



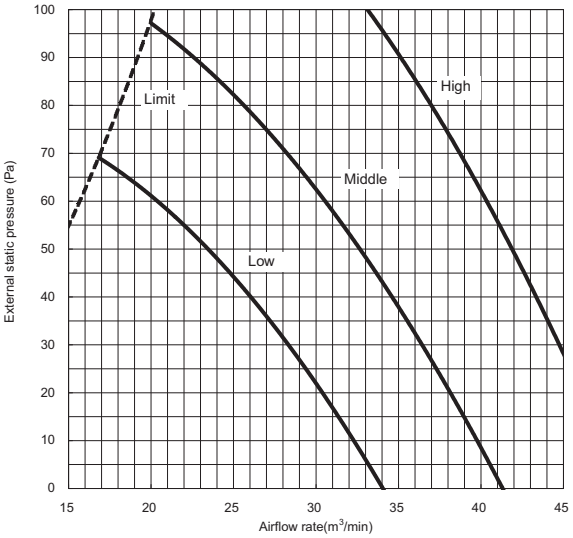
PEAD-M125JAA(D)

(External static pressure 100Pa) 220-240V 50Hz



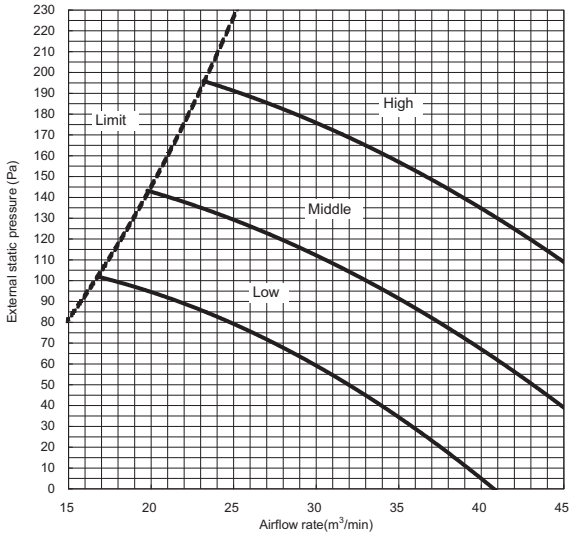
PEAD-M125JAA(D)

(External static pressure 50Pa) 220-240V 50Hz



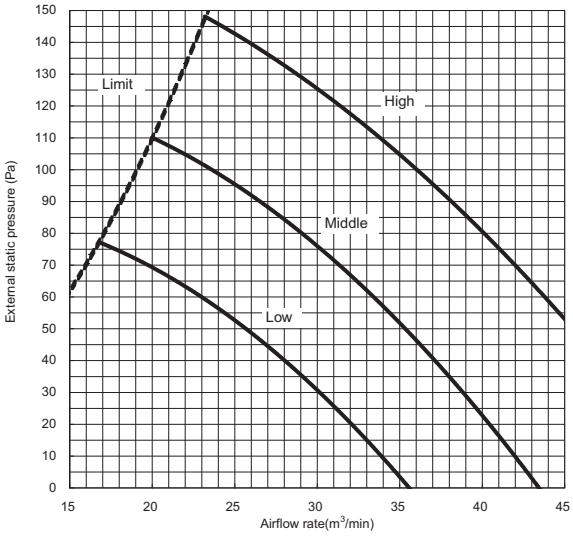
PEAD-M125JAA(D)

(External static pressure 125Pa) 220-240V 50Hz



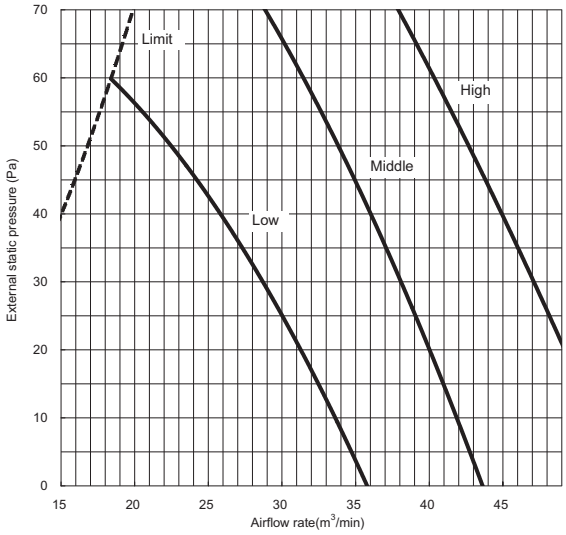
PEAD-M125JAA(D)

(External static pressure 70Pa) 220-240V 50Hz



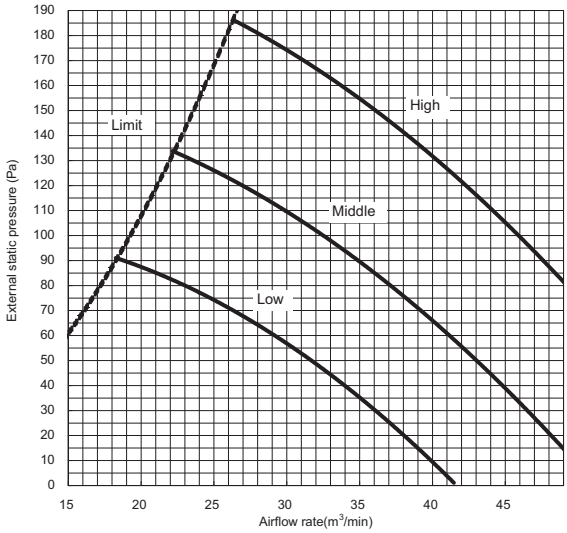
PEAD-M140JAA(D)

(External static pressure 35Pa) 220-240V 50Hz



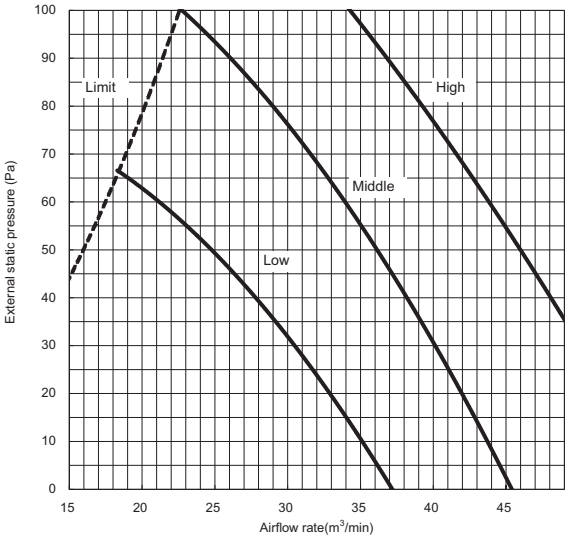
PEAD-M140JAA(D)

(External static pressure 100Pa) 220-240V 50Hz



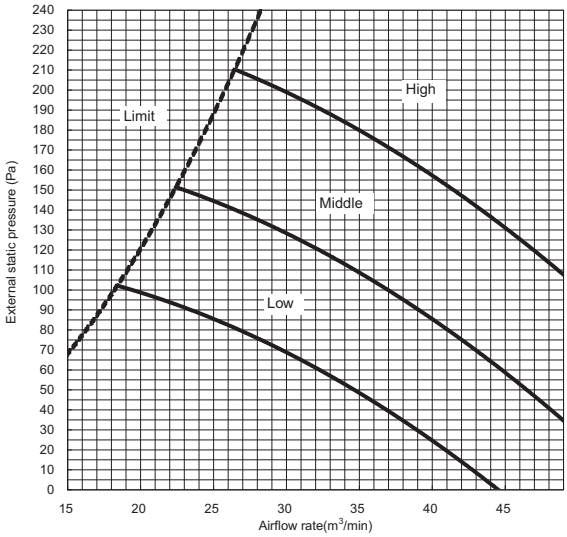
PEAD-M140JAA(D)

(External static pressure 50Pa) 220-240V 50Hz



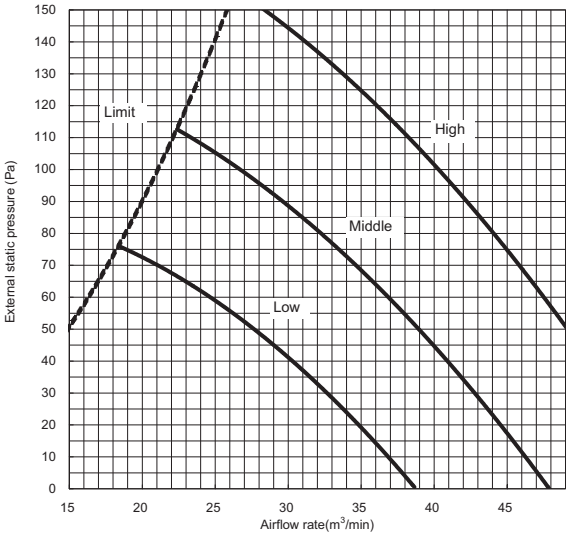
PEAD-M140JAA(D)

(External static pressure 125Pa) 220-240V 50Hz



PEAD-M140JAA(D)

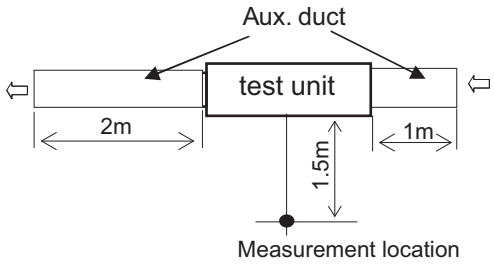
(External static pressure 70Pa) 220-240V 50Hz



[1] Sound Pressure Levels

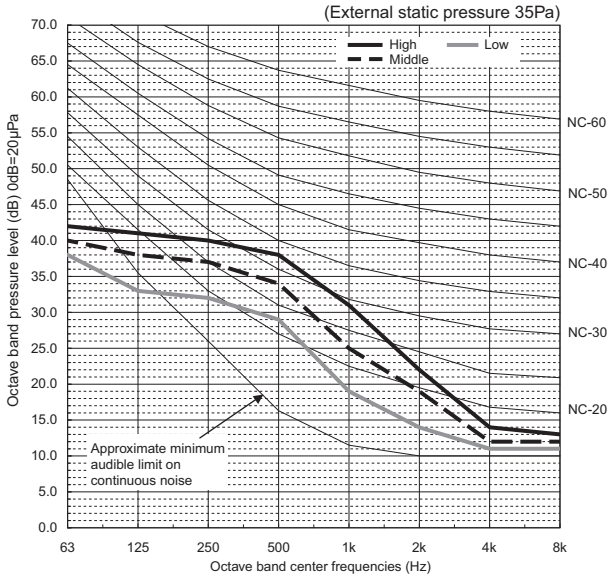
1. Sound pressure level

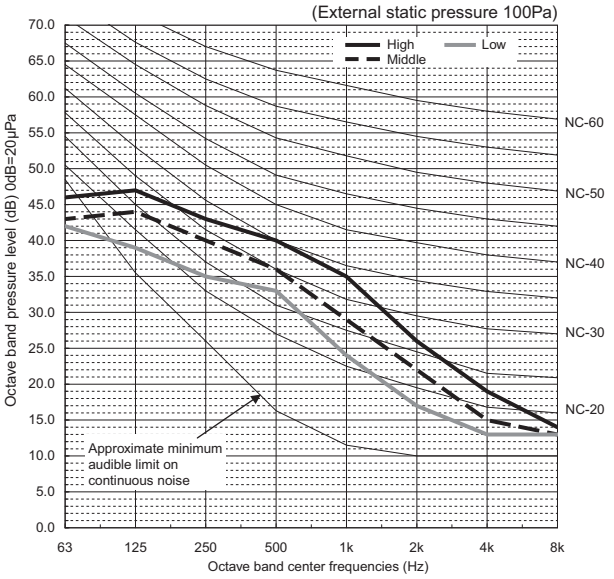
Ceiling concealed

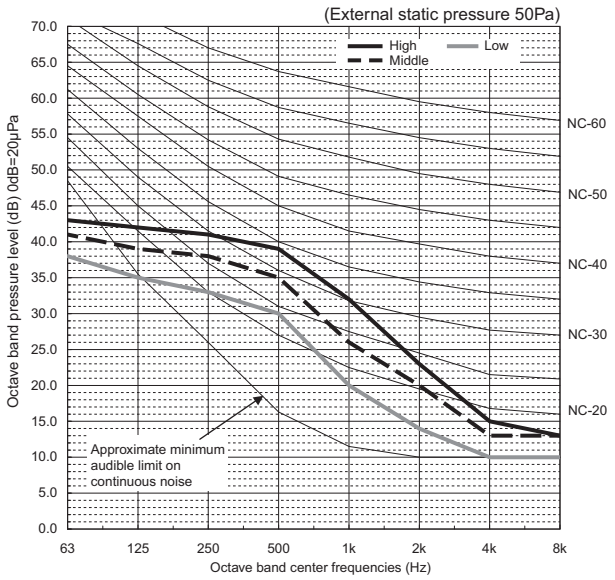


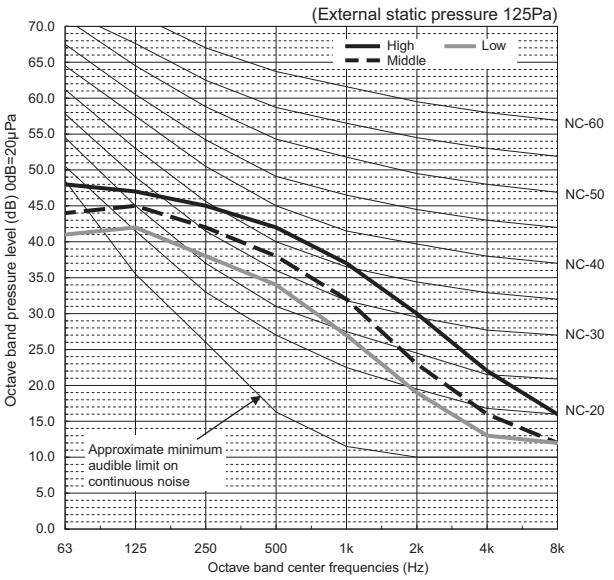
2. NC curves

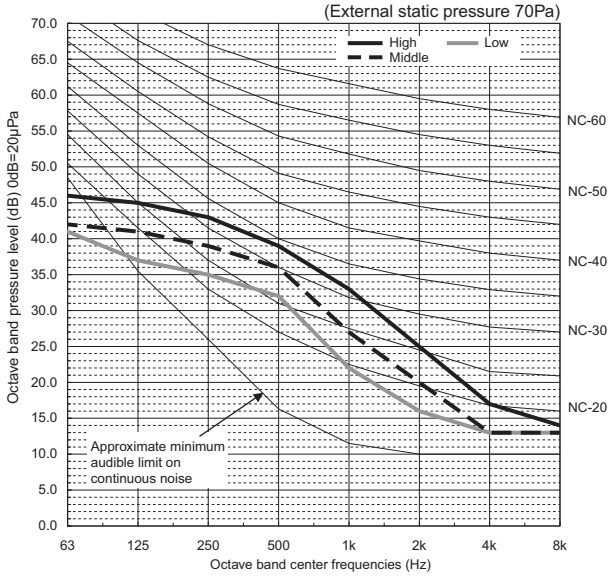
PEAD-M50JAA(D)



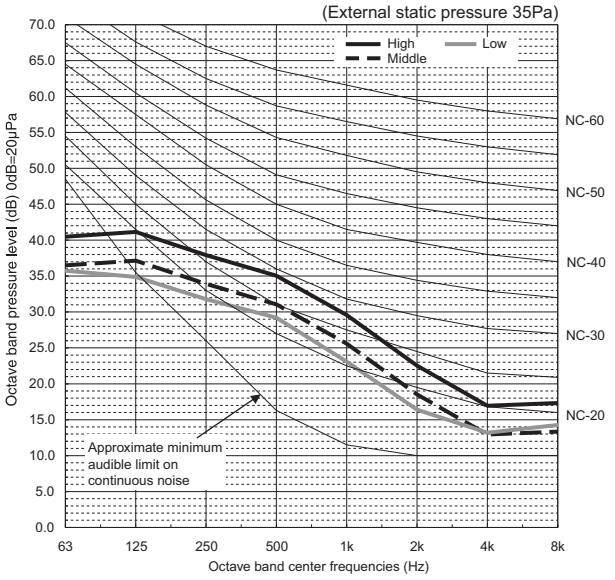


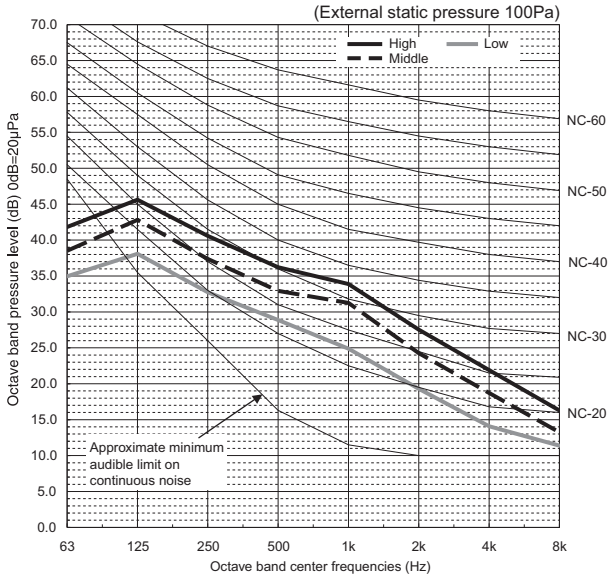


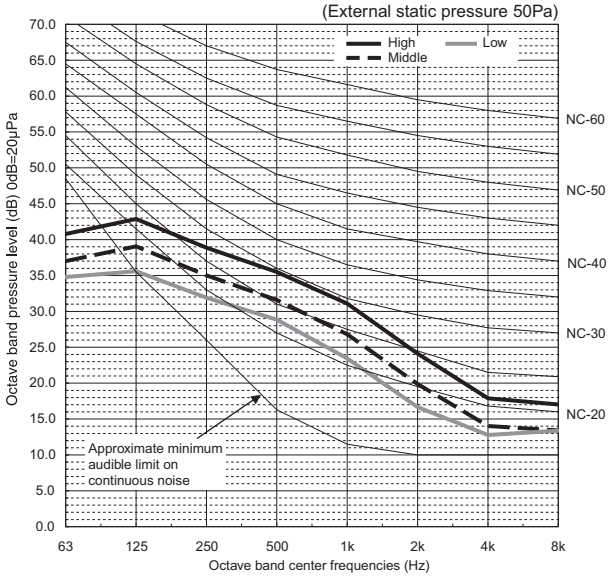


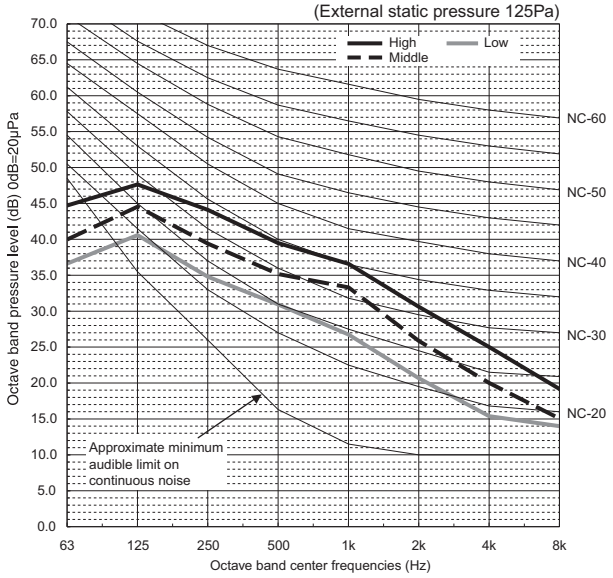


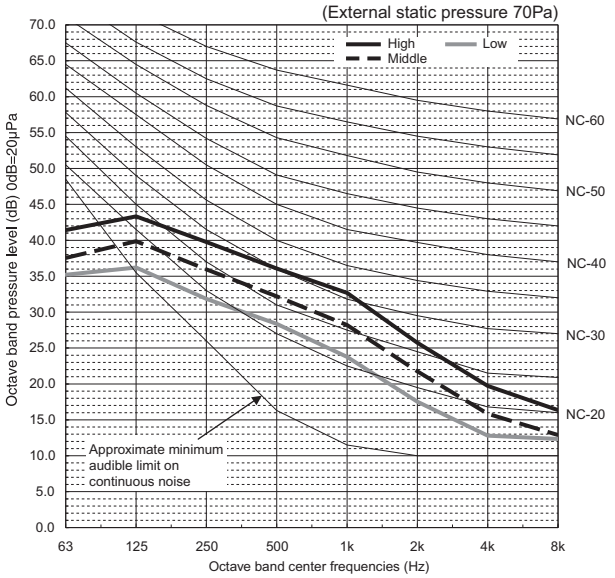
PEAD-M60JAA(D)





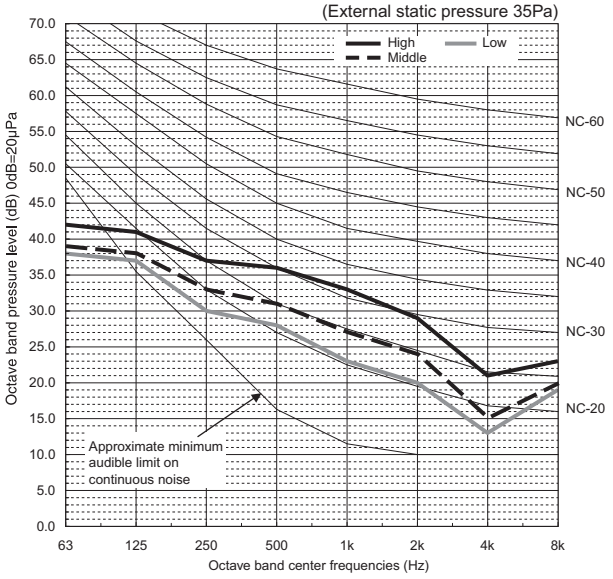




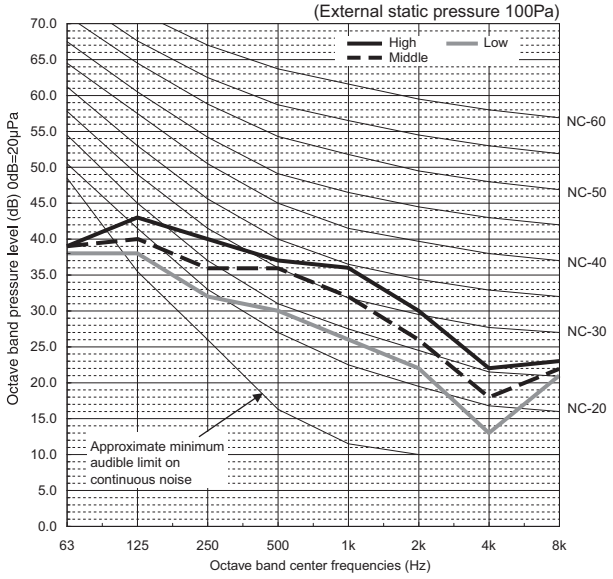


PEAD-M71JAA(D)

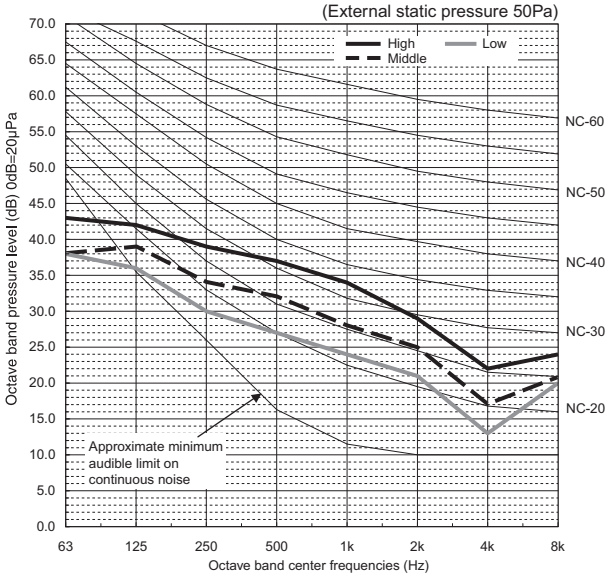
(External static pressure 35Pa)



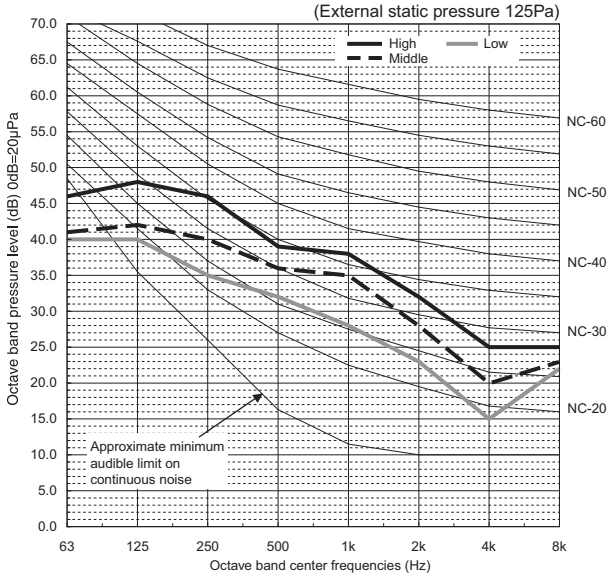
(External static pressure 100Pa)



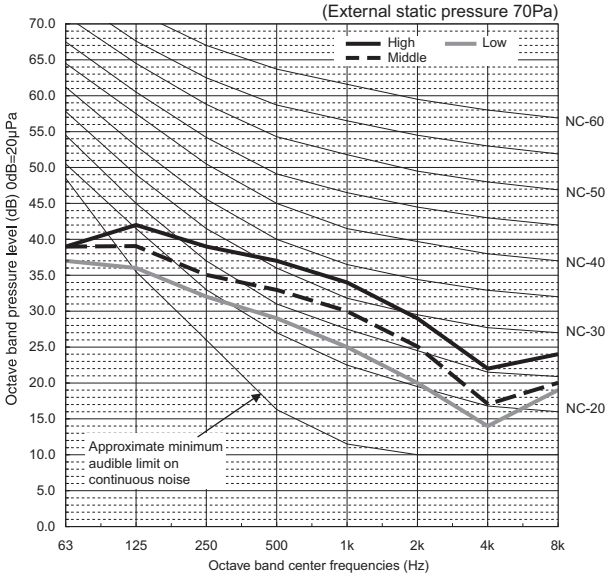
(External static pressure 50Pa)



(External static pressure 125Pa)

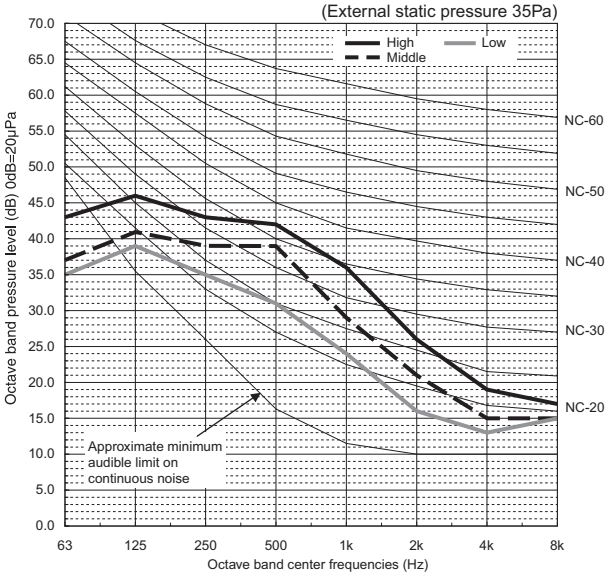


(External static pressure 70Pa)

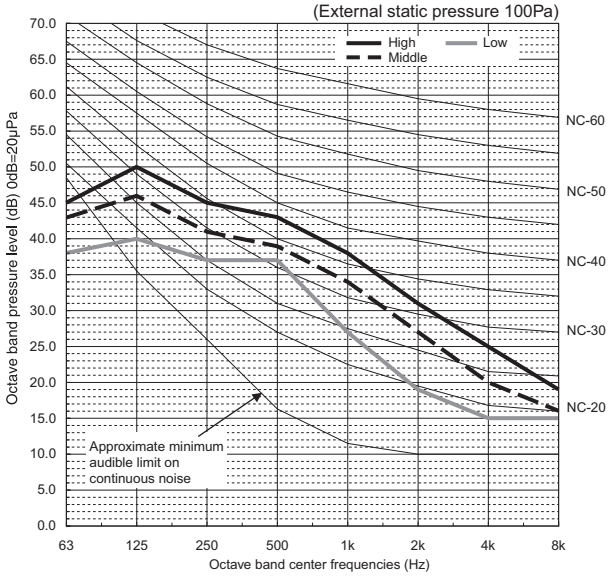


PEAD-M100JAA(D)

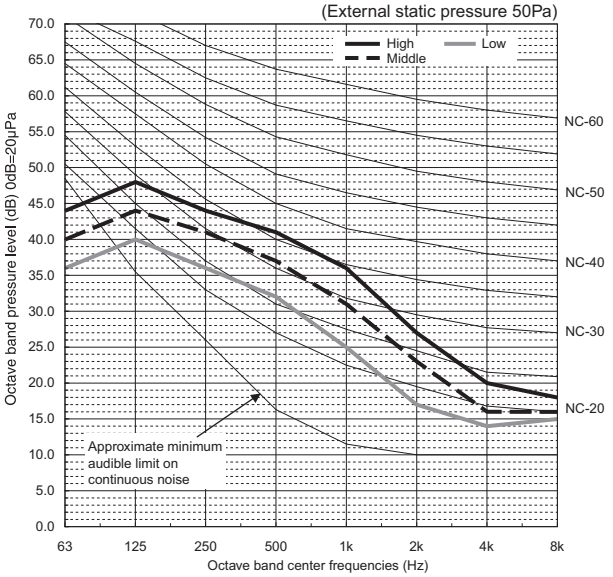
(External static pressure 35Pa)



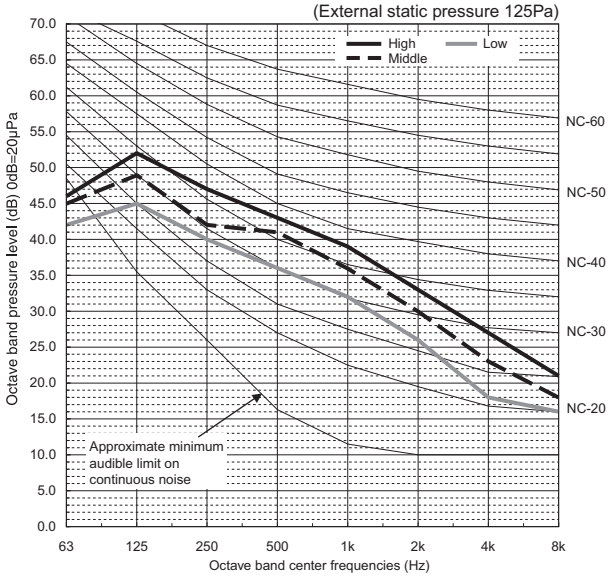
(External static pressure 100Pa)



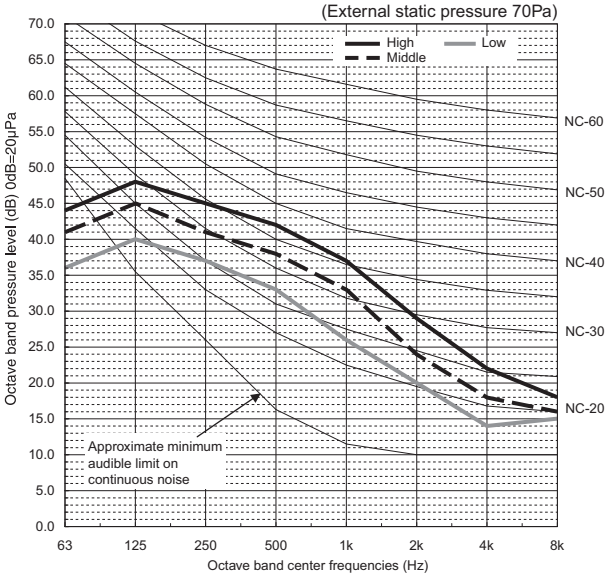
(External static pressure 50Pa)



(External static pressure 125Pa)

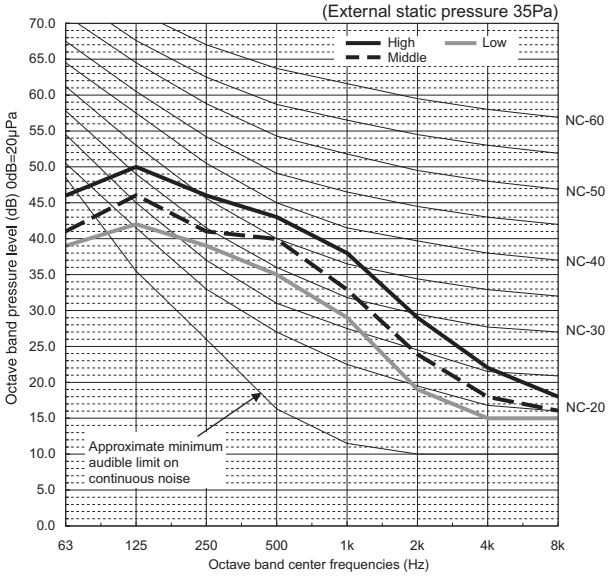


(External static pressure 70Pa)

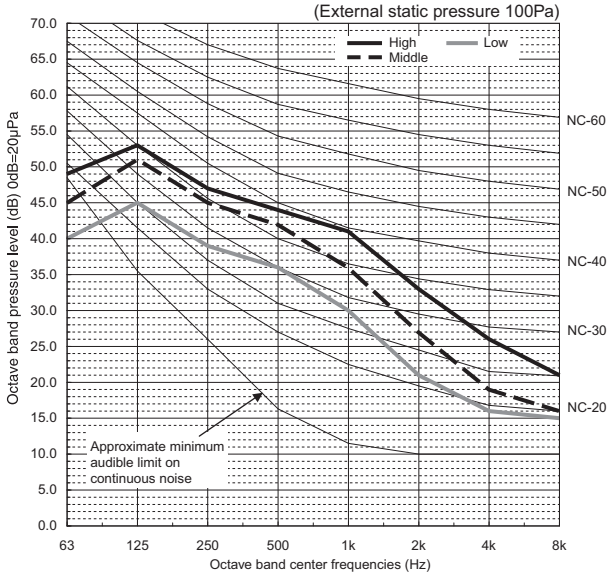


PEAD-M125JAA(D)

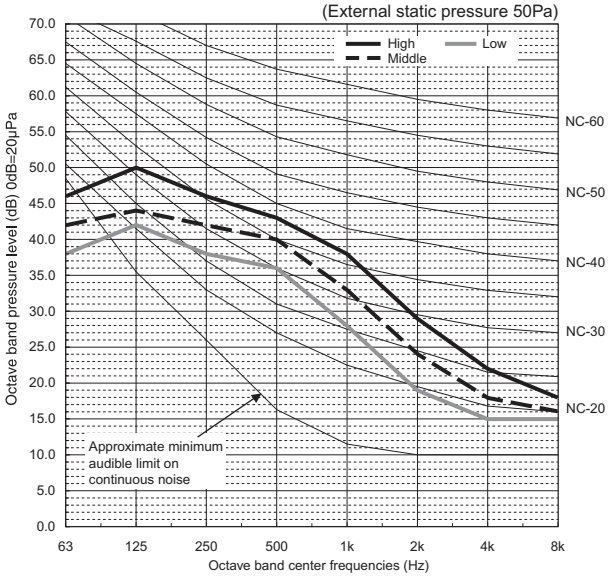
(External static pressure 35Pa)



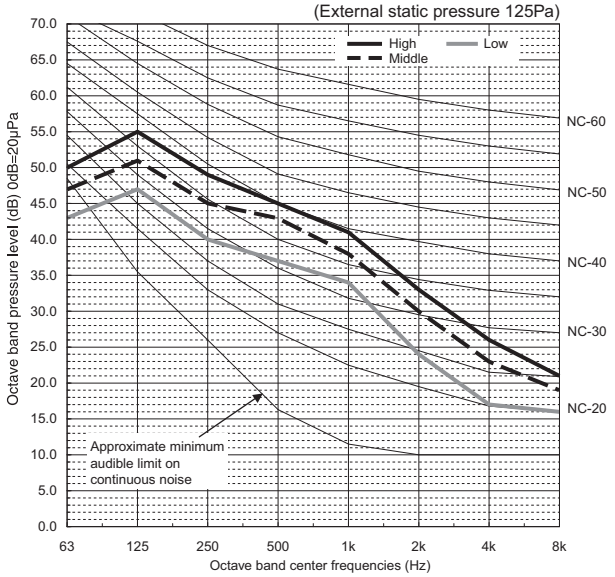
(External static pressure 100Pa)



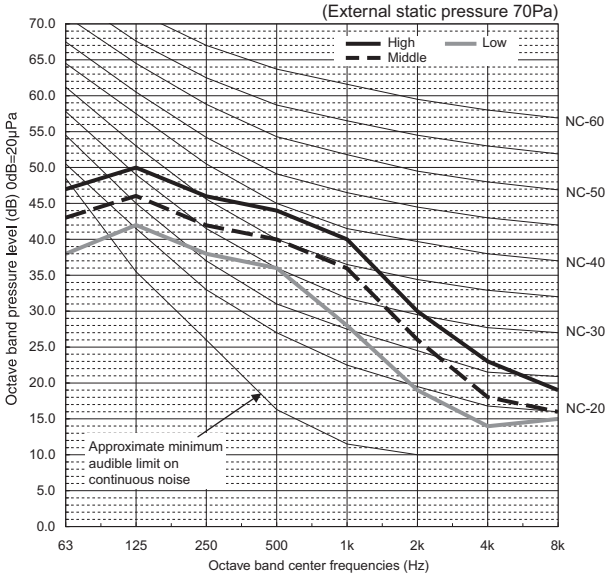
(External static pressure 50Pa)



(External static pressure 125Pa)

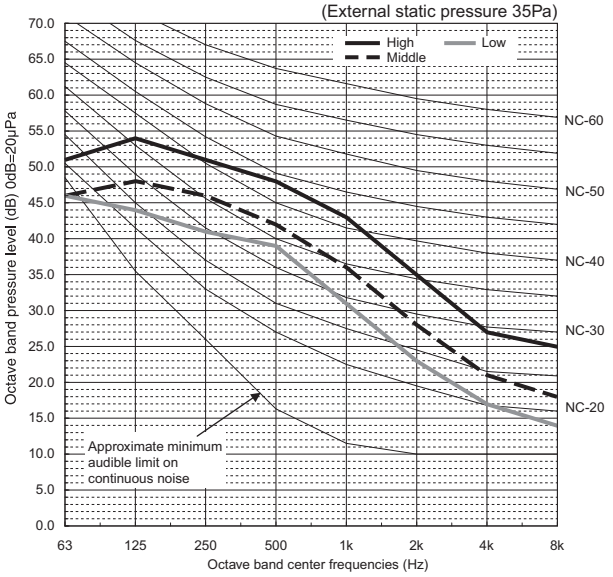


(External static pressure 70Pa)

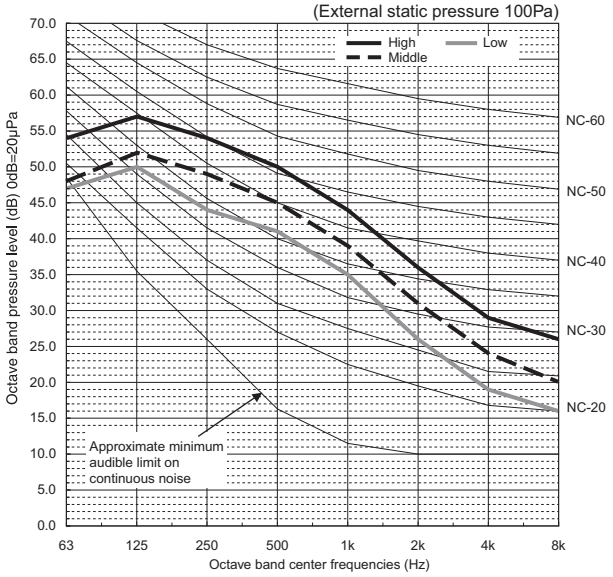


PEAD-M140JAA(D)

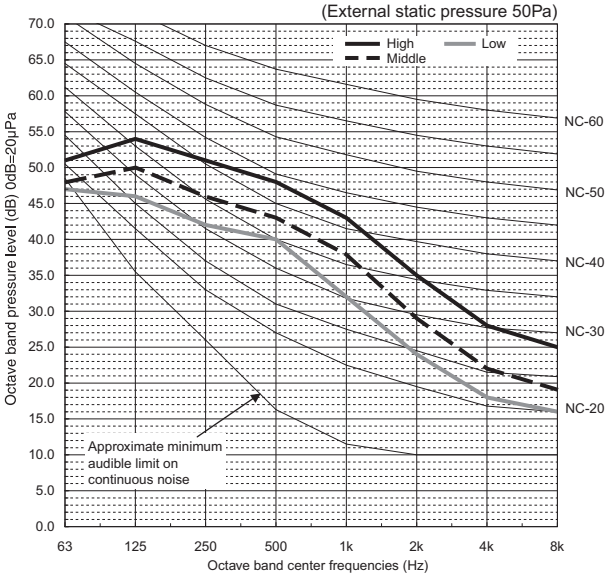
(External static pressure 35Pa)



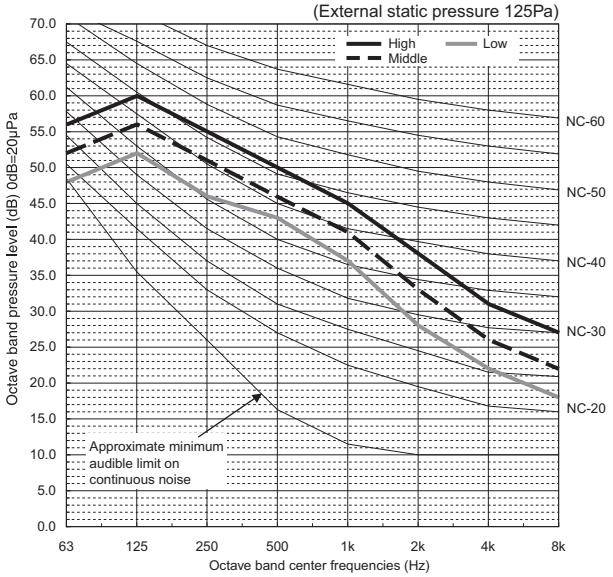
(External static pressure 100Pa)



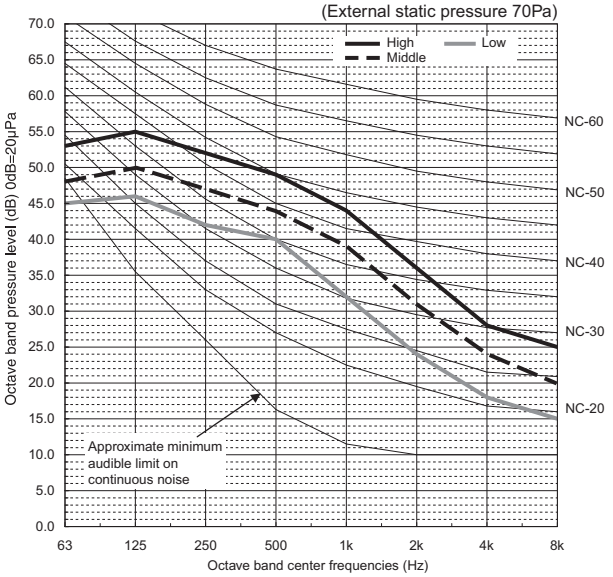
(External static pressure 50Pa)



(External static pressure 125Pa)



(External static pressure 70Pa)

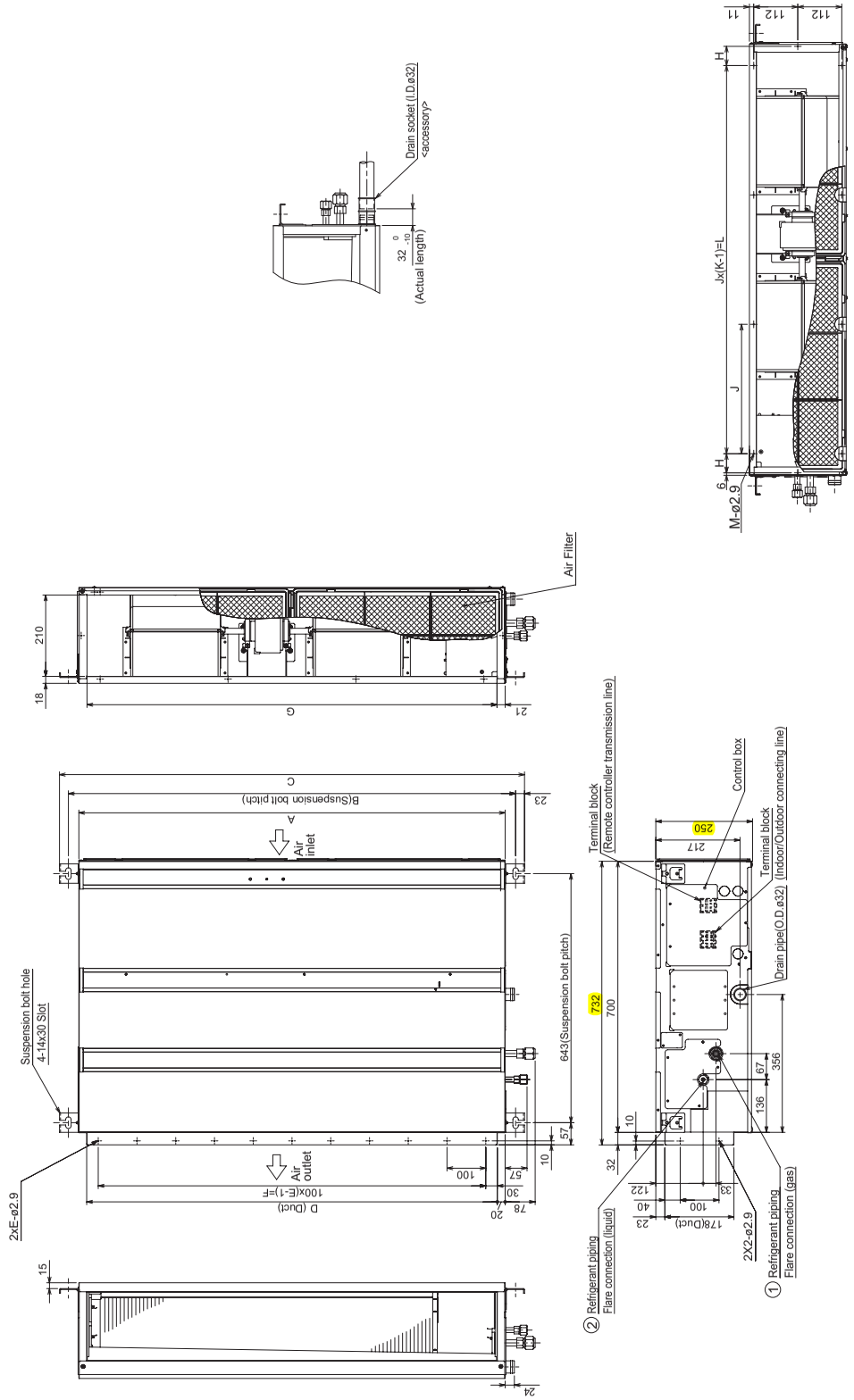


[1] Outlines & Dimensions

INDOOR UNIT

PEAD-M50, 60, 71, 100, 125, 140JAA

Unit: mm



* Setting at shipment

Model	A	B	C	D	E	F	G	H	J	K	L	M	①Gas pipe	②Liquid pipe
PEAD-M50JAA	900	954	1000	860	9	800	858	54	260	4	780	10	ø12.7	ø6.35
PEAD-M60JAA	1100	1154	1200	1060	11	1000	1058	49	330	4	990	10	ø15.88	Outdoor unit (SUZ): ø6.35 Outdoor unit (other): ø9.52*
PEAD-M71JAA	1100	1154	1200	1060	11	1000	1058	49	330	4	990	10	ø15.88	ø9.52
PEAD-M100,125JAA	1400	1454	1500	1360	14	1300	1358	54	320	5	1280	12		
PEAD-M140JAA	1600	1654	1700	1560	16	1500	1558	54	370	5	1480	12		

NOTE 1. Use M10 screw for the Suspension bolt (field supply).
2. Keep the service space for the maintenance at the bottom.
3. In case of the inlet duct is used, remove the air filter (supply with the unit), then install the filter (field supply) at suction side.
4. This chart indicates for PEAD-M60·71·100·125·140JAA models, which have 2 fans. PEAD-M50JAA model has 1 fan.

PEFY-P-VMA(L)-E

1. SPECIFICATIONS

Model				PEFY-P20VMA-E	PEFY-P25VMA-E	PEFY-P32VMA-E	PEFY-P40VMA-E
Power source				1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz
Cooling capacity		*1	kW	2.2	2.8	3.6	4.5
(Nominal)		*1	kcal / h	1,900	2,400	3,100	3,900
		*1	BTU / h	7,500	9,600	12,300	15,400
	*2	Power input	kW	0.06	0.06	0.07	0.09
	*2	Current input	A	0.53	0.53	0.55	0.64
Heating capacity		*3	kW	2.5	3.2	4.0	5.0
(Nominal)		*3	kcal / h	2,200	2,800	3,400	4,300
		*3	BTU / h	8,500	10,900	13,600	17,100
	*2	Power input	kW	0.04	0.04	0.05	0.07
	*2	Current input	A	0.42	0.42	0.44	0.53
External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	Galvanized steel plate
External dimension HxWxD			mm	250 x 700 x 732	250 x 700 x 732	250 x 700 x 732	250 x 900 x 732
			inch	9-7/8 x 27-9/16 x 28-7/8	9-7/8 x 27-9/16 x 28-7/8	9-7/8 x 27-9/16 x 28-7/8	9-7/8 x 35-7/16 x 28-7/8
Net weight			kg(lbs)	23(51)	23(51)	23(51)	26(58)
Heat exchanger				Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)
FAN	Type x Quantity			Sirocco fan x 1	Sirocco fan x 1	Sirocco fan x 1	Sirocco fan x 1
*4	External static press.		Pa	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>
			mmH_2O	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>
	Motor Type			DC brushless motor	DC brushless motor	DC brushless motor	DC brushless motor
	Motor output		kW	0.085	0.085	0.085	0.085
	Driving mechanism			Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	Direct-driven by motor
	Air flow rate			(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
			m^3 / min	6.0 - 7.5 - 8.5	6.0 - 7.5 - 8.5	7.5 - 9.0 - 10.5	10.0 - 12.0 - 14.0
			L/s	100 - 125 - 142	100 - 125 - 142	125 - 150 - 175	167 - 200 - 233
			cfm	212 - 265 - 300	212 - 265 - 300	265 - 318 - 371	353 - 424 - 494
Sound pressure level (measured in anechoic room)				(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
		*2 *5	dB <A>	26-28-29	26-28-29	28-30-34	28-30-34
		*2 *6	dB <A>	23-25-26	23-25-26	23-26-29	23-27-30
Insulation material				EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam
Air filter				PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.
Protection device				Fuse	Fuse	Fuse	Fuse
Refrigerant control device				LEV	LEV	LEV	LEV
Connectable outdoor unit				R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI
Diameter of refrigerant pipe	Liquid (R410A)		mm(in.)	6.35(1/4)Brazed	6.35(1/4)Brazed	6.35(1/4)Brazed	6.35(1/4)Brazed
	Gas (R410A)		mm(in.)	12.7(1/2)Brazed	12.7(1/2)Brazed	12.7(1/2)Brazed	12.7(1/2)Brazed
Field drain pipe size			mm(in.)	O.D.32(1-1/4)	O.D.32(1-1/4)	O.D.32(1-1/4)	O.D.32(1-1/4)
Drawing	External			IU-KB94-R528	IU-KB94-R528	IU-KB94-R528	IU-KB94-R528
	Wiring			IU-KB94-R069	IU-KB94-R069	IU-KB94-R069	IU-KB94-R069
	Refrigerant cycle			-	-	-	-
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book
	Accessory			Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band
Optional parts	Filter box			PAC-KE91TB-E	PAC-KE91TB-E	PAC-KE91TB-E	PAC-KE92TB-E
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.			

Notes :

1.Nominal cooling conditions
Indoor:27°CDB/19°CWB(81°FDB/66°FWB), Outdoor:35°CDB(95°FDB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
2.The values are measured at the rated external static pressure.
3.Nominal heating conditions
Indoor:20°CDB(68°FDB), Outdoor:7°CDB/6°CWB(45°FDB/43°FWB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
4.The rated external static pressure is shown without < >.The factory setting is the rated value.
5.Measured in anechoic room with a 1m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-1 for details.
6.Measured in anechoic room with a 2m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-2 for details.

Unit converter

kcal	=kW x 860
BTU/h	=kW x 3,412
cfm	$=m^3$/min x 35.31
lbs	=kg / 0.4536

*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Model				PEFY-P50VMA-E	PEFY-P63VMA-E	PEFY-P71VMA-E	PEFY-P80VMA-E
Power source				1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz
Cooling capacity		*1	kW	5.6	7.1	8.0	9.0
(Nominal)		*1	kcal / h	4,800	6,100	6,900	7,700
		*1	BTU / h	19,100	24,200	27,300	30,700
	*2	Power input	kW	0.11	0.12	0.14	0.14
	*2	Current input	A	0.74	1.01	1.15	1.15
Heating capacity		*3	kW	6.3	8.0	9.0	10.0
(Nominal)		*3	kcal / h	5,400	6,900	7,700	8,600
		*3	BTU / h	21,500	27,300	30,700	34,100
	*2	Power input	kW	0.09	0.10	0.12	0.12
	*2	Current input	A	0.63	0.90	1.04	1.04
External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	Galvanized steel plate
External dimension HxWxD			mm	250 x 900 x 732	250 x 1,100 x 732	250 x 1,100 x 732	250 x 1,100 x 732
			inch	9-7/8 x 35-7/16 x 28-7/8	9-7/8 x 43-5/16 x 28-7/8	9-7/8 x 43-5/16 x 28-7/8	9-7/8 x 43-5/16 x 28-7/8
Net weight			kg(lbs)	26(58)	32(71)	32(71)	32(71)
Heat exchanger				Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)
FAN	Type x Quantity			Sirocco fan x 1	Sirocco fan x 2	Sirocco fan x 2	Sirocco fan x 2
	*4 External static press.		Pa	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>
			mmH_2O	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>
	Motor Type			DC brushless motor	DC brushless motor	DC brushless motor	DC brushless motor
	Motor output		kW	0.085	0.121	0.121	0.121
	Driving mechanism			Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	Direct-driven by motor
	Air flow rate			(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
			m^3 / min	12.0 - 14.5 - 17.0	13.5 - 16.0 - 19.0	14.5 - 18.0 - 21.0	14.5 - 18.0 - 21.0
			L/s	200 - 242 - 283	225 - 267 - 317	242 - 300 - 350	242 - 300 - 350
			cfm	424 - 512 - 600	477 - 565 - 671	512 - 636 - 742	512 - 636 - 742
Sound pressure level (measured in anechoic room)				(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
		*2 *5	dB <A>	28-32-35	29-32-36	30-34-38	30-34-38
		*2 *6	dB <A>	25-29-32	25-29-33	26-29-34	26-29-34
Insulation material				EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam
Air filter				PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.
Protection device				Fuse	Fuse	Fuse	Fuse
Refrigerant control device				LEV	LEV	LEV	LEV
Connectable outdoor unit				R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI
Diameter of refrigerant pipe	Liquid (R410A)		mm(in.)	6.35(1/4)Brazed	9.52(3/8)Brazed	9.52(3/8)Brazed	9.52(3/8)Brazed
	Gas (R410A)		mm(in.)	12.7(1/2)Brazed	15.88(5/8)Brazed	15.88(5/8)Brazed	15.88(5/8)Brazed
Field drain pipe size			mm(in.)	O.D.32(1-1/4)	O.D.32(1-1/4)	O.D.32(1-1/4)	O.D.32(1-1/4)
Drawing	External			IU-KB94-R528	IU-KB94-R528	IU-KB94-R528	IU-KB94-R528
	Wiring			IU-KB94-R069	IU-KB94-R069	IU-KB94-R069	IU-KB94-R069
	Refrigerant cycle			-	-	-	-
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book
	Accessory			Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band
Optional parts	Filter box			PAC-KE92TB-E	PAC-KE93TB-E	PAC-KE93TB-E	PAC-KE93TB-E
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.			

Notes :

1.Nominal cooling conditions
Indoor:27°CDB/19°CWB(81°FDB/66°FWB), Outdoor:35°CDB(95°FDB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
2.The values are measured at the rated external static pressure.
3.Nominal heating conditions
Indoor:20°CDB(68°FDB), Outdoor:7°CDB/6°CWB(45°FDB/43°FWB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
4.The rated external static pressure is shown without < >.The factory setting is the rated value.
5.Measured in anechoic room with a 1m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-1 for details.
6.Measured in anechoic room with a 2m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-2 for details.

Unit converter

kcal =kW x 860
BTU/h =kW x 3,412
cfm $=m^3$/min x 35.31
lbs =kg / 0.4536

*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Model				PEFY-P100VMA-E	PEFY-P125VMA-E	PEFY-P140VMA-E	
Power source				1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	
Cooling capacity		*1	kW	11.2	14.0	16.0	
(Nominal)		*1	kcal / h	9,600	12,000	13,800	
		*1	BTU / h	38,200	47,800	54,600	
	*2	Power input	kW	0.24	0.34	0.36	
	*2	Current input	A	1.47	2.05	2.21	
Heating capacity		*3	kW	12.5	16.0	18.0	
(Nominal)		*3	kcal / h	10,800	13,800	15,500	
		*3	BTU / h	42,700	54,600	61,400	
	*2	Power input	kW	0.22	0.32	0.34	
	*2	Current input	A	1.36	1.94	2.10	
External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	
External dimension HxWxD			mm	250 x 1,400 x 732	250 x 1,400 x 732	250 x 1,600 x 732	
			inch	9-7/8 x 55-1/8 x 28-7/8	9-7/8 x 55-1/8 x 28-7/8	9-7/8 x 63 x 28-7/8	
Net weight			kg(lbs)	42(93)	42(93)	46(102)	
Heat exchanger				Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	
FAN	Type x Quantity			Sirocco fan x 2	Sirocco fan x 2	Sirocco fan x 2	
	*4 External static press.		Pa	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	
			mmH_2O	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	
	Motor Type			DC brushless motor	DC brushless motor	DC brushless motor	
	Motor output		kW	0.244	0.244	0.244	
	Driving mechanism			Direct-driven by motor°	Direct-driven by motor	Direct-driven by motor	
	Air flow rate			(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	
			m^3 / min	23.0 - 28.0 - 33.0	28.0 - 34.0 - 40.0	29.5 - 35.5 - 42.0	
			L/s	383 - 467 - 550	467 - 567 - 667	492 - 592 - 700	
			cfm	812 - 989 - 1,165	989 - 1,201 - 1,412	1,042 - 1,254 - 1,483	
Sound pressure level (measured in anechoic room)				(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	
		*2 *5	dB <A>	32-37-41	35-40-44	36-41-45	
		*2 *6	dB <A>	28-33-37	32-36-40	33-37-42	
Insulation material				EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	
Air filter				PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.	
Protection device				Fuse	Fuse	Fuse	
Refrigerant control device				LEV	LEV	LEV	
Connectable outdoor unit			*5	R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI	
Diameter of refrigerant pipe	Liquid (R410A)		mm(in.)	9.52(3/8)Brazed	9.52(3/8)Brazed	9.52(3/8)Brazed	
	Gas (R410A)		mm(in.)	15.88(5/8)Brazed	15.88(5/8)Brazed	15.88(5/8)Brazed	
Field drain pipe size			mm(in.)	O.D.32(1-1/4)	O.D.32(1-1/4)	O.D.32(1-1/4)	
Drawing	External			IU-KB94-R528	IU-KB94-R528	IU-KB94-R528	
	Wiring			IU-KB94-R069	IU-KB94-R069	IU-KB94-R069	
	Refrigerant cycle			-	-	-	
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	
	Accessory			Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	
Optional parts	Filter box			PAC-KE94TB-E	PAC-KE94TB-E	PAC-KE95TB-E	
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.			

Notes :

1.Nominal cooling conditions
Indoor:27°CDB/19°CWB(81°FDB/66°FWB), Outdoor:35°CDB(95°FDB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
2.The values are measured at the rated external static pressure.
3.Nominal heating conditions
Indoor:20°CDB(68°FDB), Outdoor:7°CDB/6°CWB(45°FDB/43°FWB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
4.The rated external static pressure is shown without < >.The factory setting is the rated value.
5.Measured in anechoic room with a 1m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-1 for details.
6.Measured in anechoic room with a 2m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-2 for details.

Unit converter

kcal	=kW x 860
BTU/h	=kW x 3,412
cfm	$=m^3$/min x 35.31
lbs	=kg / 0.4536

*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Model				PEFY-P20VMAL-E	PEFY-P25VMAL-E	PEFY-P32VMAL-E	PEFY-P40VMAL-E
Power source				1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz
Cooling capacity		*1	kW	2.2	2.8	3.6	4.5
(Nominal)		*1	kcal / h	1,900	2,400	3,100	3,900
		*1	BTU / h	7,500	9,600	12,300	15,400
	*2	Power input	kW	0.04	0.04	0.05	0.07
	*2	Current input	A	0.42	0.42	0.44	0.53
Heating capacity		*3	kW	2.5	3.2	4.0	5.0
(Nominal)		*3	kcal / h	2,200	2,800	3,400	4,300
		*3	BTU / h	8,500	10,900	13,600	17,100
	*2	Power input	kW	0.04	0.04	0.05	0.07
	*2	Current input	A	0.42	0.42	0.44	0.53
External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	Galvanized steel plate
External dimension HxWxD			mm	250 x 700 x 732	250 x 700 x 732	250 x 700 x 732	250 x 900 x 732
			inch	9-7/8 x 27-9/16 x 28-7/8	9-7/8 x 27-9/16 x 28-7/8	9-7/8 x 27-9/16 x 28-7/8	9-7/8 x 35-7/16 x 28-7/8
Net weight			kg(lbs)	22(49)	22(49)	22(49)	25(56)
Heat exchanger				Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)
FAN	Type x Quantity			Sirocco fan x 1	Sirocco fan x 1	Sirocco fan x 1	Sirocco fan x 1
*4	External static press.		Pa	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>
			mmH_2O	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>
	Motor Type			DC brushless motor	DC brushless motor	DC brushless motor	DC brushless motor
	Motor output		kW	0.085	0.085	0.085	0.085
	Driving mechanism			Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	Direct-driven by motor
	Air flow rate			(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
			m^3 / min	6.0 - 7.5 - 8.5	6.0 - 7.5 - 8.5	7.5 - 9.0 - 10.5	10.0 - 12.0 - 14.0
			L/s	100 - 125 - 142	100 - 125 - 142	125 - 150 - 175	167 - 200 - 233
			cfm	212 - 265 - 300	212 - 265 - 300	265 - 318 - 371	353 - 424 - 494
Sound pressure level (measured in anechoic room)				(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
		*2 *5	dB <A>	26-28-29	26-28-29	28-30-34	28-30-34
		*2 *6	dB <A>	23-25-26	23-25-26	23-26-29	23-27-30
Insulation material				EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam
Air filter				PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.
Protection device				Fuse	Fuse	Fuse	Fuse
Refrigerant control device				LEV	LEV	LEV	LEV
Connectable outdoor unit				R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI
Diameter of refrigerant pipe	Liquid (R410A)		mm(in.)	6.35(1/4)Brazed	6.35(1/4)Brazed	6.35(1/4)Brazed	6.35(1/4)Brazed
	Gas (R410A)		mm(in.)	12.7(1/2)Brazed	12.7(1/2)Brazed	12.7(1/2)Brazed	12.7(1/2)Brazed
Field drain pipe size			mm(in.)	O.D.32(1-1/4)	O.D.32(1-1/4)	O.D.32(1-1/4)	O.D.32(1-1/4)
Drawing	External			IU-KB94-R548	IU-KB94-R548	IU-KB94-R548	IU-KB94-R548
	Wiring			IU-KB94-R069	IU-KB94-R069	IU-KB94-R069	IU-KB94-R069
	Refrigerant cycle			-	-	-	-
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book
	Accessory			Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band
Optional parts	Filter box			PAC-KE91TB-E	PAC-KE91TB-E	PAC-KE91TB-E	PAC-KE92TB-E
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.			

Notes :

1.Nominal cooling conditions
Indoor:27°CDB/19°CWB(81°FDB/66°FWB), Outdoor:35°CDB(95°FDB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
2.The values are measured at the rated external static pressure.
3.Nominal heating conditions
Indoor:20°CDB(68°FDB), Outdoor:7°CDB/6°CWB(45°FDB/43°FWB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
4.The rated external static pressure is shown without < >.The factory setting is the rated value.
5.Measured in anechoic room with a 1m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-1 for details.
6.Measured in anechoic room with a 2m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-2 for details.

Unit converter

kcal	=kW x 860
BTU/h	=kW x 3,412
cfm	$=m^3$/min x 35.31
lbs	=kg / 0.4536

*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Model				PEFY-P50VMAL-E	PEFY-P63VMAL-E	PEFY-P71VMAL-E	PEFY-P80VMAL-E
Power source				1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz
Cooling capacity		*1	kW	5.6	7.1	8.0	9.0
(Nominal)		*1	kcal / h	4,800	6,100	6,900	7,700
		*1	BTU / h	19,100	24,200	27,300	30,700
	*2	Power input	kW	0.09	0.10	0.12	0.12
	*2	Current input	A	0.63	0.90	1.04	1.04
Heating capacity		*3	kW	6.3	8.0	9.0	10.0
(Nominal)		*3	kcal / h	5,400	6,900	7,700	8,600
		*3	BTU / h	21,500	27,300	30,700	34,100
	*2	Power input	kW	0.09	0.10	0.12	0.12
	*2	Current input	A	0.63	0.90	1.04	1.04
External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	Galvanized steel plate
External dimension HxWxD			mm	250 x 900 x 732	250 x 1,100 x 732	250 x 1,100 x 732	250 x 1,100 x 732
			inch	9-7/8 x 35-7/16 x 28-7/8	9-7/8 x 43-5/16 x 28-7/8	9-7/8 x 43-5/16 x 28-7/8	9-7/8 x 43-5/16 x 28-7/8
Net weight			kg(lbs)	25(56)	31(69)	31(69)	31(69)
Heat exchanger				Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)
FAN	Type x Quantity			Sirocco fan x 1	Sirocco fan x 2	Sirocco fan x 2	Sirocco fan x 2
	*4 External static press.		Pa	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>
			mmH_2O	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>
	Motor Type			DC brushless motor	DC brushless motor	DC brushless motor	DC brushless motor
	Motor output		kW	0.085	0.121	0.121	0.121
	Driving mechanism			Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	Direct-driven by motor
	Air flow rate			(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
			m^3 / min	12.0 - 14.5 - 17.0	13.5 - 16.0 - 19.0	14.5 - 18.0 - 21.0	14.5 - 18.0 - 21.0
			L/s	200 - 242 - 283	225 - 267 - 317	242 - 300 - 350	242 - 300 - 350
			cfm	424 - 512 - 600	477 - 565 - 671	512 - 636 - 742	512 - 636 - 742
Sound pressure level (measured in anechoic room)				(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
		*2 *5	dB <A>	28-32-35	29-32-36	30-34-38	30-34-38
		*2 *6	dB <A>	25-29-32	25-29-33	26-29-34	26-29-34
Insulation material				EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam
Air filter				PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.
Protection device				Fuse	Fuse	Fuse	Fuse
Refrigerant control device				LEV	LEV	LEV	LEV
Connectable outdoor unit				R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI
Diameter of refrigerant pipe	Liquid (R410A)		mm(in.)	6.35(1/4)Brazed	9.52(3/8)Brazed	9.52(3/8)Brazed	9.52(3/8)Brazed
	Gas (R410A)		mm(in.)	12.7(1/2)Brazed	15.88(5/8)Brazed	15.88(5/8)Brazed	15.88(5/8)Brazed
Field drain pipe size			mm(in.)	O.D.32(1-1/4)	O.D.32(1-1/4)	O.D.32(1-1/4)	O.D.32(1-1/4)
Drawing	External			IU-KB94-R548	IU-KB94-R548	IU-KB94-R548	IU-KB94-R548
	Wiring			IU-KB94-R069	IU-KB94-R069	IU-KB94-R069	IU-KB94-R069
	Refrigerant cycle			-	-	-	-
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book
	Accessory			Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band
Optional parts	Filter box			PAC-KE92TB-E	PAC-KE93TB-E	PAC-KE93TB-E	PAC-KE93TB-E
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.			

Notes :

1.Nominal cooling conditions
Indoor:27°CDB/19°CWB(81°FDB/66°FWB), Outdoor:35°CDB(95°FDB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
2.The values are measured at the rated external static pressure.
3.Nominal heating conditions
Indoor:20°CDB(68°FDB), Outdoor:7°CDB/6°CWB(45°FDB/43°FWB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
4.The rated external static pressure is shown without < >.The factory setting is the rated value.
5.Measured in anechoic room with a 1m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-1 for details.
6.Measured in anechoic room with a 2m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-2 for details.

Unit converter

kcal	=kW x 860
BTU/h	=kW x 3,412
cfm	$=m^3$/min x 35.31
lbs	=kg / 0.4536

*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Model				PEFY-P100VMAL-E	PEFY-P125VMAL-E	PEFY-P140VMAL-E	
Power source				1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz	
Cooling capacity		*1	kW	11.2	14.0	16.0	
(Nominal)		*1	kcal / h	9,600	12,000	13,800	
		*1	BTU / h	38,200	47,800	54,600	
	*2	Power input	kW	0.22	0.32	0.34	
	*2	Current input	A	1.36	1.94	2.10	
Heating capacity		*3	kW	12.5	16.0	18.0	
(Nominal)		*3	kcal / h	10,800	13,800	15,500	
		*3	BTU / h	42,700	54,600	61,400	
	*2	Power input	kW	0.22	0.32	0.34	
	*2	Current input	A	1.36	1.94	2.10	
External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	
External dimension HxWxD			mm	250 x 1,400 x 732	250 x 1,400 x 732	250 x 1,600 x 732	
			inch	9-7/8 x 55-1/8 x 28-7/8	9-7/8 x 55-1/8 x 28-7/8	9-7/8 x 63 x 28-7/8	
Net weight			kg(lbs)	41(91)	41(91)	45(100)	
Heat exchanger				Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	Cross fin(Aluminum fin and copper tube)	
FAN	Type x Quantity			Sirocco fan x 2	Sirocco fan x 2	Sirocco fan x 2	
	*4 External static press.		Pa	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	<35> - 50 - <70> - <100> - <150>	
			mmH_2O	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	<3.6> - 5.1 - <7.1> - <10.2> - <15.3>	
	Motor Type			DC brushless motor	DC brushless motor	DC brushless motor	
	Motor output		kW	0.244	0.244	0.244	
	Driving mechanism			Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	
	Air flow rate			(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	
			m^3 / min	23.0 - 28.0 - 33.0	28.0 - 34.0 - 40.0	29.5 - 35.5 - 42.0	
			L/s	383 - 467 - 550	467 - 567 - 667	492 - 592 - 700	
			cfm	812 - 989 - 1,165	989 - 1,201 - 1,412	1,042 - 1,254 - 1,483	
Sound pressure level (measured in anechoic room)				(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	
		*2 *5	dB <A>	32-37-41	35-40-44	36-41-45	
		*2 *6	dB <A>	28-33-37	32-36-40	33-37-42	
Insulation material				EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam	
Air filter				PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.	
Protection device				Fuse	Fuse	Fuse	
Refrigerant control device				LEV	LEV	LEV	
Connectable outdoor unit			*5	R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI	
Diameter of refrigerant pipe	Liquid (R410A)		mm(in.)	9.52(3/8)Brazed	9.52(3/8)Brazed	9.52(3/8)Brazed	
	Gas (R410A)		mm(in.)	15.88(5/8)Brazed	15.88(5/8)Brazed	15.88(5/8)Brazed	
Field drain pipe size			mm(in.)	O.D.32(1-1/4)	O.D.32(1-1/4)	O.D.32(1-1/4)	
Drawing	External			IU-KB94-R548	IU-KB94-R548	IU-KB94-R548	
	Wiring			IU-KB94-R069	IU-KB94-R069	IU-KB94-R069	
	Refrigerant cycle			-	-	-	
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	
	Accessory			Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	
Optional parts	Filter box			PAC-KE94TB-E	PAC-KE94TB-E	PAC-KE95TB-E	
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.			

Notes :

1.Nominal cooling conditions
Indoor:27°CDB/19°CWB(81°FDB/66°FWB), Outdoor:35°CDB(95°FDB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
2.The values are measured at the rated external static pressure.
3.Nominal heating conditions
Indoor:20°CDB(68°FDB), Outdoor:7°CDB/6°CWB(45°FDB/43°FWB)
Pipe length:7.5m(24-9/16ft.), Level difference:0m(0ft.)
4.The rated external static pressure is shown without < >.The factory setting is the rated value.
5.Measured in anechoic room with a 1m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-1 for details.
6.Measured in anechoic room with a 2m air inlet duct and 2m air outlet duct attached to the unit and 1.5m below the unit.
Refer to 5-1-2 for details.

Unit converter

kcal	=kW x 860
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg / 0.4536

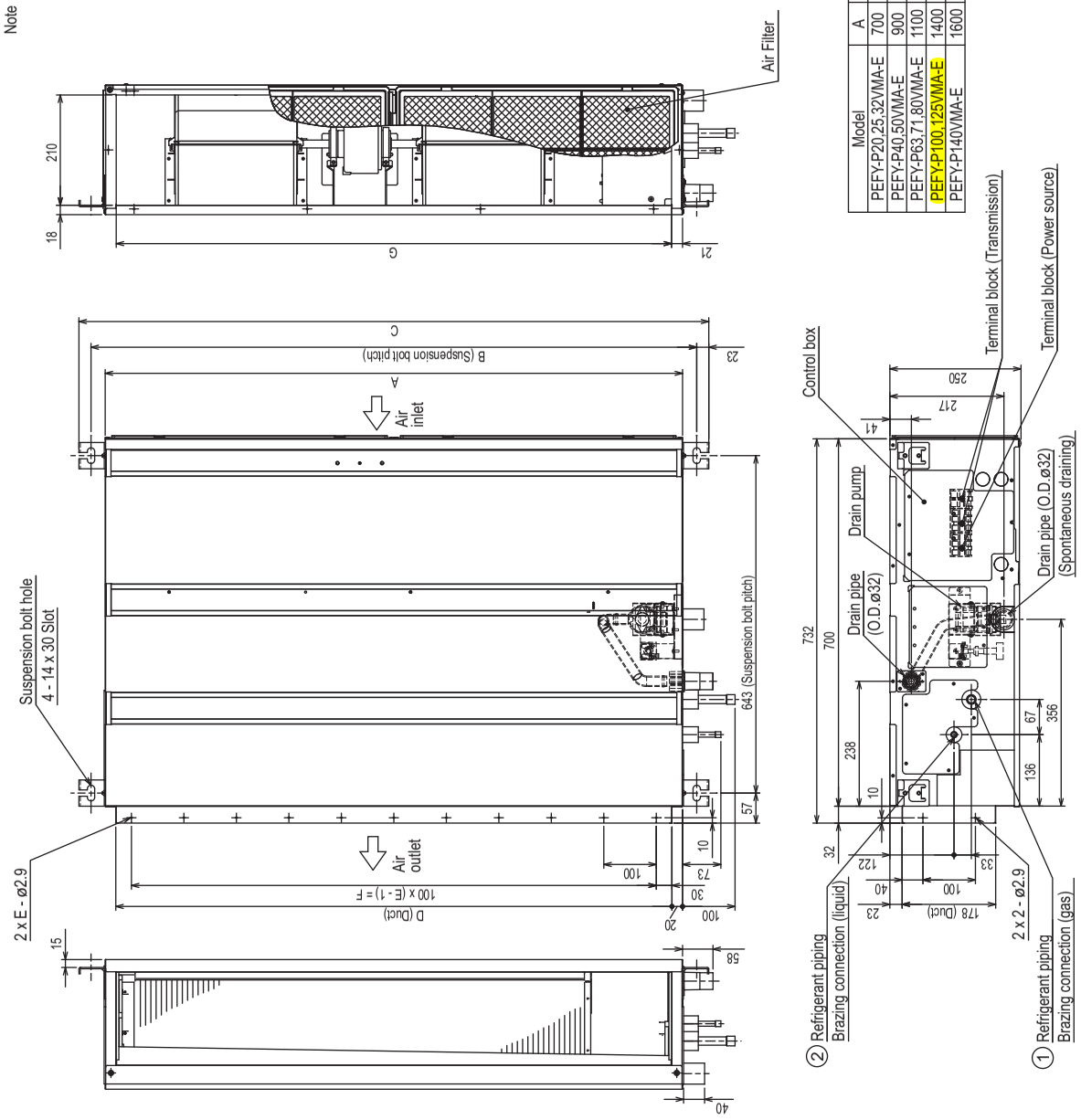
*Above specification data is subject to rounding variation.

PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA-E

Unit : mm

Note 1. Use M10 screw for the Suspension bolt (field supply).
2. Keep the service space for the maintenance at the bottom.
3. This chart indicates for PEFY-P63·71·80·100·125·140VMA-E models, which have 2 fans. PEFY-P20·25·32·40·50VMA-E models have 1 fan.
4. In case of the inlet duct is used, remove the air filter (supply with the unit), then install the filter (field supply) at suction side.

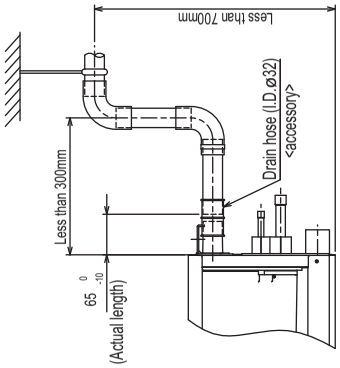
Model	A	B	C	D	E	F	G	① Gas pipe	② Liquid pipe
PEFY-P20,25,32VMA-E	700	754	800	660	7	600	658	ø12.7	ø6.35
PEFY-P40,50VMA-E	900	954	1000	860	9	800	858		
PEFY-P63,71,80VMA-E	1100	1154	1200	1060	11	1000	1058	ø15.88	ø9.52
PEFY-P100,125VMA-E	1400	1454	1500	1360	14	1300	1358		
PEFY-P140VMA-E	1600	1654	1700	1560	16	1500	1558		

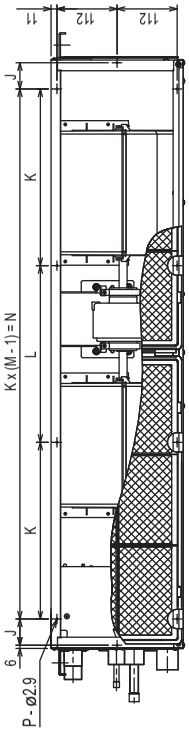


2. EXTERNAL DIMENSIONS

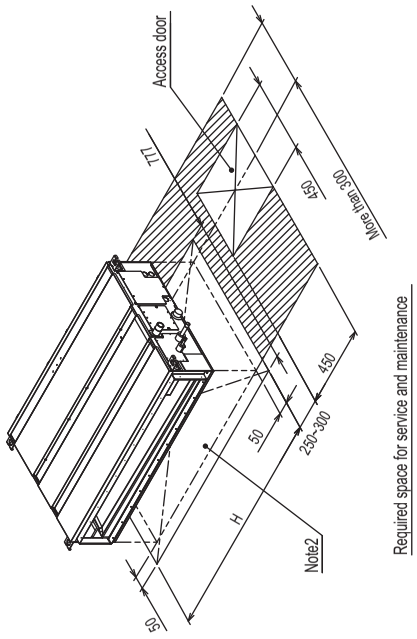
PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA-E

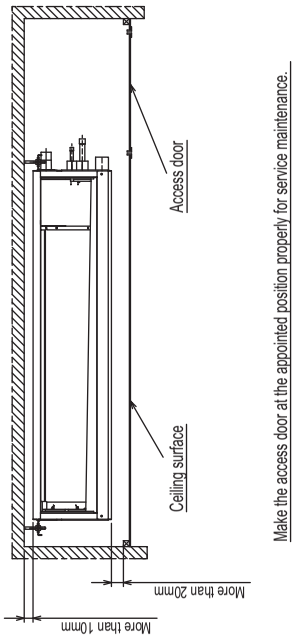
Unit : mm





Model	H	J	K	L	M	N	P
PEFY-P20,25,32VMA-E	800	44	150	300			10
PEFY-P40VMA-E	1000	54	260		4	780	10
PEFY-P50VMA-E							
PEFY-P63,71,80VMA-E	1200	49	330		4	990	10
PEFY-P100,125VMA-E	1500	54	320		5	1280	12
PEFY-P140VMA-E	1700	54	370		5	1480	12





PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA-E with filter box

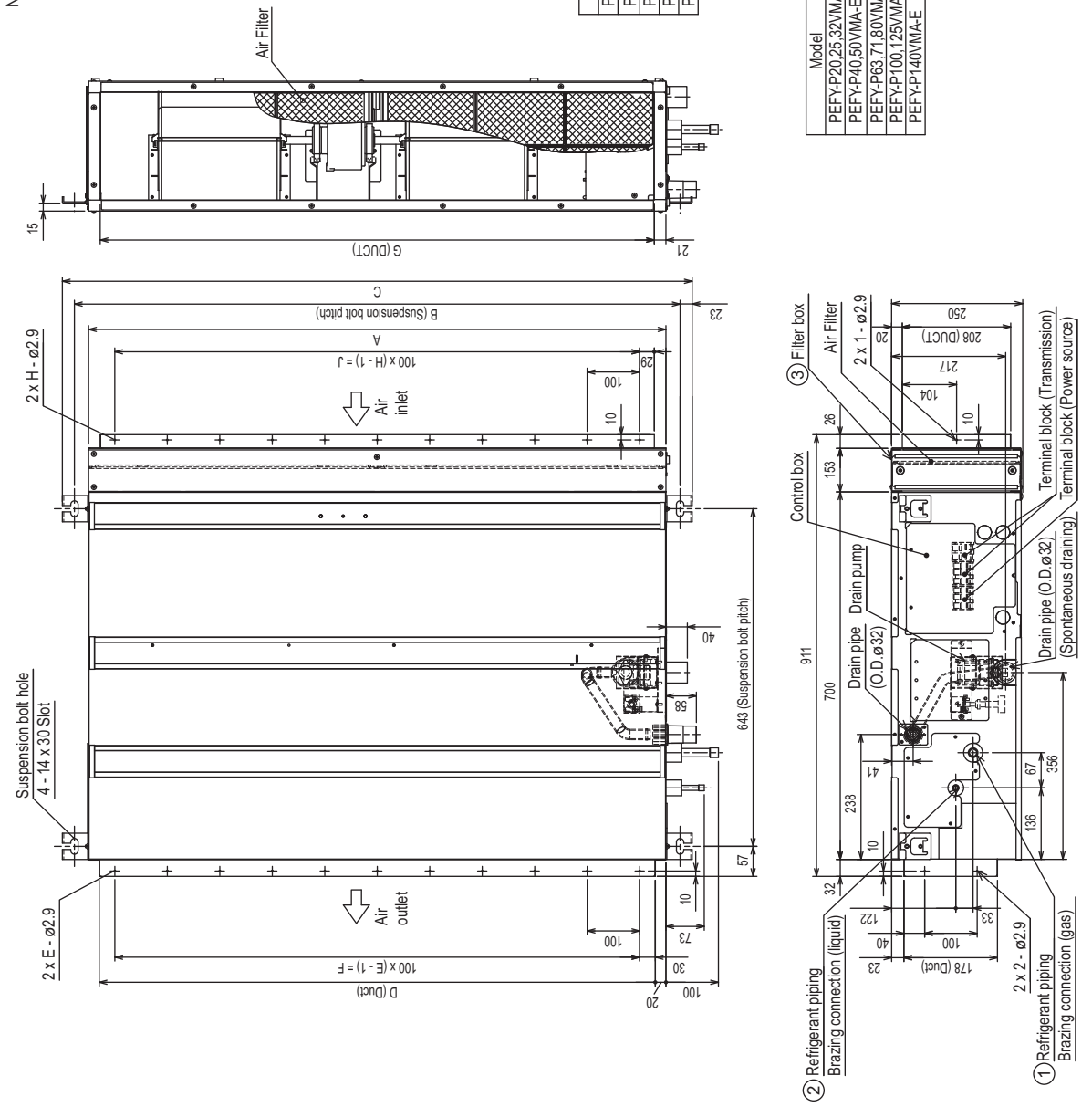
Unit : mm

Note 1. Use M10 screw for the Suspension bolt (field supply).
2. Keep the service space for the maintenance at the bottom.
3. This chart indicates for PEFY-P63·71·80·100·125·140VMA-E models, which have 2 fans. PEFY-P20·25·32·40·50VMA-E models have 1 fan.
4. Use air filter installed with indoor unit.

Model	① Gas pipe	② Liquid pipe	③ Filter box
PEFY-P20,25,32VMA-E	ø12.7	ø6.35	PAC-KE91TB-E
PEFY-P40,50VMA-E			PAC-KE92TB-E
PEFY-P63,71,80VMA-E	ø15.88	ø9.52	PAC-KE93TB-E
PEFY-P100,125VMA-E			PAC-KE94TB-E
PEFY-P140VMA-E			PAC-KE95TB-E

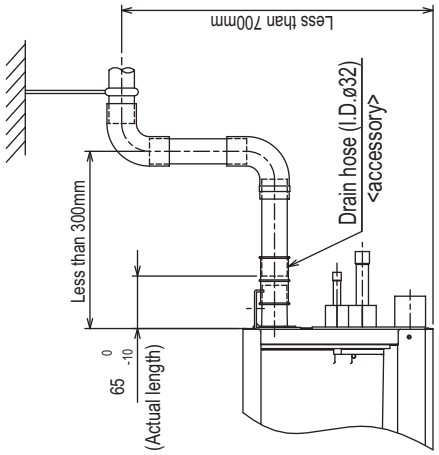
<Suction filetr box built-in specification>

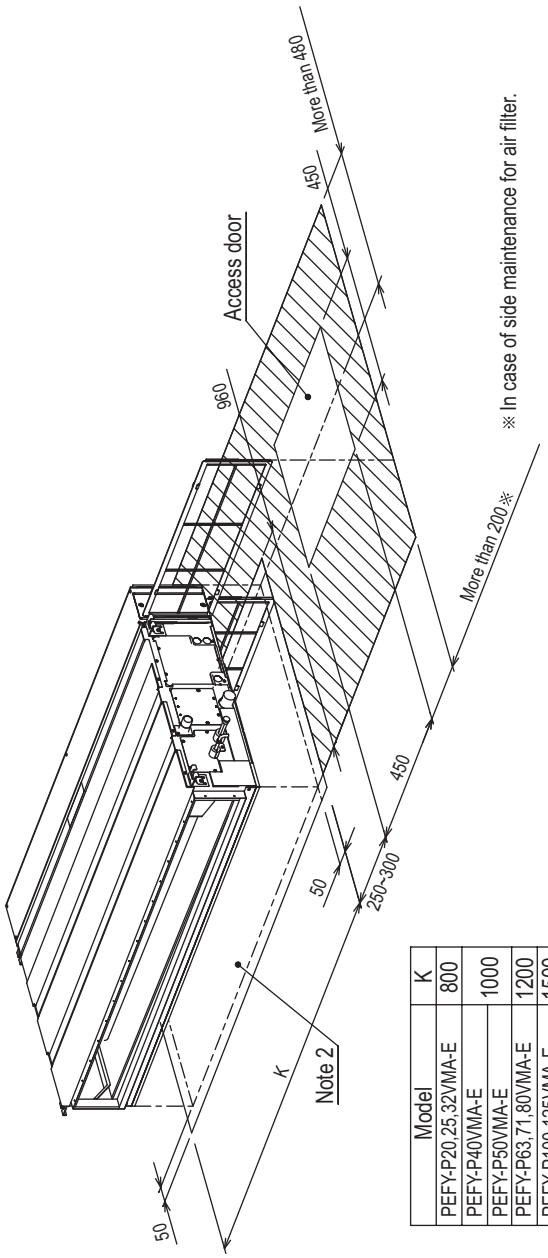
Model	A	B	C	D	E	F	G	H	J
PEFY-P20,25,32VMA-E	700	754	800	660	7	600	658	7	600
PEFY-P40,50VMA-E	900	954	1000	860	9	800	858	9	800
PEFY-P63,71,80VMA-E	1100	1154	1200	1060	11	1000	1058	11	1000
PEFY-P100,125VMA-E	1400	1454	1500	1360	14	1300	1358	14	1300
PEFY-P140VMA-E	1600	1654	1700	1560	16	1500	1558	16	1500



PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA-E with filter box

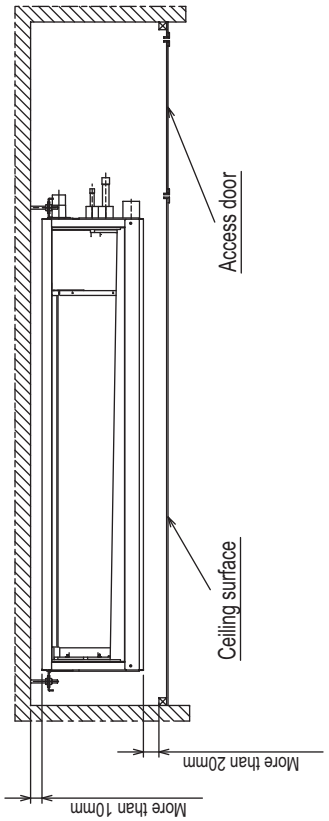
Unit : mm





Model	K
PEFY-P20,25,32VMA-E	800
PEFY-P40VMA-E	1000
PEFY-P50VMA-E	
PEFY-P63,71,80VMA-E	1200
PEFY-P100,125VMA-E	1500
PEFY-P140VMA-E	1700

Required space for service and maintenance



Make the access door at the appointed position properly for service maintenance.

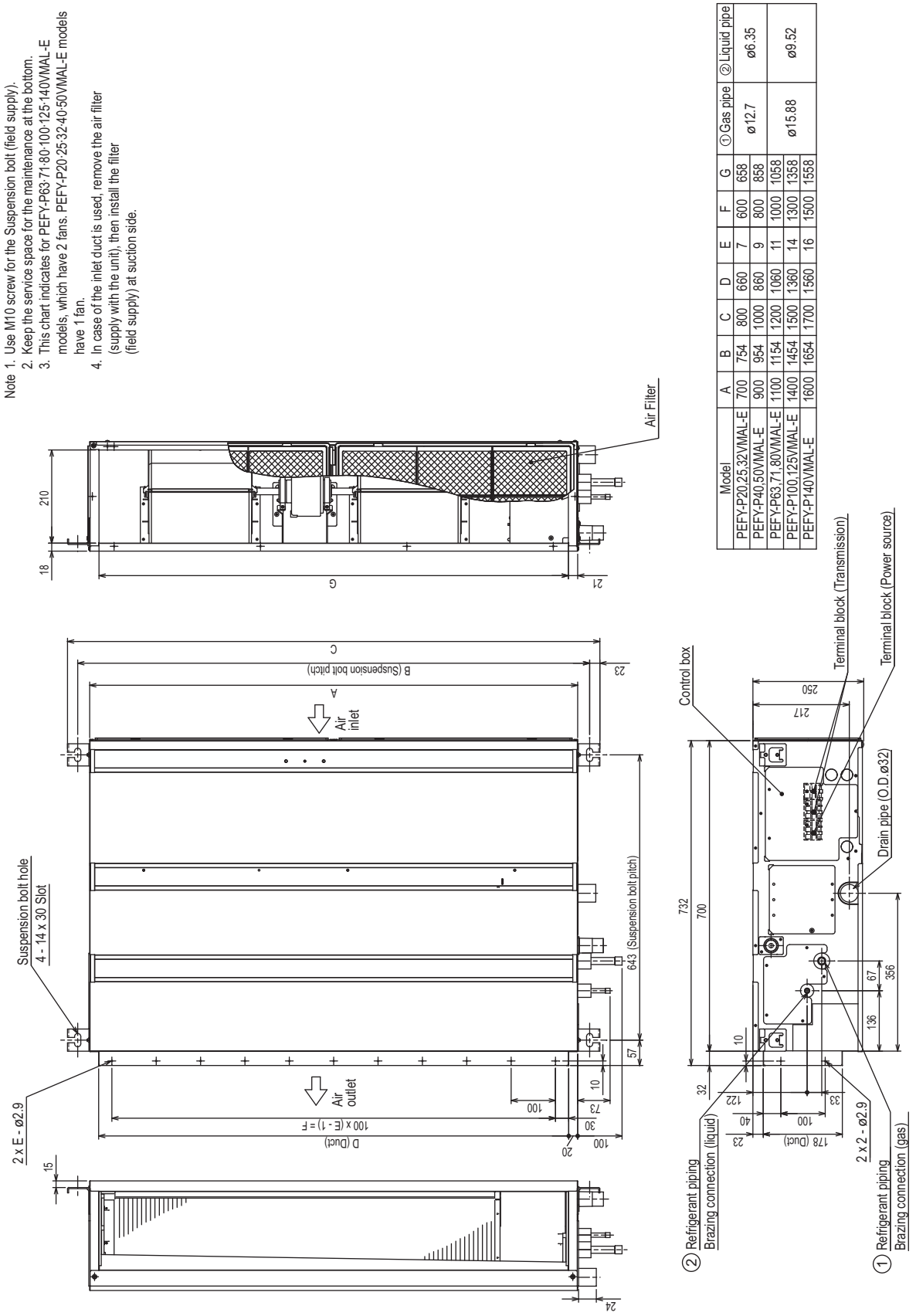
2. EXTERNAL DIMENSIONS

PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-E

Unit : mm

Note 1. Use M10 screw for the Suspension bolt (field supply).
2. Keep the service space for the maintenance at the bottom.
3. This chart indicates for PEFY-P63·71·80·100·125·140VMAL-E models, which have 2 fans. PEFY-P20·25·32·40·50VMAL-E models have 1 fan.
4. In case of the inlet duct is used, remove the air filter (supply with the unit), then install the filter (field supply) at suction side.

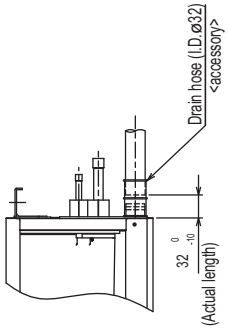
Model	A	B	C	D	E	F	G	① Gas pipe	② Liquid pipe
PEFY-P20,25,32VMAL-E	700	754	800	660	7	600	658	ø12.7	ø6.35
PEFY-P40,50VMAL-E	900	954	1000	860	9	800	858		
PEFY-P63,71,80VMAL-E	1100	1154	1200	1060	11	1000	1058	ø15.88	ø9.52
PEFY-P100,125VMAL-E	1400	1454	1500	1360	14	1300	1358		
PEFY-P140VMAL-E	1600	1654	1700	1560	16	1500	1558		

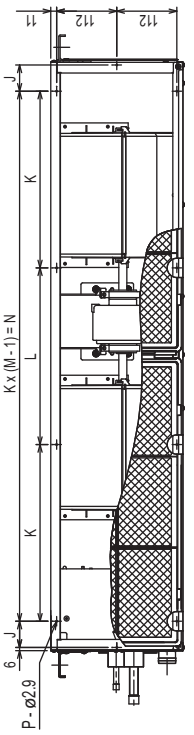


2. EXTERNAL DIMENSIONS

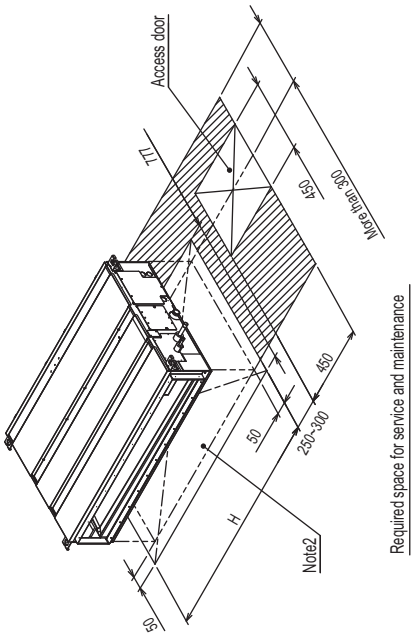
PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-E

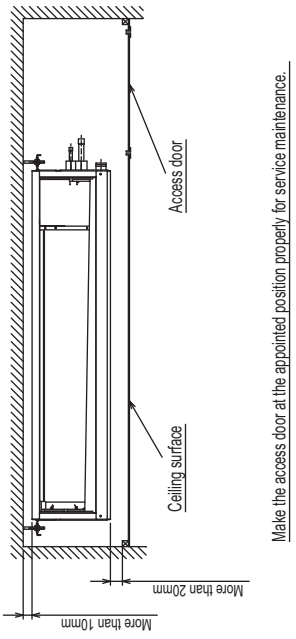
Unit : mm





Model	H	J	K	L	M	N	P
PEFY-P20,25,32VMAL-E	800	44	150	300			10
PEFY-P40VMAL-E	1000	54	260		4	780	10
PEFY-P50VMAL-E							
PEFY-P63,71,80VMAL-E	1200	49	330		4	990	10
PEFY-P100,125VMAL-E	1500	54	320		5	1280	12
PEFY-P140VMAL-E	1700	54	370		5	1480	12





PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-E with filter box

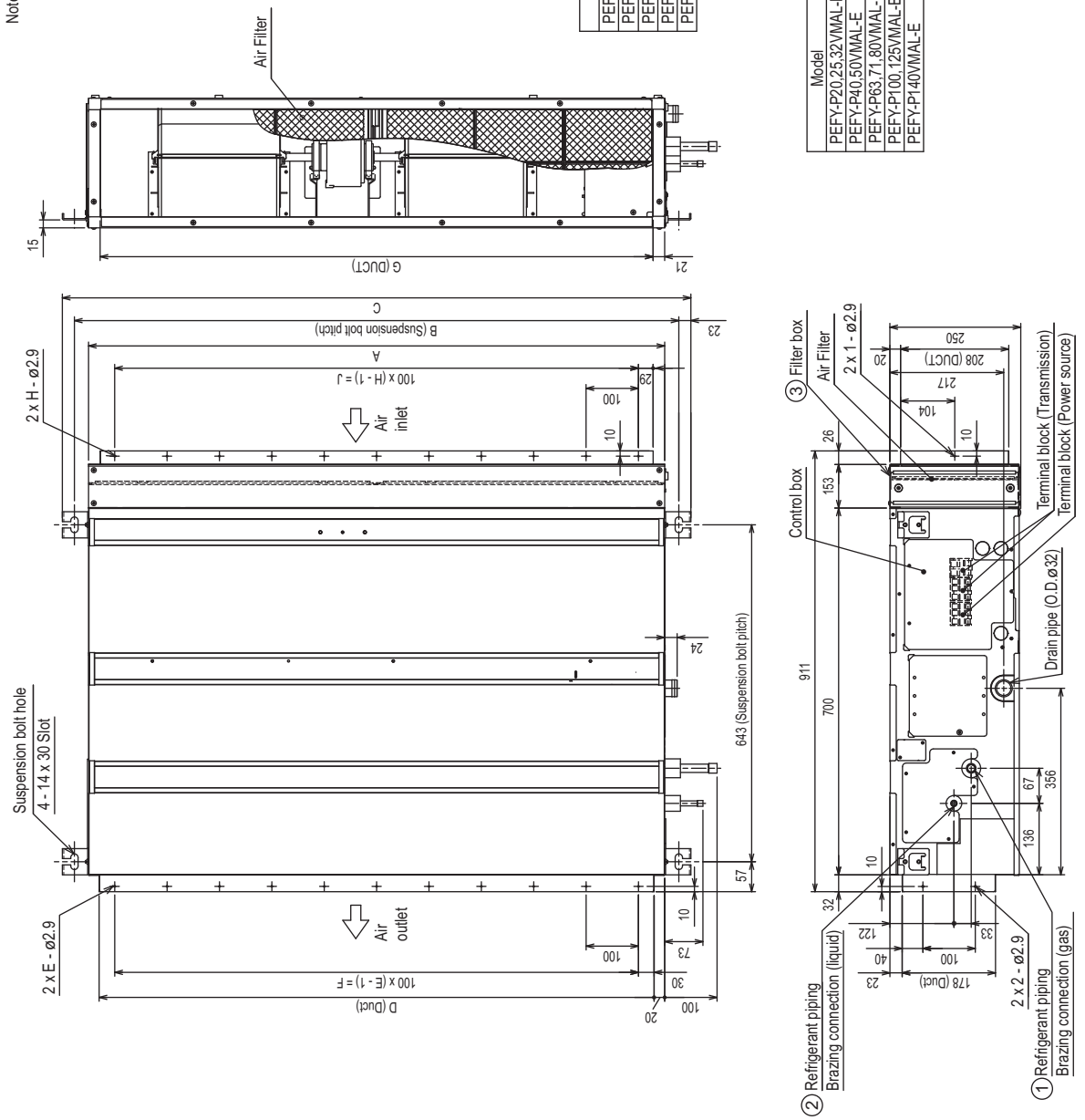
Unit : mm

Note 1. Use M10 screw for the Suspension bolt (field supply).
2. Keep the service space for the maintenance at the bottom.
3. This chart indicates for PEFY-P63·71·80·100·125·140VMAL-E models, which have 2 fans. PEFY-P20·25·32·40·50VMAL-E models have 1 fan.
4. Use air filter installed with indoor unit.

Model	①Gas pipe	②Liquid pipe	③Filter box
PEFY-P20,25,32VMAL-E	ø12.7	ø6.35	PAC-KE91TB-E
PEFY-P40,50VMAL-E			PAC-KE92TB-E
PEFY-P63,71,80VMAL-E	ø15.88	ø9.52	PAC-KE93TB-E
PEFY-P100,125VMAL-E			PAC-KE94TB-E
PEFY-P140VMAL-E			PAC-KE95TB-E

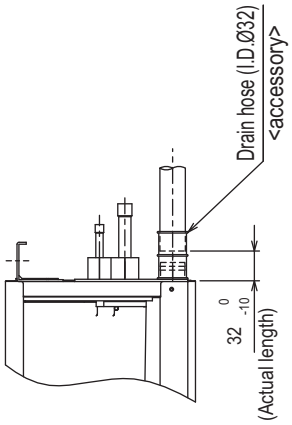
Model	A	B	C	D	E	F	G	H	J
PEFY-P20,25,32VMAL-E	700	754	800	660	7	600	658	7	600
PEFY-P40,50VMAL-E	900	954	1000	860	9	800	858	9	800
PEFY-P63,71,80VMAL-E	1100	1154	1200	1060	11	1000	1058	11	1000
PEFY-P100,125VMAL-E	1400	1454	1500	1360	14	1300	1358	14	1300
PEFY-P140VMAL-E	1600	1654	1700	1560	16	1500	1558	16	1500

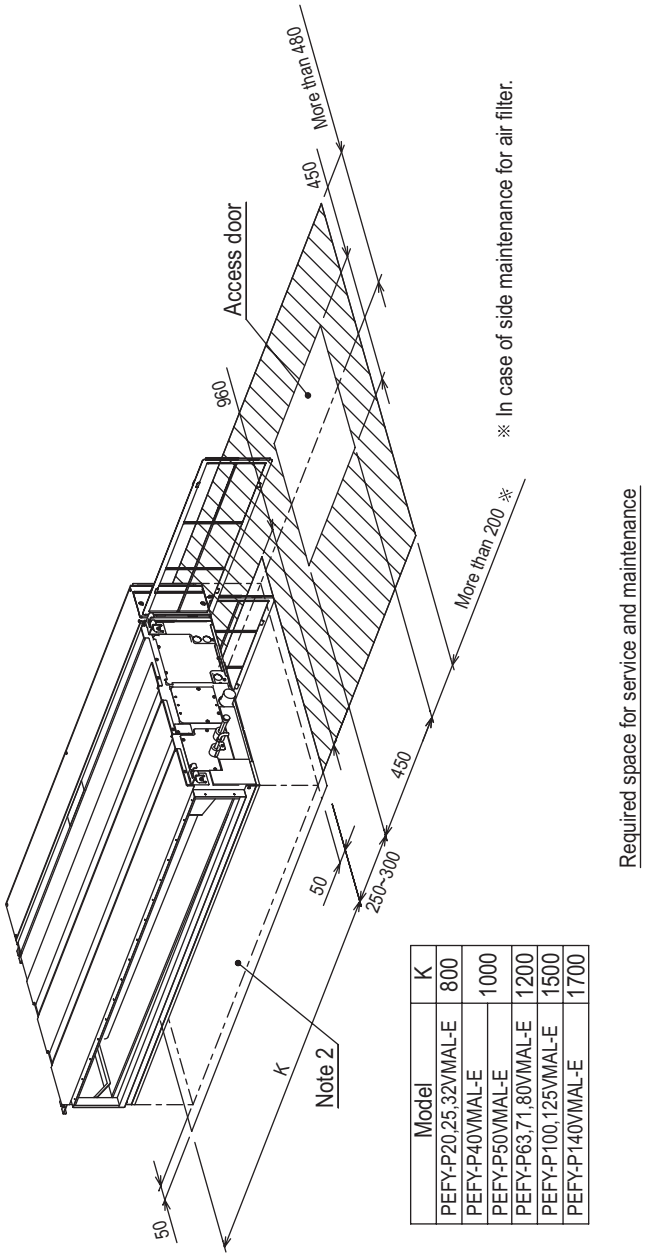
<Suction filetr box built-in specification>



PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-E with filter box

Unit : mm

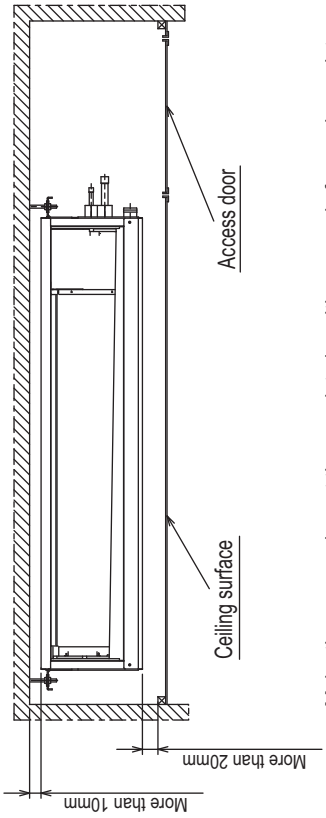




※ In case of side maintenance for air filter.

Required space for service and maintenance

Model	K
PEFY-P20,25,32VMAL-E	800
PEFY-P40VMAL-E	1000
PEFY-P50VMAL-E	
PEFY-P63,71,80VMAL-E	1200
PEFY-P100,125VMAL-E	1500
PEFY-P140VMAL-E	1700



Make the access door at the appointed position properly for service maintenance.

PEFY-P-VMHS-E

Model				PEFY-P40VMHS-E	PEFY-P50VMHS-E	PEFY-P63VMHS-E	PEFY-P71VMHS-E
Power source				1-phase 220-230-240 V 50/60 Hz	1-phase 220-230-240 V 50/60 Hz	1-phase 220-230-240 V 50/60 Hz	1-phase 220-230-240 V 50/60 Hz
Cooling capacity		*1	kW	4.5	5.6	7.1	8.0
(Nominal)		*1	kcal/h	3,900	4,800	6,100	6,900
		*1	BTU/h	15,400	19,100	24,200	27,300
	*2 Power input		kW	0.055	0.055	0.090	0.075
	*2 Current input		A	0.41 - 0.39 - 0.38	0.41 - 0.39 - 0.38	0.64 - 0.62 - 0.59	0.54 - 0.52 - 0.50
Heating capacity		*3	kW	5.0	6.3	8.0	9.0
(Nominal)		*3	kcal/h	4,300	5,400	6,900	7,700
		*3	BTU/h	17,100	21,500	27,300	30,700
	*2 Power input		kW	0.055	0.055	0.090	0.075
	*2 Current input		A	0.41 - 0.39 - 0.38	0.41 - 0.39 - 0.38	0.64 - 0.62 - 0.59	0.54 - 0.52 - 0.50
External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	Galvanized steel plate
External dimension H x W x D			mm	380 x 745 x 900	380 x 745 x 900	380 x 745 x 900	380 x 1,030 x 900
			in.	15 x 29-3/8 x 35-7/16	15 x 29-3/8 x 35-7/16	15 x 29-3/8 x 35-7/16	15 x 40-9/16 x 35-7/16
Net weight			kg (lbs)	35 (78)	35 (78)	35 (78)	45 (100)
Heat exchanger				Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)
FAN	Type x Quantity			Sirocco fan x 1	Sirocco fan x 1	Sirocco fan x 1	Sirocco fan x 2
	*4 External static press.		Pa	50 - <100> - <150> - <200>	50 - <100> - <150> - <200>	50 - <100> - <150> - <200>	50 - <100> - <150> - <200>
			mmH_2O	5.1 - <10.2> - <15.3> - <20.4>	5.1 - <10.2> - <15.3> - <20.4>	5.1 - <10.2> - <15.3> - <20.4>	5.1 - <10.2> - <15.3> - <20.4>
	Motor Type			DC motor	DC motor	DC motor	DC motor
	Motor output		kW	0.121	0.121	0.121	0.244
	Driving mechanism			Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	Direct-driven by motor
	Air flow rate			(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
			m^3/min	10.0 - 12.0 - 14.0	10.0 - 12.0 - 14.0	13.5 - 16.0 - 19.0	15.5 - 18.0 - 22.0
			L/s	167 - 200 - 233	167 - 200 - 233	225 - 267 - 317	258 - 300 - 367
			cfm	353 - 424 - 494	353 - 424 - 494	477 - 565 - 671	547 - 636 - 777
Sound pressure level (measured in anechoic room)				(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
		*2	dB <A>	20-23-27	20-23-27	24-27-32	24-26-30
Insulation material				Polystyrene foam, Polyethylene foam, Urethane foam	Polystyrene foam, Polyethylene foam, Urethane foam	Polystyrene foam, Polyethylene foam, Urethane foam	Polystyrene foam, Polyethylene foam, Urethane foam
Air filter				Option:Synthetic fiber unwoven cloth filter (long life filter) and filter box are recommended.	Option:Synthetic fiber unwoven cloth filter (long life filter) and filter box are recommended.	Option:Synthetic fiber unwoven cloth filter (long life filter) and filter box are recommended.	Option:Synthetic fiber unwoven cloth filter (long life filter) and filter box are recommended.
Protection device				Fuse	Fuse	Fuse	Fuse
Refrigerant control device				LEV	LEV	LEV	LEV
Connectable outdoor unit				R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI
Refrigerant piping	Liquid (R410A)		mm (in.)	6.35 (1/4)Brazed	6.35 (1/4)Brazed	9.52 (3/8)Brazed	9.52 (3/8)Brazed
diameter	Gas (R410A)		mm (in.)	12.7 (1/2)Brazed	12.7 (1/2)Brazed	15.88 (5/8)Brazed	15.88 (5/8)Brazed
Field drain pipe size			mm (in.)	O.D.32 (1-1/4)	O.D.32 (1-1/4)	O.D.32 (1-1/4)	O.D.32 (1-1/4)
Drawing	External			KL94C742	KL94C742	KL94C742	KL94C742
	Wiring			KL94C743	KL94C743	KL94C743	KL94C743
	Refrigerant cycle			-	-	-	-
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book
	Accessory			Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band
Optional parts	Drain pump kit			PAC-DRP10DP-E2	PAC-DRP10DP-E2	PAC-DRP10DP-E2	PAC-DRP10DP-E2
	Long life filter			PAC-KE86LAF	PAC-KE86LAF	PAC-KE86LAF	PAC-KE88LAF
	Filter box			PAC-KE63TB-F	PAC-KE63TB-F	PAC-KE63TB-F	PAC-KE99TB-F
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.			

Notes:

1.Nominal cooling conditions
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B. (95°FD.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.The values are measured at the factory setting of external static pressure.
3.Nominal heating conditions
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
4.The factory setting of external static pressure is shown without < >.
Refer to "Fan characteristics curves", according to the external static pressure, in DATA BOOK for the usable range of air flow rate.

Unit converter	
kcal	=kW x 860
BTU/h	=kW x 3,412
cfm	$=m^3$/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

Model				PEFY-P80VMHS-E	PEFY-P100VMHS-E	PEFY-P125VMHS-E	PEFY-P140VMHS-E
Power source				1-phase 220-230-240 V 50/60 Hz	1-phase 220-230-240 V 50/60 Hz	1-phase 220-230-240 V 50/60 Hz	1-phase 220-230-240 V 50/60 Hz
Cooling capacity (Nominal)		*1	kW	9.0	11.2	14.0	16.0
		*1	kcal/h	7,700	9,600	12,000	13,800
		*1	BTU/h	30,700	38,200	47,800	54,600
	*2	Power input	kW	0.090	0.160	0.160	0.190
	*2	Current input	A	0.63 - 0.61 - 0.58	1.05 - 1.01 - 0.96	1.05 - 1.01 - 0.96	1.24 - 1.19 - 1.14
Heating capacity (Nominal)		*3	kW	10.0	12.5	16.0	18.0
		*3	kcal/h	8,600	10,800	13,800	15,500
		*3	BTU/h	34,100	42,700	54,600	61,400
	*2	Power input	kW	0.090	0.160	0.160	0.190
	*2	Current input	A	0.63 - 0.61 - 0.58	1.05 - 1.01 - 0.96	1.05 - 1.01 - 0.96	1.24 - 1.19 - 1.14
External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	Galvanized steel plate
External dimension H x W x D			mm	380 x 1,030 x 900	380 x 1,195 x 900	380 x 1,195 x 900	380 x 1,195 x 900
			in.	15 x 40-9/16 x 35-7/16	15 x 47-1/16 x 35-7/16	15 x 47-1/16 x 35-7/16	15 x 47-1/16 x 35-7/16
Net weight			kg (lbs)	45 (100)	51 (113)	51 (113)	53 (117)
Heat exchanger				Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)
FAN	Type x Quantity			Sirocco fan x 2	Sirocco fan x 2	Sirocco fan x 2	Sirocco fan x 2
*4	External static press.		Pa	50 - <100> - <150> - <200>	50 - <100> - <150> - <200>	50 - <100> - <150> - <200>	50 - <100> - <150> - <200>
			mmH_2O	5.1 - <10.2> - <15.3> - <20.4>	5.1 - <10.2> - <15.3> - <20.4>	5.1 - <10.2> - <15.3> - <20.4>	5.1 - <10.2> - <15.3> - <20.4>
	Motor Type			DC motor	DC motor	DC motor	DC motor
	Motor output		kW	0.244	0.375	0.375	0.375
	Driving mechanism			Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	Direct-driven by motor
	Air flow rate			(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
			m^3/min	18.0 - 21.5 - 25.0	26.5 - 32.0 - 38.0	26.5 - 32.0 - 38.0	28.0 - 34.0 - 40.0
			L/s	300 - 358 - 417	442 - 533 - 633	442 - 533 - 633	467 - 567 - 667
			cfm	636 - 759 - 883	936 - 1,130 - 1,342	936 - 1,130 - 1,342	989 - 1,201 - 1,412
Sound pressure level (measured in anechoic room)				(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
		*2	dB <A>	25-27-30	27-31-34	27-31-34	27-32-36
Insulation material				Polystyrene foam, Polyethylene foam, Urethane foam	Polystyrene foam, Polyethylene foam, Urethane foam	Polystyrene foam, Polyethylene foam, Urethane foam	Polystyrene foam, Polyethylene foam, Urethane foam
Air filter				Option:Synthetic fiber unwoven cloth filter (long life filter) and filter box are recommended.	Option:Synthetic fiber unwoven cloth filter (long life filter) and filter box are recommended.	Option:Synthetic fiber unwoven cloth filter (long life filter) and filter box are recommended.	Option:Synthetic fiber unwoven cloth filter (long life filter) and filter box are recommended.
Protection device				Fuse	Fuse	Fuse	Fuse
Refrigerant control device				LEV	LEV	LEV	LEV
Connectable outdoor unit				R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI	R410A CITY MULTI
Refrigerant piping diameter	Liquid	(R410A)	mm (in.)	9.52 (3/8)Brazed	9.52 (3/8)Brazed	9.52 (3/8)Brazed	9.52 (3/8)Brazed
	Gas	(R410A)	mm (in.)	15.88 (5/8)Brazed	15.88 (5/8)Brazed	15.88 (5/8)Brazed	15.88 (5/8)Brazed
Field drain pipe size			mm (in.)	O.D.32 (1-1/4)	O.D.32 (1-1/4)	O.D.32 (1-1/4)	O.D.32 (1-1/4)
Drawing	External			KL94C742	KL94C742	KL94C742	KL94C742
	Wiring			KL94C743	KL94C743	KL94C743	KL94C743
	Refrigerant cycle			-	-	-	-
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book
	Accessory			Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band
Optional parts	Drain pump kit			PAC-DRP10DP-E2	PAC-DRP10DP-E2	PAC-DRP10DP-E2	PAC-DRP10DP-E2
	Long life filter			PAC-KE88LAF	PAC-KE89LAF	PAC-KE89LAF	PAC-KE89LAF
	Filter box			PAC-KE99TB-F	PAC-KE140TB-F	PAC-KE140TB-F	PAC-KE140TB-F
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.			

Notes:

1.Nominal cooling conditions
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B. (95°FD.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.The values are measured at the factory setting of external static pressure.
3.Nominal heating conditions
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
4.The factory setting of external static pressure is shown without < >.
Refer to "Fan characteristics curves", according to the external static pressure, in DATA BOOK for the usable range of air flow rate.

Unit converter

kcal	=kW x 860
BTU/h	=kW x 3,412
cfm	$=m^3$/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

Model				PEFY-P200VMHS-E	PEFY-P250VMHS-E		
Power source				1-phase 220-230-240V 50/60Hz	1-phase 220-230-240V 50/60Hz		
Cooling capacity		*1	kW	22.4	28.0		
(Nominal)		*1	kcal / h	19,300	24,100		
		*1	BTU / h	76,400	95,500		
	*2	Power input	kW	0.63	0.82		
	*2	Current input	A	3.47 - 3.32 - 3.18 (220-230-240V)	4.72 - 4.43 - 4.14 (220-230-240V)		
Heating capacity		*3	kW	25.0	31.5		
(Nominal)		*3	kcal / h	21,500	27,100		
		*3	BTU / h	85,300	107,500		
	*2	Power input	kW	0.63	0.82		
	*2	Current input	A	3.47 - 3.32 - 3.18 (220-230-240V)	4.72 - 4.43 - 4.14 (220-230-240V)		
External finish				Galvanized steel plate	Galvanized steel plate		
External dimension HxWxD			mm	470 x 1,250 x 1,120	470 x 1,250 x 1,120		
			inch	18-1/2 x 49-1/4 x 44-1/8	18-1/2 x 49-1/4 x 44-1/8		
Net weight			kg(lbs)	97(214)	100(221)		
Heat exchanger				Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)		
FAN	Type x Quantity			Sirocco fan x 2	Sirocco fan x 2		
	*4 External static press.		Pa	<50> - <100> - 150 - <200> - <250>	<50> - <100> - 150 - <200> - <250>		
			mmH_2O	<5.1> - <10.2> - 15.3 - <20.4> - <25.5>	<5.1> - <10.2> - 15.3 - <20.4> - <25.5>		
	Motor Type			DC motor	DC motor		
	Motor output		kW	0.870	0.870		
	Driving mechanism			Inverter-control	Inverter-control		
	Air flow rate			(Low-Mid-High)	(Low-Mid-High)		
			m^3 / min	50.0 - 61.0 - 72.0	58.0 - 71.0 - 84.0		
			L/s	833 - 1,017 - 1,200	967 - 1,183 - 1,400		
			cfm	1,766 - 2,154 - 2,542	2,048 - 2,507 - 2,966		
Sound pressure level (measured in anechoic room)				(Low-Mid-High)	(Low-Mid-High)		
		*2	dB <A>	36-39-43	39-42-46		
Insulation material				EPS, Polyethylene foam, Urethane foam	EPS, Polyethylene foam, Urethane foam		
Air filter				Option: Synthetic fiber unwoven cloth filter (long life filter) and filter box are recommended.	Option: Synthetic fiber unwoven cloth filter (long life filter) and filter box are recommended.		
Protection device				Fuse	Fuse		
Refrigerant control device				LEV	LEV		
Connectable outdoor unit				R410A CITY MULTI	R410A CITY MULTI		
Diameter of refrigerant	Liquid (R410A)		mm(inch)	9.52(3/8")Brazed	9.52(3/8")Brazed		
pipe	Gas (R410A)		mm(inch)	19.05(3/4")Brazed	22.22(7/8")Brazed		
Field drain pipe size			mm(inch)	O.D.32(1-1/4")	O.D.32(1-1/4")		
Drawing	External			KD94G757	KD94G757		
	Wiring			KD94G911	KD94G911		
	Refrigerant cycle			-	-		
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book		
	Accessory			Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band	Insulation pipe for refrigerant pipe, Washer, Drain hose, Tie band		
Optional parts	Drain pump kit			PAC-KE05DM-F	PAC-KE05DM-F		
	Long life filter			PAC-KE85LAF	PAC-KE85LAF		
	Filter box			PAC-KE250TB-F	PAC-KE250TB-F		
Remark				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.			

Notes:

1. Nominal cooling conditions (subject to JIS B8615-2)
   Indoor: 27°CDB/19°CWB (81°FDB/66°FWB), Outdoor: 35°CDB (95°FDB)
   Pipe length: 7.5m (24-9/16"ft.), Level difference: 0m (0ft.)
2. The values are measured at the factory setting of external static pressure.
3. Nominal heating conditions (subject to JIS B8615-2)
   Indoor: 20°CDB (68°FDB), Outdoor: 7°CDB/6°CWB (45°FDB/43°FWB)
   Pipe length: 7.5m (24-9/16"ft.) Level, difference: 0m(0ft.)
4. The factory setting of external static pressure is shown without < >.
   Refer to "Fan characteristics curves", according to the external static pressure, in DATA BOOK for the usable range of air flow rate.

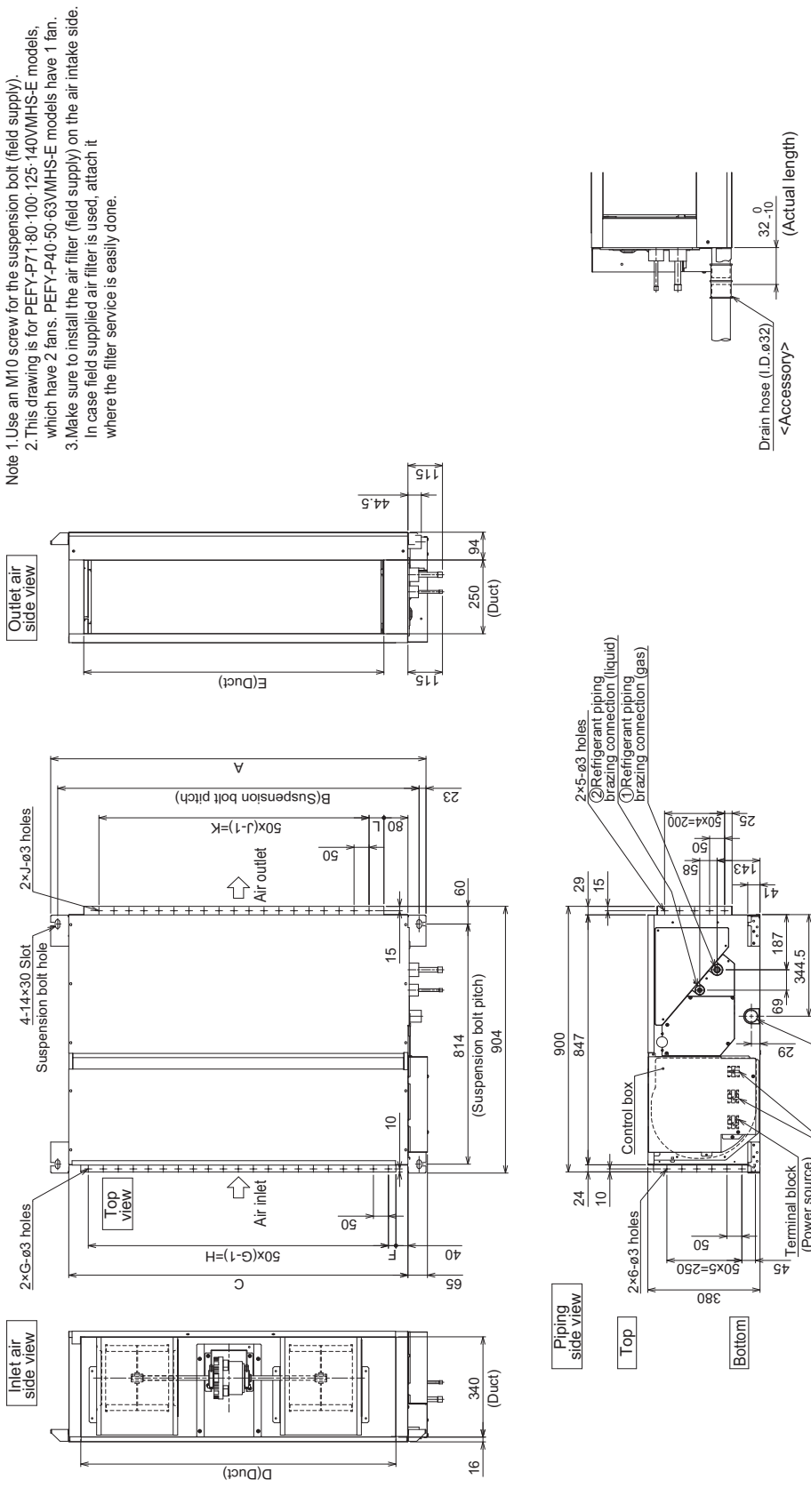
Unit converter

kcal/h	=kW x 860
BTU/h	=kW x 3,412
cfm	$=m^3$/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

PEFY-P40, 50, 63, 71, 80, 100, 125, 140VMHS-E

Unit: mm



Model	A	B	C	D	E	F	G	H	J	K	L	① Gas pipe	② Liquid pipe
PEFY-P40·50VMHS-E	800	754	680	600	550	50	11	500	10	450	50	ø12.7	ø6.35
PEFY-P63VMHS-E													
PEFY-P71·80VMHS-E	1085	1039	965	885	835	42.5	17	800	15	700	67	ø15.88	ø9.52
PEFY-P100·125·140VMHS-E	1250	1204	1130	1050	1000	25	21	1000	19	900	50		

Unit: mm

[Maintenance access space]

Secure enough access space to allow for the maintenance,inspection,and replacement of the motor,fan,heat exchanger, drain pan and control box in one of the following ways.
Select an installation site for the indoor unit so that it's maintenance access space will not be obstructed by beam or other objects.

Create access door 1(450x450mm) for the maintenance from the unit side when the thermistor,LEV and control box is exchanged.(Fig.2,4)

(1) When a space of 300mm or more is available below the unit between the unit and the ceiling.
Create access door 2(600x600mm) for the maintenance from the bottom when the motor,fan,heat exchanger and drain pan is cleaned(exchanged).(Fig.2)

(2) When a space of less than 300mm is available below the unit between the unit and the ceiling.
(At least 20mm of space should be left below the unit as shown in Fig.3.)
Create access door 3 for the maintenance from the bottom when the motor,fan,heat exchanger and drain pan is cleaned(exchanged).(Fig.4)

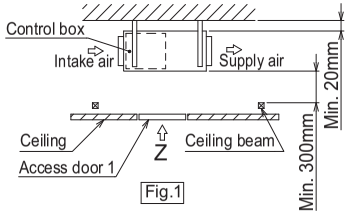


Fig.1

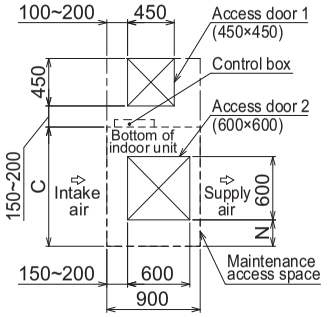


Fig.2 (Viewed from the direction of the arrow Z)

Model	C	M	N
PEFY-P40·50VMHS-E	680	780	0~50
PEFY-P63VMSH-E			
PEFY-P71·80VMHS-E	965	1065	100~150
PEFY-P100·125·140VMHS-E	1130	1230	200~250

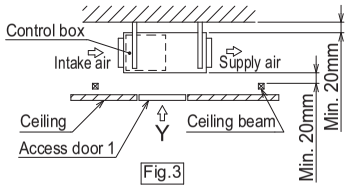


Fig.3

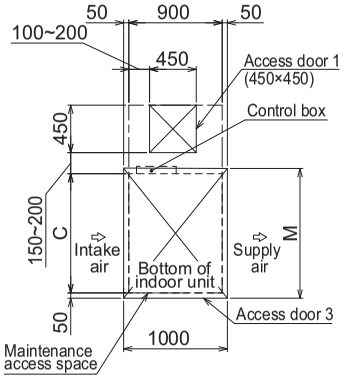
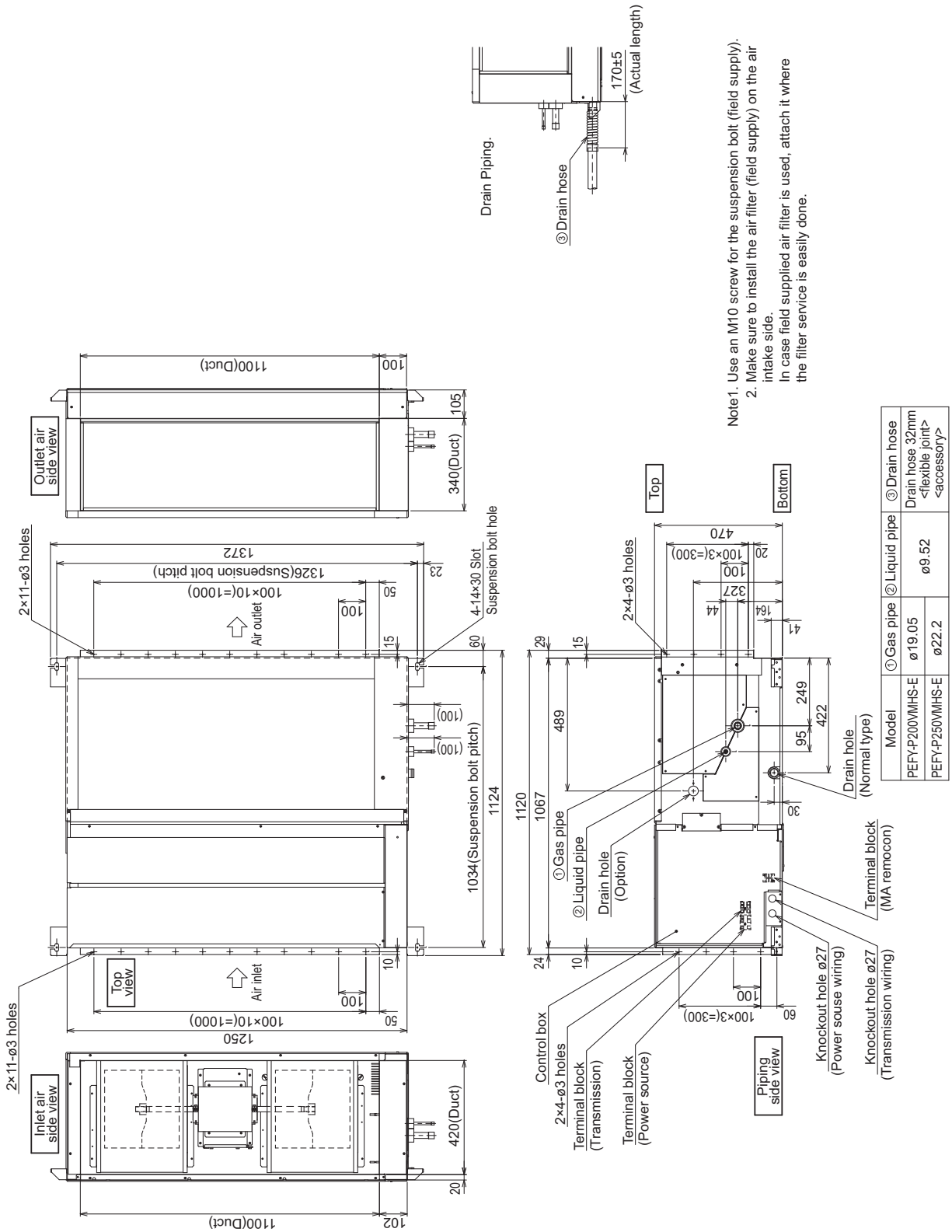


Fig.4 (Viewed from the direction of the arrow Y)

PEFY-P200, 250VMHS-E

Unit: mm



[Maintenance access space]

Secure enough access space to allow for the maintenance,inspection,and replacement of the motor,fan,heat exchanger, drain pan and control box in one of the following ways.

Select an installation site for the indoor unit so that it's maintenance access space will not be obstructed by beam or other objects.

Create access door 1(450×450mm) for the maintenance from the unit side when the thermistor,LEV and control box is exchanged.(Fig.2,4)

(1) When a space of 500mm or more is available below the unit between the unit and the ceiling.
Create access door 2(600×600mm) for the maintenance from the bottom when the motor,fan,heat exchanger and drain pan is cleaned(exchanged).(Fig.2)

(2) When a space of less than 500mm is available below the unit between the unit and the ceiling.
(At least 20mm of space should be left below the unit as shown in Fig.3.)
Create access door 3 for the maintenance from the bottom when the motor,fan,heat exchanger and drain pan is cleaned(exchanged).(Fig.4)

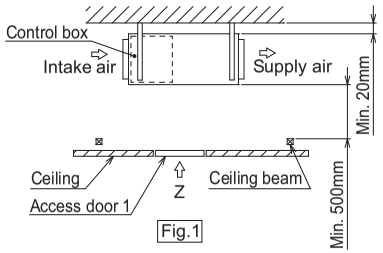


Fig.1

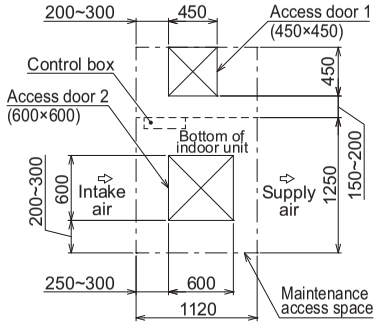


Fig.2 (Viewed from the direction of the arrow Z)

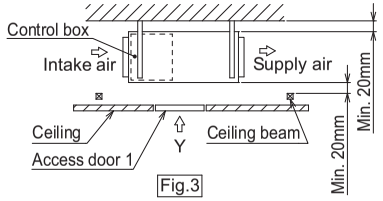


Fig.3

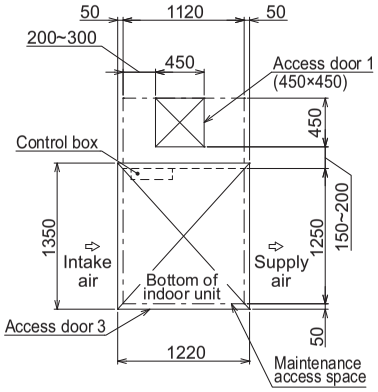
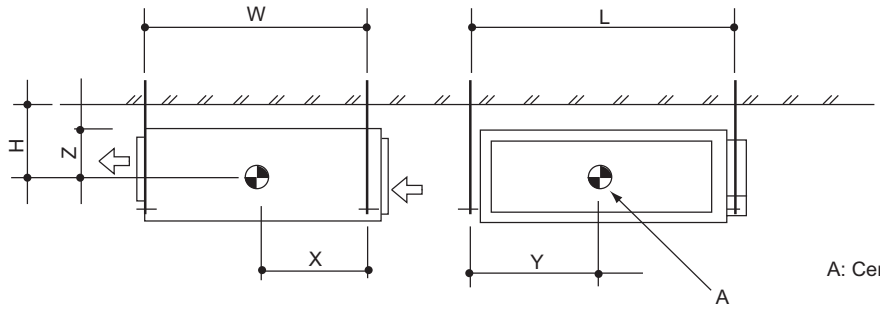


Fig.4 (Viewed from the direction of the arrow Y)

Unit: mm

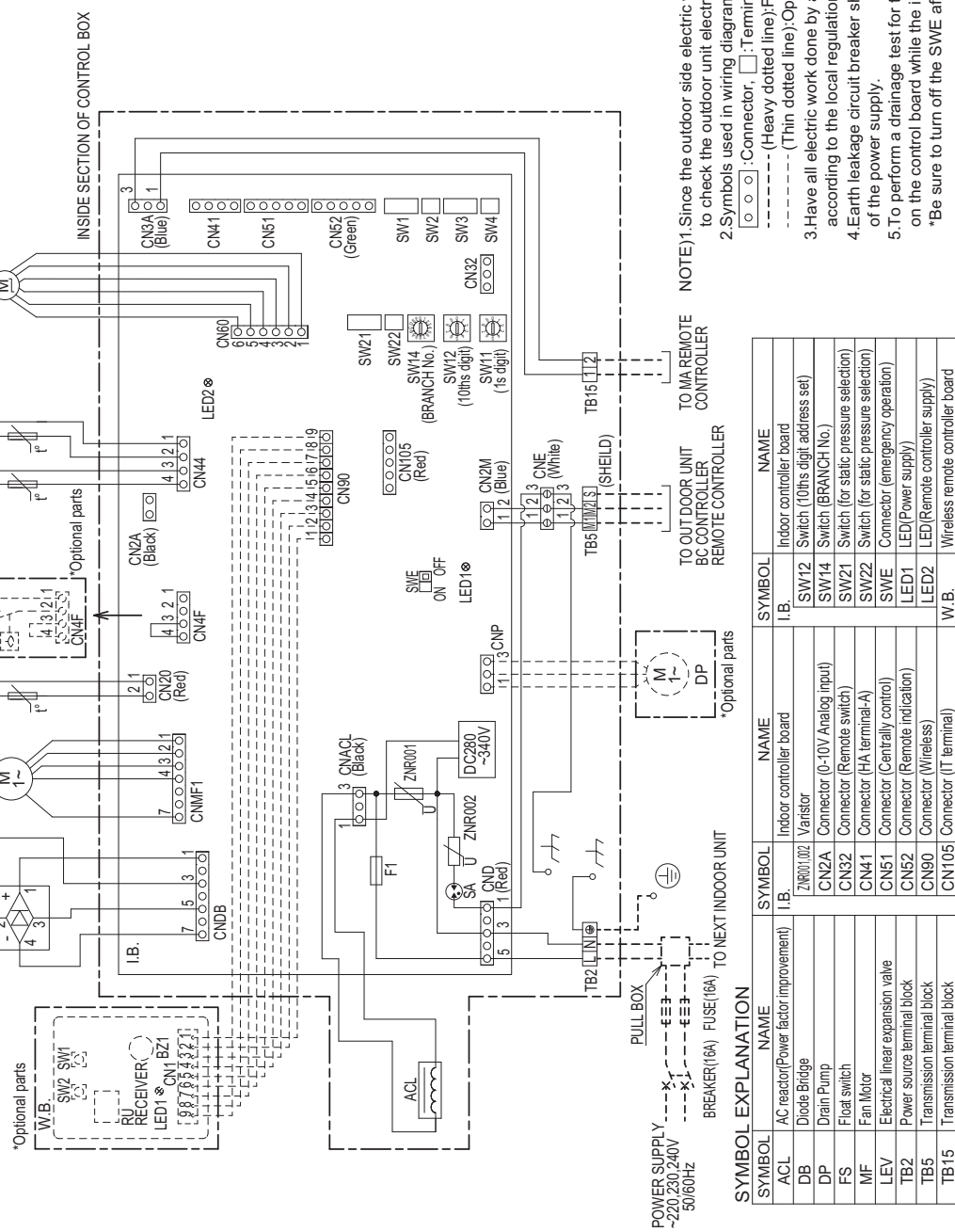
PEFY-P40, 50, 63, 71, 80, 100, 125, 140, 200, 250VMHS-E



(mm)[in]

Model name	W	L	H	X	Y	Z
PEFY-P40VMHS-E	814 [32-1/16]	754 [29-11/16]	210 [8-9/32]	374 [14-3/4]	440 [17-11/32]	190 [7-1/2]
PEFY-P50VMHS-E	814 [32-1/16]	754 [29-11/16]	210 [8-9/32]	374 [14-3/4]	440 [17-11/32]	190 [7-1/2]
PEFY-P63VMHS-E	814 [32-1/16]	754 [29-11/16]	210 [8-9/32]	374 [14-3/4]	440 [17-11/32]	190 [7-1/2]
PEFY-P71VMHS-E	814 [32-1/16]	1039 [40-15/16]	210 [8-9/32]	364 [14-11/32]	548 [21-5/8]	190 [7-1/2]
PEFY-P80VMHS-E	814 [32-1/16]	1039 [40-15/16]	210 [8-9/32]	364 [14-11/32]	548 [21-5/8]	190 [7-1/2]
PEFY-P100VMHS-E	814 [32-1/16]	1204 [47-13/32]	210 [8-9/32]	364 [14-11/32]	649 [25-9/16]	190 [7-1/2]
PEFY-P125VMHS-E	814 [32-1/16]	1204 [47-13/32]	210 [8-9/32]	364 [14-11/32]	649 [25-9/16]	190 [7-1/2]
PEFY-P140VMHS-E	814 [32-1/16]	1204 [47-13/32]	210 [8-9/32]	364 [14-11/32]	649 [25-9/16]	190 [7-1/2]
PEFY-P200VMHS-E	1034 [40-23/32]	1326 [52-7/32]	255 [10-1/16]	462 [18-7/32]	660 [25-32/32]	235 [9-9/32]
PEFY-P250VMHS-E	1034 [40-23/32]	1326 [52-7/32]	255 [10-1/16]	462 [18-7/32]	660 [25-32/32]	235 [9-9/32]

PEFY-P40,50,63,71,80,100,125,140VMHS-E



NOTE)1.Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.
2.Symbols used in wiring diagram are
○ ○ ○ :Connector, □ :Terminal,
- - - - - - -:(Heavy dotted line):Field wiring,
- - - - - - -:(Thin dotted line):Optional parts.
3.Have all electric work done by a licensed electrician according to the local regulations.
4.Earth leakage circuit breaker should be set up on the wiring of the power supply.
5.To perform a drainage test for the drain pump turn on the SWE on the control board while the indoor unit is being powered.
*Be sure to turn off the SWE after completing a drainage test or test run.

SYMBOL EXPLANATION

SYMBOL	NAME
ACL	AC reactor(Power factor improvement)
DB	Diode Bridge
DP	Drain Pump
FS	Float switch
MF	Fan Motor
LEV	Electrical linear expansion valve
TB2	Power source terminal block
TB5	Transmission terminal block
TB15	Transmission terminal block
TH21	Thermistor (inlet air temp.detection)
TH22	Thermistor (piping temp.detection/liquid)
TH23	Thermistor (piping temp.detection/gas)
I.B.	Indoor controller board
SA	Arrester
F1	Fuse AC250V 6.3A

SYMBOL	NAME
I.B.	Indoor controller board
ZNR001,002	Varistor
CN2A	Connector (0-10V Analog input)
CN32	Connector (Remote switch)
CN41	Connector (HA terminal-A)
CN51	Connector (Centrally control)
CN52	Connector (Remote indication)
CN90	Connector (Wireless)
CN105	Connector (IT terminal)
SW1	Switch (for mode selection)
SW2	Switch (for capacity code)
SW3	Switch (for mode selection)
SW4	Switch (for model selection)
SW11	Switch (1s digit address set)

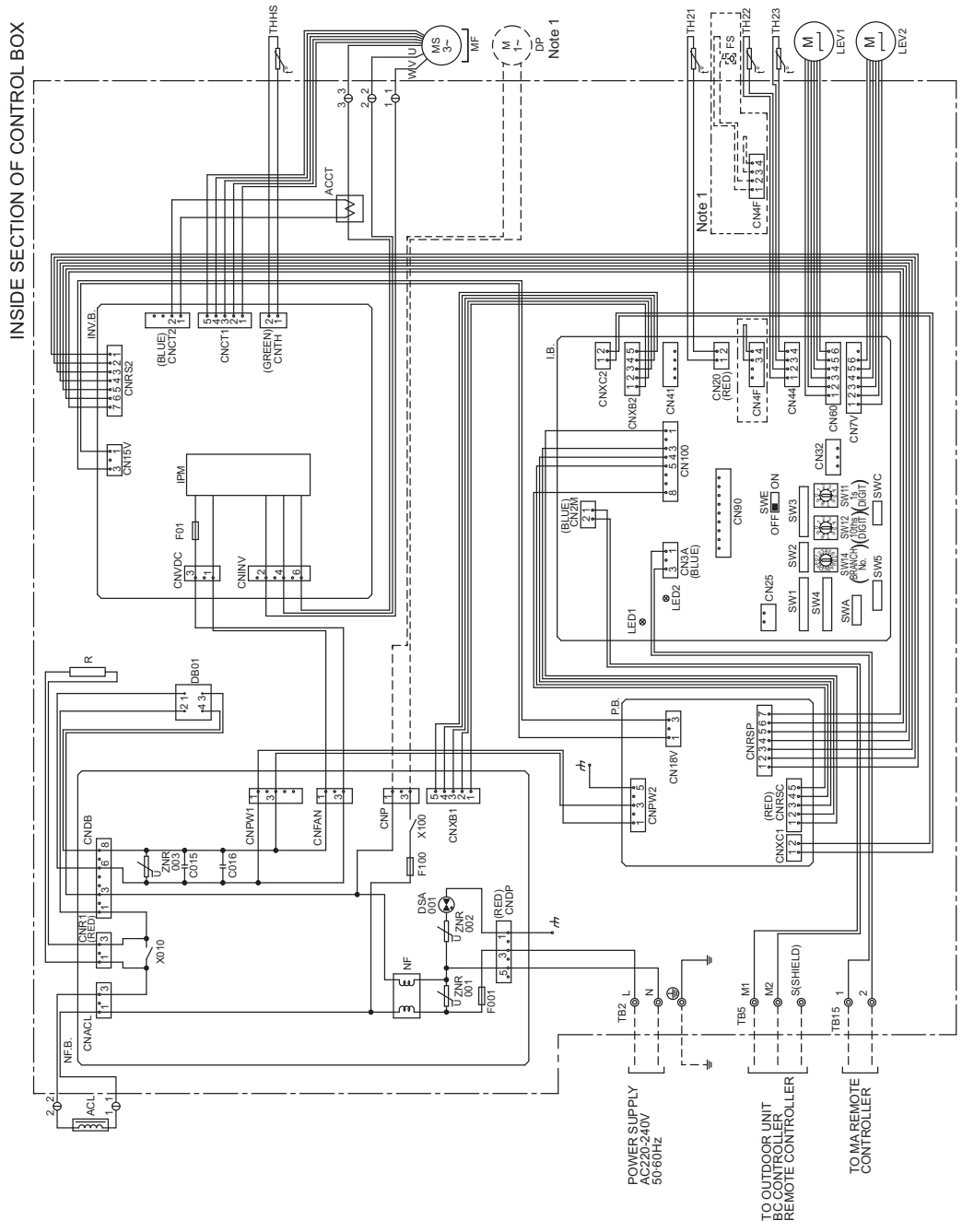
SYMBOL	NAME
I.B.	Indoor controller board
SW12	Switch (10ths digit address set)
SW14	Switch (BRANCH No.)
SW21	Switch (for static pressure selection)
SW22	Switch (for static pressure selection)
SWE	Connector (emergency operation)
LED1	LED(Power supply)
LED2	LED(Remote controller supply)
W.B.	Wireless remote controller board
BZ1	Buzzer
LED1	LED(Run indicstor)
RU	Receiving unit
SW1	Switch (Heating on/off)
SW2	Switch (Cooling on/off)

PEFY-P200,P250VMHS-E

SYMBOL EXPLANATION

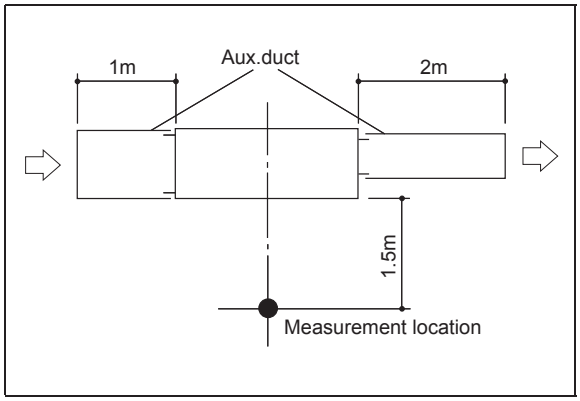
	SYMBOL	NAME
I.B.		Indoor controller board
	CN25	Connector
	CN32	Connector (Remote switch)
	CN41	Connector (HA terminal-A)
	CN90	Connector (Wireless)
	SW1	Switch (for mode selection)
	SW2	Switch (for capacity code)
	SW3	Switch (for mode selection)
	SW4	Switch (for model selection)
	SW5	Switch (for mode selection)
	SW11	Switch (1s digit address set)
	SW12	Switch (10ths digit address set)
	SW14	Switch (BRANCH No.)
	SWA	Switch (for static pressure selection)
	SWC	Switch (for static pressure selection)
	SWE	Connector (emergency operation)
NF.B.		Noise filter board
	DSA001	Arrester
	ZNR01~ ZNR03	Varistor
	X010,X100	Aux. relay
	F001	Fuse(AC250V 10A)
	F100	Fuse(3.15A)
	NF	Noise filter
P.B.		Power supply board
INV.B.		Inverter board
	IPM	Intelligent power module
	F01	Fuse(AC250V 15A)
	TB2	Power source terminal block
	TB5	Transmission terminal block
	TB15	Transmission terminal block
	TH21	Thermistor(inlet air temp.detection)
	TH22	Thermistor(piping temp.detection/liquid)
	TH23	Thermistor(piping temp.detection/gas)
	THHS	Thermistor(heatsink)
	MF	Fan motor
	LEV1,LEV2	Electronic linear expan.valve
	ACL	AC reactor (Power factor improvement)
	R	Resistor
	DB01	Diode bridge
	ACCT	Current Sensor (AC)
	LED1	LED (Power supply)
	LED2	LED (Remote controller supply)
	<DP>	Drain pump
	<FS>	Float switch

Inside < >is the optional parts.



5-1. Sound levels

PEFY-P-VMHS-E



* Measured in anechoic room.

Sound level at anechoic room: Low-Mid-High

		Sound level dB (A)			
		50Pa	100Pa	150Pa	200Pa
PEFY-P40VMHS-E	220-240V	20 - 23 - 27	24 - 28 - 33	29 - 33 - 37	31 - 36 - 39
PEFY-P50VMHS-E	220-240V	20 - 23 - 27	24 - 28 - 33	29 - 33 - 37	31 - 36 - 39
PEFY-P63VMHS-E	220-240V	24 - 27 - 32	27 - 30 - 35	30 - 34 - 38	33 - 37 - 41
PEFY-P71VMHS-E	220-240V	24 - 26 - 30	27 - 29 - 34	29 - 33 - 38	32 - 36 - 41
PEFY-P80VMHS-E	220-240V	25 - 27 - 30	28 - 31 - 35	31 - 35 - 38	34 - 38 - 42
PEFY-P100VMHS-E	220-240V	27 - 31 - 34	31 - 34 - 39	33 - 37 - 42	35 - 40 - 45
PEFY-P125VMHS-E	220-240V	27 - 31 - 34	31 - 34 - 39	33 - 37 - 42	35 - 40 - 45
PEFY-P140VMHS-E	220-240V	27 - 32 - 36	31 - 35 - 39	33 - 38 - 42	36 - 40 - 45

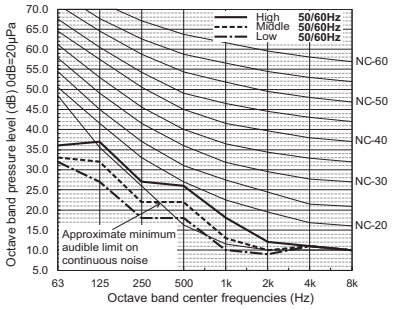
Sound level at anechoic room: Low-Mid-High

		Sound level dB (A)				
		50Pa	100Pa	150Pa	200Pa	250Pa
PEFY-P200VMHS-E	220-240V	32 - 35 - 39	34 - 37 - 41	36 - 39 - 43	38 - 41 - 45	40 - 43 - 47
PEFY-P250VMHS-E	220-240V	35 - 38 - 42	37 - 40 - 44	39 - 42 - 46	41 - 44 - 48	43 - 46 - 50

5-2. NC curves

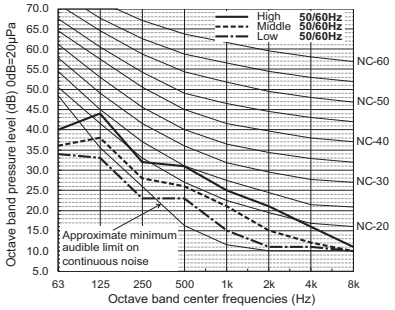
PEFY-P40,50VMHS-E

External Static Pressure: 50Pa [0.20in.WG]
Power Source: 220-240V, 50/60Hz



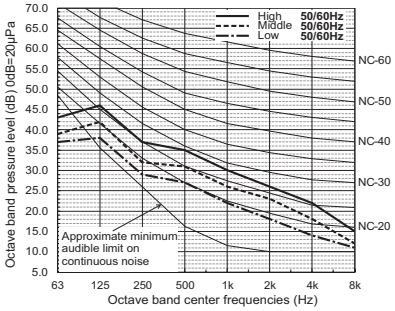
PEFY-P40,50VMHS-E

External Static Pressure: 100Pa [0.40in.WG]
Power Source: 220-240V, 50/60Hz



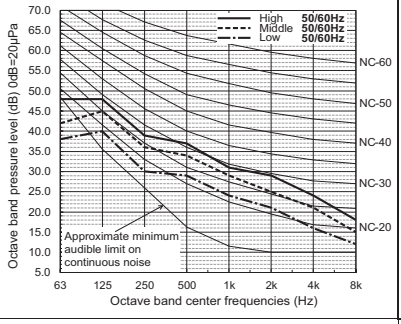
PEFY-P40,50VMHS-E

External Static Pressure: 150Pa [0.60in.WG]
Power Source: 220-240V, 50/60Hz



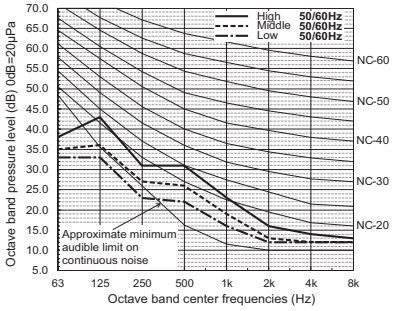
PEFY-P40,50VMHS-E

External Static Pressure: 200Pa [0.80in.WG]
Power Source: 220-240V, 50/60Hz



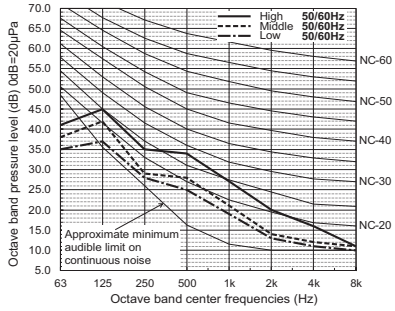
PEFY-P63VMHS-E

External Static Pressure: 50Pa [0.20in.WG]
Power Source: 220-240V, 50/60Hz



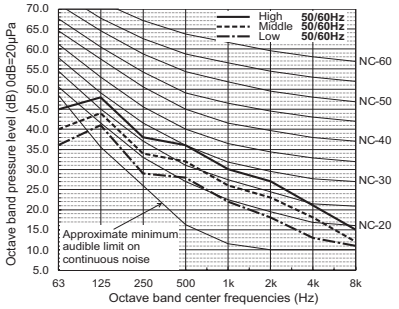
PEFY-P63VMHS-E

External Static Pressure: 100Pa [0.40in.WG]
Power Source: 220-240V, 50/60Hz



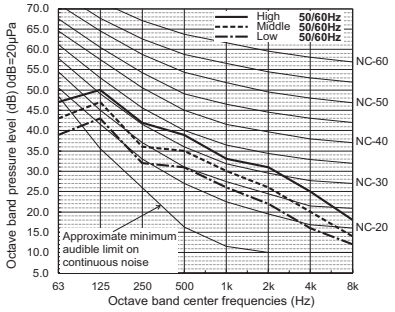
PEFY-P63VMHS-E

External Static Pressure: 150Pa [0.60in.WG]
Power Source: 220-240V, 50/60Hz



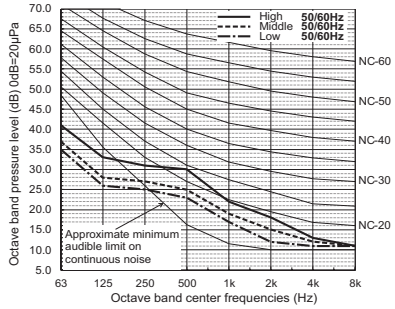
PEFY-P63VMHS-E

External Static Pressure: 200Pa [0.80in.WG]
Power Source: 220-240V, 50/60Hz



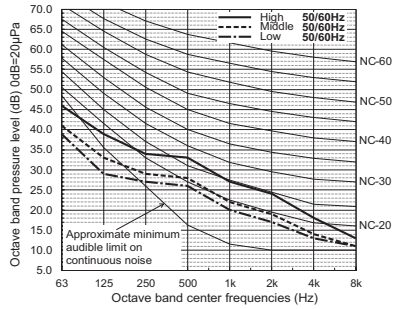
PEFY-P71VMHS-E

External Static Pressure: 50Pa [0.20in.WG]
Power Source: 220-240V, 50/60Hz



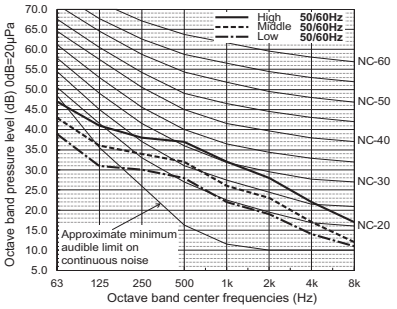
PEFY-P71VMHS-E

External Static Pressure: 100Pa [0.40in.WG]
Power Source: 220-240V, 50/60Hz



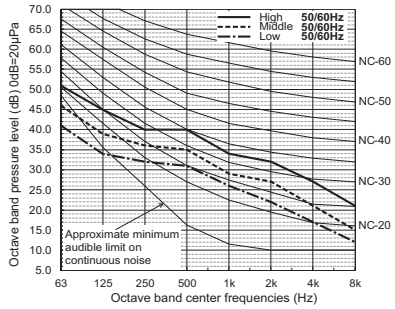
PEFY-P71VMHS-E

External Static Pressure: 150Pa [0.60in.WG]
Power Source: 220-240V, 50/60Hz



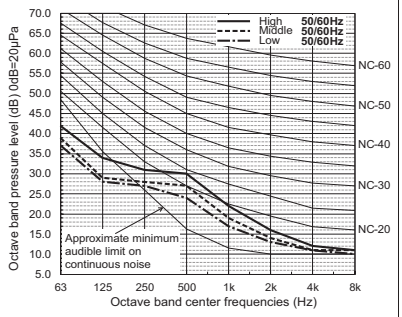
PEFY-P71VMHS-E

External Static Pressure: 200Pa [0.80in.WG]
Power Source: 220-240V, 50/60Hz



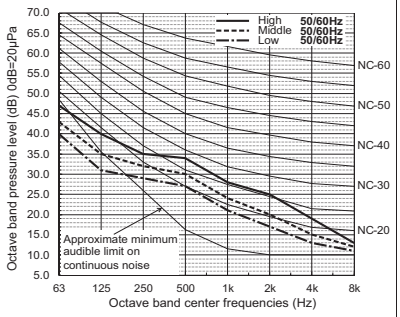
PEFY-P80VMHS-E

External Static Pressure: 50Pa [0.20in.WG]
Power Source: 220-240V, 50/60Hz



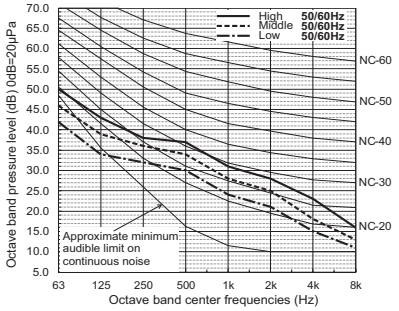
PEFY-P80VMHS-E

External Static Pressure: 100Pa [0.40in.WG]
Power Source: 220-240V, 50/60Hz



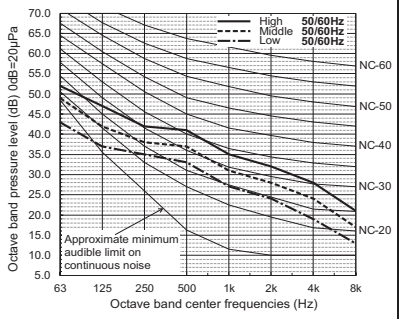
PEFY-P80VMHS-E

External Static Pressure: 150Pa [0.60in.WG]
Power Source: 220-240V, 50/60Hz



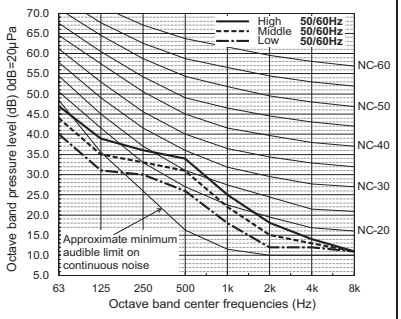
PEFY-P80VMHS-E

External Static Pressure: 200Pa [0.80in.WG]
Power Source: 220-240V, 50/60Hz



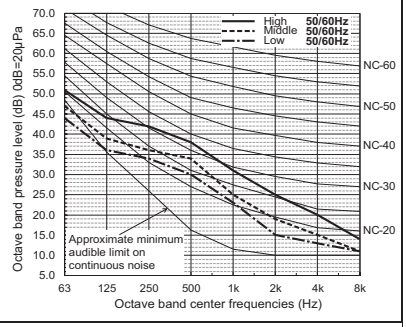
PEFY-P100,125VMHS-E

External Static Pressure: 50Pa [0.20in.WG]
Power Source: 220-240V, 50/60Hz



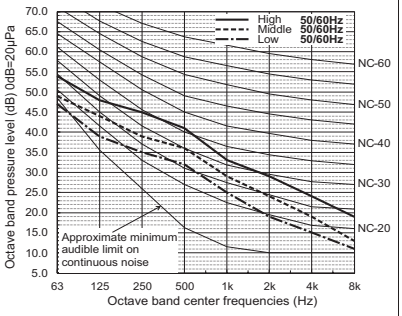
PEFY-P100,125VMHS-E

External Static Pressure: 100Pa [0.40in.WG]
Power Source: 220-240V, 50/60Hz



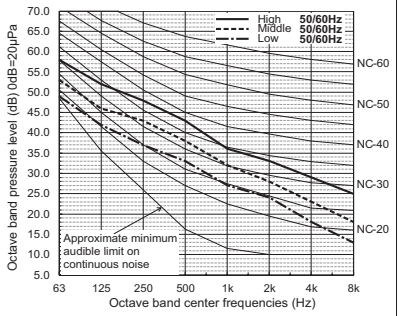
PEFY-P100,125VMHS-E

External Static Pressure: 150Pa [0.60in.WG]
Power Source: 220-240V, 50/60Hz



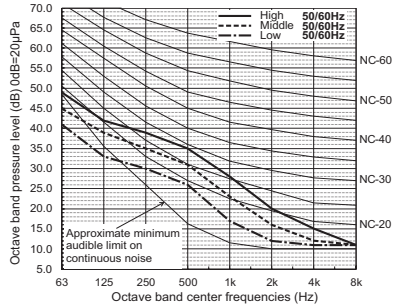
PEFY-P100,125VMHS-E

External Static Pressure: 200Pa [0.80in.WG]
Power Source: 220-240V, 50/60Hz



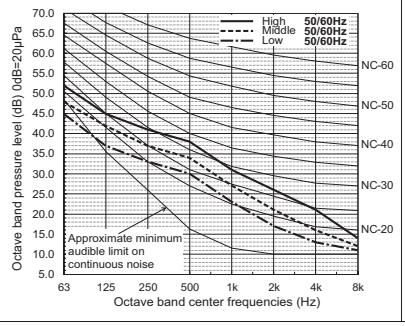
PEFY-P140VMHS-E

External Static Pressure: 50Pa [0.20in.WG]
Power Source: 220-240V, 50/60Hz



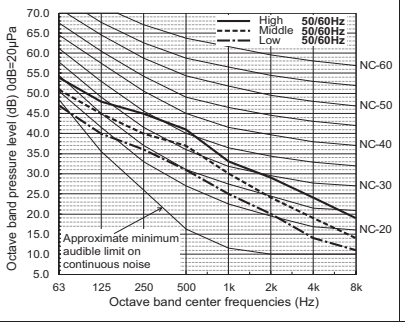
PEFY-P140VMHS-E

External Static Pressure: 100Pa [0.40in.WG]
Power Source: 220-240V, 50/60Hz



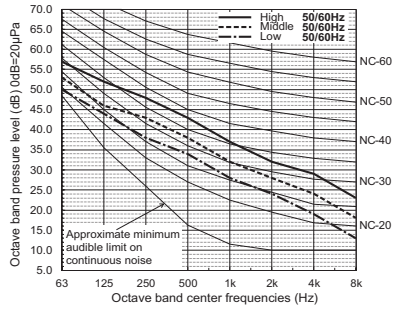
PEFY-P140VMHS-E

External Static Pressure: 150Pa [0.60in.WG]
Power Source: 220-240V, 50/60Hz



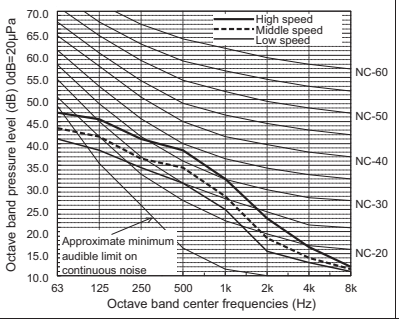
PEFY-P140VMHS-E

External Static Pressure: 200Pa [0.80in.WG]
Power Source: 220-240V, 50/60Hz



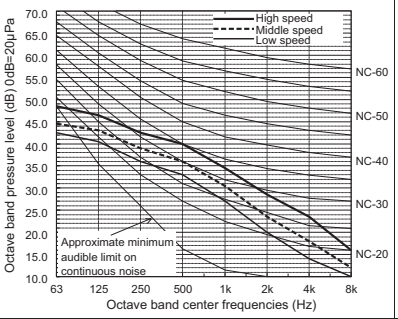
PEFY-P200VMHS-E

External Static Pressure: 50Pa
Power Source: 220,230,240V, 50/60Hz



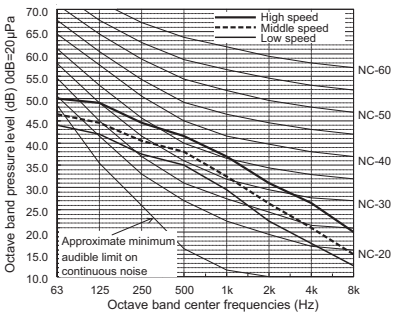
PEFY-P200VMHS-E

External Static Pressure: 100Pa
Power Source: 220,230,240V, 50/60Hz



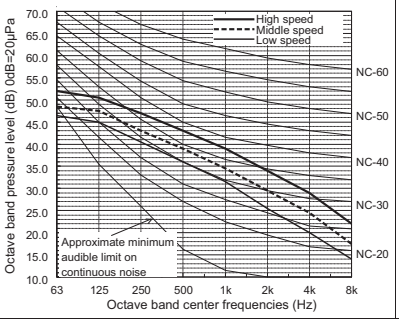
PEFY-P200VMHS-E

External Static Pressure: 150Pa
Power Source: 220,230,240V, 50/60Hz



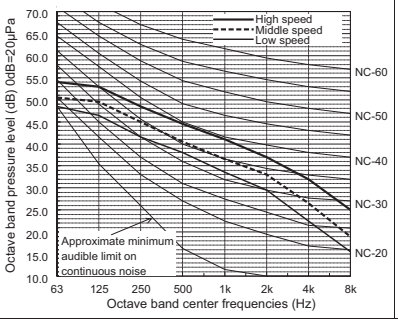
PEFY-P200VMHS-E

External Static Pressure: 200Pa
Power Source: 220,230,240V, 50/60Hz



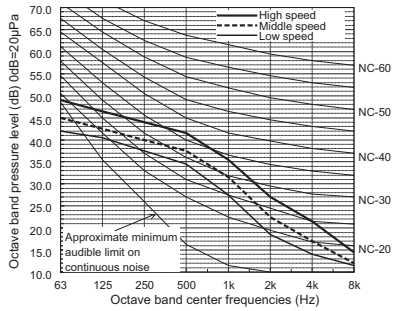
PEFY-P200VMHS-E

External Static Pressure: 250Pa
Power Source: 220,230,240V, 50/60Hz



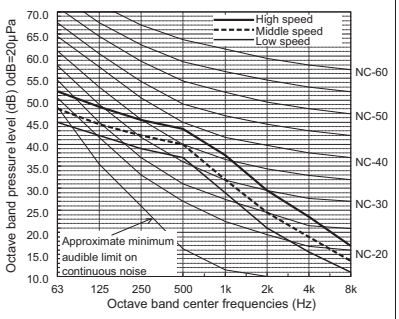
PEFY-P250VMHS-E

External Static Pressure: 50Pa
Power Source: 220,230,240V, 50/60Hz



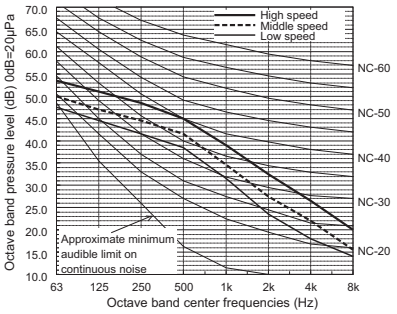
PEFY-P250VMHS-E

External Static Pressure: 100Pa
Power Source: 220,230,240V, 50/60Hz



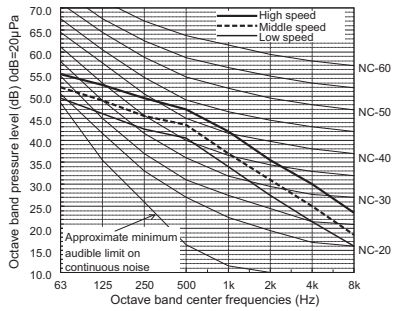
PEFY-P250VMHS-E

External Static Pressure: 150Pa
Power Source: 220,230,240V, 50/60Hz



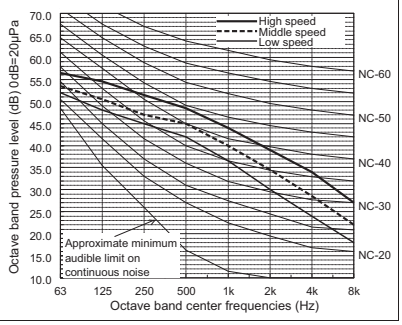
PEFY-P250VMHS-E

External Static Pressure: 200Pa
Power Source: 220,230,240V, 50/60Hz

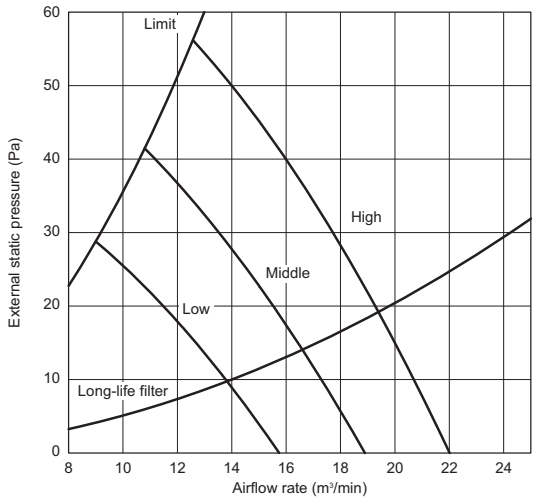


PEFY-P250VMHS-E

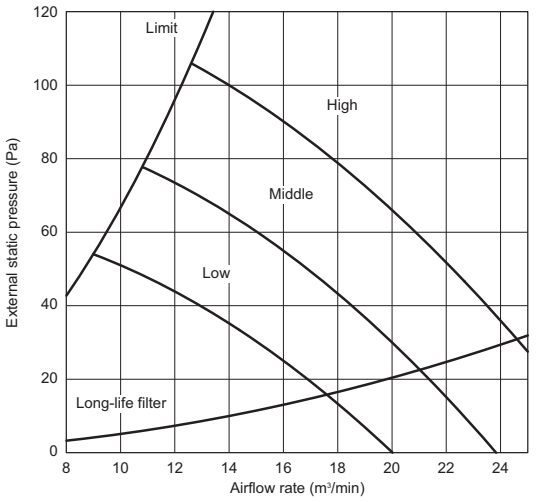
External Static Pressure: 250Pa
Power Source: 220,230,240V, 50/60Hz



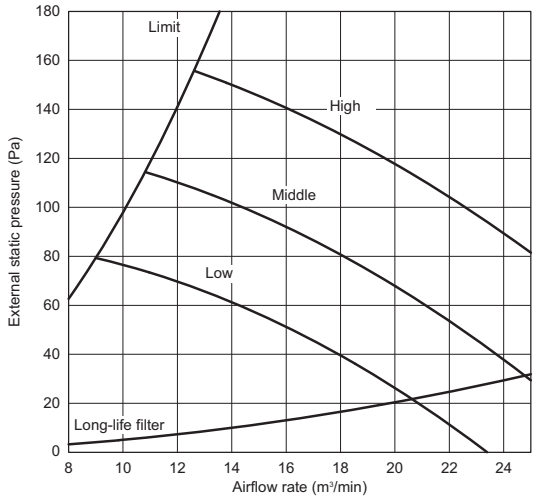
PEFY-P40, 50VMHS-E
External static pressure : 50Pa
Power source : 220-240V, 50/60Hz



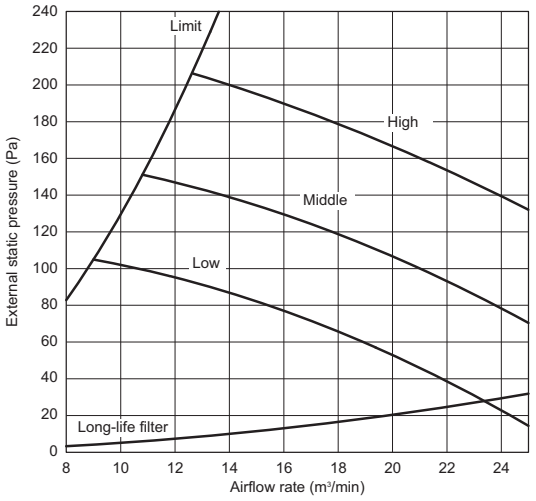
PEFY-P40, 50VMHS-E
External static pressure : 100Pa
Power source : 220-240V, 50/60Hz



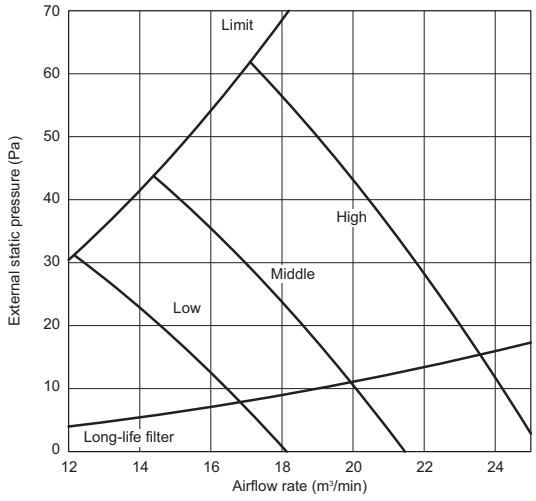
PEFY-P40, 50VMHS-E
External static pressure : 150Pa
Power source : 220-240V, 50/60Hz



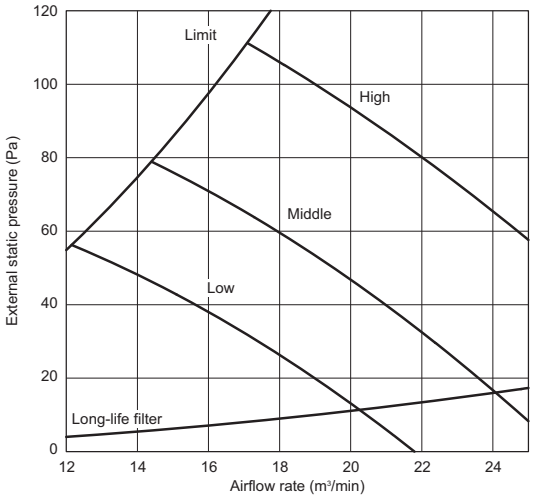
PEFY-P40, 50VMHS-E
External static pressure : 200Pa
Power source : 220-240V, 50/60Hz



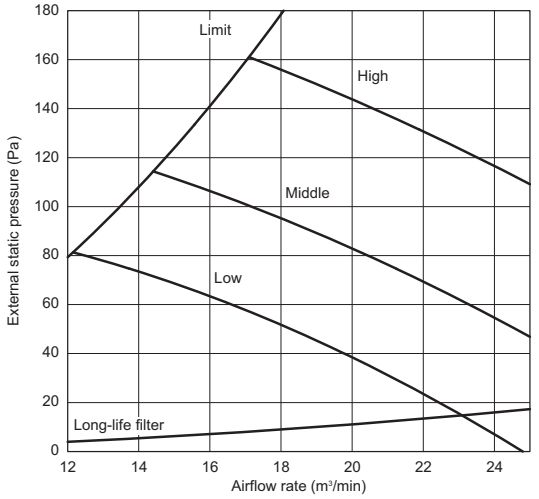
PEFY-P63VMHS-E
External static pressure : 50Pa
Power source : 220-240V, 50/60Hz



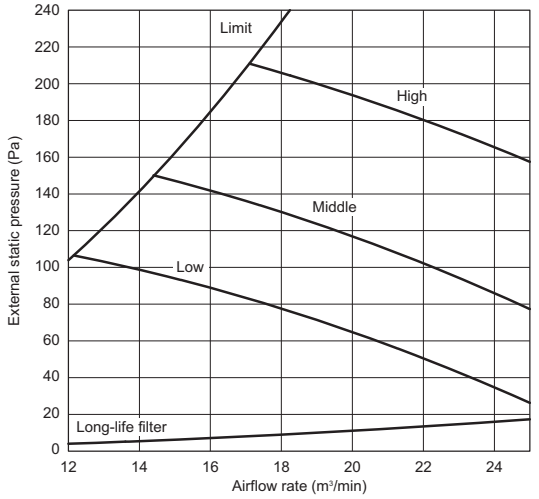
PEFY-P63VMHS-E
External static pressure : 100Pa
Power source : 220-240V, 50/60Hz



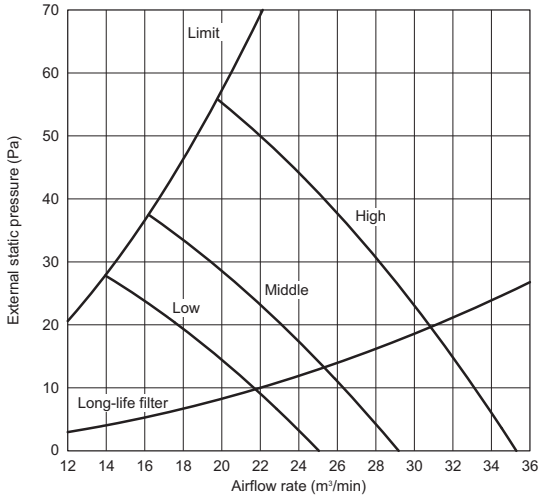
PEFY-P63VMHS-E
External static pressure : 150Pa
Power source : 220-240V, 50/60Hz



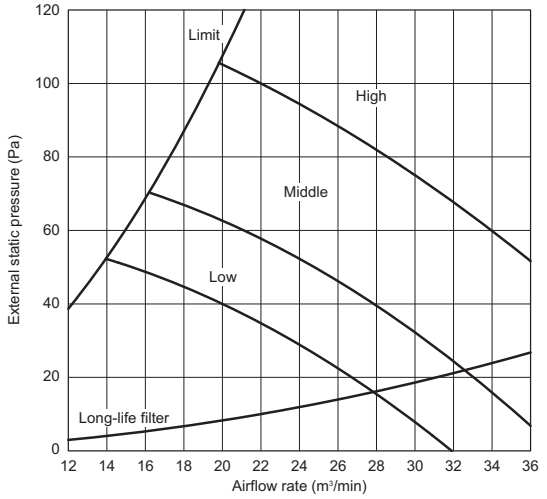
PEFY-P63VMHS-E
External static pressure : 200Pa
Power source : 220-240V, 50/60Hz



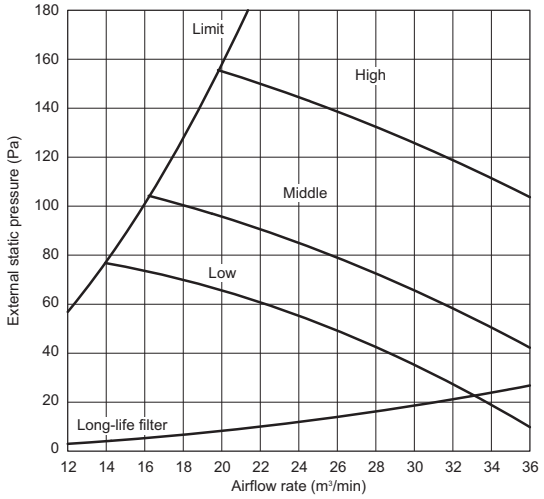
PEFY-P71VMHS-E
External static pressure : 50Pa
Power source : 220-240V, 50/60Hz



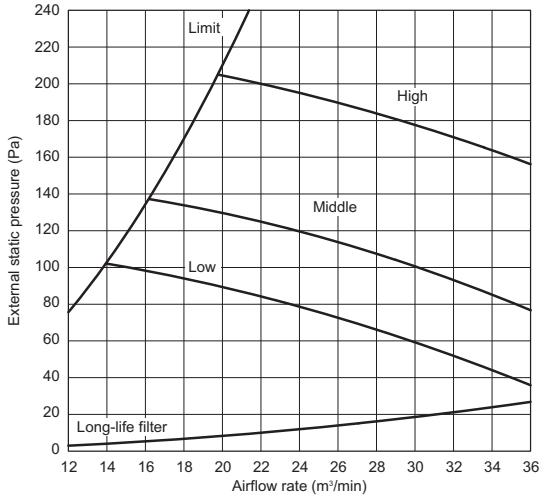
PEFY-P71VMHS-E
External static pressure : 100Pa
Power source : 220-240V, 50/60Hz



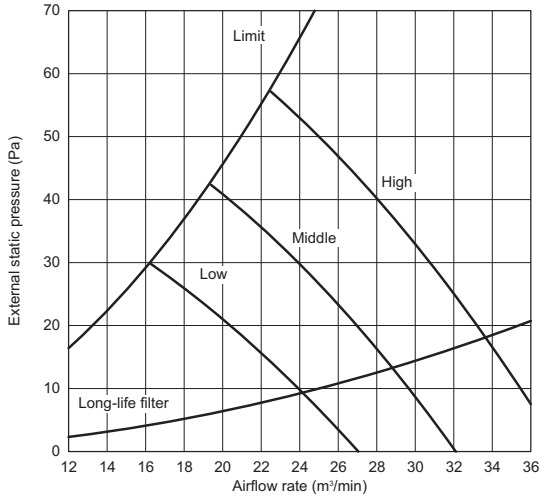
PEFY-P71VMHS-E
External static pressure : 150Pa
Power source : 220-240V, 50/60Hz



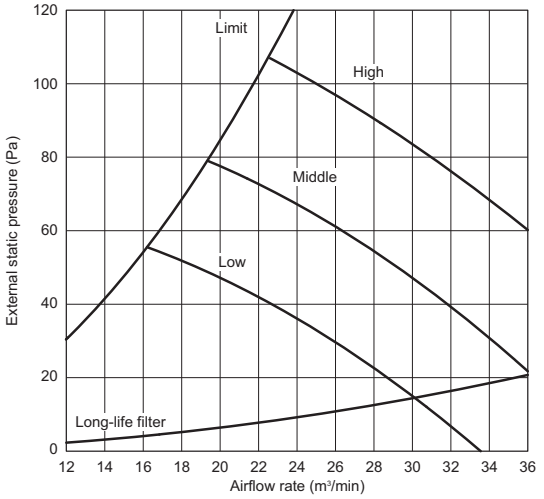
PEFY-P71VMHS-E
External static pressure : 200Pa
Power source : 220-240V, 50/60Hz



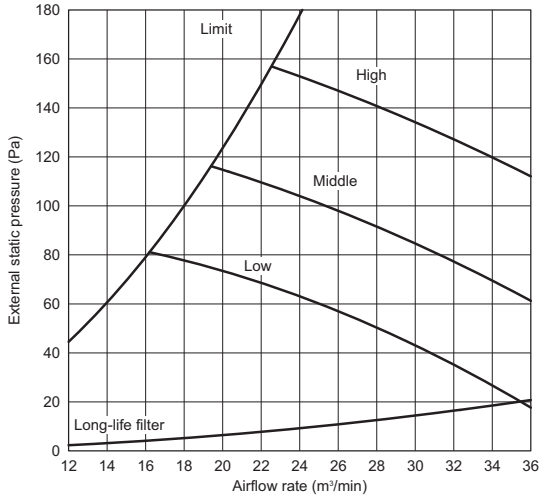
PEFY-P80VMHS-E
External static pressure : 50Pa
Power source : 220-240V, 50/60Hz



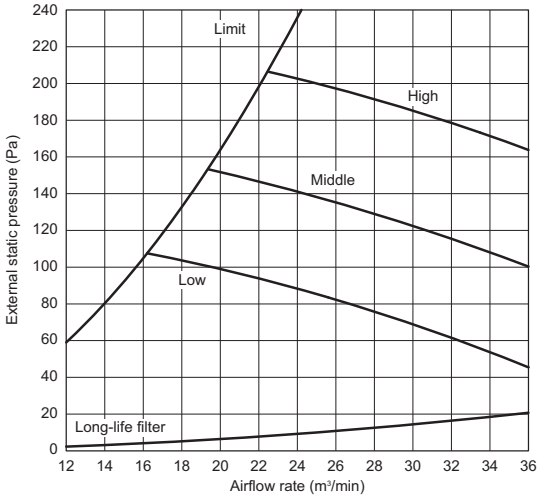
PEFY-P80VMHS-E
External static pressure : 100Pa
Power source : 220-240V, 50/60Hz



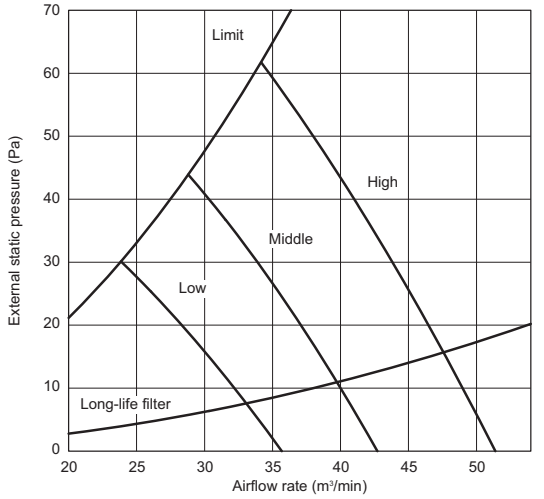
PEFY-P80VMHS-E
External static pressure : 150Pa
Power source : 220-240V, 50/60Hz



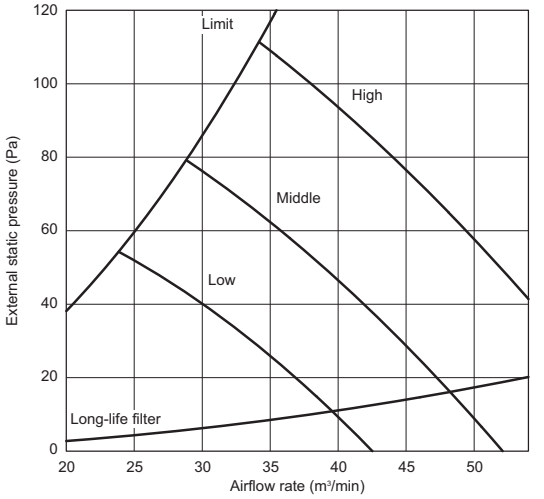
PEFY-P80VMHS-E
External static pressure : 200Pa
Power source : 220-240V, 50/60Hz



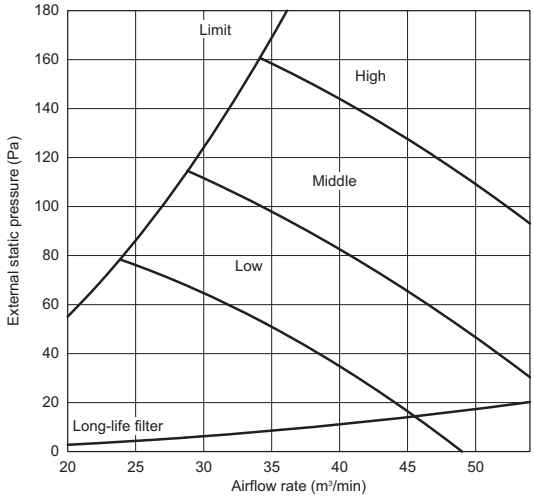
PEFY-P100, 125VMHS-E
External static pressure : 50Pa
Power source : 220-240V, 50/60Hz



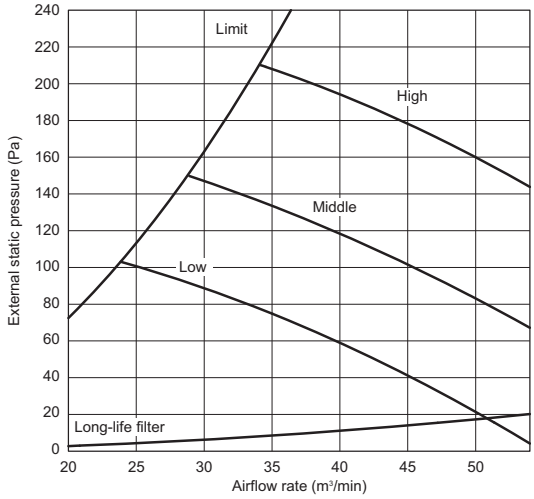
PEFY-P100, 125VMHS-E
External static pressure : 100Pa
Power source : 220-240V, 50/60Hz



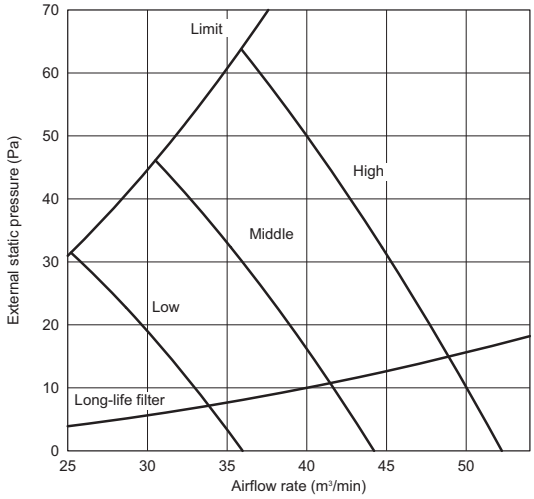
PEFY-P100, 125VMHS-E
External static pressure : 150Pa
Power source : 220-240V, 50/60Hz



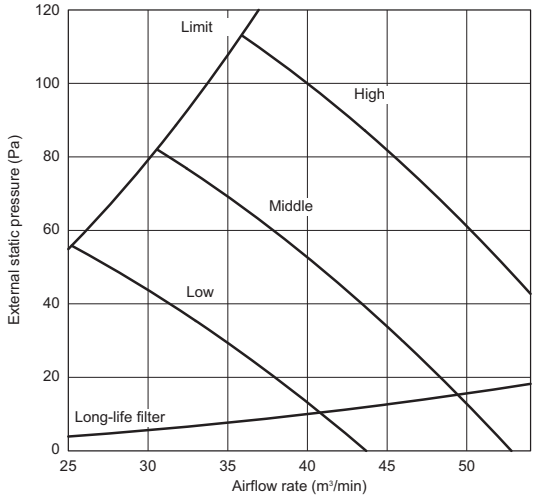
PEFY-P100, 125VMHS-E
External static pressure : 200Pa
Power source : 220-240V, 50/60Hz



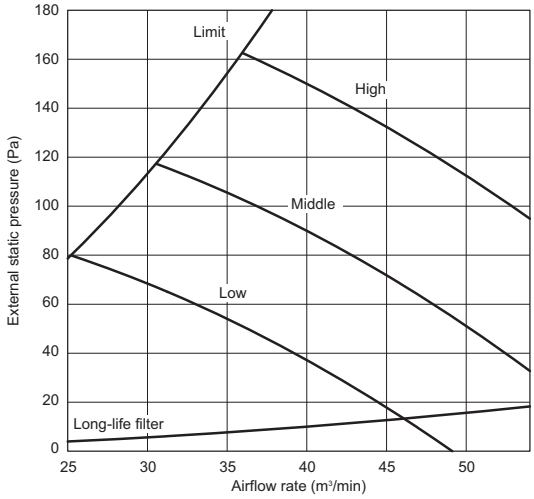
PEFY-P140VMHS-E
External static pressure : 50Pa
Power source : 220-240V, 50/60Hz



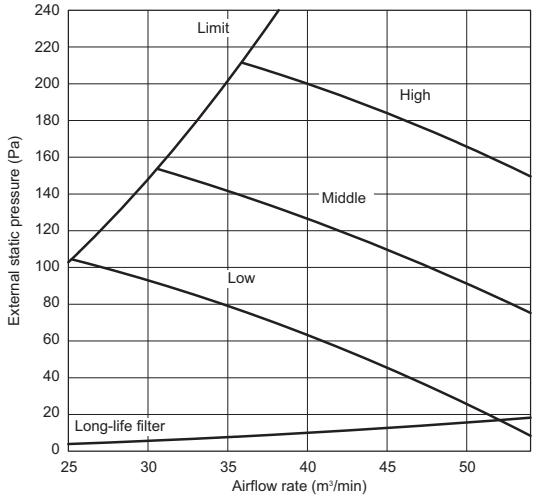
PEFY-P140VMHS-E
External static pressure : 100Pa
Power source : 220-240V, 50/60Hz



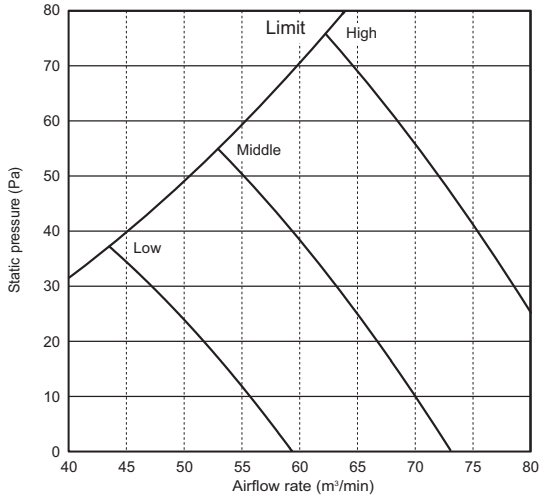
PEFY-P140VMHS-E
External static pressure : 150Pa
Power source : 220-240V, 50/60Hz



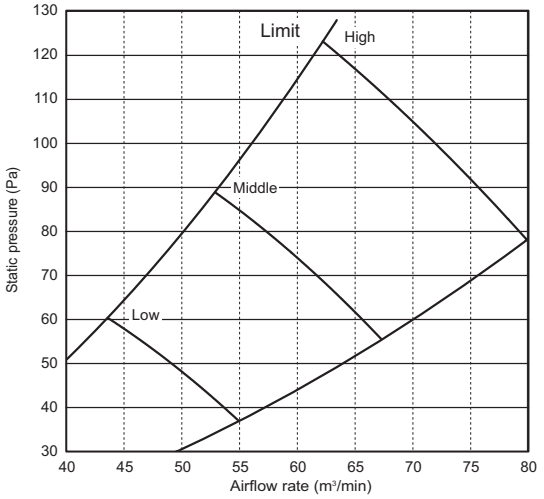
PEFY-P140VMHS-E
External static pressure : 200Pa
Power source : 220-240V, 50/60Hz



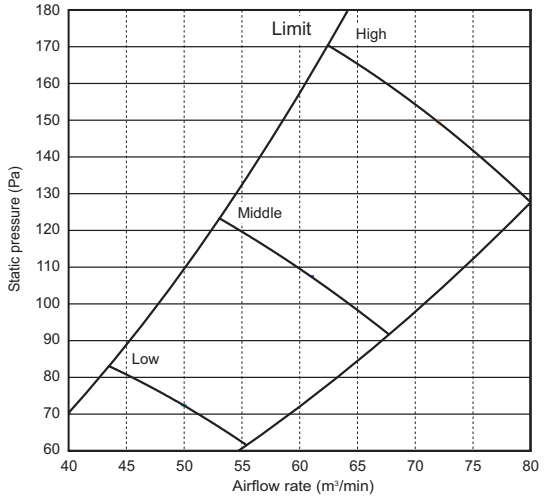
PEFY-P200VMHS-E
External static pressure : 50Pa
Power source : 220,230,240V, 50/60Hz



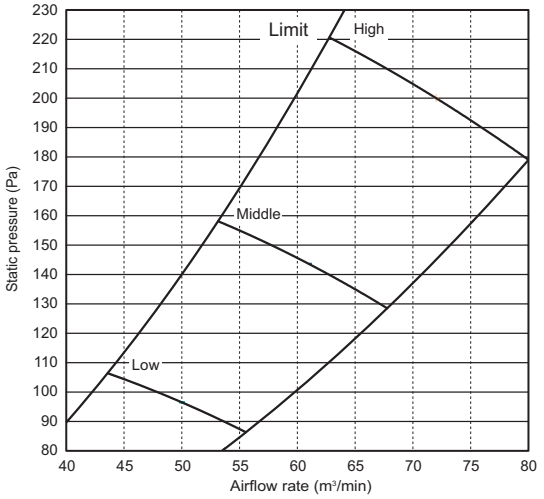
PEFY-P200VMHS-E
External static pressure : 100Pa
Power source : 220,230,240V, 50/60Hz



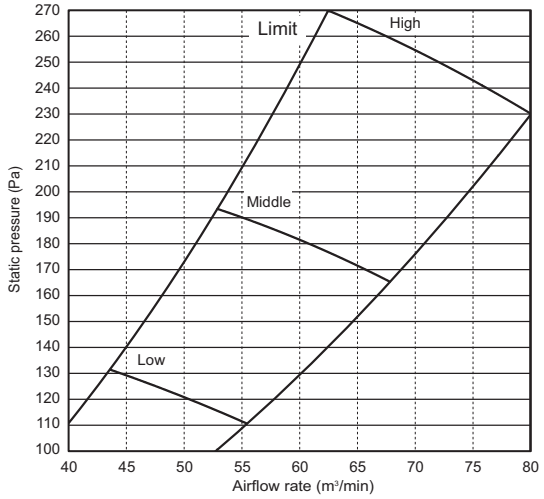
PEFY-P200VMHS-E
External static pressure : 150Pa
Power source : 220,230,240V, 50/60Hz



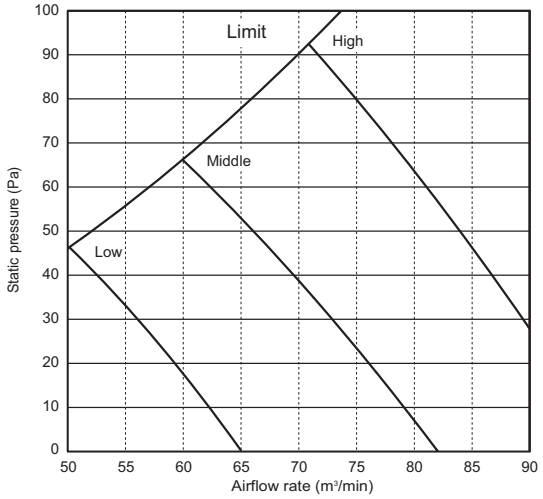
PEFY-P200VMHS-E
External static pressure : 200Pa
Power source : 220,230,240V, 50/60Hz



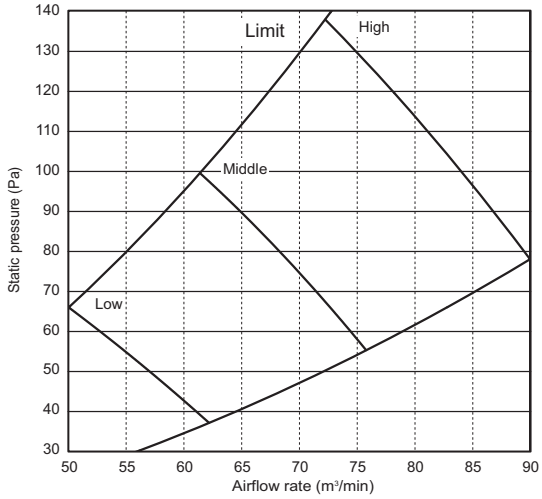
PEFY-P200VMHS-E
External static pressure : 250Pa
Power source : 220,230,240V, 50/60Hz



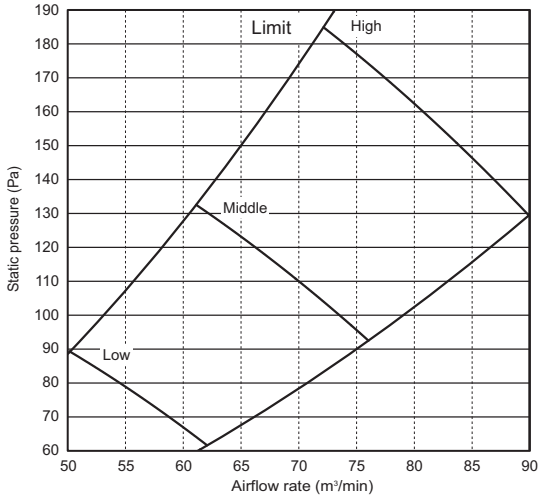
PEFY-P250VMHS-E
External static pressure : 50Pa
Power source : 220,230,240V, 50/60Hz



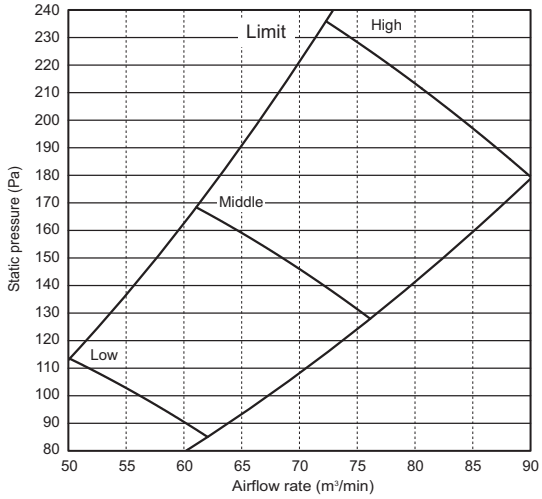
PEFY-P250VMHS-E
External static pressure : 100Pa
Power source : 220,230,240V, 50/60Hz



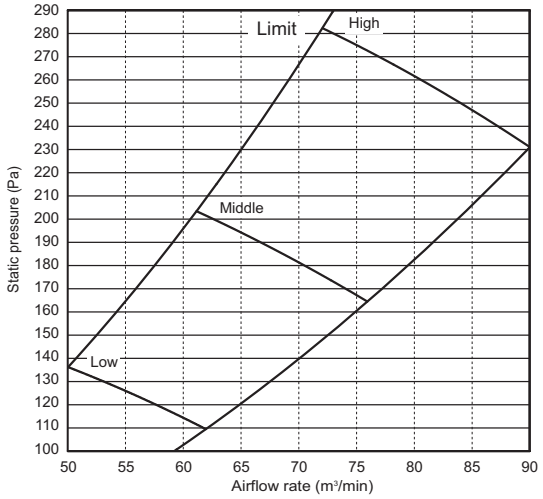
PEFY-P250VMHS-E
External static pressure : 150Pa
Power source : 220,230,240V, 50/60Hz



PEFY-P250VMHS-E
External static pressure : 200Pa
Power source : 220,230,240V, 50/60Hz



PEFY-P250VMHS-E
External static pressure : 250Pa
Power source : 220,230,240V, 50/60Hz



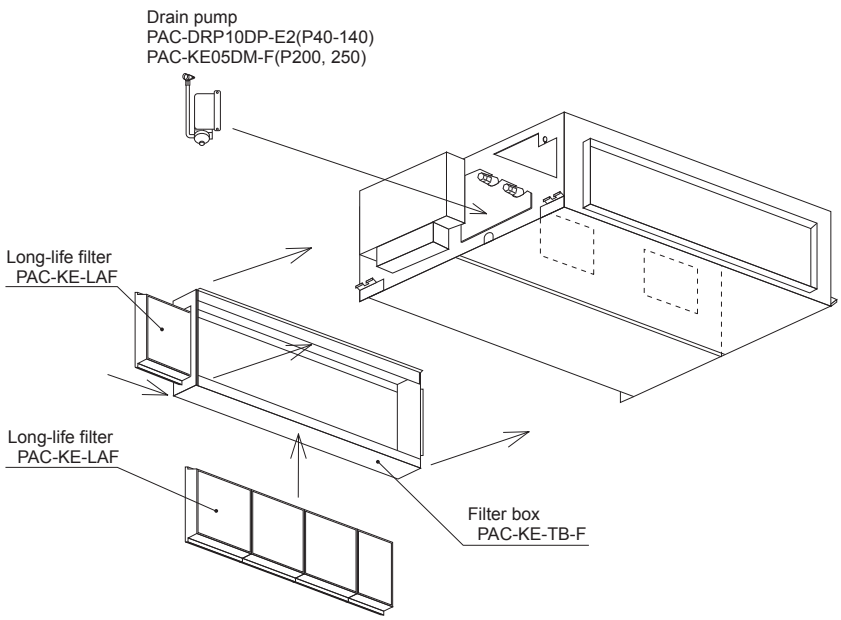
Symbols: MCA (Max.Circuit Amps =1.25xFLA), FLA (Full Load Amps)
IFM (Indoor Fan Motor), Output (Fan motor rated output)

PEFY-P-VMHS-E	Power supply			IFM	
	Volts/Hz	Range +-10%	MCA(A) (50/60Hz)	Output (kW)	FLA(A) (50/60Hz)
PEFY-P40VMHS-E	220-240V/50Hz 220-240V/60Hz	Max.: 264V Min.: 198V	1.78	0.121	1.42
PEFY-P50VMHS-E			1.78	0.121	1.42
PEFY-P63VMHS-E			1.97	0.121	1.57
PEFY-P71VMHS-E			2.38	0.244	1.90
PEFY-P80VMHS-E			2.45	0.244	1.96
PEFY-P100VMHS-E			3.85	0.375	3.08
PEFY-P125VMHS-E			3.85	0.375	3.08
PEFY-P140VMHS-E			3.93	0.375	3.14
PEFY-P200VMHS-E			7.00	0.87	5.60
PEFY-P250VMHS-E			7.50	0.87	6.00

8-1. Optional parts line up for the Indoor unit

	Long-life filter	Filter box	Drain pump
PEFY-P40, 50, 63VMHS-E	PAC-KE86LAF	PAC-KE63TB-F	PAC-DRP10DP-E2
PEFY-P71, 80VMHS-E	PAC-KE88LAF	PAC-KE99TB-F	PAC-DRP10DP-E2
PEFY-P100, 125, 140VMHS-E	PAC-KE89LAF	PAC-KE140TB-F	PAC-DRP10DP-E2
PEFY-P200, 250VMHS-E	PAC-KE85LAF	PAC-KE250TB-F	PAC-KE05DM-F

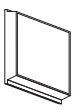
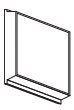
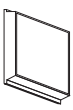
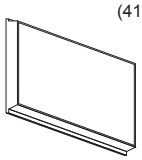
PEFY-P-VMHS-E



8-2. Long-life filter

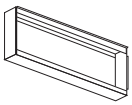
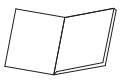
Life span: 2,500 hr (Dust concentration 0.15mg/m^3)
* The actual dust situation affects the filter life span, which should be considered at the applying site.
Material: Synthetic fiber unwoven cloth filter
Static pressure loss is referred to 6 “FAN CHARACTERISTICS CURVES”.
Long-life filter should be used together with filter box PAC-KE-TB-F.

PAC-KE-LAF

Item	PAC-KE86LAF	PAC-KE88LAF	PAC-KE89LAF	PAC-KE85LAF
Quantity	2	3	3	2
Shape	(298X300) 	(298X300) 	(298X300) 	(411X600) 

Detailed installation information should be referred to its Installation Manual.

PAC-KE-TB-F

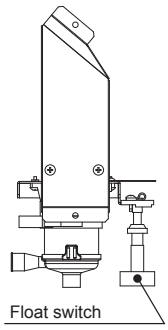
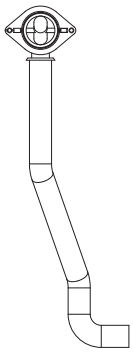
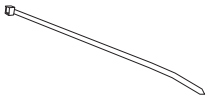
Item	① Screw	② Filter box	③ Installation manual	
Quantity	10/12*	1	1	
Shape				*PAC-KE250TB has 12 pieces of screw.

Detailed installation information should be referred to its Installation Manual.

8-3. Drain pump

If drain water can not flow out the Indoor unit by gravity and gradient, a Drain-pump for draining is needed.
Drain pump PAC-DRP10DP-E2 can pump water up to 550mm [21-11/16 in.] high from the drain pan.

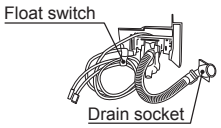
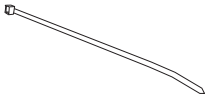
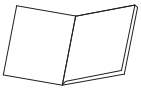
PAC-DRP10DP-E2

Item	① Drain pump ass'y	② Drain socket ass'y	③ Rubber plug	④ Band	⑤ PTT screw 4 × 10
Quantity	1	1	1	3	2 + 1 (spare)
Shape					

Detailed installation information should be referredto its Installation Manual.

If drain water can not flow out the Indoor unit by gravity and gradient, a Drain-pump for draining is needed.
Drain pump PAC-KE05DM-F can pump water up to 700mm [27-9/16 in.] high from the drain pan.

PAC-KE05DM-F

Item	① Drain pump ass'y	② Rubber plug	③ Rubber bushing	④ Band	⑤ PTT screw 4X10
Quantity	1	2	1	2	6+1 (spare)
Shape					
Item	⑥ Installation manual				
Quantity	1				
Shape					

Detailed installation information should be referredto its Installation Manual.

MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

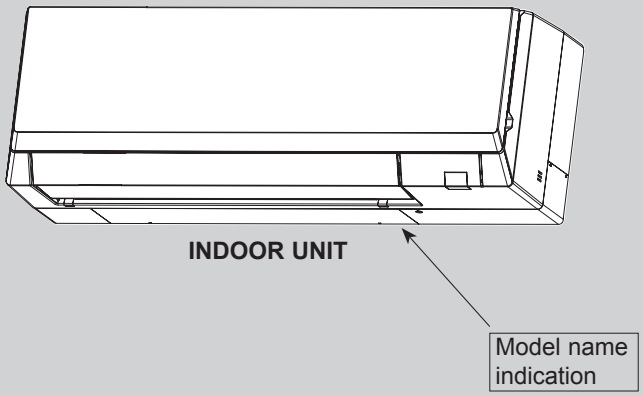
April 2019

No. OCH710

TECHNICAL & SERVICE MANUAL

Series PKFY Wall Mounted R410A

Indoor unit [Model Name]	[Service Ref.]
PKFY-P10VLM-E	PKFY-P10VLM-E.TH
PKFY-P10VLM-ET	PKFY-P10VLM-ET.TH
PKFY-P15VLM-E	PKFY-P15VLM-E.TH
PKFY-P15VLM-DA	PKFY-P15VLM-DA.TH
PKFY-P15VLM-TH	PKFY-P15VLM-TH.TH
PKFY-P15VLM-ET	PKFY-P15VLM-ET.TH
PKFY-P20VLM-E	PKFY-P20VLM-E.TH
PKFY-P20VLM-DA	PKFY-P20VLM-DA.TH
PKFY-P20VLM-TH	PKFY-P20VLM-TH.TH
PKFY-P20VLM-ET	PKFY-P20VLM-ET.TH
PKFY-P25VLM-E	PKFY-P25VLM-E.TH
PKFY-P25VLM-DA	PKFY-P25VLM-DA.TH
PKFY-P25VLM-TH	PKFY-P25VLM-TH.TH
PKFY-P25VLM-ET	PKFY-P25VLM-ET.TH
PKFY-P32VLM-E	PKFY-P32VLM-E.TH
PKFY-P32VLM-DA	PKFY-P32VLM-DA.TH
PKFY-P32VLM-TH	PKFY-P32VLM-TH.TH
PKFY-P32VLM-ET	PKFY-P32VLM-ET.TH
PKFY-P40VLM-E	PKFY-P40VLM-E.TH
PKFY-P40VLM-DA	PKFY-P40VLM-DA.TH
PKFY-P40VLM-TH	PKFY-P40VLM-TH.TH
PKFY-P40VLM-ET	PKFY-P40VLM-ET.TH
PKFY-P50VLM-E	PKFY-P50VLM-E.TH
PKFY-P50VLM-DA	PKFY-P50VLM-DA.TH
PKFY-P50VLM-TH	PKFY-P50VLM-TH.TH
PKFY-P50VLM-ET	PKFY-P50VLM-ET.TH



CONTENTS

CITY MULTI

3 SPECIFICATION

3-1. SPECIFICATIONS

Model			PKFY-P10VLM-E PKFY-P10VLM-ET	PKFY-P15VLM-E PKFY-P15VLM-TH PKFY-P15VLM-ET	PKFY-P20VLM-E PKFY-P20VLM-TH PKFY-P20VLM-ET	PKFY-P25VLM-E PKFY-P25VLM-TH PKFY-P25VLM-ET
Power source			1-phase 220-240 V 50 Hz, 1-phase 220-230 V 60 Hz			
Cooling capacity *1		kW	1.2	1.7	2.2	2.8
(Nominal) *1		kcal/h	1000	1500	1900	2400
*1		BTU/h	4100	5800	7500	9600
	Power input	kW	0.02	0.02	0.02	0.03
	Current input	A	0.20	0.20	0.20	0.25
Heating capacity *2		kW	1.4	1.9	2.5	3.2
(Nominal) *2		kcal/h	1200	1600	2200	2800
*2		BTU/h	4800	6500	8500	10900
	Power input	kW	0.01	0.01	0.01	0.02
	Current input	A	0.15	0.15	0.15	0.20
External finish(Munsell No.)			Plastic (0.7PB 9.2/0.4)			
External dimension H x W x D		mm	299 × 773 × 237			
		inch	11-25/32 x 30-7/16 x 9-11/32			
Net weight		kg (lb)	11(25)			
Heat exchanger			Cross fin (Aluminum fin and copper tube)			
Fan	Type x Quantity		Line flow fan x 1			
	External static press	Pa (mmH2O)	0(0)			
	Motor type		DC motor			
	Motor output	kW	0.03			
	Driving mechanism		Direct driven			
	Airflow rate (Low-Mid2 -Mid1-High)	m^3/min	3.3-3.5-3.8-4.2	4.0-4.2-4.4-4.7	4.0-4.4-4.9-5.4	4.0-4.6-5.4-6.7
		L/s	55-58-63-70	67-70-73-78	67-73-82-90	67-77-90-112
		cfm	117-124-134-148	141-148-155-166	141-155-173-191	141-162-191-237
Noise level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	22-24-26-28	22-24-26-28	22-26-29-31	22-27-31-35
Insulation material			Polyethylene sheet			
Air filter			PP Honeycomb			
Protection device			Fuse			
Refrigerant control device			LEV			
Connectable outdoor unit			R410A CITY MULTI			
Diameter of refrigerant pipe	Liquid	mm (in)	ϕ6.35 (ϕ1/4)			
	Gas	mm (in)	ϕ12.7 (ϕ1/2)			
Field drain pipe size		mm (in)	I.D.16 (5/8)			
Standard attachment			Installation Manual, Instruction Book			
Optional parts	DRAIN PUMP KIT		PAC-SK01DM-E			
	EXTERNAL LEV BOX		PAC-SK17LE-E	PAC-SG95LE-E		
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.			

Notes:
*1.Nominal cooling conditions (subject to JIS B8615-1)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B. (95°FD.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)
*2.Nominal heating conditions (subject to JIS B8615-1)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)

Unit converter

kcal/h = kW × 860
Btu/h = kW × 3,412
cfm = m^3/min × 35.31
lb = kg/0.4536
Note: Above specification data is subject to rounding variation.

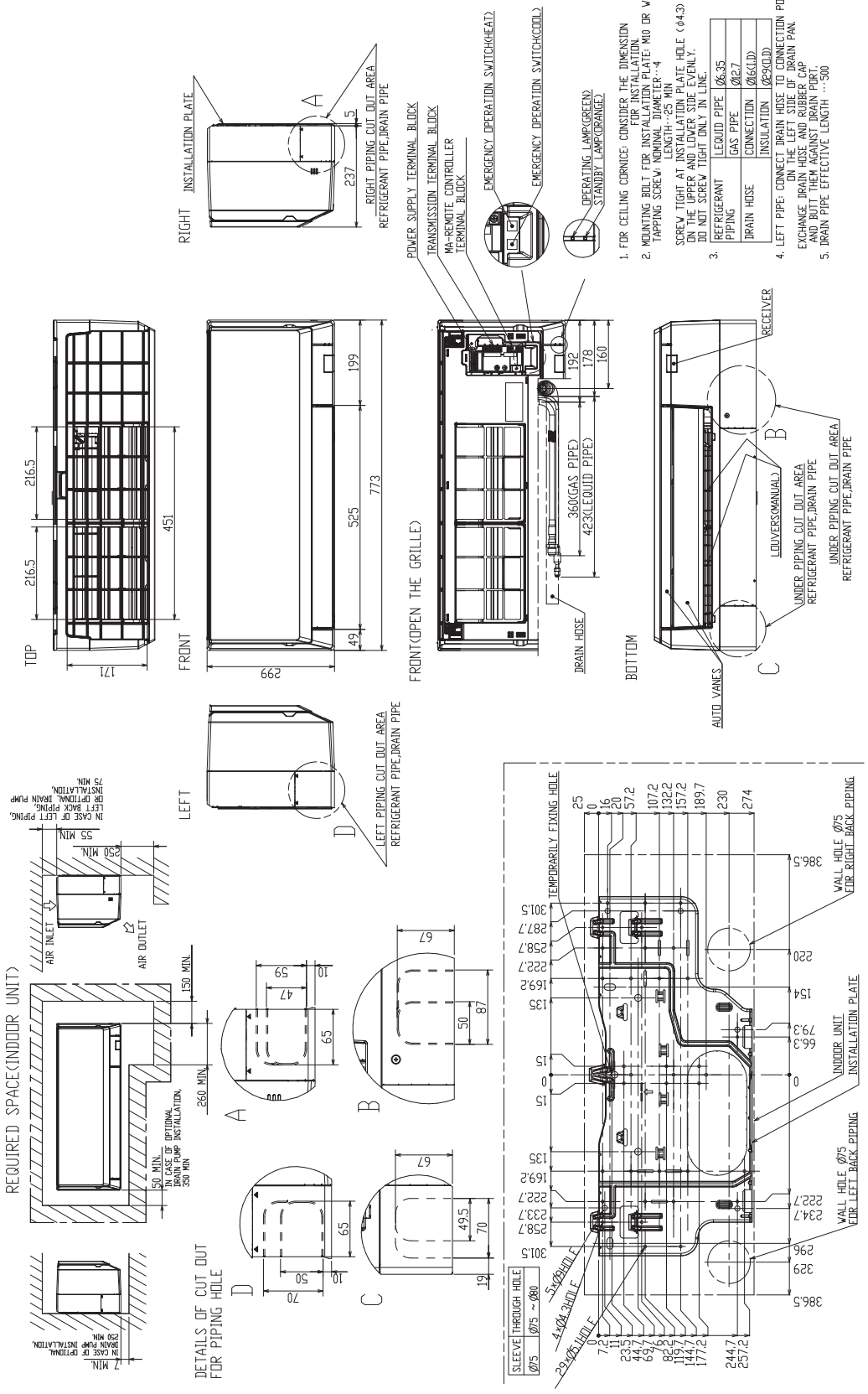
Model			PKFY-P32VLM-E PKFY-P32VLM-ET PKFY-P32VLM-TH	PKFY-P40VLM-E PKFY-P40VLM-ET PKFY-P40VLM-TH	PKFY-P50VLM-E PKFY-P50VLM-ET PKFY-P50VLM-TH
Power source			1-phase 220-240 V 50 Hz, 1-phase 220-230 V 60 Hz		
Cooling capacity *1		kW	3.6	4.5	5.6
(Nominal) *1		kcal/h	3100	3900	4800
*1		BTU/h	12300	15400	19100
	Power input	kW	0.04	0.04	0.05
	Current input	A	0.35	0.35	0.45
Heating capacity *2		kW	4.0	5.0	6.3
(Nominal) *2		kcal/h	3400	4300	5400
*2		BTU/h	13600	17100	21500
	Power input	kW	0.03	0.03	0.04
	Current input	A	0.30	0.30	0.40
External finish(Munsell No.)			Plastic (0.7PB 9.2/0.4)		
External dimension H x W x D		mm	299 × 773 × 237	299 x 898 x 237	
		inch	11-25/32 x 30-7/16 x 9-11/32	11-25/32 x 35-3/8 x 9-11/32	
Net weight		kg (lb)	11(25)	13(29)	
Heat exchanger			Cross fin (Aluminum fin and copper tube)		
Fan	Type x Quantity		Line flow fan x 1		
	External static press	Pa (mmH2O)	0(0)		
	Motor type		DC motor		
	Motor output	kW	0.03		
	Driving mechanism		Direct driven		
	Airflow rate (Low-Mid2 -Mid1-High)	m^3/min	4.3-5.4-6.9-8.4	6.3-7.4-8.6-10.0	6.8-8.3-10.2-12.4
		L/s	72-90-115-140	105-123-143-167	113-138-170-207
		cfm	152-191-244-297	222-261-304-353	240-293-360-438
Noise level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	24-31-37-41	29-34-37-40	31-36-41-46
Insulation material			Polyethylene sheet		
Air filter			PP Honeycomb		
Protection device			Fuse		
Refrigerant control device			LEV		
Connectable outdoor unit			R410A CITY MULTI		
Diameter of refrigerant pipe	Liquid	mm (in)	ϕ6.35 (ϕ1/4)		
	Gas	mm (in)	ϕ12.7 (ϕ1/2)		
Field drain pipe size		mm (in)	I.D.16 (5/8)		
Standard attachment			Installation Manual, Instruction Book		
Optional parts	DRAIN PUMP KIT		PAC-SK01DM-E		
	EXTERNAL LEV BOX		PAC-SG95LE-E		
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.		

Notes:
*1.Nominal cooling conditions (subject to JIS B8615-1)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B. (95°FD.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)
*2.Nominal heating conditions (subject to JIS B8615-1)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)

5 OUTLINES AND DIMENSIONS

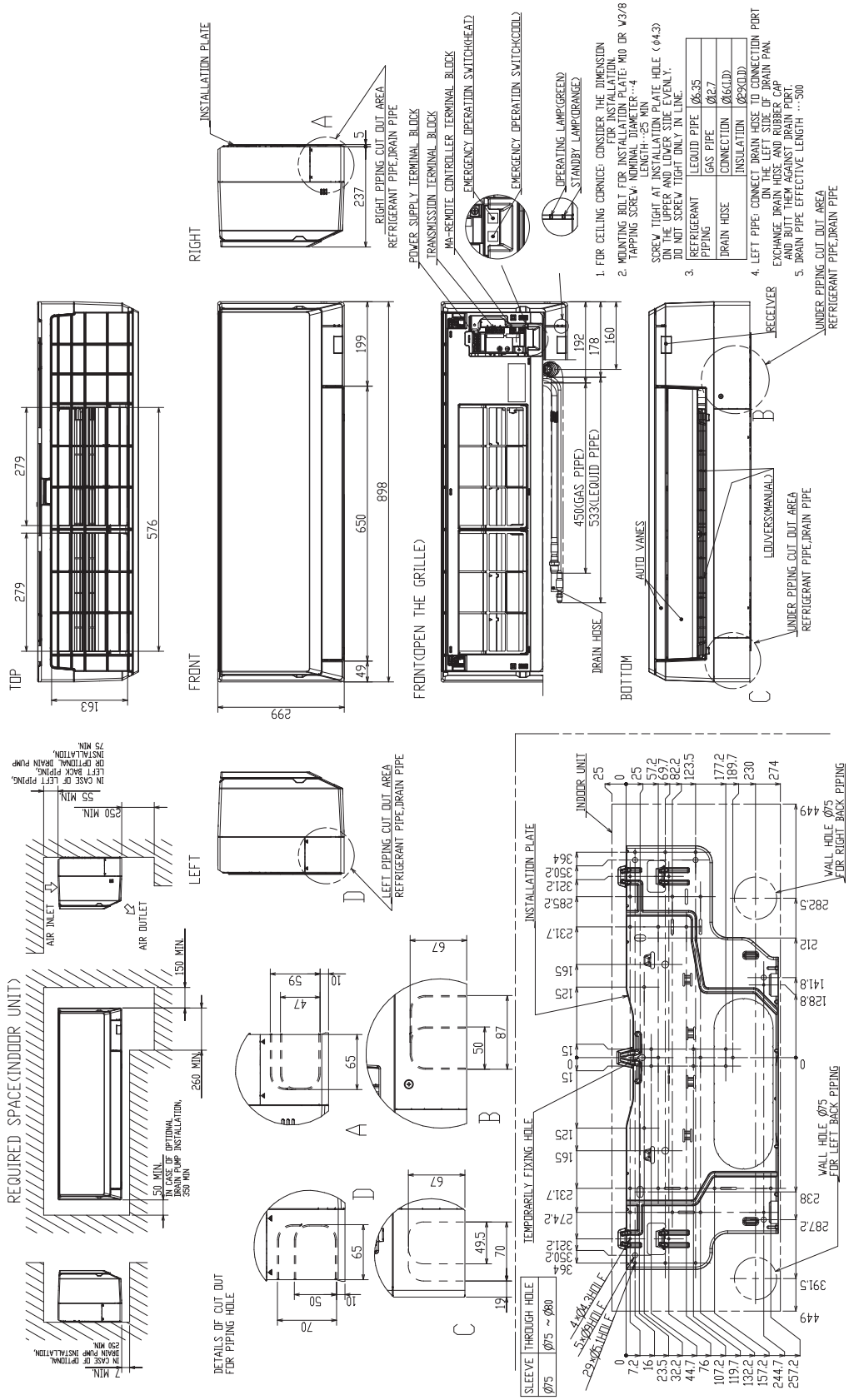
PKFY-P10VLM-(E/ET).TH
PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH

Unit: mm



PKFY-P40VLM-(E/ET/DA/TH).TH **PKFY-P50VLM-(E/ET/DA/TH).TH**

Unit: mm



4 SPECIFICATIONS

INDOOR UNIT	**Service Ref.**			**PLA-M71EA-A.TH**	
	Mode			Cooling	Heating
	Power supply (phase, cycle, voltage)			Single phase, 50Hz, 230	
		Input	kW	0.04	0.04
		Running current	A	0.27	0.25
	External finish (Grille)			Munsell 1.0Y 9.2/0.2	
	Heat exchanger			Plate fin coil	
	Fan	Fan (drive) × No.		Turbo fan (direct) × 1	
		Fan motor output	W	0.05	
		Airflow (Low-Medium2-Medium1-High)	m^3/min	16-17-19-21	
		External static pressure	Pa (mmAq)	0(direct blow)	
	Booster heater		kW	–	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level SPL(Low-Medium2-Medium1-High)		dB(A)	28-30-32-34	
	Field drain pipe O.D.		mm (in)	32(1-1/4)	
	Dimensions	W	mm (in)	UNIT : 840 (33-1/16)	GRILLE : 950 (37-3/8)
		D	mm (in)	UNIT : 840 (33-1/16)	GRILLE : 950 (37-3/8)
		H	mm (in)	UNIT : 258 (10-3/16)	GRILLE : 40 (1-9/16)
	Weight		kg	UNIT : 21	GRILLE : 5

INDOOR UNIT	**Service Ref.**			**PLA-M100EA-A.TH**	
	Mode			Cooling	Heating
	Power supply (phase, cycle, voltage)			Single phase, 50Hz, 230 V	
		Input	kW	0.07	0.07
		Running current	A	0.46	0.44
	External finish (Grille)			Munsell 1.0Y 9.2/0.2	
	Heat exchanger			Plate fin coil	
	Fan	Fan (drive) × No.		Turbo fan (direct) × 1	
		Fan motor output	W	0.120	
		Airflow (Low-Medium2-Medium1-High)	m^3/min	19-23-26-29	
		External static pressure	Pa (mmAq)	0(direct blow)	
	Booster heater		kW	–	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level SPL(Low-Medium2-Medium1-High)		dB(A)	31-34-37-40	
	Field drain pipe O.D.		mm (in)	32(1-1/4)	
	Dimensions	W	mm (in)	UNIT : 840 (33-1/16)	GRILLE : 950 (37-3/8)
		D	mm (in)	UNIT : 840 (33-1/16)	GRILLE : 950 (37-3/8)
		H	mm (in)	UNIT : 298 (11-3/4)	GRILLE : 40 (1-9/16)
	Weight		kg	UNIT : 24	GRILLE : 5

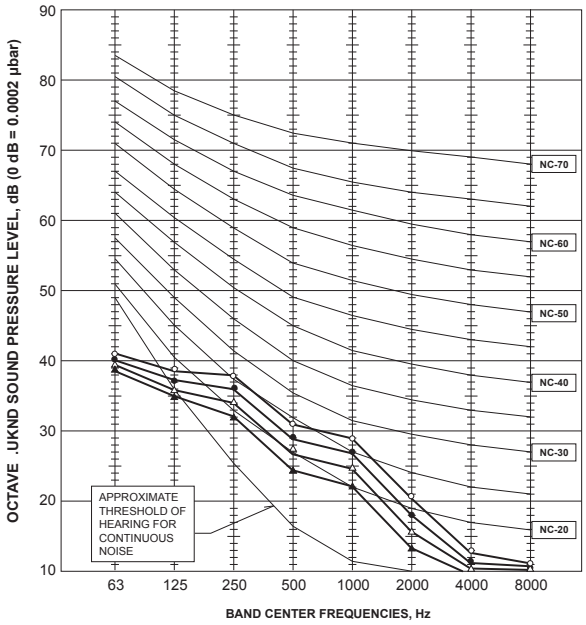
INDOOR UNIT	**Service Ref.**			**PLA-M125EA-A.TH**	
	Mode			Cooling	Heating
	Power supply (phase, cycle, voltage)			Single phase, 50Hz, 230 V	
		Input	kW	0.10	0.10
		Running current	A	0.66	0.64
	External finish (Grille)			Munsell 1.0Y 9.2/0.2	
	Heat exchanger			Plate fin coil	
	Fan	Fan (drive) × No.		Turbo fan (direct) × 1	
		Fan motor output	W	0.120	
		Airflow (Low-Medium2-Medium1-High)	m^3/min	21-25-28-31	
		External static pressure	Pa (mmAq)	0(direct blow)	
	Booster heater		kW	–	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level SPL(Low-Medium2-Medium1-High)		dB(A)	33-37-41-44	
	Field drain pipe O.D.		mm (in)	32 (1-1/4)	
	Dimensions	W	mm (in)	UNIT : 840 (33-1/16)	GRILLE : 950 (37-3/8)
		D	mm (in)	UNIT : 840 (33-1/16)	GRILLE : 950 (37-3/8)
		H	mm (in)	UNIT : 298 (11-3/4)	GRILLE : 40 (1-9/16)
	Weight		kg	UNIT : 27	GRILLE : 5

INDOOR UNIT	**Service Ref.**			**PLA-M140EA-A.TH**		
	Mode			Cooling	Heating	
	Power supply (phase, cycle, voltage)			Single phase, 50Hz, 230 V		
		Input	kW	0.10	0.10	
		Running current	A	0.66	0.64	
	External finish (Grille)			Munsell 1.0Y 9.2/0.2		
	Heat exchanger			Plate fin coil		
	Fan	Fan (drive) × No.		Turbo fan (direct) × 1		
		Fan motor output	W	0.120		
		Airflow (Low-Medium2-Medium1-High)	m^3/min	24-26-29-32		
		External static pressure	Pa (mmAq)	0(direct blow)		
	Booster heater		kW	–		
	Operation control & Thermostat			Remote controller & built-in		
	Noise level SPL(Low-Medium2-Medium1-High)		dB(A)	36-39-42-44		
	Field drain pipe O.D.		mm (in)	32 (1-1/4)		
	Dimensions	W	mm (in)	UNIT : 840 (33-1/16)	GRILLE : 950 (37-3/8)	
		D	mm (in)	UNIT : 840 (33-1/16)	GRILLE : 950 (37-3/8)	
		H	mm (in)	UNIT : 298 (11-3/4)	GRILLE : 40 (1-9/16)	
	Weight		kg	UNIT : 27	GRILLE : 5	

5 NOISE CRITERION CURVES

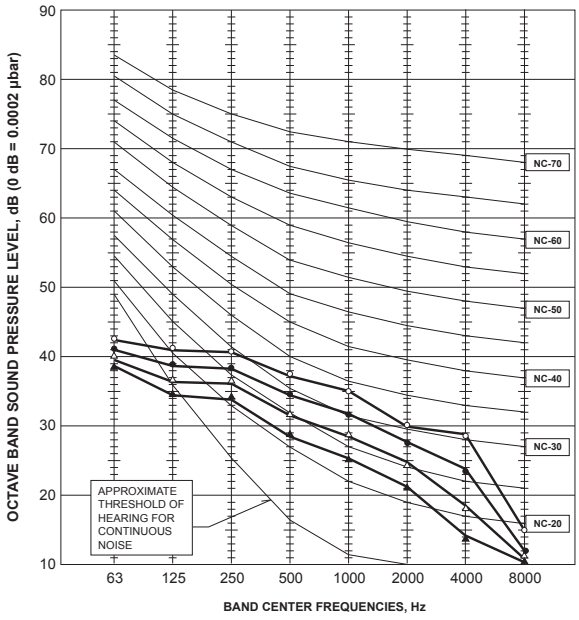
PLA-M71EA-A.TH

NOTCH	SPL(dB)	LINE
High	34	
Medium1	32	
Medium2	30	
Low	28	



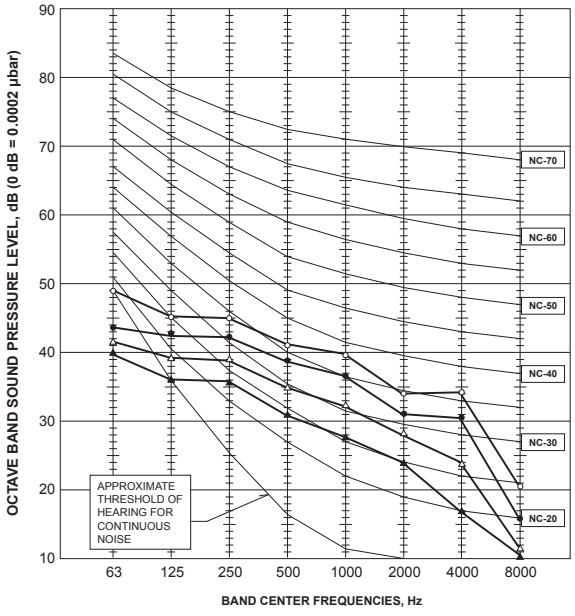
PLA-M100EA-A.TH

NOTCH	SPL(dB)	LINE
High	40	
Medium1	37	
Medium2	34	
Low	31	



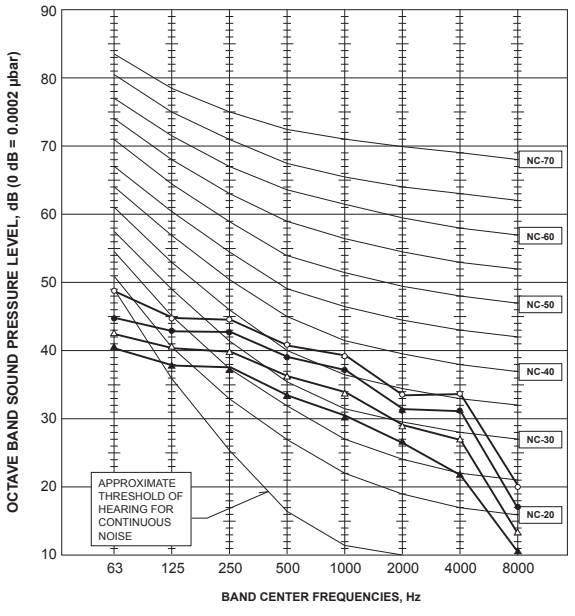
PLA-M125EA-A.TH

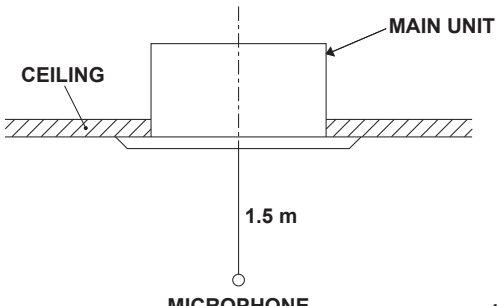
NOTCH	SPL(dB)	LINE
High	44	
Medium1	41	
Medium2	37	
Low	33	



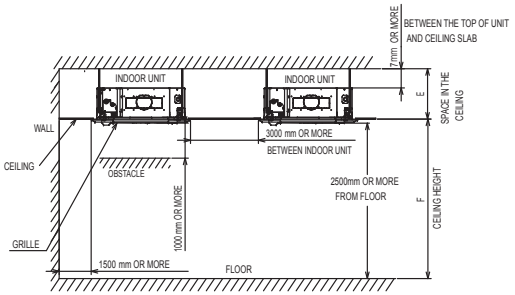
PLA-M140EA-A.TH

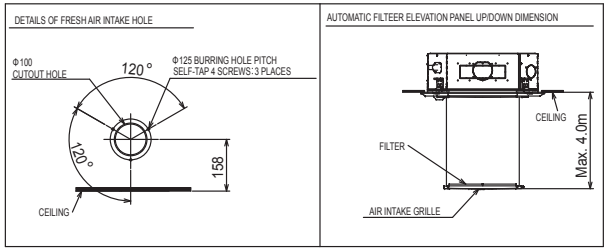
NOTCH	SPL(dB)	LINE
High	44	
Medium1	42	
Medium2	39	
Low	36	

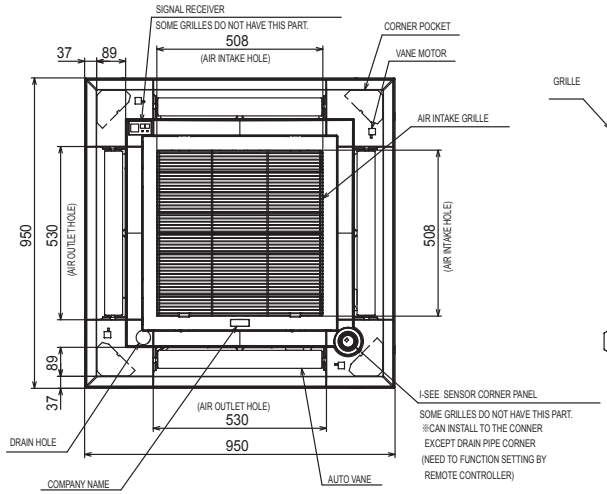


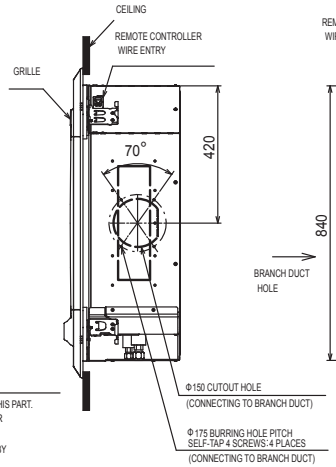


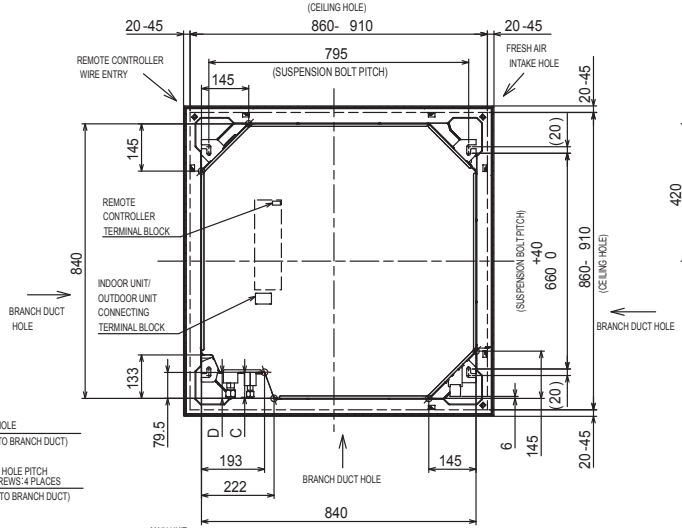
NOTE1. CHOOSE THE GRILLE AMONG THE DEDICATED GRILLES.
2. REINFORCE THE SUSPENSION BOLT FOR EARTHQUAKE-RESISTANCE AS NEEDED.
3. FOR THE SUSPENSION BOLT, USE M10 OR W3/8.
(PROCURED AT THE LOCAL SITE.)
4. FOR DRAIN PIPE, USE VP-25 (O.D. Φ 32 PVC TUBE).
DRAIN PUMP INCLUSION.
RAISE IS MAX 850㎜ FROM THE CEILING.
5. ELECTRICAL BOX MAY BE REMOVED FOR THE SERVICE PURPOSE.
MAKE SURE TO SLACK THE ELECTRICAL WIRE LITTLE BIT FOR
CONTROL/POWER WIRES CONNECTION.
6. THE HEIGHT OF THE INDOOR UNIT IS ABLE TO BE ADJUSTED
WITH THE GRILLE ATTACHED.
7. REQUIRES "E" OR MORE SPACE BETWEEN TRANSOM AND CEILING FOR THE INSTALLATION.
8. WHEN INSTALLING THE BRANCH DUCTS, BE SURE TO INSULATE ADEQUATELY.
OTHERWISE CONDENSATION AND DRIPPING MAY OCCUR.
(IT BECOMES THE CAUSE OF DEW DROPS/WEAR DEW.)
9. AS FOR NECESSARY INSTALLATION/SERVICE SPACE, PLEASE REFER TO THE
RIGHT AT FIGURE.
10. FOR THE INSTALLATION OF THE OPTIONAL HIGH EFFICIENCY FILTER OR
MULTI-FUNCTIONAL CASEMENT, REFER TO SPECIAL DRAWING.

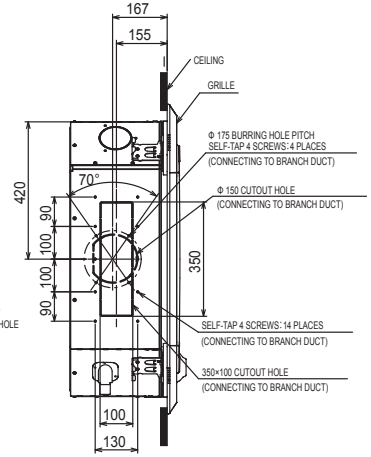






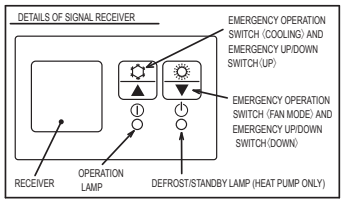


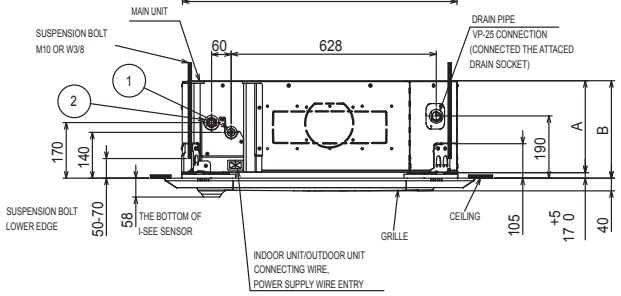




PLA-M**EA-A : 71/100/125/140

M**	①	②	A	B	C	D	E	F
71	REFRIGERANT PIPE Φ 9.52 FLARED CONNECTION 3/8F	REFRIGERANT PIPE Φ 15.88 FLARED CONNECTION 5/8F	241	258	79.5	79.5	265 OR MORE	3500 OR LESS
100-140			281	298			305 OR MORE	4500 OR LESS





Unit: mm

7 WIRING DIAGRAM

PLA-M71EA-A.TH PLA-M100EA-A.TH PLA-M125EA-A.TH PLA-M140EA-A.TH

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
DP	DRAIN PUMP	R.B	WIRED REMOTE CONTROLLER
FS	DRAIN FLOAT SWITCH	TB4	TERMINAL BLOCK (INDOOR/OUTDOOR CONNECTING LINE)
I.B	INDOOR CONTROLLER BOARD	TB5,TB6	TERMINAL BLOCK (REMOTE CONTROLLER TRANSMISSION LINE)
CN105	CONNECTOR (IT TERMINAL)	TH1	ROOM TEMP. THERMISTOR (0°C / 15kΩ, 25°C / 5. 4kΩ DETECT)
CN2L	CONNECTOR (LOSSNAY)	TH2	PIPE TEMP. THERMISTOR/LIQUID (0°C / 15kΩ, 25°C / 5. 4kΩ DETECT)
CN32	CONNECTOR (REMOTE SWITCH)	TH5	COND. / EVA. TEMP. THERMISTOR (0°C / 15kΩ, 25°C / 5. 4kΩ DETECT)
CN41	CONNECTOR (HA TERMINAL-A)	OPTION PART	
CN51	CONNECTOR (CENTRALLY CONTROL)	MT	I-SEE SENSOR MOTOR
F1	FUSE (T6.3AL250V)	TB2	TERMINAL BLOCK (INDOOR UNIT POWER AND TRANSMISSION LINE)
LED1	POWER SUPPLY (I.B)	W.B	PCB OF SIGNAL RECEIVER
LED2	POWER SUPPLY (R.B)	BZ	BUZZER
LED3	TRANSMISSION (INDOOR-OUTDOOR)	LED1	LED (OPERATION INDICATION : GREEN)
SW1	SWITCH (MODEL SELECTION) Refer to <Table 1>.	LED2	LED (PREPARATION FOR HEATING : ORANGE) [HEAT PUMP ONLY]
SW2	SWITCH (CAPACITY CODE) Refer to <Table 2>.	RU	RECEIVING UNIT
SWE	CONNECTOR (EMERGENCY OPERATION)	SW1	EMERGENCY OPERATION (FAN / DOWN)
MF	FAN MOTOR	SW2	EMERGENCY OPERATION (COOL / UP)
MV	VANE MOTOR		

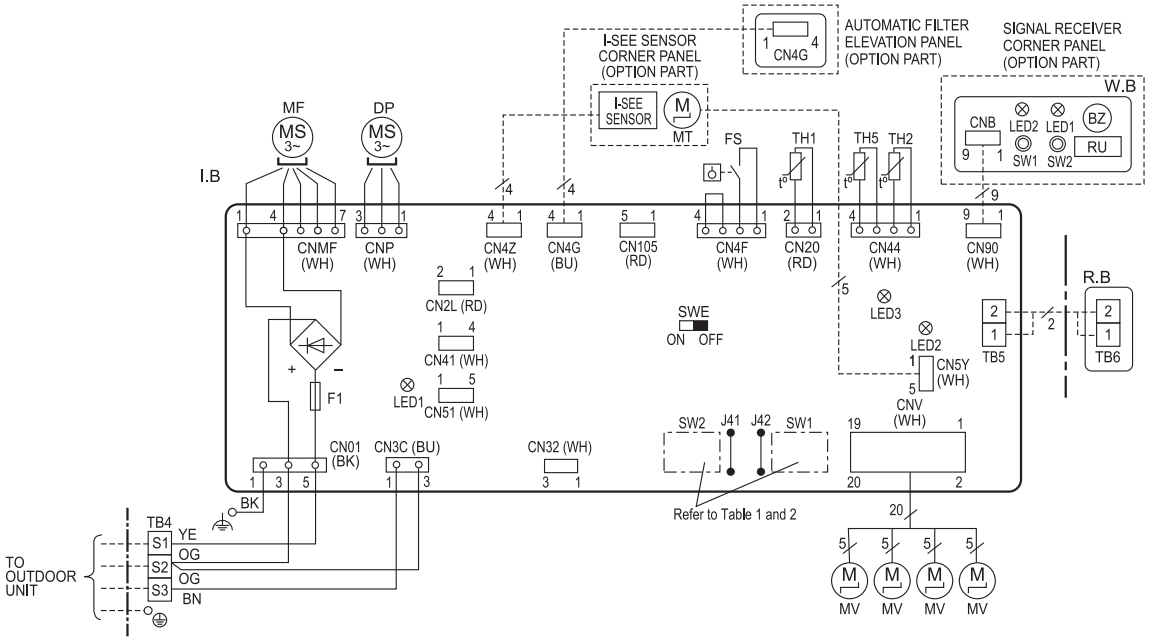
<Table 1> SW1 (MODEL SELECTION)

MODELS	Manufacture/Service
PLA-M•EA-A	1 2 3 4 5 6 ON OFF

<Table 2> SW2 (CAPACITY CODE)

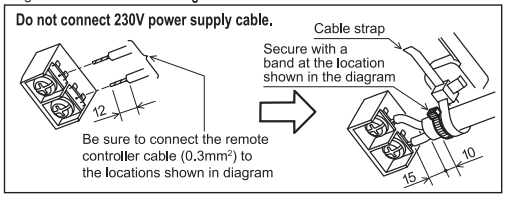
CAPACITY	Manufacture/Service	CAPACITY	Manufacture/Service
71	1 2 3 4 5 ON OFF	125	1 2 3 4 5 ON OFF
100	1 2 3 4 5 ON OFF	140	1 2 3 4 5 ON OFF

The black square (■) indicates a switch position.

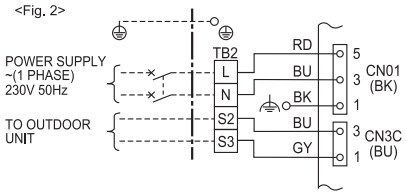


Notes:
1. Symbols used in wiring diagram above are, □□□:Terminal (block), ○○○:Connector.
2. Indoor and outdoor connecting wires are made with polarities, make wiring matching terminal numbers (S1, S2, S3).
3. Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.
4. This diagram shows the wiring of indoor and outdoor connecting wires (specification of 230V), adopting superimposed system of power and signal.
   - If the separate indoor/outdoor unit power supplied system is applied, refer to Fig 2.
   - For power supply system of this unit, refer to the caution label located near this diagram.

<Fig. 1> **Caution when connecting the remote controller cable to the terminal block TB5**



<Fig. 2>



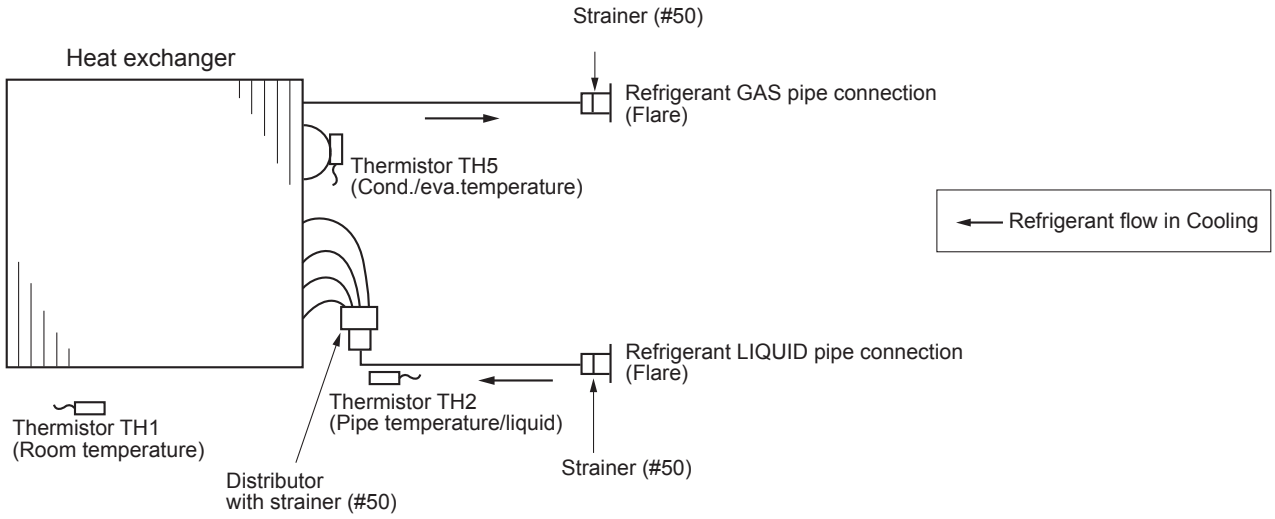
[Self-diagnosis]

1. For details on how to operate self-diagnosis with the wireless remote controller, refer to the technical manuals etc.

Check code	Symptom	Check code	Symptom
E0~E5	Abnormality of the signal transmission between remote controller and indoor unit.	P6	Freezing / overheating protection is working.
		P8	Abnormality of pipe temperature.
E6~EF	Abnormality of the signal transmission between indoor unit and outdoor unit.	P9	Abnormality of pipe temperature thermistor / Cond. /Eva. (TH5).
FB(Fb)	Abnormality of indoor controller board.	PA	Leakage error (refrigerant system)
P1	Abnormality of room temperature thermistor (TH1).	PB(Pb)	Indoor unit fan motor error.
P2	Abnormality of pipe temperature thermistor / Liquid (TH2).	PL	Refrigerant circuit abnormal.
P4	Float switch connector open (FS).	U*, F*	Abnormality in outdoor unit. Refer to outdoor unit wiring diagram.
P5	Malfunction of Drain pump.		

8 REFRIGERANT SYSTEM DIAGRAM

PLA-M71EA-A.TH PLA-M100EA-A.TH PLA-M125EA-A.TH PLA-M140EA-A.TH



9 TROUBLESHOOTING

9-1. TROUBLESHOOTING

<Check code displayed by self-diagnosis and actions to be taken for service (summary)>

Present and past check codes are logged, and they can be displayed on the wired remote controller or controller board of outdoor unit. Actions to be taken for service, which depends on whether or not the trouble is reoccurring in the field, are summarized in the table below. Check the contents below before investigating details.

Unit conditions at service	Check code	Actions to be taken for service (summary)
The trouble is reoccurring.	Displayed	Judge what is wrong and take a corrective action according to “9-3. SELF-DIAGNOSIS ACTION TABLE”.
	Not displayed	Conduct troubleshooting and ascertain the cause of the trouble according to “9-4. TROUBLESHOOTING OF PROBLEMS”.
The trouble is not reoccurring.	Logged	① Consider the temporary defects such as the work of protection devices in the refrigerant circuit including compressor, poor connection of wiring, noise, etc. Re-check the symptom, and check the installation environment, refrigerant amount, weather when the trouble occurred, matters related to wiring, etc. ② Reset check code logs and restart the unit after finishing service. ③ There is no abnormality in electrical component, controller board, remote controller, etc.
	Not logged	① Re-check the abnormal symptom. ② Conduct troubleshooting and ascertain the cause of the trouble according to “9-4. TROUBLESHOOTING OF PROBLEMS”. ③ Continue to operate unit for the time being if the cause is not ascertained. ④ There is no abnormality concerning of parts such as electrical component, controller board, remote controller, etc.

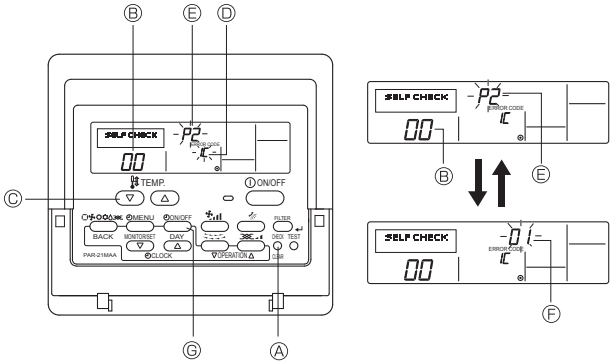
9-2. MALFUNCTION-DIAGNOSIS METHOD BY REMOTE CONTROLLER

<In case of trouble during operation>

When a malfunction occurs to air conditioner, both indoor unit and outdoor unit will stop and operation lamp blinks to inform unusual stop.

<Malfunction-diagnosis method at maintenance service>

■ Wired remote controller



① Turn on the power.
② Press the [CHECK] button twice.
③ Set address with [TEMP] button if system control is used.
④ Press the [ON/OFF] button to stop the self-check.

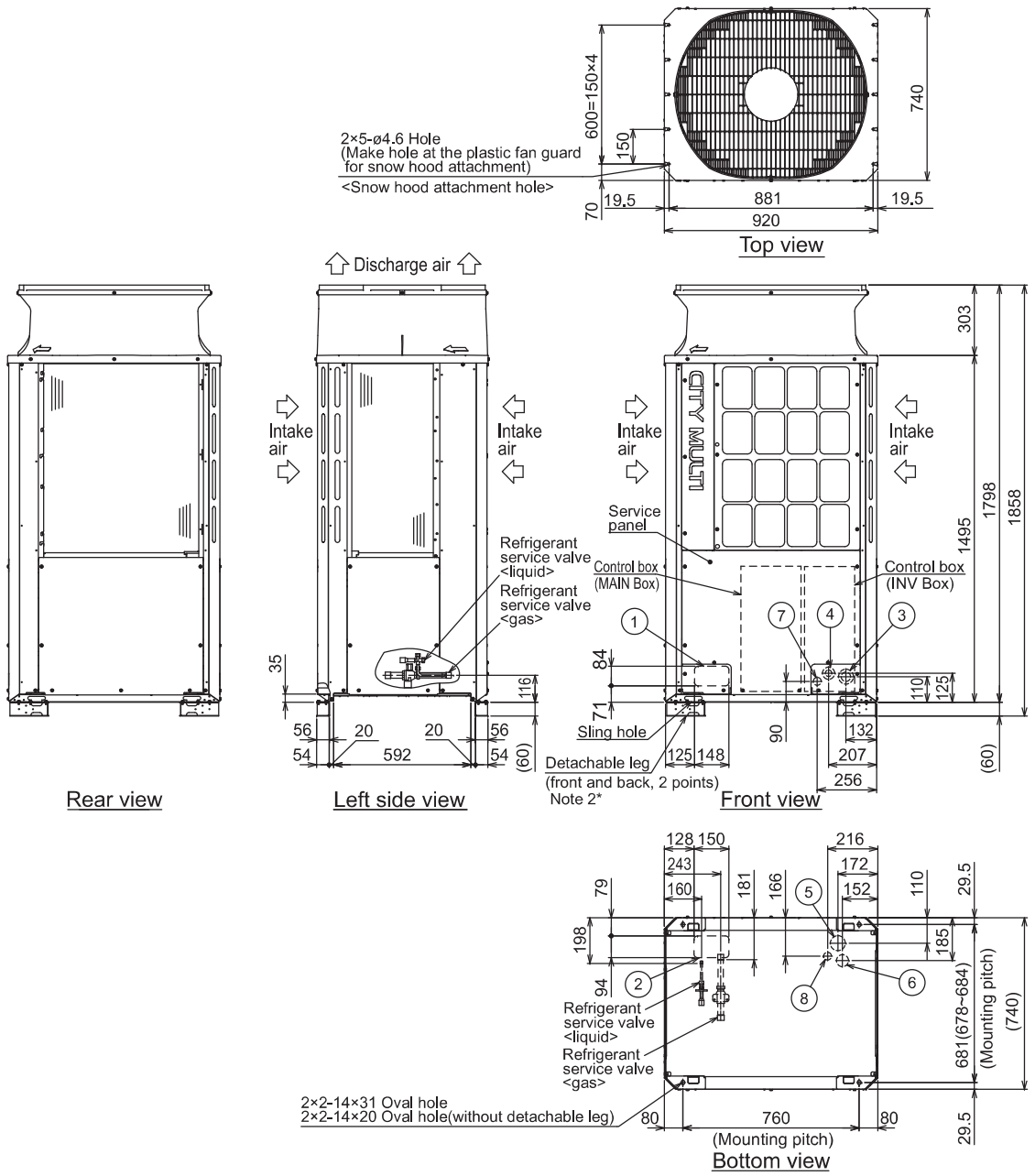
Ⓐ CHECK button
Ⓑ Address
Ⓒ TEMP. button
Ⓓ IC : Indoor unit
OC: Outdoor unit
Ⓔ Check code (– – – – : No trouble generated in the past / F F F F : No corresponding unit)
Ⓕ Unit No.
Ⓖ Timer ON/OFF button

<To cancel check code>

① Display the check code at the self-check result display screen.
② The address for self-check will blink when the Ⓖ◴ ON/OFF button is pressed twice within 3 seconds.

PUHY-P200, 250, 300YNW-A(-BS)

Unit: mm



Note 1. Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2. The detachable leg can be removed at site.
3. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C.

Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	Liquid	Gas	Liquid	Gas
P200	ø9.52 Brazed	ø22.2 Brazed	ø9.52	ø22.2
P250	ø9.52 Brazed (ø12.7 Brazed) *1,*3			
P300	ø9.52 Brazed (ø12.7 Brazed) *1,*2,*4			

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.
*2 Indicates dimensions and connection specifications in the case the unit is used in combination with other outdoor units.
*3 Furthest piping length (OU from IU)≥90m
*4 Furthest piping length (OU from IU)≥40m

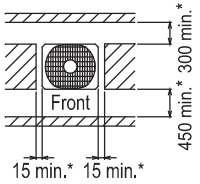
NO.	Usage		Specifications
①	For pipes	Front through hole	148 × 84 Knockout hole
②		Bottom through hole	150 × 94 Knockout hole
③	For wires	Front through hole	ø65 or ø40 Knockout hole
④		Front through hole	ø52 or ø27 Knockout hole
⑤		Bottom through hole	ø65 Knockout hole
⑥		Bottom through hole	ø52 Knockout hole
⑦	For transmission cables	Front through hole	ø34 Knockout hole
⑧		Bottom through hole	ø34 Knockout hole

1.Required space around the unit

●In case of single installation

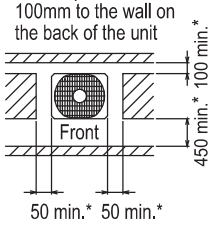
①Secure enough space around the unit as shown in the figure below.

· With a space of at least 300mm to the wall on the back of the unit



<Top view>

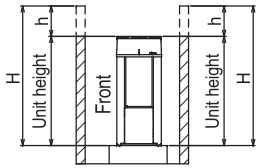
· With a space of at least 100mm to the wall on the back of the unit



<Top view>

<Unit:mm>

②When the height of the walls on the front, back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.



<Side view>

<Wall height limit> Front :Up to the unit height
Back :Up to the unit height
Side :Up to the unit height

2.Foundation work

①Take into consideration the surface strength, water drainage route, piping route, and wiring route when preparing the installation site.
<Note that the drain water comes out of the unit during operation.>

②Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A,B)
When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.

③The protrusion length of the anchor bolt must not exceed 30mm.(Fig.A,B)

④Use four fixing plates as shown in the right figure <field supply required> when using post-installed anchor bolts.(Fig.C,D)

⑤To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.

⑥When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.

⑦Refer to the Installation Manual when installing units on an installation base.

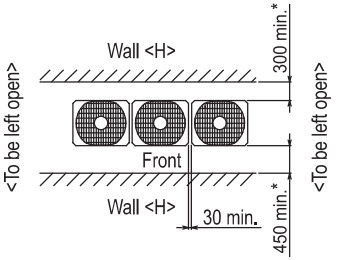
●In case of collective installation

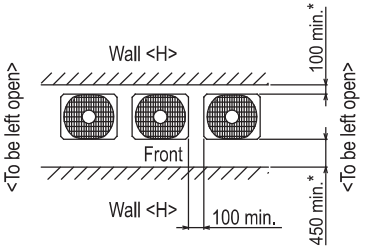
①When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.

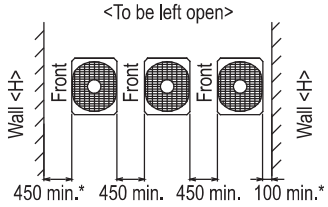
②At least two sides must be left open.

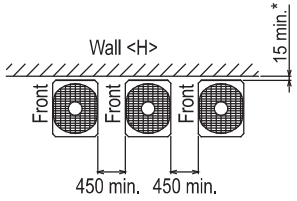
③As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.

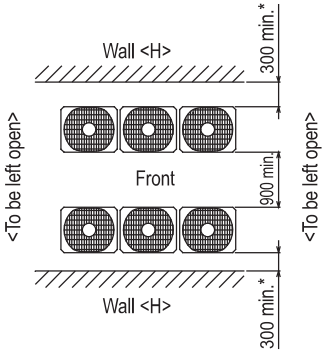
④If there is a wall at both the front and the rear of the unit, install up to six units consecutively in the side direction and provide a space of 1000mm or more as inlet space/ passage space for each six units.

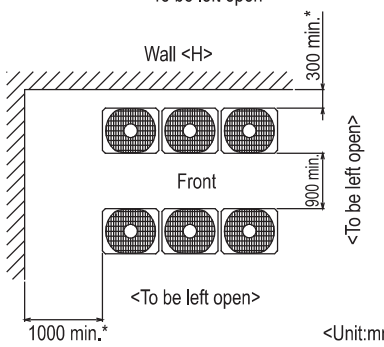












<Unit:mm>

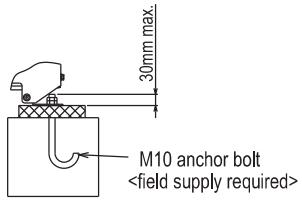


Fig.A (without detachable legs)

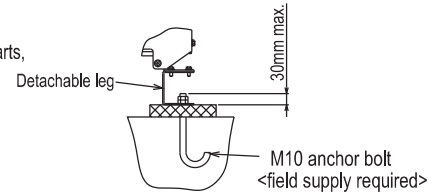


Fig.B (with detachable legs)

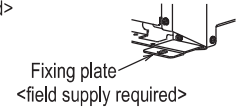


Fig.C (without detachable legs)

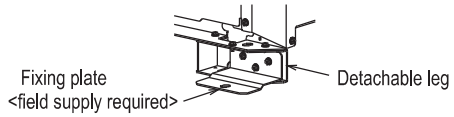
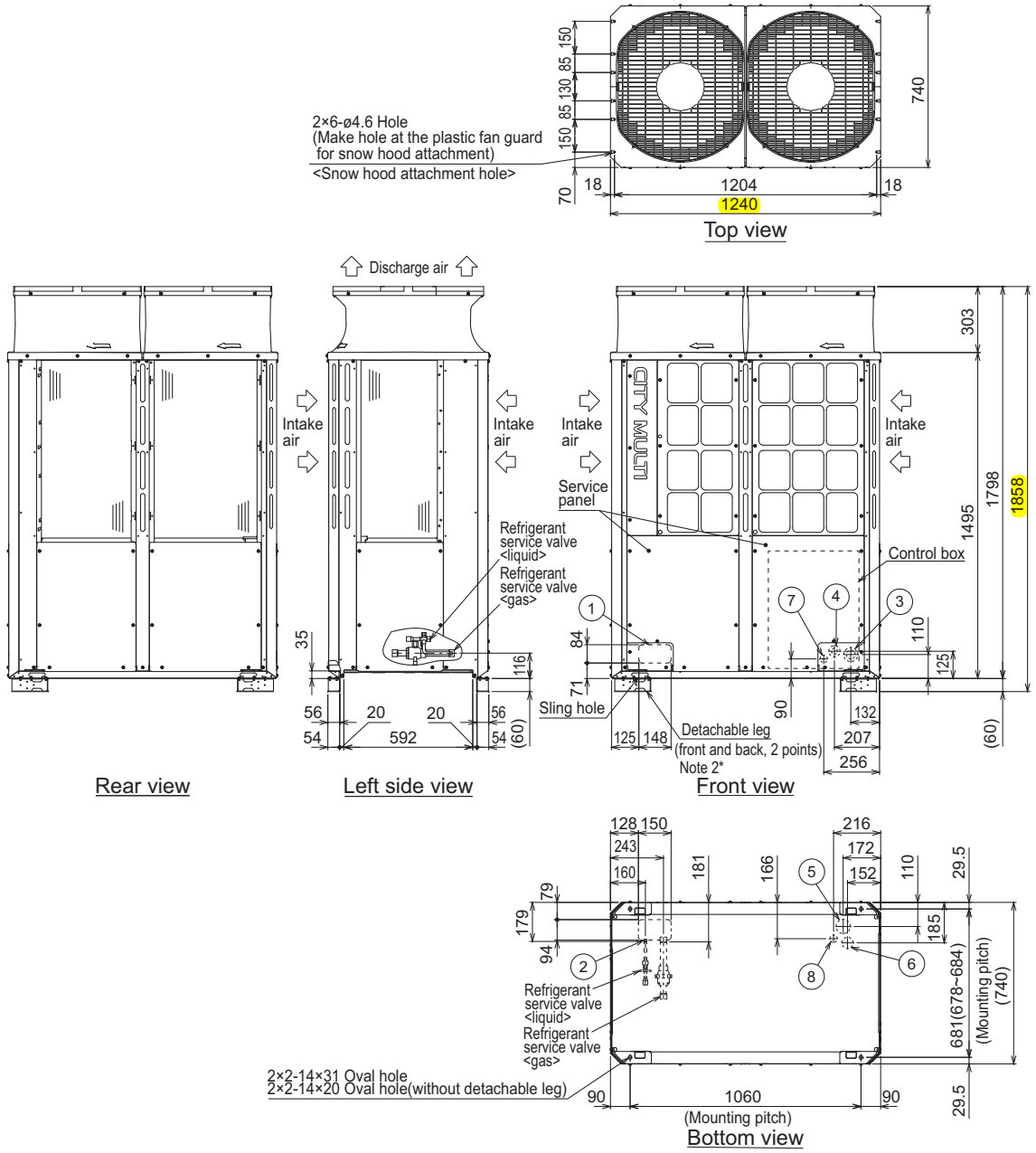


Fig.D (with detachable legs)

Unit: mm

PUHY-P350, 400, 450YNW-A(-BS)

Unit: mm



Note 1. Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2. The detachable leg can be removed at site.
3. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C.

Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	Liquid	Gas	Liquid	Gas
P350	ø12.7 Brazed	ø28.58 Brazed	ø12.7	ø28.58
P400	ø12.7 Brazed (ø15.88 Brazed) *1,*2			
P450	ø15.88 Brazed *1			

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.
*2 Indicates dimensions and connection specifications in the case the unit is used in combination with other outdoor units. (Except for P650)

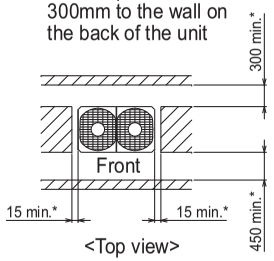
NO.	Usage		Specifications
①	For pipes	Front through hole	148 × 84 Knockout hole
②		Bottom through hole	150 × 94 Knockout hole
③	For wires	Front through hole	ø65 or ø40 Knockout hole
④		Front through hole	ø52 or ø27 Knockout hole
⑤		Bottom through hole	ø65 Knockout hole
⑥		Bottom through hole	ø52 Knockout hole
⑦	For transmission cables	Front through hole	ø34 Knockout hole
⑧		Bottom through hole	ø34 Knockout hole

1.Required space around the unit

●In case of single installation

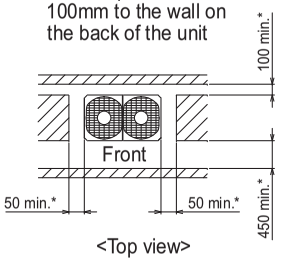
①Secure enough space around the unit as shown in the figure below.

· With a space of at least 300mm to the wall on the back of the unit



<Top view>

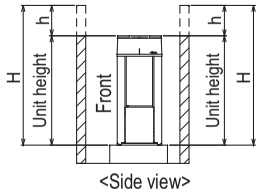
· With a space of at least 100mm to the wall on the back of the unit



<Top view>

<Unit:mm>

②When the height of the walls on the front, back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.



<Side view>

<Wall height limit> Front :Up to the unit height
Back :Up to the unit height
Side :Up to the unit height

2.Foundation work

①Take into consideration the surface strength, water drainage route, piping route, and wiring route when preparing the installation site.
<Note that the drain water comes out of the unit during operation.>

②Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A,B)
When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.

③The protrusion length of the anchor bolt must not exceed 30mm.(Fig.A,B)

④Use four fixing plates as shown in the right figure <field supply required> when using post-installed anchor bolts.(Fig.C,D)

⑤To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.

⑥When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.

⑦Refer to the Installation Manual when installing units on an installation base.

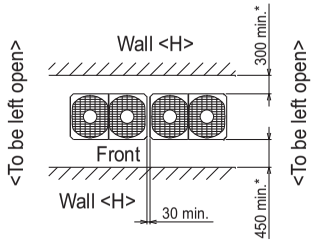
●In case of collective installation

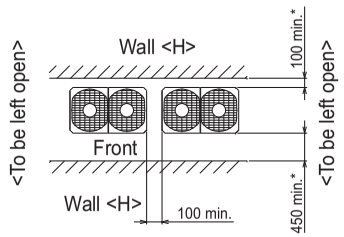
①When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.

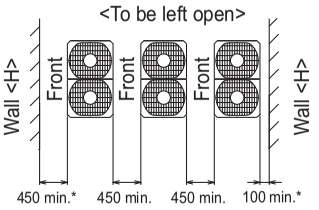
②At least two sides must be left open.

③As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.

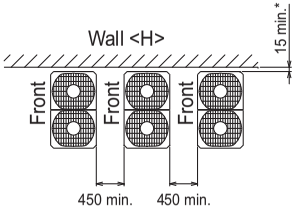
④If there is a wall at both the front and the rear of the unit, install up to six units consecutively in the side direction and provide a space of 1000mm or more as inlet space/ passage space for each six units.

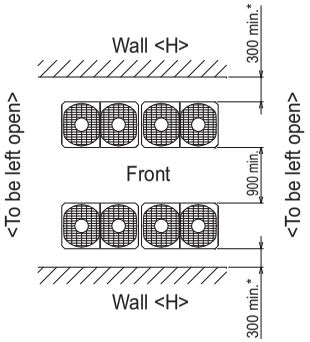


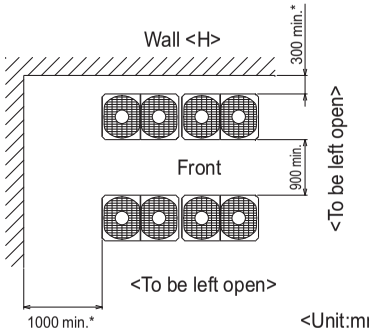




<To be left open>







<Unit:mm>

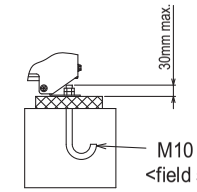


Fig.A (without detachable legs)

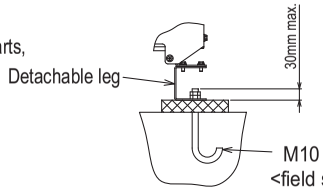


Fig.B (with detachable legs)

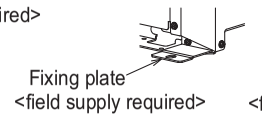


Fig.C (without detachable legs)

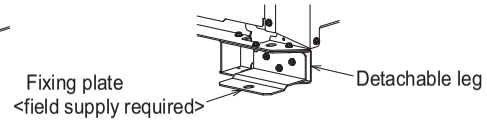


Fig.D (with detachable legs)

Unit: mm

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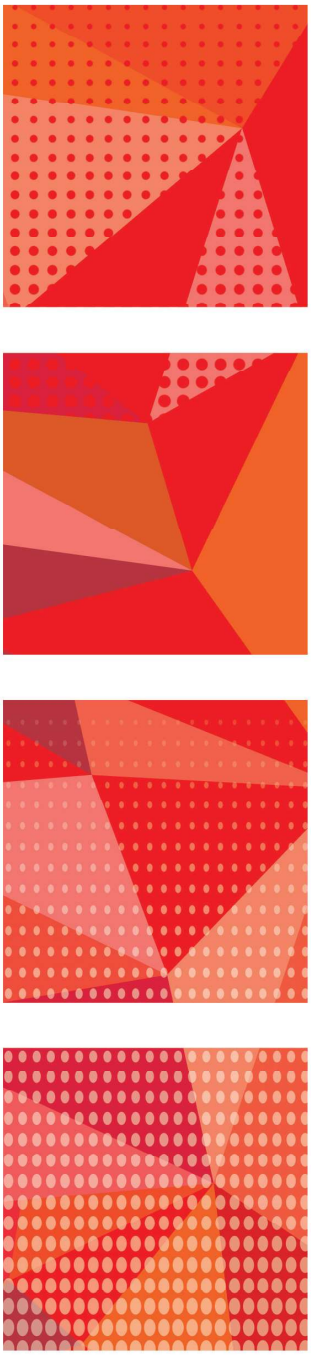
AIR CONDITIONING SYSTEMS

CITY MULTI



DATA BOOK

MODEL

PUMY-SP112-140VKMD-A (-BS)

PUMY-SP112-140YKMD-A (-BS)

PUMY-P200YKMD-A (-BS)

Model					PUMY-SP112VKMD-A(-BS)	PUMY-SP125VKMD-A(-BS)	PUMY-SP140VKMD-A(-BS)
Power source					1-phase 220-230-240 V, 50 Hz; 1-phase 220 V, 60 Hz		
Cooling capacity (Nominal)		*1 kW			12.5	14.0	15.5
		*1 kcal/h			10,750	12,040	13,330
		*1 Btu/h			42,650	47,768	52,886
	Power input	kW			3.10	3.84	4.38
	Current input	A			14.38-13.75-13.18,14.38	17.81-17.04-16.33,17.81	20.32-19.43-18.62,20.32
	EER	kW/kW			4.03	3.65	3.54
Temp. range of cooling	Indoor	W.B.			15 to 24°C (59 to 75°F)		
	Outdoor *3,*4	D.B.			-5 to 52°C (23 to 126°F)		
Heating capacity (Nominal)		*2 kW			14.0	16.0	16.5
		*2 kcal/h			12,040	13,760	14,190
		*2 Btu/h			47,768	54,592	56,298
	Power input	kW			3.17	3.90	4.02
	Current input	A			14.70-14.06-13.48,14.70	18.09-17.30-16.58,18.09	18.65-17.83-17.09,18.65
	EER	kW/kW			4.42	4.10	4.10
Temp. range of heating	Indoor	D.B.			15 to 27°C (59 to 81°F)		
	Outdoor	W.B.			-20 to 15°C (-4 to 59°F)		
Indoor unit connectable	Total capacity				50 to 130% of outdoor unit capacity		
	Model/ Quantity	CITY MULTI			P15-P140/9	P15-P140/10	P15-P140/12
		Branch box *7			P15-P100/8	P15-P100/8	P15-P100/8
		Mixed system	Branch box 1 unit *7	CITY MULTI	P15-P140/5	P15-P140/5	P15-P140/5
				Branch box	P15-P100/5	P15-P100/5	P15-P100/5
			Branch box 2 units *7	CITY MULTI	P15-P140/3 or 2*6	P15-P140/3	P15-P140/3
				Branch box	P15-P100/7 or 8*6	P15-P100/8	P15-P100/8
Sound pressure level (measured in anechoic room)		dB <A>			52/54	53/56	54/56
Refrigerant piping diameter	Liquid pipe	mm (inch)			9.52 (3/8) Flare		
	Gas pipe	mm (inch)			15.88 (5/8) Flare		
FAN	Type × Quantity				Propeller Fan × 1		
	Airflow rate	m³/min			77	83	83
		L/s			1283	1383	1383
		cfm			2719	2931	2931
	Control, Driving mechanism				DC control		
	Motor output	kW			0.20 × 1		
	External static press.				0 Pa (0mmH$_2$O)*8		
Compressor	Type × Quantity				Twin rotary hermetic compressor × 1		
	Manufacturer				Mitsubishi Electric Corporation		
	Starting method				Inverter		
	Capacity control	%			Cooling 26 to 100 Heating 20 to 100	Cooling 24 to 100 Heating 18 to 100	Cooling 21 to 100 Heating 17 to 100
	Motor output	kW			3.1	3.5	3.7
	Case heater	kW			0		
	Lubricant				FV50S (1.4litter)		
External finish					Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1		
External dimension H × W × D		mm			981 × 1,050 × 330 (+25)		
		inch			38-5/8 × 41-3/8 × 13 (+1)		
Protection devices	High pressure protection				High pressure Switch		
	Inverter circuit (COMP./FAN)				Overcurrent detection, Overheat detection(Heat sink thermistor)		
	Compressor				Compressor thermistor, Overcurrent detection		
	Fan motor				Overheating, Voltage protection		
Refrigerant	Type × original charge				R410A × 3.5 kg (8 lbs)		
	Control				Electronic expansion valve		
Net weight		kg (lbs)			93 (205)*5		
Heat exchanger					Cross Fin and Copper tube		
HIC circuit (HIC: Heat Inter-Changer)					HIC circuit		
Defrosting method					Reversed refrigerant circuit		
Drawing	External				RK01J091		
	Wiring				BH79N194		
Standard attachment	Document				Installation Manual		
	Accessory				Grounded lead wire		
Optional parts					Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E Branch box: PAC-MK33/53BC		
Remarks					1. Nominal conditions *1, *2 are subject to ISO 15042. 2. Due to continuing improvement, above specifications may be subject to change without notice.		

Note

*1 Nominal cooling conditions

Indoor:	27°C D.B./19°C W.B. [81°F D.B/66°F W.B.]
Outdoor:	35°C D.B. [95°F D.B.]
Pipe length:	7.5 m [24-9/16 ft]
Level difference:	0 m [0 ft]

*2 Nominal heating conditions

	20°C D.B. [68°F D.B.]
	7°C DB/6°C W.B. [45°F D.B./43°F W.B.]
	7.5 m [24-9/16 ft]
	0 m [0 ft]

*3 10 to 52°C(D.B.): When connecting following models such as PKFY-P15/20/25VBM, PFFY-P20/25/32VLE(R)M, PFFY-P20/25/32VKM, and M series, S series, and P series type indoor unit with branch box, M series type indoor unit with connection kit.

*4 −15 to 52°C(D.B.): When using an optional air protect guide [PAC-SH95AG-E]. However, this condition does not apply to the indoor unit listed in *3.

*5 94 (207), for PUMY-SP112/125/140VKMD-A-BS.

*6 When connecting 7 indoor units via branch box, connectable citymulti indooor units are 3; connecting 8 indoor units via branch box, connectable citymulti indoor units are 2.

*7 At least two indoor unit must be connected when using branch box.

*8 It is possible to set the External static pressure to 30 Pa by Dip Switch.

Unit converter

kcal/h = kW × 860
Btu/h = kW × 3,412
cfm = m³/min × 35.31
lb = kg/0.4536

Above specification data is subject to rounding variation.

Model					PUMY-SP112YKMD-A(-BS)	PUMY-SP125YKMD-A(-BS)	PUMY-SP140YKMD-A(-BS)
Power source					3-phase 380-400-415V, 50 Hz; 3-phase 380 V, 60 Hz		
Cooling capacity (Nominal)	*1	kW			12.5	14.0	15.5
	*1	kcal/h			10,750	12,040	13,330
	*1	Btu/h			42,650	47,768	52,886
	Power input	kW			3.10	3.84	4.38
	Current input	A			4.96-4.71-4.54,4.96	6.14-5.83-5.62,6.14	7.00-6.65-6.41,7.00
	EER	kW/kW			4.03	3.65	3.54
Temp. range of cooling	Indoor	W.B.			15 to 24°C (59 to 75°F)		
	Outdoor *3,*4	D.B.			-5 to 52°C (23 to 126°F)		
Heating capacity (Nominal)	*2	kW			14.0	16.0	16.5
	*2	kcal/h			12,040	13,760	14,190
	*2	Btu/h			47,768	54,592	56,298
	Power input	kW			3.17	3.90	4.02
	Current input	A			5.07-4.82-4.64,5.07	6.24-5.93-5.71,6.24	6.43-6.11-5.89,6.43
	EER	kW/kW			4.42	4.10	4.10
Temp. range of heating	Indoor	D.B.			15 to 27°C (59 to 81°F)		
	Outdoor	W.B.			-20 to 15°C (-4 to 59°F)		
Indoor unit connectable	Total capacity				50 to 130% of outdoor unit capacity		
	Model/ Quantity	CITY MULTI			P15-P140/9	P15-P140/10	P15-P140/12
		Branch box *7			P15-P100/8	P15-P100/8	P15-P100/8
		Mixed system	Branch box 1 unit *7	CITY MULTI	P15-P140/5	P15-P140/5	P15-P140/5
				Branch box	P15-P100/5	P15-P100/5	P15-P100/5
			Branch box 2 units *7	CITY MULTI	P15-P140/3 or 2*6	P15-P140/3	P15-P140/3
				Branch box	P15-P100/7 or 8*6	P15-P100/8	P15-P100/8
Sound pressure level (measured in anechoic room)		dB <A>			52/54	53/56	54/56
Refrigerant piping diameter	Liquid pipe	mm (inch)			9.52 (3/8) Flare		
	Gas pipe	mm (inch)			15.88 (5/8) Flare		
FAN	Type × Quantity				Propeller Fan × 1		
	Airflow rate	m^3/min			77	83	83
		L/s			1283	1383	1383
		cfm			2719	2931	2931
	Control, Driving mechanism				DC control		
	Motor output	kW			0.20 × 1		
	External static press.				0 Pa (0mmH_2O) *8		
Compressor	Type × Quantity				Twin rotary hermetic compressor × 1		
	Manufacturer				Mitsubishi Electric Corporation		
	Starting method				Inverter		
	Capacity control	%			Cooling 26 to 100 Heating 20 to 100	Cooling 20 to 100 Heating 18 to 100	Cooling 21 to 100 Heating 17 to 100
	Motor output	kW			3.1	3.5	3.7
	Case heater	kW			0		
	Lubricant				FV50S (1.4litter)		
External finish					Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1		
External dimension H × W × D		mm			981 × 1,050 × 330(+25)		
		inch			38-5/8 × 41-3/8 × 13 (+1)		
Protection devices	High pressure protection				High pressure Switch		
	Inverter circuit (COMP./FAN)				Overcurrent detection, Overheat detection(Heat sink thermistor)		
	Compressor				Compressor thermistor, Overcurrent detection		
	Fan motor				Overheating, Voltage protection		
Refrigerant	Type × original charge				R410A × 3.5 kg (8 lbs)		
	Control				Electronic expansion valve		
Net weight		kg (lbs)			94 (207) *5		
Heat exchanger					Cross Fin and Copper tube		
HIC circuit (HIC: Heat Inter-Changer)					HIC circuit		
Defrosting method					Reversed refrigerant circuit		
Drawing	External				RK01J091		
	Wiring				BH79N195		
Standard attachment	Document				Installation Manual		
	Accessory				Grounded lead wire		
Optional parts					Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E Branch box: PAC-MK33/53BC		
Remarks					1. Nominal conditions *1, *2 are subject to ISO 15042. 2. Due to continuing improvement, above specifications may be subject to change without notice.		

Note

	*1 Nominal cooling conditions	*2 Nominal heating conditions
Indoor:	27°C D.B./19°C W.B. [81°F D.B/66°F W.B.]	20°C D.B. [68°F D.B.]
Outdoor:	35°C D.B. [95°F D.B.]	7°C DB/6°C W.B. [45°F D.B./43°F W.B.]
Pipe length:	7.5 m [24-9/16 ft]	7.5 m [24-9/16 ft]
Level difference:	0 m [0 ft]	0 m [0 ft]

*3 10 to 52°C(D.B.): When connecting following models such as PKFY-P15/20/25VBM, PFFY-P20/25/32VLE(R)M, PFFY-P20/25/32VKM, and M series, S series, and P series type indoor unit with branch box, M series type indoor unit with connection kit.

*4 −15 to 52°C(D.B.): When using an optional air protect guide [PAC-SH95AG-E]. However, this condition does not apply to the indoor unit listed in *3.

*5 95 (209), for PUMY-SP112/125/140YKMD-A-BS.

*6 When connecting 7 indoor units via branch box, connectable citymulti indooor units are 3; connecting 8 indoor units via branch box, connectable citymulti indoor units are 2.

*7 At least two indoor unit must be connected when using branch box.

*8 It is possible to set the External static pressure to 30 Pa by Dip Switch.

Unit converter

kcal/h = kW × 860
Btu/h = kW × 3,412
cfm = m^3/min × 35.31
lb = kg/0.4536

Above specification data is subject to rounding variation.

Model					PUMY-P200YKMD-A(-BS)
Power source					3-phase 380-400-415 V, 50 Hz; 3-phase 380 V, 60 Hz
Cooling capacity (Nominal)			*1	kW	22.4
			*1	kcal/h	19,300
			*1	Btu/h	76,400
	Power input			kW	6.22
	Current input			A	10.16-9.65-9.30, 10.16
	EER			kW/kW	3.60
Temp. range of cooling	Indoor			W.B.	15 to 24°C [59 to 75°F]
	Outdoor		*5	D.B.	-5 to 52°C [23 to 126°F]
Heatingf capacity (Nominal)			*2	kW	25.0
			*2	kcal/h	21,500
			*2	Btu/h	85,300
	Power input			kW	6.00
	Current input			A	9.80-9.31-8.98, 9.80
	COP			kW/kW	4.17
Temp. range of heating	Indoor			D.B.	15 to 27°C [59 to 81°F]
	Outdoor			W.B.	-20 to 15°C [-4 to 59°F]
Indoor unit connectable	Total capacity				50 to 130% of outdoor unit capacity
	Model/ Quantity	CITY MULTI			P15-P200/12
		Branch box			kW type: P22–P100 /8
		Mixed system	Branch box 1 unit	CITY MULTI	P15-P200/5
				Branch box	kW type: P22–P100 /5
			Branch box 2 units	CITY MULTI	P15-P200/3
				Branch box	kW type: P22–P100 /8
Sound pressure level (measured in anechoic room)				dB <A>	57/61
Refrigerant piping diameter	Liquid pipe		*3	mm (inch)	ø9.52 [ø3/8]
	Gas pipe			mm (inch)	ø19.05 [ø3/4]
FAN	Type × Quantity				Propeller Fan × 2
	Air flow rate			m³/min	134
				L/s	2,233
				cfm	4,732
	Control, Driving mechanism				DC control
	Motor output			kW	0.20 + 0.20
	External static press.				0 Pa
Compressor	Type × Quantity				Scroll hermetic compressor × 1
	Manufacture				Siam Compressor Industry Co., Ltd.
	Starting method				Inverter
	Motor output			kW	5.3
	Case heater			kW	0
	Lubricant				FVC68D(2.3 litter)
External finish					Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1
External dimension H × W × D				mm	1,338 × 1,050 × 330(+25)
				inch	52-11/16 × 41-11/32 × 13(+1)
Protection devices	High pressure protection				High pressure switch
	Inverter circuit (COMP./FAN)				Overcurrent detection, Overheat detection (Heat Sink thermistor)
	Compressor				Compressor thermistor, Overcurrent detection
	Fan motor				Overheating, Voltage protection
Refrigerant	Type × original charge				R410A × 7.3 kg [16 lbs]
	Control				Linear Expansion Valve
Net weight				kg (lbs)	138(305)*4
Heat exchanger					Cross Fin and Copper tube
HIC circuit (HIC: Heat Inter-Changer)					HIC circuit
Defrosting method					Reversed refrigerant circuit
Drawing	External				RK01J635
	Wiring				VG79J111
Standard attachment	Document				Installation Manual
	Accessory				Grounded lead wire × 1
Optional parts					Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E
Remarks					Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Note

*1. Nominal cooling conditions (subject to ISO 15042)

Indoor:	27°CD.B./19°CW.B. [81°FD.B./66°FW.B.]
Outdoor:	35°CD.B. [95°FD.B.]
Pipe length:	7.5 m [24-9/16 ft.]
Level difference:	0 m [0 ft.]

*2. Nominal heating conditions (subject to ISO 15042)

	20°CD.B.[68°FD.B.]
	7°CD.B./6°CW.B. [45°FD.B./43°FW.B.]
	7.5 m [24-9/16 ft.]
	0 m [0 ft.]

*3. Liquid pipe diameter: ø12.7 mm, when further piping length is longer than 60 m, or the farthest length of main pipe between outdoor unit and branch box is longer than 20 m in branch box system.

*4. 139 (306), for PUMY-200YKMD-A-BS.

*5. 10 to 52°C [50 to 126°F]: when connecting PKFY-P15/P20/P25VBM, PFFY-P20/25/32VKM, PFFY-P20/25/32VLE(R)M type indoor unit; and M series, S series, and P series type indoor unit.

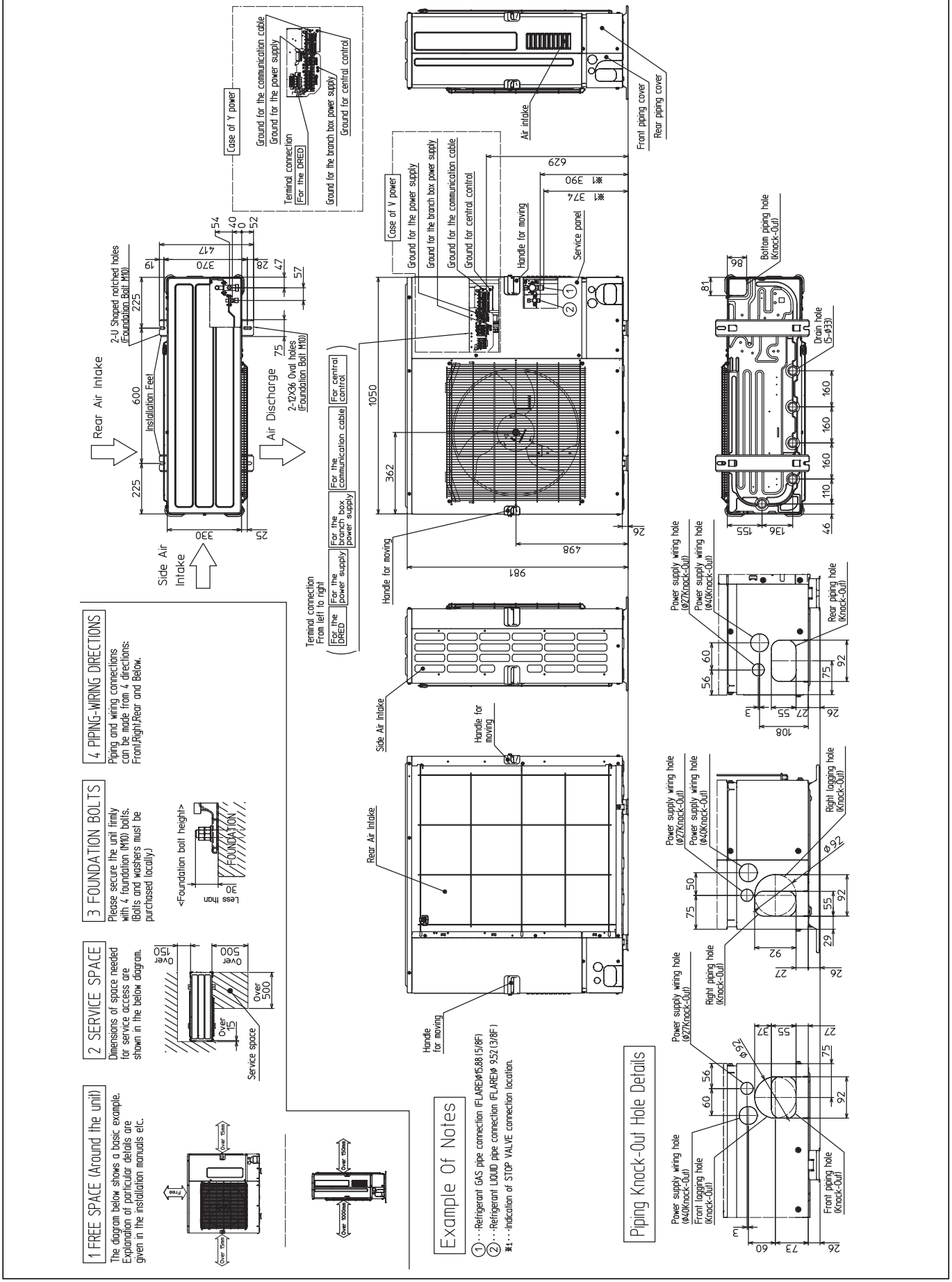
Unit converter

kcal/h = kW × 860
Btu/h = kW × 3.412
cfm = m³/min × 35.31
lb = kg/0.4536

Above specification data is subject to rounding variation.

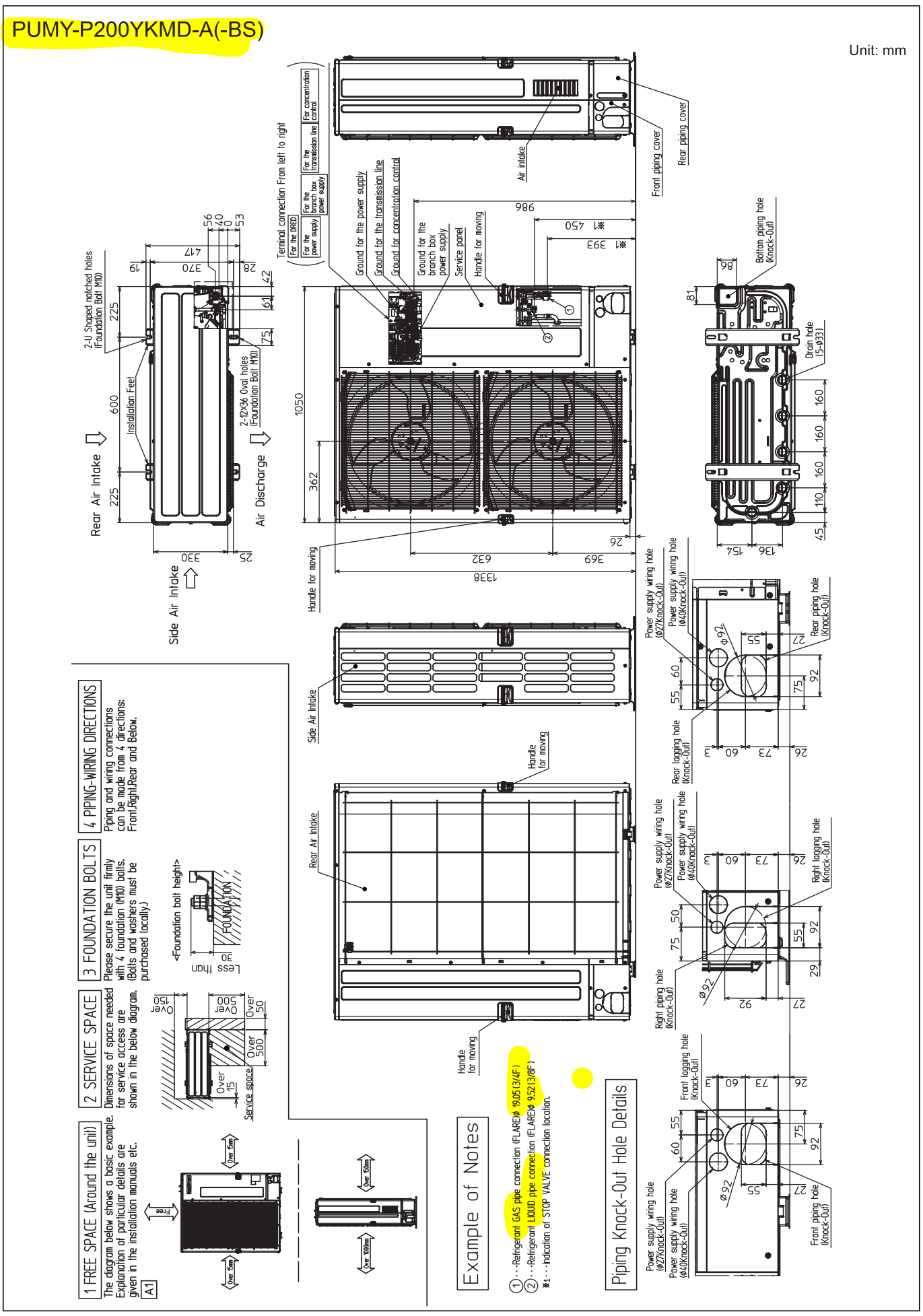
PUMY-SP112,125,140VKMD-A(-BS)
PUMY-SP112,125,140YKMD-A(-BS)

Unit: mm



PUMY-P200YKMD-A(-BS)

Unit: mm



3 SPECIFICATIONS

Service ref.			PUMY-P112VKM-A(-BS)	PUMY-P125VKM-A(-BS)	PUMY-P140VKM-A(-BS)
Power source			1-phase 230 V 50 Hz		
Cooling capacity (Nominal)		kW *1	12.5	14.0	15.5
		kcal/h *1	10,750	12,040	13,330
		BTU/h *1	42,650	47,768	52,886
	Power input	kW	2.79	3.46	4.52
	Current input	A	12.32	15.27	19.95
	COP	kW/kW	4.48	4.05	3.43
Temp. range of cooling	Indoor temp.	W.B.	15 to 24 ℃		
	Outdoor temp.	D.B.	-5 to 46 ℃		
Heating capacity (Nominal)		kW *2	14.0	16.0	18.0
		kcal/h *2	12,040	13,760	15,480
		BTU/h *2	47,768	54,592	61,416
	Power input	kW	3.13	3.74	4.47
	Current input	A	13.82	16.51	19.73
	COP	kW/kW	4.47	4.28	4.03
Temp. range of heating	Indoor temp.	D.B.	15 to 27 ℃		
	Outdoor temp.	W.B.	-20 to 15 ℃		
Indoor unit connectable	Total capacity		50 to 130% of outdoor unit capacity		
	Model / Quantity		15 - 125/ 9	15 - 140/10	15 - 140/12
Sound pressure level (measured in anechoic room)		dB <A>	49/ 51	50/ 52	51/ 54
Power pressure level (measured in anechoic room)		dB <A>	-	-	-
Refrigerant piping diameter	Liquid pipe	mm (in)	9.52 (3/8)		
	Gas pipe	mm (in)	15.88 (5/8)		
FAN *2	Type x Quantity		Propeller Fan x 2		
	Air flow rate	m3/min	110		120
		L/s	1,833		2,000
		cfm	3,884		4,237
	Control, Driving mechanism		DC control		
	Motor output	kW	0.06+0.06		
	External static press.		0		
Compressor	Type x Quantity		Scroll hermetic compressor x 1		
	Manufacture		Mitsubishi Electric Corporation		
	Starting method		Inverter		
	Capacity control	%	Cooling 26 to 100 Heating 20 to 100	Cooling 24 to 00 Heating 18 to 100	Cooling 21 to 100 Heating 17 to 100
	Motor output	kW	3.0	3.5	4.0
	Case heater	kW	0		
	Lubricant		FV50S(2.3litter)		
External finish			Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1		
External dimension HxWxD		mm	1,338 x 1,050 x 330(+25)		
		in	52-11/16 x 41-11/ 32 x 13 (+1)		
Protection devices	High pressure protection		High pressure Switch		
	Inverter circuit (COMP./ FAN)		Overcurrent detection, Overheat detection(Heat Sink thermistor)		
	Compressor		Compressor thermistor, Over current detection		
	Fan motor		Overheating, Voltage protection		
Refrigerant	Type x original charge		R410A 4.8kg		
	Control		Electronic Expansion Valve		
Net weight		kg (lb)	123 (271)		
Heat exchanger			Cross Fin and Copper tube		
HIC circuit (HIC: Heat Inter-Changer)			HIC circuit		
Defrosting method			Reversed refrigerant circuit		
Drawing	External		BK01N346		
	Wiring		BH78B813		
Standard attachment	Document		Installation Manual		
	Accessory		Grounded lead wire x2		
Optional parts			Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E		
Remarks					

	* 1 Nominal cooling conditions	* 2 Nominal heating conditions
Indoor :	27 ℃ D.B./19 ℃ W.B. (81 °F D.B/66 °F W.B.)	20 °C D.B. (68 °F D.B.)
Outdoor :	35 °C D.B. (95 °F D.B.)	7°C DB/6°C W.B. (45 °F D.B./43 °F W.B.)
Pipe length :	7.5 m (24-9/16 ft)	7.5 m (24-9/16 ft)
Level difference :	0 m (0 ft)	0 m (0 ft)

Note : 1. Nominal conditions * 1, * 2 are subject to ISO 15042.
2. Due to continuing improvement, above specifications may be subject to change without notice.

Unit converter

kcal/h = kW × 860
BTU/h = kW × 3,412
cfm = m3/min x 35.31
lb = kg/0.4536

Above specification data is subject to rounding variation.

Service ref.			PUMY-P112YKM-A(-BS)	PUMY-P125YKM-A(-BS)	PUMY-P140YKM-A(-BS)
Power source			3-phase380-415V, 50Hz		
Cooling capacity (Nominal)		kW *1	12.5	14.0	15.5
		kcal/h *1	10,750	12,040	13,330
		BTU/h *1	42,650	47,768	52,886
	Power input	kW	2.79	3.46	4.52
	Current input	A	4.24	5.26	6.87
	COP	kW/kW	4.48	4.05	3.43
Temp. range of cooling	Indoor temp.	W.B.	15 to 24 ℃		
	Outdoor temp.	D.B.	-5 to 46 ℃		
Heating capacity (Nominal)		kW *2	14.0	16.0	18.0
		kcal/h *2	12,040	13,760	15,480
		BTU/h *2	47,768	54,592	61,416
	Power input	kW	3.13	3.74	4.47
	Current input	A	4.76	5.68	6.79
	COP	kW/kW	4.47	4.28	4.03
Temp. range of heating	Indoor temp.	D.B.	15 to 27℃		
	Outdoor temp.	W.B.	-20 to 15℃		
Indoor unit connectable	Total capacity		50 - 130% of outdoor unit capacity		
	Model / Quantity		15 - 125 / 9	15 - 140 /10	15 - 140 /12
Sound pressure level (measured in anechoic room)		dB <A>	49/ 51	50/ 52	51/ 54
Power pressure level (measured in anechoic room)		dB <A>	-	-	-
Refrigerant piping diameter	Liquid pipe	mm (in)	9.52 (3/8)		
	Gas pipe	mm (in)	15.88 (5/8)		
FAN *2	Type x Quantity		Propeller Fan x 2		
	Air flow rate	m3/min	110		120
		L/s	1,833		2,000
		cfm	3,884		4,237
	Control, Driving mechanism		DC control		
	Motor output	kW	0.06+0.06		
	External static press.		0		
Compressor	Type x Quantity		Scroll hermetic compressor x 1		
	Manufacture		Mitsubishi Electric Corporation		
	Starting method		Inverter		
	Capacity control	%	Cooling 26 to 100 Heating 20 to 100	Cooling 24 to100 Heating 18 to 100	Cooling 21 to 100 Heating 17 to 100
	Motor output	kW	3.0	3.5	4.0
	Case heater	kW	0		
	Lubricant		FV50S(2.3litter)		
External finish			Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1		
External dimension HxWxD		mm	1338 x 1050 x 330(+25)		
		in	52-11/16 x 41-11/32 x 13 (+1)		
Protection devices	High pressure protection		High pressure switch		
	Inverter circuit (COMP./FAN)		Overcurrent detection, Overheat detection(Heat Sink thermistor)		
	Compressor		Compressor thermistor, Over current detection		
	Fan motor		Overheating, Voltage protection		
Refrigerant	Type x original charge		R410A 4.8kg		
	Control		Electronic Expansion Valve		
Net weight		kg (lb)	125 (276)		
Heat exchanger			Cross Fin and Copper tube		
HIC circuit (HIC: Heat Inter-Changer)			HIC circuit		
Defrosting method			Reversed refrigerant circuit		
Drawing	External		BK01N339		
	Wiring		BH78B814		
Standard attachment	Document		Installation Manual		
	Accessory		Grounded lead wire x2		
Optional parts			Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E		
Remarks					

	* 1 Nominal cooling conditions	* 2 Nominal heating conditions
Indoor :	27 ℃ D.B./19 ℃ W.B. (81 °F D.B/66 °F W.B.)	20 ℃ D.B. (68 °F D.B.)
Outdoor :	35 °C D.B. (95 °F D.B.)	7℃ DB/6℃ W.B. (45 °F D.B./43 °F W.B.)
Pipe length :	7.5 m (24-9/16 ft)	7.5 m (24-9/16 ft)
Level difference :	0 m (0 ft)	0 m (0 ft)

Note : 1. Nominal conditions * 1, * 2 are subject to ISO 15042.
2. Due to continuing improvement, above specifications may be subject to change without notice.

Unit converter

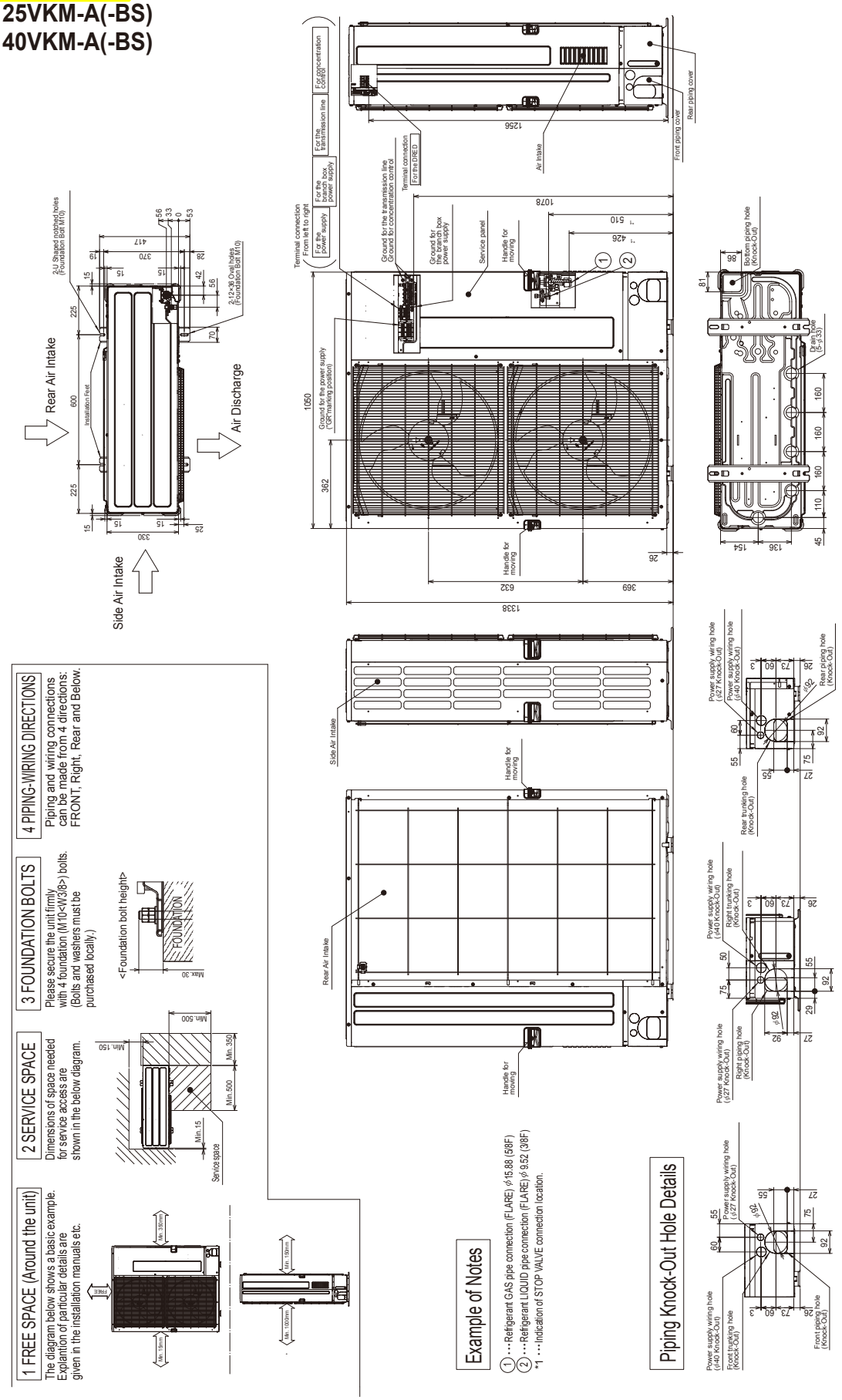
kcal/h = kW × 860
BTU/h = kW × 3,412
cfm = m3/min x 35.31
lb = kg/0.4536

Above specification data is subject to rounding variation.

5 OUTLINES AND DIMENSIONS

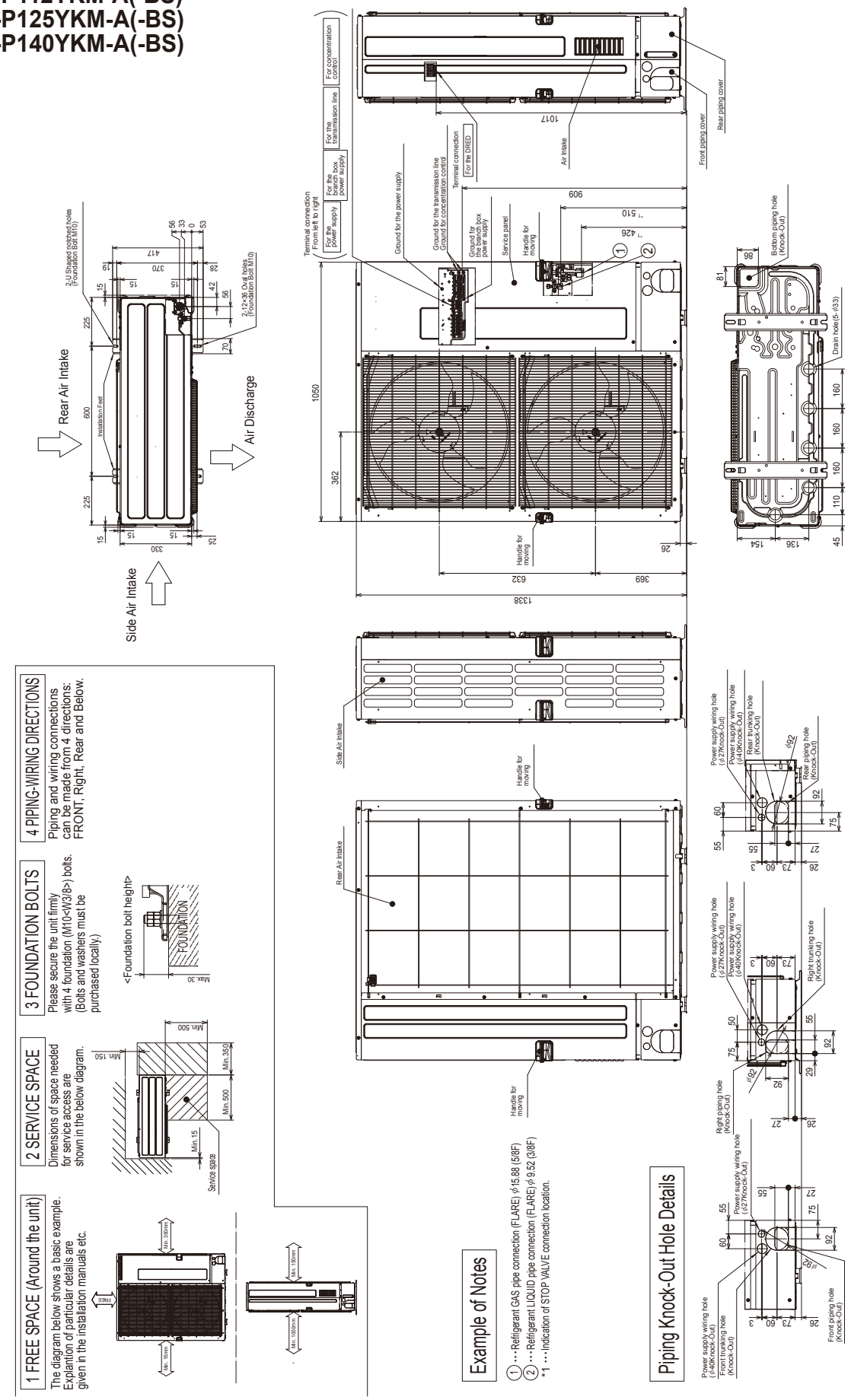
PUMY-P112VKM-A(-BS)
PUMY-P125VKM-A(-BS)
PUMY-P140VKM-A(-BS)

Unit : mm



PUMY-P112YKM-A(-BS)
PUMY-P125YKM-A(-BS)
PUMY-P140YKM-A(-BS)

Unit : mm



1 FREE SPACE (Around the unit)

The diagram below shows a basic example. Explantion of particular details are given in the installation manuals etc.

2 SERVICE SPACE

Dimensions of space needed for service access are shown in the below diagram.

3 FOUNDATION BOLTS

Please secure the unit firmly with 4 foundation (M10<W3/8>) bolts. (Bolts and washers must be purchased locally.)

4 PIPING-WIRING DIRECTIONS

Piping and wiring connections can be made from 4 directions: FRONT, Right, Rear and Below.

Example of Notes

① ··· Refrigerant GAS pipe connection (FLARE) ϕ15.88 (5/8F)
② ··· Refrigerant LIQUID pipe connection (FLARE) ϕ9.52 (3/8F)
*1 ··· Indication of STOP VALVE connection location.

Piping Knock-Out Hole Details

MITSUBISHI ELECTRIC

Mr.SLIM

Air-Conditioners
PUZ-M100, M125, M140VKA-A

INSTALLATION MANUAL

FOR INSTALLER

For safe and correct use, read this manual and the indoor unit installation manual thoroughly before installing the air-conditioner unit.

English

Contents

Required Tools for Installation

Phillips screwdriver
Level
Scale
Utility knife or scissors
65 mm hole saw
Torque wrench
Wrench (or spanner)
4 mm hexagonal wrench
Flare tool for R32, R410A
Gauge manifold for R32, R410A
Vacuum pump for R32, R410A
Charge hose for R32, R410A
Pipe cutter with reamer
Appropriate personal protective equipment
The installer should ensure they check the respective Work Health and Safety (WHS) Act within their jurisdiction as the requirements and obligations may differ.

⚠ **Caution:**
• Do not vent R32 into the atmosphere.
• Confirm that the installation satisfies "the requirements in this manual" and "the requirements of safety on site and environment".

1. Safety precautions

► Before installing the unit, make sure you read all the "Safety precautions".
► Please report to or take consent by the supply authority before connection to the system.

⚠ **Warning:**
Describes precautions that must be observed to prevent danger of injury or death to the user.

⚠ **Caution:**
Describes precautions that must be observed to prevent damage to the unit.

After installation work has been completed, explain the "Safety Precautions," use, and maintenance of the unit to the customer according to the information in the Operation Manual and perform the test run to ensure normal operation. Both the Installation Manual and Operation Manual must be given to the user for keeping. These manuals must be passed on to subsequent users.

⏚ : Indicates a part which must be grounded.

⚠ **Warning:**
Carefully read the labels affixed to the main unit.
◎ : Indicates warnings and cautions when using R32 refrigerant.

MEANINGS OF SYMBOLS DISPLAYED ON THE UNIT

	**WARNING** (Risk of fire)	This mark is for R32 refrigerant only. Refrigerant type is written on nameplate of outdoor unit. In case that refrigerant type is R32, this unit uses a flammable refrigerant. If refrigerant leaks and comes in contact with fire or heating part, it will create harmful gas and there is risk of fire.
	Read the OPERATION MANUAL carefully before operation.	
	Service personnel are required to carefully read the OPERATION MANUAL and INSTALLATION MANUAL before operation.	
	Further information is available in the OPERATION MANUAL, INSTALLATION MANUAL, and the like.	

⚠ **Warning:**
- **The unit must not be installed by the user. Ask a dealer or an authorized technician to install and repair the unit. If the unit is installed incorrectly, water leakage, electric shock, or fire may result.**
- **For installation and relocation work, follow the instructions in the Installation Manual and use tools and pipe components specifically made for use with R32 refrigerant. If pipe components not designed for R32 refrigerant are used and the unit is not installed correctly, the pipes may burst and cause damage or injuries. In addition, water leakage, electric shock, or fire may result.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**
- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. Consult a dealer regarding the appropriate measures to prevent the allowable concentration from being exceeded. Should the refrigerant leak and cause the concentration limit to be exceeded, hazards due to lack of oxygen in the room may result.**
- **Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.**
- **All electric work must be performed by a qualified technician according to local regulations and the instructions given in this manual. The units must be powered by dedicated power lines and the correct voltage and circuit breakers must be used. Power lines with insufficient capacity or incorrect electrical work may result in electric shock or fire.**
- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. If the pipes are not connected correctly, the unit will not be properly grounded and electric shock may result.**
- **This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.**
- **Use only specified cables for wiring. The wiring connections must be made securely with no tension applied on the terminal connections. Also, never splice the cables for wiring (unless otherwise indicated in this document).**
  Failure to observe these instructions may result in overheating or a fire.
- **If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid hazard.**
- **The appliance shall be installed in accordance with national wiring regulations.**
- **The terminal block cover panel of the outdoor unit must be firmly attached. If the cover panel is mounted incorrectly and dust and moisture enter the unit, electric shock or fire may result.**
- **When installing or relocating, or servicing the air conditioner, use only the specified refrigerant (R32) to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.**
  If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
  The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.
- **Use only accessories authorized by Mitsubishi Electric and ask a dealer or an authorized technician to install them. If accessories are incorrectly installed, water leakage, electric shock, or fire may result.**
- **Do not alter the unit. It may cause fire, electric shock, injury or water leakage.**
- **The user should never attempt to repair the unit or transfer it to another location. If the unit is installed incorrectly, water leakage, electric shock, or fire may result. If the air conditioner must be repaired or moved, ask a dealer or an authorized technician.**
- **After installation has been completed, check for refrigerant leaks. If refrigerant leaks into the room and comes into contact with the flame of a heater or portable cooking range, poisonous gases will be released.**
- **Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.**
- **The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).**
- **Do not pierce or burn.**
- **Be aware that refrigerants may not contain an odour.**
- **◎ Pipe-work shall be protected from physical damage.**
- **The installation of pipe-work shall be kept to a minimum.**
- **Compliance with national gas regulations shall be observed.**
- **Keep any required ventilation openings clear of obstruction.**
- **◎ Do not use low temperature solder alloy in case of brazing the refrigerant pipes.**
- **◎ When performing brazing work, be sure to ventilate the room sufficiently.**
  Make sure that there are no hazardous or flammable materials nearby.
  When performing the work in a closed room, small room, or similar location, make sure that there are no refrigerant leaks before performing the work.
  If refrigerant leaks and accumulates, it may ignite or poisonous gases may be released.
- **◎ The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.**
- **◎ Keep gas-burning appliances, electric heaters, and other fire sources (ignition sources) away from the location where installation, repair, and other air conditioner work will be performed.**
  If refrigerant comes into contact with a flame, poisonous gases will be released.
- **◎ Do not smoke during work and transportation.**

en

1. Safety precautions

1.1. Before installation

⚠ **Caution:**

- **Do not use the unit in an unusual environment. If the air conditioner is installed in areas exposed to steam, volatile oil (including machine oil), or sulfuric gas, areas exposed to high salt content such as the seaside, or areas where the unit will be covered by snow, the performance can be significantly reduced and the internal parts can be damaged.**
- **Do not install the unit where combustible gases may leak, be produced, flow, or accumulate. If combustible gas accumulates around the unit, fire or explosion may result.**
- **The outdoor unit produces condensation during the heating operation. Make sure to provide drainage around the outdoor unit if such condensation is likely to cause damage.**
- **When installing the unit in a hospital or communications office, be prepared for noise and electronic interference. Inverters, home appliances, high-frequency medical equipment, and radio communications equipment can cause the air conditioner to malfunction or breakdown. The air conditioner may also affect medical equipment, disturbing medical care, and communications equipment, harming the screen display quality.**

1.2. Before installation (relocation)

⚠ **Caution:**

- **Be extremely careful when transporting or installing the units. Two or more persons are needed to handle the unit, as it weighs 20 kg or more. Do not grasp the packaging bands. Wear protective gloves to remove the unit from the packaging and to move it, as you can injure your hands on the fins or the edge of other parts.**
- **Be sure to safely dispose of the packaging materials. Packaging materials, such as nails and other metal or wooden parts may cause stabs or other injuries.**
- **The base and attachments of the outdoor unit must be periodically checked for looseness, cracks or other damage. If such defects are left uncorrected, the unit may fall down and cause damage or injuries.**
- **Do not clean the air conditioner unit with water. Electric shock may result.**
- **Tighten all flare nuts to specification using a torque wrench. If tightened too much, the flare nut can break after an extended period and refrigerant can leak out.**

1.3. Before electric work

⚠ **Caution:**

- **Be sure to install circuit breakers. If not installed, electric shock may result.**
- **For the power lines, use standard cables of sufficient capacity. Otherwise, a short circuit, overheating, or fire may result.**
- **When installing the power lines, do not apply tension to the cables. If the connections are loosened, the cables can snap or break and overheating or fire may result.**
- **Be sure to ground the unit. Do not connect the ground wire to gas or water pipes, lightning rods, or telephone grounding lines. If the unit is not properly grounded, electric shock may result.**
- **Use circuit breakers (ground fault interrupter, isolating switch (+B fuse), and molded case circuit breaker) with the specified capacity. If the circuit breaker capacity is larger than the specified capacity, breakdown or fire may result.**

1.4. Before starting the test run

⚠ **Caution:**

- **Turn on the main power switch more than 12 hours before starting operation. Starting operation just after turning on the power switch can severely damage the internal parts. Keep the main power switch turned on during the operation season.**
- **Before starting operation, check that all panels, guards and other protective parts are correctly installed. Rotating, hot, or high voltage parts can cause injuries.**
- **Do not touch any switch with wet hands. Electric shock may result.**
- **Do not touch the refrigerant pipes with bare hands during operation. The refrigerant pipes are hot or cold depending on the condition of the flowing refrigerant. If you touch the pipes, burns or frostbite may result.**
- **After stopping operation, be sure to wait at least five minutes before turning off the main power switch. Otherwise, water leakage or breakdown may result.**

1.5. Using R32 refrigerant air conditioners

⚠ **Caution:**

- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. Make sure the insides of the pipes are clean and do not contain any harmful contaminants such as sulfuric compounds, oxidants, debris, or dust. Use pipes with the specified thickness. (Refer to 4.1.) Note the following if reusing existing pipes that carried R22 refrigerant.**
  - Replace the existing flare nuts and flare the flared sections again.
  - Do not use thin pipes. (Refer to 4.1.)
- **Store the pipes to be used during installation indoors and keep both ends of the pipes sealed until just before brazing. (Leave elbow joints, etc. in their packaging.) If dust, debris, or moisture enters the refrigerant lines, oil deterioration or compressor breakdown may result.**
- **Use ester oil, ether oil, alkylbenzene oil (small amount) as the refrigeration oil applied to the flared sections. If mineral oil is mixed in the refrigeration oil, oil deterioration may result.**
- **Servicing shall be performed only as recommended by the manufacturer.**
- **Do not use refrigerant other than R32 refrigerant.**
- **Use the following tools specifically designed for use with R32 refrigerant. The following tools are necessary to use R32 refrigerant. Contact your nearest dealer for any questions.**

Tools (for R32)	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adapter
Torque wrench	Electronic refrigerant charging scale

- **Be sure to use the correct tools. If dust, debris, or moisture enters the refrigerant lines, refrigeration oil deterioration may result.**

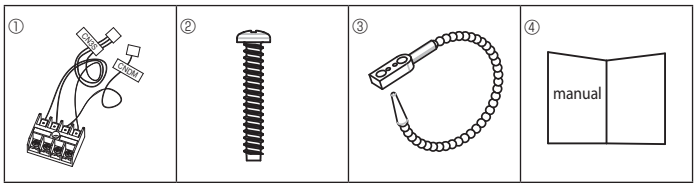


Fig. 1-1

1.6. Accessories of outdoor unit (Fig. 1-1)

The parts show in the left are the accessories of this unit, which are affixed to the inside of the service panel.

① Terminal block (on lead wire) ..... ×1
② Screw 4 × 25 ..... ×1
③ Fastener ..... ×1
④ Installation manual ..... ×1

2. Installation location

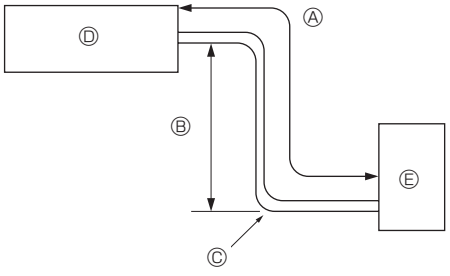


Fig. 2-1

2.1. Refrigerant pipe (Fig. 2-1)

► **Check that the difference between the heights of the indoor and outdoor units, the length of refrigerant pipe, and the number of bends in the pipe are within the limits shown below.**

Models	Ⓐ Pipe length (one way)	Ⓑ Height difference	Ⓒ Number of bends (one way)
M100-140	Max. 55 m	Max. 30 m	Max. 15

- Height difference limitations are binding regardless of which unit, indoor or outdoor, is positioned higher.
  Ⓓ Indoor unit
  Ⓔ Outdoor unit

en

2. Installation location

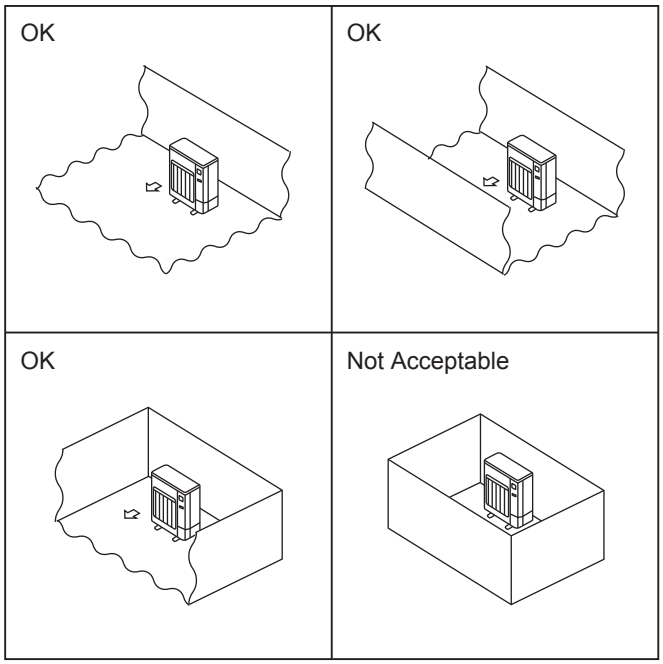


Fig. 2-2

■ **M100, M125**

■ **M140**

(mm)

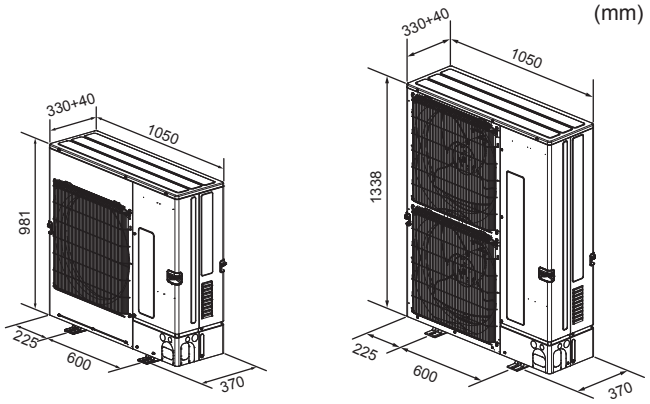


Fig. 2-3

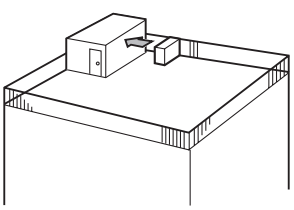


Fig. 2-4

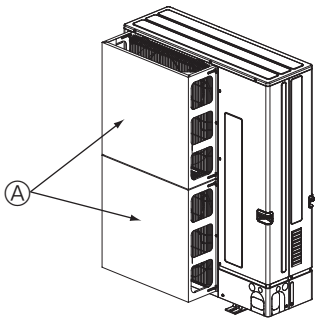


Fig. 2-5

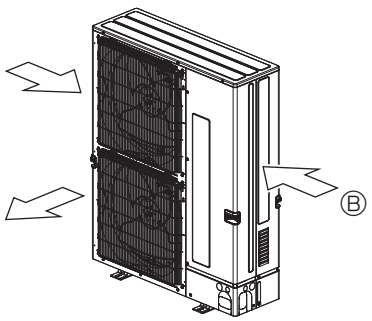


Fig. 2-6

2.2. Choosing the outdoor unit installation location

◎ R32 is heavier than air—as well as other refrigerants—so tends to accumulate at the base (in the vicinity of the floor). If R32 accumulates around base, it may reach a flammable concentration in case room is small. To avoid ignition, maintaining a safe work environment is required by ensuring appropriate ventilation. If a refrigerant leak is confirmed in a room or an area where there is insufficient ventilation, refrain from using of flames until the work environment can be improved by ensuring appropriate ventilation.

- Avoid locations exposed to direct sunlight or other sources of heat.
- Select a location from which noise emitted by the unit will not inconvenience neighbors.
- Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Note that water may drain from the unit during operation.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit can be covered by snow. In areas where heavy snow fall is anticipated, special precautions such as raising the installation location or installing a hood on the air intake must be taken to prevent the snow from blocking the air intake or blowing directly against it. This can reduce the airflow and a malfunction may result.
- Avoid locations exposed to oil, steam, or sulfuric gas.
- Use the transportation handles of the outdoor unit to transport the unit. If the unit is carried from the bottom, hands or fingers may be pinched.
- Refrigerant pipes connection shall be accessible for maintenance purposes.

◎ Install outdoor units in a place where at least one of the four sides is open, and in a sufficiently large space without depressions. (Fig. 2-2)

2.3. Outline dimensions (Outdoor unit) (Fig. 2-3)

2.4. Ventilation and service space

2.4.1. Windy location installation

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

The following shows three examples of precautions against strong winds.

① Face the air outlet towards the nearest available wall about 500 mm away from the wall. (Fig. 2-4)

② Install an optional air guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 2-5)

Ⓐ Air outlet guide

③ Position the unit so that the air outlet blows perpendicularly to the seasonal wind direction, if possible. (Fig. 2-6)

Ⓑ Wind direction

2.4.2. When installing a single outdoor unit (Refer to the next page)

Minimum dimensions are as follows, except for Max., meaning Maximum dimensions, indicated.

Refer to the figures for each case.

① Obstacles at rear only (Fig. 2-7)

② Obstacles at rear and above only (Fig. 2-8)

③ Obstacles at rear and sides only (Fig. 2-9)

④ Obstacles at front only (Fig. 2-10)

* When using an optional air outlet guide, the clearance is 500 mm or more.

⑤ Obstacles at front and rear only (Fig. 2-11)

* When using an optional air outlet guide, the clearance is 500 mm or more.

⑥ Obstacles at rear, sides, and above only (Fig. 2-12)

- Do not install the optional air outlet guides for upward airflow.

2.4.3. When installing multiple outdoor units (Refer to the next page)

Leave 50 mm for M100-140 space or more between the units.

① Obstacles at rear only (Fig. 2-13)

② Obstacles at rear and above only (Fig. 2-14)

- No more than 3 units must be installed side by side. In addition, leave space as shown.
- Do not install the optional air outlet guides for upward airflow.

③ Obstacles at front only (Fig. 2-15)

* When using an optional air outlet guide, the clearance for M100-140 models is 1000 mm or more.

④ Obstacles at front and rear only (Fig. 2-16)

* When using an optional air outlet guide, the clearance for M100-140 models is 1000 mm or more.

⑤ Single parallel unit arrangement (Fig. 2-17)

* When using an optional air outlet guide installed for upward airflow, the clearance is 1000 mm or more.

⑥ Multiple parallel unit arrangement (Fig. 2-18)

* When using an optional air outlet guide installed for upward airflow, the clearance is 1500 mm or more.

⑦ Stacked unit arrangement (Fig. 2-19)

- The units can be stacked up to two units high.
- No more than 2 stacked units must be installed side by side. In addition, leave space as shown.

en

2. Installation location

UNIT : mm

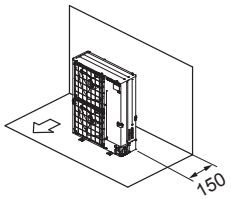


Fig. 2-7

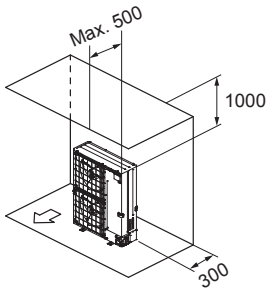


Fig. 2-8

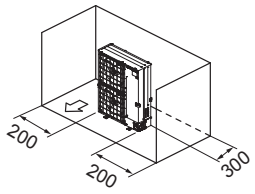


Fig. 2-9

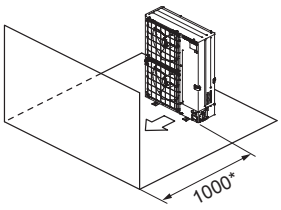


Fig. 2-10

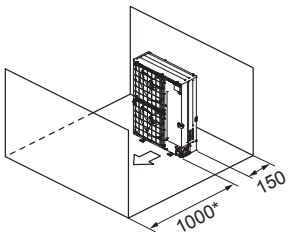


Fig. 2-11

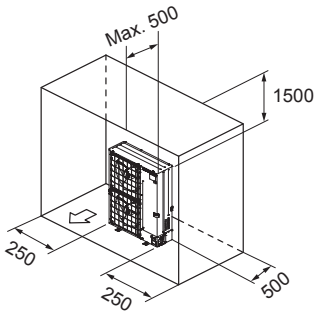


Fig. 2-12

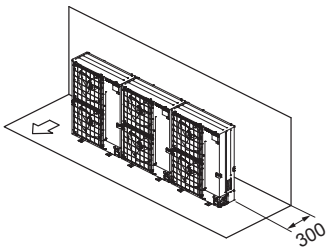


Fig. 2-13

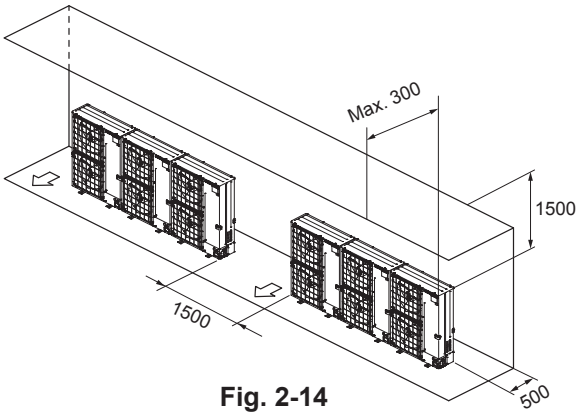


Fig. 2-14

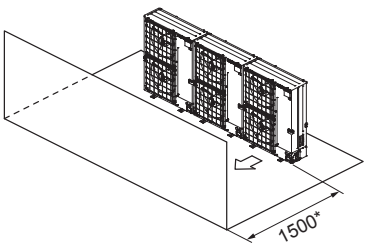


Fig. 2-15

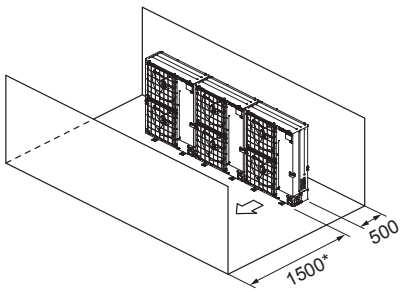


Fig. 2-16

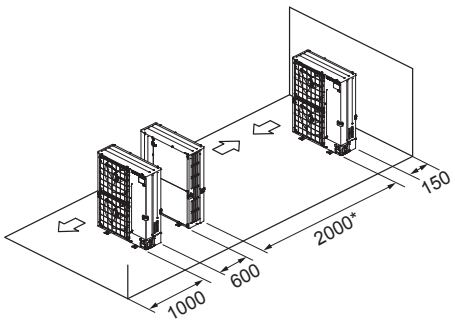


Fig. 2-17

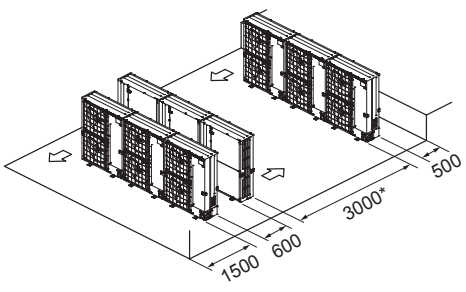


Fig. 2-18

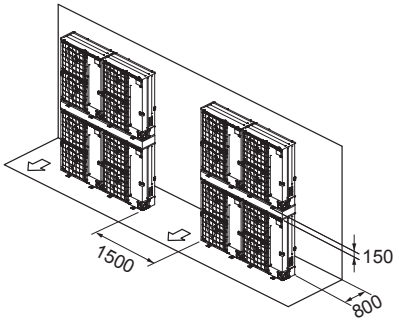


Fig. 2-19

en

2. Installation location

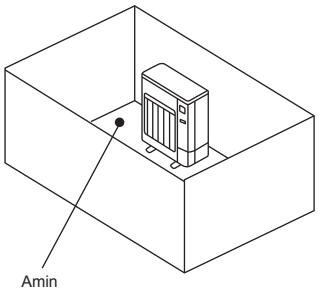
◎2.5. Minimum installation area

If you unavoidably install a unit in a space where all four sides are blocked or there are depressions, confirm that one of these situations (A, B or C) is satisfied.

Note: These countermeasures are for keeping safety not for specification guarantee.

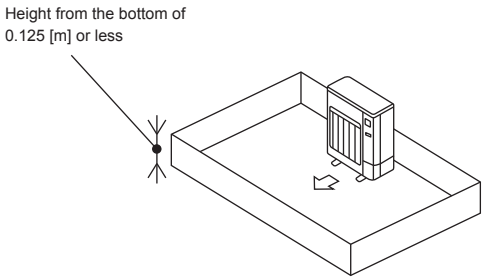
A) Secure sufficient installation space (minimum installation area Amin).
Install in a space with an installation area of Amin or more, corresponding to refrigerant amount M (factory-charged refrigerant + locally added refrigerant).

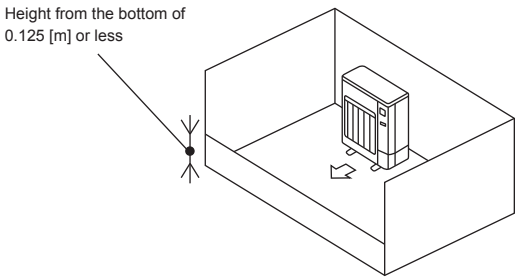
M [kg]	Amin [m²]
1.0	12
1.5	17
2.0	23
2.5	28
3.0	34
3.5	39
4.0	45
4.5	50
5.0	56
5.5	62
6.0	67
6.5	73
7.0	78
7.5	84



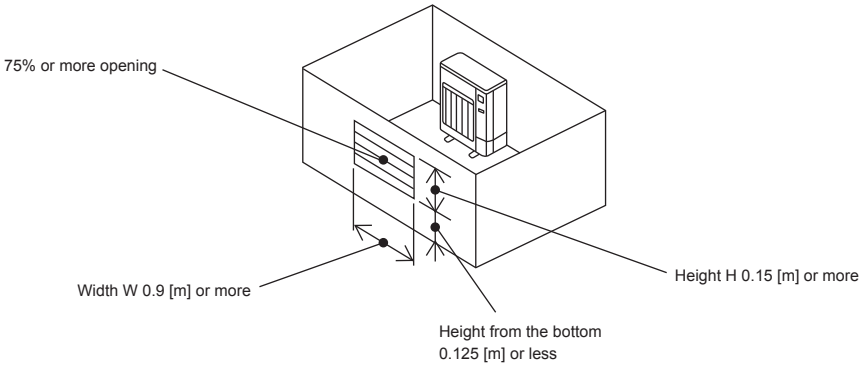
M: Refrigerant amount (factory-charged refrigerant + locally added refrigerant) [kg]
Amin: Minimum installation area [m²]

B) Install in a space with a depression height of ≦ 0.125 [m].





C) Create an appropriate ventilation open area.
Make sure that the width of the open area is 0.9 [m] or more and the height of the open area is 0.15 [m] or more.
However, the height from the bottom of the installation space to the bottom edge of the open area should be 0.125 [m] or less.
Open area should be 75% or more opening.



en

2. Installation location

■ Indoor units

Install in a room with a floor area of Amin or more, corresponding to refrigerant amount M (factory-charged refrigerant + locally added refrigerant).

* For the factory-charged refrigerant amount, refer to the spec nameplate or installation manual.
For the amount to be added locally, refer to the installation manual.

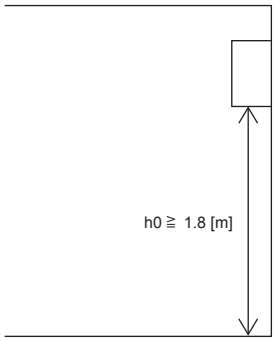
Install the indoor unit so that the height from the floor to the bottom of the indoor unit is h0;
for wall mounted: 1.8 m or more;
for ceiling suspended, cassette and ceiling concealed: 2.2 m or more.

* There are restrictions in installation height for each model, so read the installation manual for the particular unit.

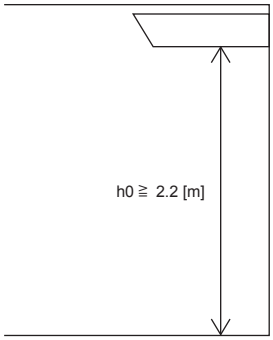
M [kg]	Amin [m²]
1.0	4
1.5	6
2.0	8
2.5	10
3.0	12
3.5	14
4.0	16
4.5	20
5.0	24
5.5	29
6.0	35
6.5	41
7.0	47
7.5	54

M: Refrigerant amount (factory-charged refrigerant + locally added refrigerant) [kg]
Amin: Minimum installation area [m²]

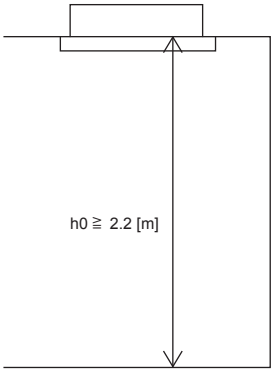
<Wall mounted>



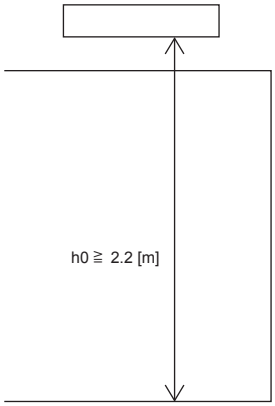
<Ceiling suspended>



<Cassette>



<Ceiling concealed>



In case of using dampers with ceiling concealed type indoor unit, please check the following to calculate Amin:

Case 1: When there is no common zone (the area without dampers)
- The area of each room must be Amin or larger. (See Fig. 2-20)

Case 2: When there is a common zone (the area without dampers)
- The area of each room including the common zone must be Amin or larger. (See Fig. 2-21)

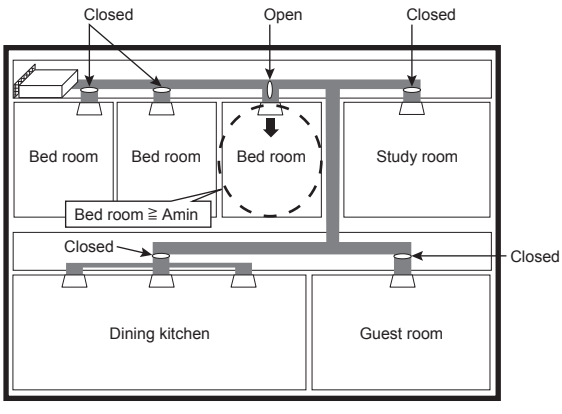


Fig. 2-20
No common zone

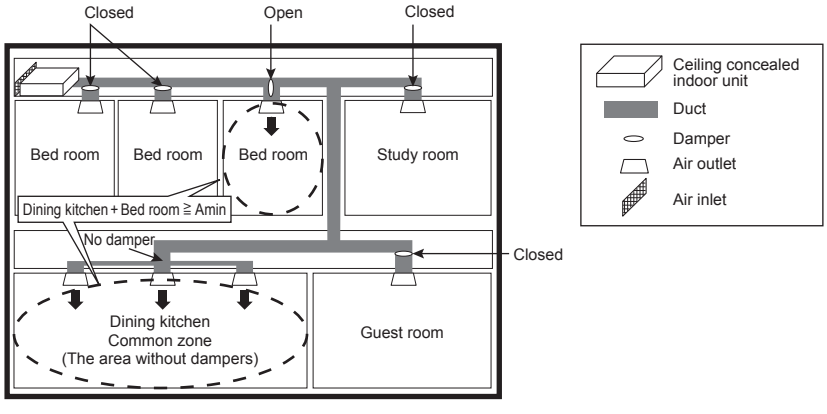
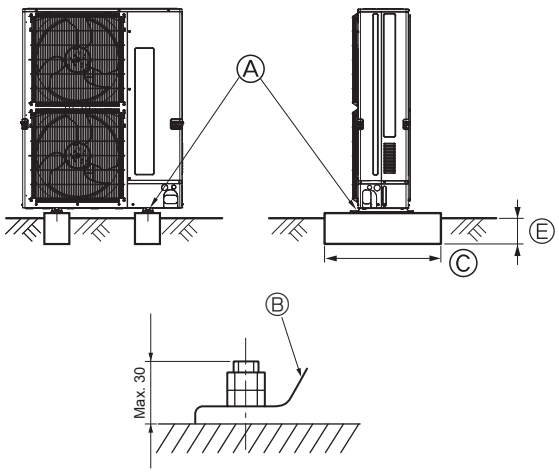


Fig. 2-21
With a common zone

en

3. Installing the outdoor unit

(mm)



Ⓐ M10 (3/8") bolt
Ⓑ Base
Ⓒ As long as possible.
Ⓓ Vent
Ⓔ Set deep in the ground

- Be sure to install the unit in a sturdy, level surface to prevent rattling noises during operation. (Fig. 3-1)

<Foundation specifications>

Foundation bolt	M10 (3/8")
Thickness of concrete	120 mm
Length of bolt	70 mm
Weight-bearing capacity	320 kg

- Make sure that the length of the foundation bolt is within 30 mm of the bottom surface of the base.
- Secure the base of the unit firmly with four-M10 foundation bolts in sturdy locations.

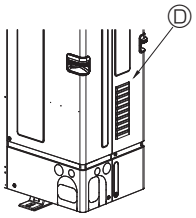
Installing the outdoor unit

- Do not block the vent. If the vent is blocked, operation will be hindered and breakdown may result.
- In addition to the unit base, use the installation holes on the back of the unit to attach wires, etc., if necessary to install the unit. Use self-tapping screws (ø5 × 15 mm or less) and install on site.

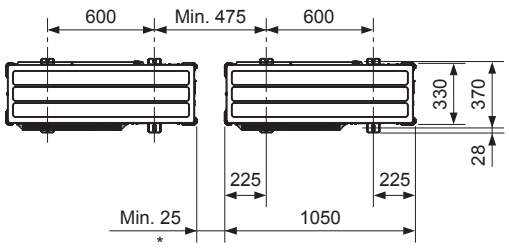
⚠ Warning:

- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**

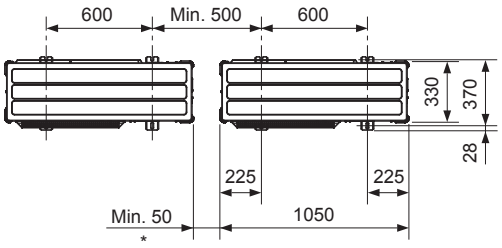
■ M100-140



■ M100, M125



■ M140



* When installing a single outdoor unit, the clearance is 15 mm or more.

Fig. 3-1

4. Installing the refrigerant piping

4.1. Precautions for devices that use R32 refrigerant

- **Refer to 1.5. for precautions not included below on using air conditioners with R32 refrigerant.**
- **Use ester oil, ether oil, alkylbenzene oil (small amount) as the refrigeration oil applied to the flared sections.**
- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. Use refrigerant pipes with the thicknesses specified in the table to the below. Make sure the insides of the pipes are clean and do not contain any harmful contaminants such as sulfuric compounds, oxidants, debris, or dust.**
  Always apply no-oxidation brazing when brazing the pipes, otherwise, the compressor will be damaged.

⚠ Warning:

When installing or relocating, or servicing the air conditioner, use only the specified refrigerant (R32) to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.
If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.

Pipe size (mm)	ø6.35	ø9.52	ø12.7	ø15.88	ø19.05	ø22.2	ø25.4	ø28.58
Thickness (mm)	0.8	0.8	0.8	1.0	1.0	1.0	1.0	1.0

- **Do not use pipes thinner than those specified above.**
- **Use 1/2 H or H pipes if the diameter is 19.05 mm or larger.**

◎ **Be sure to have appropriate ventilation in order to prevent ignition. Furthermore, be sure to carry out fire prevention measures that there are no dangerous or flammable objects in the surrounding area.**

en

4. Installing the refrigerant piping

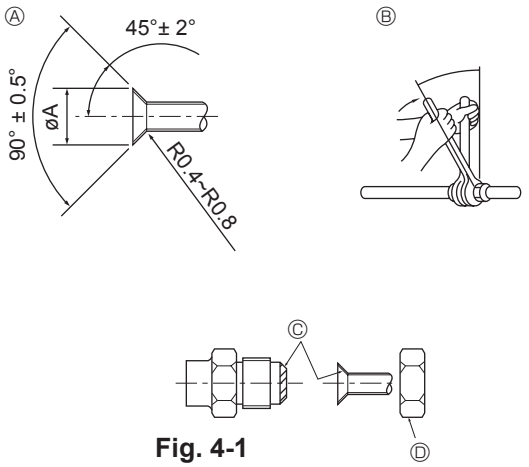


Fig. 4-1

Ⓐ Flare cutting dimensions (Fig. 4-1)

Copper pipe O.D. (mm)	Flare dimensions øA dimensions (mm)
ø6.35	8.7 - 9.1
ø9.52	12.8 - 13.2
ø12.7	16.2 - 16.6
ø15.88	19.3 - 19.7
ø19.05	23.6 - 24.0

Ⓑ Flare nut tightening torque (Fig. 4-1)

Copper pipe O.D. (mm)	Flare nut O.D. (mm)	Tightening torque (N·m)
ø6.35	17	14 - 18
ø6.35	22	34 - 42
ø9.52	22	34 - 42
ø12.7	26	49 - 61
ø12.7	29	68 - 82
ø15.88	29	68 - 82
ø15.88	36	100 - 120
ø19.05	36	100 - 120

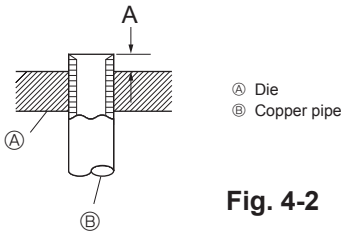
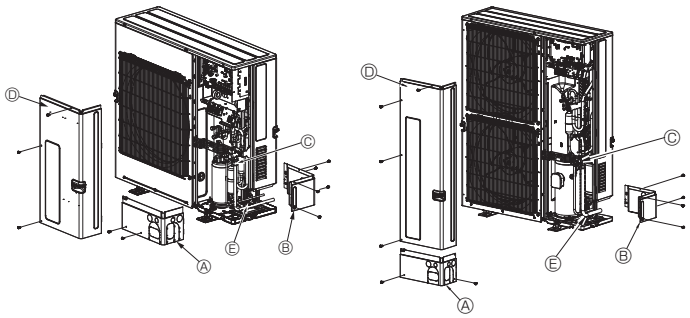


Fig. 4-2

■ **M100, M125**

■ **M140**



Ⓐ Cover panel front
Ⓑ Cover panel rear
Ⓒ Stop valve
Ⓓ Service panel
Ⓔ Bend radius : 100 mm - 150 mm

Fig. 4-3

4.2. Connecting pipes (Fig. 4-1)

- When commercially available copper pipes are used, wrap liquid and gas pipes with commercially available insulation materials (heat-resistant to 100 °C or more, thickness of 12 mm or more).
- The indoor parts of the drain pipe should be wrapped with polyethylene foam insulation materials (specific gravity of 0.03, thickness of 9 mm or more).
- Apply thin layer of refrigerant oil to pipe and joint seating surface before tightening flare nut. Ⓐ
- Use two wrenches to tighten piping connections. Ⓑ
- Use leak detector or soapy water to check for gas leaks after connections are completed.
- Apply refrigerating machine oil over the entire flare seat surface. Ⓒ
- Use the flare nuts for the following pipe size. Ⓓ

		M100-140
Gas side	Pipe size (mm)	ø15.88
Liquid side	Pipe size (mm)	ø9.52

- When bending the pipes, be careful not to break them. Bend radii of 100 mm to 150 mm are sufficient.
- Make sure the pipes do not contact the compressor. Abnormal noise or vibration may result.

① Pipes must be connected starting from the indoor unit.
Flare nuts must be tightened with a torque wrench.

② Flare the liquid pipes and gas pipes and apply a thin layer of refrigeration oil (Applied on site).

- When usual pipe sealing is used, refer to Table 1 for flaring of R32 refrigerant pipes.
The size adjustment gauge can be used to confirm A measurements.

Table 1 (Fig. 4-2)

Copper pipe O.D. (mm)	A (mm)	
	Flare tool for R32	Flare tool for R22·R407C
	Clutch type	
ø6.35 (1/4")	0 - 0.5	1.0 - 1.5
ø9.52 (3/8")	0 - 0.5	1.0 - 1.5
ø12.7 (1/2")	0 - 0.5	1.0 - 1.5
ø15.88 (5/8")	0 - 0.5	1.0 - 1.5
ø19.05 (3/4")	0 - 0.5	1.0 - 1.5

4.3. Refrigerant piping (Fig. 4-3)

Remove the service panel Ⓓ (3 Screws: M100, M125) (4 Screws: M140) and the cover panel front Ⓐ (2 Screws) and cover panel rear Ⓑ (5 Screws: M100, M125) (4 Screws: M140).

① Perform refrigerant piping connections for the indoor/outdoor unit when the outdoor unit's stop valve is completely closed.

② Vacuum-purge air from the indoor unit and the connection piping.

③ After connecting the refrigerant pipes, check the connected pipes and the indoor unit for gas leaks. (Refer to 4.4. Refrigerant pipe airtight testing method)

④ A high-performance vacuum pump is used at the stop valve service port to maintain a vacuum for an adequate time (at least one hour after reaching –101 kPa (5 Torr)) in order to vacuum dry the inside of the pipes. Always check the degree of vacuum at the gauge manifold. If there is any moisture left in the pipe, the degree of vacuum is sometimes not reached with short-time vacuum application.
After vacuum drying, completely open the stop valves (both liquid and gas) for the outdoor unit. This completely links the indoor and outdoor refrigerant circuits.
  - If the vacuum drying is inadequate, air and water vapor remain in the refrigerant circuits and can cause abnormal rise of high pressure, abnormal drop of low pressure, deterioration of the refrigerating machine oil due to moisture, etc.
  - If the stop valves are left closed and the unit is operated, the compressor and control valves will be damaged.
  - Use a leak detector or soapy water to check for gas leaks at the pipe connection sections of the outdoor unit.
  - Do not use the refrigerant from the unit to purge air from the refrigerant lines.
  - After the valve work is completed, tighten the valve caps to the correct torque: 20 to 25 N·m (200 to 250 kgf·cm).
  Failure to replace and tighten the caps may result in refrigerant leakage. In addition, do not damage the insides of the valve caps as they act as a seal to prevent refrigerant leakage.

⑤ Use sealant to seal the ends of the thermal insulation around the pipe connection sections to prevent water from entering the thermal insulation.

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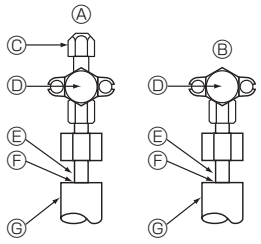
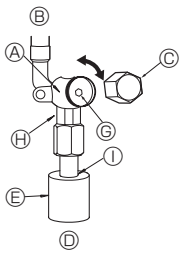


Ⓐ Stop valve <Liquid side>
Ⓑ Stop valve <Gas side>
Ⓒ Service port
Ⓓ Open/Close section
Ⓔ Local pipe
Ⓕ Sealed
Ⓖ Pipe cover

Fig. 4-4

(1) (2)



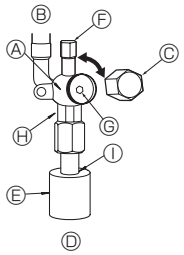
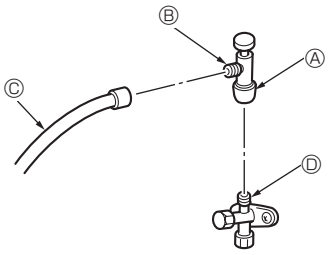


Fig. 4-5 **Fig. 4-6**

Ⓐ Valve
Ⓑ Unit side
Ⓒ Cap
Ⓓ Local pipe side
Ⓔ Pipe cover
Ⓕ Service port
Ⓖ Wrench hole
Ⓗ Double spanner section
(Do not apply a spanner other than to this section. Doing so would cause coolant leaks.)
Ⓘ Seal section
(Seal the end of the heat insulation material at the pipe connection section with whatever seal material you have on hand so that water does not infiltrate the heat insulation material.)



* The figure to the left is an example only. The stop valve shape, service port position, etc., may vary according to the model.
* Turn section Ⓐ only. (Do not further tighten sections Ⓐ and Ⓑ together.)

Ⓒ Charge hose
Ⓓ Service port

Fig. 4-7

4.4. Refrigerant pipe airtight testing method (Fig. 4-4)

(1) Connect the testing tools.
- Make sure the stop valves Ⓐ Ⓑ are closed and do not open them.
- Add pressure to the refrigerant lines through the service port Ⓒ of the liquid stop valve Ⓐ.

(2) Do not add pressure to the specified pressure all at once; add pressure little by little.
① Pressurize to 0.5 MPa (5 kgf/cm²G), wait five minutes, and make sure the pressure does not decrease.
② Pressurize to 1.5 MPa (15 kgf/cm²G), wait five minutes, and make sure the pressure does not decrease.
③ Pressurize to 4.15 MPa (41.5 kgf/cm²G) and measure the surrounding temperature and refrigerant pressure.

(3) If the specified pressure holds for about one day and does not decrease, the pipes have passed the test and there are no leaks.
- If the surrounding temperature changes by 1 °C, the pressure will change by about 0.01 MPa (0.1 kgf/cm²G). Make the necessary corrections.

(4) If the pressure decreases in steps (2) or (3), there is a gas leak. Look for the source of the gas leak.

4.5. Stop valve opening method

The stop valves opening method varies according to the outdoor unit model. Use the appropriate method to open the stop valves.

(1) Gas side (Fig. 4-5)
① Remove the cap and turn the valve rod counterclockwise as far as it will go with the use of a 5 mm hexagonal wrench. Stop turning when it hits the stopper. (ø 15.88: Approximately 13 revolutions)
② Make sure that the stop valve is open completely and rotate the cap back to its original position.

(2) Liquid side (Fig. 4-6)
① Remove the cap and turn the valve rod counterclockwise as far as it will go with the use of a 4 mm hexagonal wrench. Stop turning when it hits the stopper. (ø9.52: Approximately 10 revolutions)
② Make sure that the stop valve is open completely and rotate the cap back to its original position.

Refrigerant pipes are protectively wrapped
- The pipes can be protectively wrapped up to a diameter of ø90 before or after connecting the pipes. Cut out the knockout in the pipe cover following the groove and wrap the pipes.

Pipe inlet gap
- Use putty or sealant to seal the pipe inlet around the pipes so that no gaps remain. (If the gaps are not closed, noise may be emitted or water and dust will enter the unit and breakdown may result.)

Precautions when using the charge valve (Fig. 4-7)
Do not tighten the service port too much when installing it, otherwise, the valve core could be deformed and become loose, causing a gas leak.
After positioning section Ⓑ in the desired direction, turn section Ⓐ only and tighten it. Do not further tighten sections Ⓐ and Ⓑ together after tightening section Ⓐ.

⚠ **Warning:**
When installing the unit, securely connect the refrigerant pipes before starting the compressor.

4.6. Addition of refrigerant

- Additional charging is not necessary if the pipe length does not exceed 30 m. However, the M140 does not require an additional charge of refrigerant if the length of the piping is 55 m or less.
- If the pipe length exceeds 30 m, charge the unit with additional R32 refrigerant according to the permitted pipe lengths in the chart below.
  * When the unit is stopped, charge the unit with the additional refrigerant through the liquid stop valve after the pipe extensions and indoor unit have been vacuumized.
  When the unit is operating, add refrigerant to the gas check valve using a safety charger. Do not add liquid refrigerant directly to the check valve.
  * After charging the unit with refrigerant, note the added refrigerant amount on the service label (attached to the unit).
  Refer to the “1.5. Using R32 refrigerant air conditioners” for more information.
- Be careful when installing multiple units. Connecting to an incorrect indoor unit can lead to abnormally high pressure and have a serious effect on operation performance.

◎ R32 maintenance refilling: Before servicing refilling the equipment with R32 to ensure that there is no risk of explosion from electrical sparks it must be ensured that the equipment machine is 100% disconnected from the mains supply.

Model	Permitted pipe length	Permitted vertical difference	Additional refrigerant charging amount			◎Maximum amount of refrigerant
			31 - 40 m	41 - 50 m	51 - 55 m	
M100	- 55 m	- 30 m	0.4 kg	0.8 kg	1.0 kg	4.1 kg
M125	- 55 m	- 30 m	0.4 kg	0.8 kg	1.0 kg	4.6 kg
M140	- 55 m	- 30 m	–	–	–	4.0 kg

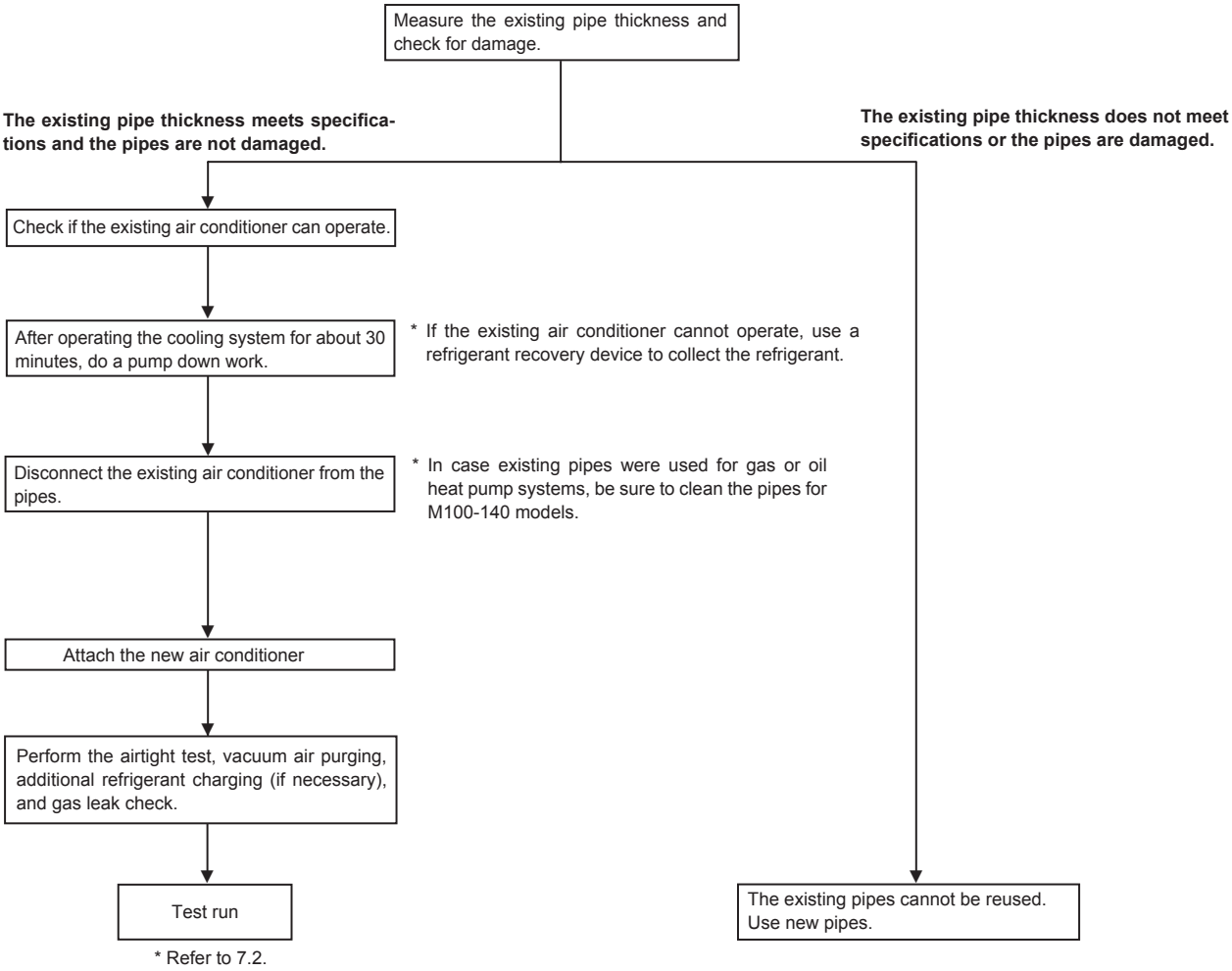
4. Installing the refrigerant piping

Refilling refrigerant charge (kg) for less than chargeless pipe length

Outdoor unit	5 m and less	6 - 10 m	11 - 15 m	16 - 20 m	21 - 25 m	26 - 30 m	31 - 35 m	36 - 40 m	41 - 45 m	46 - 55 m
M100	2.85	2.90	2.95	3.00	3.05	3.10	-	-	-	-
M125	3.35	3.40	3.45	3.50	3.55	3.60	-	-	-	-
M140	3.78	3.80	3.83	3.85	3.88	3.90	3.93	3.95	3.98	4.00

4.7. Precautions when reusing existing R22 refrigerant pipes

• Refer to the flowchart below to determine if the existing pipes can be used and if it is necessary to use a filter dryer.
• If the diameter of the existing pipes is different from the specified diameter, refer to technological data materials to confirm if the pipes can be used.



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5. Drainage piping work

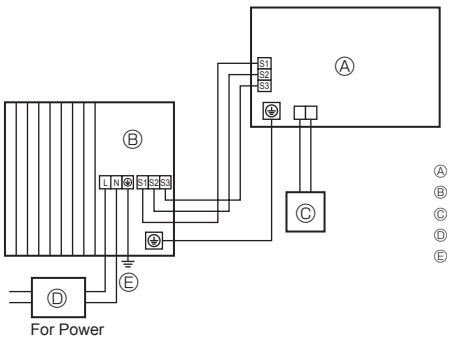
Outdoor unit drainage pipe connection
When drain piping is necessary, use the drain socket or the drain pan (option).

	M100-140
Drain socket	PAC-SH71DS-E
Drain pan	PAC-SH97DP-E

6. Electrical work

6.1. Outdoor unit (Fig. 6-1, Fig. 6-2)

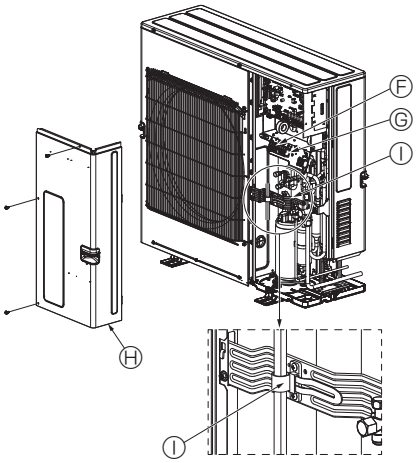
① Remove the service panel.
② Wire the cables referring to the Fig. 6-1 and the Fig. 6-2.



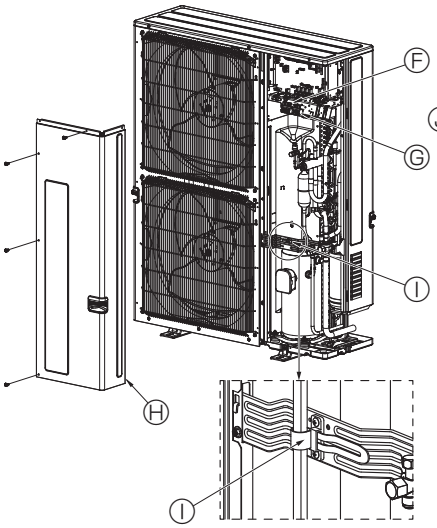
Ⓐ Indoor unit
Ⓑ Outdoor unit
Ⓒ Remote controller
Ⓓ Main switch (Breaker)
Ⓔ Earth

Fig. 6-1

■ **M100, M125**



■ **M140**



■ **M100-140**

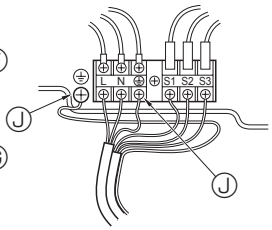


Fig. 6-2

Ⓕ Terminal block
Ⓖ Indoor/Outdoor connection terminal block (S1, S2, S3)
Ⓗ Service panel
Ⓘ Clamp
* Clamp the cables so that they do not contact the center of the service panel or the gas valve.
Ⓙ Earth terminal

Note :
If the protective sheet for the electrical box is removed during servicing, be sure to reinstall it.

⚠ **Caution:**
Be sure to install N-Line. Without N-Line, it could cause damage to unit.

en

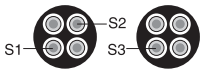
6. Electrical work

6.2. Field electrical wiring

Outdoor unit model			M100, M125	M140
Outdoor unit power supply			~/N (single), 50 Hz, 230 V	~/N (single), 50 Hz, 230 V
Outdoor unit input capacity Main switch (Breaker)		*1	32 A	40 A
Wiring Wire No. × size (mm²)	Outdoor unit power supply	*5	3 × Min. 4	3 × Min. 6
	Indoor unit-Outdoor unit	*2	3 × 1.5 (Polar)	3 × 1.5 (Polar)
	Indoor unit-Outdoor unit earth	*2	1 × Min. 1.5	1 × Min. 1.5
	Remote controller-Indoor unit	*3	2 × 0.3 (Non-polar)	2 × 0.3 (Non-polar)
Circuit rating	Outdoor unit L-N (single)	*4	230 VAC	230 VAC
	Indoor unit-Outdoor unit S1-S2	*4	230 VAC	230 VAC
	Indoor unit-Outdoor unit S2-S3	*4	24 VDC	24 VDC
	Remote controller-Indoor unit	*4	12 VDC	12 VDC

*1. A breaker with at least 3.0 mm contact separation in each poles shall be provided. Use earth leakage breaker (NV).
Make sure that the current leakage breaker is one compatible with higher harmonics.
Always use a current leakage breaker that is compatible with higher harmonics as this unit is equipped with an inverter.
The use of an inadequate breaker can cause the incorrect operation of inverter.

*2. (M100-140)
Max. 45 m
If 2.5 mm² used, Max. 50 m
If 2.5 mm² used and S3 separated, Max. 80 m

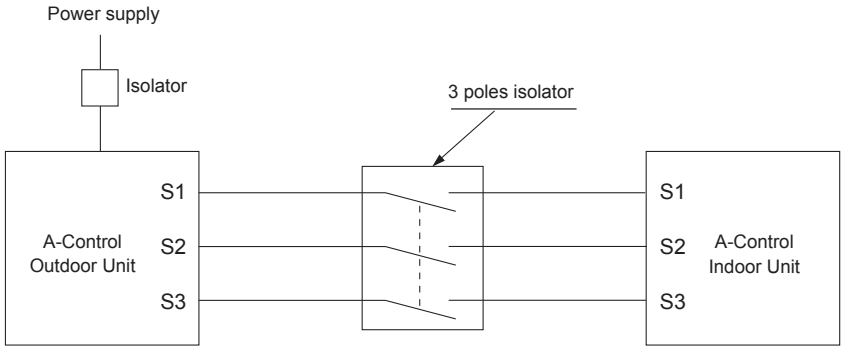


*3. The 10 m wire is attached in the remote controller accessory.

*4. The figures are NOT always against the ground.
S3 terminal has 24 VDC against S2 terminal. However between S3 and S1, these terminals are NOT electrically insulated by the transformer or other device.

*5. In multi-phase appliances, the colour of the neutral conductor of the supply cord, if any, shall be blue.

Notes: 1. Wiring size must comply with the applicable local and national code.
2. Power supply cords and Indoor/Outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)
3. Use an earth wire which is longer than the other cords so that it will not become disconnected when tension is applied.
4. Use self-extinguishing distribution cables for power supply wiring.
5. Properly route wiring so as not to contact the sheet metal edge or a screw tip.



⚠ **Warning:**
- **In case of A-control wiring, there is high voltage potential on the S3 terminal caused by electrical circuit design that has no electrical insulation between power line and communication signal line. Therefore, please turn off the main power supply when servicing. And do not touch the S1, S2, S3 terminals when the power is energized. If isolator should be used between indoor unit and outdoor unit, please use 3-pole type.**

Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

Be sure to connect the indoor-outdoor connecting cables directly to the units (no intermediate connections).
Intermediate connections can lead to communication error if water enters the cables and causes insufficient insulation to ground or a poor electrical contact at the intermediate connection point.

7. Test run

7.1. Before test run

► After completing installation and the wiring and piping of the indoor and outdoor units, check for refrigerant leakage, looseness in the power supply or control wiring, wrong polarity, and no disconnection of one phase in the supply.

► Use a 500-volt megohmmeter to check that the resistance between the power supply terminals and ground is at least 1 MΩ.

► Do not carry out this test on the control wiring (low voltage circuit) terminals.

⚠ Warning:

Do not use the air conditioner if the insulation resistance is less than 1 MΩ.

Insulation resistance

After installation or after the power source to the unit has been cut for an extended period, the insulation resistance will drop below 1 MΩ due to refrigerant accumulating in the compressor. This is not a malfunction. Perform the following procedures.

1. Remove the wires from the compressor and measure the insulation resistance of the compressor.
2. If the insulation resistance is below 1 MΩ, the compressor is faulty or the resistance dropped due the accumulation of refrigerant in the compressor.
3. After connecting the wires to the compressor, the compressor will start to warm up after power is supplied. After supplying power for the times indicated below, measure the insulation resistance again.
   - The insulation resistance drops due to accumulation of refrigerant in the compressor. The resistance will rise above 1 MΩ after the compressor is warmed up for 4 hours.
     (The time necessary to warm up the compressor varies according to atmospheric conditions and refrigerant accumulation.)
   - To operate the compressor with refrigerant accumulated in the compressor, the compressor must be warmed up at least 12 hours to prevent breakdown.
4. If the insulation resistance rises above 1 MΩ, the compressor is not faulty.

⚠ Caution:

- **The compressor will not operate unless the power supply phase connection is correct.**
- **Turn on the power at least 12 hours before starting operation.**

- Starting operation immediately after turning on the main power switch can result in severe damage to internal parts. Keep the power switch turned on during the operational season.

► The followings must be checked as well.

- The outdoor unit is not faulty. LED1 and LED2 on the control board of the outdoor unit flash when the outdoor unit is faulty.
- Both the gas and liquid stop valves are completely open.
- A protective sheet covers the surface of the DIP switch panel on the control board of the outdoor unit. Remove the protective sheet to operate the DIP switches easily.

7.2. Test run

7.2.1. Using SW4 in outdoor unit

SW4-1	ON	Cooling operation
SW4-2	OFF	
SW4-1	ON	Heating operation
SW4-2	ON	

* After performing the test run, set SW4-1 to OFF.

- After power is supplied, a small clicking noise may be heard from the inside of the outdoor unit. The electronic expansion valve is opening and closing. The unit is not faulty.
- A few seconds after the compressor starts, a clanging noise may be heard from the inside of the outdoor unit. The noise is coming from the check valve due to the small difference in pressure in the pipes. The unit is not faulty.

The test run operation mode cannot be changed by DIP switch SW4-2 during the test run. (To change the test run operation mode during the test run, stop the test run by DIP switch SW4-1. After changing the test run operation mode, resume the test run by switch SW4-1.)

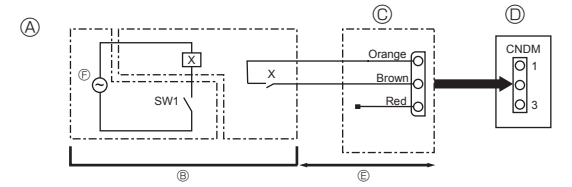
7.2.2. Using remote controller

Refer to the indoor unit installation manual.

Note :

Occasionally, vapor that is made by the defrost operation may seem as if smoke come up from the outdoor unit.

8. Special functions



Ⓐ Circuit diagram example (low noise mode)
Ⓑ On-site arrangement
Ⓒ External input adapter (PAC-SC36NA-E)
Ⓓ Outdoor unit control board
Ⓔ Max. 10 m
Ⓕ Power supply for relay
X: Relay

Fig. 8-1

8.1. Low noise mode (on-site modification) (Fig. 8-1)

By performing the following modification, operation noise of the outdoor unit can be reduced by about 3-4 dB.

The low noise mode will be activated when a commercially available timer or the contact input of an ON/OFF switch is added to the CNDM connector (option) on the control board of the outdoor unit.

- The ability varies according to the outdoor temperature and conditions, etc.

① Complete the circuit as shown when using the external input adapter (PAC-SC36NA-E). (Option)
② SW7-1 (Outdoor unit control board): OFF
③ SW1 ON: Low noise mode
SW1 OFF: Normal operation

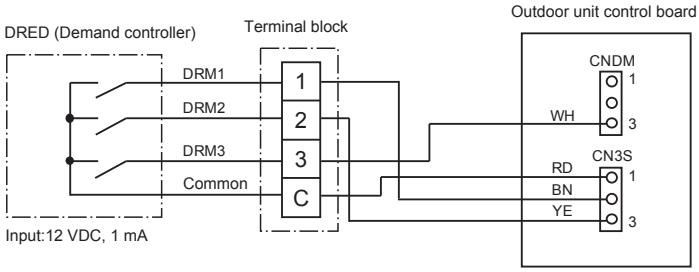


Fig. 8-2

8.2. Demand response capabilities

By connecting to the DRED, this air-conditioner will be capable of all three Demand Response Modes (DRM) based on AS/NZS4755.3.1:2014.

Mode	Description
DRM1	Compressor Off.
DRM2	Total electrical energy consumption of the system is not more than 50%.
DRM3	Total electrical energy consumption of the system is not more than 75%.

For details, refer to the installation manual of the accessory.

* PAC-SC36NA-E is not available for Demand function.

en

8. Special functions

8.3. Refrigerant collecting (pump down)

Perform the following procedures to collect the refrigerant when moving the indoor unit or the outdoor unit.

① Supply power (circuit breaker).
   * When power is supplied, make sure that “CENTRALLY CONTROLLED” is not displayed on the remote controller. If “CENTRALLY CONTROLLED” is displayed, the refrigerant collecting (pump down) cannot be completed normally.
   * Start-up of the indoor-outdoor communication takes about 3 minutes after the power (circuit breaker) is turned on. Start the pump-down operation 3 to 4 minutes after the power (circuit breaker) is turned ON.

② After the liquid stop valve is closed, set the SWP switch on the control board of the outdoor unit to ON. The compressor (outdoor unit) and ventilators (indoor and outdoor units) start operating and refrigerant collecting operation begins. LED1 and LED2 on the control board of the outdoor unit are lit.
   * Only set the SWP switch (push-button type) to ON if the unit is stopped. However, even if the unit is stopped and the SWP switch is set to ON less than 3 minutes after the compressor stops, the refrigerant collecting operation cannot be performed. Wait until compressor has been stopped for 3 minutes and then set the SWP switch to ON again.

③ Because the unit automatically stops in about 2 to 3 minutes when the refrigerant collecting operation is completed (LED1 off, LED2 lit), be sure to quickly close the gas stop valve. If LED1 is lit and LED2 is off and the outdoor unit is stopped, refrigerant collection is not properly performed. Open the liquid stop valve completely, and then repeat step ② after 3 minutes have passed.
   * If the refrigerant collecting operation has been completed normally (LED1 off, LED2 lit), the unit will remain stopped until the power supply is turned off.

④ Turn off the power supply (circuit breaker).
   * Note that when the extension piping is very long with large refrigerant amount, it may not be possible to perform a pump-down operation. When performing the pump-down operation, make sure that the low pressure is lowered to near 0 MPa (gauge).

⚠ **Warning:**
When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes. The compressor may burst if air etc. get into it.

9. System control (Fig. 9-1)

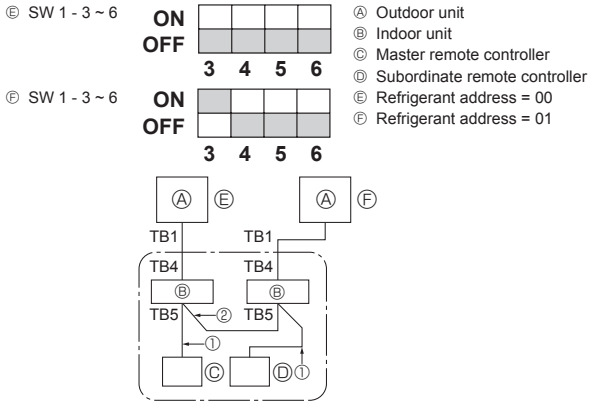


Fig. 9-1

* Set the refrigerant address using the DIP switch of the outdoor unit.

① Wiring from the Remote Control

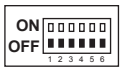
This wire is connected to TB5 (terminal board for remote controller) of the indoor unit (non-polar).

② When a Different Refrigerant System Grouping is Used.

Up to 16 refrigerant systems can be controlled as one group using the slim MA remote controller.

SW1
Function table

<SW1>



	Function	Operation according to switch setting	
		ON	OFF
SW1 function settings	1 Compulsory defrosting	Start	Normal
	2 Error history clear	Clear	Normal
	3 Refrigerant 4 system address setting 5 6	Settings for outdoor unit addresses 0 to 15	

en

This product is designed and intended for use in the residential, commercial and light-industrial environment.

Please be sure to put the contact address/telephone number on this manual before handing it to the customer.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

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Printed in Thailand

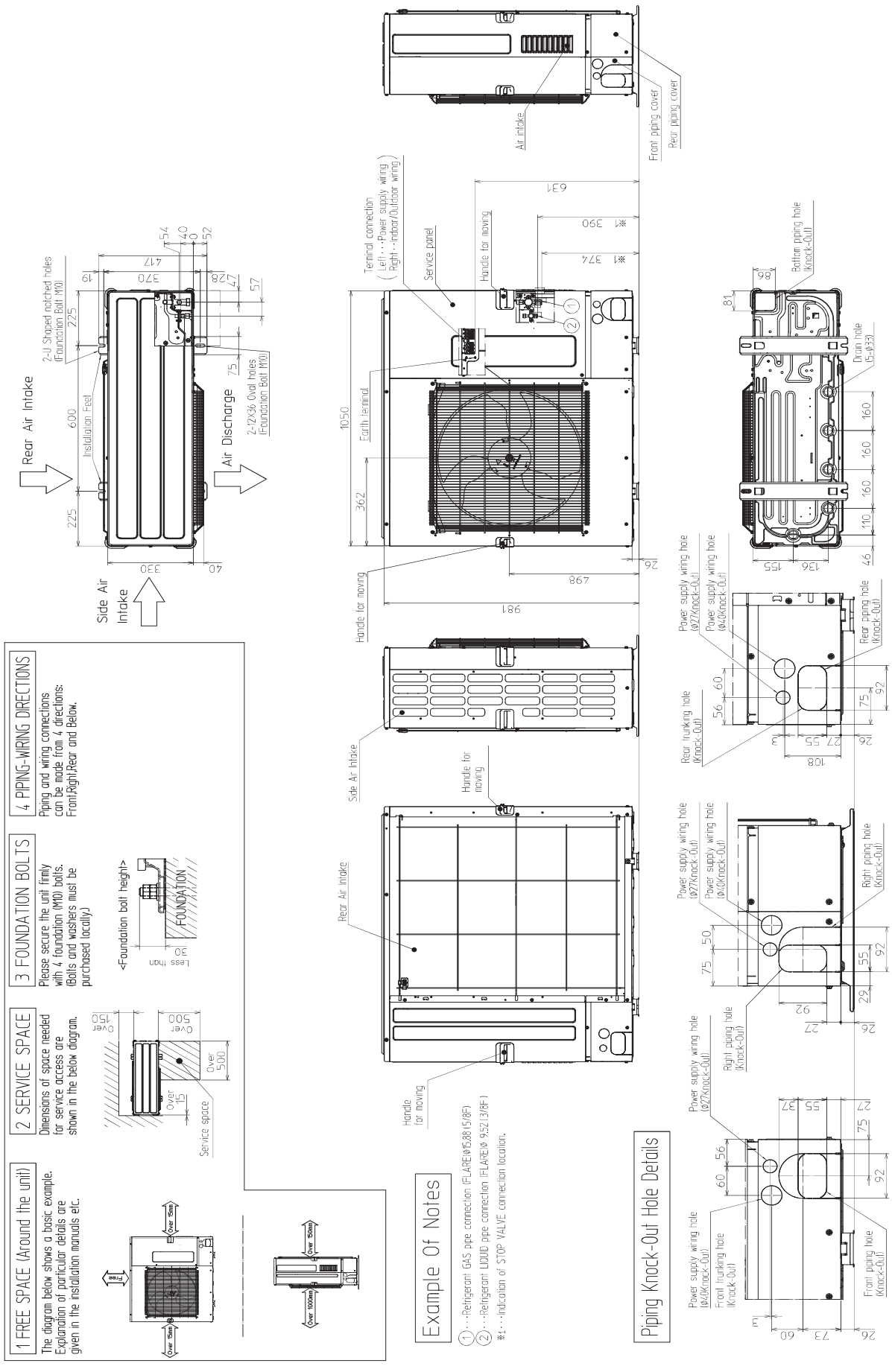
4 SPECIFICATIONS

Service Ref.				PUZ-M100VKA-A.TH	PUZ-M125VKA-A.TH	PUZ-M140VKA-A.TH
OUTDOOR UNIT	Power supply (phase, cycle, voltage)			Single, 50Hz, 230V		
		Max. current	A	20.0	26.5	
	External finish			Munsell 3Y 7.8/1.1		
	Refrigerant control			Linear Expansion Valve		
	Compressor			Hermetic		
		Model		SVB220FBGMT	MVB33FBDMC	
		Motor output	kW	1.5	2.5	
		Starter type		Inverter		
		Protection devices		HP switch Comp. surface thermo		
	Crankcase heater		W	—		
	Heat exchanger			Plate fin coil		
	Fan	Fan(drive) x No.		Propeller fan x 1		Propeller fan x 2
		Fan motor output	kW	0.200		0.074 + 0.074
		Airflow	m3/min(CFM)	79 (2,792)	86 (3,039)	120 (4,230)
	Defrost method			Reverse cycle		
	Sound pressure level	Cooling	SPL(dB)	52	54	53
		Heating	SPL(dB)	54	56	54
	Sound power level	Cooling	PWL(dB)	71	72	71
		Heating	PWL(dB)	72	74	72
	Dimensions	W	mm (inch)	1,050 (41 - 5/16)		
		D	mm (inch)	330 + 40 (13 + 1 - 9/16)		
		H	mm (inch)	981 (38 - 5/8)		1,338 (52 - 11/16)
	Weight		kg	76	84	99
	Refrigerant			R32		
		Charge	kg	3.1	3.6	4.0
		Oil (Model)	L	0.7 (FW68S)	1.1 (FW68S)	
REFRIGERANT PIPING	Pipe size O.D.	Liquid	mm (inch)	9.52 (3/8)		
		Gas	mm (inch)	15.88 (5/8)		
	Connection method	Indoor side		Flared		
		Outdoor side		Flared		
	Between the indoor & outdoor unit	Height difference		Maximum 30 m		
		Piping length		Maximum 55 m		

6 OUTLINES AND DIMENSIONS

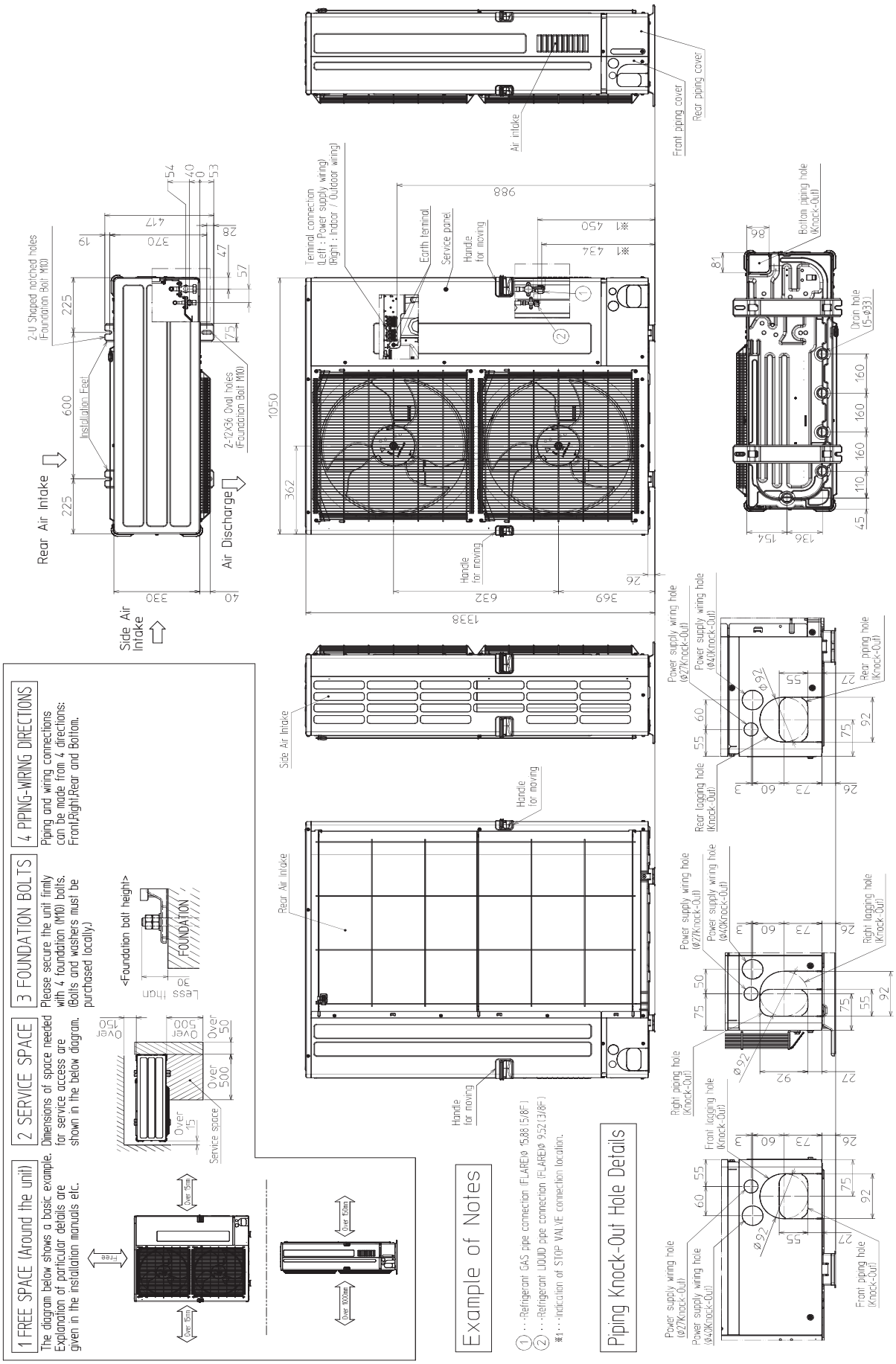
PUZ-M100VKA-A.TH
PUZ-M125VKA-A.TH

Unit: mm



PUZ-M140VKA-A.TH

Unit: mm



4 SPECIFICATIONS

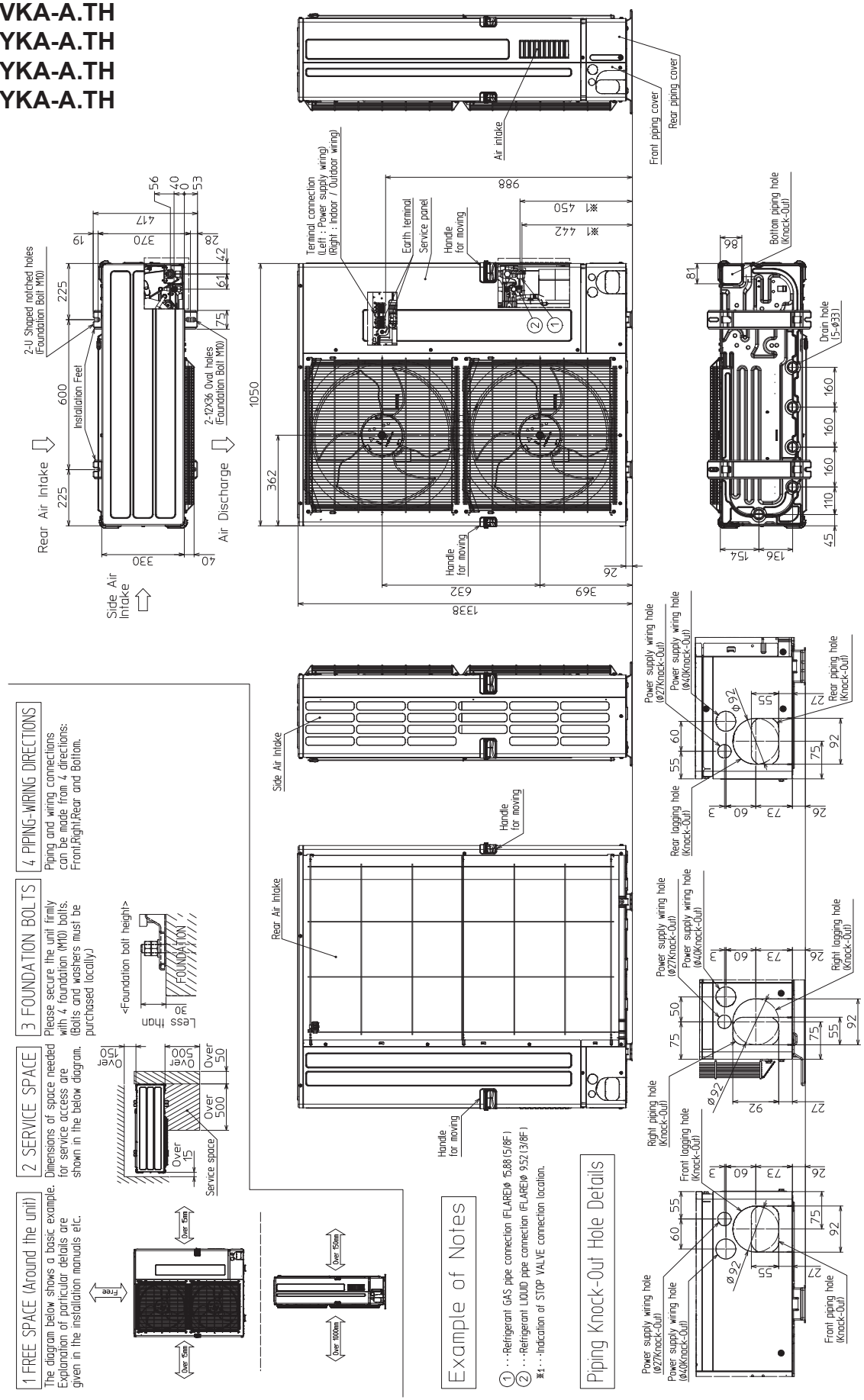
Service Ref.					PUZ-ZM100VKA-A.TH	PUZ-ZM125VKA-A.TH	PUZ-ZM140VKA-A.TH
OUTDOOR UNIT	Power supply (phase, cycle, voltage)				Single, 50Hz, 230V		
		Max. current		A	27.5		28.5
	External finish				Munsell 3Y 7.8/1.1		
	Refrigerant control				Linear Expansion Valve		
	Compressor				Hermetic		
		Model			AVB33FADMT		
		Motor output		kW	2.5		
		Starter type			Inverter		
		Protection devices			HP switch, Comp. surface thermo, Discharge thermo		
	Crankcase heater			W	—		
	Heat exchanger				Plate fin coil		
	Fan	Fan(drive) x No.			Propeller fan x 2		
		Fan motor output		kW	0.074 + 0.074		
		Airflow		m3/min(CFM)	110 (3,880)	120 (4,230)	
	Defrost method				Reverse cycle		
	Sound pressure level		Cooling	SPL(dB)	49	50	
			Heating	SPL(dB)	51	52	
	Sound power level		Cooling	PWL(dB)	69	70	
			Heating	PWL(dB)	69	70	71
	Dimensions		W	mm (inch)	1,050 (41 - 5/16)		
			D	mm (inch)	330 + 40 (13 + 1 - 9/16)		
			H	mm (inch)	1,338 (52 - 11/16)		
	Weight			kg (lb)	113 (249)		
	Refrigerant				R32		
		Charge		kg (lb)	4.0 (8.8)		
		Oil (Model)		L	1.40 (FW68S)		
REFRIGERANT PIPING	Pipe size O.D.		Liquid	mm (inch)	9.52 (3/8)		
			Gas	mm (inch)	15.88 (5/8)		
	Connection method		Indoor side		Flared		
			Outdoor side		Flared		
	Between the indoor & outdoor unit		Height difference		Maximum 30 m		
			Piping length		Maximum 75 m		

Service Ref.					PUZ-ZM100YKA-A.TH	PUZ-ZM125YKA-A.TH	PUZ-ZM140YKA-A.TH
OUTDOOR UNIT	Power supply (phase, cycle, voltage)				Three, 50Hz, 400V		
		Max. current		A	11.5		
	External finish				Munsell 3Y 7.8/1.1		
	Refrigerant control				Linear Expansion Valve		
	Compressor				Hermetic		
		Model			AVB33FACMT		
		Motor output		kW	2.5		
		Starter type			Inverter		
		Protection devices			HP switch, Comp. surface thermo, Discharge thermo		
	Crankcase heater			W	—		
	Heat exchanger				Plate fin coil		
	Fan	Fan(drive) x No.			Propeller fan x 2		
		Fan motor output		kW	0.074 + 0.074		
		Airflow		m3/min(CFM)	110 (3,880)	120 (4,230)	
	Defrost method				Reverse cycle		
	Sound pressure level		Cooling	SPL(dB)	50	50	
			Heating	SPL(dB)	52	52	
	Sound power level		Cooling	PWL(dB)	70	70	
			Heating	PWL(dB)	70	70	71
	Dimensions		W	mm (inch)	1,050 (41 - 5/16)		
			D	mm (inch)	330 + 40 (13 + 1 - 9/16)		
			H	mm (inch)	1,338 (52 - 11/16)		
	Weight			kg (lb)	114 (251)		
	Refrigerant				R32		
		Charge		kg (lb)	4.0 (8.8)		
		Oil (Model)		L	1.40 (FW68S)		
REFRIGERANT PIPING	Pipe size O.D.		Liquid	mm (inch)	9.52 (3/8)		
			Gas	mm (inch)	15.88 (5/8)		
	Connection method		Indoor side		Flared		
			Outdoor side		Flared		
	Between the indoor & outdoor unit		Height difference		Maximum 30 m		
			Piping length		Maximum 75 m		

6 OUTLINES AND DIMENSIONS

PUZ-ZM100VKA-A.TH
PUZ-ZM125VKA-A.TH
PUZ-ZM140VKA-A.TH
PUZ-ZM100YKA-A.TH
PUZ-ZM125YKA-A.TH
PUZ-ZM140YKA-A.TH

Unit: mm



MITSUBISHI ELECTRIC

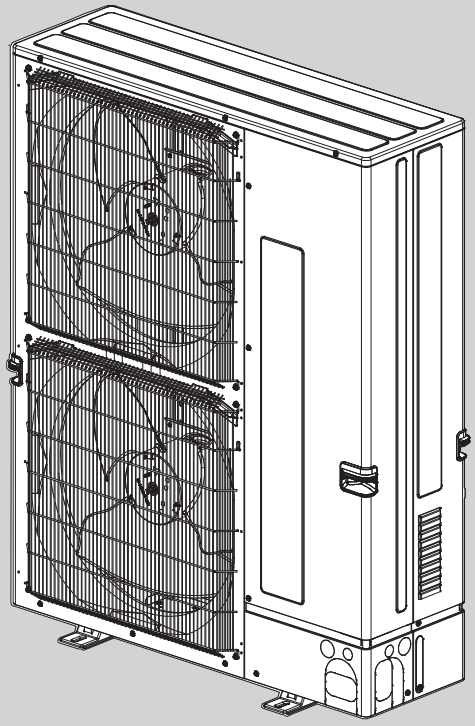
SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

March 2019
No. OCH702

SERVICE MANUAL R32

Outdoor unit [Model Name]	[Service Ref.]
PUZ-ZM100VKA-A	PUZ-ZM100VKA-A.TH
PUZ-ZM125VKA-A	PUZ-ZM125VKA-A.TH
PUZ-ZM140VKA-A	PUZ-ZM140VKA-A.TH
PUZ-ZM100YKA-A	PUZ-ZM100YKA-A.TH
PUZ-ZM125YKA-A	PUZ-ZM125YKA-A.TH
PUZ-ZM140YKA-A	PUZ-ZM140YKA-A.TH

Note:
- This manual describes service data of the outdoor units only.



PUZ-ZM100VKA-A

CONTENTS

PARTS CATALOG (OCB702)

Mr.SLIM

TALL UNITS

4 SPECIFICATIONS

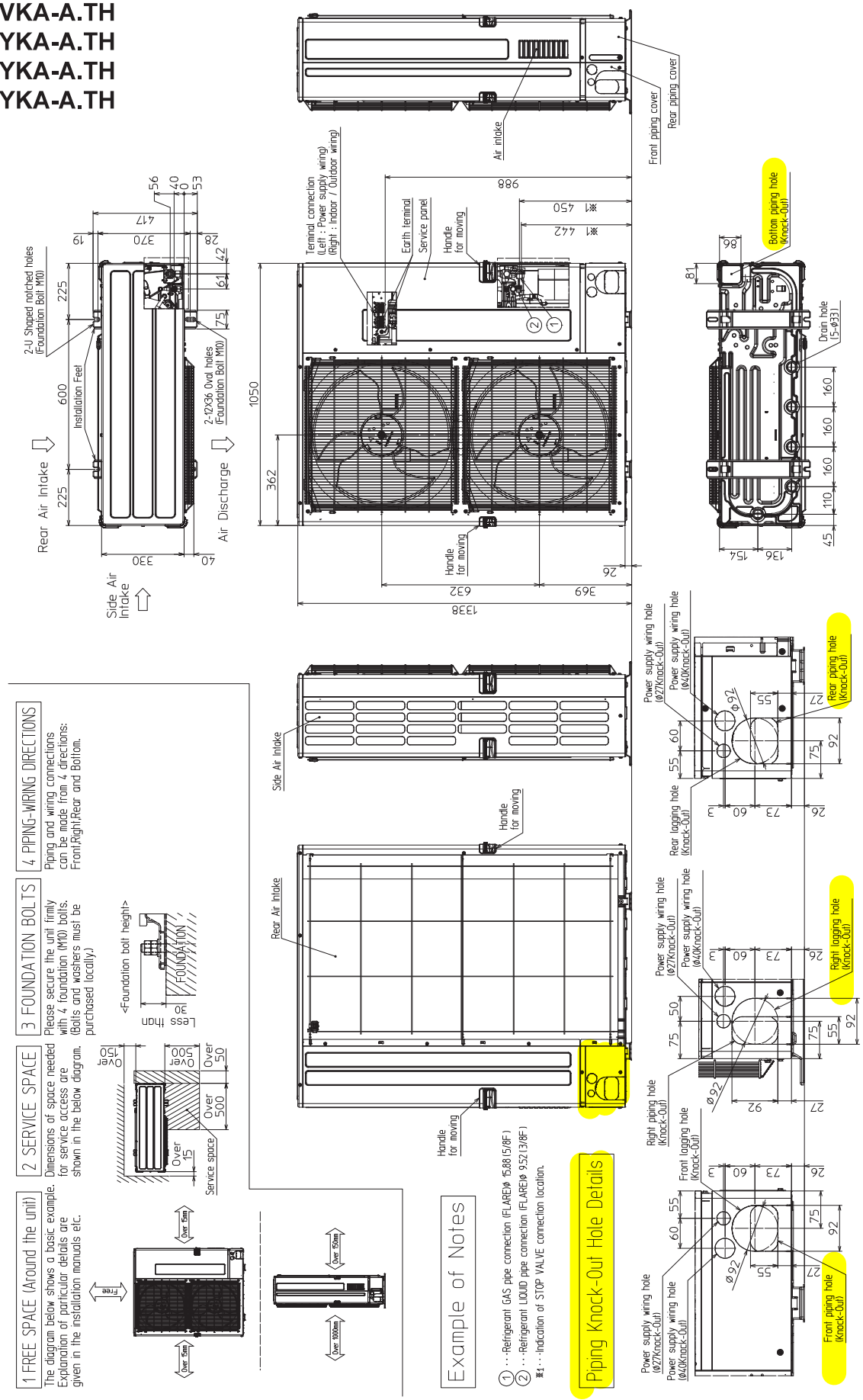
Service Ref.				PUZ-ZM100VKA-A.TH	PUZ-ZM125VKA-A.TH	PUZ-ZM140VKA-A.TH
OUTDOOR UNIT	Power supply (phase, cycle, voltage)			Single, 50Hz, 230V		
		Max. current	A	27.5		28.5
	External finish			Munsell 3Y 7.8/1.1		
	Refrigerant control			Linear Expansion Valve		
	Compressor			Hermetic		
		Model		AVB33FADMT		
		Motor output	kW	2.5		
		Starter type		Inverter		
		Protection devices		HP switch, Comp. surface thermo, Discharge thermo		
	Crankcase heater		W	—		
	Heat exchanger			Plate fin coil		
	Fan	Fan(drive) x No.		Propeller fan x 2		
		Fan motor output	kW	0.074 + 0.074		
		Airflow	m3/min(CFM)	110 (3,880)	120 (4,230)	
	Defrost method			Reverse cycle		
	Sound pressure level	Cooling	SPL(dB)	49	50	
		Heating	SPL(dB)	51	52	
	Sound power level	Cooling	PWL(dB)	69	70	
		Heating	PWL(dB)	69	70	71
	Dimensions	W	mm (inch)	1,050 (41 - 5/16)		
		D	mm (inch)	330 + 40 (13 + 1 - 9/16)		
		H	mm (inch)	1,338 (52 - 11/16)		
	Weight		kg (lb)	113 (249)		
	Refrigerant			R32		
		Charge	kg (lb)	4.0 (8.8)		
		Oil (Model)	L	1.40 (FW68S)		
REFRIGERANT PIPING	Pipe size O.D.	Liquid	mm (inch)	9.52 (3/8)		
		Gas	mm (inch)	15.88 (5/8)		
	Connection method	Indoor side		Flared		
		Outdoor side		Flared		
	Between the indoor & outdoor unit	Height difference		Maximum 30 m		
		Piping length		Maximum 75 m		

Service Ref.				PUZ-ZM100YKA-A.TH	PUZ-ZM125YKA-A.TH	PUZ-ZM140YKA-A.TH
OUTDOOR UNIT	Power supply (phase, cycle, voltage)			Three, 50Hz, 400V		
		Max. current	A	11.5		
	External finish			Munsell 3Y 7.8/1.1		
	Refrigerant control			Linear Expansion Valve		
	Compressor			Hermetic		
		Model		AVB33FACMT		
		Motor output	kW	2.5		
		Starter type		Inverter		
		Protection devices		HP switch, Comp. surface thermo, Discharge thermo		
	Crankcase heater		W	—		
	Heat exchanger			Plate fin coil		
	Fan	Fan(drive) x No.		Propeller fan x 2		
		Fan motor output	kW	0.074 + 0.074		
		Airflow	m3/min(CFM)	110 (3,880)	120 (4,230)	
	Defrost method			Reverse cycle		
	Sound pressure level	Cooling	SPL(dB)	50	50	
		Heating	SPL(dB)	52	52	
	Sound power level	Cooling	PWL(dB)	70	70	
		Heating	PWL(dB)	70	70	71
	Dimensions	W	mm (inch)	1,050 (41 - 5/16)		
		D	mm (inch)	330 + 40 (13 + 1 - 9/16)		
		H	mm (inch)	1,338 (52 - 11/16)		
	Weight		kg (lb)	114 (251)		
	Refrigerant			R32		
		Charge	kg (lb)	4.0 (8.8)		
		Oil (Model)	L	1.40 (FW68S)		
REFRIGERANT PIPING	Pipe size O.D.	Liquid	mm (inch)	9.52 (3/8)		
		Gas	mm (inch)	15.88 (5/8)		
	Connection method	Indoor side		Flared		
		Outdoor side		Flared		
	Between the indoor & outdoor unit	Height difference		Maximum 30 m		
		Piping length		Maximum 75 m		

6 OUTLINES AND DIMENSIONS

PUZ-ZM100VKA-A.TH
PUZ-ZM125VKA-A.TH
PUZ-ZM140VKA-A.TH
PUZ-ZM100YKA-A.TH
PUZ-ZM125YKA-A.TH
PUZ-ZM140YKA-A.TH

Unit: mm



MITSUBISHI ELECTRIC

Mr.SLIM

Air-Conditioners
PUZ-ZM·V/YKA-A

INSTALLATION MANUAL

FOR INSTALLER

For safe and correct use, read this manual and the indoor unit installation manual thoroughly before installing the air-conditioner unit.

English

Contents

Required Tools for Installation

Phillips screwdriver
Level
Scale
Utility knife or scissors
65 mm hole saw
Torque wrench
Wrench (or spanner)
4 mm hexagonal wrench
Flare tool for R32, R410A
Gauge manifold for R32, R410A
Vacuum pump for R32, R410A
Charge hose for R32, R410A
Pipe cutter with reamer
Appropriate personal protective equipment
The installer should ensure they check the respective Work Health and Safety (WHS) Act within their jurisdiction as the requirements and obligations may differ.

⚠ **Caution:**
• Do not vent R32 into the atmosphere.
• Confirm that the installation satisfies "the requirements in this manual" and "the requirements of safety on site and environment".

1. Safety precautions

► Before installing the unit, make sure you read all the "Safety precautions".
► Please report to or take consent by the supply authority before connection to the system.

⚠ **Warning:**
Describes precautions that must be observed to prevent danger of injury or death to the user.

⚠ **Caution:**
Describes precautions that must be observed to prevent damage to the unit.

After installation work has been completed, explain the "Safety Precautions," use, and maintenance of the unit to the customer according to the information in the Operation Manual and perform the test run to ensure normal operation. Both the Installation Manual and Operation Manual must be given to the user for keeping. These manuals must be passed on to subsequent users.

⏚ : Indicates a part which must be grounded.

⚠ **Warning:**
Carefully read the labels affixed to the main unit.
◎ : Indicates warnings and cautions when using R32 refrigerant.

MEANINGS OF SYMBOLS DISPLAYED ON THE UNIT

	**WARNING** (Risk of fire)	This mark is for R32 refrigerant only. Refrigerant type is written on nameplate of outdoor unit. In case that refrigerant type is R32, this unit uses a flammable refrigerant. If refrigerant leaks and comes in contact with fire or heating part, it will create harmful gas and there is risk of fire.
	Read the OPERATION MANUAL carefully before operation.	
	Service personnel are required to carefully read the OPERATION MANUAL and INSTALLATION MANUAL before operation.	
	Further information is available in the OPERATION MANUAL, INSTALLATION MANUAL, and the like.	

⚠ **Warning:**
- **The unit must not be installed by the user. Ask a dealer or an authorized technician to install and repair the unit. If the unit is installed incorrectly, water leakage, electric shock, or fire may result.**
- **For installation and relocation work, follow the instructions in the Installation Manual and use tools and pipe components specifically made for use with R32 refrigerant. If pipe components not designed for R32 refrigerant are used and the unit is not installed correctly, the pipes may burst and cause damage or injuries. In addition, water leakage, electric shock, or fire may result.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**
- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. Consult a dealer regarding the appropriate measures to prevent the allowable concentration from being exceeded. Should the refrigerant leak and cause the concentration limit to be exceeded, hazards due to lack of oxygen in the room may result.**
- **Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.**
- **All electric work must be performed by a qualified technician according to local regulations and the instructions given in this manual. The units must be powered by dedicated power lines and the correct voltage and circuit breakers must be used. Power lines with insufficient capacity or incorrect electrical work may result in electric shock or fire.**
- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. If the pipes are not connected correctly, the unit will not be properly grounded and electric shock may result.**
- **This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.**
- **Use only specified cables for wiring. The wiring connections must be made securely with no tension applied on the terminal connections. Also, never splice the cables for wiring (unless otherwise indicated in this document).**
  Failure to observe these instructions may result in overheating or a fire.
- **If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid hazard.**
- **The appliance shall be installed in accordance with national wiring regulations.**
- **The terminal block cover panel of the outdoor unit must be firmly attached. If the cover panel is mounted incorrectly and dust and moisture enter the unit, electric shock or fire may result.**
- **When installing or relocating, or servicing the air conditioner, use only the specified refrigerant (R32) to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.**
  If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
  The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.
- **Use only accessories authorized by Mitsubishi Electric and ask a dealer or an authorized technician to install them. If accessories are incorrectly installed, water leakage, electric shock, or fire may result.**
- **Do not alter the unit. Consult a dealer for repairs. If alterations or repairs are not performed correctly, water leakage, electric shock, or fire may result.**
- **The user should never attempt to repair the unit or transfer it to another location. If the unit is installed incorrectly, water leakage, electric shock, or fire may result. If the air conditioner must be repaired or moved, ask a dealer or an authorized technician.**
- **After installation has been completed, check for refrigerant leaks. If refrigerant leaks into the room and comes into contact with the flame of a heater or portable cooking range, poisonous gases will be released.**
- **Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.**
- **The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).**
- **Do not pierce or burn.**
- **Be aware that refrigerants may not contain an odour.**
- **◎ Pipe-work shall be protected from physical damage.**
- **The installation of pipe-work shall be kept to a minimum.**
- **Compliance with national gas regulations shall be observed.**
- **Keep any required ventilation openings clear of obstruction.**
- **◎ Do not use low temperature solder alloy in case of brazing the refrigerant pipes.**
- **◎ When performing brazing work, be sure to ventilate the room sufficiently.**
  Make sure that there are no hazardous or flammable materials nearby.
  When performing the work in a closed room, small room, or similar location, make sure that there are no refrigerant leaks before performing the work.
  If refrigerant leaks and accumulates, it may ignite or poisonous gases may be released.
- **◎ The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.**
- **◎ Keep gas-burning appliances, electric heaters, and other fire sources (ignition sources) away from the location where installation, repair, and other air conditioner work will be performed.**
  If refrigerant comes into contact with a flame, poisonous gases will be released.
- **◎ Do not smoke during work and transportation.**

1. Safety precautions

1.1. Before installation

⚠ **Caution:**

- **Do not use the unit in an unusual environment. If the air conditioner is installed in areas exposed to steam, volatile oil (including machine oil), or sulfuric gas, areas exposed to high salt content such as the seaside, or areas where the unit will be covered by snow, the performance can be significantly reduced and the internal parts can be damaged.**
- **Do not install the unit where combustible gases may leak, be produced, flow, or accumulate. If combustible gas accumulates around the unit, fire or explosion may result.**
- **The outdoor unit produces condensation during the heating operation. Make sure to provide drainage around the outdoor unit if such condensation is likely to cause damage.**
- **When installing the unit in a hospital or communications office, be prepared for noise and electronic interference. Inverters, home appliances, high-frequency medical equipment, and radio communications equipment can cause the air conditioner to malfunction or breakdown. The air conditioner may also affect medical equipment, disturbing medical care, and communications equipment, harming the screen display quality.**

1.2. Before installation (relocation)

⚠ **Caution:**

- **Be extremely careful when transporting or installing the units. Two or more persons are needed to handle the unit, as it weighs 20 kg or more. Do not grasp the packaging bands. Wear protective gloves to remove the unit from the packaging and to move it, as you can injure your hands on the fins or the edge of other parts.**
- **Be sure to safely dispose of the packaging materials. Packaging materials, such as nails and other metal or wooden parts may cause stabs or other injuries.**
- **The base and attachments of the outdoor unit must be periodically checked for looseness, cracks or other damage. If such defects are left uncorrected, the unit may fall down and cause damage or injuries.**
- **Do not clean the air conditioner unit with water. Electric shock may result.**
- **Tighten all flare nuts to specification using a torque wrench. If tightened too much, the flare nut can break after an extended period and refrigerant can leak out.**

1.3. Before electric work

⚠ **Caution:**

- **Be sure to install circuit breakers. If not installed, electric shock may result.**
- **For the power lines, use standard cables of sufficient capacity. Otherwise, a short circuit, overheating, or fire may result.**
- **When installing the power lines, do not apply tension to the cables. If the connections are loosened, the cables can snap or break and overheating or fire may result.**
- **Be sure to ground the unit. Do not connect the ground wire to gas or water pipes, lightning rods, or telephone grounding lines. If the unit is not properly grounded, electric shock may result.**
- **Use circuit breakers (ground fault interrupter, isolating switch (+B fuse), and molded case circuit breaker) with the specified capacity. If the circuit breaker capacity is larger than the specified capacity, breakdown or fire may result.**

1.4. Before starting the test run

⚠ **Caution:**

- **Turn on the main power switch more than 12 hours before starting operation. Starting operation just after turning on the power switch can severely damage the internal parts. Keep the main power switch turned on during the operation season.**
- **Before starting operation, check that all panels, guards and other protective parts are correctly installed. Rotating, hot, or high voltage parts can cause injuries.**
- **Do not touch any switch with wet hands. Electric shock may result.**
- **Do not touch the refrigerant pipes with bare hands during operation. The refrigerant pipes are hot or cold depending on the condition of the flowing refrigerant. If you touch the pipes, burns or frostbite may result.**
- **After stopping operation, be sure to wait at least five minutes before turning off the main power switch. Otherwise, water leakage or breakdown may result.**

1.5. Using R32 refrigerant air conditioners

⚠ **Caution:**

- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. Make sure the insides of the pipes are clean and do not contain any harmful contaminants such as sulfuric compounds, oxidants, debris, or dust. Use pipes with the specified thickness. (Refer to 4.1.) Note the following if reusing existing pipes that carried R22 refrigerant.**
  - Replace the existing flare nuts and flare the flared sections again.
  - Do not use thin pipes. (Refer to 4.1.)
- **Store the pipes to be used during installation indoors and keep both ends of the pipes sealed until just before brazing. (Leave elbow joints, etc. in their packaging.) If dust, debris, or moisture enters the refrigerant lines, oil deterioration or compressor breakdown may result.**
- **Use ester oil, ether oil, alkylbenzene oil (small amount) as the refrigeration oil applied to the flared sections. If mineral oil is mixed in the refrigeration oil, oil deterioration may result.**
- **Servicing shall be performed only as recommended by the manufacturer.**
- **Do not use refrigerant other than R32 refrigerant.**
- **Use the following tools specifically designed for use with R32 refrigerant. The following tools are necessary to use R32 refrigerant. Contact your nearest dealer for any questions.**

Tools (for R32)	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adapter
Torque wrench	Electronic refrigerant charging scale

- **Be sure to use the correct tools. If dust, debris, or moisture enters the refrigerant lines, refrigeration oil deterioration may result.**

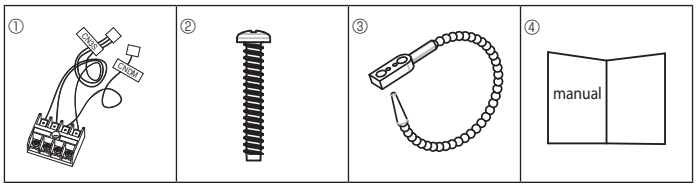


Fig. 1-1

1.6. Accessories of outdoor unit (Fig. 1-1) (ZM100-140)

The parts show in the left are the accessories of this unit, which are affixed to the inside of the service panel.

① Terminal block (on lead wire) ..... ×1
② Screw 4 × 25 ..... ×1
③ Fastener ..... ×1
④ Installation manual ..... ×1

2. Installation location

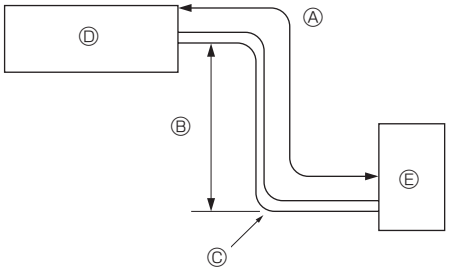


Fig. 2-1

2.1. Refrigerant pipe (Fig. 2-1)

► **Check that the difference between the heights of the indoor and outdoor units, the length of refrigerant pipe, and the number of bends in the pipe are within the limits shown below.**

Models	Ⓐ Pipe length (one way)	Ⓑ Height difference	Ⓒ Number of bends (one way)
ZM100, 125, 140	Max. 75 m	Max. 30 m	Max. 15

- Height difference limitations are binding regardless of which unit, indoor or outdoor, is positioned higher.
  Ⓓ Indoor unit
  Ⓔ Outdoor unit

2. Installation location

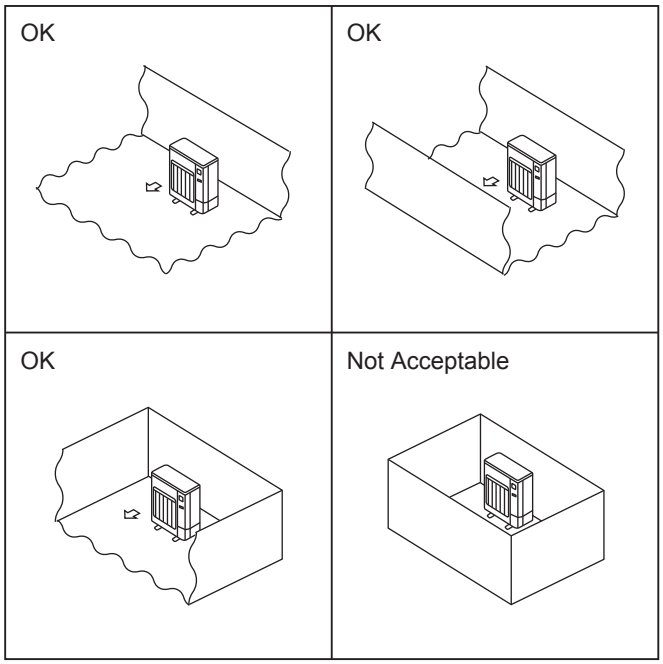


Fig. 2-2

■ **ZM100, 125, 140**

(mm)

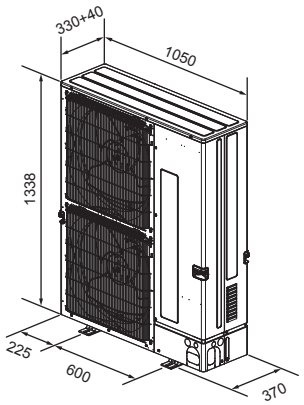


Fig. 2-3

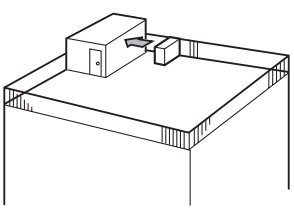


Fig. 2-4

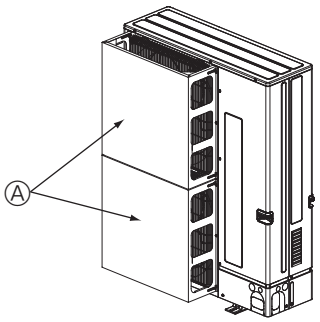


Fig. 2-5

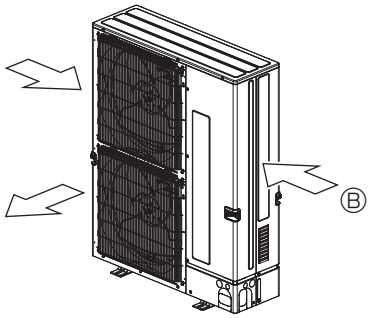


Fig. 2-6

2.2. Choosing the outdoor unit installation location

◎ R32 is heavier than air—as well as other refrigerants—so tends to accumulate at the base (in the vicinity of the floor). If R32 accumulates around base, it may reach a flammable concentration in case room is small. To avoid ignition, maintaining a safe work environment is required by ensuring appropriate ventilation. If a refrigerant leak is confirmed in a room or an area where there is insufficient ventilation, refrain from using of flames until the work environment can be improved by ensuring appropriate ventilation.

- Avoid locations exposed to direct sunlight or other sources of heat.
- Select a location from which noise emitted by the unit will not inconvenience neighbors.
- Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Note that water may drain from the unit during operation.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit can be covered by snow. In areas where heavy snow fall is anticipated, special precautions such as raising the installation location or installing a hood on the air intake must be taken to prevent the snow from blocking the air intake or blowing directly against it. This can reduce the airflow and a malfunction may result.
- Avoid locations exposed to oil, steam, or sulfuric gas.
- Use the transportation handles of the outdoor unit to transport the unit. If the unit is carried from the bottom, hands or fingers may be pinched.
- Refrigerant pipes connection shall be accessible for maintenance purposes.

◎ Install outdoor units in a place where at least one of the four sides is open, and in a sufficiently large space without depressions. (Fig. 2-2)

2.3. Outline dimensions (Outdoor unit) (Fig. 2-3)

2.4. Ventilation and service space

2.4.1. Windy location installation

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

The following shows three examples of precautions against strong winds.

① Face the air outlet towards the nearest available wall about 500 mm away from the wall. (Fig. 2-4)

② Install an optional air guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 2-5)

Ⓐ Air outlet guide

③ Position the unit so that the air outlet blows perpendicularly to the seasonal wind direction, if possible. (Fig. 2-6)

Ⓑ Wind direction

2.4.2. When installing a single outdoor unit (Refer to the next page)

Minimum dimensions are as follows, except for Max., meaning Maximum dimensions, indicated.

Refer to the figures for each case.

① Obstacles at rear only (Fig. 2-7)

② Obstacles at rear and above only (Fig. 2-8)

③ Obstacles at rear and sides only (Fig. 2-9)

④ Obstacles at front only (Fig. 2-10)

* When using an optional air outlet guide, the clearance is 500 mm or more.

⑤ Obstacles at front and rear only (Fig. 2-11)

* When using an optional air outlet guide, the clearance is 500 mm or more.

⑥ Obstacles at rear, sides, and above only (Fig. 2-12)

- Do not install the optional air outlet guides for upward airflow.

2.4.3. When installing multiple outdoor units (Refer to the next page)

Leave 50 mm for ZM100-140 space or more between the units.

① Obstacles at rear only (Fig. 2-13)

② Obstacles at rear and above only (Fig. 2-14)

- No more than 3 units must be installed side by side. In addition, leave space as shown.
- Do not install the optional air outlet guides for upward airflow.

③ Obstacles at front only (Fig. 2-15)

* When using an optional air outlet guide, the clearance for ZM100-140 models is 1000 mm or more.

④ Obstacles at front and rear only (Fig. 2-16)

* When using an optional air outlet guide, the clearance for ZM100-140 models is 1000 mm or more.

⑤ Single parallel unit arrangement (Fig. 2-17)

* When using an optional air outlet guide installed for upward airflow, the clearance is 1000 mm or more.

⑥ Multiple parallel unit arrangement (Fig. 2-18)

* When using an optional air outlet guide installed for upward airflow, the clearance is 1500 mm or more.

⑦ Stacked unit arrangement (Fig. 2-19)

- The units can be stacked up to two units high.
- No more than 2 stacked units must be installed side by side. In addition, leave space as shown.

2. Installation location

UNIT : mm

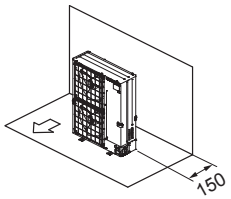


Fig. 2-7

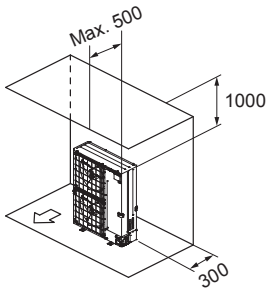


Fig. 2-8

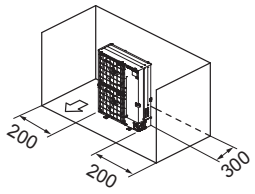


Fig. 2-9

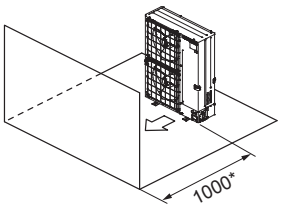


Fig. 2-10

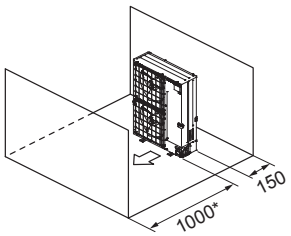


Fig. 2-11

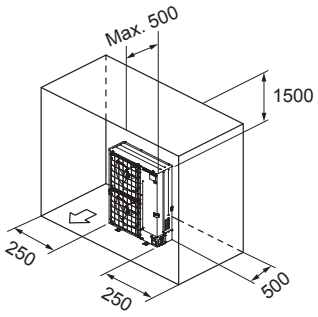


Fig. 2-12

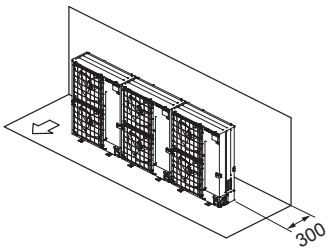


Fig. 2-13

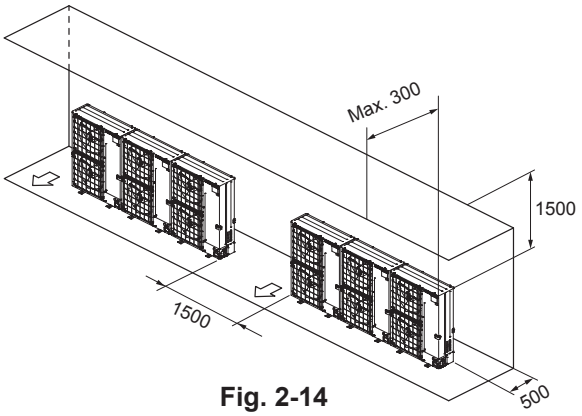


Fig. 2-14

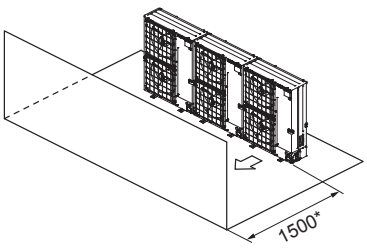


Fig. 2-15

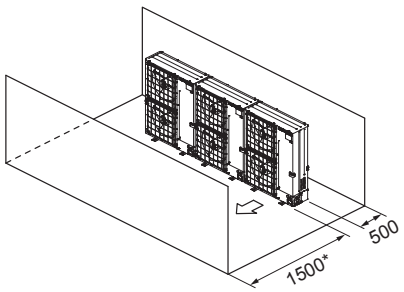


Fig. 2-16

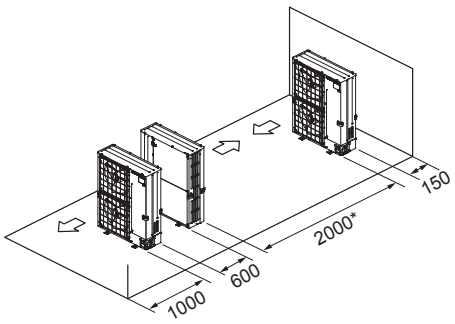


Fig. 2-17

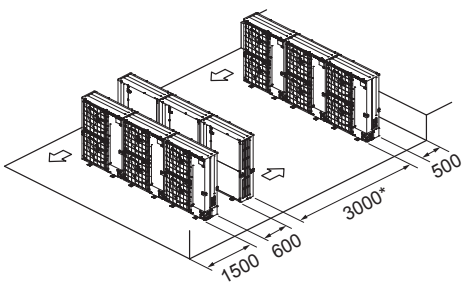


Fig. 2-18

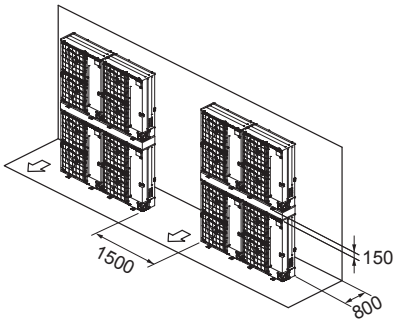


Fig. 2-19

2. Installation location

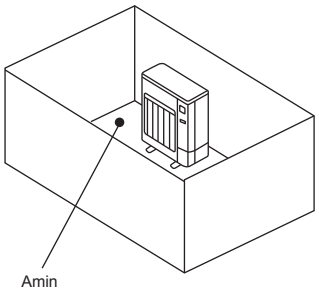
◎2.5. Minimum installation area

If you unavoidably install a unit in a space where all four sides are blocked or there are depressions, confirm that one of these situations (A, B or C) is satisfied.

Note: These countermeasures are for keeping safety not for specification guarantee.

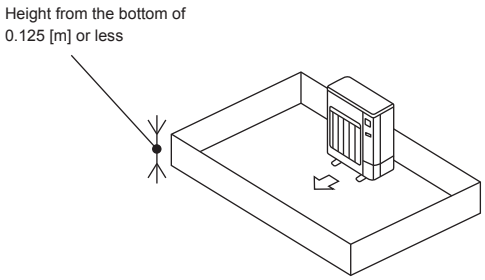
A) Secure sufficient installation space (minimum installation area Amin).
Install in a space with an installation area of Amin or more, corresponding to refrigerant amount M (factory-charged refrigerant + locally added refrigerant).

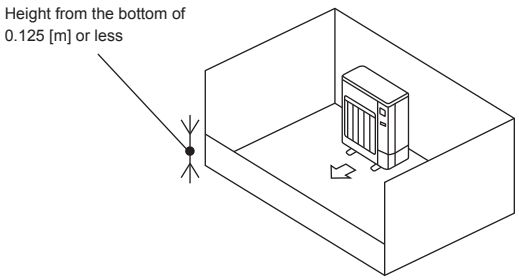
M [kg]	Amin [m²]
1.0	12
1.5	17
2.0	23
2.5	28
3.0	34
3.5	39
4.0	45
4.5	50
5.0	56
5.5	62
6.0	67
6.5	73
7.0	78
7.5	84



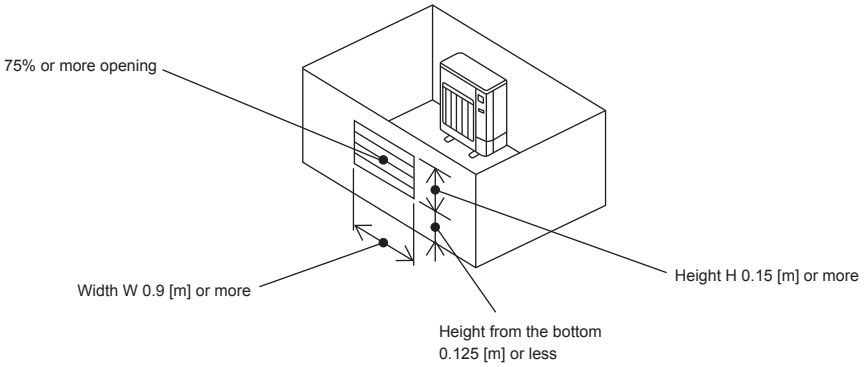
M: Refrigerant amount (factory-charged refrigerant + locally added refrigerant) [kg]
Amin: Minimum installation area [m²]

B) Install in a space with a depression height of ≦ 0.125 [m].





C) Create an appropriate ventilation open area.
Make sure that the width of the open area is 0.9 [m] or more and the height of the open area is 0.15 [m] or more.
However, the height from the bottom of the installation space to the bottom edge of the open area should be 0.125 [m] or less.
Open area should be 75% or more opening.



2. Installation location

■ Indoor units

Install in a room with a floor area of Amin or more, corresponding to refrigerant amount M (factory-charged refrigerant + locally added refrigerant).

* For the factory-charged refrigerant amount, refer to the spec nameplate or installation manual.
For the amount to be added locally, refer to the installation manual.

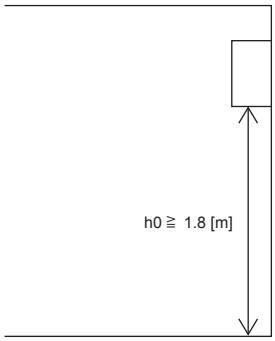
Install the indoor unit so that the height from the floor to the bottom of the indoor unit is h0;
for wall mounted: 1.8 m or more;
for ceiling suspended, cassette and ceiling concealed: 2.2 m or more.

* There are restrictions in installation height for each model, so read the installation manual for the particular unit.

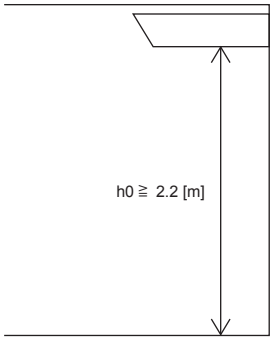
M [kg]	Amin [m²]
1.0	4
1.5	6
2.0	8
2.5	10
3.0	12
3.5	14
4.0	16
4.5	20
5.0	24
5.5	29
6.0	35
6.5	41
7.0	47
7.5	54

M: Refrigerant amount (factory-charged refrigerant + locally added refrigerant) [kg]
Amin: Minimum installation area [m²]

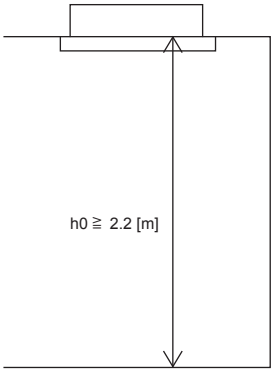
<Wall mounted>



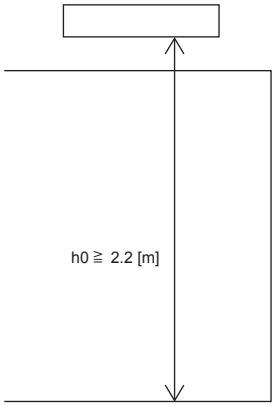
<Ceiling suspended>



<Cassette>



<Ceiling concealed>



In case of using dampers with ceiling concealed type indoor unit, please check the following to calculate Amin:

Case 1: When there is no common zone (the area without dampers)
- The area of each room must be Amin or larger. (See Fig. 2-20)

Case 2: When there is a common zone (the area without dampers)
- The area of each room including the common zone must be Amin or larger. (See Fig. 2-21)

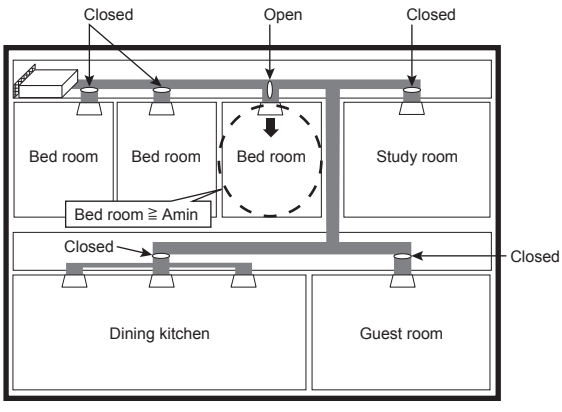


Fig. 2-20
No common zone

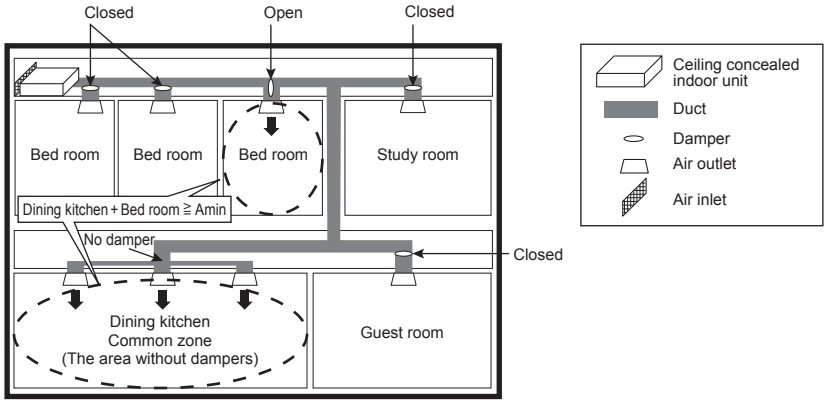
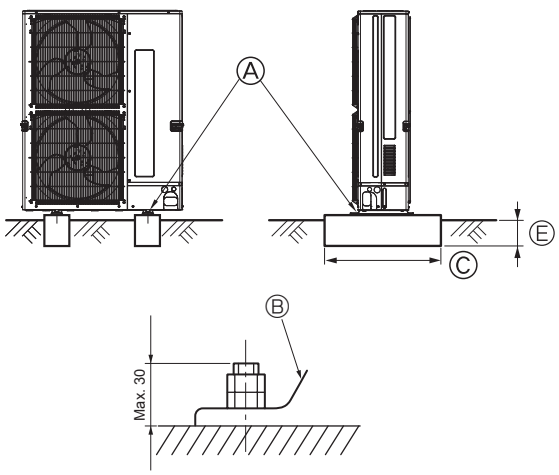


Fig. 2-21
With a common zone

3. Installing the outdoor unit

(mm)



Ⓐ M10 (3/8") bolt
Ⓑ Base
Ⓒ As long as possible.
Ⓓ Vent
Ⓔ Set deep in the ground

- Be sure to install the unit in a sturdy, level surface to prevent rattling noises during operation. (Fig. 3-1)

<Foundation specifications>

Foundation bolt	M10 (3/8")
Thickness of concrete	120 mm
Length of bolt	70 mm
Weight-bearing capacity	320 kg

- Make sure that the length of the foundation bolt is within 30 mm of the bottom surface of the base.
- Secure the base of the unit firmly with four-M10 foundation bolts in sturdy locations.

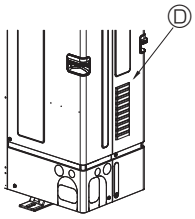
Installing the outdoor unit

- Do not block the vent. If the vent is blocked, operation will be hindered and breakdown may result.
- In addition to the unit base, use the installation holes on the back of the unit to attach wires, etc., if necessary to install the unit. Use self-tapping screws (ø5 × 15 mm or less) and install on site.

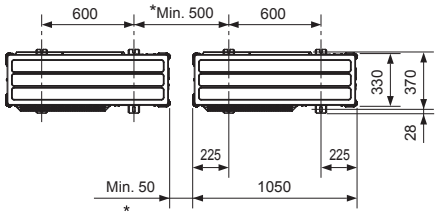
⚠ Warning:

- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**

■ **ZM100-140**



■ **ZM100-140**



* When installing a single outdoor unit, the clearance is 15 mm or more.

Fig. 3-1

4. Installing the refrigerant piping

4.1. Precautions for devices that use R32 refrigerant

- **Refer to 1.5. for precautions not included below on using air conditioners with R32 refrigerant.**
- **Use ester oil, ether oil, alkylbenzene oil (small amount) as the refrigeration oil applied to the flared sections.**
- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. Use refrigerant pipes with the thicknesses specified in the table to the below. Make sure the insides of the pipes are clean and do not contain any harmful contaminants such as sulfuric compounds, oxidants, debris, or dust.**
  Always apply no-oxidation brazing when brazing the pipes, otherwise, the compressor will be damaged.

⚠ Warning:

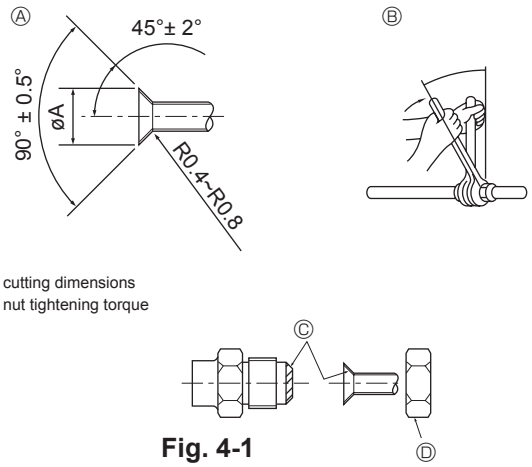
When installing or relocating, or servicing the air conditioner, use only the specified refrigerant (R32) to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.
If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.

Pipe size (mm)	ø6.35	ø9.52	ø12.7	ø15.88	ø19.05	ø22.2	ø25.4	ø28.58
Thickness (mm)	0.8	0.8	0.8	1.0	1.0	1.0	1.0	1.0

- **Do not use pipes thinner than those specified above.**
- **Use 1/2 H or H pipes if the diameter is 19.05 mm or larger.**

◎ **Be sure to have appropriate ventilation in order to prevent ignition. Furthermore, be sure to carry out fire prevention measures that there are no dangerous or flammable objects in the surrounding area.**

4. Installing the refrigerant piping



Ⓐ Flare cutting dimensions
Ⓑ Flare nut tightening torque

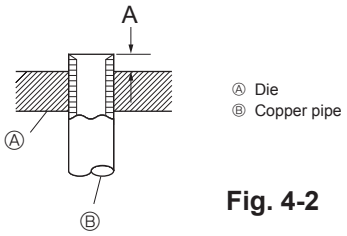
Fig. 4-1

Ⓐ (Fig. 4-1)

Copper pipe O.D. (mm)	Flare dimensions øA dimensions (mm)
ø6.35	8.7 - 9.1
ø9.52	12.8 - 13.2
ø12.7	16.2 - 16.6
ø15.88	19.3 - 19.7
ø19.05	23.6 - 24.0

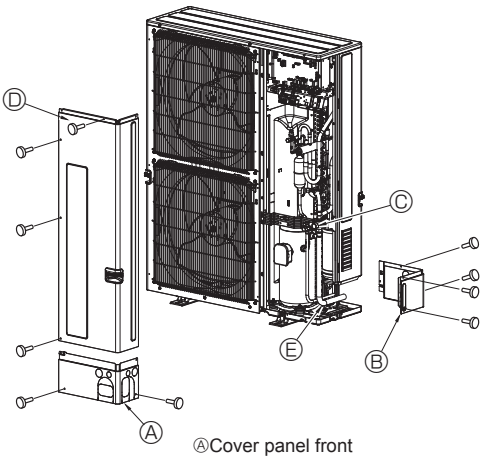
Ⓑ (Fig. 4-1)

Copper pipe O.D. (mm)	Flare nut O.D. (mm)	Tightening torque (N·m)
ø6.35	17	14 - 18
ø6.35	22	34 - 42
ø9.52	22	34 - 42
ø12.7	26	49 - 61
ø12.7	29	68 - 82
ø15.88	29	68 - 82
ø15.88	36	100 - 120
ø19.05	36	100 - 120



Ⓐ Die
Ⓑ Copper pipe

Fig. 4-2



ⒶCover panel front
ⒷCover panel rear
ⒸStop valve
ⒹService panel
ⒺBend radius : 100 mm -150 mm

Fig. 4-3

4.2. Connecting pipes (Fig. 4-1)

- When commercially available copper pipes are used, wrap liquid and gas pipes with commercially available insulation materials (heat-resistant to 100 °C or more, thickness of 12 mm or more).
- The indoor parts of the drain pipe should be wrapped with polyethylene foam insulation materials (specific gravity of 0.03, thickness of 9 mm or more).
- Apply thin layer of refrigerant oil to pipe and joint seating surface before tightening flare nut. Ⓐ
- Use two wrenches to tighten piping connections. Ⓑ
- Use leak detector or soapy water to check for gas leaks after connections are completed.
- Apply refrigerating machine oil over the entire flare seat surface. Ⓒ
- Use the flare nuts for the following pipe size. Ⓓ

		ZM100-140
Gas side	Pipe size (mm)	ø15.88
Liquid side	Pipe size (mm)	ø9.52

- When bending the pipes, be careful not to break them. Bend radii of 100 mm to 150 mm are sufficient.
- Make sure the pipes do not contact the compressor. Abnormal noise or vibration may result.

① Pipes must be connected starting from the indoor unit.
Flare nuts must be tightened with a torque wrench.
② Flare the liquid pipes and gas pipes and apply a thin layer of refrigeration oil (Applied on site).

- When usual pipe sealing is used, refer to Table 1 for flaring of R32 refrigerant pipes.
The size adjustment gauge can be used to confirm A measurements.

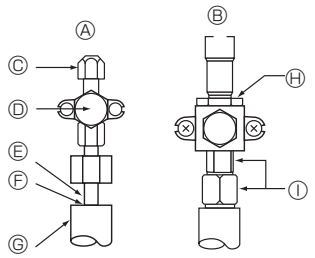
Table 1 (Fig. 4-2)

Copper pipe O.D. (mm)	A (mm)	
	Flare tool for R32	Flare tool for R22·R407C
	Clutch type	
ø6.35 (1/4")	0 - 0.5	1.0 - 1.5
ø9.52 (3/8")	0 - 0.5	1.0 - 1.5
ø12.7 (1/2")	0 - 0.5	1.0 - 1.5
ø15.88 (5/8")	0 - 0.5	1.0 - 1.5
ø19.05 (3/4")	0 - 0.5	1.0 - 1.5

4.3. Refrigerant piping (Fig. 4-3)

Remove the service panel Ⓓ (4 screws) and the cover panel front Ⓐ (2 screws) and cover panel rear Ⓑ (4 screws).

① Perform refrigerant piping connections for the indoor/outdoor unit when the outdoor unit's stop valve is completely closed.
② Vacuum-purge air from the indoor unit and the connection piping.
③ After connecting the refrigerant pipes, check the connected pipes and the indoor unit for gas leaks. (Refer to 4.4. Refrigerant pipe airtight testing method)
④ A high-performance vacuum pump is used at the stop valve service port to maintain a vacuum for an adequate time (at least one hour after reaching –101 kPa (5 Torr)) in order to vacuum dry the inside of the pipes. Always check the degree of vacuum at the gauge manifold. If there is any moisture left in the pipe, the degree of vacuum is sometimes not reached with short-time vacuum application.
After vacuum drying, completely open the stop valves (both liquid and gas) for the outdoor unit. This completely links the indoor and outdoor refrigerant circuits.
   - If the vacuum drying is inadequate, air and water vapor remain in the refrigerant circuits and can cause abnormal rise of high pressure, abnormal drop of low pressure, deterioration of the refrigerating machine oil due to moisture, etc.
   - If the stop valves are left closed and the unit is operated, the compressor and control valves will be damaged.
   - Use a leak detector or soapy water to check for gas leaks at the pipe connection sections of the outdoor unit.
   - Do not use the refrigerant from the unit to purge air from the refrigerant lines.
   - After the valve work is completed, tighten the valve caps to the correct torque: 20 to 25 N·m (200 to 250 kgf·cm).
   Failure to replace and tighten the caps may result in refrigerant leakage. In addition, do not damage the insides of the valve caps as they act as a seal to prevent refrigerant leakage.
⑤ Use sealant to seal the ends of the thermal insulation around the pipe connection sections to prevent water from entering the thermal insulation.



Ⓐ Stop valve <Liquid side>
Ⓑ Stop valve <Gas side>
Ⓒ Service port
Ⓓ Open/Close section
Ⓔ Local pipe
Ⓕ Sealed, same way for gas side
Ⓖ Pipe cover
Ⓗ Do not use a wrench here. Refrigerant leakage may result.
Ⓘ Use two wrenches here.

Fig. 4-4

(1)

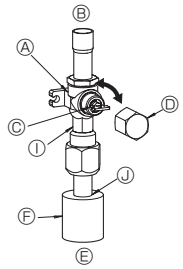


Fig. 4-5

(2)

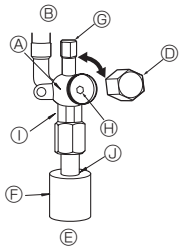
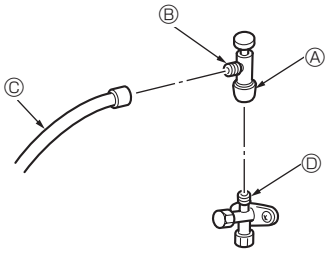


Fig. 4-6

Ⓐ Valve
Ⓑ Unit side
Ⓒ Handle
Ⓓ Cap
Ⓔ Local pipe side
Ⓕ Pipe cover
Ⓖ Service port
Ⓗ Wrench hole
Ⓘ Double spanner section (Do not apply a spanner other than to this section. Doing so would cause coolant leaks.)
Ⓙ Seal section (Seal the end of the heat insulation material at the pipe connection section with whatever seal material you have on hand so that water does not infiltrate the heat insulation material.)



* The figure to the left is an example only. The stop valve shape, service port position, etc., may vary according to the model.
* Turn section Ⓐ only. (Do not further tighten sections Ⓐ and Ⓑ together.)

Ⓒ Charge hose
Ⓓ Service port

Fig. 4-7

4.4. Refrigerant pipe airtight testing method (Fig. 4-4)

(1) Connect the testing tools.
- Make sure the stop valves Ⓐ Ⓑ are closed and do not open them.
- Add pressure to the refrigerant lines through the service port Ⓒ of the liquid stop valve Ⓐ.

(2) Do not add pressure to the specified pressure all at once; add pressure little by little.
① Pressurize to 0.5 MPa (5 kgf/cm²G), wait five minutes, and make sure the pressure does not decrease.
② Pressurize to 1.5 MPa (15 kgf/cm²G), wait five minutes, and make sure the pressure does not decrease.
③ Pressurize to 4.15 MPa (41.5 kgf/cm²G) and measure the surrounding temperature and refrigerant pressure.

(3) If the specified pressure holds for about one day and does not decrease, the pipes have passed the test and there are no leaks.
- If the surrounding temperature changes by 1 °C, the pressure will change by about 0.01 MPa (0.1 kgf/cm²G). Make the necessary corrections.

(4) If the pressure decreases in steps (2) or (3), there is a gas leak. Look for the source of the gas leak.

4.5. Stop valve opening method

The stop valve opening method varies according to the outdoor unit model. Use the appropriate method to open the stop valves.

(1) Gas side (Fig. 4-5)
① Remove the cap, pull the handle toward you and rotate 1/4 turn in a counterclockwise direction to open.
② Make sure that the stop valve is open completely, push in the handle and rotate the cap back to its original position.

(2) Liquid side (Fig. 4-6)
① Remove the cap and turn the valve rod counterclockwise as far as it will go with the use of a 4 mm hexagonal wrench. Stop turning when it hits the stopper. (ø9.52: Approximately 10 revolutions)
② Make sure that the stop valve is open completely, push in the handle and rotate the cap back to its original position.

Refrigerant pipes are protectively wrapped
- The pipes can be protectively wrapped up to a diameter of ø90 before or after connecting the pipes. Cut out the knockout in the pipe cover following the groove and wrap the pipes.

Pipe inlet gap
- Use putty or sealant to seal the pipe inlet around the pipes so that no gaps remain. (If the gaps are not closed, noise may be emitted or water and dust will enter the unit and breakdown may result.)

Precautions when using the charge valve (Fig. 4-7)
Do not tighten the service port too much when installing it, otherwise, the valve core could be deformed and become loose, causing a gas leak.
After positioning section Ⓑ in the desired direction, turn section Ⓐ only and tighten it. Do not further tighten sections Ⓐ and Ⓑ together after tightening section Ⓐ.

⚠ **Warning:**
When installing the unit, securely connect the refrigerant pipes before starting the compressor.

4.6. Addition of refrigerant

- Additional charging is not necessary if the pipe length does not exceed 30 m.
- If the pipe length exceeds 30 m, charge the unit with additional R32 refrigerant according to the permitted pipe lengths in the chart below.
  * When the unit is stopped, charge the unit with the additional refrigerant through the liquid stop valve after the pipe extensions and indoor unit have been vacuumized.
  When the unit is operating, add refrigerant to the gas check valve using a safety charger. Do not add liquid refrigerant directly to the check valve.
  * After charging the unit with refrigerant, note the added refrigerant amount on the service label (attached to the unit).
  Refer to the “1.5. Using R32 refrigerant air conditioners” for more information.
- Be careful when installing multiple units. Connecting to an incorrect indoor unit can lead to abnormally high pressure and have a serious effect on operation performance.

◎ R32 maintenance refilling: Before servicing refilling the equipment with R32 to ensure that there is no risk of explosion from electrical sparks it must be ensured that the equipment machine is 100% disconnected from the mains supply.

Model	Permitted pipe length	Permitted vertical difference	Additional refrigerant charging amount				◎Maximum amount of refrigerant
			31 - 40 m	41 - 50 m	51 - 60 m	61 - 75 m	
ZM100-140	- 75 m	- 30 m	0.4 kg	0.8 kg	1.2 kg	1.8 kg	5.8 kg

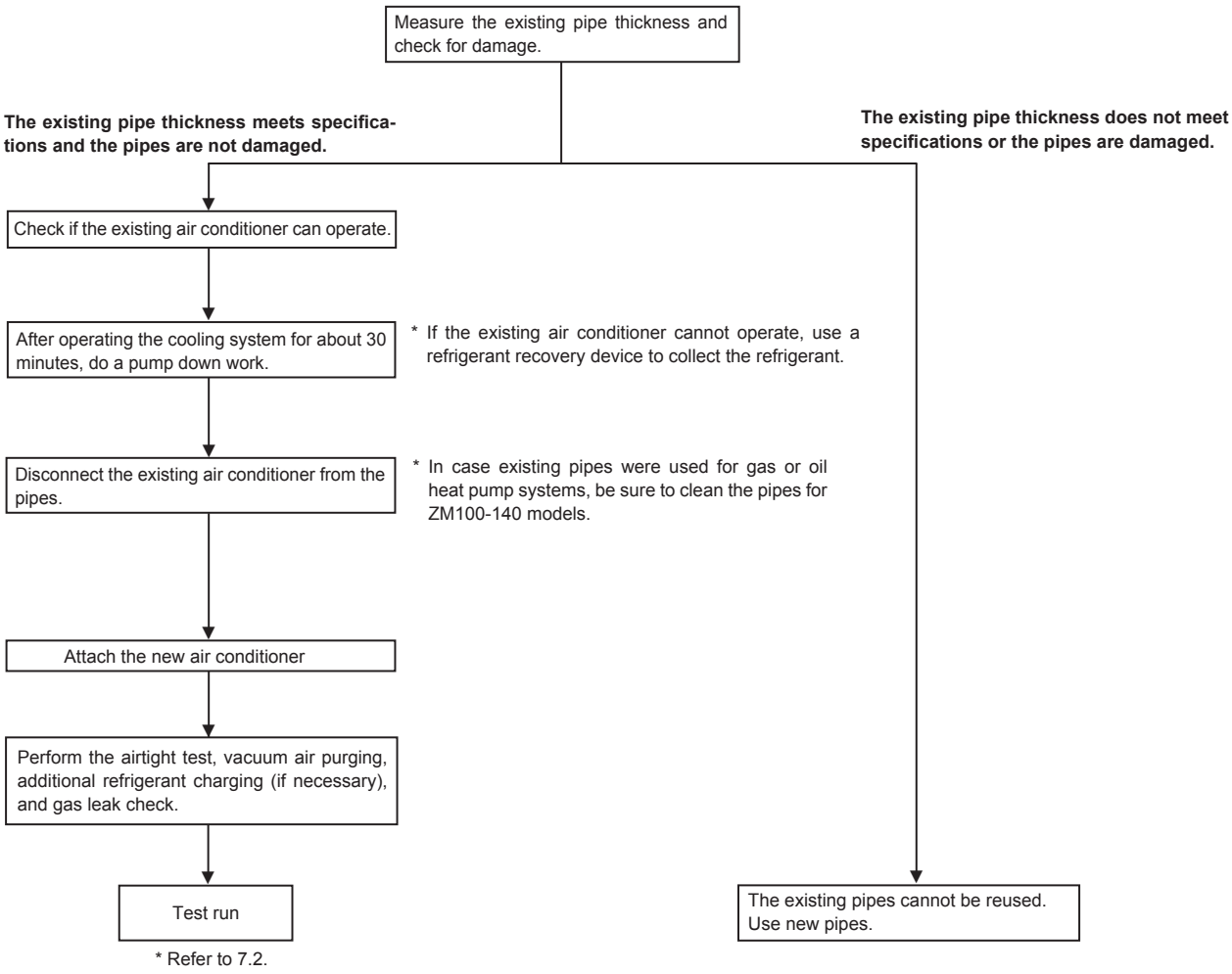
4. Installing the refrigerant piping

Refilling refrigerant charge (kg) for less than 30 m (Chargeless pipe length)

Outdoor unit	5 m and less	6 - 10 m	11 - 15 m	16 - 20 m	21 - 25 m	26 - 30 m
ZM100-140	3.5	3.6	3.7	3.8	3.9	4.0

4.7. Precautions when reusing existing R22 refrigerant pipes

• Refer to the flowchart below to determine if the existing pipes can be used and if it is necessary to use a filter dryer.
• If the diameter of the existing pipes is different from the specified diameter, refer to technological data materials to confirm if the pipes can be used.



5. Drainage piping work

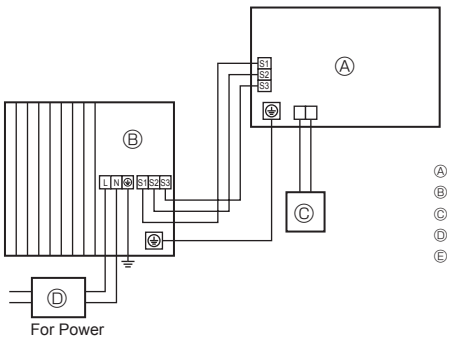
Outdoor unit drainage pipe connection
When drain piping is necessary, use the drain socket or the drain pan (option).

	ZM100-140
Drain socket	PAC-SH71DS-E
Drain pan	PAC-SH97DP-E

6. Electrical work

6.1. Outdoor unit (Fig. 6-1, Fig. 6-2)

① Remove the service panel.
② Wire the cables referring to the Fig. 6-1 and the Fig. 6-2.



Ⓐ Indoor unit
Ⓑ Outdoor unit
Ⓒ Remote controller
Ⓓ Main switch (Breaker)
Ⓔ Earth

Fig. 6-1

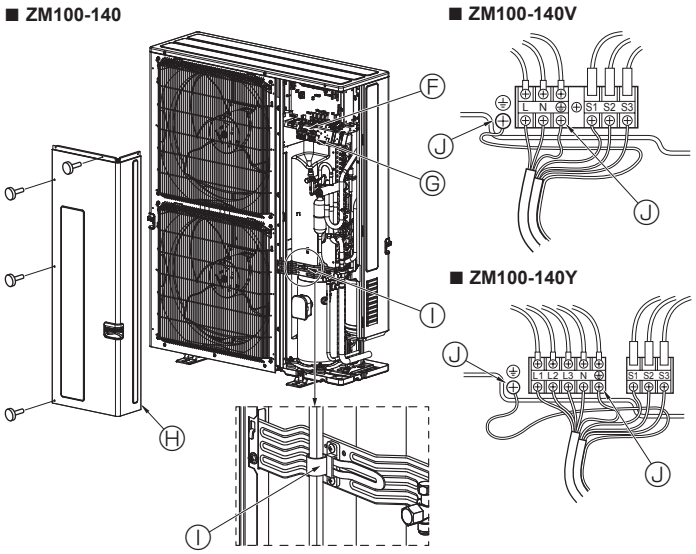


Fig. 6-2

Ⓕ Terminal block
Ⓖ Indoor/Outdoor connection terminal block (S1, S2, S3)
Ⓗ Service panel
Ⓘ Clamp
* Clamp the cables so that they do not contact the center of the service panel or the gas valve.
Ⓙ Earth terminal

Note :
If the protective sheet for the electrical box is removed during servicing, be sure to reinstall it.

⚠ Caution:
Be sure to install N-Line. Without N-Line, it could cause damage to unit.

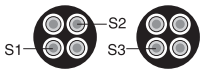
6. Electrical work

6.2. Field electrical wiring

Outdoor unit model			ZM100,125V	ZM140V	ZM100, 125, 140Y
Outdoor unit power supply			~/N (single), 50 Hz, 230 V	~/N (single), 50 Hz, 230 V	3N~ (3 ph 4-wires), 50 Hz, 400 V
Outdoor unit input capacity Main switch (Breaker)		*1	32 A	40 A	16 A
Wiring Wire No. × size (mm²)	Outdoor unit power supply		3 × Min. 4	3 × Min. 6	5 × Min. 1.5
	Indoor unit-Outdoor unit	*2	3 × 1.5 (Polar)	3 × 1.5 (Polar)	3 × 1.5 (Polar)
	Indoor unit-Outdoor unit earth	*2	1 × Min. 1.5	1 × Min. 1.5	1 × Min. 1.5
	Remote controller-Indoor unit	*3	2 × 0.3 (Non-polar)	2 × 0.3 (Non-polar)	2 × 0.3 (Non-polar)
Circuit rating	Outdoor unit L-N (single) Outdoor unit L1-N, L2-N, L3-N (3 phase)	*4	230 VAC	230 VAC	230 VAC
	Indoor unit-Outdoor unit S1-S2	*4	230 VAC	230 VAC	230 VAC
	Indoor unit-Outdoor unit S2-S3	*4	24 VDC	24 VDC	24 VDC
	Remote controller-Indoor unit	*4	12 VDC	12 VDC	12 VDC

*1. A breaker with at least 3.0 mm contact separation in each poles shall be provided. Use earth leakage breaker (NV).
Make sure that the current leakage breaker is one compatible with higher harmonics.
Always use a current leakage breaker that is compatible with higher harmonics as this unit is equipped with an inverter.
The use of an inadequate breaker can cause the incorrect operation of inverter.

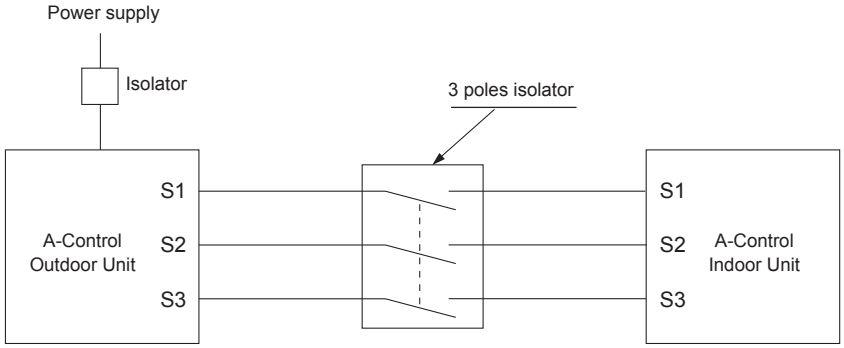
*2. (ZM100-140)
Max. 45 m
If 2.5 mm² used, Max. 50 m
If 2.5 mm² used and S3 separated, Max. 80 m



*3. The 10 m wire is attached in the remote controller accessory.

*4. The figures are NOT always against the ground.
S3 terminal has 24 VDC against S2 terminal. However between S3 and S1, these terminals are NOT electrically insulated by the transformer or other device.

Notes: 1. Wiring size must comply with the applicable local and national code.
2. Power supply cords and Indoor/Outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)
3. Use an earth wire which is longer than the other cords so that it will not become disconnected when tension is applied.
4. Use self-extinguishing distribution cables for power supply wiring.
5. Properly route wiring so as not to contact the sheet metal edge or a screw tip.



⚠ **Warning:**
- **In case of A-control wiring, there is high voltage potential on the S3 terminal caused by electrical circuit design that has no electrical insulation between power line and communication signal line. Therefore, please turn off the main power supply when servicing. And do not touch the S1, S2, S3 terminals when the power is energized. If isolator should be used between indoor unit and outdoor unit, please use 3-pole type.**

Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

Be sure to connect the indoor-outdoor connecting cables directly to the units (no intermediate connections).
Intermediate connections can lead to communication error if water enters the cables and causes insufficient insulation to ground or a poor electrical contact at the intermediate connection point.

7. Test run

7.1. Before test run

► After completing installation and the wiring and piping of the indoor and outdoor units, check for refrigerant leakage, looseness in the power supply or control wiring, wrong polarity, and no disconnection of one phase in the supply.

► Use a 500-volt megohmmeter to check that the resistance between the power supply terminals and ground is at least 1 MΩ.

► Do not carry out this test on the control wiring (low voltage circuit) terminals.

⚠ Warning:

Do not use the air conditioner if the insulation resistance is less than 1 MΩ.

Insulation resistance

After installation or after the power source to the unit has been cut for an extended period, the insulation resistance will drop below 1 MΩ due to refrigerant accumulating in the compressor. This is not a malfunction. Perform the following procedures.

1. Remove the wires from the compressor and measure the insulation resistance of the compressor.
2. If the insulation resistance is below 1 MΩ, the compressor is faulty or the resistance dropped due the accumulation of refrigerant in the compressor.
3. After connecting the wires to the compressor, the compressor will start to warm up after power is supplied. After supplying power for the times indicated below, measure the insulation resistance again.
   - The insulation resistance drops due to accumulation of refrigerant in the compressor. The resistance will rise above 1 MΩ after the compressor is warmed up for 4 hours.
     (The time necessary to warm up the compressor varies according to atmospheric conditions and refrigerant accumulation.)
   - To operate the compressor with refrigerant accumulated in the compressor, the compressor must be warmed up at least 12 hours to prevent breakdown.
4. If the insulation resistance rises above 1 MΩ, the compressor is not faulty.

⚠ Caution:

- **The compressor will not operate unless the power supply phase connection is correct.**
- **Turn on the power at least 12 hours before starting operation.**

- Starting operation immediately after turning on the main power switch can result in severe damage to internal parts. Keep the power switch turned on during the operational season.

► The followings must be checked as well.

- The outdoor unit is not faulty. LED1 and LED2 on the control board of the outdoor unit flash when the outdoor unit is faulty.
- Both the gas and liquid stop valves are completely open.
- A protective sheet covers the surface of the DIP switch panel on the control board of the outdoor unit. Remove the protective sheet to operate the DIP switches easily.

7.2. Test run

7.2.1. Using SW4 in outdoor unit

SW4-1	ON	Cooling operation
SW4-2	OFF	
SW4-1	ON	Heating operation
SW4-2	ON	

* After performing the test run, set SW4-1 to OFF.

- After power is supplied, a small clicking noise may be heard from the inside of the outdoor unit. The electronic expansion valve is opening and closing. The unit is not faulty.
- A few seconds after the compressor starts, a clanging noise may be heard from the inside of the outdoor unit. The noise is coming from the check valve due to the small difference in pressure in the pipes. The unit is not faulty.

The test run operation mode cannot be changed by DIP switch SW4-2 during the test run. (To change the test run operation mode during the test run, stop the test run by DIP switch SW4-1. After changing the test run operation mode, resume the test run by switch SW4-1.)

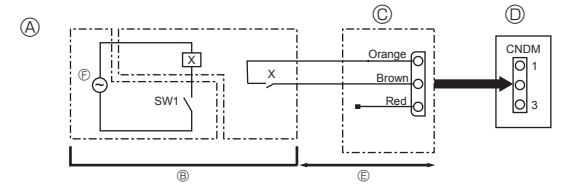
7.2.2. Using remote controller

Refer to the indoor unit installation manual.

Note :

Occasionally, vapor that is made by the defrost operation may seem as if smoke come up from the outdoor unit.

8. Special functions



Ⓐ Circuit diagram example (low noise mode)
Ⓑ On-site arrangement
Ⓒ External input adapter (PAC-SC36NA-E)
Ⓓ Outdoor unit control board
Ⓔ Max. 10 m
Ⓕ Power supply for relay
X: Relay

Fig. 8-1

8.1. Low noise mode (on-site modification) (Fig. 8-1)

By performing the following modification, operation noise of the outdoor unit can be reduced by about 3-4 dB.

The low noise mode will be activated when a commercially available timer or the contact input of an ON/OFF switch is added to the CNDM connector (option) on the control board of the outdoor unit.

- The ability varies according to the outdoor temperature and conditions, etc.

① Complete the circuit as shown when using the external input adapter (PAC-SC36NA-E). (Option)
② SW7-1 (Outdoor unit control board): OFF
③ SW1 ON: Low noise mode
SW1 OFF: Normal operation

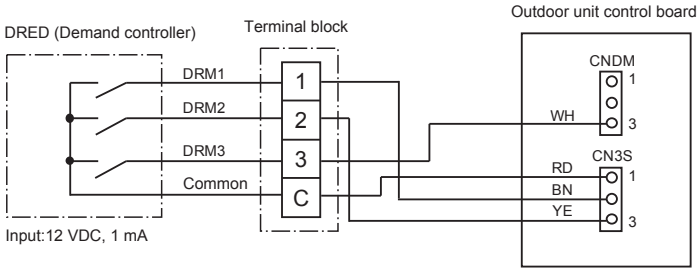


Fig. 8-2

8.2. Demand response capabilities

By connecting to the DRED, this air-conditioner will be capable of all three Demand Response Modes (DRM) based on AS/NZS4755.3.1:2014.

Mode	Description
DRM1	Compressor Off.
DRM2	Total electrical energy consumption of the system is not more than 50%.
DRM3	Total electrical energy consumption of the system is not more than 75%.

For details, refer to the installation manual of the accessory.

* PAC-SC36NA-E is not available for Demand function.

8. Special functions

8.3. Refrigerant collecting (pump down)

Perform the following procedures to collect the refrigerant when moving the indoor unit or the outdoor unit.

① Supply power (circuit breaker).
   * When power is supplied, make sure that “CENTRALLY CONTROLLED” is not displayed on the remote controller. If “CENTRALLY CONTROLLED” is displayed, the refrigerant collecting (pump down) cannot be completed normally.
   * Start-up of the indoor-outdoor communication takes about 3 minutes after the power (circuit breaker) is turned on. Start the pump-down operation 3 to 4 minutes after the power (circuit breaker) is turned ON.

② After the liquid stop valve is closed, set the SWP switch on the control board of the outdoor unit to ON. The compressor (outdoor unit) and ventilators (indoor and outdoor units) start operating and refrigerant collecting operation begins. LED1 and LED2 on the control board of the outdoor unit are lit.
   * Only set the SWP switch (push-button type) to ON if the unit is stopped. However, even if the unit is stopped and the SWP switch is set to ON less than 3 minutes after the compressor stops, the refrigerant collecting operation cannot be performed. Wait until compressor has been stopped for 3 minutes and then set the SWP switch to ON again.

③ Because the unit automatically stops in about 2 to 3 minutes when the refrigerant collecting operation is completed (LED1 off, LED2 lit), be sure to quickly close the gas stop valve. If LED1 is lit and LED2 is off and the outdoor unit is stopped, refrigerant collection is not properly performed. Open the liquid stop valve completely, and then repeat step ② after 3 minutes have passed.
   * If the refrigerant collecting operation has been completed normally (LED1 off, LED2 lit), the unit will remain stopped until the power supply is turned off.

④ Turn off the power supply (circuit breaker).
   * Note that when the extension piping is very long with large refrigerant amount, it may not be possible to perform a pump-down operation. When performing the pump-down operation, make sure that the low pressure is lowered to near 0 MPa (gauge).

⚠ **Warning:**
When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes. The compressor may burst if air etc. get into it.

9. System control (Fig. 9-1)

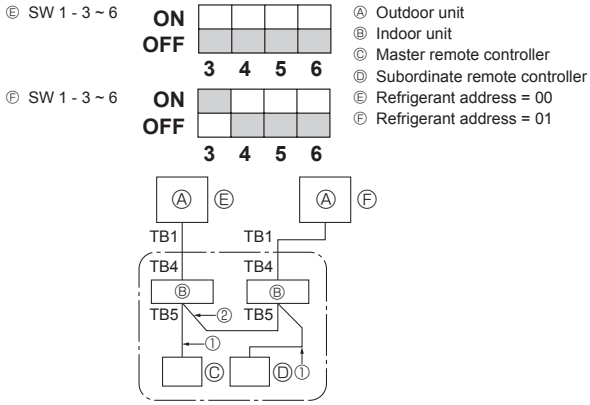


Fig. 9-1

* Set the refrigerant address using the DIP switch of the outdoor unit.

① Wiring from the Remote Control

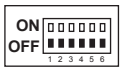
This wire is connected to TB5 (terminal board for remote controller) of the indoor unit (non-polar).

② When a Different Refrigerant System Grouping is Used.

Up to 16 refrigerant systems can be controlled as one group using the slim MA remote controller.

SW1
Function table

<SW1>



	Function	Operation according to switch setting	
		ON	OFF
SW1 function settings	1 Compulsory defrosting	Start	Normal
	2 Error history clear	Clear	Normal
	3 Refrigerant 4 system address setting 5 6	Settings for outdoor unit addresses 0 to 15	

This product is designed and intended for use in the residential, commercial and light-industrial environment.

Please be sure to put the contact address/telephone number on this manual before handing it to the customer.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

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MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

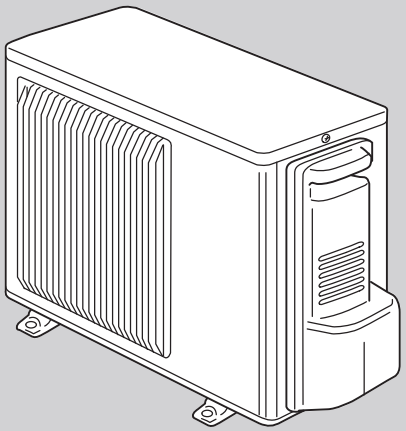
January 2020
No. OCH736

TECHNICAL & SERVICE MANUAL

R32

[Model Name]	[Service Ref.]
SUZ-M25VAD-A	SUZ-M25VAD-A.TH
SUZ-M35VAD-A	SUZ-M35VAD-A.TH
SUZ-M50VAD-A	SUZ-M50VAD-A.TH
SUZ-M60VAD-A	SUZ-M60VAD-A.TH
SUZ-M71VAD-A	SUZ-M71VAD-A.TH

Note:
•This service manual describes service data of the outdoor units only.



SUZ-M25VAD-A.TH
SUZ-M35VAD-A.TH

CONTENTS

PARTS CATALOG (OCB736)

Mr.SLIM

4 SPECIFICATION

Service ref.					SUZ-M25VAD-A.TH	SUZ-M35VAD-A.TH	SUZ-M50VAD-A.TH	SUZ-M60VAD-A.TH	SUZ-M71VAD-A.TH
Power supply					Single phase 230 V, 50 Hz				
Compressor	Model				KVB073FYXMC	SVB092FBAMT	SVB130FBBMT		SVB172FCKMT
	Output			W	470	660	900		1,200
	Current*	Cooling		A	3.7	4.7	6.8	7.6	9.4
		Heating			4.3	5.1	8.1	8.7	9.8
	Refrigeration oil (Model)			L	0.27 (FW68S)	0.35 (FW68S)			0.40 (FW68S)
Fan motor	Model				RC0J50-NC		RC0J50-RA	RC0J60-BC	
	Current*	Cooling		A	0.22	0.20	0.29	0.84	
		Heating			0.20	0.23	0.29	0.84	
Dimensions W × H × D				mm	800 × 550 × 285		800 × 714 × 285	840 × 880 × 330	
Weight				kg	30	35	41	54	55
Special remarks	Air flow*	Cooling	High	m³/h	2,178	2,058	2,748	3,006	
			Low		1,038	906	1,320	1,716	
		Heating	High		2,076	1,962	2,622	3,006	
			Med.		1,788	1,686	2,238	2,892	
			Low		1,452	1,260	1,704	2,280	
	Sound pressure level*		Cooling	dB(A)	45	48		49	
			Heating		46	48	49	51	
	Sound power level				59	63	66	68	
	Fan speed	Cooling	High	rpm	940		840		
			Low		470	460	490	450	
		Heating	High		900		840	860	
			Med.		780			810	
			Low		640	600	610	650	
	Fan speed regulator				3				
	Refrigerant filling capacity (R32)			kg	0.65	0.90	1.20	1.25	1.45

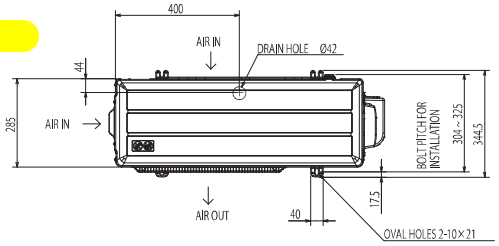
Note: Test conditions are based on ISO 5151
Cooling: Indoor D.B. 27°C W.B. 19°C
Outdoor D.B. 35°C
Heating: Indoor D.B. 20°C
Outdoor D.B. 7°C W.B. 6°C
Refrigerant piping length (one way): 5 m
*Measured under rated operating frequency.

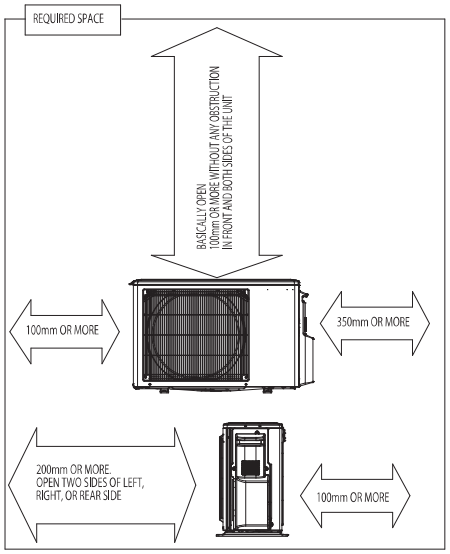
6 OUTLINES AND DIMENSIONS

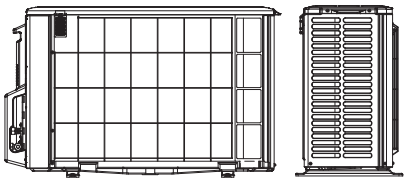
SUZ-M25VAD-A.TH
SUZ-M35VAD-A.TH

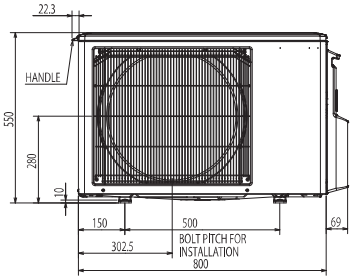
Unit: mm

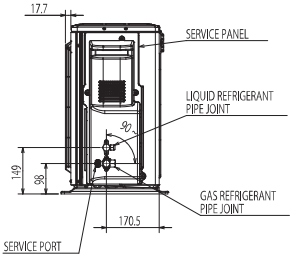
MODEL NAME		SUZ-M25VAD-A.TH SUZ-M35VAD-A.TH
REFRIGERANT PIPE JOINT	LIQUID REFRIGERANT PIPE	FLARED 6.35(1/4")
	GAS REFRIGERANT PIPE	FLARED 9.52(3/8")





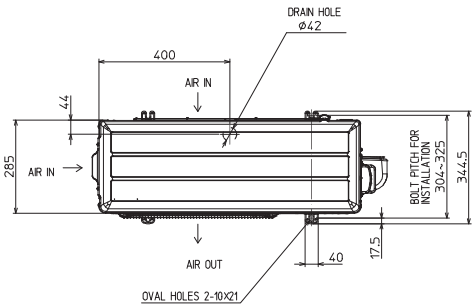


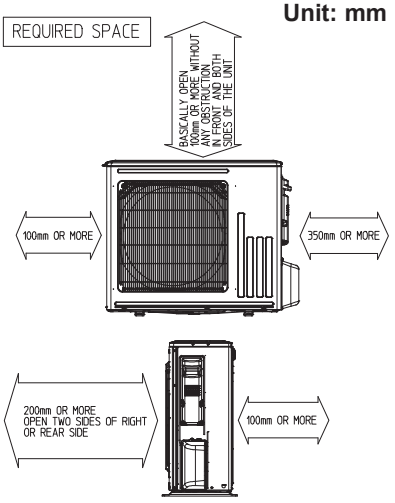


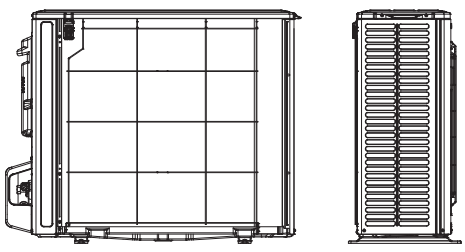


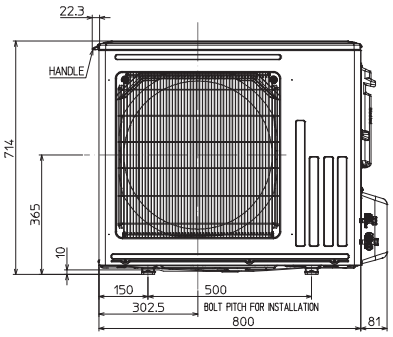
SUZ-M50VAD-A.TH

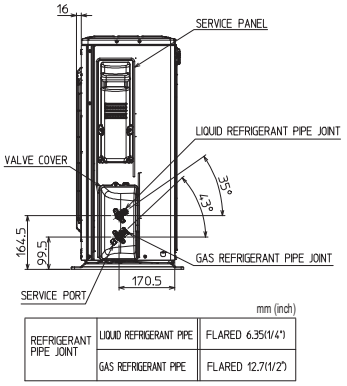
Unit: mm









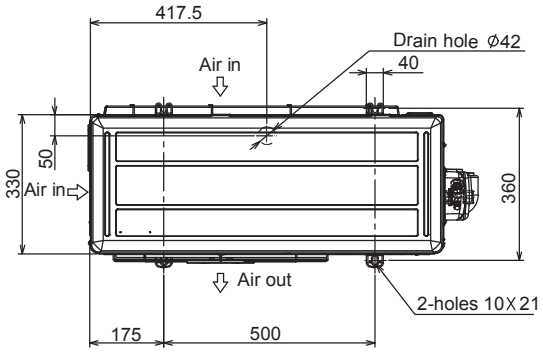


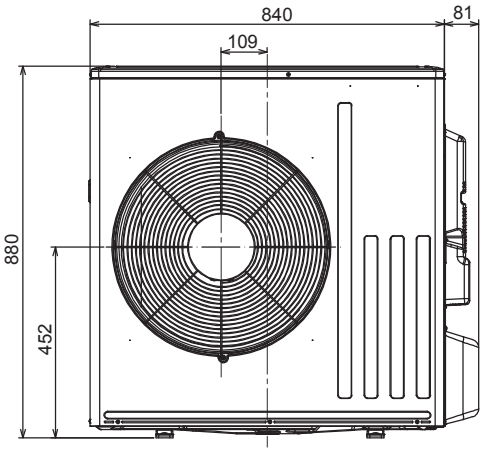
mm (inch)

REFRIGERANT PIPE JOINT	LIQUID REFRIGERANT PIPE	FLARED 6.35(1/4")
	GAS REFRIGERANT PIPE	FLARED 12.7(1/2")

SUZ-M60VAD-A.TH
SUZ-M71VAD-A.TH

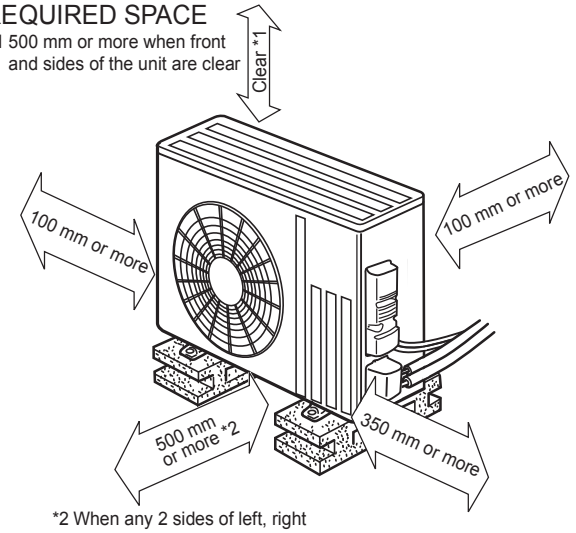
Unit: mm



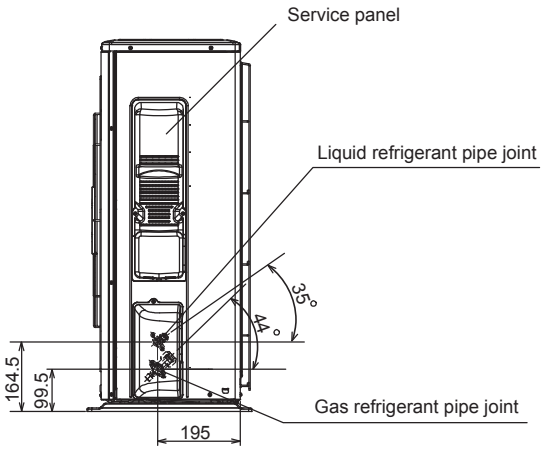


REQUIRED SPACE

*1 500 mm or more when front and sides of the unit are clear



*2 When any 2 sides of left, right and rear of the unit are clear



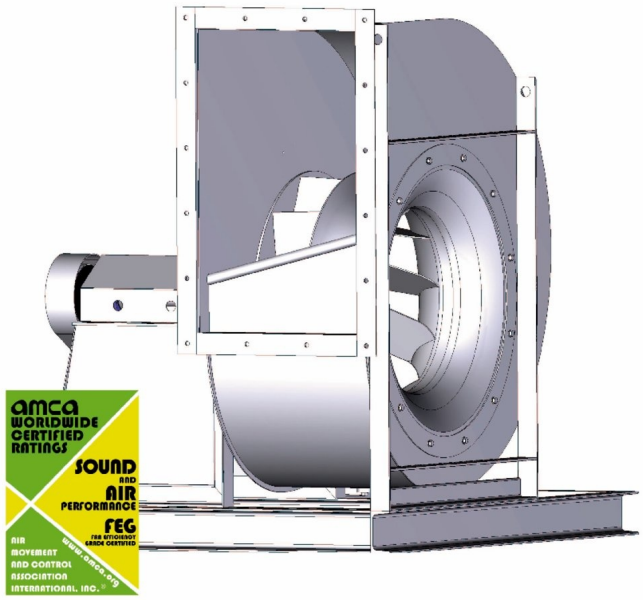
mm (inch)

MODEL NAME		SUZ-M60VA	SUZ-M71VA
REFRIGERANT PIPE JOINT	LIQUID REFRIGERANT PIPE	FLARED 6.35(1/4")	FLARED 9.52(3/8")
	GAS REFRIGERANT PIPE	FLARED 15.88(5/8")	

ASP1100 CENTRIFUGAL FAN, SWSI

Item Number: 94762
Variant: 400V 3~ 50Hz

Systemair's range of centrifugal fans offer the engineers the flexibility to choose the most suitable sizes and configurations to suit any site condition. With over 2000 variations of diameter, width and length type, specifications are virtually tailor-made to individual needs.
Casings are made of mild steel, welded and many are of semi-universal construction allowing the discharge angle to be modified to suit customer's requirements. Many additional features and ancillaries can be supplied on request, example; split casings, carbon steel and stainless steel impellers.



Technical parameters

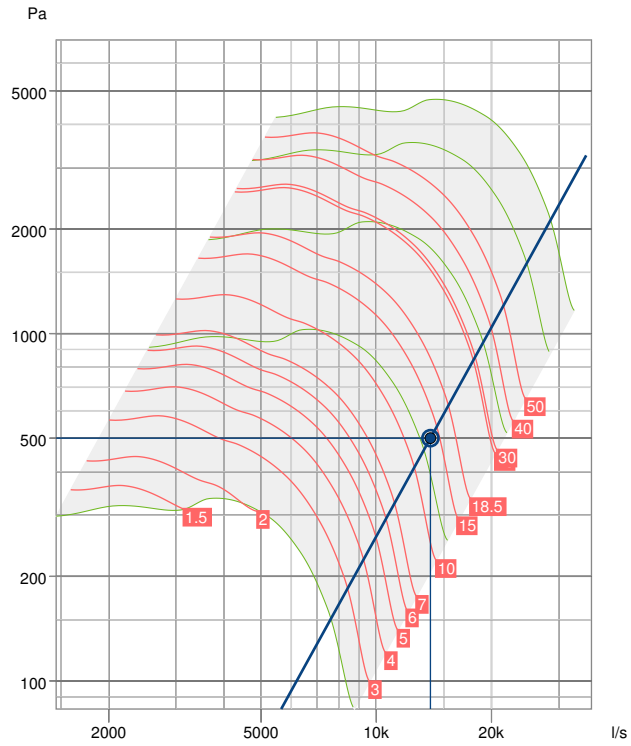
Norminal data		
Voltage (Nominal)	400	V
Frequency	50	Hz
Phase(s)	3~	
Air flow	max 35.035	m³/h
Temperature of transported air	max 55	°C
Max temperature of transported air, when speed controlled	55	°C

Protection/Classification		
Enclosure class, motor	IP55	
Insulation class	F	

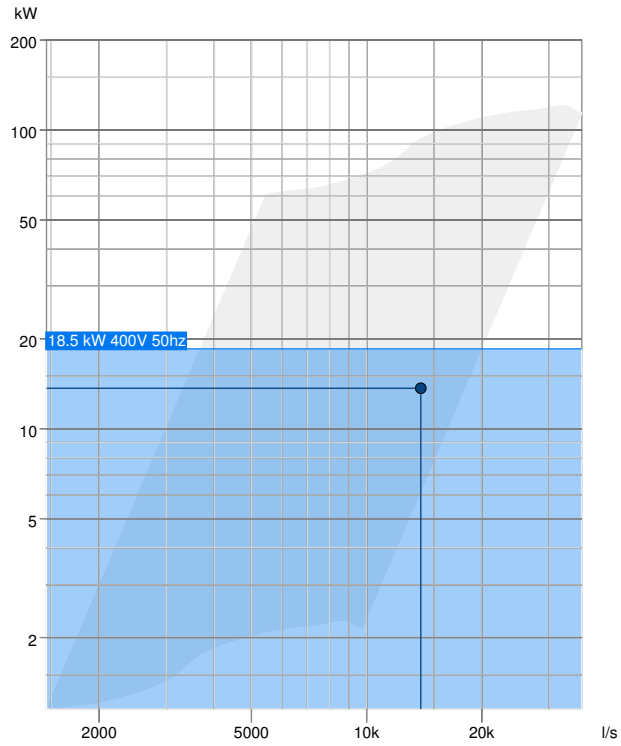
Dimensions and weights		
Weight	854	kg

Others	
Motor type	AC

Performance curve



Power diagram



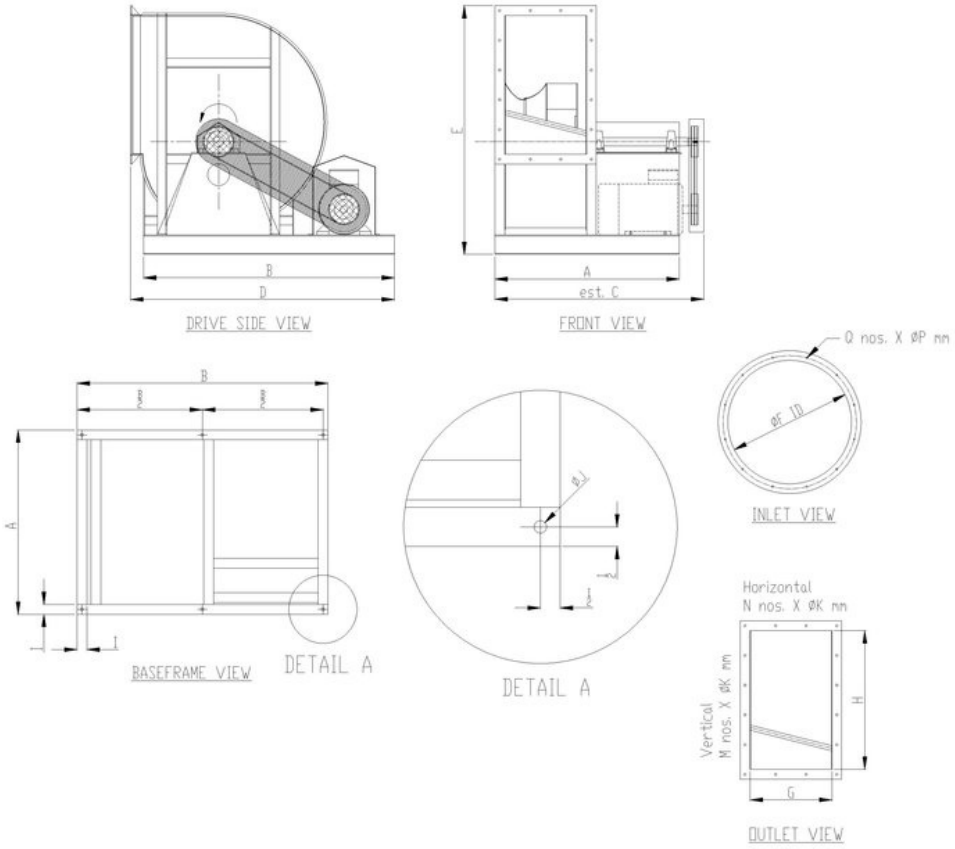
Fan performance	
Required air flow	13850.00 l/s
Required static pressure	500 Pa
Air density	1.204 kg/m³
Working air flow	13850.00 l/s
Working static pressure	500 Pa
Total Pressure	605.92 Pa
Fan control - RPM	723 rpm
Total Efficiency	61 %
Static efficiency	51 %
Air velocity	13.26 m/s

Fan and motor information	
Shaft power	13.7 kW
Motor power	18.5 kW
Voltage	400 V
Frequency	50.00 Hz
Motor current	32.00 A
Fan weight	1034.00 kg

Sound power level		63	125	250	500	1k	2k	4k	8k	Total
Inlet	dB(A)	72	76	86	87	90	87	86	87	95

Sound pressure level LpA		63	125	250	500	1k	2k	4k	8k	Total
Inlet	dB(A)	58	61	72	73	76	72	72	72	81
			Distance: 1.5m				Directivity: Spherical Q = 1			

Dimension



	Max motor frame	Fan inlet opening									
		A (Width)	B (Lenght)	C (Width)	D (Lenght)	E (Height)	F	G (Width)	H (Height)	I	Ø J
ASP1100	225 M	1545	2100	1701	2191	2236	1140	771	1368	2 ½"	18

Project Summary

Pacific Ventilation

THE SINCLAIR REV D

Quote Nº VENTQLD-0620-0129D
Quote Date 23/10/2020
Tender Doc Ref
Revision

Account Mgr **Peter Morris**
Branch **Pacific Ventilation - Qld**
Phone 1300 733 833
Peter.Morris@pacificventilation.com

	Product ID / Description	Qty	Mot (KW)/RPS / V/Hz/Ph	Selected Vol / Prs	Duty Vol / Prs	Sound Spectrum (Khz) 63	125	250	500	1k	2k	4k	8k	dB(A) @
	**Reference** KEX 1		**Location**											
	KMV630-VDE	**1**	2.80/23	3,000 l/s	3,000 l/s	71	77	74	72	72	73	68	62	**59 @ 3m**
	Roof Mounted Centrifugal Metal Vertical Discharge EC ERM		400/50/3	600 Pa	600 Pa	*EC Fan supplied with 10k POT fitted.*								
	**Reference** KEF 2		**Location**											
	KMV560-VDE	**1**	3.50/17	1,500 l/s	1,500 l/s	60	68	65	62	60	57	54	53	**45 @ 3m**
	Roof Mounted Centrifugal Metal Vertical Discharge EC ERM		400/50/3	450 Pa	450 Pa	*EC Fan supplied with 10k POT fitted.*								
	**Reference** KSF 1		**Location**											
	ICQ500-VDE	**1**	0.97/25	1,400 l/s	1,400 l/s	67	73	69	68	66	67	61	52	**52 @ 3m**
	Inline Centifugal Square EC ERM		400/50/3	300 Pa	300 Pa	*EC Fan supplied with 10k POT fitted.*								
	Reference CPEF 1 - ASP1100 13.2 M/S		**Location**											
		1	0.00/0	13850 l/s	13850									
			0/0/0		0 500 pa									
	**Reference** CSF 1		**Location**											
	AX80DB24A-4HSF	**1**	4.00/24	5,635 l/s	5,678 l/s	84	83	85	86	87	84	80	69	**70 @ 3m**
	Axial Circular 4 Pole		400/50/3	350 Pa	355 Pa									
	**Reference** CSF 2		**Location**											
	AX80DB21A-4GSF	**1**	3.00/24	4,840 l/s	4,887 l/s	84	83	85	86	87	84	80	69	**70 @ 3m**
	Axial Circular 4 Pole		400/50/3	350 Pa	357 Pa									
	**Reference** SF 1		**Location**											
	AX31GF35P-2BSF	**1**	0.55/43	700 l/s	746 l/s	85	86	86	79	75	72	67	60	**62 @ 3m**
	Axial Circular 2 Pole		400/50/3	250 Pa	284 Pa									
	**Reference** EF 1		**Location**											
	ICQ280-VEE	**1**	0.17/29	280 l/s	280 l/s	57	60	61	62	58	55	52	46	**43 @ 3m**
	Inline Centifugal Square EC ERM		240/50/1	250 Pa	250 Pa	*EC Fan supplied with 10k POT fitted.*								
	**Reference** EF 2		**Location**											
	MFP250-V-HIGH	**1**	0.18/37	250 l/s	276 l/s	66	61	67	65	68	72	64	52	**54 @ 3m**
	Inline Mixed Flow ERM		240/50/1	150 Pa	183 Pa									
	**Reference** EF 3		**Location**											
	AX40HA20P-2BSF	**1**	0.55/47	750 l/s	766 l/s	94	86	81	77	76	75	76	69	**62 @ 3m**
	Axial Circular 2 Pole		400/50/3	300 Pa	313 Pa									
	**Reference** TEF 1		**Location**											
	MFS150-V-HIGH	**1**	0.05/37	100 l/s	118 l/s	43	44	50	54	51	44	38	33	**34 @ 3m**
	Inline Mixed Flow Silent ERM		240/50/1	100 Pa	139 Pa	*Fan must be operated with speed controller to achieve duty and sound.*								
	**Reference** TEF R-1		**Location**											
	MFS150-V-HIGH	**1**	0.05/37	100 l/s	118 l/s	43	44	50	54	51	44	38	33	**34 @ 3m**
	Inline Mixed Flow Silent ERM		240/50/1	100 Pa	139 Pa	*Fan must be operated with speed controller to achieve duty and sound.*								

Project Summary

Pacific Ventilation

	**Reference** TEF R-2		**Location**												
	MFS150-V-HIGH	**1**	0.05/37	100 l/s	118 l/s	43	44	50	54	51	44	38	33	**34 @ 3m**
	Inline Mixed Flow Silent ERM		240/50/1	100 Pa	139 Pa	*Fan must be operated with speed controller to achieve duty and sound.*								
	**Reference** EF R-1		**Location**												
	MFS150-V-HIGH	**1**	0.05/37	100 l/s	118 l/s	43	44	50	54	51	44	38	33	**34 @ 3m**
	Inline Mixed Flow Silent ERM		240/50/1	100 Pa	139 Pa	*Fan must be operated with speed controller to achieve duty and sound.*								
	**Reference** EF 4		**Location**												
	AX31HH20P-2BSF	**1**	0.55/40	300 l/s	358 l/s	85	83	77	76	78	75	75	72	**62 @ 3m**
	Axial Circular 2 Pole		400/50/3	200 Pa	285 Pa									
	**Reference** TEF FANS A		**Location**												
	MFS150-V-HIGH	**70**	0.05/42	90 l/s	94 l/s	47	48	54	58	55	48	42	37	**38 @ 3m**
	Inline Mixed Flow Silent ERM		240/50/1	150 Pa	163 Pa									
	**Reference** TEF FANS B		**Location**												
	MFS200-V-LOW	**43**	0.08/32	115 l/s	120 l/s	48	48	50	47	45	47	41	36	**31 @ 3m**
	Inline Mixed Flow Silent ERM		240/50/1	150 Pa	163 Pa	*Fan must be wired in high speed if installed with a speed controller.*								
	**Reference** TEF FANS C		**Location**												
	MFS150-V-HIGH	**9**	0.05/40	65 l/s	71 l/s	45	46	52	56	53	46	40	35	**36 @ 3m**
	Inline Mixed Flow Silent ERM		240/50/1	150 Pa	180 Pa	*Fan must be operated with speed controller to achieve duty and sound.*								
	Reference KEF 1 VSD		**Location**												
	D-AB-ACH-040055	**1**	0.00/0	l/s	l/s									
	ABB Drive 3ph IP55 4.0 kw		0/0/0		0 Pa									
	Reference KEF 2 VSD		**Location**												
	D-AB-ACH-011055	**1**	0.00/0	l/s	l/s									
	ABB Drive 3ph IP55 1.1kw		0/0/0		0 Pa									
	Reference KSF 1 VSD		**Location**												
	D-AB-ACH-011055	**1**	0.00/0	l/s	l/s									
	ABB Drive 3ph IP55 1.1kw		0/0/0		0 Pa									
	Reference CPEF 1 VSD		**Location**												
	D-AB-ACH-110055	**1**	0.00/0	l/s	l/s									
	ABB Drive 3ph IP55 11kw		0/0/0		0 Pa									
	Reference CSF 1 VSD		**Location**												
	D-AB-ACH-040055	**1**	0.00/0	l/s	l/s									
	ABB Drive 3ph IP55 4.0 kw		0/0/0		0 Pa									
	Reference CSF 2 VSD		**Location**												
	D-AB-ACH-030055	**1**	0.00/0	l/s	l/s									
	ABB Drive 3ph IP55 3.0kw		0/0/0		0 Pa									

Pacific Ventilation Pty Ltd, 2/63 Wells Rd, Chelsea Heights, Victoria 3196 Australia
T:1300 733 833 (wthin Aust.) F:+61 3 9773 3811 E:info@pacificventilation.com I:www.pacificventilation.com

KMV630-VDE

Roof Mounted Centrifugal Metal Vertical Discharge EC

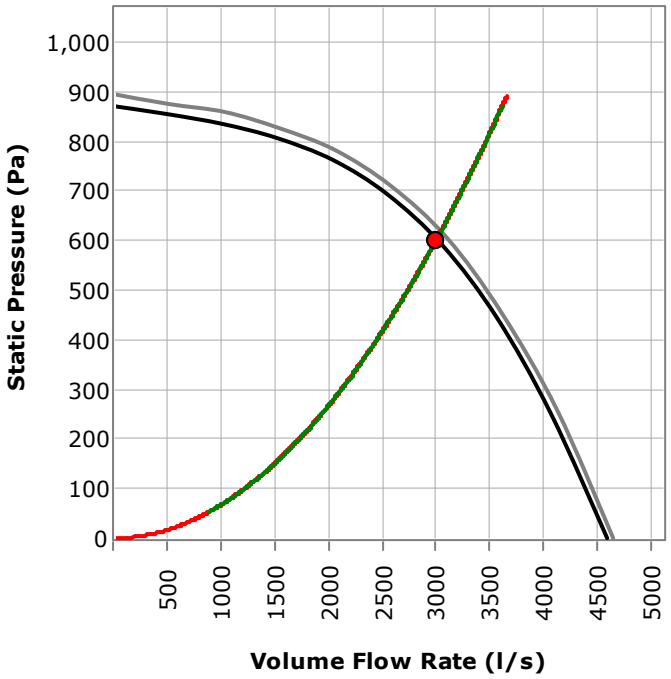
Pacific Ventilation

Location **Reference** KEX 1

Performance Data	**Specified**	**Actual**
Design Flow (l/s)	3000	3000
Design Pressure (Pa)	600	600
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

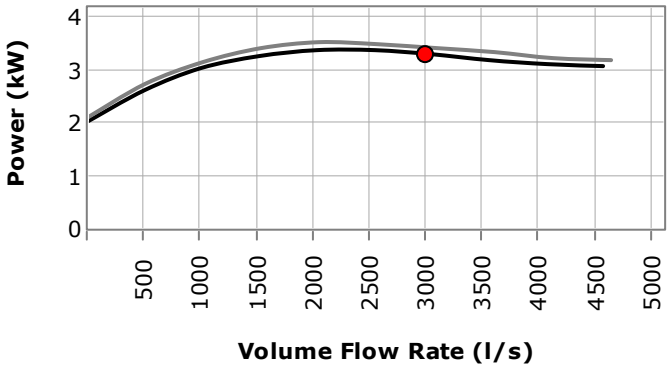
Fan Data

Part Number	KMV630-VDE
Description	Roof Mounted Centrifugal Metal Vertical Discharge EC ERM
Fan Diameter (mm)	630
Impeller Type	Centrifugal
Impeller Material	
Weight (Kg)	127.0
Fan Speed (RPM)	1382
Absorbed Power (kW)	3.30
Peak Power (kW)	3.30
Total Efficiency (%)	59.7
Static Efficiency (%)	54.6
Frequency (Hz)	50



Motor Data

Rated (kW)	2.80
Motor Pole	4
Voltage (V)	400
Phase	3
Full Load Current (A)	4.20
Starting Current (A)	4.20
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)
The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**Total SPL@3m dB(A)**
LW Inlet (dB) In-duct	71	77	74	72	72	73	68	62	57
LW Outlet (dB) In-duct	75	79	75	72	74	75	68	65	59
LW Inlet (dB) Free field	67	76	74	72	72	73	68	62	57
LW Outlet (dB) Free field	71	78	75	72	74	75	68	65	59

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KMV630-VDE

Roof Mounted Centrifugal Metal Vertical Discharge EC

Pacific Ventilation

EC Fan supplied with 10k POT fitted.

Pacific Ventilation Pty Ltd, 2/63 Wells Rd, Chelsea Heights, Victoria 3196 Australia
T:1300 733 833 (wthin Aust.) F:+61 3 9773 3811 E:info@pacificventilation.com I:www.pacificventilation.com

Fans Select V11.6.1.0

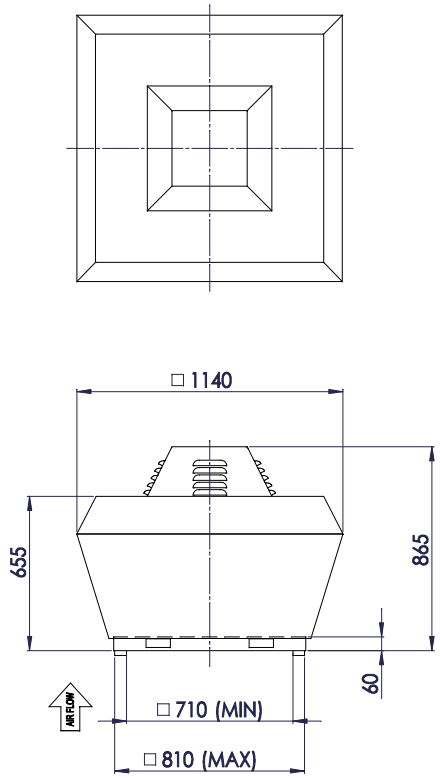
FSX Info: FansSelectV8 11.6.1.0 Doc 2012.0.0.0 @ 23/10/2020 14:36:05

KMV630-VDE

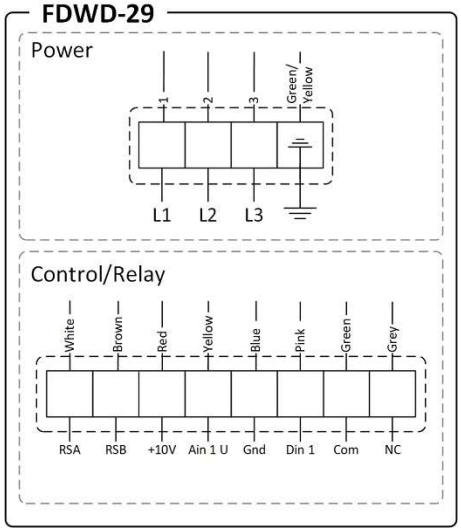
Roof Mounted Centrifugal Metal Vertical Discharge EC

Pacific Ventilation

Dimensions



Wiring



KMV560-VDE

Roof Mounted Centrifugal Metal Vertical Discharge EC

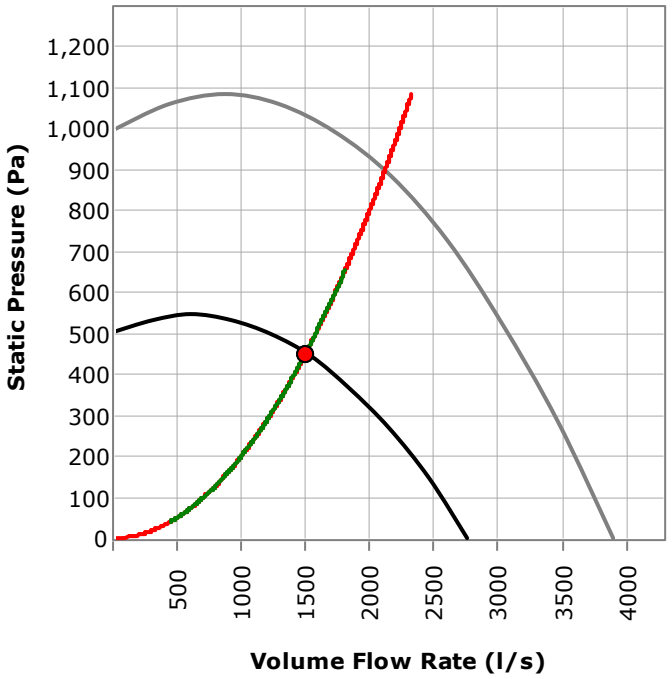
Pacific Ventilation

Location **Reference** KEF 2

Performance Data	**Specified**	**Actual**
Design Flow (l/s)	1500	1500
Design Pressure (Pa)	450	450
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

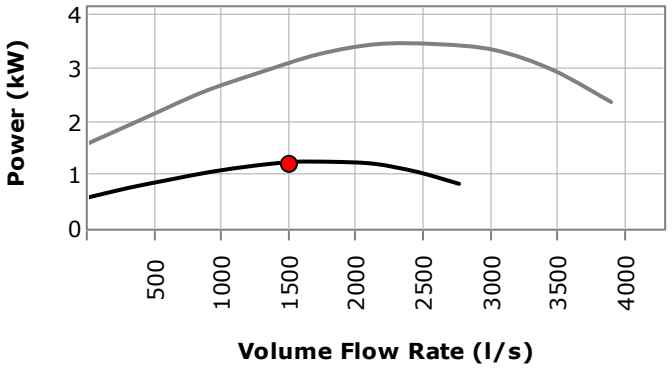
Fan Data

Part Number	KMV560-VDE
Description	Roof Mounted Centrifugal Metal Vertical Discharge EC ERM
Fan Diameter (mm)	560
Impeller Type	Centrifugal
Impeller Material	
Weight (Kg)	100.0
Fan Speed (RPM)	993
Absorbed Power (kW)	1.21
Peak Power (kW)	1.21
Total Efficiency (%)	58.4
Static Efficiency (%)	55.7
Frequency (Hz)	50



Motor Data

Rated (kW)	3.50
Motor Pole	4
Voltage (V)	400
Phase	3
Full Load Current (A)	5.40
Starting Current (A)	5.40
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**Total SPL@3m dB(A)**
LW Inlet (dB) In-duct	60	68	65	62	60	57	54	53	44
LW Outlet (dB) In-duct	63	66	64	62	61	59	56	56	45
LW Inlet (dB) Free field	55	66	65	62	60	57	54	53	44
LW Outlet (dB) Free field	58	64	64	62	61	59	56	56	45

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KMV560-VDE

Roof Mounted Centrifugal Metal Vertical Discharge EC

Pacific Ventilation

EC Fan supplied with 10k POT fitted.

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Fans Select V11.6.1.0

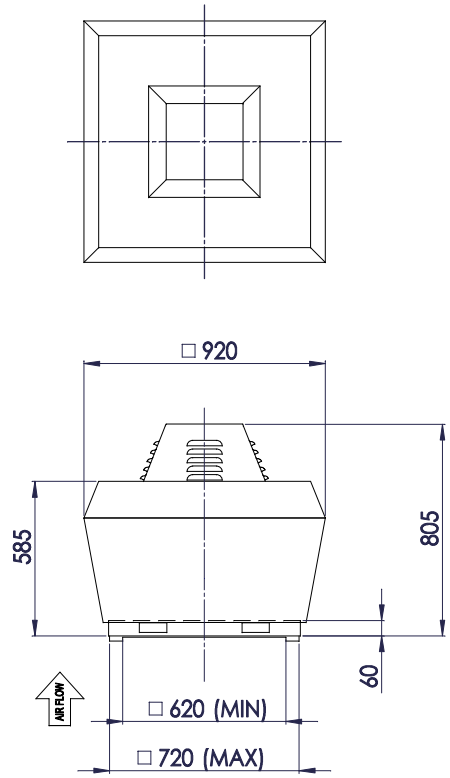
FSX Info: FansSelectV8 11.6.1.0 Doc 2012.0.0.0 @ 23/10/2020 14:36:05

KMV560-VDE

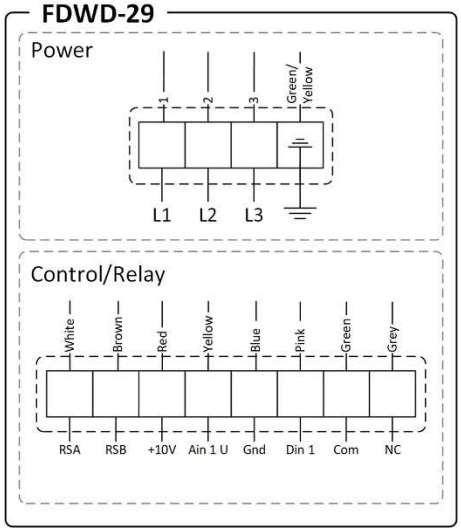
Roof Mounted Centrifugal Metal Vertical Discharge EC

Pacific Ventilation

Dimensions



Wiring



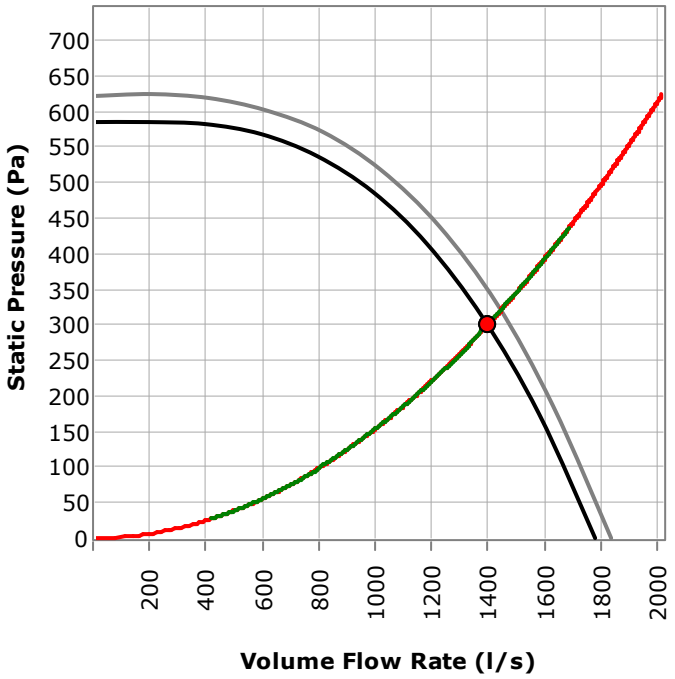
ICQ500-VDE

Inline Centrifugal EC

Pacific Ventilation

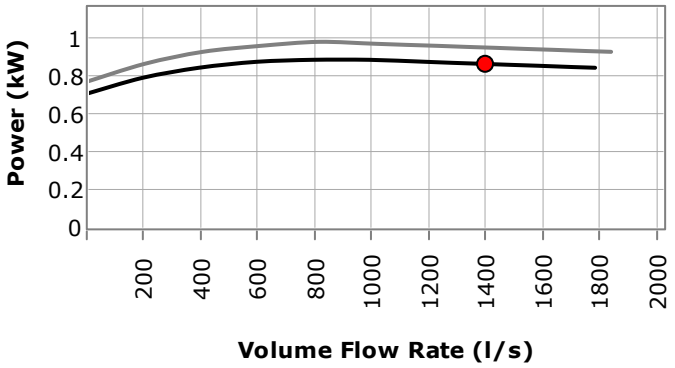
Location **Reference** KSF 1

Performance Data	**Specified**	**Actual**
Design Flow (l/s)	1400	1400
Design Pressure (Pa)	300	300
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	



Fan Data

Part Number	ICQ500-VDE
Description	Inline Centifugal Square EC ERM
Fan Diameter (mm)	500
Impeller Type	Centrifugal
Impeller Material	
Weight (Kg)	58.0
Fan Speed (RPM)	1503
Absorbed Power (kW)	0.86
Peak Power (kW)	0.86
Total Efficiency (%)	53.8
Static Efficiency (%)	48.8
Frequency (Hz)	50



Motor Data

Rated (kW)	0.97
Motor Pole	4
Voltage (V)	400
Phase	3
Full Load Current (A)	1.70
Starting Current (A)	1.70
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Complies with NCC/BCA Vol.1 Table J 5.2 2015-2018 Unfiltered

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**Total SPL@3m dB(A)**
LW Inlet (dB) In-duct	67	73	69	68	66	67	61	52	51
LW Outlet (dB) In-duct	72	76	72	68	63	63	60	51	50
LW Inlet (dB) Free field	61	71	69	68	66	67	61	52	52
LW Outlet (dB) Free field	66	74	72	68	63	63	60	51	50

EC Fan supplied with 10k POT fitted.

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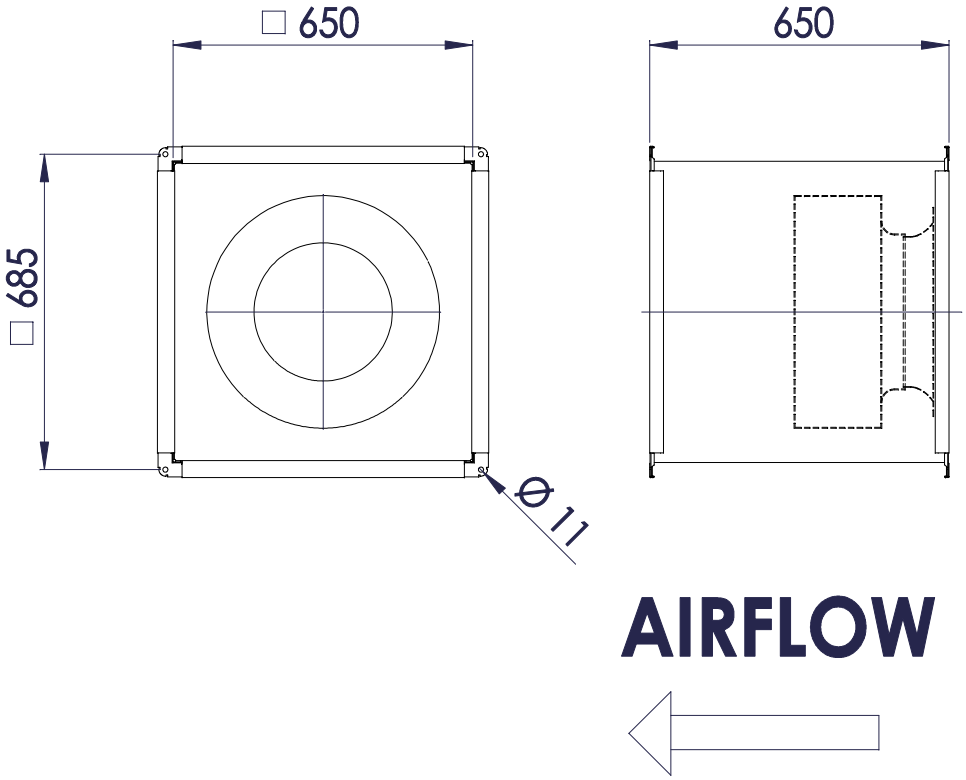
FSX Info: FansSelectV8 11.6.1.0 Doc 2012.0.0.0 @ 23/10/2020 14:36:05

ICQ500-VDE

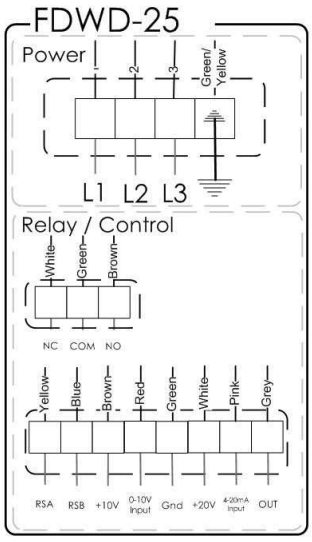
Inline Centrifugal EC

Pacific Ventilation

Dimensions



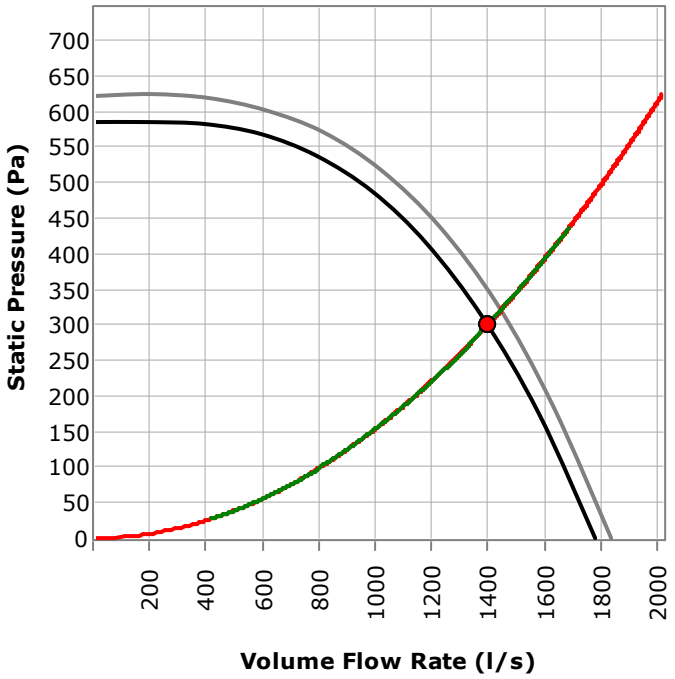
Wiring



Location	Reference	CPEF 1 - ASP1100 13.2 M/S

Performance Data

	Specified	Actual
Design Flow (13850 l/s)		
Design Pressure (500 pa)		
Air Density (kg/m3)		
Temperature (C°)		
Altitude (m)		
Humidity (%)		

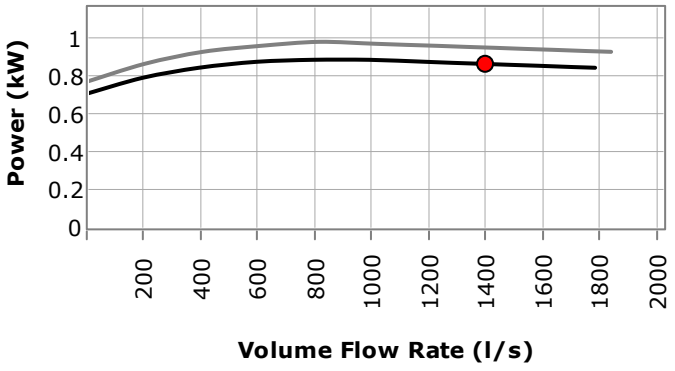


Fan Data

Part Number	
Description	
Fan Diameter (mm)	
Impeller Type	
Impeller Material	
Weight (Kg)	
Fan Speed (RPM)	0
Absorbed Power (kW)	0.00
Peak Power (kW)	0.00
Total Efficiency (%)	0.0
Static Efficiency (%)	0.0
Frequency (Hz)	0

Motor Data

Rated (kW)	0.00
Motor Pole	
Voltage (V)	
Phase	
Full Load Current (A)	
Starting Current (A)	
Class	
Frame Size (mm)	
Mount	
Shaft Size (mm)	



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)

Dimensions

Wiring

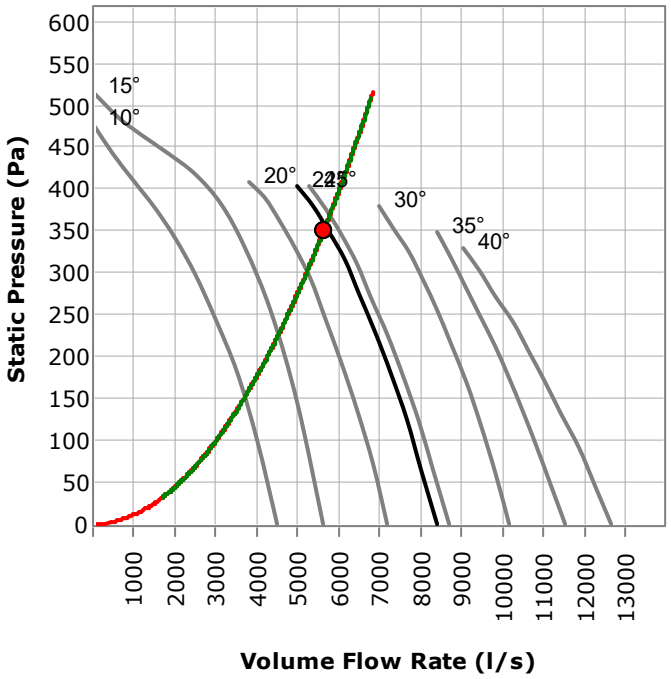
AX80DB24A-4HSF

AX Inline API Axial 800

Pacific Ventilation

Location	Reference	CSF 1

Performance Data	Specified	Actual
Design Flow (l/s)	5635	5678
Design Pressure (Pa)	350	355
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

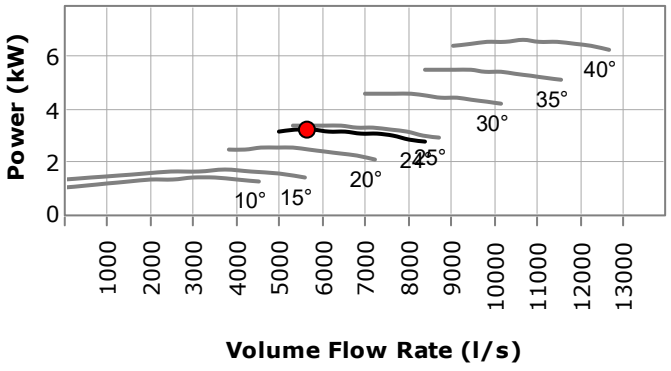


Fan Data

Part Number	AX80DB24A-4HSF		
Description	Axial Circular 4 Pole		
Fan Diameter (mm)	800	Hub (mm)	150
Impeller Type	Axial	Angle °	24
Impeller Material	Aluminium	Blades	10
Weight (Kg)	97.0		
Fan Speed (RPM)	1440		
Absorbed Power (kW)	3.18		
Peak Power (kW)	3.18		
Total Efficiency (%)	77.3		
Static Efficiency (%)	63.5		
Frequency (Hz)	50		

Motor Data

Rated (kW)	4.00
Motor Pole	4
Voltage (V)	400
Phase	3
Full Load Current (A)	7.90
Starting Current (A)	47.40
Class	Standard
Frame Size (mm)	112
Mount	Foot
Shaft Size (mm)	28



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Sound Data

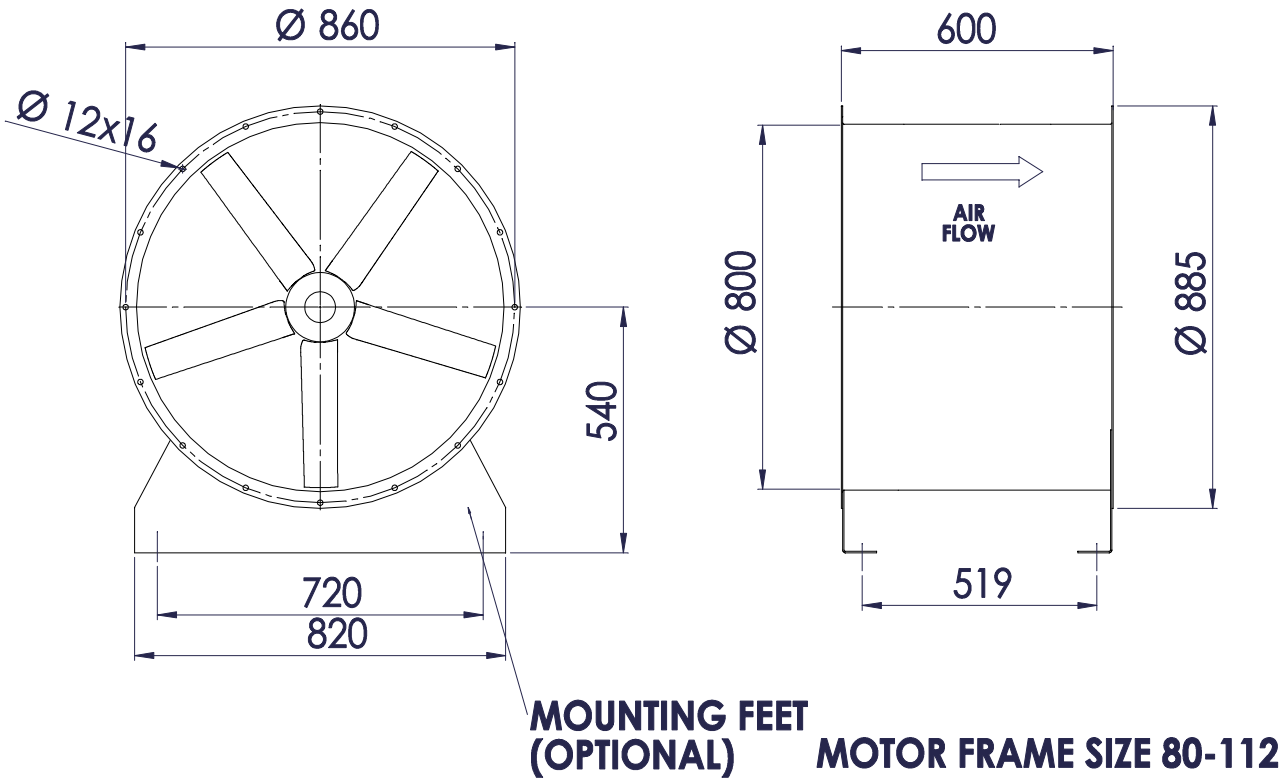
A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

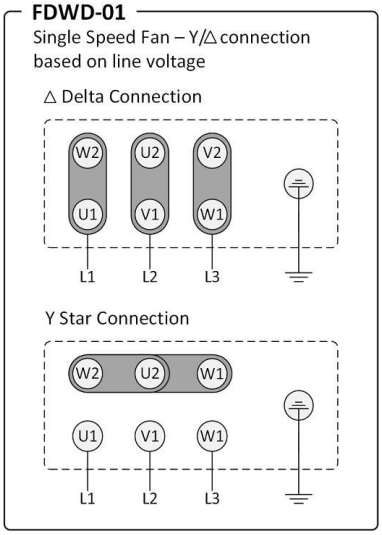
The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) In-duct	84	83	85	86	87	84	80	69	70
LW Inlet (dB) Free field	79	81	85	86	87	84	80	69	70

Dimensions



Wiring



AX80DB21A-4GSF

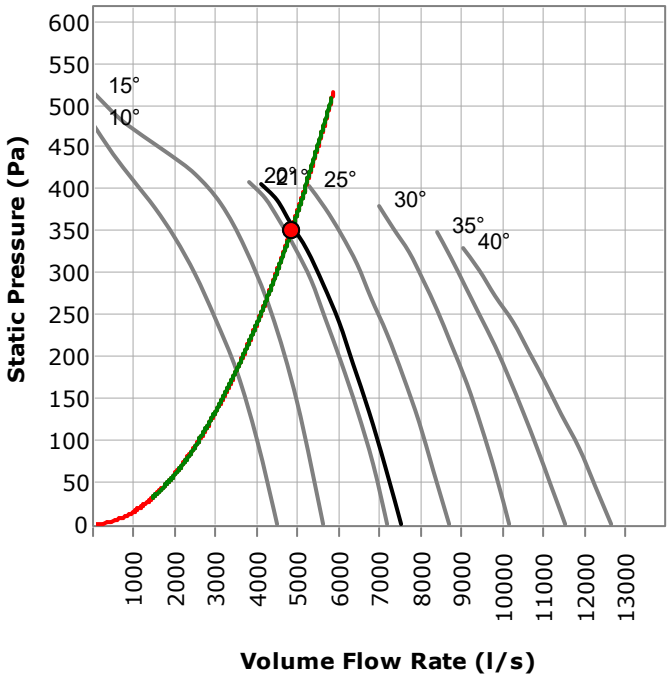
AX Inline API Axial 800

Pacific Ventilation

Location		Reference	CSF 2

Performance Data

	Specified	Actual
Design Flow (l/s)	4840	4887
Design Pressure (Pa)	350	357
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

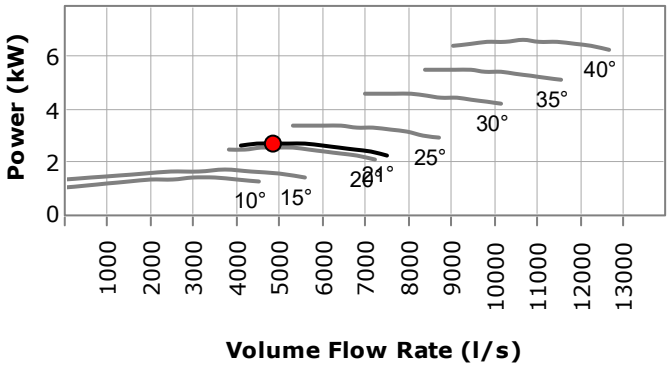


Fan Data

Part Number	AX80DB21A-4GSF		
Description	Axial Circular 4 Pole		
Fan Diameter (mm)	800	Hub (mm)	150
Impeller Type	Axial	Angle °	21
Impeller Material	Aluminium	Blades	10
Weight (Kg)	83.0		
Fan Speed (RPM)	1440		
Absorbed Power (kW)	2.67		
Peak Power (kW)	2.67		
Total Efficiency (%)	75.8		
Static Efficiency (%)	65.4		
Frequency (Hz)	50		

Motor Data

Rated (kW)	3.00
Motor Pole	4
Voltage (V)	400
Phase	3
Full Load Current (A)	5.90
Starting Current (A)	35.40
Class	Standard
Frame Size (mm)	100
Mount	Foot
Shaft Size (mm)	28



Complies with NCC/BCA Vol.1 Table J 5.2 2015-2018 Unfiltered

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) In-duct	84	83	85	86	87	84	80	69	70
LW Inlet (dB) Free field	79	81	85	86	87	84	80	69	70

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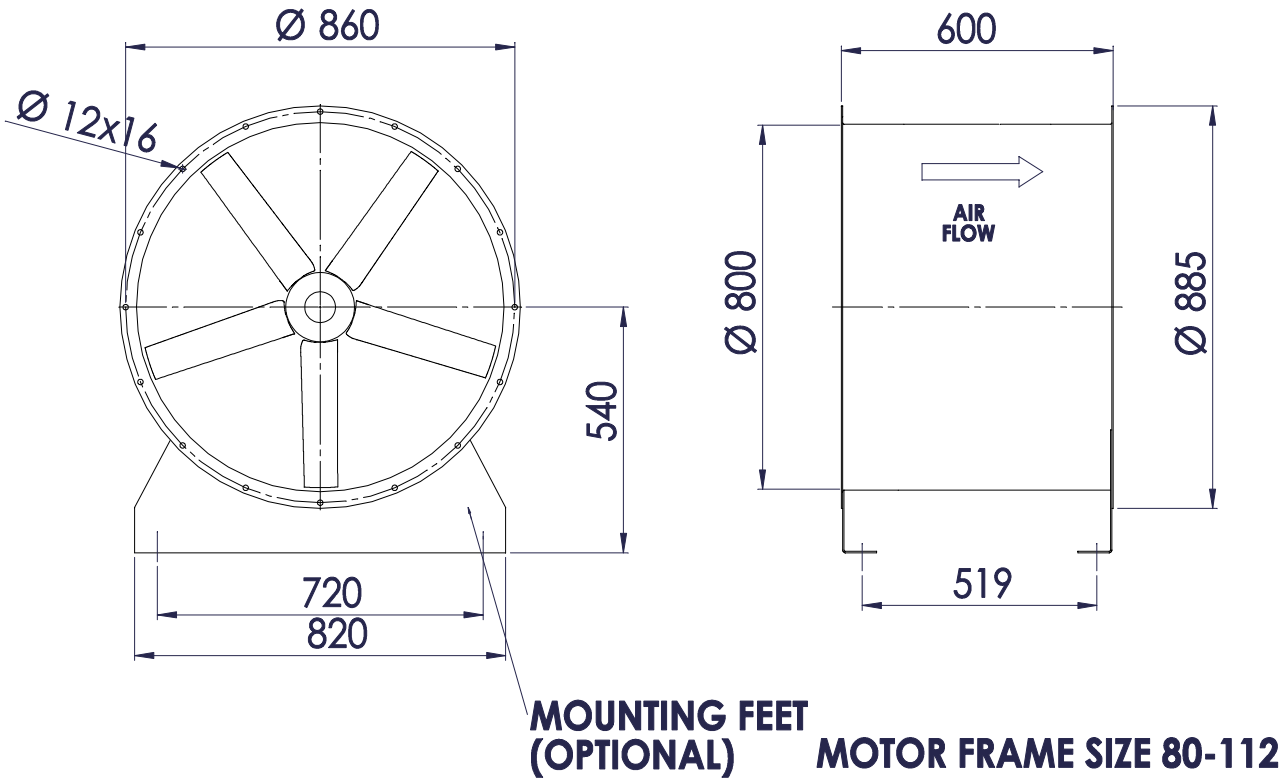
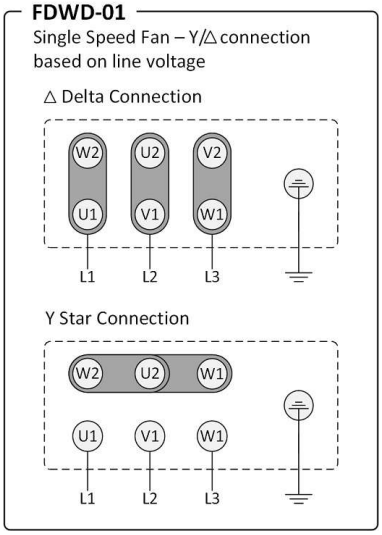
Dimensions



Wiring



AX31GF35P-2BSF

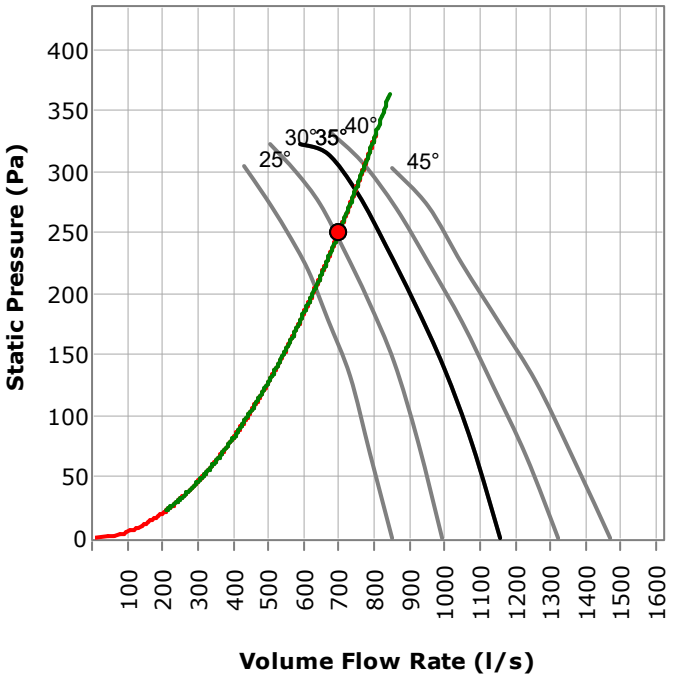
AX Inline API Axial 315

Pacific Ventilation

Location	Reference SF 1	
Performance Data	**Specified**	**Actual**
Design Flow (l/s)	700	746
Design Pressure (Pa)	250	284
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

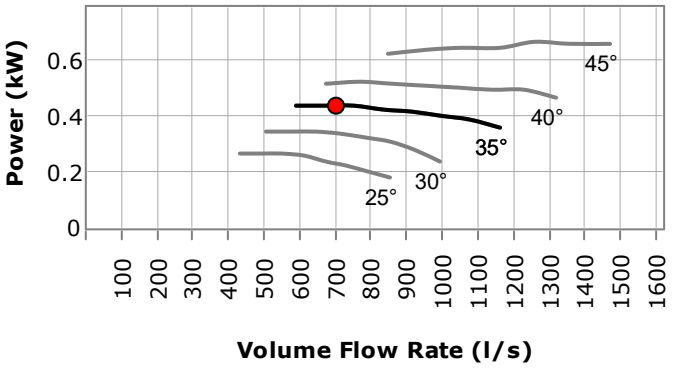
Fan Data

Part Number	AX31GF35P-2BSF		
Description	Axial Circular 2 Pole		
Fan Diameter (mm)	315	Hub (mm)	97
Impeller Type	Axial	Angle °	35
Impeller Material	GRP	Blades	6
Weight (Kg)	18.8		
Fan Speed (RPM)	2740		
Absorbed Power (kW)	0.43		
Peak Power (kW)	0.44		
Total Efficiency (%)	58.3		
Static Efficiency (%)	48.8		
Frequency (Hz)	50		



Motor Data

Rated (kW)	0.55
Motor Pole	2
Voltage (V)	400
Phase	3
Full Load Current (A)	1.26
Starting Current (A)	7.56
Class	Standard
Frame Size (mm)	71
Mount	Foot
Shaft Size (mm)	14



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) In-duct	85	86	86	79	75	72	67	60	61
LW Outlet (dB) In-duct	89	87	87	80	75	71	66	60	62
LW Inlet (dB) Free field	73	79	83	78	75	72	67	60	60
LW Outlet (dB) Free field	77	80	84	79	75	71	66	60	60

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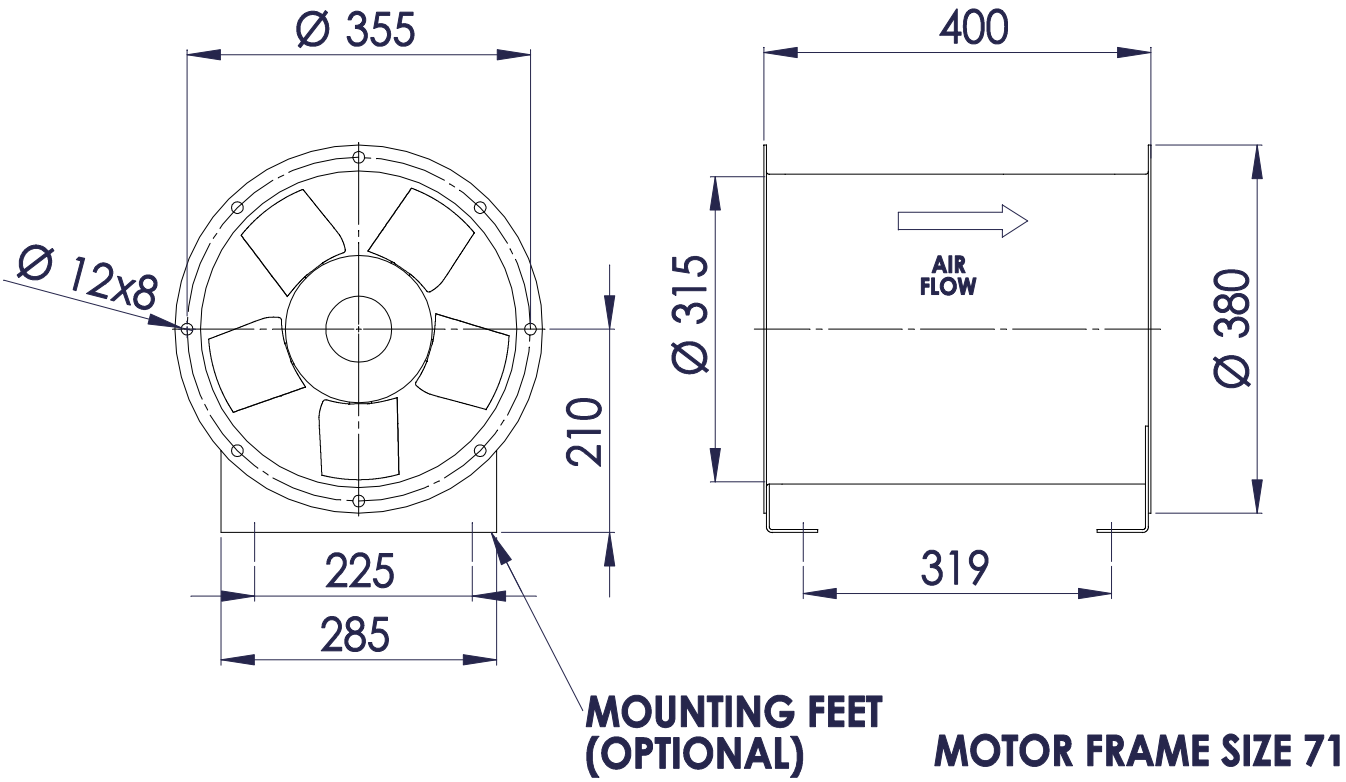
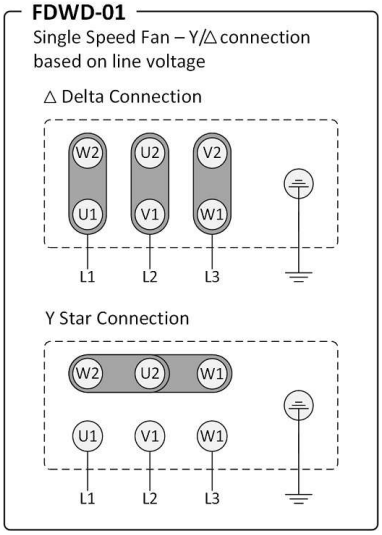
Dimensions



Wiring

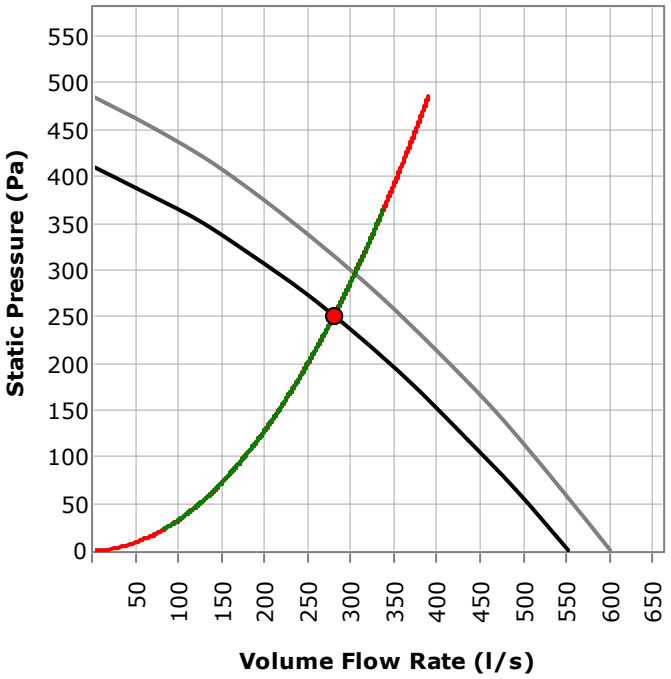


ICQ280-VEE

Inline Centrifugal EC

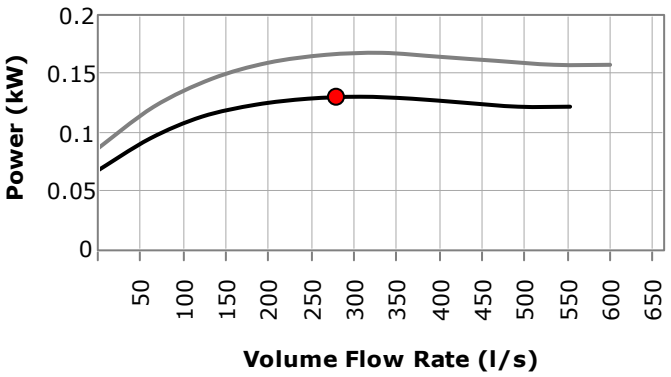
Pacific Ventilation

Location		Reference	EF 1
Performance Data	**Specified**	**Actual**	
Design Flow (l/s)	280	280	
Design Pressure (Pa)	250	250	
Air Density (kg/m3)	1.204		
Temperature (C°)	20		
Altitude (m)	0		
Humidity (%)	0		



Fan Data

Part Number	ICQ280-VEE
Description	Inline Centifugal Square EC ERM
Fan Diameter (mm)	280
Impeller Type	Centrifugal
Impeller Material	
Weight (Kg)	27.0
Fan Speed (RPM)	1756
Absorbed Power (kW)	0.13
Peak Power (kW)	0.13
Total Efficiency (%)	56.8
Static Efficiency (%)	54.1
Frequency (Hz)	50



Motor Data

Rated (kW)	0.17
Motor Pole	4
Voltage (V)	240
Phase	1
Full Load Current (A)	1.40
Starting Current (A)	1.40
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) Free field	57	60	61	62	58	55	52	46	43
LW Outlet (dB) Free field	59	60	61	63	57	55	52	45	43

EC Fan supplied with 10k POT fitted.

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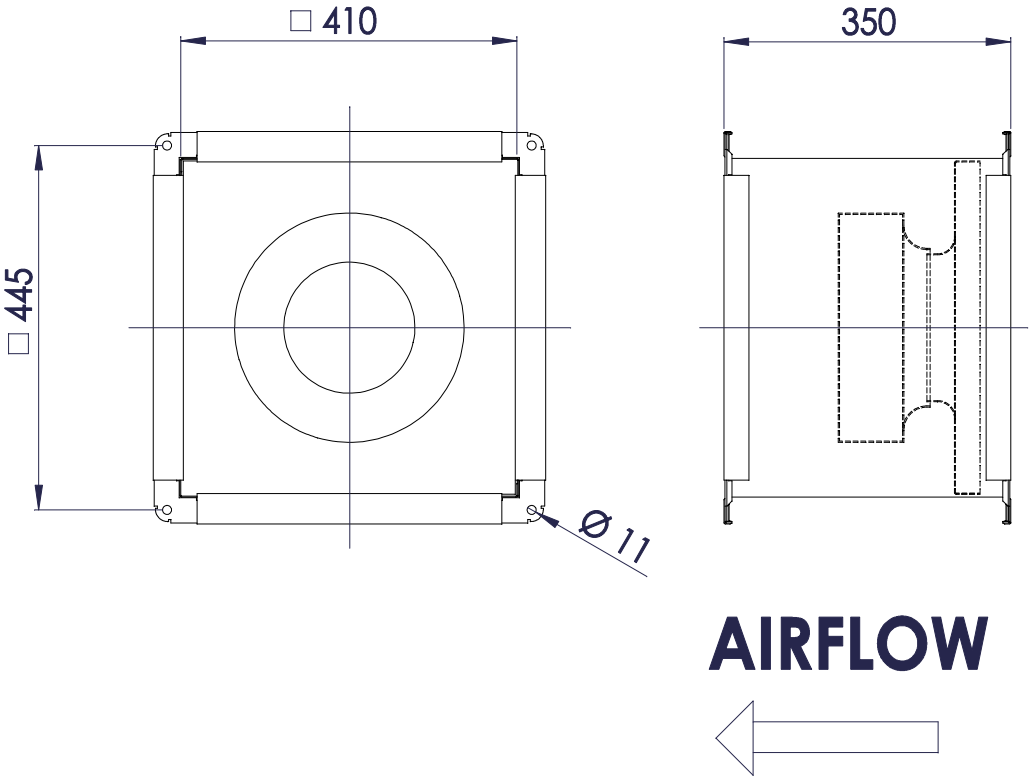
ICQ280-VEE

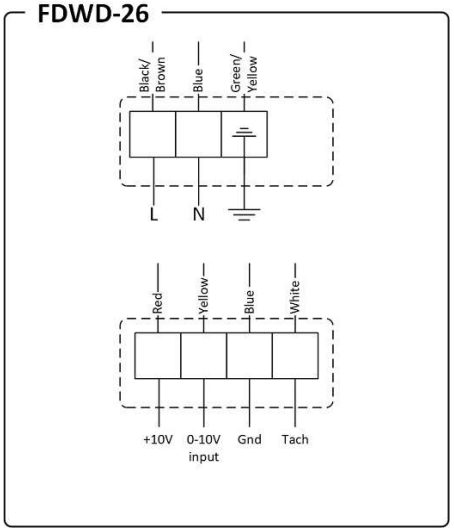
Inline Centrifugal EC

Pacific Ventilation

Dimensions



Wiring



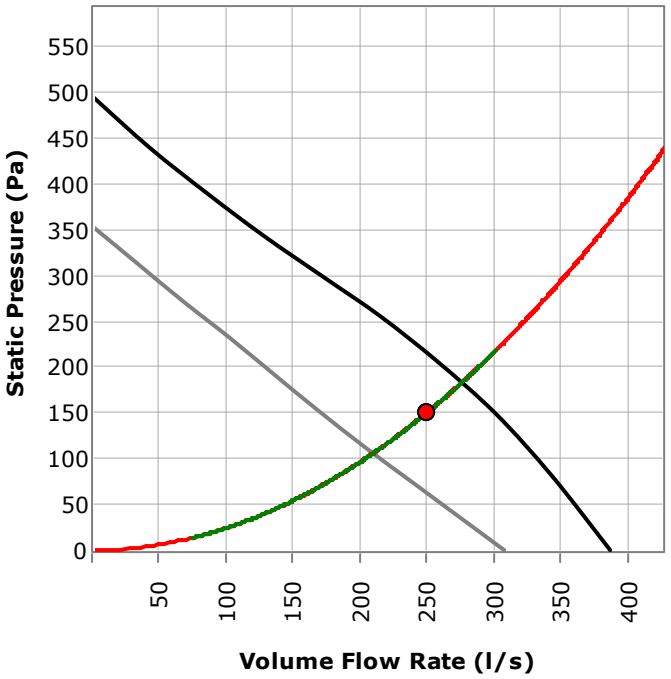
MFP250-V-HIGH

1Inline Mixed Flow 2 Speed

Pacific Ventilation

Location **Reference** EF 2

Performance Data	**Specified**	**Actual**
Design Flow (l/s)	250	276
Design Pressure (Pa)	150	183
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

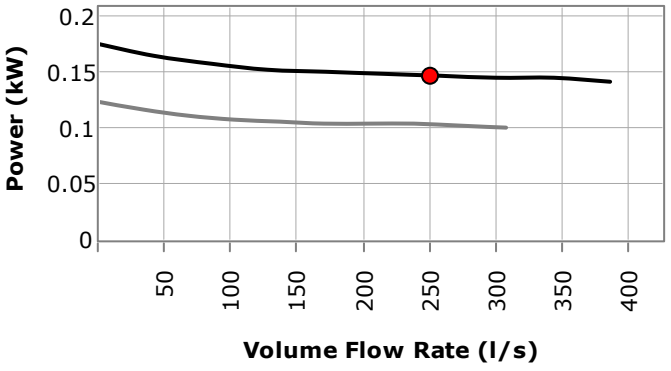


Fan Data

Part Number	MFP250-V-HIGH
Description	Inline Mixed Flow ERM
Fan Diameter (mm)	250
Impeller Type	Mixed Flow
Impeller Material	
Weight (Kg)	7.5
Fan Speed (RPM)	2440
Absorbed Power (kW)	0.15
Peak Power (kW)	0.17
Total Efficiency (%)	38.3
Static Efficiency (%)	34.7
Frequency (Hz)	50

Motor Data

Rated (kW)	0.18
Motor Pole	2
Voltage (V)	240
Phase	1
Full Load Current (A)	0.79
Starting Current (A)	2.37
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**Total SPL@3m dB(A)**
LW Inlet (dB) Free field	66	61	67	65	68	72	64	52	54
LW Outlet (dB) Free field	65	59	66	63	67	71	61	51	53

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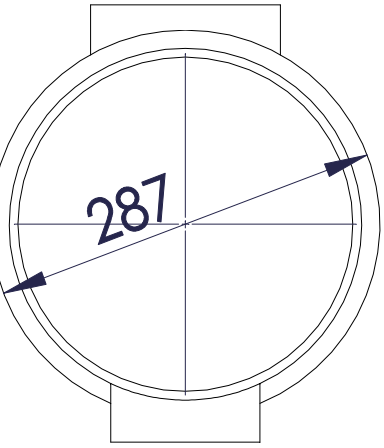
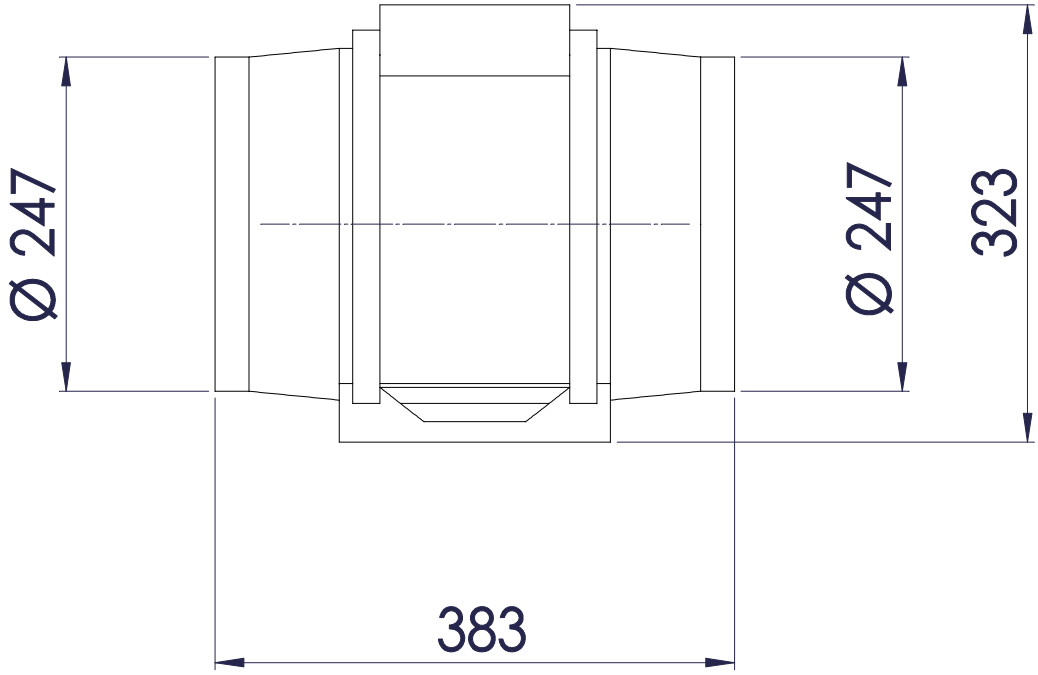
MFP250-V-HIGH

1Inline Mixed Flow 2 Speed

Pacific Ventilation

Dimensions





Wiring

3PP
This fan is prewired with a standard 3-Pin plug

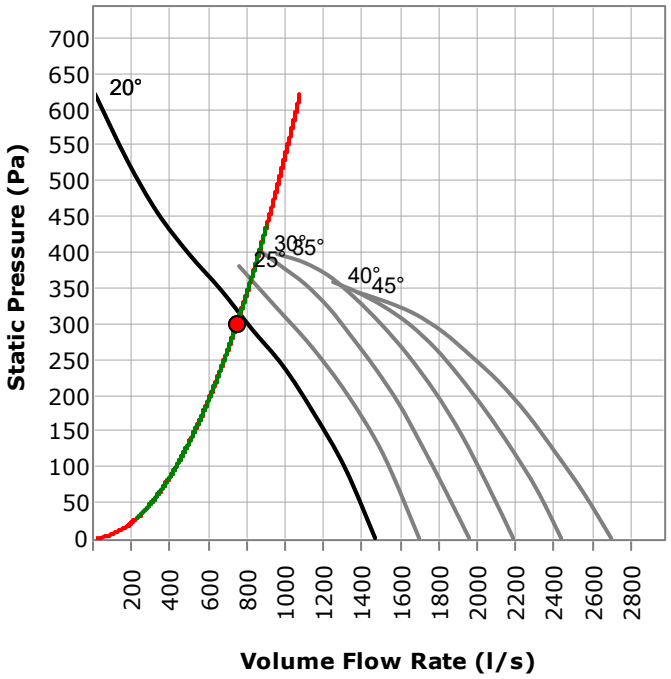
AX40HA20P-2BSF

AX Inline API Axial 400

Pacific Ventilation

Location	Reference	EF 3

Performance Data	Specified	Actual
Design Flow (l/s)	750	766
Design Pressure (Pa)	300	313
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

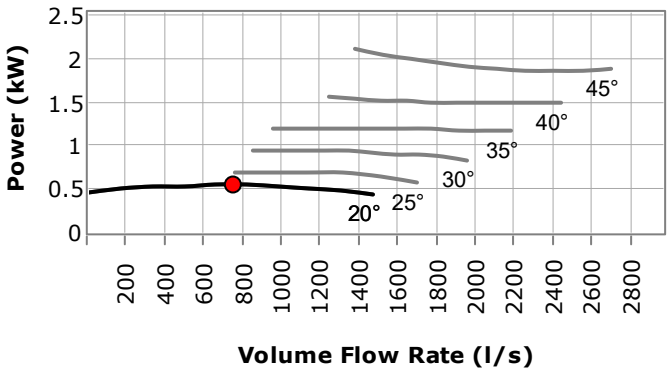


Fan Data

Part Number	AX40HA20P-2BSF		
Description	Axial Circular 2 Pole		
Fan Diameter (mm)	400	Hub (mm)	178
Impeller Type	Axial	Angle °	20
Impeller Material	GRP	Blades	3
Weight (Kg)	22.8		
Fan Speed (RPM)	2880		
Absorbed Power (kW)	0.54		
Peak Power (kW)	0.54		
Total Efficiency (%)	47.4		
Static Efficiency (%)	44.2		
Frequency (Hz)	50		

Motor Data

Rated (kW)	0.55
Motor Pole	2
Voltage (V)	400
Phase	3
Full Load Current (A)	1.26
Starting Current (A)	7.56
Class	Standard
Frame Size (mm)	71
Mount	Foot
Shaft Size (mm)	14



Sound Data

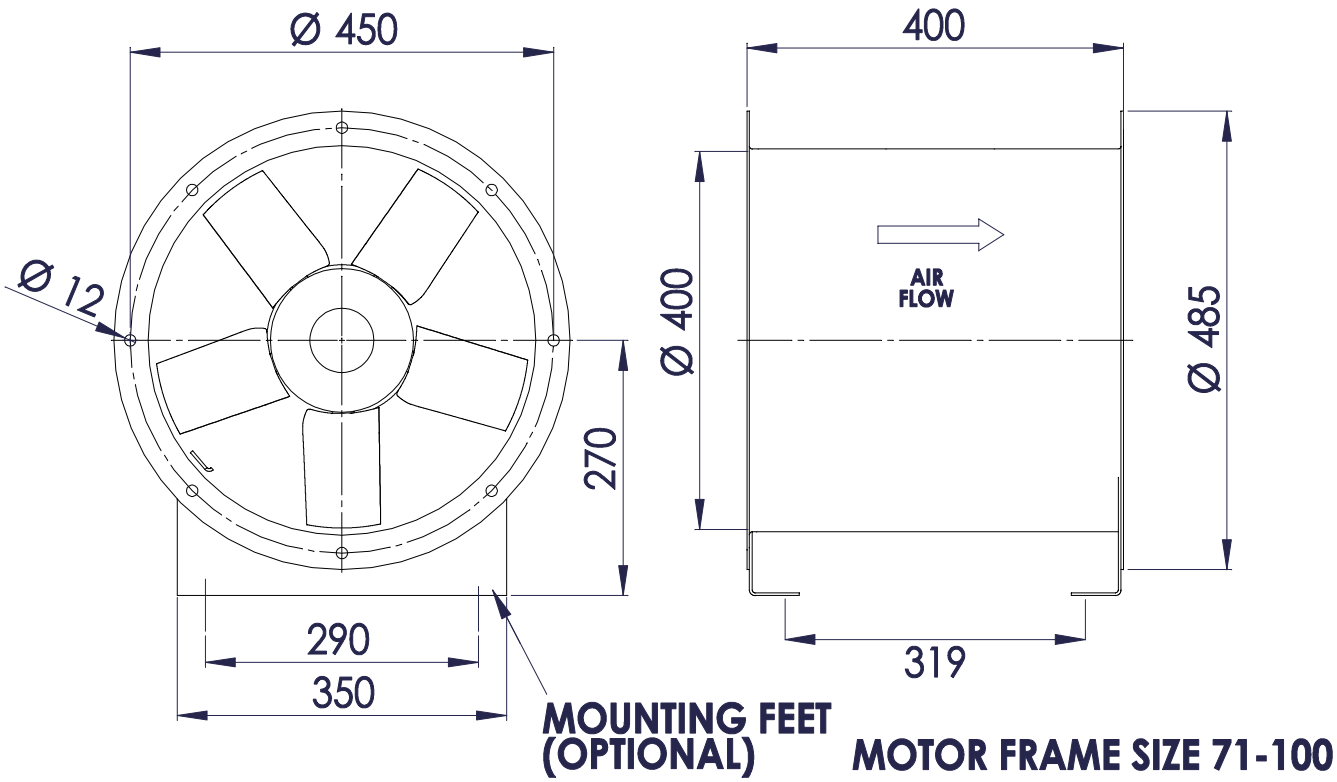
A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

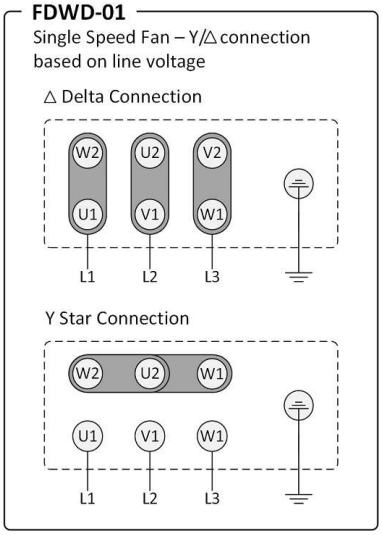
The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) In-duct	94	86	81	77	76	75	76	69	62
LW Inlet (dB) Free field	84	81	79	77	76	75	76	69	61

Dimensions



Wiring



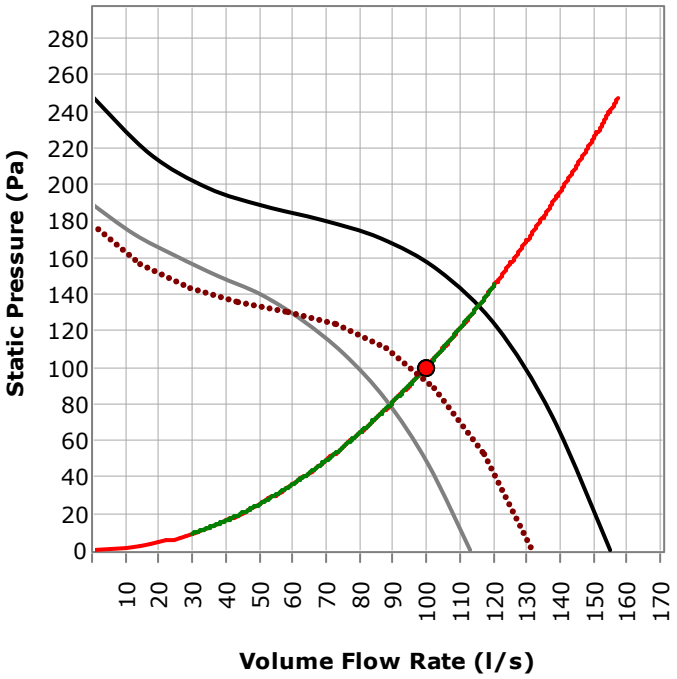
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Location	Reference	TEF 1

Performance Data	Specified	Actual
Design Flow (l/s)	100	100
Design Pressure (Pa)	100	100
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

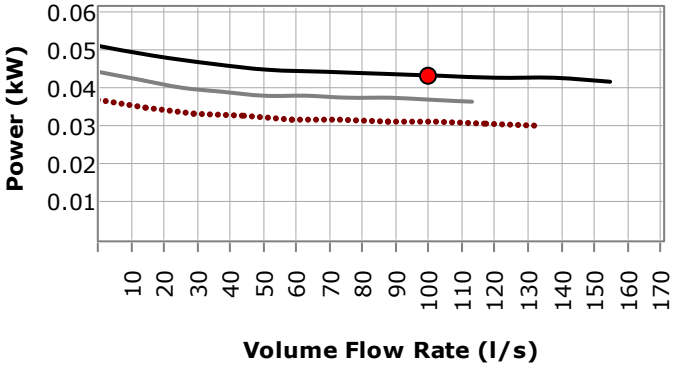


Fan Data

Part Number	MFS150-V-HIGH
Description	Inline Mixed Flow Silent ERM
Fan Diameter (mm)	150
Impeller Type	Mixed Flow
Impeller Material	
Weight (Kg)	6.1
Fan Speed (RPM)	2246
Absorbed Power (kW)	0.03
Peak Power (kW)	0.05
Total Efficiency (%)	45.5
Static Efficiency (%)	38.1
Frequency (Hz)	42.46494343690

Motor Data

Rated (kW)	0.05
Motor Pole	2
Voltage (V)	240
Phase	1
Full Load Current (A)	0.23
Starting Current (A)	0.69
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.
Sound values for adjusted curves are estimated.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10^{-12} watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) Free field	43	44	50	54	51	44	38	33	34
LW Outlet (dB) Free field	43	42	51	54	50	42	39	31	33

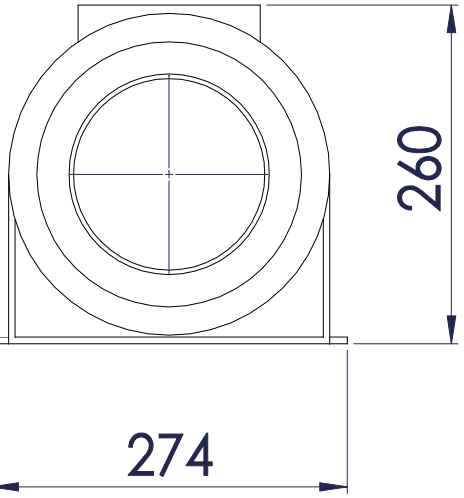
Fan must be operated with speed controller to achieve duty and sound.

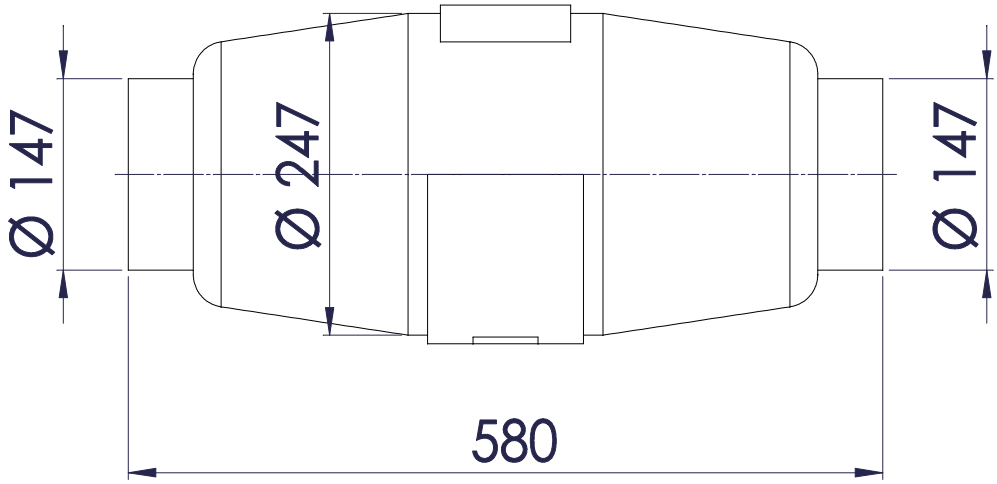
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Dimensions





Wiring

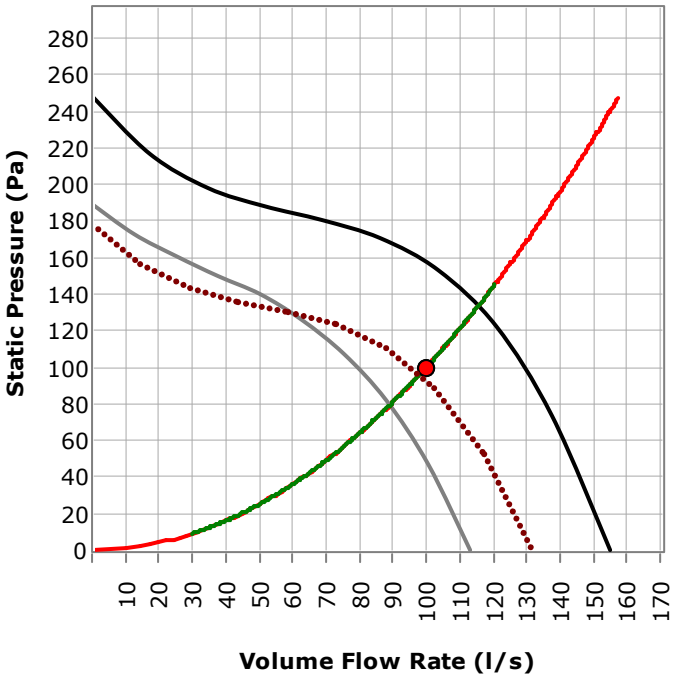
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Location	Reference	TEF R-1

Performance Data	Specified	Actual
Design Flow (l/s)	100	100
Design Pressure (Pa)	100	100
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

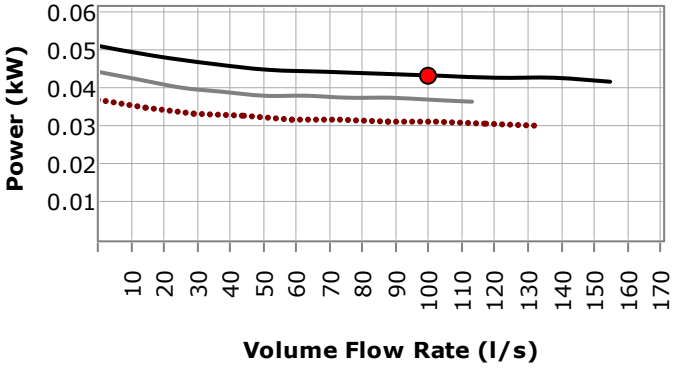


Fan Data

Part Number	MFS150-V-HIGH
Description	Inline Mixed Flow Silent ERM
Fan Diameter (mm)	150
Impeller Type	Mixed Flow
Impeller Material	
Weight (Kg)	6.1
Fan Speed (RPM)	2246
Absorbed Power (kW)	0.03
Peak Power (kW)	0.05
Total Efficiency (%)	45.5
Static Efficiency (%)	38.1
Frequency (Hz)	42.46494343690

Motor Data

Rated (kW)	0.05
Motor Pole	2
Voltage (V)	240
Phase	1
Full Load Current (A)	0.23
Starting Current (A)	0.69
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.
Sound values for adjusted curves are estimated.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) Free field	43	44	50	54	51	44	38	33	34
LW Outlet (dB) Free field	43	42	51	54	50	42	39	31	33

Fan must be operated with speed controller to achieve duty and sound.

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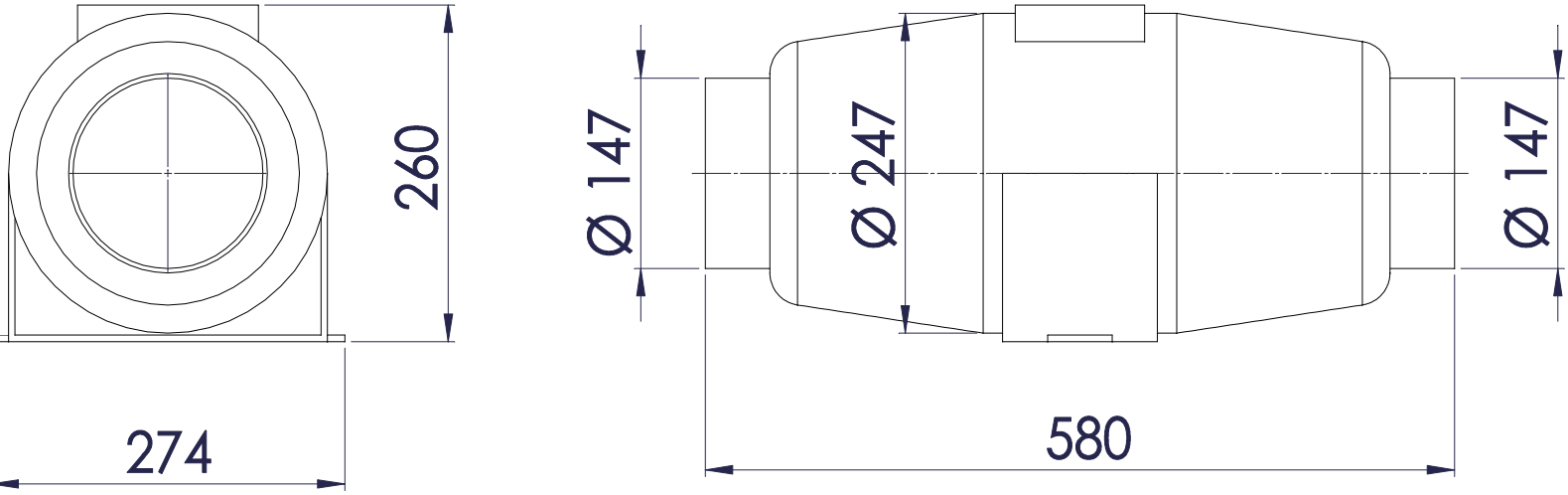
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Dimensions



Wiring

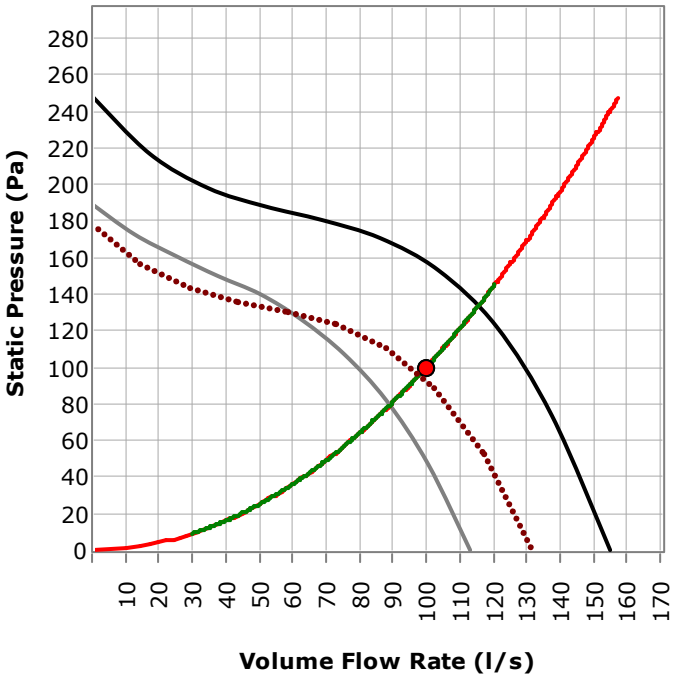
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Location	Reference	TEF R-2

Performance Data	Specified	Actual
Design Flow (l/s)	100	100
Design Pressure (Pa)	100	100
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

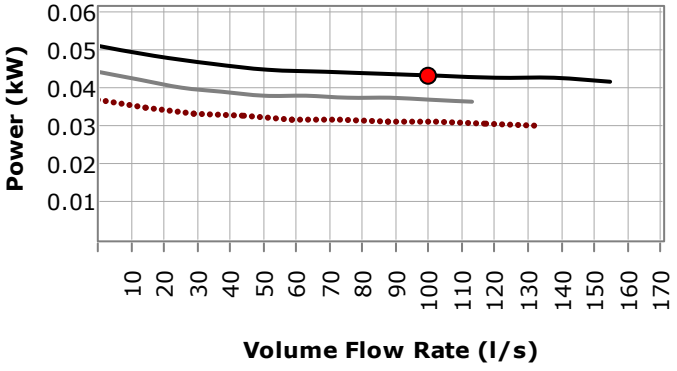


Fan Data

Part Number	MFS150-V-HIGH
Description	Inline Mixed Flow Silent ERM
Fan Diameter (mm)	150
Impeller Type	Mixed Flow
Impeller Material	
Weight (Kg)	6.1
Fan Speed (RPM)	2246
Absorbed Power (kW)	0.03
Peak Power (kW)	0.05
Total Efficiency (%)	45.5
Static Efficiency (%)	38.1
Frequency (Hz)	42.46494343690

Motor Data

Rated (kW)	0.05
Motor Pole	2
Voltage (V)	240
Phase	1
Full Load Current (A)	0.23
Starting Current (A)	0.69
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.
Sound values for adjusted curves are estimated.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10^{-12} watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) Free field	43	44	50	54	51	44	38	33	34
LW Outlet (dB) Free field	43	42	51	54	50	42	39	31	33

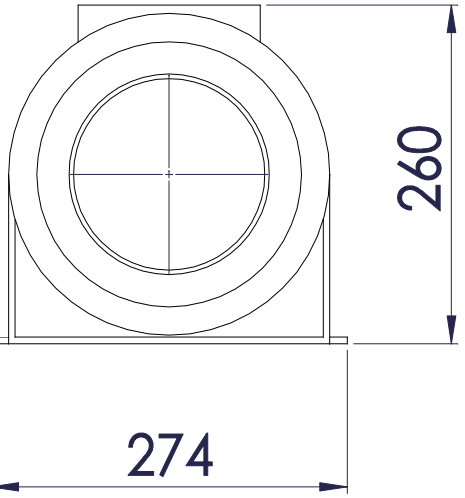
Fan must be operated with speed controller to achieve duty and sound.

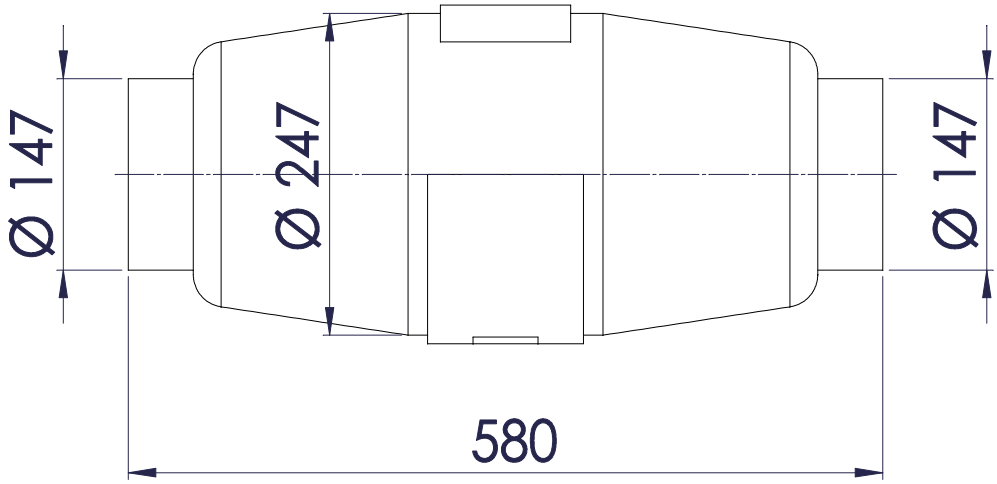
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Dimensions





Wiring

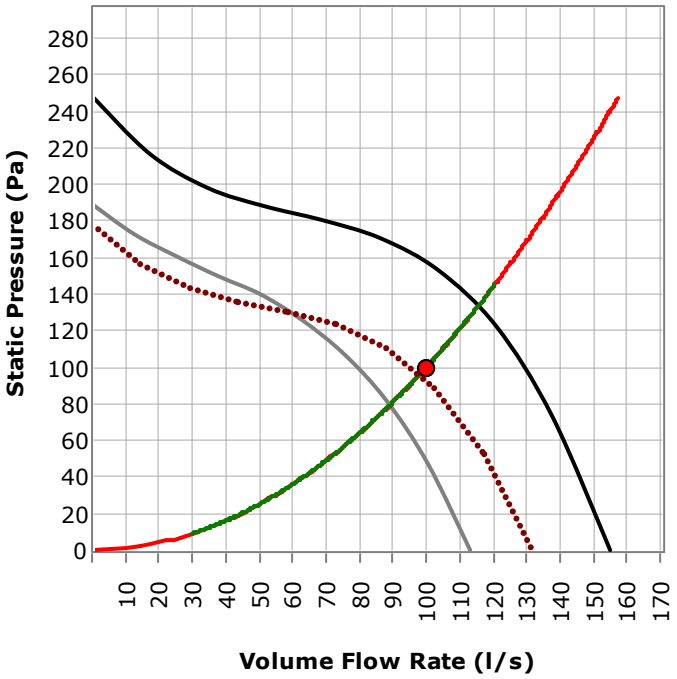
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Location	Reference	EF R-1

Performance Data	Specified	Actual
Design Flow (l/s)	100	100
Design Pressure (Pa)	100	100
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

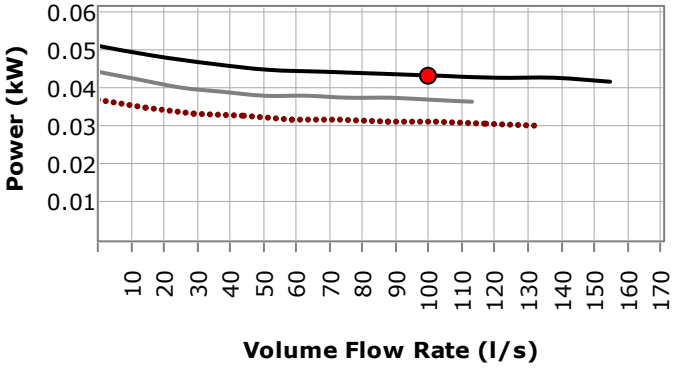


Fan Data

Part Number	MFS150-V-HIGH
Description	Inline Mixed Flow Silent ERM
Fan Diameter (mm)	150
Impeller Type	Mixed Flow
Impeller Material	
Weight (Kg)	6.1
Fan Speed (RPM)	2246
Absorbed Power (kW)	0.03
Peak Power (kW)	0.05
Total Efficiency (%)	45.5
Static Efficiency (%)	38.1
Frequency (Hz)	42.46494343690

Motor Data

Rated (kW)	0.05
Motor Pole	2
Voltage (V)	240
Phase	1
Full Load Current (A)	0.23
Starting Current (A)	0.69
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.
Sound values for adjusted curves are estimated.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10^{-12} watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) Free field	43	44	50	54	51	44	38	33	34
LW Outlet (dB) Free field	43	42	51	54	50	42	39	31	33

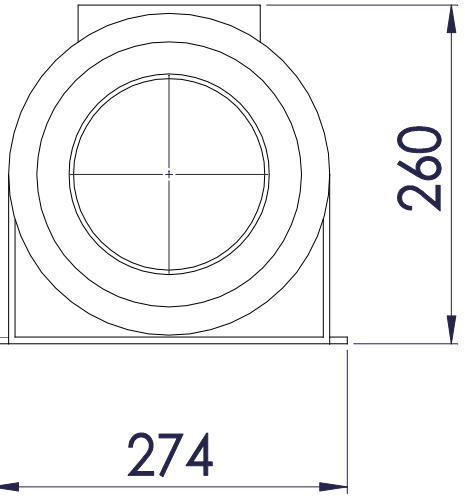
Fan must be operated with speed controller to achieve duty and sound.

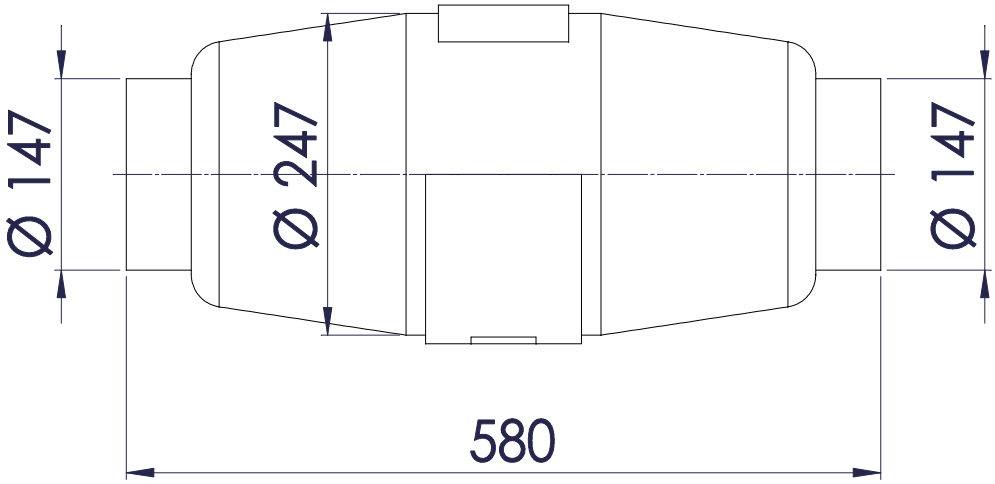
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Dimensions





Wiring

AX31HH20P-2BSF

AX Inline API Axial 315

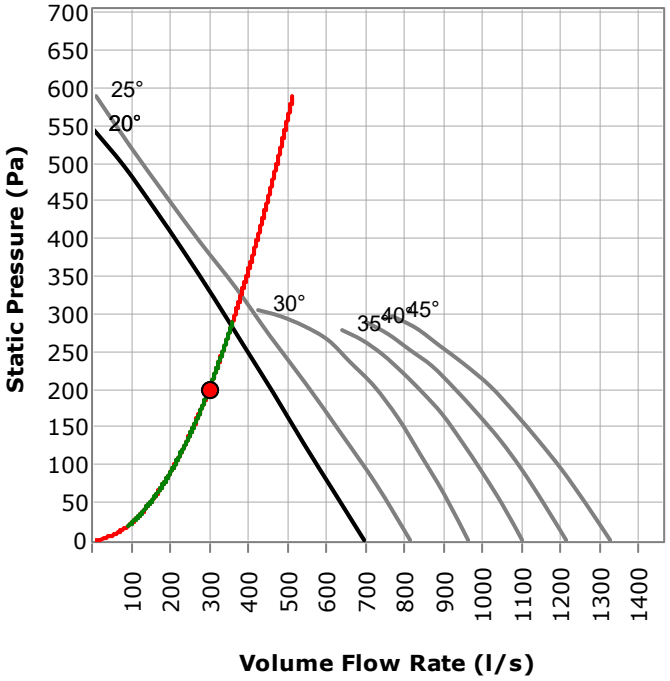
Pacific Ventilation

Location	Reference	EF 4

Performance Data	Specified	Actual
Design Flow (l/s)	300	358
Design Pressure (Pa)	200	285
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

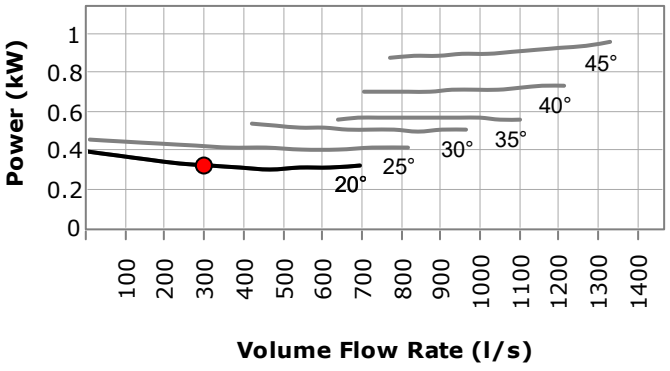
Fan Data

Part Number	AX31HH20P-2BSF		
Description	Axial Circular 2 Pole		
Fan Diameter (mm)	315	Hub (mm)	145
Impeller Type	Axial	Angle °	20
Impeller Material	GRP	Blades	5
Weight (Kg)	17.8		
Fan Speed (RPM)	2880		
Absorbed Power (kW)	0.31		
Peak Power (kW)	0.40		
Total Efficiency (%)	34.7		
Static Efficiency (%)	33.2		
Frequency (Hz)	50		



Motor Data

Rated (kW)	0.55
Motor Pole	2
Voltage (V)	400
Phase	3
Full Load Current (A)	1.26
Starting Current (A)	7.56
Class	Standard
Frame Size (mm)	71
Mount	Foot
Shaft Size (mm)	14



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) In-duct	85	83	77	76	78	75	75	72	62
LW Inlet (dB) Free field	73	76	74	75	78	75	75	72	61

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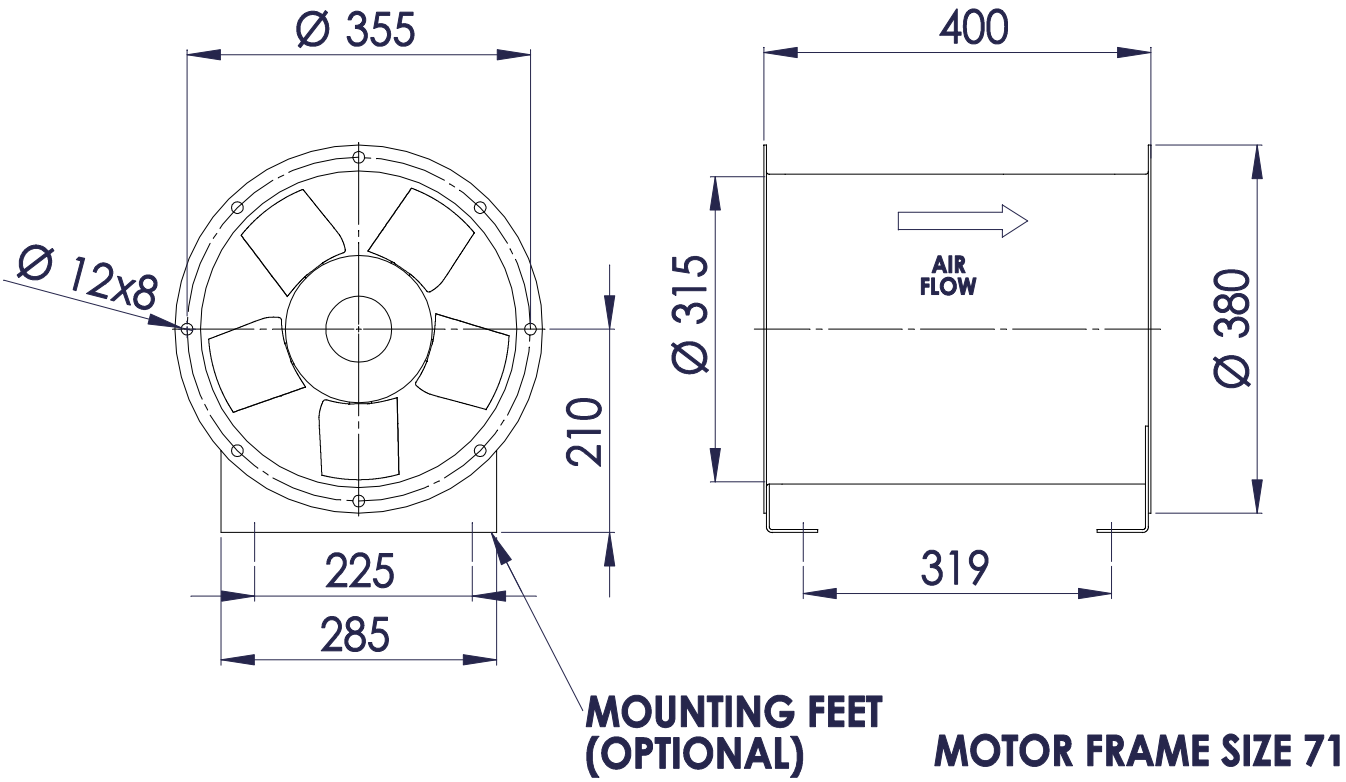
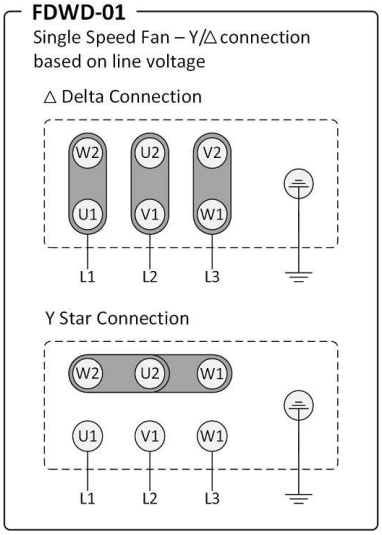
Fans Select V11.6.1.0

FSX Info: FansSelectV8 11.6.1.0 Doc 2012.0.0.0 @ 23/10/2020 14:36:05

Dimensions



Wiring



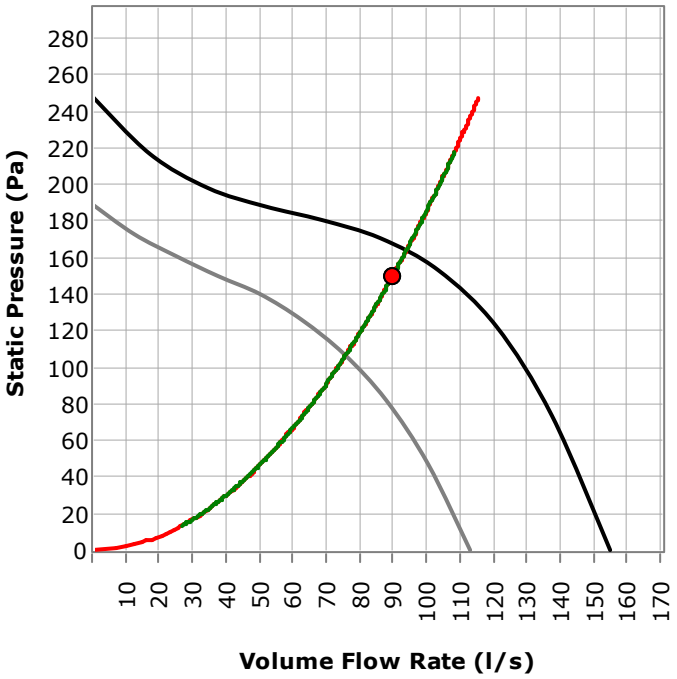
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

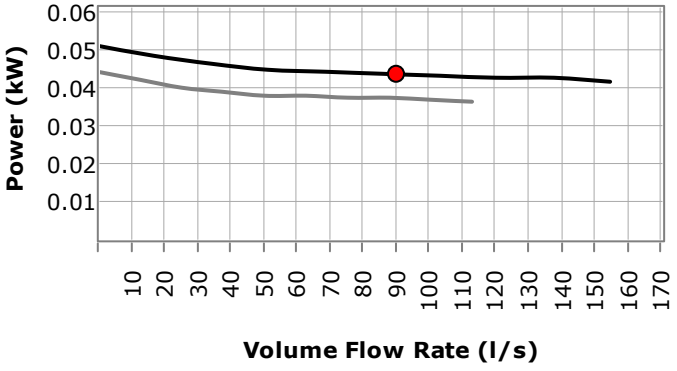
Location	Reference	TEF FANS A

Performance Data	Specified	Actual
Design Flow (l/s)	90	94
Design Pressure (Pa)	150	163
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	



Fan Data

Part Number	MFS150-V-HIGH
Description	Inline Mixed Flow Silent ERM
Fan Diameter (mm)	150
Impeller Type	Mixed Flow
Impeller Material	
Weight (Kg)	6.1
Fan Speed (RPM)	2645
Absorbed Power (kW)	0.04
Peak Power (kW)	0.05
Total Efficiency (%)	39.0
Static Efficiency (%)	35.4
Frequency (Hz)	50



Motor Data

Rated (kW)	0.05
Motor Pole	2
Voltage (V)	240
Phase	1
Full Load Current (A)	0.23
Starting Current (A)	0.69
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) Free field	47	48	54	58	55	48	42	37	38
LW Outlet (dB) Free field	47	46	55	58	54	46	43	35	37

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Fans Select V11.6.1.0

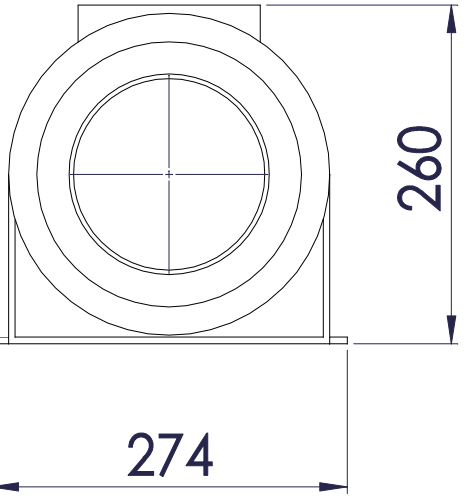
FSX Info: FansSelectV8 11.6.1.0 Doc 2012.0.0.0 @ 23/10/2020 14:36:05

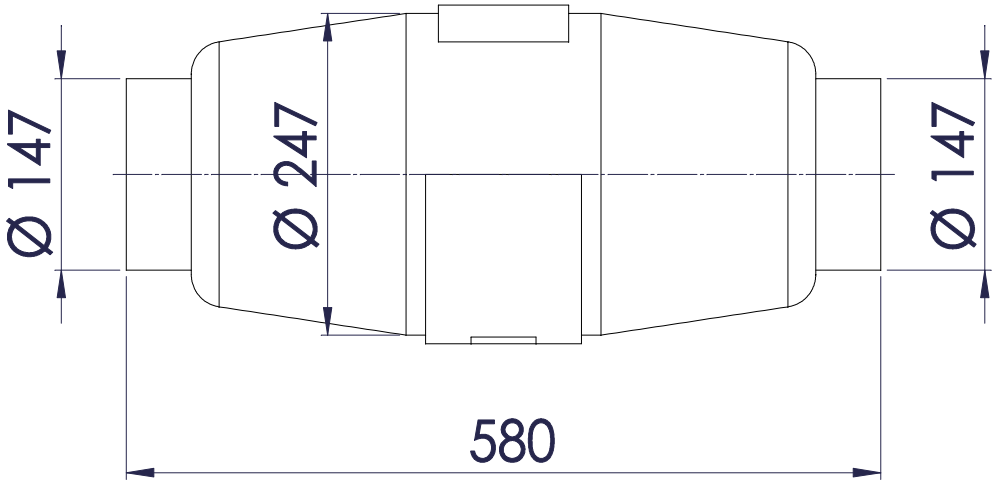
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Dimensions





Wiring

MFS200-V-LOW

Inline Mixed Flow Silent 2 Speed

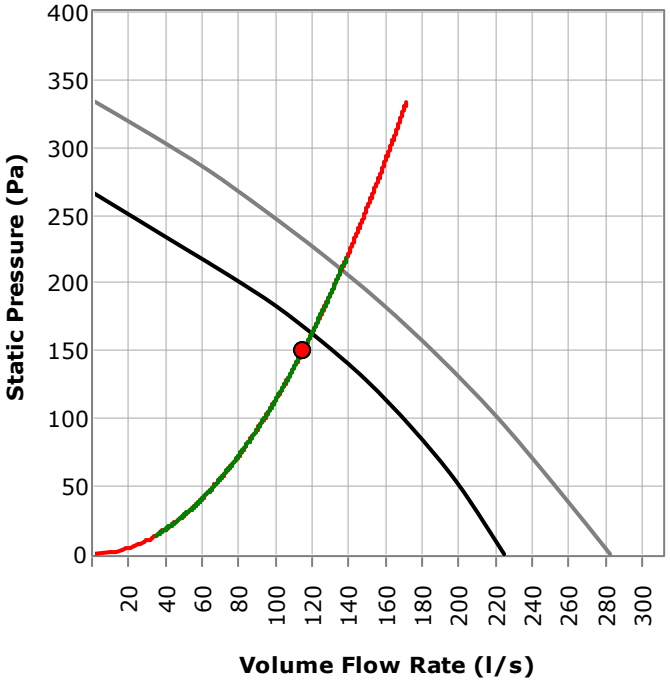
Pacific Ventilation

Location	Reference	TEF FANS B

Performance Data	Specified	Actual
Design Flow (l/s)	115	120
Design Pressure (Pa)	150	163
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

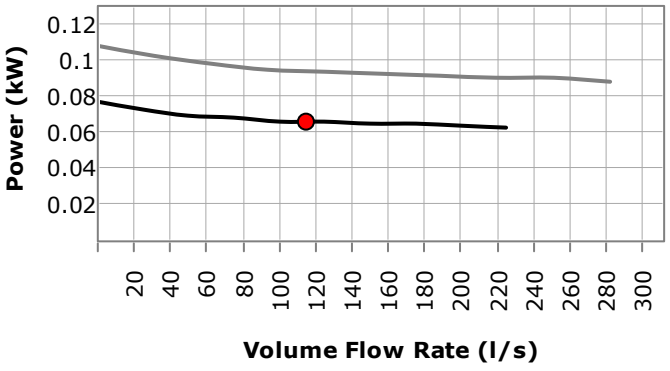
Fan Data

Part Number	MFS200-V-LOW
Description	Inline Mixed Flow Silent ERM
Fan Diameter (mm)	200
Impeller Type	Mixed Flow
Impeller Material	
Weight (Kg)	8.0
Fan Speed (RPM)	2015
Absorbed Power (kW)	0.07
Peak Power (kW)	0.08
Total Efficiency (%)	31.6
Static Efficiency (%)	30.0
Frequency (Hz)	50



Motor Data

Rated (kW)	0.08
Motor Pole	2
Voltage (V)	240
Phase	1
Full Load Current (A)	0.35
Starting Current (A)	1.05
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) Free field	48	48	50	47	45	47	41	36	31
LW Outlet (dB) Free field	48	48	48	47	46	46	41	35	31

Fan must be wired in high speed if installed with a speed controller.

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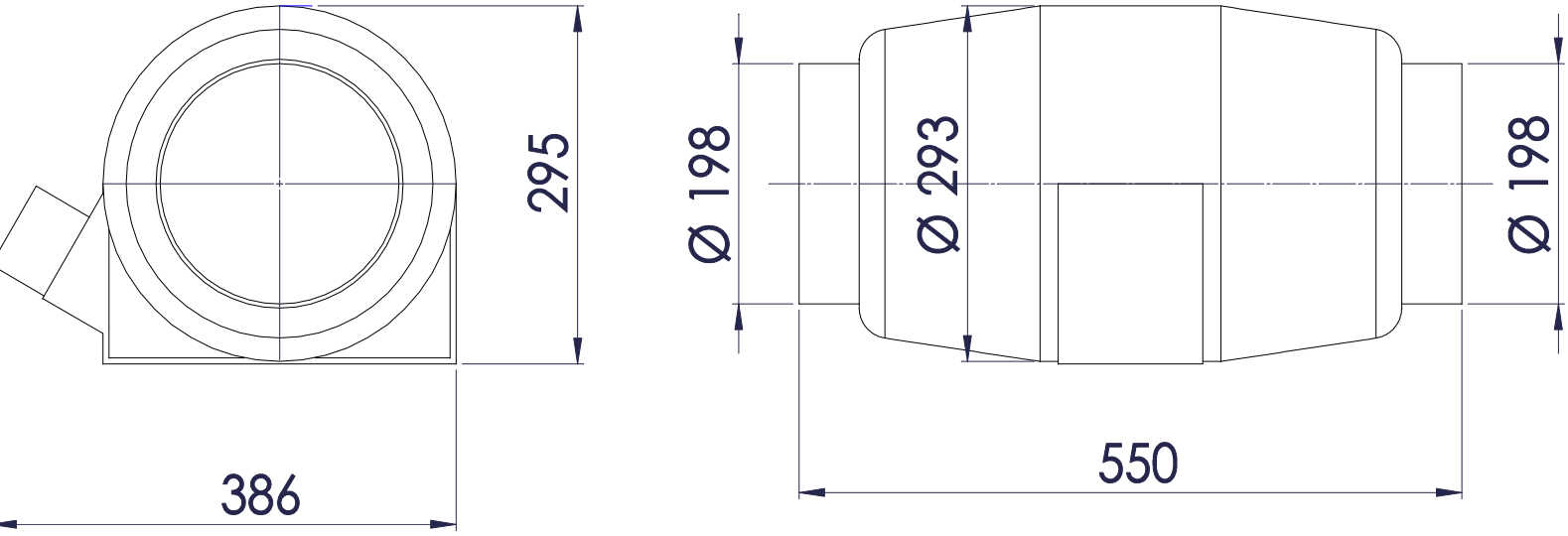
MFS200-V-LOW

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Dimensions



Wiring

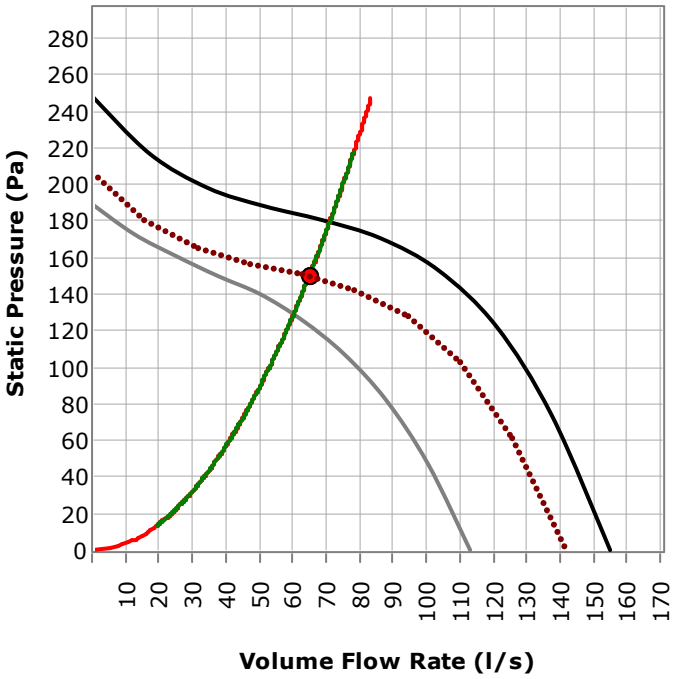
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Location	Reference	TEF FANS C

Performance Data	Specified	Actual
Design Flow (l/s)	65	65
Design Pressure (Pa)	150	150
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

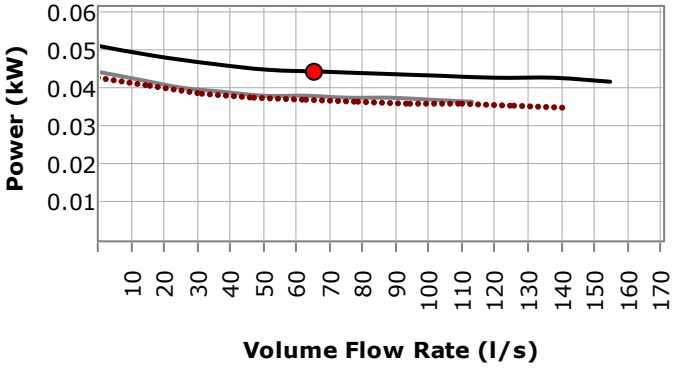


Fan Data

Part Number	MFS150-V-HIGH
Description	Inline Mixed Flow Silent ERM
Fan Diameter (mm)	150
Impeller Type	Mixed Flow
Impeller Material	
Weight (Kg)	6.1
Fan Speed (RPM)	2416
Absorbed Power (kW)	0.03
Peak Power (kW)	0.05
Total Efficiency (%)	30.8
Static Efficiency (%)	29.2
Frequency (Hz)	45.67404503633

Motor Data

Rated (kW)	0.05
Motor Pole	2
Voltage (V)	240
Phase	1
Full Load Current (A)	0.23
Starting Current (A)	0.69
Class	Standard
Frame Size (mm)	
Mount	
Shaft Size (mm)	



Sound Data

A weighted sound pressure value is spherical free field for comparison use only.
Sound values for adjusted curves are estimated.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)
LW Inlet (dB) Free field	45	46	52	56	53	46	40	35	36
LW Outlet (dB) Free field	45	44	53	56	52	44	41	33	35

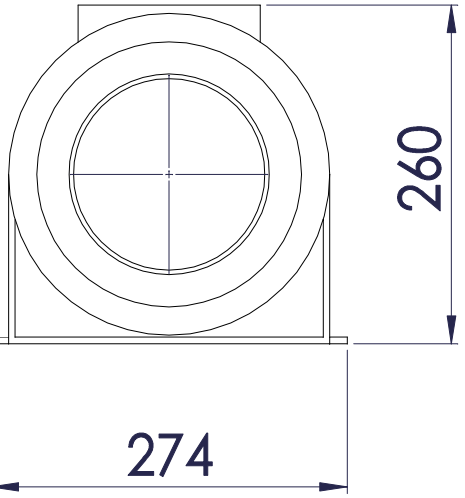
Fan must be operated with speed controller to achieve duty and sound.

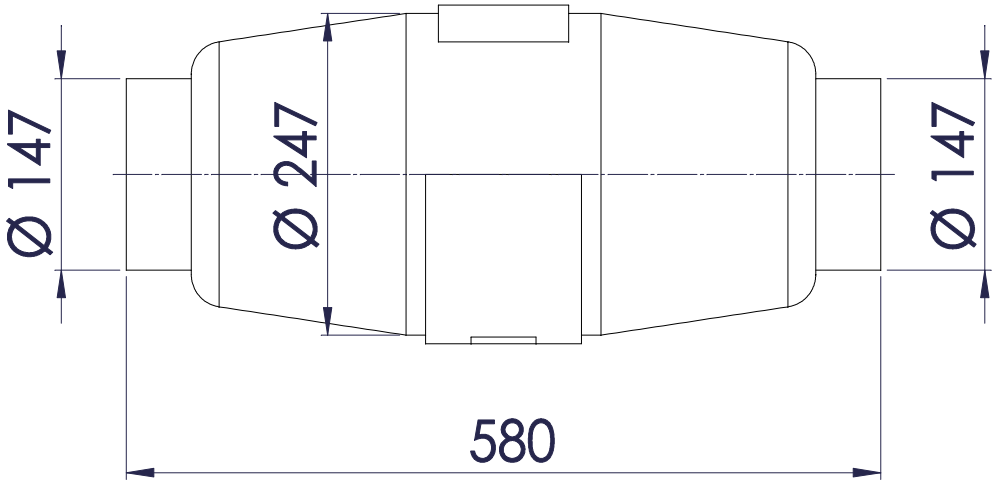
MFS150-V-HIGH

Inline Mixed Flow Silent 2 Speed

Pacific Ventilation

Dimensions





Wiring

D-AB-ACH-040055

ABB Drive 3ph IP55 4.0 kw

Pacific Ventilation

Location	Reference	KEF 1 VSD

Performance Data	**Specified**	**Actual**
Design Flow (l/s)		
Design Pressure (Pa)		
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

Fan Data

Part Number	D-AB-ACH-040055
Description	
Fan Diameter (mm)	
Impeller Type	
Impeller Material	
Weight (Kg)	
Fan Speed (RPM)	0
Absorbed Power (kW)	0.00
Peak Power (kW)	0.00
Total Efficiency (%)	0.0
Static Efficiency (%)	0.0
Frequency (Hz)	0

Motor Data

Rated (kW)	0.00
Motor Pole	
Voltage (V)	
Phase	
Full Load Current (A)	
Starting Current (A)	
Class	
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@3m dB(A)

D-AB-ACH-040055

ABB Drive 3ph IP55 4.0 kw

Pacific Ventilation

Dimensions

Wiring

D-AB-ACH-011055

ABB Drive 3ph IP55 1.1kw

Pacific Ventilation

Location	Reference	KEF 2 VSD

Performance Data	**Specified**	**Actual**
Design Flow (l/s)		
Design Pressure (Pa)		
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

Fan Data

Part Number	D-AB-ACH-011055
Description	
Fan Diameter (mm)	
Impeller Type	
Impeller Material	
Weight (Kg)	
Fan Speed (RPM)	0
Absorbed Power (kW)	0.00
Peak Power (kW)	0.00
Total Efficiency (%)	0.0
Static Efficiency (%)	0.0
Frequency (Hz)	0

Motor Data

Rated (kW)	0.00
Motor Pole	
Voltage (V)	
Phase	
Full Load Current (A)	
Starting Current (A)	
Class	
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**Total SPL@3m dB(A)**

D-AB-ACH-011055

ABB Drive 3ph IP55 1.1kw

Pacific Ventilation

Dimensions

Wiring

D-AB-ACH-011055

ABB Drive 3ph IP55 1.1kw

Pacific Ventilation

Location	Reference	KSF 1 VSD

Performance Data	**Specified**	**Actual**
Design Flow (l/s)		
Design Pressure (Pa)		
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

Fan Data

Part Number	D-AB-ACH-011055
Description	
Fan Diameter (mm)	
Impeller Type	
Impeller Material	
Weight (Kg)	
Fan Speed (RPM)	0
Absorbed Power (kW)	0.00
Peak Power (kW)	0.00
Total Efficiency (%)	0.0
Static Efficiency (%)	0.0
Frequency (Hz)	0

Motor Data

Rated (kW)	0.00
Motor Pole	
Voltage (V)	
Phase	
Full Load Current (A)	
Starting Current (A)	
Class	
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**Total SPL@3m dB(A)**

D-AB-ACH-011055

ABB Drive 3ph IP55 1.1kw

Pacific Ventilation

Dimensions

Wiring

D-AB-ACH-110055

ABB Drive 3ph IP55 11kw

Pacific Ventilation

Location	Reference	CPEF 1 VSD

Performance Data	**Specified**	**Actual**
Design Flow (l/s)		
Design Pressure (Pa)		
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

Fan Data

Part Number	D-AB-ACH-110055
Description	
Fan Diameter (mm)	
Impeller Type	
Impeller Material	
Weight (Kg)	
Fan Speed (RPM)	0
Absorbed Power (kW)	0.00
Peak Power (kW)	0.00
Total Efficiency (%)	0.0
Static Efficiency (%)	0.0
Frequency (Hz)	0

Motor Data

Rated (kW)	0.00
Motor Pole	
Voltage (V)	
Phase	
Full Load Current (A)	
Starting Current (A)	
Class	
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**Total SPL@3m dB(A)**

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D-AB-ACH-110055

ABB Drive 3ph IP55 11kw

Pacific Ventilation

Dimensions

Wiring

D-AB-ACH-040055

ABB Drive 3ph IP55 4.0 kw

Pacific Ventilation

Location	Reference	CSF 1 VSD

Performance Data	**Specified**	**Actual**
Design Flow (l/s)		
Design Pressure (Pa)		
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

Fan Data

Part Number	D-AB-ACH-040055
Description	
Fan Diameter (mm)	
Impeller Type	
Impeller Material	
Weight (Kg)	
Fan Speed (RPM)	0
Absorbed Power (kW)	0.00
Peak Power (kW)	0.00
Total Efficiency (%)	0.0
Static Efficiency (%)	0.0
Frequency (Hz)	0

Motor Data

Rated (kW)	0.00
Motor Pole	
Voltage (V)	
Phase	
Full Load Current (A)	
Starting Current (A)	
Class	
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**Total SPL@3m dB(A)**

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D-AB-ACH-040055

ABB Drive 3ph IP55 4.0 kw

Pacific Ventilation

Dimensions

Wiring

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Fans Select V11.6.1.0

FSX Info: FansSelectV8 11.6.1.0 Doc 2012.0.0.0 @ 23/10/2020 14:36:05

D-AB-ACH-030055

ABB Drive 3ph IP55 3.0kw

Pacific Ventilation

Location	Reference	CSF 2 VSD

Performance Data	**Specified**	**Actual**
Design Flow (l/s)		
Design Pressure (Pa)		
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

Fan Data

Part Number	D-AB-ACH-030055
Description	
Fan Diameter (mm)	
Impeller Type	
Impeller Material	
Weight (Kg)	
Fan Speed (RPM)	0
Absorbed Power (kW)	0.00
Peak Power (kW)	0.00
Total Efficiency (%)	0.0
Static Efficiency (%)	0.0
Frequency (Hz)	0

Motor Data

Rated (kW)	0.00
Motor Pole	
Voltage (V)	
Phase	
Full Load Current (A)	
Starting Current (A)	
Class	
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**Total SPL@3m dB(A)**

D-AB-ACH-030055

ABB Drive 3ph IP55 3.0kw

Pacific Ventilation

Dimensions

Wiring

Documents

- ASP Centrifugal Catalog Full Version_19_02.pdf

Myzone 3 Installation and Configuration Manual

MYzone3™

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General Installation Rules

1. The Myzone CPU (C225) and A/C Unit Module (C325) can be installed close or on the indoor fan coil unit.
2. Do **NOT** directly hardwire the 240V/24V transformer into the A/C units power supply. The transformer requires its own power supply.
3. Do **NOT** run the A/C unit control cables or RJ45 cables alongside 240V wiring.
4. Must use two-core, **shielded** data cable with a minimal thickness of 0.75mm² for the A/C unit control cable.
5. Connect the Nexus or Nano touch screens to the Myzone net ports on the Myzone CPU using the supplied RJ45 cables.
6. When installing RJ45 cables down wall cavities or chasing through walls, protect the RJ45 connectors with tape to avoid damage, installation damage to cables **is not** covered under warranty.
7. All zone motors used on a system must be the **SAME** brand.
8. Connect all zone damper motors using RJ12 cables.
9. Always install zones in consecutive ports starting at Zone 1. The Myzone CPU (C225) is marked with zone numbers.
10. If any zone is temperature controlled, connect a supply air in-duct temperature sensor to the CDTS port on the Myzone CPU (C225). Install the sensor into the **supply air** plenum. Secure the sensor in place using reinforced aluminium tape.
11. When installing temperature controlled zones, ensure the sensor for the associated zone is installed in a location that is representative of the temperature in the room/zone. The sensor should be installed at approximately 1600mm above the floor and should not be subject to draughts, direct sunlight or heat from equipment such as computers, TV screens etc. The supply air outlets in the room must **not** blow conditioned air directly onto the sensor.
12. If any wireless sensor or wireless bridge is not within range then additional signal repeaters can be added to help relay the signal.
13. Myzone Wi-Fi Bridge Ethernet connection must be plugged **directly** into the customers modem/router.
14. Only connect power supply to Myzone CPU (C225) after all components have been connected.

General Installation Instructions

1. Install the ducted air conditioning unit, zone damper motors, flexible duct and grilles as per manufacturer's instructions and in accordance with relevant Australian Standards.
2. NOTE: For full wiring details, please refer to pages 13-27.
   Hardware Installation
   Connect the CPU (CM225) and the relevant A/C unit module together (Installation of the A/C unit module is only applicable to system set-ups that require A/C Unit Control) (CM325# – Refer to module list for correct module). Take care ensuring that the A/C unit module pins are installed straight and direct.
3. Connect the supplied blue RJ45 cable to the "Myzone Net" port at the top of the Myzone CPU (CM225), run the other end of the cable to the Myzone Nexus/Nano Tablet.
4. Connect the blue RJ12 zone motor cables (sold separately) in consecutive ports starting at Zone 1 on the CPU (CM225) The CPU (CM225) is marked with zone numbers. All zone motors must be the same brand.
5. Connect the red supply air sensor (CDTS) to the supply air temp. port on the Myzone CPU (CM225) and place the temperature sensor inside the supply air plenum/duct and secure sensor with reinforced aluminium tape. NOTE: A supply air sensor is only required to be installed if there are individual temperature controlled zones. ON/OFF zone control does NOT require a supply air temperature sensor.
6. Run twin-shielded data cable from the A/C unit control cable terminals on the Myzone CPU (CM225) to the A/C unit indoor board (see pages 28-43 for detailed wiring instructions on A/C unit brands) Must use minimum 0.75mm² signal cable. NOTE: Only run twin-shielded data cable if A/C unit control is required.
7. Plug the 240V power plug on the transformer into a power source. Plug in the 24V transformer plug into the side of the Myzone CPU (CM225) to provide power to the CPU. Ensure to run a separate power supply for the 240V plug off the transformer. DO **NOT** take power from the A/C unit.
8. After System Initialisation has completed, configure the Myzone control to your application (see configuration instructions on pages (page 76).
9. Pair Wireless Sensors to the system as per instructions in configuration on page 81 and mount according to general installation rule 11.
10. Pair Wi-Fi Bridge to the system as per instructions in configuration on page 72.

The above general installation instructions are applicable to installation configurations pictured on pages 28-43, any other configurations will require different/extra installation procedures (refer to installation wiring layout and index for assistance).

Unit Compatibility Form

MYZONE3™

Brand	Models	Polarity	RA	Zones	Master	RF	Specials
Actron	LRE 71, 100, 130AS	✓	✓	✓	✓	✓	
Braemar	SHDV Inverter Series, Single Phase	✓	✓	✗	✗	✗	
Carrier	SHDV Series Only	✓	✓	✓	✓	✓	
Daikin	Must have P1/ P2 and Current Daikin Controller can run the unit	✗	✓	✓	✓	✓	VRV requires set up
Fujitsu	C325F2 = ARTC##LATU & ARTG##LHTA Series	✓	✓	✓	✓	✓	
Gree	GFH##K Inverter Ducted Series, Single Phase Only	✓	✓	✗	✗	✗	
Haier	ADH Series Only	✓	✓	✗	✗	✗	
Hitachi	RPI XX 1SQ & RPI XX 2SQ Series	✗	✓	✓	✓	✓	
iZone	AD Series	✓	✓	✓	✓	✓	
Kaden	KD Series	✓	✓	✓	✓	✓	
LG	B##AWN-7G6 Series. C325L2 Does NOT require the option card	✓	✓	✓	✓	✓	
Midea	DUCMI### Series	✓	✓	✓	✓	✓	
Mitsubishi Electric	PEA-M###GAA.	✗	✓	✓	✓	✓	
Mitsubishi Heavy	FDUA/FDUM Series	✗	✓	✓	✓	✓	
Panasonic	S-###PE1R5B – S Series Only	✗	✓	✓	✓	✓	
Rinnai	DINLR##Z72 Series Only.	✓	✓	✓	✓	✓	
Samsung	C325S = AC Series up to 14kw. C325SN = AC Series & AC###TNHDKG Series	✓	✓	✓	✓	✓	
Temperzone	Condenser must be fitted with a UC7 or higher board	✓	✓	✓	✓	✓	
Toshiba	RAV – SM ### 3DT – A Series only	✗	✓	✓	✓	✓	
York	6850018, 6850038, 6850048	✓	✓	✓	✓	✓	

Requires special cable supplied by Controls manufacture. See manual for details.

Requires component from Unit manufacture. See manual for details.

Requires Unit Manufacture A/C Unit control. See manual for details.

System Design Considerations

Designing the Correct Constant Zone

All ducted air conditioning systems should have a percentage of air passing over the indoor coil at all times. This is a safety mechanism to protect the ductwork and the A/C unit.

There are several ways of achieving this when designing a ducted air conditioning system.

i. Fixed Ducted Constant Zone

A fixed duct constant zone requires the system to be designed with one zone that has no zone damper fitted to it. This is normally a large common area (e.g. main living area). The downside with this configuration is that air will always be delivered to this area regardless of whether it is occupied or not. This reduces the efficiency of the system and does not allow for modulating temperature control in the zone.

ii. Electronic Constant Zone

This option requires the system to be designed with one zone that has a zone motor fitted to it, which will automatically open if all other zones are closed. With electronic constants there are three options available as follows:

a. Standard electronic constant zone
   Typically a zone damper would be fitted to the main living area in the home or a common area in an office building. This zone can be used like any other zone but will be automatically overridden open if required by the system to maintain the minimum airflow over the indoor coil. With a Myzone system you can select as many zones as you need to be electronic constants and they will activate and deactivate progressively as required. Standard electronic constant zone is only Open/Closed.

b. Dedicated electronic constant zone
   In this option an additional zone is installed into the system serving an unoccupied area such as a stairwell or hallway. This zone is left in the closed position and will only open if required by the system. With a Myzone system you can select as many dedicated zones as you need. The benefit of the dedicated electronic constant zone is that all occupied areas can have individual temperature control and if the electronic constant is required to operate it will not affect the comfort of the occupants.

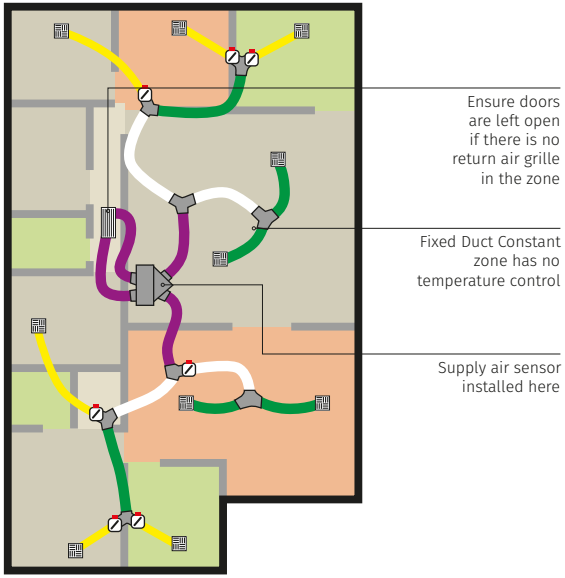
iii. Bypass Electronic Constant Zone

In this option an additional zone is installed into the system looping from the supply air side of the A/C fan coil unit to the return air side of the A/C fan coil unit. This bypass zone is left in the closed position and will only open if required by the system. The benefit of the Bypass electronic constant zone is that all occupied areas can have individual temperature control and if the electronic constant is required to operate it will not affect the comfort of the occupants. No common areas are affected by the operation of the bypass constant and there is no increase in noise when the bypass is operating. In addition to this, the use of the bypass option increases the system efficiency as any conditioned air is kept within the system reducing the load on the A/C unit and assisting to cycle the A/C unit off earlier. (If set up to control from the units return air sensor).

We recommend that all systems with individual zone temperature controls are designed and configured with a bypass electronic constant zone and where possible control the A/C unit from "Zones" (see Fig C04).

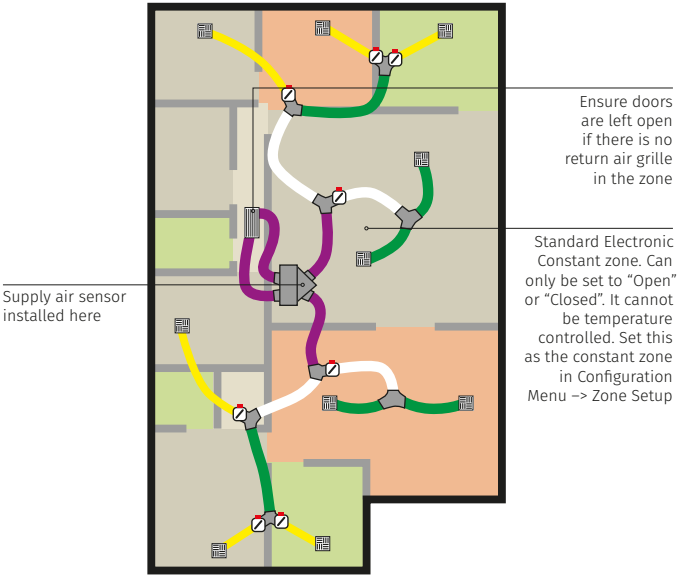
Fixed Duct Constant and Standard Electronic Constant

Fig C01 – Fixed Ducted Constant



For most accurate control when using individual zone temperature control. Set A/C unit to control from “Zones”.

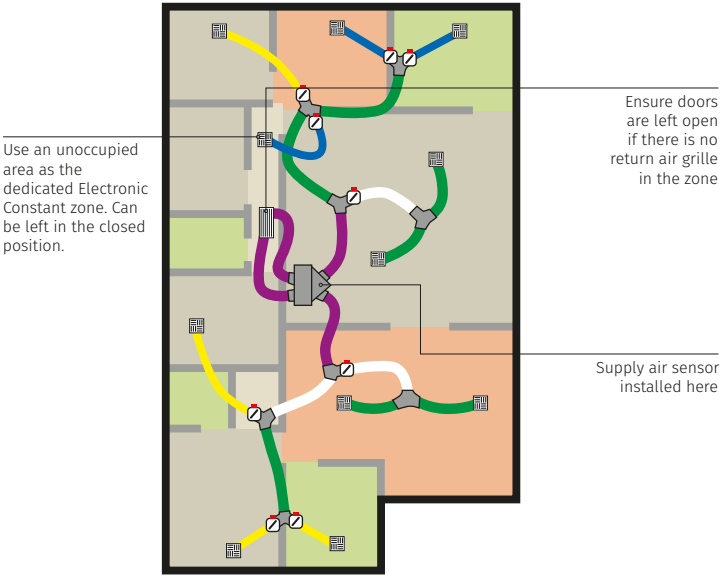
Fig C02 – Standard Electronic Constant



For most accurate control when using individual zone temperature control. Set A/C unit to control from “Zones”.

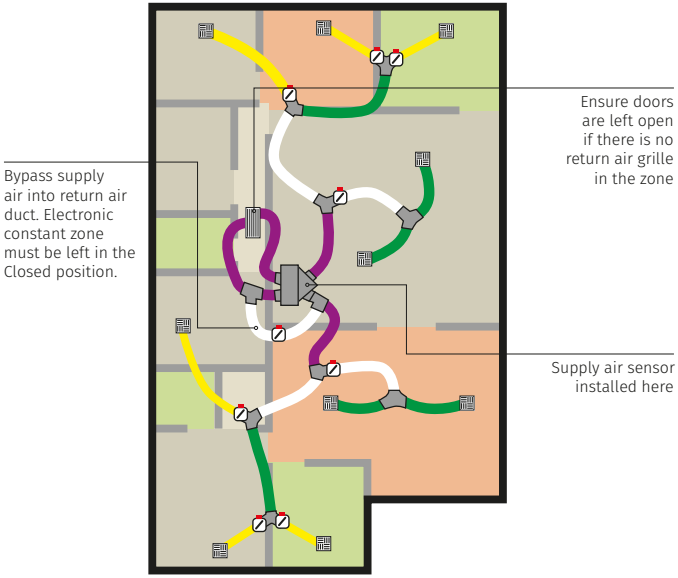
Dedicated Electronic Constant and Bypass Electronic Constant

Fig C03 – Dedicated Electronic Constant



For most accurate control when using individual zone temperature control. Set A/C unit to control from “Zones”.

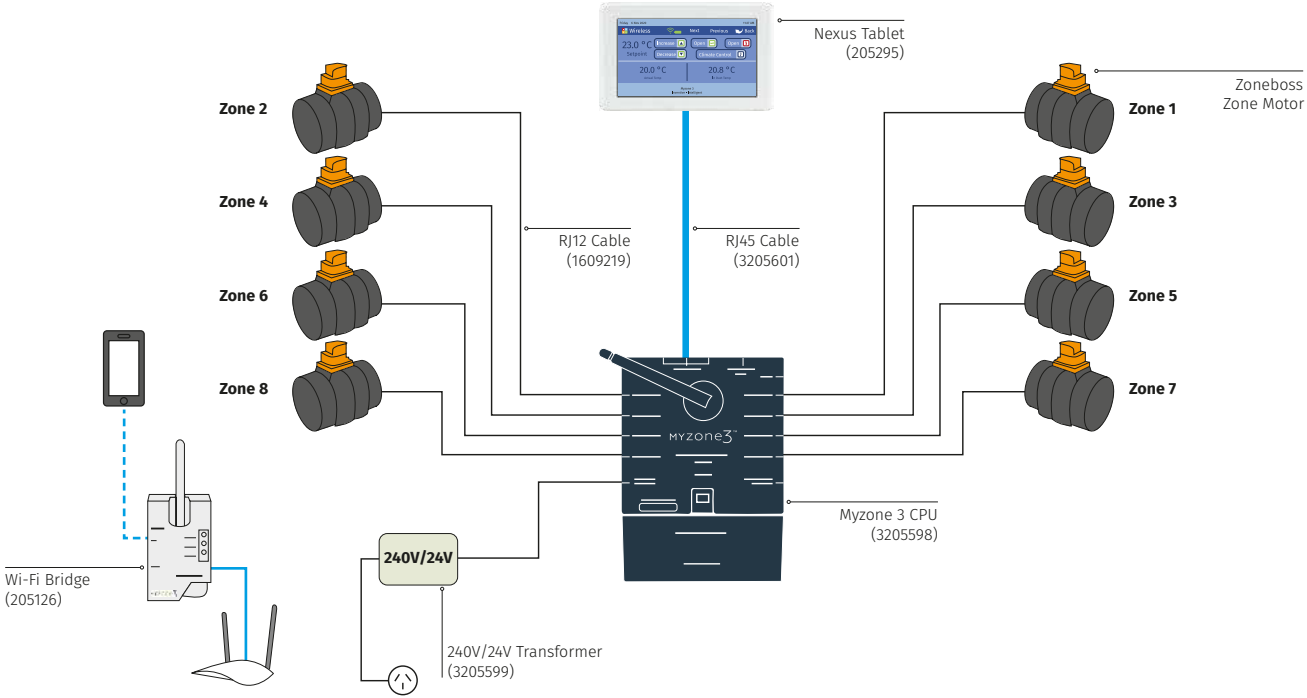
Fig C04 – Bypass Electronic Constant



For most accurate control when using individual zone temperature control. Set A/C unit to control from “Zones”.

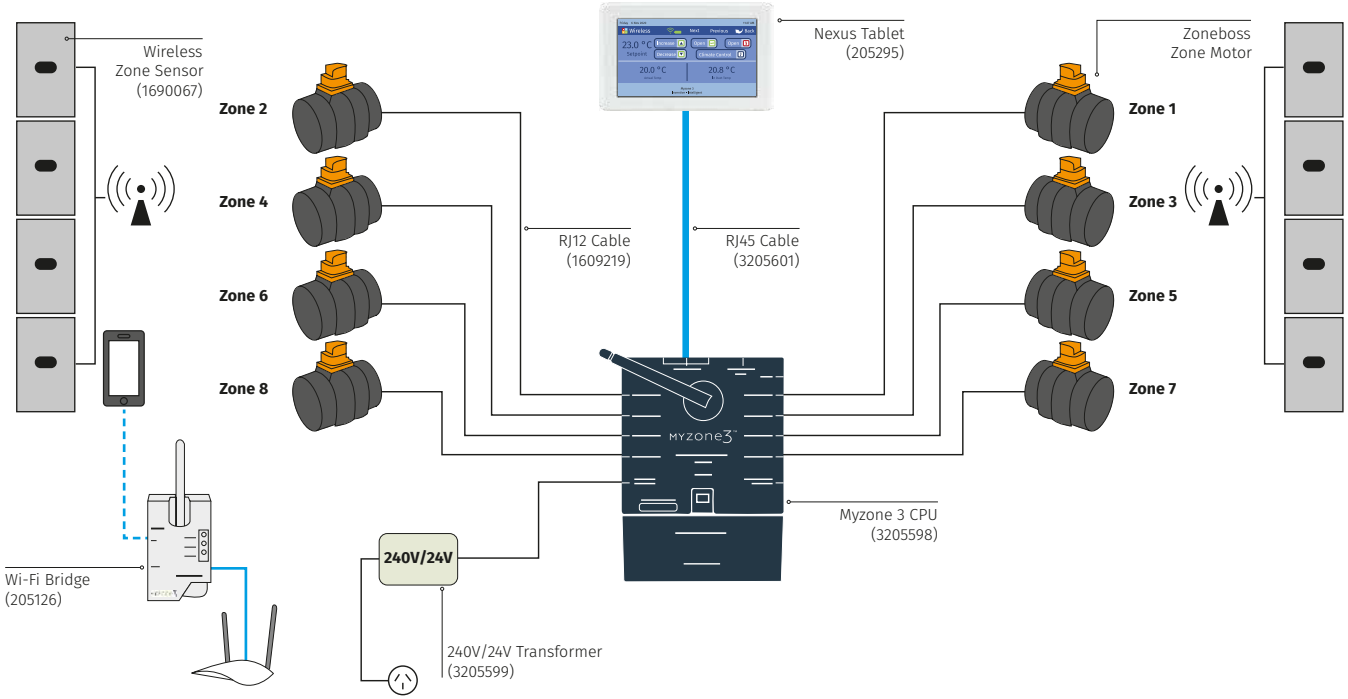
Myzone Wiring Layout

ON/OFF Zone Control Only
(Max 8 Zones, Wi-Fi Optional)



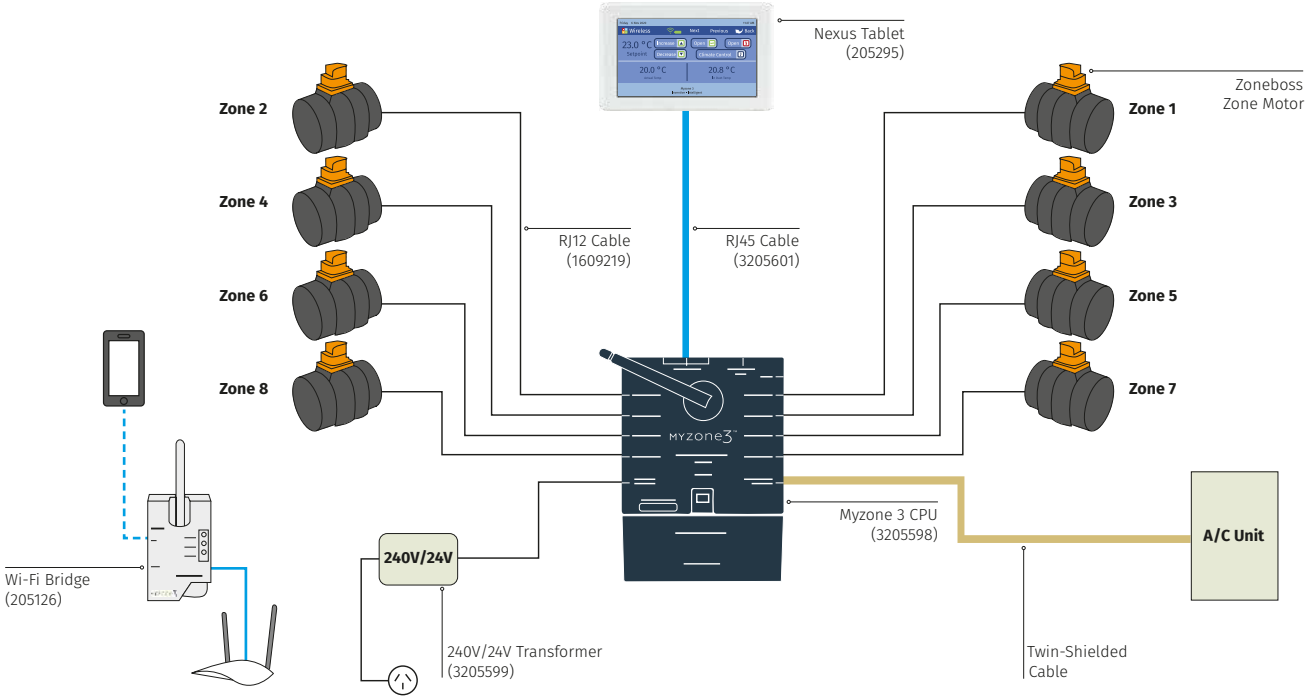
Myzone Wiring Layout

Modulating Zone Control Only with Individual Wireless Zone Temperature Control (Max 8 Zones, Wi-Fi Optional)



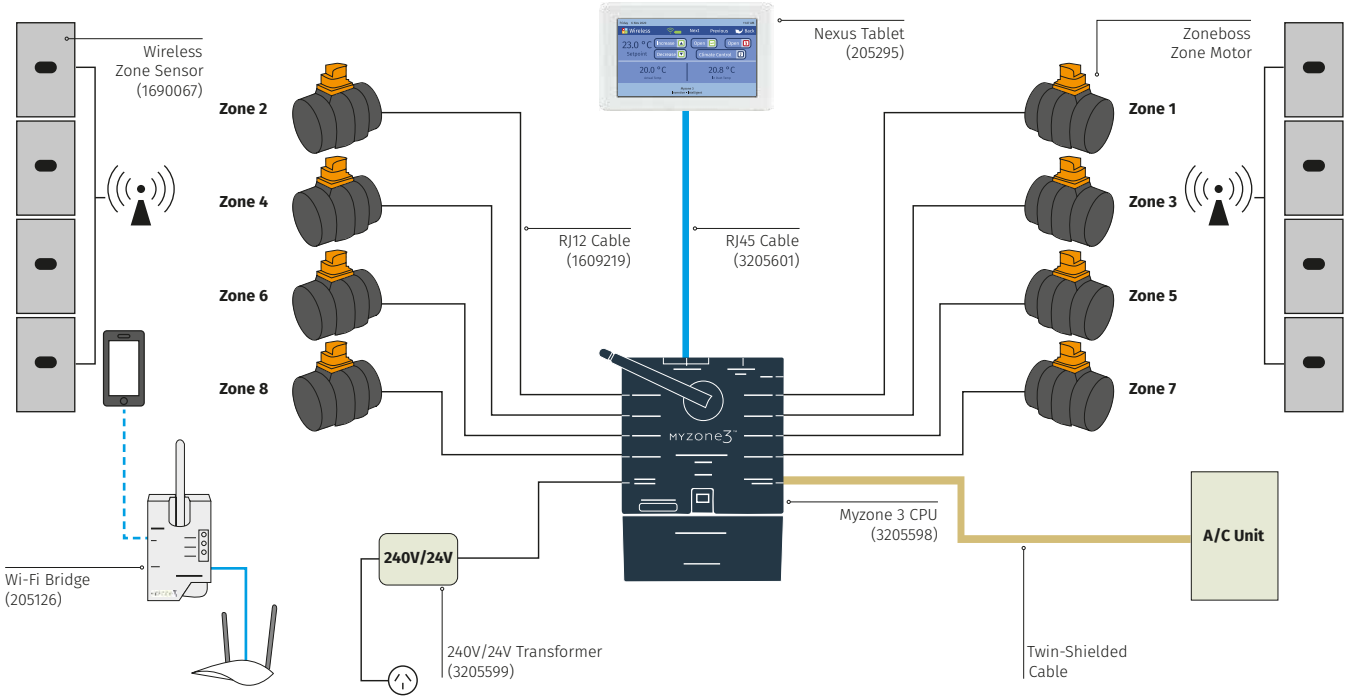
Myzone Wiring Layout

A/C Unit Control and ON/OFF Zone Control
(Max 8 Zones, Wi-Fi Optional)



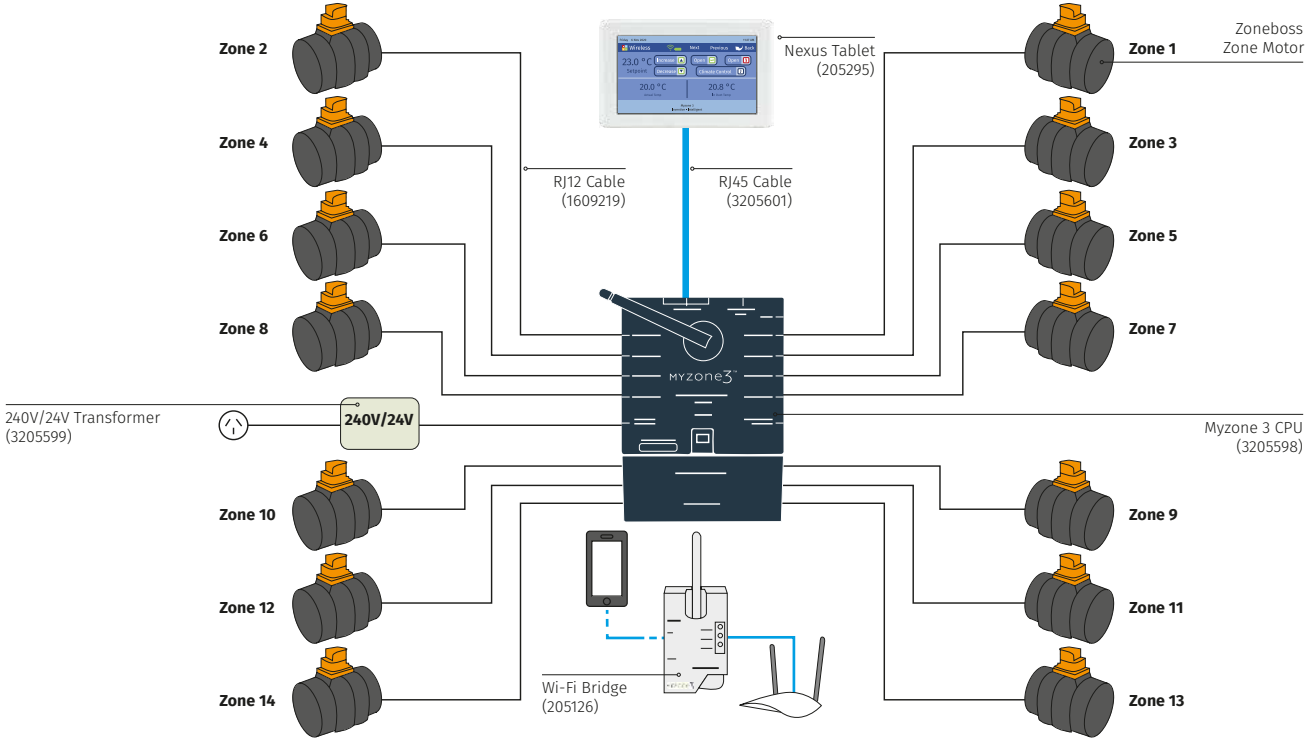
Myzone Wiring Layout

A/C Unit Control and Modulating Zone Control with Individual Wireless Zone Temperature Control (Max 8 Zones, Wi-Fi Optional)



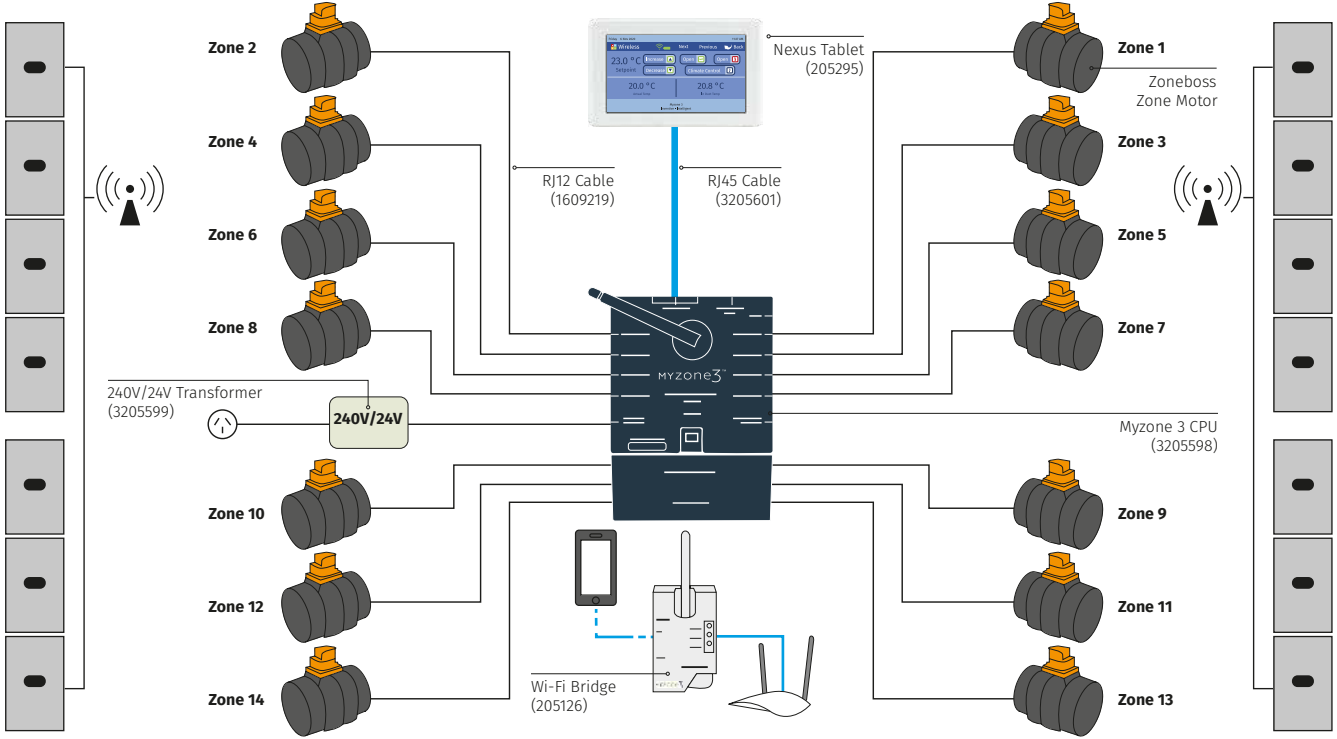
Myzone Wiring Layout

ON/OFF Zone Control Only
(Max 14 Zones, Wi-Fi Optional)



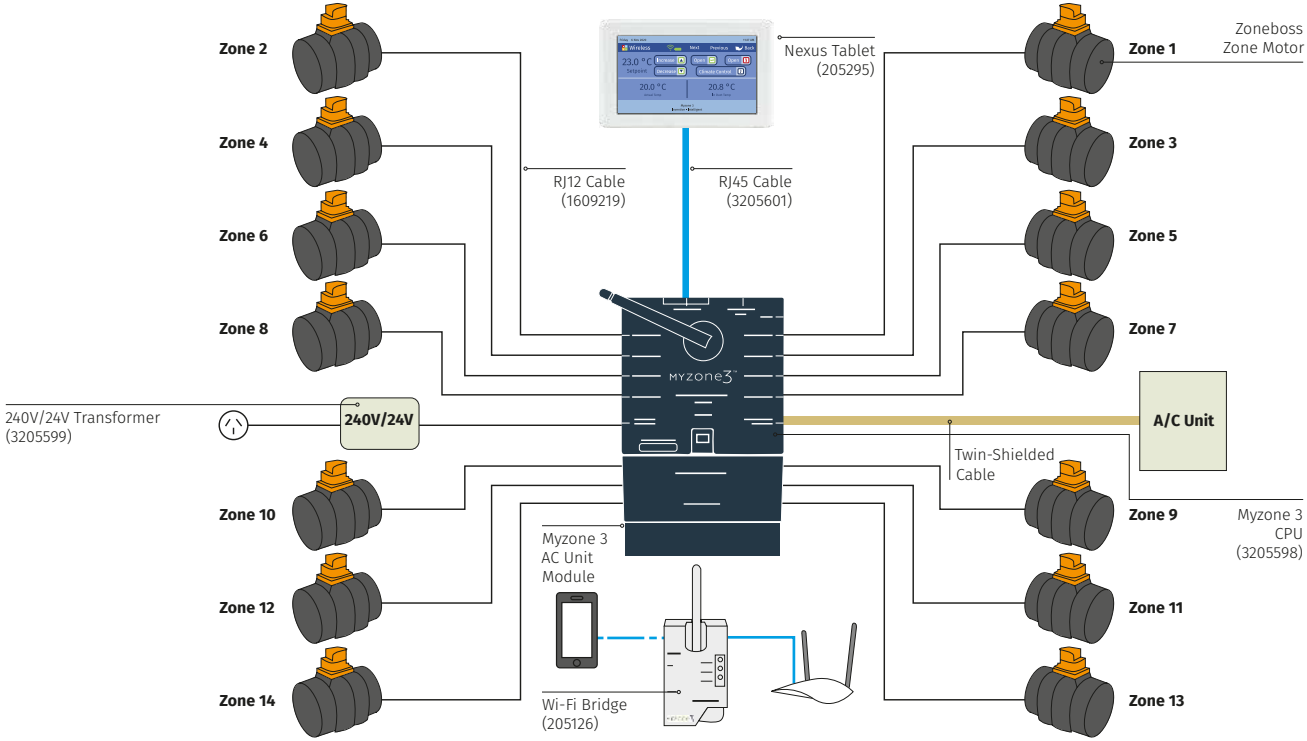
Myzone Wiring Layout

Modulating Zone Control Only with Individual Wireless Zone Temperature Control (Max 14 Zones, Wi-Fi Optional)



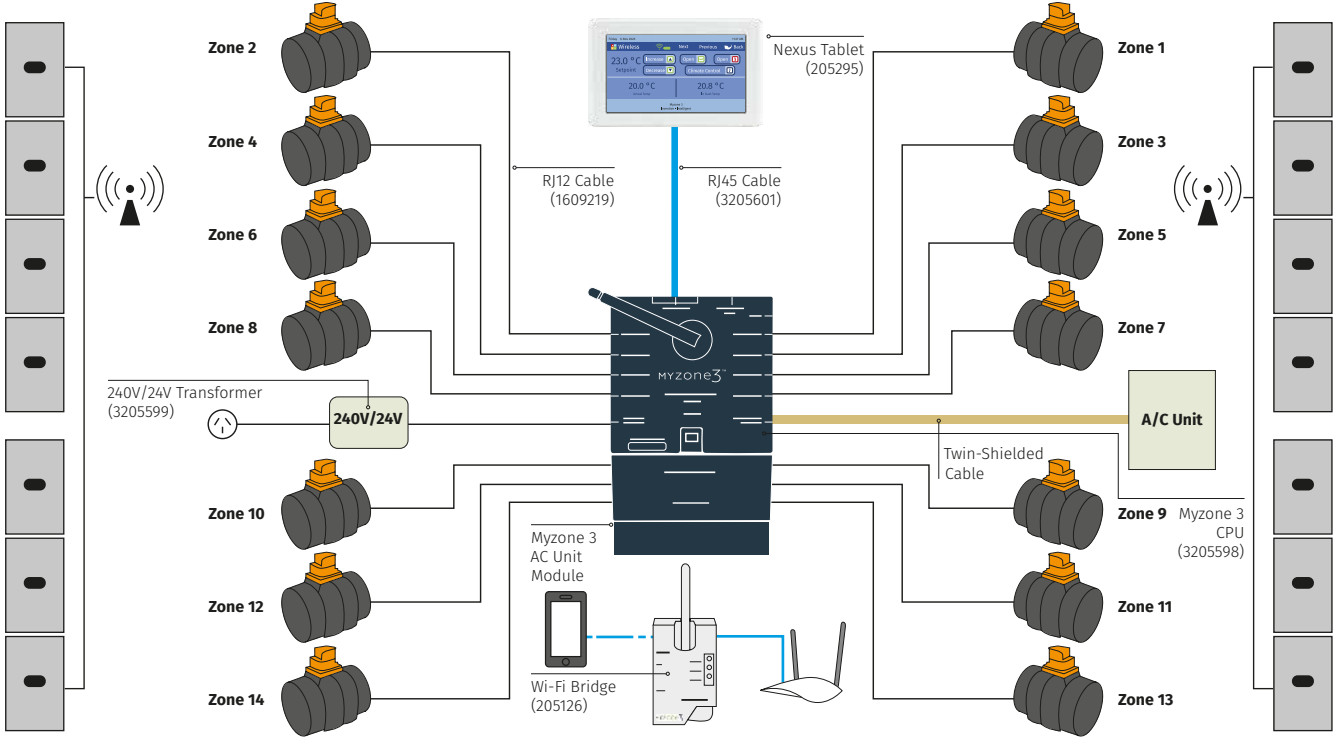
Myzone Wiring Layout

A/C Unit Control and ON/OFF Zone Control
(Max 14 Zones, Wi-Fi Optional)



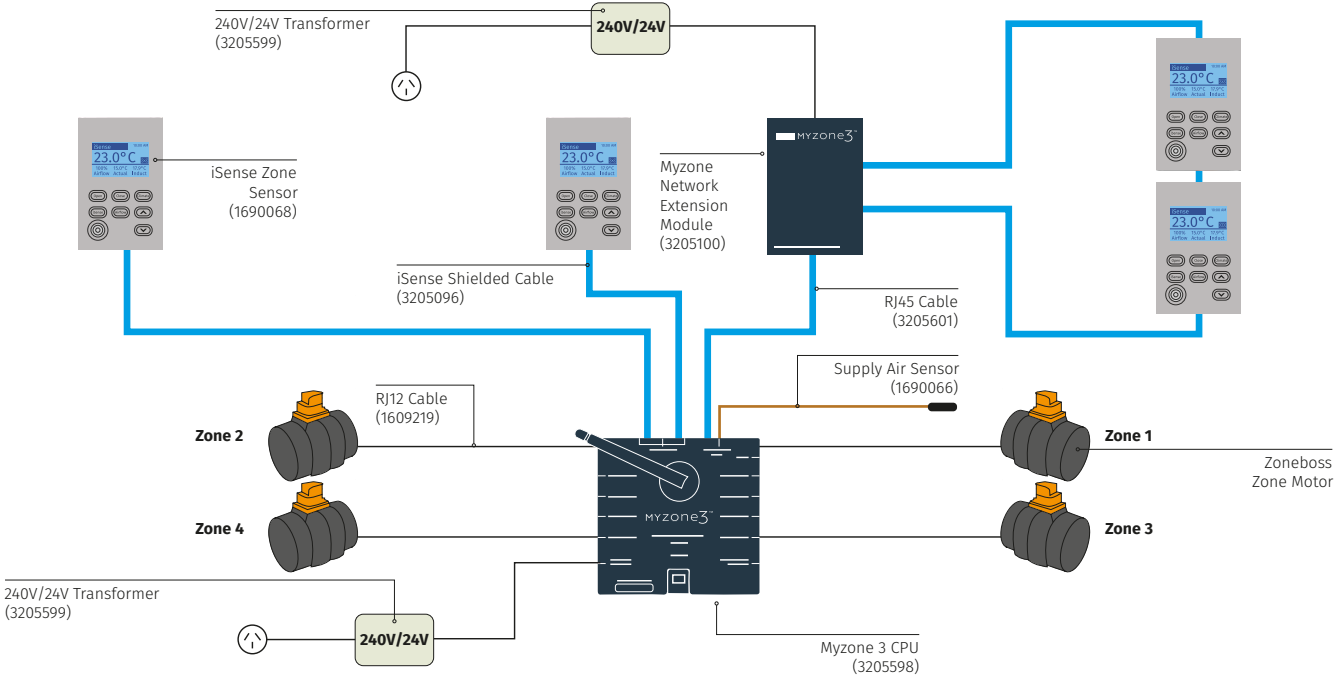
Myzone Wiring Layout

A/C Unit Control and Modulating Zone Control with Individual Wireless Zone Temperature Control (Max 14 Zones, Wi-Fi Optional)



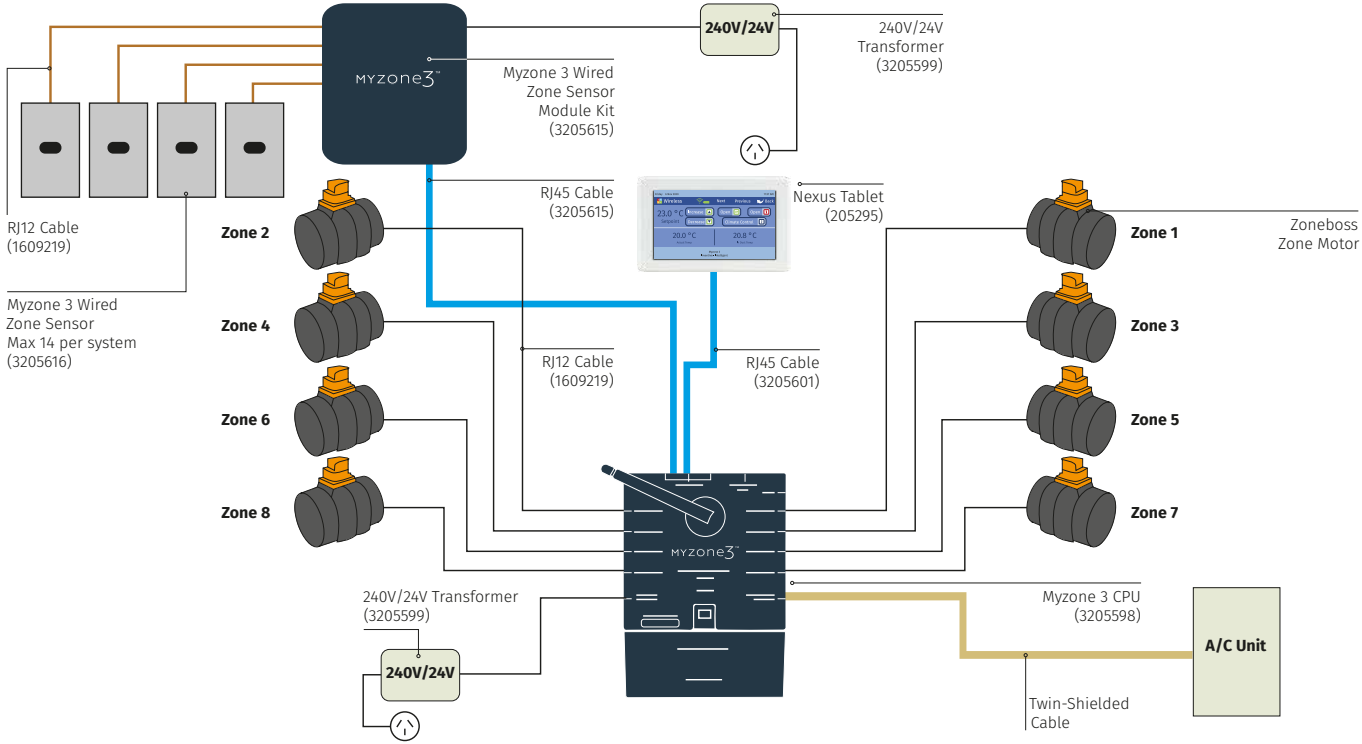
Myzone Wiring Layout

Stand Alone VAV Modulating Zone Control Only System (No Tablet)



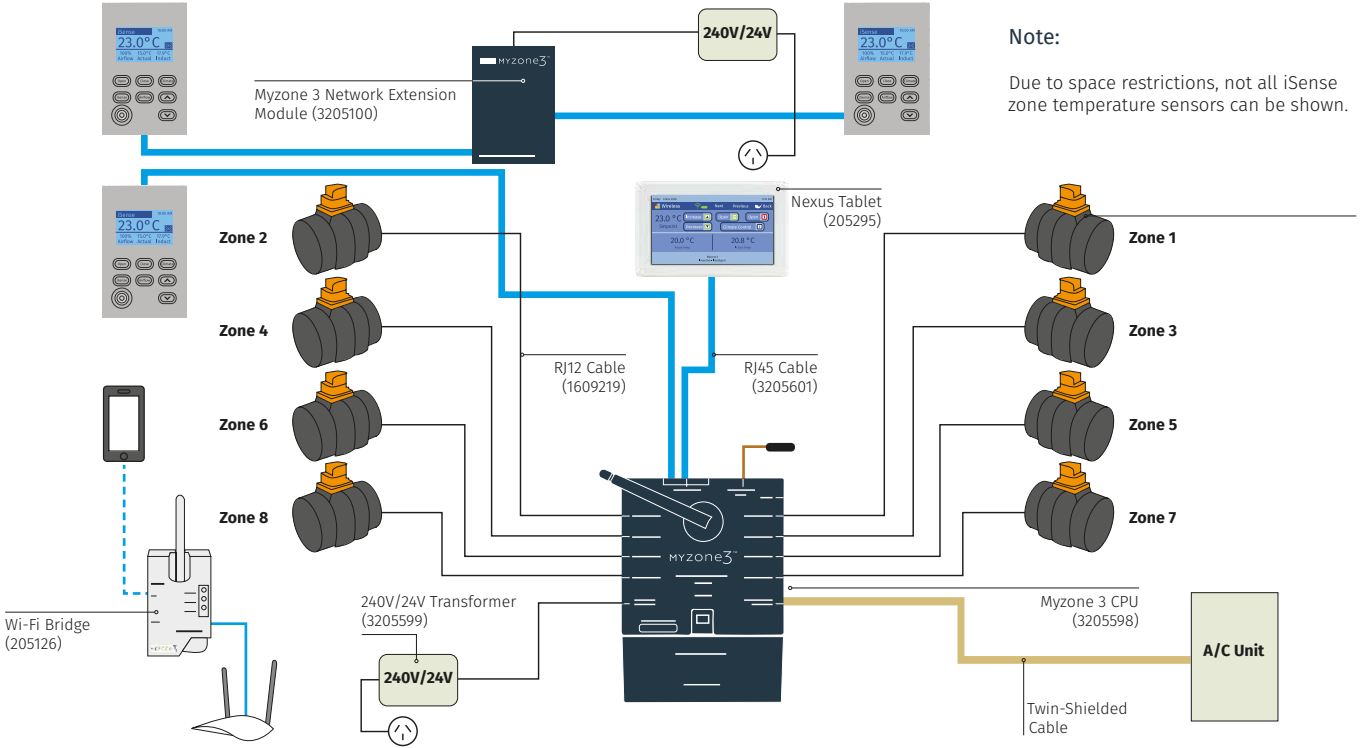
Myzone Wiring Layout

A/C Unit Control & Modulating Zone Control with Wired Zone Temperature Controllers (Wi-Fi Optional)



Myzone Wiring Layout

A/C Unit Control and Modulating Zone Control with Wired iSense Zone Temperature Controllers (Wi-Fi Optional)

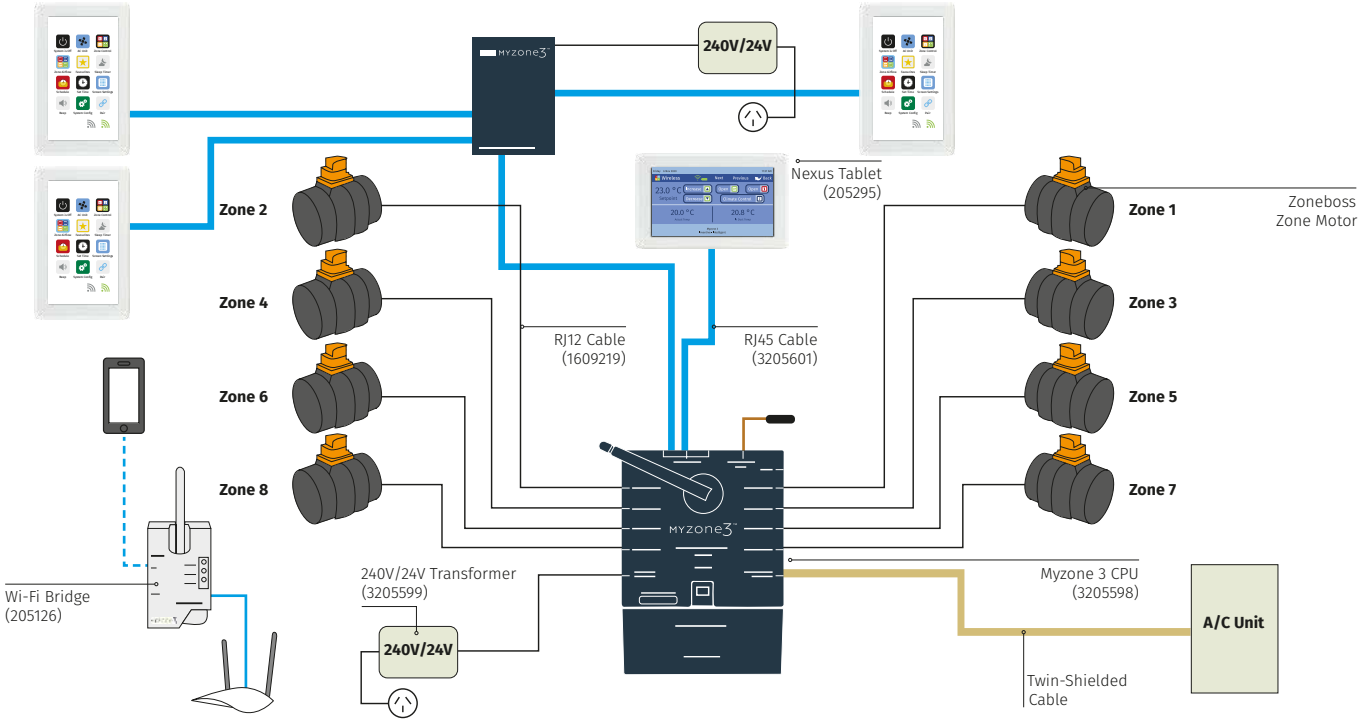


Note:

Due to space restrictions, not all iSense zone temperature sensors can be shown.

Myzone Wiring Layout

A/C Unit Control and Modulating Zone Control with Wired Touch Screen Zone Temperature Controllers (Wi-Fi Optional)

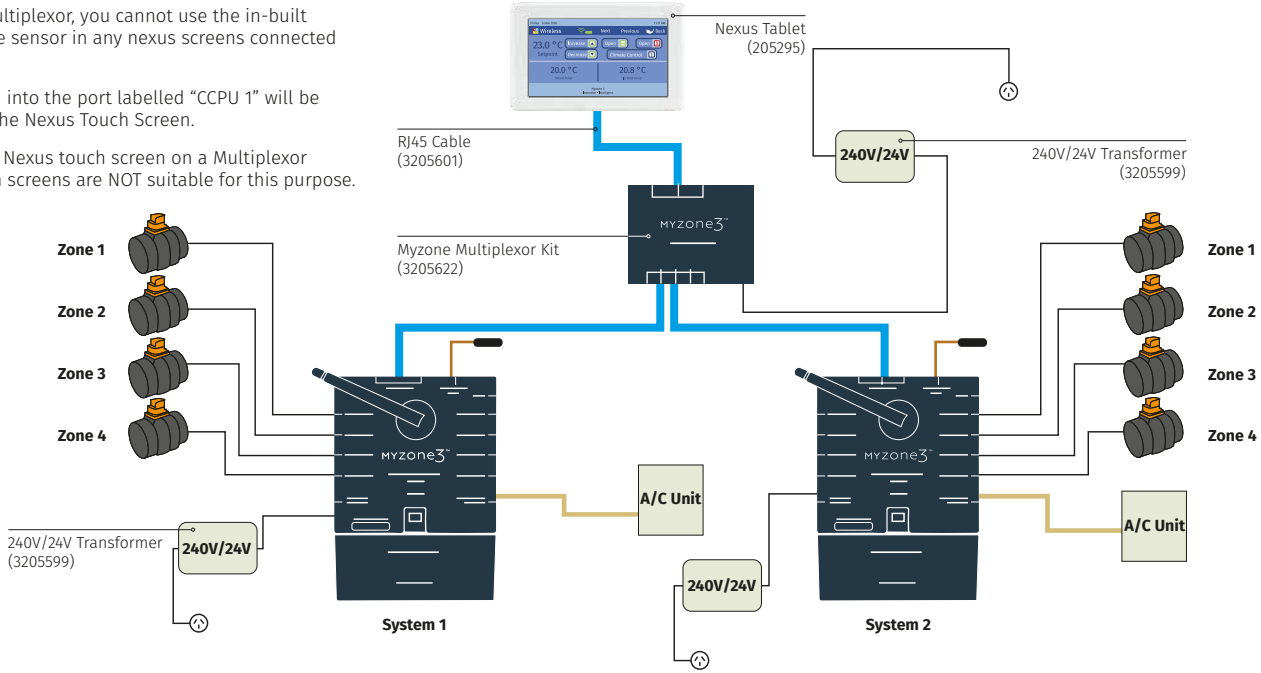


Myzone Wiring Layout

Multiple A/C Unit Control and ON/OFF Zone Control (Max 8 Zones, Wi-Fi Optional)

Notes:

1. When using the multiplexor, you cannot use the in-built screen temperature sensor in any nexus screens connected to the multiplexor.
2. The CM225 plugged into the port labelled “CCPU 1” will be displayed first on the Nexus Touch Screen.
3. You can only use a Nexus touch screen on a Multiplexor (CISM). Nano Touch screens are NOT suitable for this purpose.
4. Myzone Multiplexors can control up to 5 A/C Units.
5. Temperature Sensors are not included in this diagram for clarity, you can add wireless, wired or iSense zone temperature sensors and associated equipment as required.

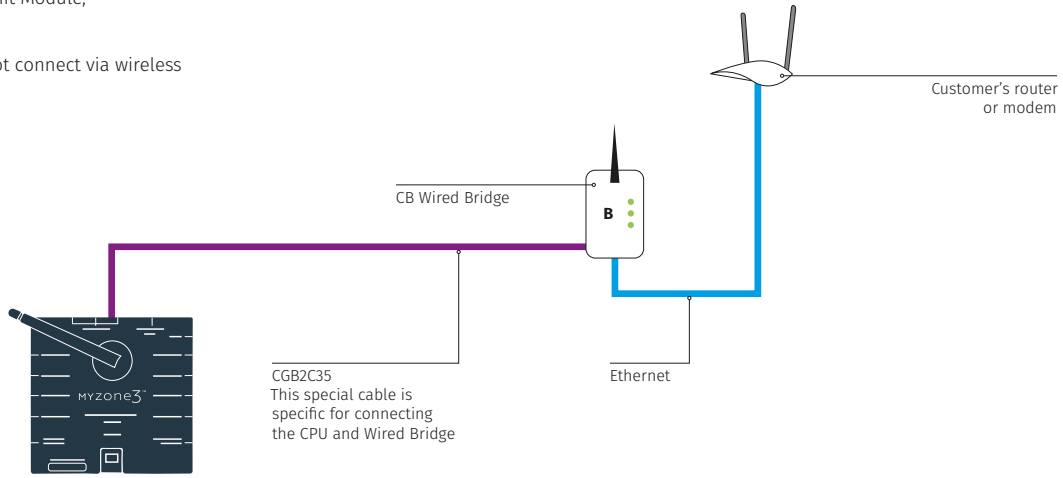


Optional Equipment for Hard Wired Wi-Fi Control of System

Note:

CPU Power supply, Zone Motors, A/C Unit Module, temp. sensors not shown for clarity.

Only required if the Wi-Fi bridge will not connect via wireless radio frequency.



Myzone Wiring Connections to A/C Units

Unit Make	Connection
Actron*	See detailed instructions on page 28
Braemar	See detailed instructions on page 29
Daikin	See detailed instructions on page 34
Fujitsu*	See detailed instructions on page 33
Gree	See detailed instructions on page 29
Haier	See detailed instructions on page 39
Hitachi	See detailed instructions on page 40
Kaden	See detailed instructions on page 41
LG	See detailed instructions on page 42
Midea	See detailed instructions on page 43

Unit Make	Connection
Mitsubishi Electric	See detailed instructions on page 35
MHI	See detailed instructions on page 36
Panasonic	See detailed instructions on page 38
Rinnai	See detailed instructions on page 44
Samsung*	See detailed instructions on page 45
Temperzone	See detailed instructions on page 46
Toshiba	See detailed instructions on page 37
York*	See detailed instructions on page 47
Universal Control Module	The universal control module covers units with standard 24V control. See detailed instructions on page 48

*Certain models only. Check with Myzone for compatibility prior to ordering.

Myzone Wiring Connections to Actron Units

Unit make:

Actron (Ultra slim low profile series only)

Indoor model
Outdoor model

LRE-071AS/URC-071AS (7kw)

LRE-100AS/URC-100AS (10kw)

LRE-130AS/URC-140AS (14kw)

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325A to the X/Y in the fan coil unit. (This cable and connector is supplied by Actron). Polarity is critical see Fig (i) (J) and (K) below, for correct connection.

Fig (i) – Indoor fan coil unit terminals

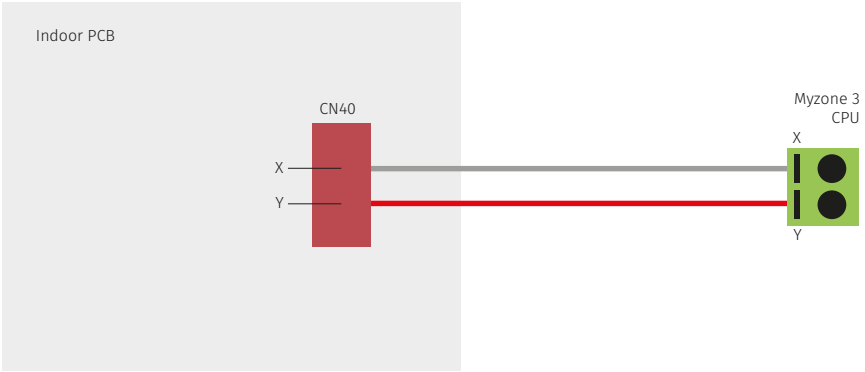
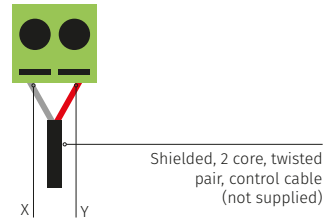


Fig (k) – Myzone C225/C325KA



Correct polarity

Fig (j)

CN40 connector pin out

Myzone Wiring Connections to Braemar and Gree Units

Unit make:

Braemar (SDHV series inverter ducted, single phase units only)

Gree (GFH inverter ducted, single phase units only)

Connection

1. Connect the Manufacturers wired controller to the Indoor Unit CB.
2. Enter the service mode parameters (see page 30).
3. As per the instructions below set the sensor to return air for all modes.
4. Set the Myzone control setting.
5. Set the required static pressure setting.
6. Cycle the power to the A/C unit.
7. Connect a 2 core, twisted pair control cable from the C225 (Myzone CPU) to CN1 in the fan coil unit. (A connector and short cable will need to be provided by the AC unit manufacturer. Polarity is critical see Fig (i) and (j) on page 32 for correct connection.

Myzone Wiring Connections to Braemar and Gree Units

Unit make:

Braemar (SDHV series inverter ducted, single phase units only)

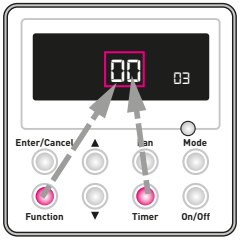
Gree (GFH inverter ducted, single phase units only)

Service Mode Parameters

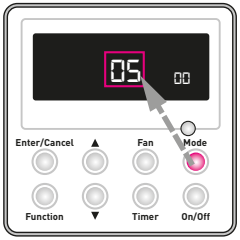
Entering Service Mode

To enter Service Mode, power must be connected to the unit and wired controller, and the unit must be switched "OFF" at the wall control. Follow he below steps and refer to the function and parameter setting table:

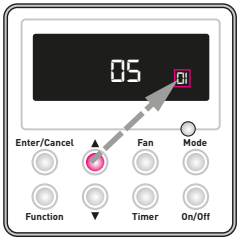
Unit is in "OFF" or "STANDBY" mode.



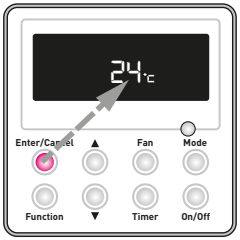
Simultaneously press "Function" and "Timer" buttons for 5s, controller enters the parameter setting interface.



Press "Mode" button to change the "Function" settings from "00" to "12".



Press "Up" or "Down" button to adjust the parameter setting.



Press "Enter/Cancel" button to save the settings and quit from the interface. Failure to do this will result in changes not being saved!

Myzone Wiring Connections to Braemar and Gree Units

Unit make:

Braemar (SDHV series inverter ducted, single phase units only)

Gree (GFH inverter ducted, single phase units only)

Service Mode Parameters

Function Display	Function Description	Parameter Display	Parameter Description		
00	Temp sensor location Ensure set to '01'	01 02 03	Sensor at return air for all modes Sensor at wired control for all modes Sensor at return air for cool, dry and fan modes, at wired control for heat mode		
10	Myzone control Ensure set to '01'	00 01	Standard control Myzone control setting		
11	Indoor fan power setting Factory default '05' Adjust to suit installed static Low static = '01' High static = '09'		ESP (Pa)	High Speed	Low Speed
		01	10	5	1
		02	20	6	2
		03	30	7	3
		04	40	8	4
		05	50 (default)	9	5
		06	75	10	6
		07	100	11	7
		08	150	12	8
		09	200	13	9

Myzone Wiring Connections to Braemar and Gree Units

Unit make:

Braemar (SDHV series inverter ducted, single phase units only)

Gree (GFH inverter ducted, single phase units only)

Fig (i) – Indoor fan coil unit terminals

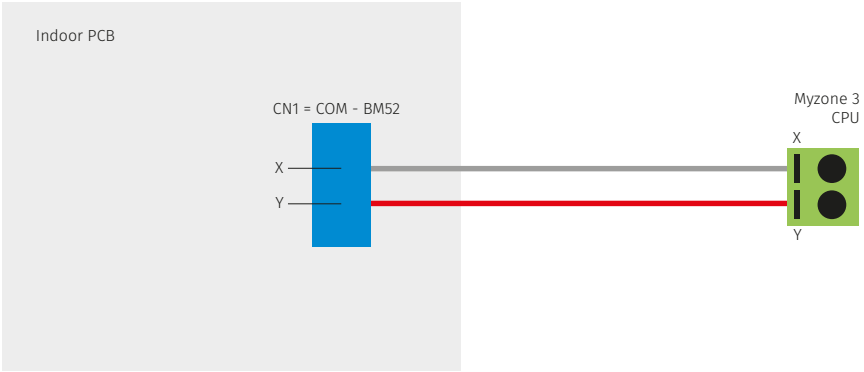
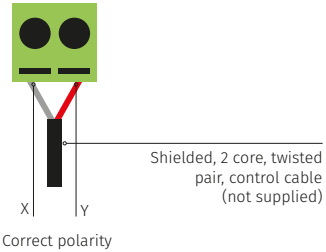


Fig (j) – Myzone C225



Myzone Wiring Connections to Fujitsu Units

Unit make:

Fujitsu

ARTC##LATU
ARTG##LHTA

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325F2 to the 2 and 3 terminals in the Fujitsu FCU. Polarity of this cable is critical — see Figure (m) below if polarity is connected incorrectly simply reverse the polarity and cycle the power to the A/C unit and the Myzone controller. Do not use the terminal 1 (12V) when connecting to a Myzone system.

Fig (m) – Fujitsu FCU board

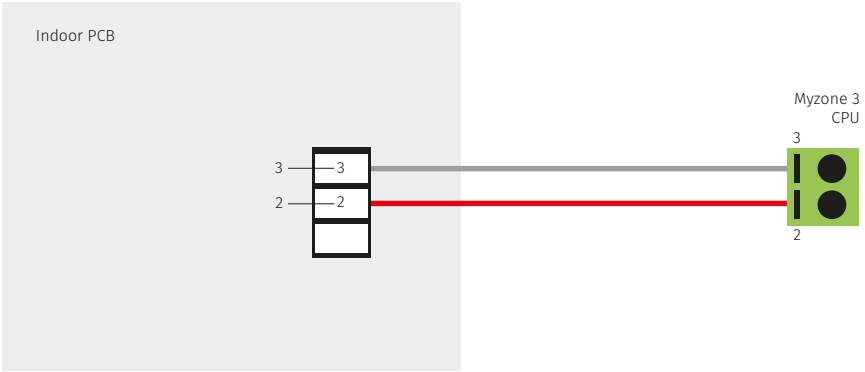
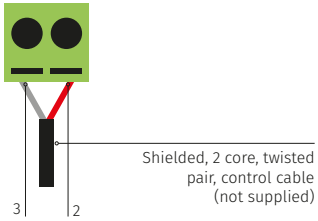


Fig (n) – Myzone C225/C325F2



Myzone Wiring Connections to Daikin Units

Unit make:

Daikin

Any Daikin Unit with a P1/P2 connection

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325D to the P1/P2 in the fan coil unit. Polarity is critical see Fig (i) & (n) below, for correct connection.

Fig (i) – Indoor fan coil unit terminals

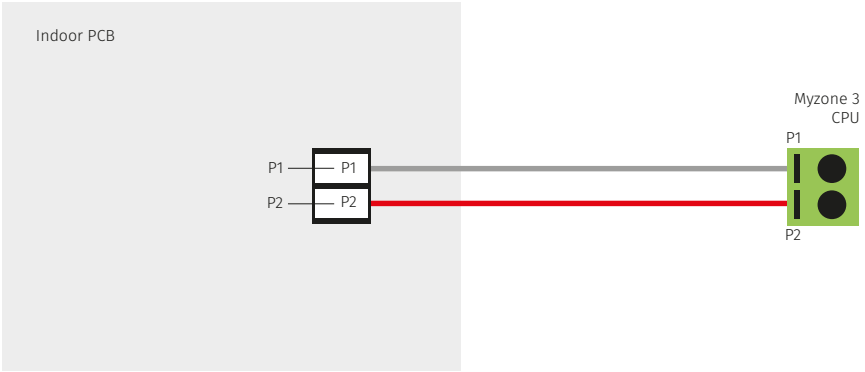
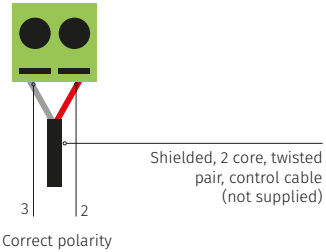


Fig (n) – Myzone C225/C325D



Myzone Wiring Connections to Mitsubishi Electric Units

Unit make:

Mitsubishi Electric

PEA-M###GAA

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325MI to the 1/2 in the fan coil unit. Polarity is critical see Fig (i) & (n) below, for correct connection.

Fig (i) – Indoor fan coil unit terminals

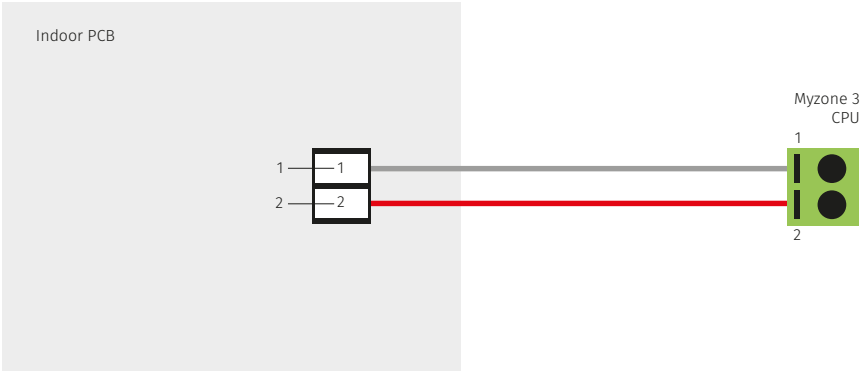
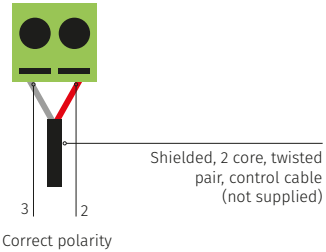


Fig (n) – Myzone C225/C325MI



Myzone Wiring Connections to MHI Units

Unit make:

MHI

FDUA/FDUM Series

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325MHI to the X/Y in the fan coil unit. Polarity is critical see Fig (i) & (n) below, for correct connection.

Fig (i) – Indoor fan coil unit terminals

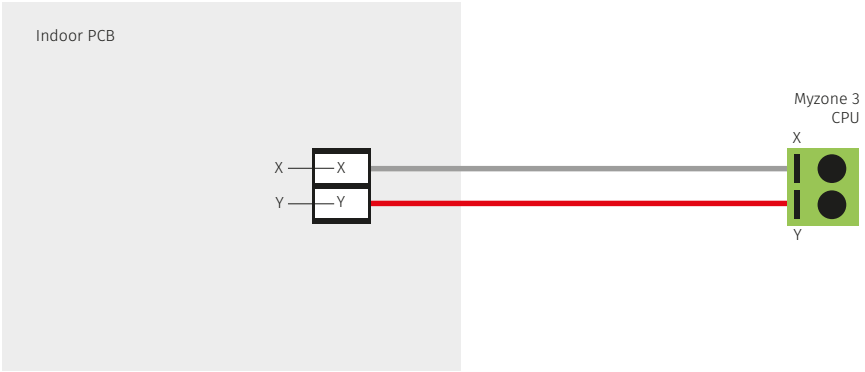
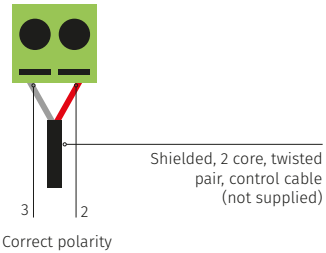


Fig (n) – Myzone C225/C325MHI



Myzone Wiring Connections to Toshiba Units

Unit make:

Toshiba

RAV-SM###3DT
(A Series Only)

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325T to the A/B in the fan coil unit. Polarity is critical see Fig (i) & (n) below, for correct connection.

Fig (i) – Indoor fan coil unit terminals

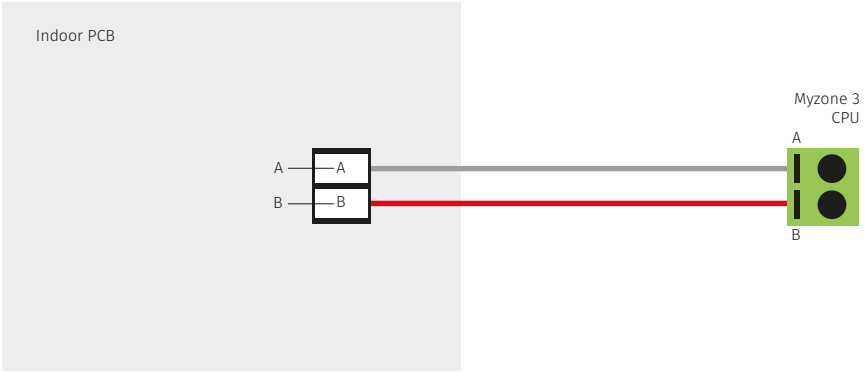
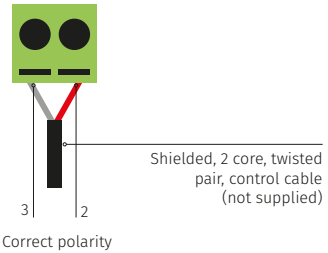


Fig (n) – Myzone C225/C325T



Myzone Wiring Connections to Panasonic Units

Unit make:

Panasonic

S###PE1R5B-S
(S Series Only)

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325P to the R1/R2 in the fan coil unit. Polarity is critical see Fig (i) & (n) below, for correct connection.

Fig (i) – Indoor fan coil unit terminals

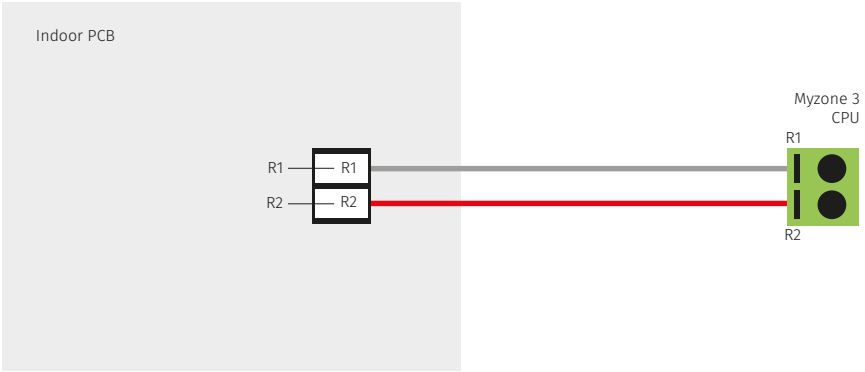
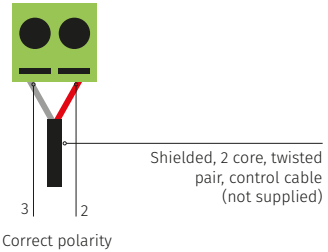


Fig (n) – Myzone C225/C325P



Myzone Wiring Connections to Haier Units

Unit make:

Haier

ADH Series Only

Connection

Connect a shielded, 2 core, twisted pair control cable from the Myzone C225/C325H1 to the A/B terminals on the Haier interface board YCJ-A002. Connect the interconnecting cable supplied by Haier to CN24 in the fan coil unit of the Haier interface board YCJ-A002. Set the dip switches as shown below. Polarity is critical. Haier YR-E1 wired RC must be connected and set to run on return air.

Fig (l) – Haier interface board Model: YCJ-A002 (Fisher & Paykel part no 51102)

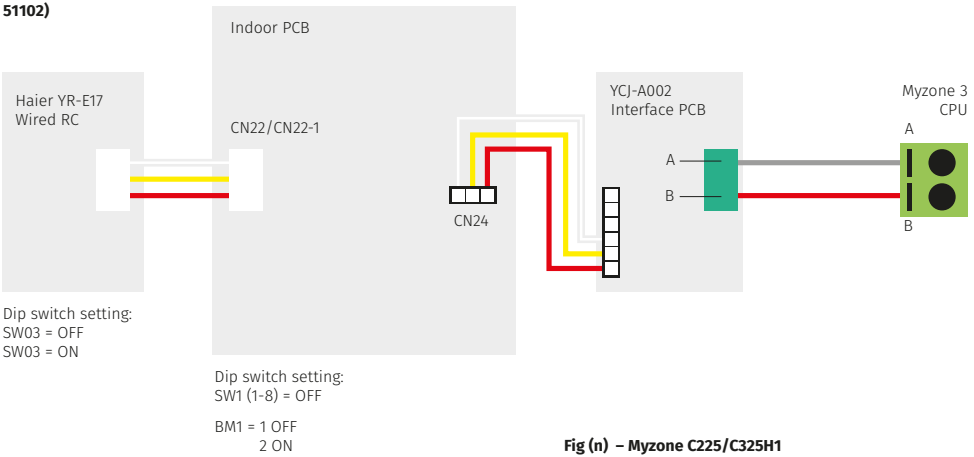
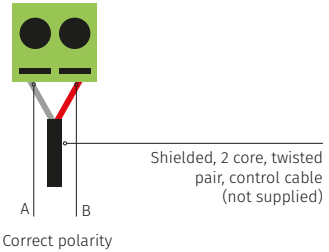


Fig (n) – Myzone C225/C325H1



Myzone Wiring Connections to Hitachi Units

Unit make:

Hitachi

RPI##FSN1SQ
RPI##FSN2SQ

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325H to the A/B terminals and earth in the in the fan coil unit. (This cable is supplied y the installer). Polarity is not critical see Fig (h) for correct connection.

Fig (h) – Hitachi indoor fan coil unit terminals

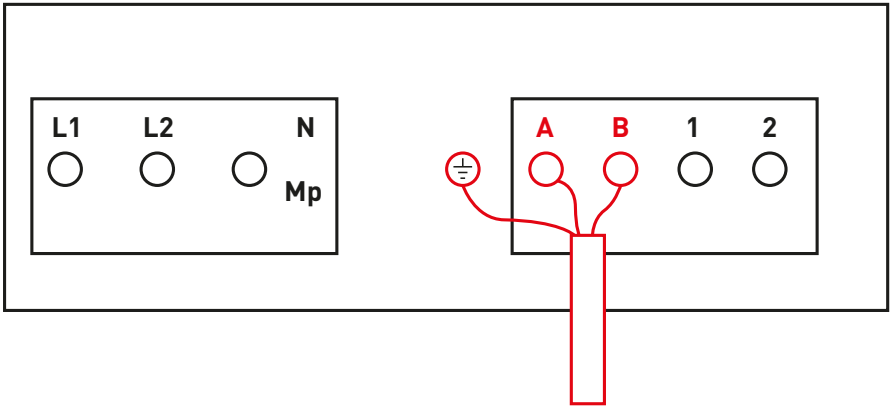
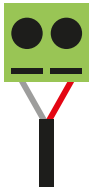


Fig (k) – Myzone C225/C325H



Myzone Wiring Connections to Kaden Units

Unit make:

Kaden

KD## Series

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325KAD to the X/Y in the fan coil unit. (This cable and connector is supplied by Kaden). Polarity is critical see Fig (i) (j) and (k) below, for correct connection.

Fig (i) – Indoor fan coil unit terminals

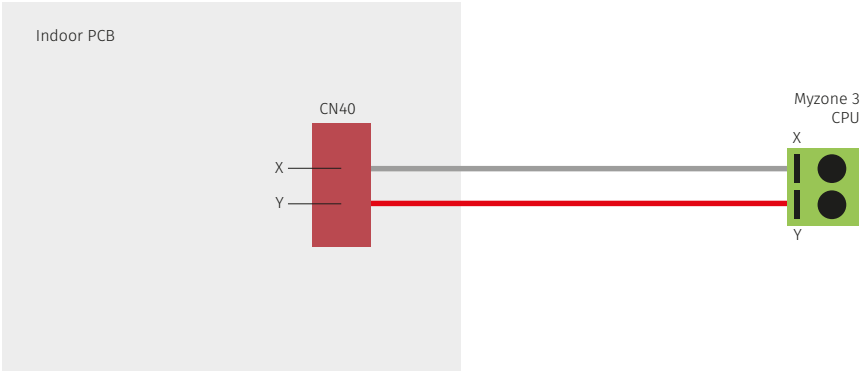
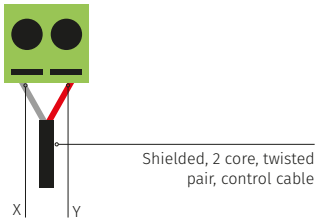


Fig (k) – Myzone C225/C325KAD



Correct polarity

Fig (j)

CN40 connector pin out

Myzone Wiring Connections to LG Units

LG2 Interface

Connection

Connect the LG supplied cable from the fan coil unit to the Myzone CCPU module. Only use the lack and yellow cables polarity is not critical.

Fig (c) – LG Fan coil unit use black and yellow wires to connect to Myzone

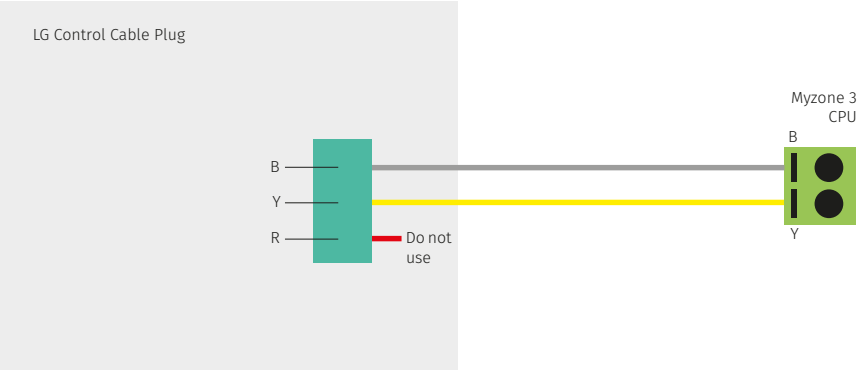
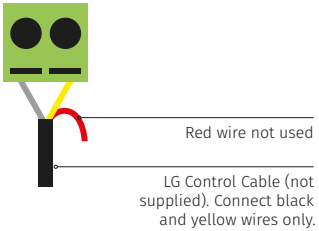


Fig (d) – Myzone C225/C325L2



46. Unit make:

47. LG B##AWN-7G6 Series C325L2 Does NOT require the option card

Myzone Wiring Connections to Midea Units

Unit make:

Midea

DUCMI### Series

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325MID to the X/Y in the fan coil unit. (This cable and connector is supplied by Midea). Polarity is critical see Fig (i) (j) and (k) below, for correct connection.

Fig (i) – Indoor fan coil unit terminals

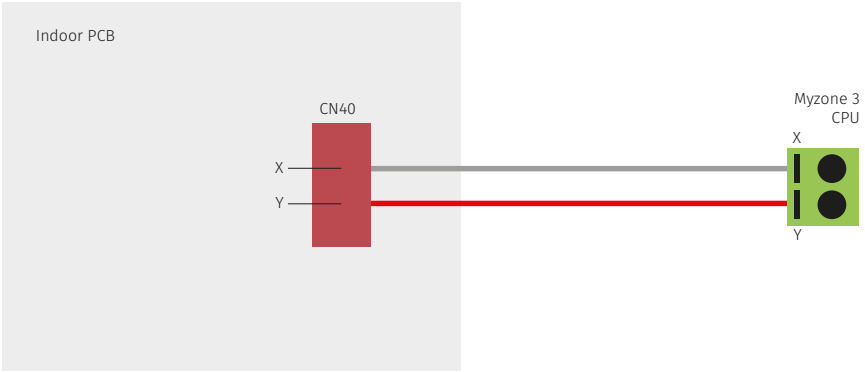
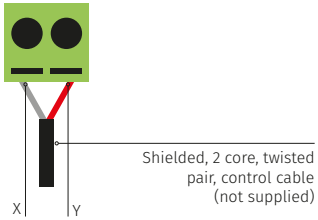


Fig (k) – Myzone C225/C325MID



Correct polarity

Fig (j)

CN40 connector pin out

Myzone Wiring Connections to Rinnai Units

Unit make:

Rinnai

DINLR####Z72

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325R to the X/Y in the fan coil unit. (This cable and connector is supplied by Rinnai). Polarity is critical see Fig (i) (j) and (k) below, for correct connection.

Fig (i) – Indoor fan coil unit terminals

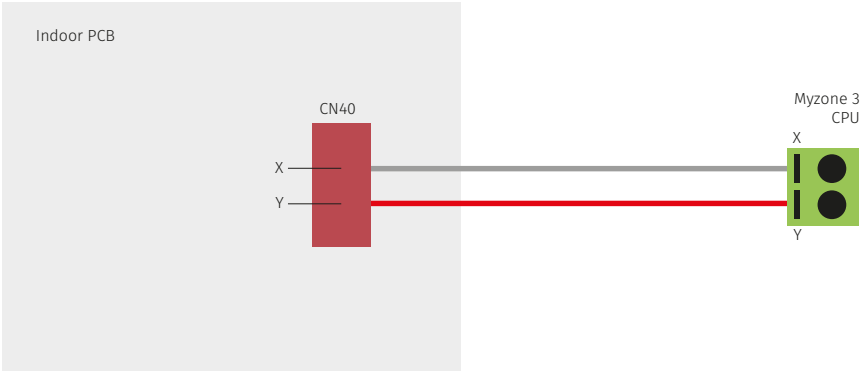
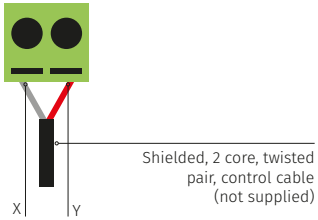


Fig (k) – Myzone C225/C325R



Correct polarity

Fig (j)

CN40 connector pin out

Myzone Wiring Connections to Samsung Units

55. Unit make:

56. Samsung
C325S = AC Series up to 14kw.

57. C325SN = AC Series & AC###TNHDKG Series

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325S to the F3/F4 in the fan coil unit. (This cable is supplied by the installer). Polarity is critical see Fig (F) and (G) below for correct connection.

Fig (f) – Samsung indoor fan coil unit terminals

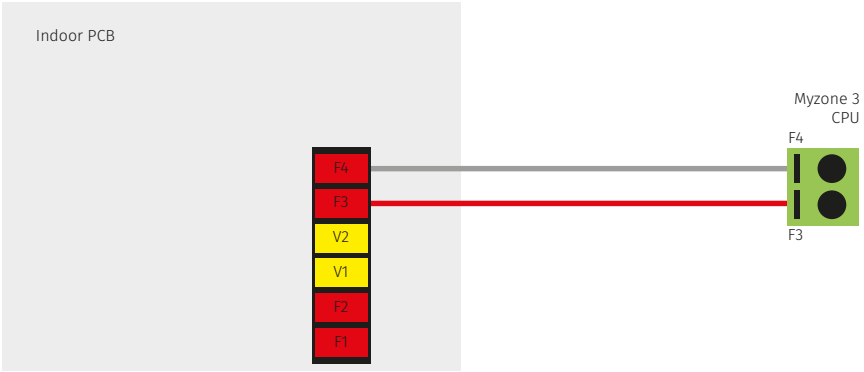
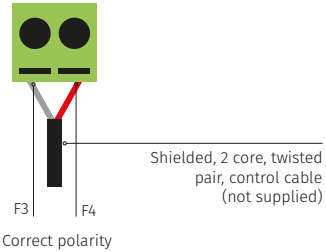


Fig (g) – Myzone C225/C325S



Myzone Wiring Connections to Temperzone Units

Unit make:

Temperzone

Unit must be fitted with UC8 Outdoor Board

Connection

1. Connect a shielded, 2 core, twisted pair control cable from the C225 to the UC8 board in the condensing unit. (This cable is supplied by the installer) .Polarity is critical see Fig (a) and (g) for correct connection.
2. Ensure the dip switches in the condensing unit are set correctly for the installed compressor type (digital fixed speed) and fan speed control. Refer to the Temperzone service manual.

Fig (a) – Temperzone UC8 outdoor board

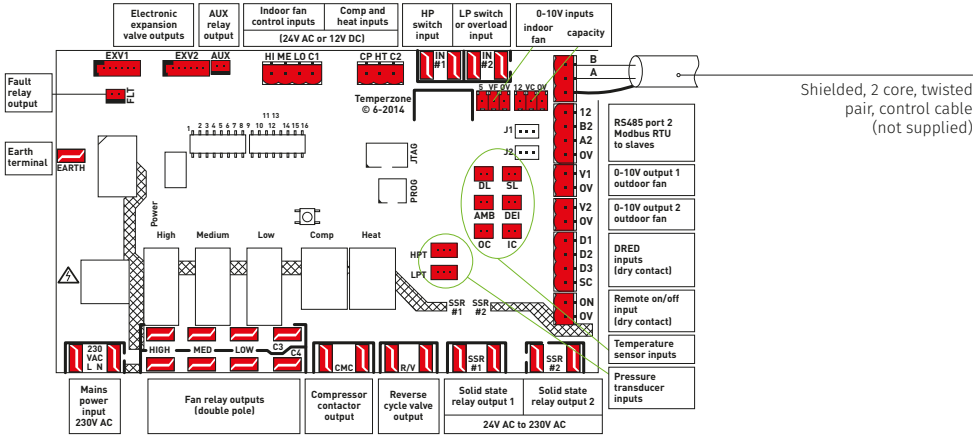
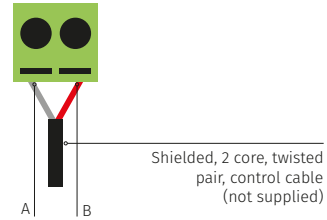


Fig (g) – Myzone C225/C325TZ



Myzone Wiring Connections to York Units

Unit make:

York

68500##

Connection

Connect a shielded, 2 core, twisted pair control cable from the C225/C325Y to the X/Y in the fan coil unit. (This cable and connector is supplied by York). Polarity is critical see Fig (i) (J) and (K) below, for correct connection.

Fig (i) – Indoor fan coil unit terminals

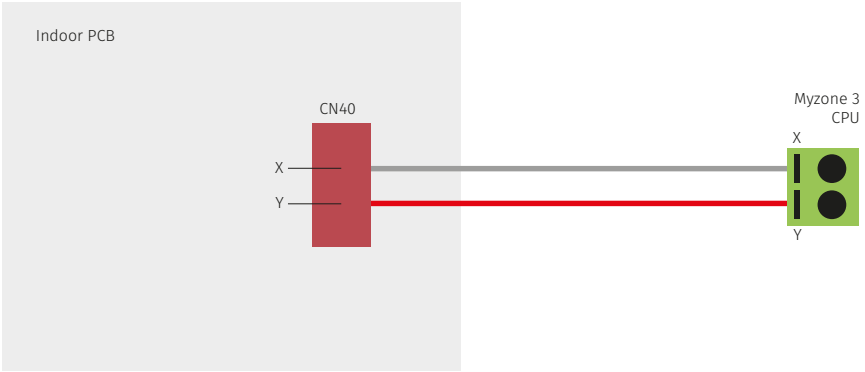
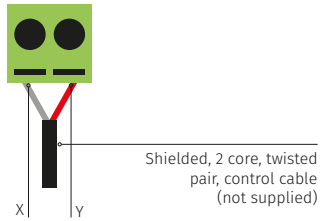


Fig (k) – Myzone C225/C325Y



Correct polarity

Fig (j)

CN40 connector pin out

Myzone Wiring Connections to Universal Control Module

Unit make:

Units that accept 24V control signals

Gas Heating Options

- Gas Heating thermostat only
- 1 Stage Gas Heat + 1 x Fan Speed
- 1 Stage Gas Heat + 1 Stage Cool + 1 x Fan Speed
- 2 Stage Gas Heat + 1 Stage Cool + 1 x Fan Speed
- 2 Stage Gas Heat + 2 Stage Cool + 1 x Fan Speed

Reverse Cycle Options

- 1 Stage R/C + 1 x Fan Speed
- 1 Stage R/C + 3 x Fan Speed
- 1 Stage R/C + Aux Heating + 1 x Fan Speed
- 2 Stage R/C + Aux Heating + 1 x Fan Speed

Connection

1. Connect cables as shown on the wiring diagram for the respective option (24V maximum).
2. Configure the correct system type on the touch screen.
3. Configure the Run on timer, anti-cycle timer, 2nd stage offset, 2nd stage delay and fan control on the touch screen, as applicable.
4. Test for correct operation.

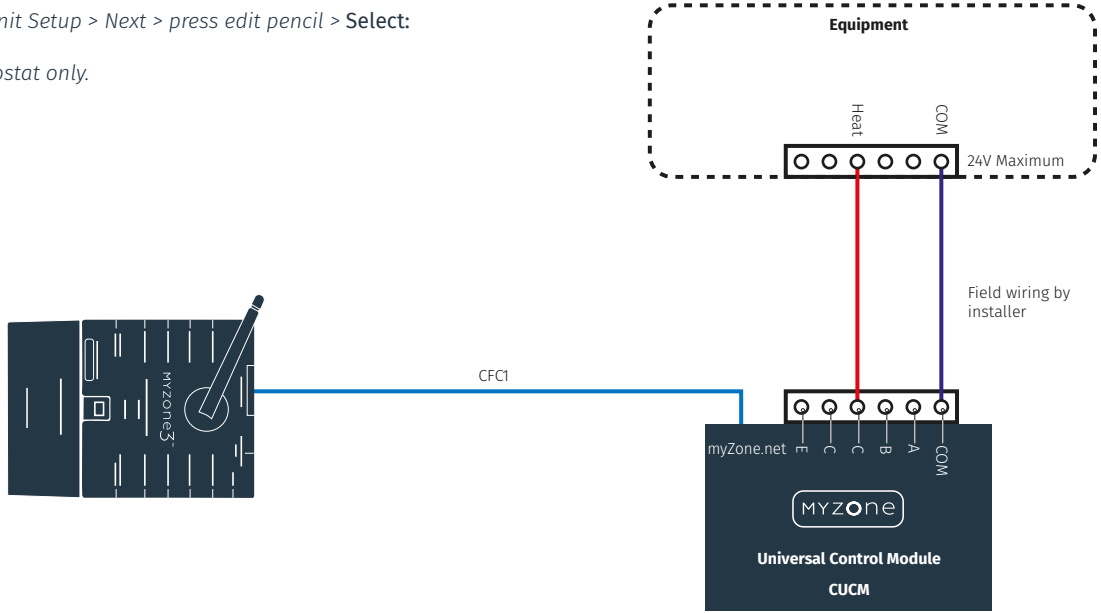
Myzone Wiring Connections to Universal Control Module

Gas Heating Thermostat Only

Configure required functionality via touch screen as follows:

Go to *Config > AC Unit Setup > Next > press edit pencil >* Select:

Gas Heating thermostat only.



Myzone Wiring Connections to Universal Control Module

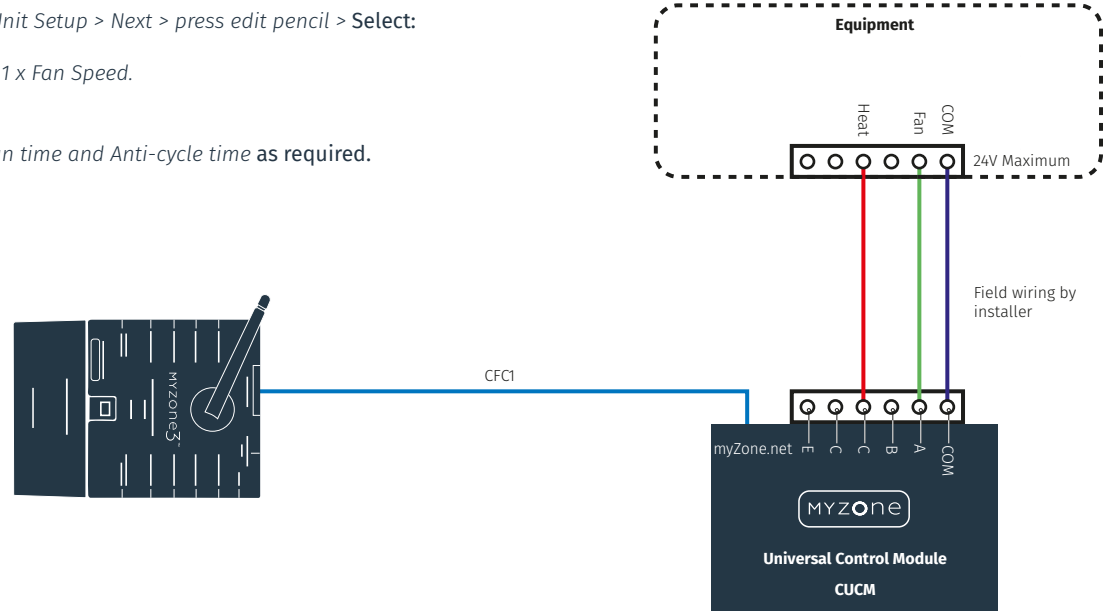
1 Stage Gas Heating + 1 x Fan Speed

Configure required functionality via touch screen as follows:

Go to *Config* > *AC Unit Setup* > *Next* > *press edit pencil* > Select:

1 Stage Gas Heat + 1 x Fan Speed.

Press *Next* > Next.
Adjust *Minimum run time and Anti-cycle time* as required.
Setup *Fan control.*



Myzone Wiring Connections to Universal Control Module

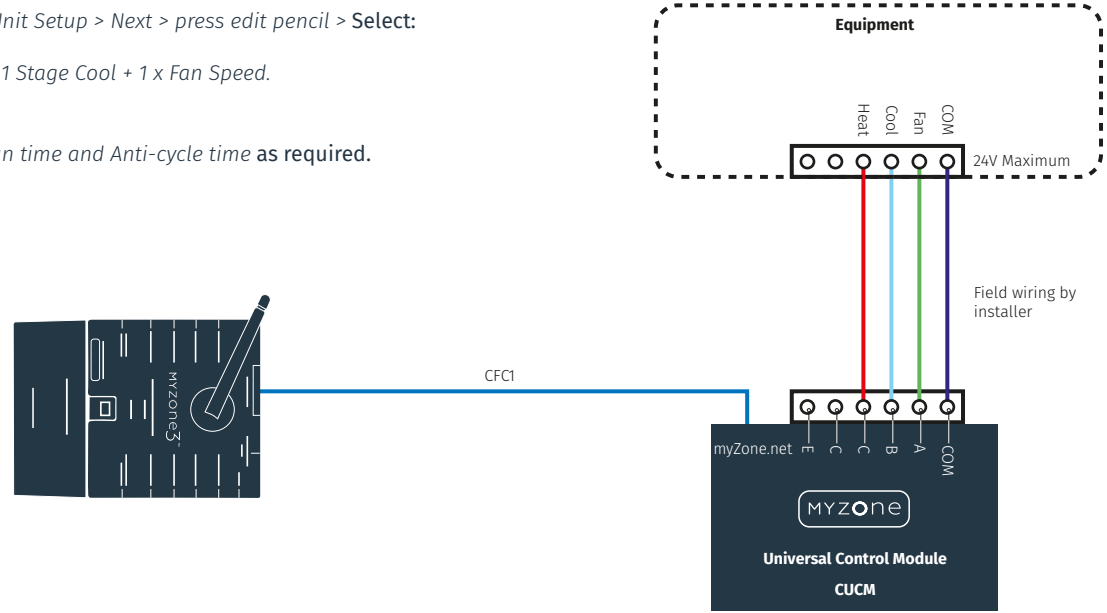
1 Stage Gas Heating + 1 Stage Cooling + 1 x Fan Speed

Configure required functionality via touch screen as follows:

Go to *Config* > *AC Unit Setup* > *Next* > *press edit pencil* > Select:

1 Stage Gas Heat + 1 Stage Cool + 1 x Fan Speed.

Press *Next* > Next.
Adjust *Minimum run time and Anti-cycle time* as required.
Setup *Fan control.*



Myzone Wiring Connections to Universal Control Module

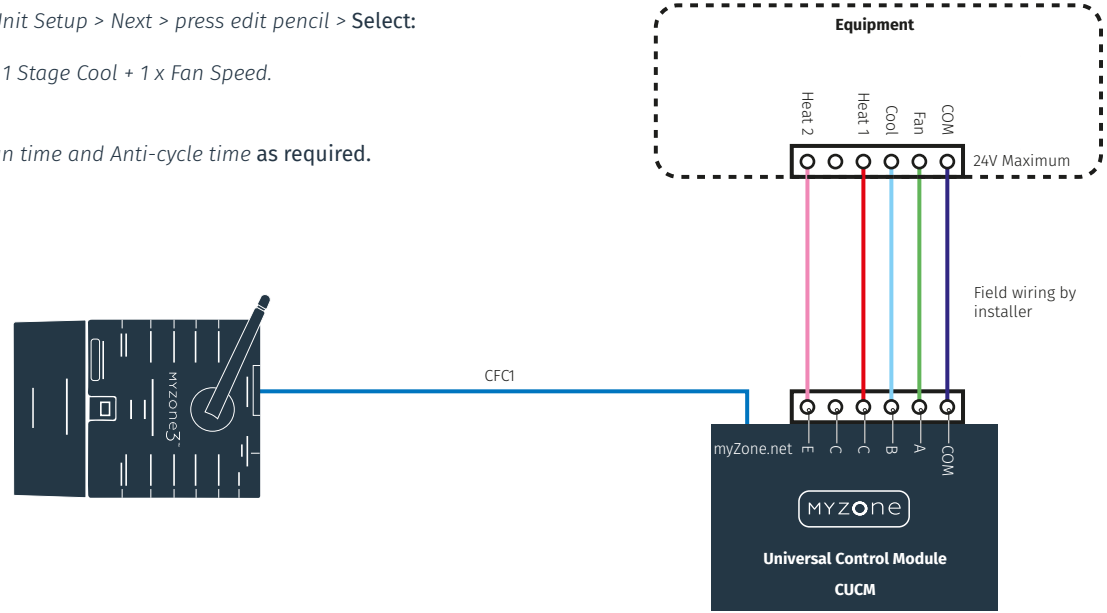
2 Stage Gas Heating + 1 Stage Cooling + 1 x Fan Speed

Configure required functionality via touch screen as follows:

Go to *Config* > *AC Unit Setup* > *Next* > *press edit pencil* > Select:

2 Stage Gas Heat + 1 Stage Cool + 1 x Fan Speed.

Press *Next* > Next.
Adjust *Minimum run time and Anti-cycle time* as required.
Setup *Fan control.*



Myzone Wiring Connections to Universal Control Module

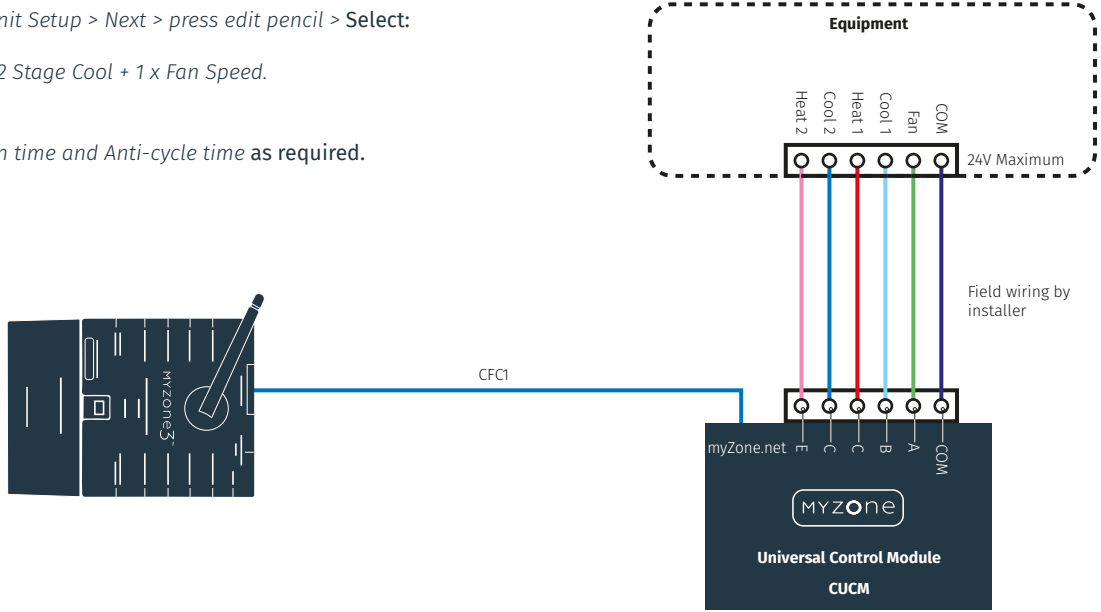
2 Stage Gas Heating + 2 Stage Cooling + 1 x Fan Speed

Configure required functionality via touch screen as follows:

Go to *Config* > *AC Unit Setup* > *Next* > *press edit pencil* > Select:

2 Stage Gas Heat + 2 Stage Cool + 1 x Fan Speed.

Press *Next* > Next.
Adjust *Minimum run time and Anti-cycle time* as required.
Setup *Fan control.*



Myzone Wiring Connections to Universal Control Module

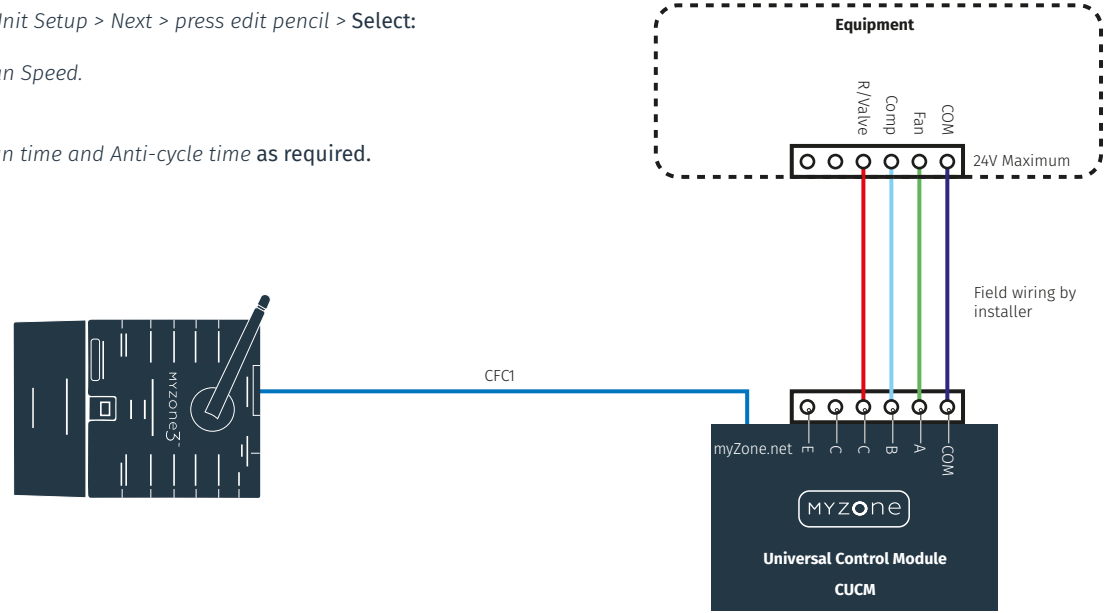
1 Stage Reverse Cycle Heat Pump + 1 x Fan Speed

Configure required functionality via touch screen as follows:

Go to *Config* > *AC Unit Setup* > *Next* > *press edit pencil* > Select:

1 Stage R/C + 1 x Fan Speed.

Press *Next* > Next.
Adjust *Minimum run time and Anti-cycle time* as required.
Setup *Fan control.*



Myzone Wiring Connections to Universal Control Module

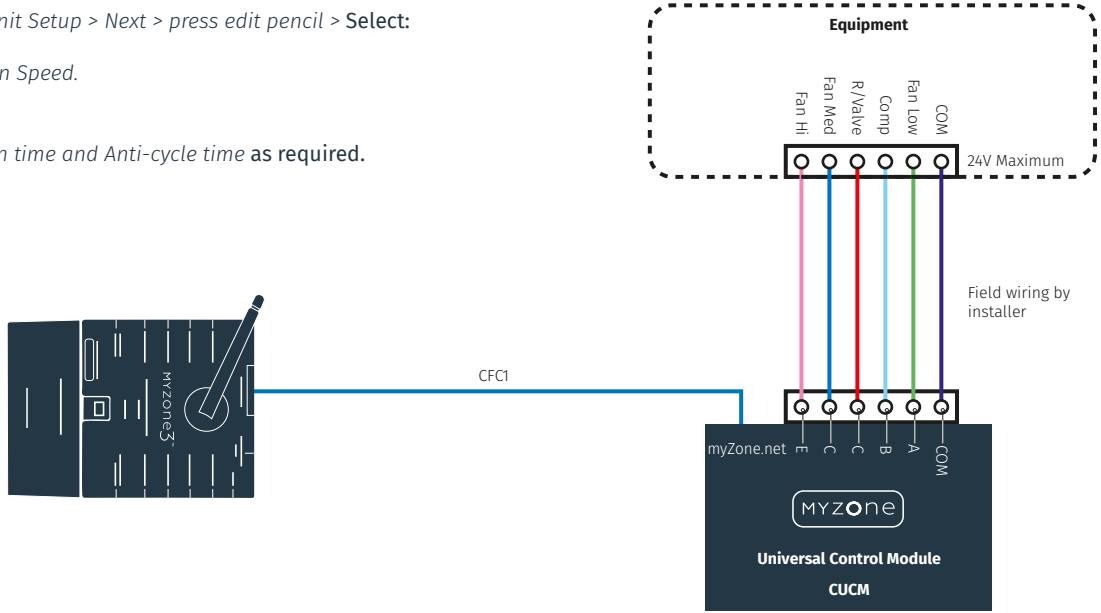
1 Stage Reverse Cycle Heat Pump + 3 x Fan Speed

Configure required functionality via touch screen as follows:

Go to *Config* > *AC Unit Setup* > *Next* > *press edit pencil* > Select:

1 Stage R/C + 3 x Fan Speed.

Press *Next* > Next.
Adjust *Minimum run time and Anti-cycle time* as required.
Setup *Fan control.*



Myzone Wiring Connections to Universal Control Module

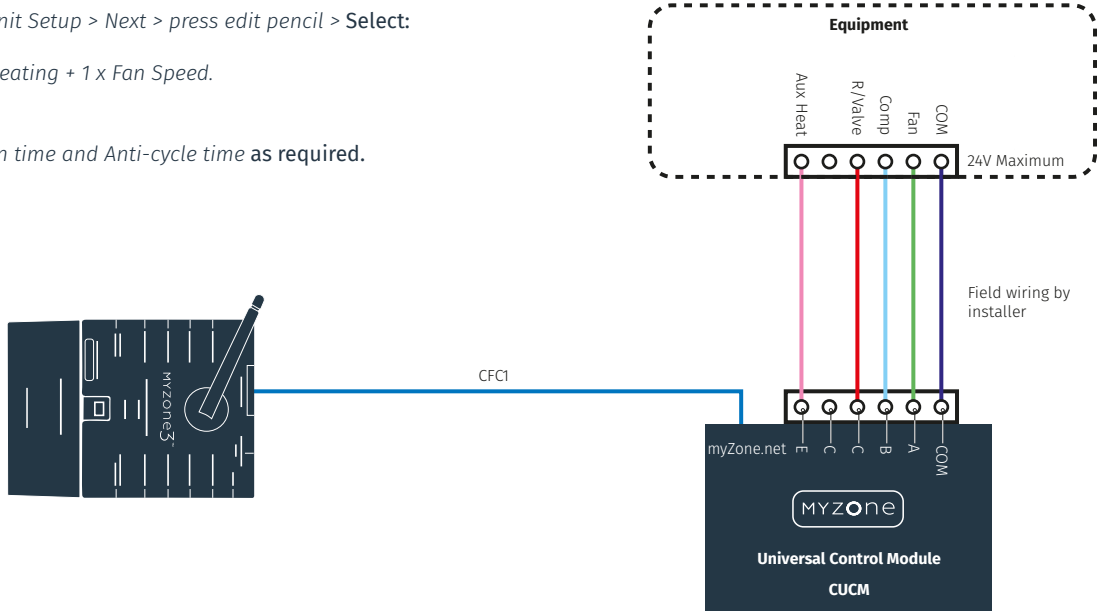
1 Stage Reverse Cycle Heat Pump + Aux Heating + 1 x Fan Speed

Configure required functionality via touch screen as follows:

Go to *Config* > *AC Unit Setup* > *Next* > *press edit pencil* > Select:

1 Stage R/C + Aux Heating + 1 x Fan Speed.

Press *Next* > Next.
Adjust *Minimum run time and Anti-cycle time* as required.
Setup *Fan control.*



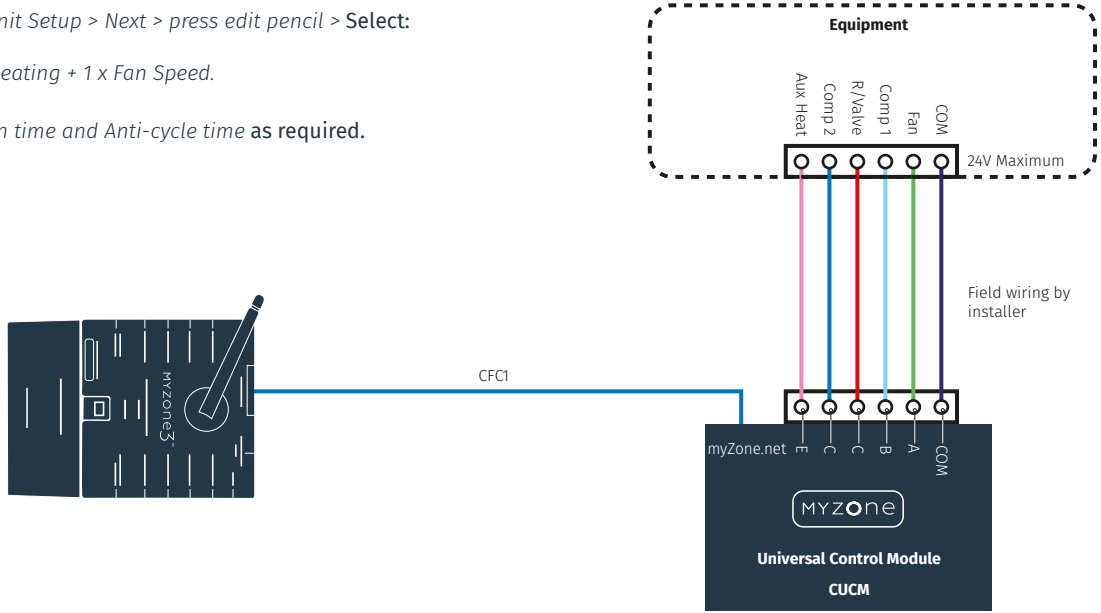
Myzone Wiring Connections to Universal Control Module

2 Stage Reverse Cycle Heat Pump + Aux Heating + 1 x Fan Speed

Configure required functionality via touch screen as follows:

Go to *Config* > *AC Unit Setup* > *Next* > *press edit pencil* > Select:

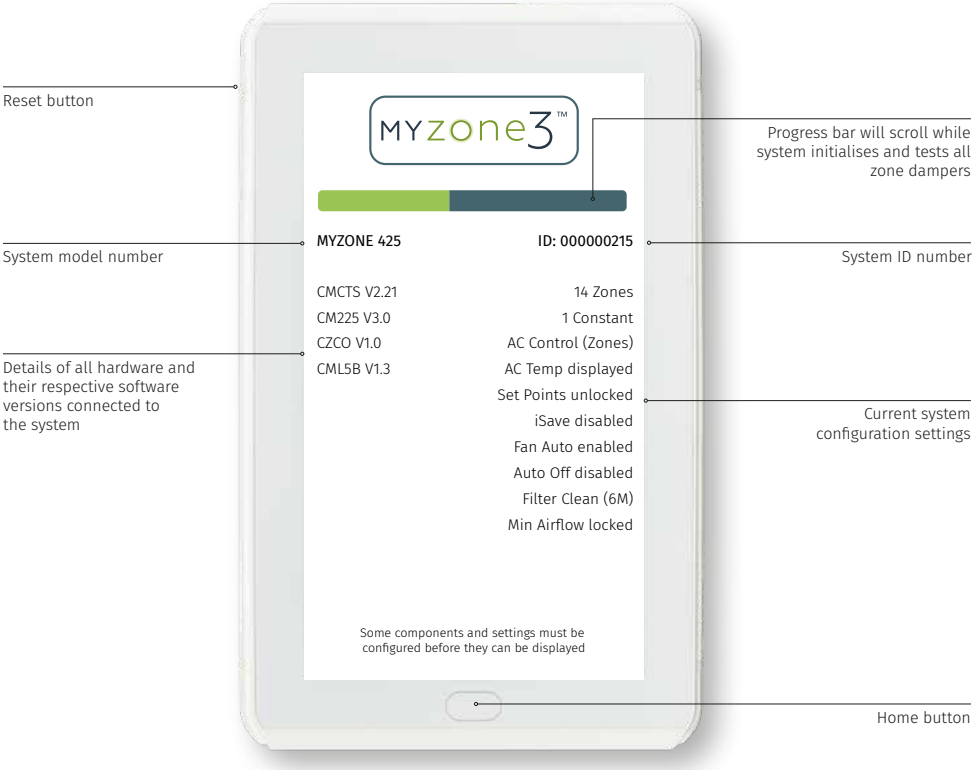
2 Stage R/C + Aux Heating + 1 x Fan Speed.
Press *Next* > Next.
Adjust *Minimum run time and Anti-cycle time* as required.
Setup *Fan control.*



System Initialisation

All new or modified systems must be installed prior to system configuration. There are two ways to initialise the system as follows:

- Press the rest button on the side of the Myzone touch screen (depending on screen orientation).
- Switch the power to the system off and back on.



This image is an example only. Your screen may display differently depending on the system type, what options are selected and the configuration settings entered by your installing contractor.

Changing the Orientation and Type of Graphic

Classic/Portrait

This image is an example only. Your screen may display differently depending on the system type, what options are selected and the configuration settings entered by your installing contractor.

Changing the Orientation and Type of Graphic

Modern/Portrait

Press "Settings"

Press "Screen"

Press Landscape if you want to remain in "Modern" style but change to landscape format

Press Classic Display if you want to change to "Classic" style of graphics

This image is an example only. Your screen may display differently depending on the system type, what options are selected and the configuration settings entered by your installing contractor.

System Configuration

WARNING! Only qualified Myzone installers should configure the Myzone System. Incorrect configuration could result in damage to your air conditioning unit and system.

Classic Graphics

To configure your system click on the System Configure icon on home page. 

Enter the system password **"wamfud"** and press the enter button. The enter button must always be touched to save changes. 

You will now be in the System Configuration area.

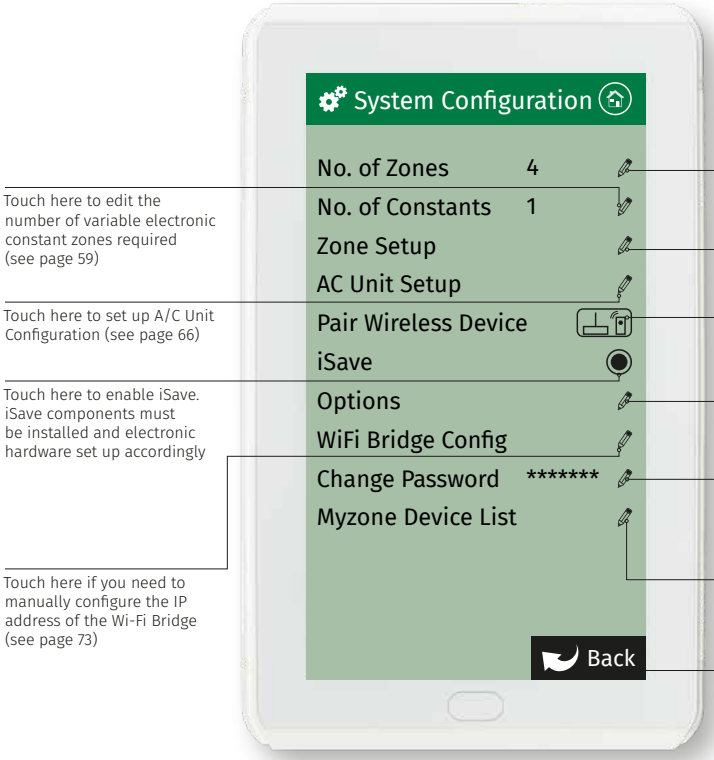
Modern Graphics

To configure your system press Settings > Configuration > Configure Air Conditioner (#).

Enter the system password **"wamfud"** and press the enter button. You will now be in the System Configuration area.

Note: The following configuration instructions are all displayed in the Classic Graphics mode. The Modern Graphics mode has all the same configuration options but are displayed differently. If you are unsure how to configure the system using the Modern Graphics it is recommended that you change the Graphics to Classic mode, complete the configuration, then change the display back to the Modern Graphics mode.

Configuration Main Menu (Classic Display)



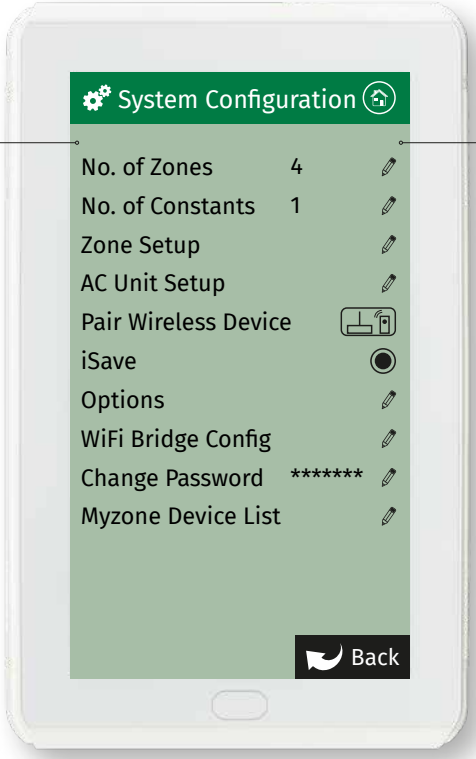
Note:

- Information on the configuration screen may vary depending which devices are connected to the system and which model of Myzone you have.

Number of Zones

Number of Zones
First set up the number of zones in your system. To do this click on “Number of Zones”, delete the factory default setting of 8 and enter in the correct number of zones being used in the application.

NOTE: Number of zones must also include any constant/ spill zones.



Naming Zones
Before you proceed further, it is suggested you mark your zones and name them accordingly under zone summary in the home screen. To do this, go back to the main menu, click on the zones icon, then click on a zone (e.g. Zone 1).

Delete the current zone name and type your desired zone name. Continue until all zones are correctly named.

Once completed, return to the configuration menu.

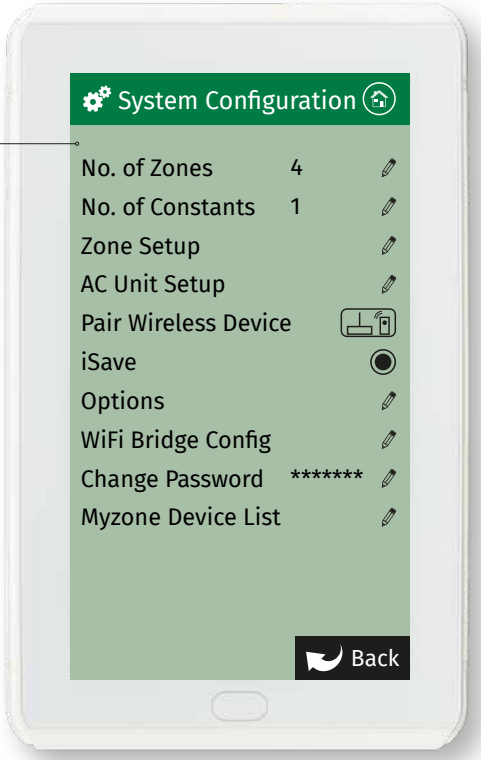
Number of Constants

Number of Constants
Set the number of constants that are being used in the system.

To do this click on "Number of Constants", delete the factory default setting of 1 and enter in the correct number of constants being used in the application.

NOTE: Some form of constant control must be designed, installed and configured when using a Myzone 3 system. Failure to do so can result in damage to the air conditioning unit and its associated componentry.

For more information on Constant Zones, please refer to the design considerations section within the Installation Manual.



Zone Set Up

Once the number of zones and constants have been configured, each zone needs to be assigned a control configuration.

Two manual control options and five climate control options are available.

If the zone has been named, it will appear here, if no name has been assigned, it will show the zone number e.g. Zone 3.

Touch here to go to the home screen

Indicates this zone temperature is controlled by a wireless sensor

Indicates this zone is designated to be the first electronic constant zone.

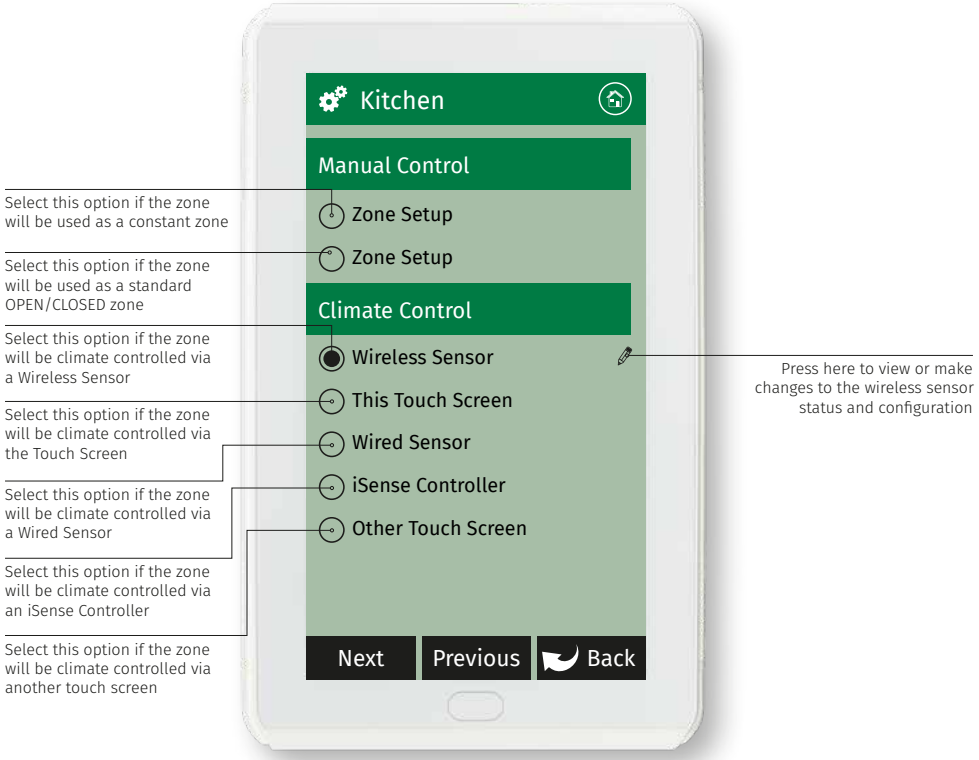
Indicates this zone temperature is controlled via the sensor in a touch screen. Touch here to change.

Indicates this zone is set up for temperature control via a wired sensor. Touch here to change.

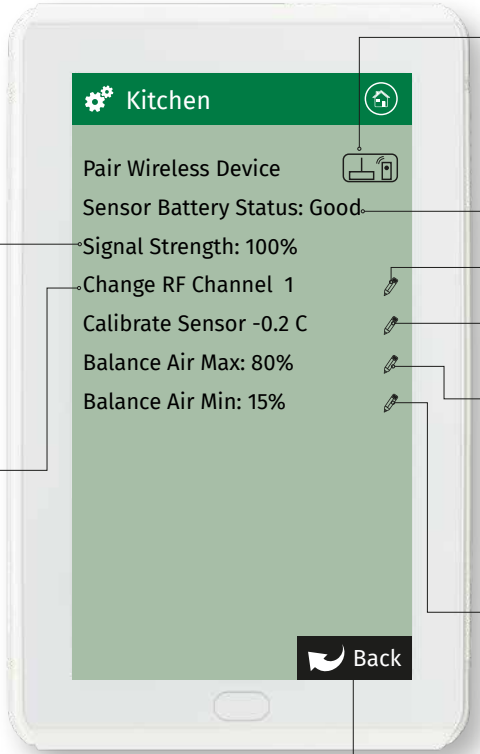
Indicates this zone has been set up for Open/Close control only

Indicates this zone is set up for temperature control via an iSense controller

Zone Set Up


Kitchen
Manual Control
Zone Setup
Zone Setup
Climate Control
Wireless Sensor
This Touch Screen
Wired Sensor
iSense Controller
Other Touch Screen
Next
Previous
Back
Select this option if the zone will be used as a constant zone
Select this option if the zone will be used as a standard OPEN/CLOSED zone
Select this option if the zone will be climate controlled via a Wireless Sensor
Select this option if the zone will be climate controlled via the Touch Screen
Select this option if the zone will be climate controlled via a Wired Sensor
Select this option if the zone will be climate controlled via an iSense Controller
Select this option if the zone will be climate controlled via another touch screen
Press here to view or make changes to the wireless sensor status and configuration

Sensor Configuration



Hold down the "Pair Button" on the Myzone Wireless Sensor Device (see page 63). Then Press here to pair the wireless sensor to your Myzone system.

Indicates the status of the battery in this sensor

Indicates the status of the wireless signal strength from the sensor in this zone. It can take up to 10 minutes of normal operation to get an accurate reading. To speed up the process press the Off/Auto button on the sensor 5 times.

Press here to change the RF Channel

Press here to adjust the calibration of this sensor (see page 64)

Displays the Radio frequency channel the system has been configured to. This channel can be changed if RF interference is being experienced.

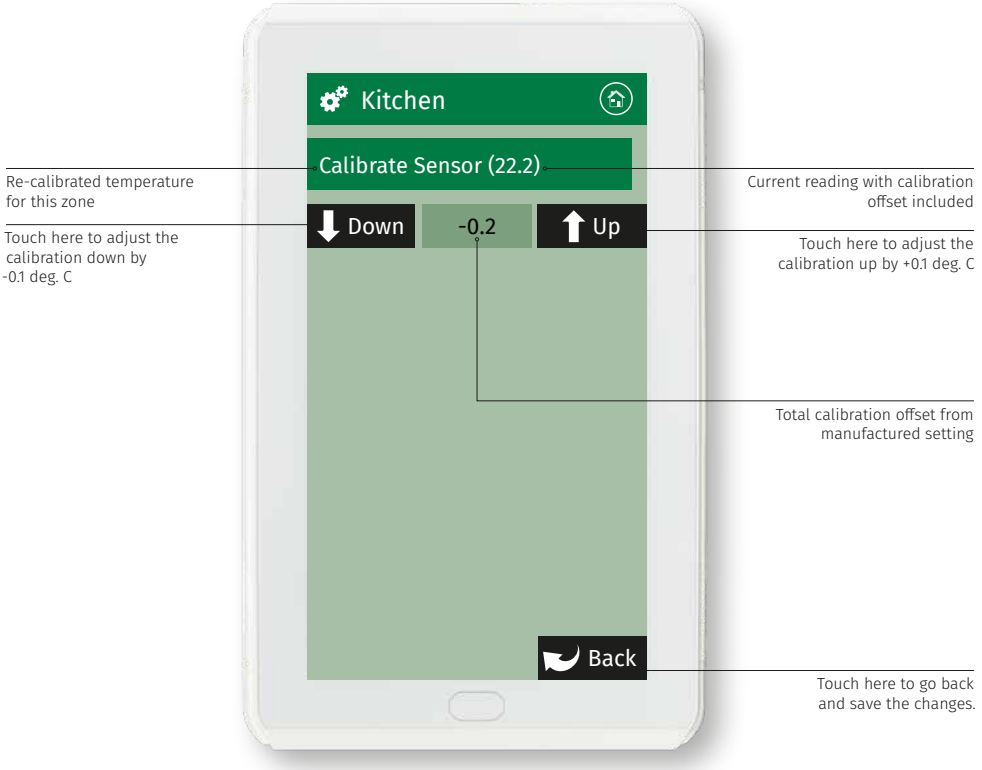
If the channel is changed all wireless devices need to be paired.

Press here to adjust the maximum air balance for this zone. This adjustment takes precedence over the Zone Airflow MAX setting in the main menu available to end users. e.g. If the balance air MAX has been set to 80%. The end user can adjust the MAX airflow in the designated zone to 100%, however the zone will only open to 80%.

Press here to adjust the minimum air balance for this zone. This adjustment takes precedence over the zone airflow MIN setting in the main menu available to end users. E.g. If the balance air MIN has been set to 15%. The end user can adjust the MIN airflow in the designated zone to 0%, however the zone will only close to 15%.

Touch here to go back and save any changes

Sensor Calibration



Note:

- Re-calibration of the temperature sensor in the touch screens can only be done from the touch screen you want to re-calibrate.

Pairing and Configuring Myzone RF Sensors

Note:

- To pair other devices such as a Myzone bridge or repeater simply press the pairing button on the device and at the same time press the paring button on the touch screen and wait for the update to complete.

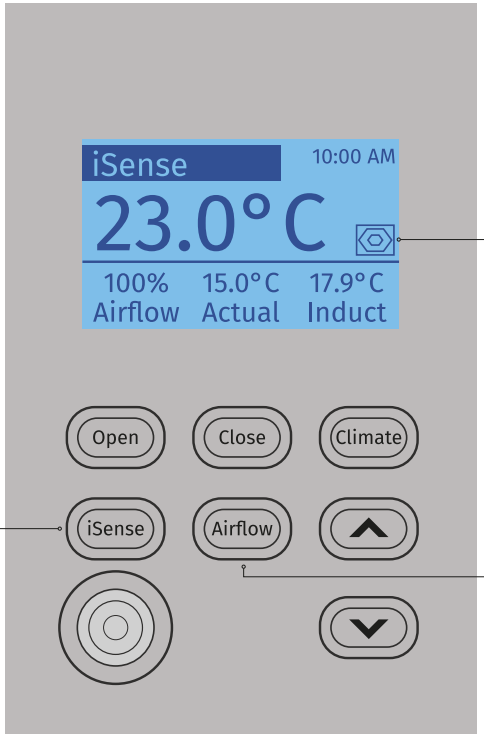
Remove front cover from sensor

Set the zone selector dial to the zone number that the sensor will control

Remove the battery tab on the sensor

Press and hold the pair button on the wireless sensor. At the same time press the "Pair Wireless Device Button" on the touch screen and wait until the update is complete.

iSense Controller Configuration



Indicates whether the iSense feature is active or inactive

Eye closed = iSense feature inactive

Eye open = iSense feature active

The iSense feature uses the occupancy strategy to control the zone

Press and hold the "Airflow" button to configure the controller. Here you can configure the correct Zone to control, change brightness and calibrate the sensor if required.

Press and hold the "iSense" button to enter the Occupancy Strategy configuration menu.

Follow the prompts to select the most appropriate strategy for your room or use the Custom Setup op on to design your own strategy

System reset button located at the bottom of controller

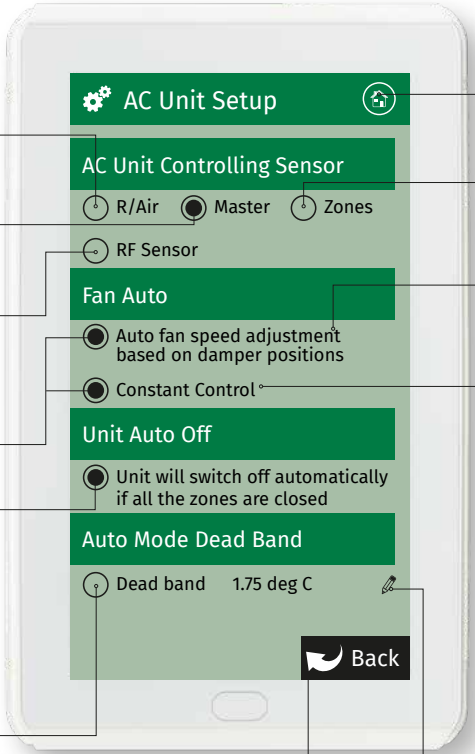
Note:

- When iSense has been activated movement is required in the range of the occupancy sensor to keep the zone operating. The use of the iSense feature in bedrooms, when occupants are sleeping, is not recommended.
- iSense controls require the use of shielded RJ45 Cables (Part Number 3205096).

Default pre-set	Pre-set 2	Pre-set 3	Pre-set 4
15 min No Movement – actual Temp moves 3 deg. closer to set temp.	15 min No Movement – actual Temp moves 3 deg. closer to set temp.	15 min No Movement – actual Temp moves 3 deg. closer to set temp.	15 min No Movement – actual Temp moves 2 deg. closer to set temp.
30 min No Movement – Zone Closes	30 min No Movement – Zone Closes	30 min No Movement – Zone Closes	15 min No Movement – Zone Closes

A/C Unit Configuration

Select the Method of Controlling the AC Unit



R/Air will control the A/C using the unit's return air sensor

Master will control the A/C unit from an assigned touch screen or zone sensor

RF Sensor is selected if you are controlling an A/C unit with no zones from a single RF sensor. The RF sensor dial must be set to (F) or (R)

Touch here to enable/ disable these features

Touch here to enable/ disable this feature. NOTE: This will shut down both outdoor and indoor unit when all zones are closed. Opening a zone will not turn the unit back on, unit will need to be turned back on using the on/off button.

Indicates the current dead band required to automatically switch from Cooling to Heating. This dead band/-1.75 deg. C from the controlling sensor's set point.

Touch here to go back and save the changes

Touch here to adjust the deadband

Touch here to go to the home screen

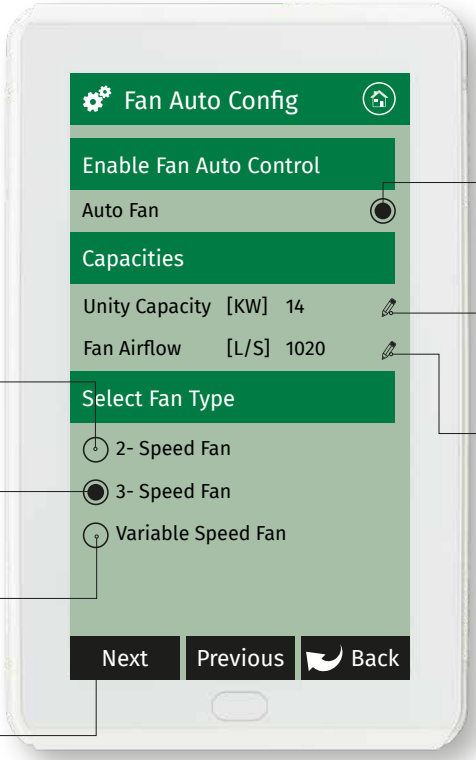
Zones will control the A/C unit from the zone that's actual temperature is furthest from the desired set temperature

To configure Fan Auto (see page 67)

Advanced constant control will use area (m²) in lieu of % of total zones open to control the constant zone or bypass damper. NOTE: all room areas must be entered accurately for this to function correctly. If the zone areas total 50m² and the equivalent of 25m² of zones are open, with a minimum area to be covered of 35m², then the constant or bypass will open in % to the equivalent of 10m².

E.g. Zone 1 Area = 13m² @20% Open
Zone 2 Area = 12m² @30% Open
Constant or Bypass = 10m² @15% Open

Fan Auto Configuration



Touch here to enable Fan Auto control and to proceed with Fan Auto set up

Touch here to set the A/C Unit capacity for this system. The capacity selection will provide an approximate airflow capacity for the A/C Unit.

Touch here to fine tune the airflow capacity. You can set the exact airflow in litres per second. This is available from the A/C Unit manufacturer.

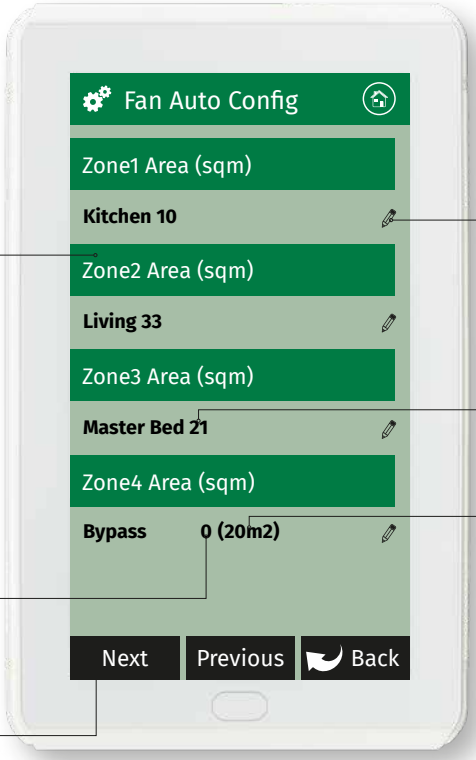
Select the correct fan speed type for the system installed. Refer to A/C unit manufacturer manual

It is recommended to use 3 speed fan setting for best use of the "Auto Fan" Function

Only Available on certain A/C unit makes.

Touch here to configure the zone areas (see page 68)

Fan Auto Zone Area Set Up



Zone name

Touch here to set the kitchen area in square meters

Current area set for Zone 3

Constant Control (If Enabled) shows the minimum area of zones that must be satisfied (closed) before the constant zone/bypass is requested to open.

NOTE: A zone operating at e.g. 45% open is deemed (for the systems calculations) to be air conditioning 45% of its total set area

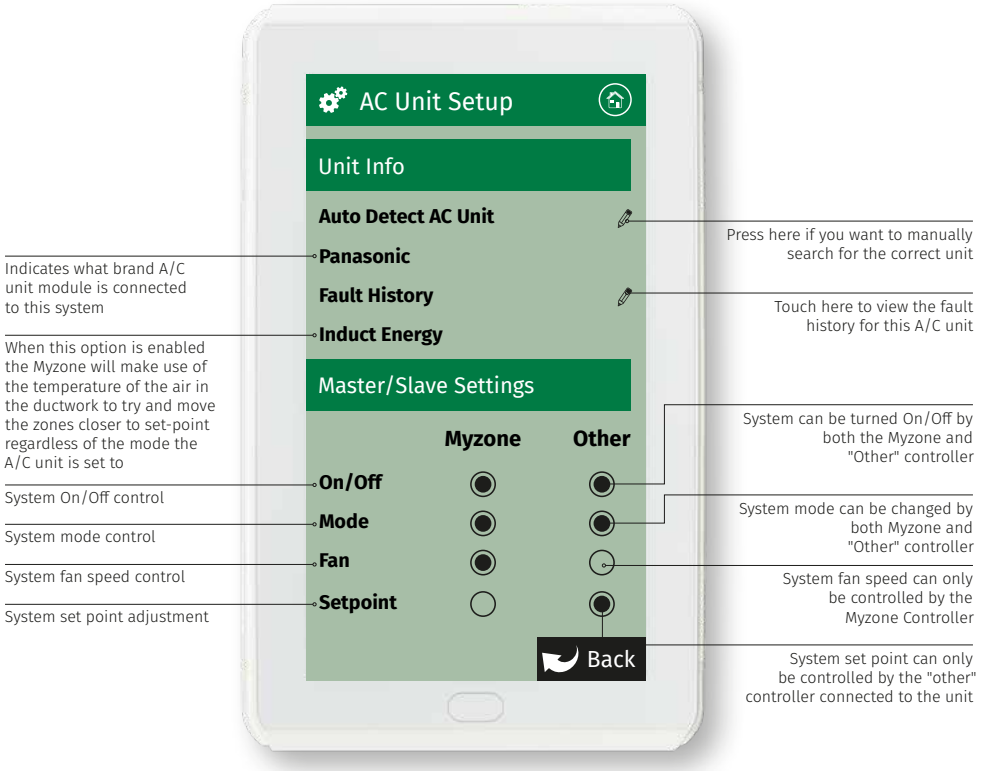
Indicates area of Bypass zone. Only a Bypass zone can be set to 1m² Indicates area of Bypass zone. Only a Bypass zone can be set to Om².

Touch here to configure the rest of the zone areas (e.g.. Zone 5)

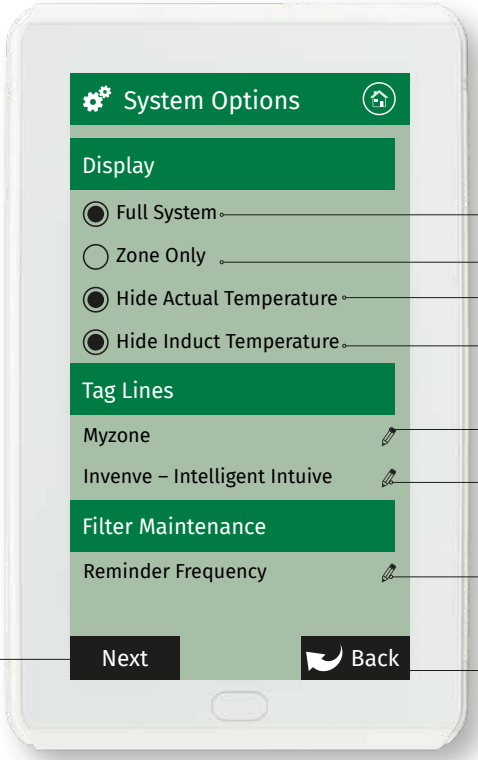
Unit Info and Master/Slave Setup

Note:

- This is an Advanced setting and should only be attempted by suitably qualified Myzone technicians.
- These settings will only work with certain makes and models of A/C units. Contact Reece to check if your system is suitable.
- The A/C system controls may require additional PCML5Bs, master/slave adjustments or controller addressing for these functions to operate.
- Reece does not accept responsibility if these settings do not work correctly on your particular system.



System Options (Display, Taglines and Filter Maintenance)



Select either Full System or Zone Only

Select if you want to hide the actual temperature from the user

Select if you want the induct temperature hidden from the user

Touch here to change line 1 of the tag line

Touch here to change line 2 of the tag line

Touch here to change the filter clean reminder frequency

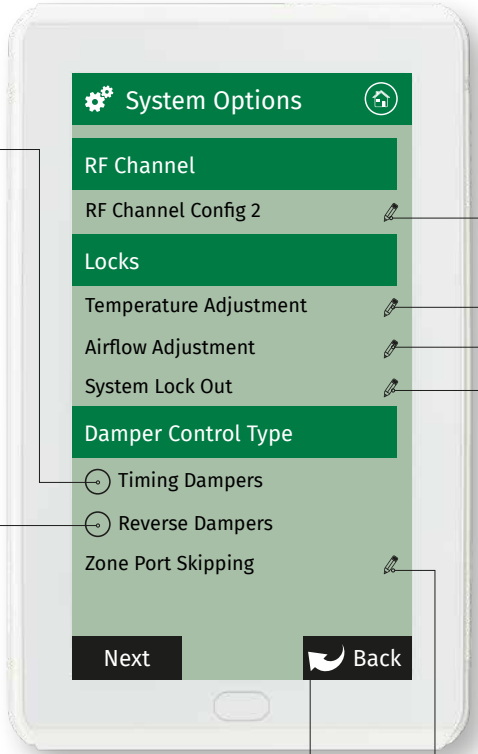
Touch here to go back to the next page of options

Touch here to go back to the previous configuration page

Note:

- Information on the configuration screen may vary depending which devices are connected to the system and which model of Myzone you have.

System Options (Locks and Non Standard Damper Motors)



Select here for non standard dampers such as Belimo.

You will need to type in the drive time in seconds fro fully closed to fully open.

Please note this will change the timing for all motors in the system so you cannot have a mix of different motors on the same system when using this feature.

The damper fault detection is ignored when this mode is used.

Select here to reverse the operation of all dampers

Press here to change the systems radio frequency channel. NOTE: If the RF channel is changed, you will need to re-pair all the RF devices connected to the system (Zone sensors, Wi-Fi Bridge etc.)

Press here to set limits for set point adjustment and to lock this setting

Touch here to lock airflow adjustment. You can lock minimum airflow only or both minimum and maximum air flow adjustments.
Default factory setting are:
Minimum Airflow = Locked
Maximum Airflow = Unlocked

Touch to lock the AC Unit. You will need to enter a PIN number and then the number of days you want the system to operate for, until it is locked off. Do not forget your PIN. WARNING! If pin code is forgotten, the CPU will need to be re-programmed.

Press here to skip a zone port on the C225 Module in the event a zone port is faulty

Touch here to go back to the previous configuration page

Note:

- Information on the configuration screen may vary depending which devices are connected to the system and which model of Myzone you have.

Wi-Fi Bridge Set Up

Equipment

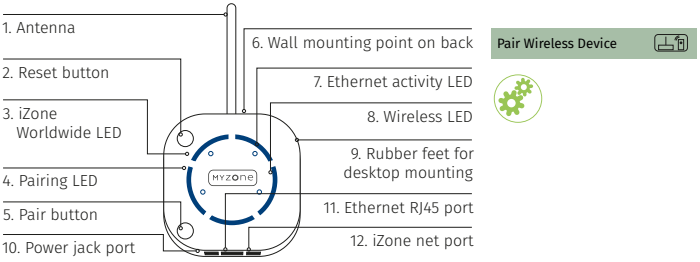
- See installation manual for details of equipment required and wiring diagram.

Configuration and Set Up

- Connect the Wi-Fi Bridge to a 240V Power Supply.
- Connect the factory supplied RJ45 cable to the "Ethernet" port on the Wi-Fi bridge and to a "LAN" port on the customers Modem/Router.

Pair the wireless bridge to the Myzone system

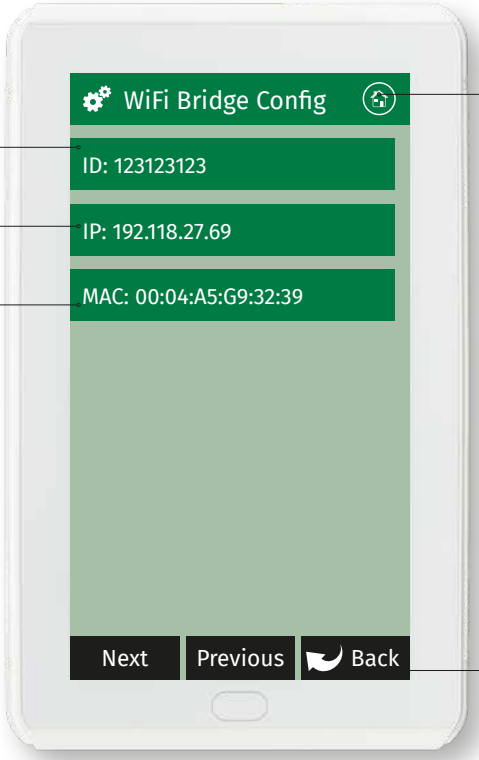
- Once plugged into power and connected to a compatible modem/router press and hold the blue button on the side of the Wi-Fi Bridge.
- At the same time enter the system configuration menu on the tablet using the “wamfud” password and press “Pair Wireless Device”. Once successfully paired you may release the “Pair” button on the Wi-Fi Bridge.



Check the pairing was successful

- Wait a few seconds after completing the pairing process. Press the home button on the touch screen.

Wi-Fi Bridge Configuration



Displays the Myzone system identification number

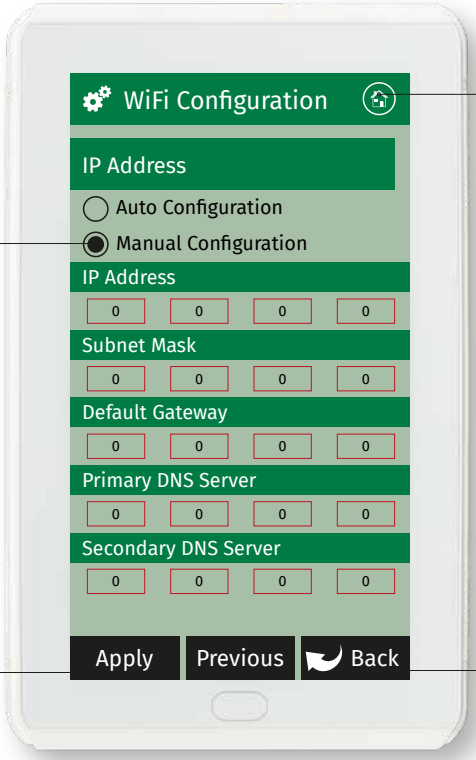
Displays the Bridge IP address allocated by the DHCP

Displays Myzone Ethernet controller MAC address

Touch here to go to the home screen

Touch here to go back and save the changes

Wi-Fi Manual IP Configuration



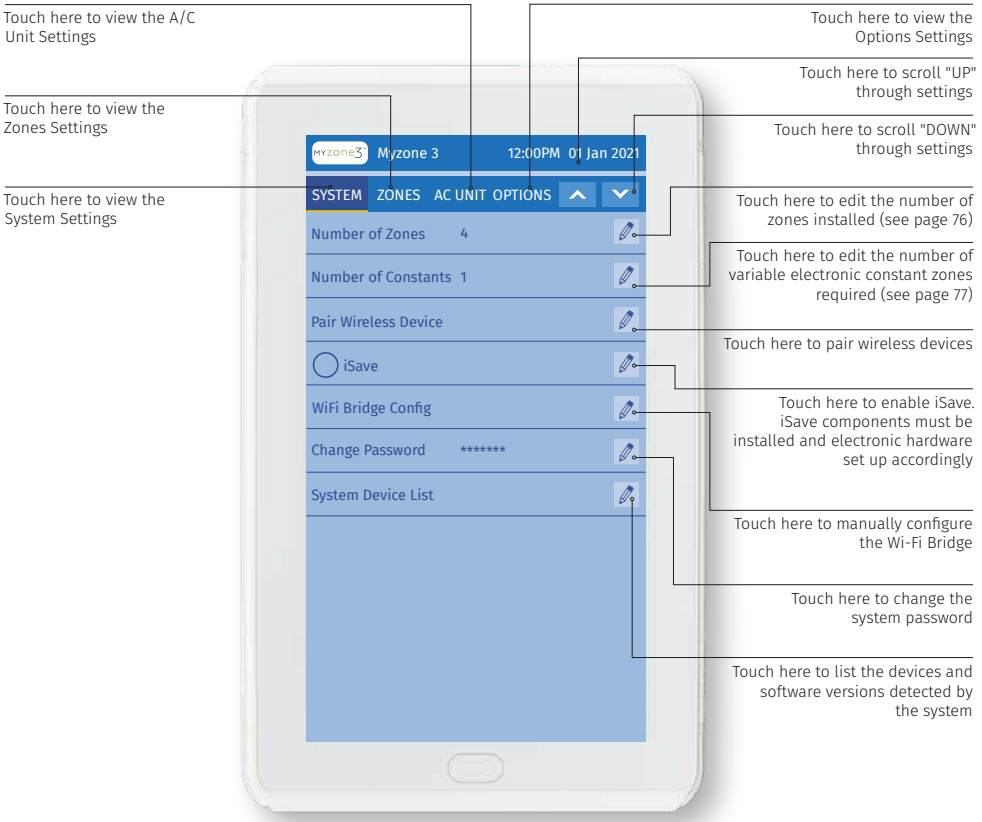
Touch here to go to the home screen

Select either Auto or Manual Configuration. If manual is selected you will need to know the IP, Subnet Mask, Default Gateway, Primary DNS Server and Secondary DNS Server addresses if applicable. If you require manual configuration please contact your IT specialist to assist you.

Touch here to apply the changes to the configuration

Touch here to go back without saving the changes

Configuration Main Menu (Modern Display)



Note:

- Information on the configuration screen may vary depending which devices are connected to the system and which model of Myzone you have.

Number of Zones

Number of Zones

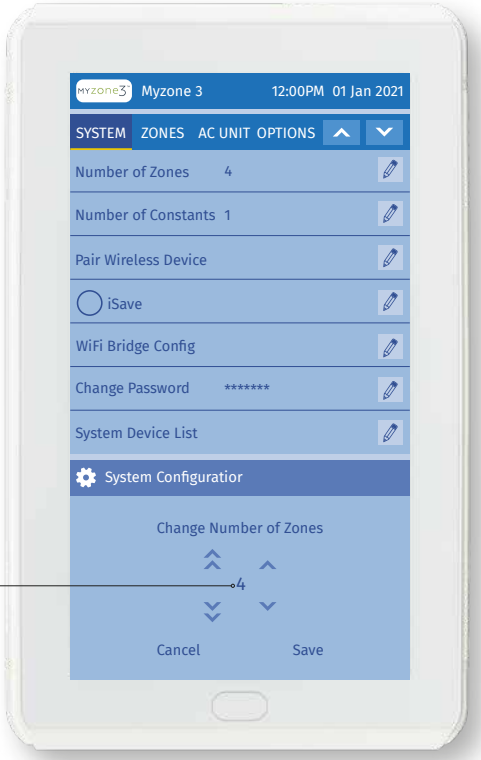
First set up the number of zones in your system.

To do this click on the pencil next to “Number of Zones”, adjust the factory default setting of 8 and enter in the correct number of zones being used in the application. NOTE: Number of zones must also include any constant/spill zones.

Naming Zones

Before you proceed further, it is suggested you mark your zones and name them accordingly under zone summary in the home screen. To do this, go back to the main menu, click on the zones icon, then click on a zone (e.g. Zone 1).

Delete the current zone name and type your desired zone name. Continue until all zones are correctly named. Once completed, return to the configuration menu.



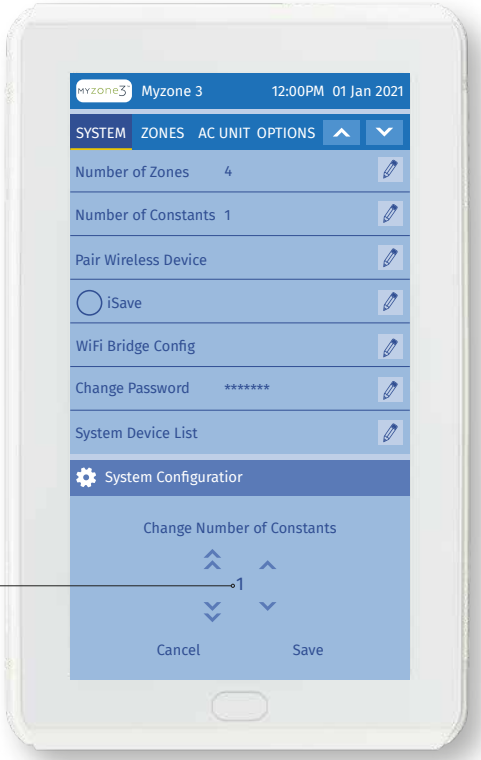
Number of Constants

Number of Constants
Set the number of constants that are being used in the system.

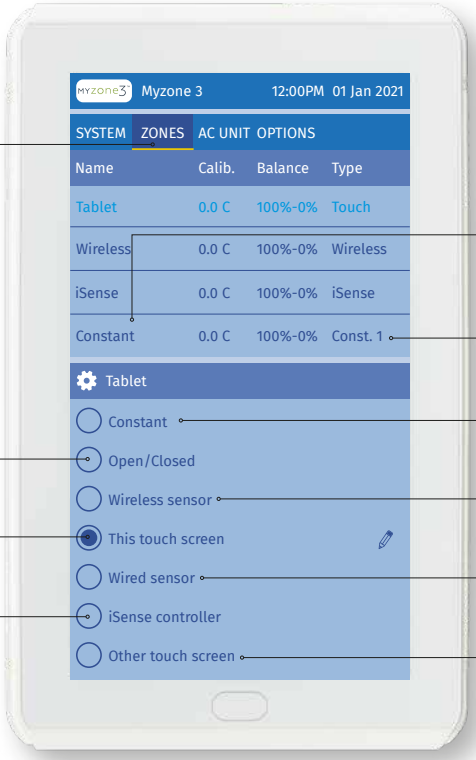
To do this click on the pencil next to "Number of Constants", adjust the factory default setting of 1 and enter in the correct number of constants being used in the application.

NOTE: Some form of constant control must be designed, installed and configured when using a Myzone 3 system. Failure to do so can result in damage to the air conditioning unit and its associated componentry.

For more information on Constant Zones, please refer to the design considerations section within the Installation Manual.



Zone Set Up



Touch here to view the Zones Settings

Zone Set Up

Once the number of zones and constants have been configured, each zone needs to be assigned a control configuration. Two manual control options and five climate control options are available.

Indicates this zone has been set up for Open/Close control only

Indicates this zone temperature is controlled via the sensor in a touch screen

Indicates this zone is set up for temperature control via an iSense controller

If the zone has been named, it will appear here, if no name has been assigned, it will show the zone number e.g. Zone 3

Click on each zone to configure set up

Indicates this zone is designated to be the first electronic constant zone

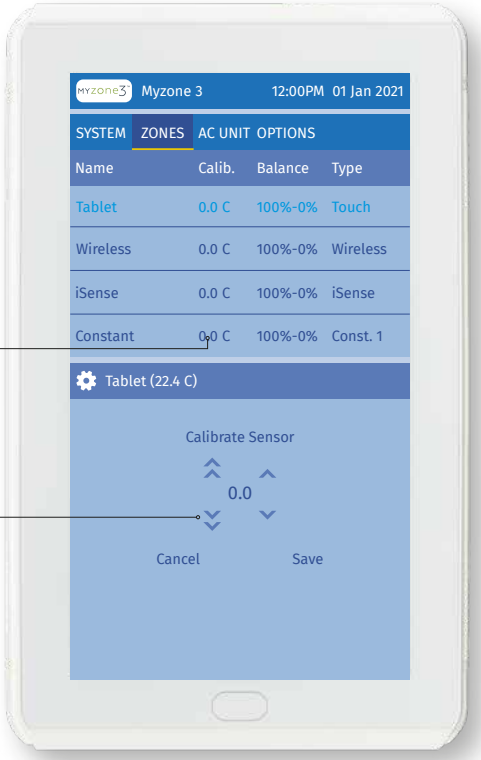
Indicates this zone temperature is controlled by a wireless sensor

Indicates this zone is set up for temperature control via a wired sensor

Indicates this zone is controlled by a secondary touch screen

Zone Set Up

Sensor Calibration

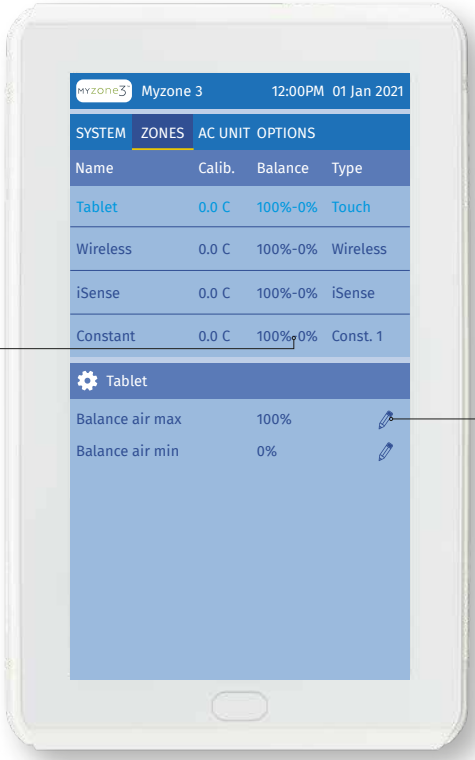


Press here to adjust the calibration of this sensor

Press here to adjust the temperature calibration of this sensor

Zone Set Up

Air Balance



Press here to adjust the minimum/maximum air balance for this zone. This adjustment takes precedence over the zone airflow MIN/MAX setting in the main menu available to end users.

E.g. If the balance air MIN has been set to 15%.

The end user can adjust the MIN airflow in the designated zone to 0%, however the zone will only close to 15%.

E.g. If the balance air MAX has been set to 80%.

The end user can adjust the MAX airflow in the designated zone to 100%, however the zone will only open to 80%.

Press here to adjust the MAX/ MIN percentages

Pairing and Configuring Myzone RF Sensors

Note:

- To pair other devices such as a Myzone bridge or repeater simply press the pairing button on the device and at the same time press the paring button on the touch screen and wait for the update to complete.

Remove front cover from sensor

Set the zone selector dial to the zone number that the sensor will control

Remove the battery tab on the sensor

Press and hold the pair button on the wireless sensor. At the same time press the "Pair Wireless Device Button" on the touch screen and wait until the update is complete.

A/C Unit Configuration

Controlling Sensor

Touch here to change the controlling sensor

R/Air will control the A/C using the unit's return air sensor

Master will control the A/C unit from an assigned touch screen or zone sensor

Zones will control the A/C unit from the zone that's actual temperature is furthest from the desired set temperature

RF Sensor is selected if you are controlling an A/C unit with no zones from a single RF sensor. The RF sensor dial must be set to (F) or (R)

A/C Unit Configuration

Fan Auto

Touch here to configure Fan Auto

Touch here to enable Fan Auto

Touch here to set the A/C Unit capacity for this system

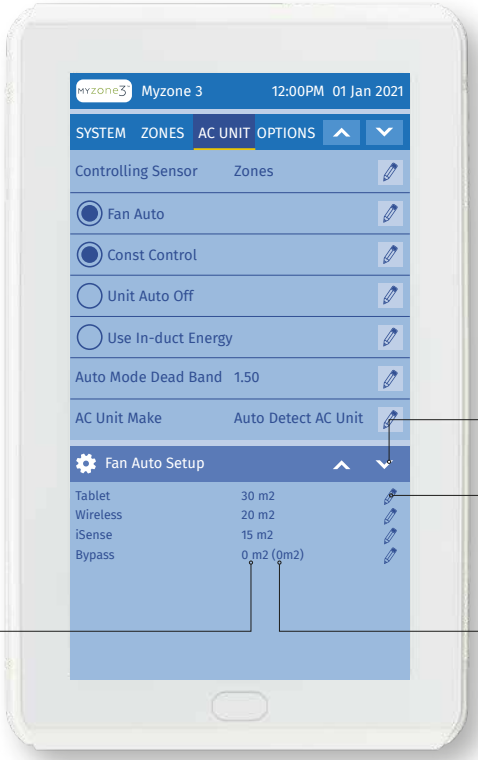
Touch here to fine tune the airflow capacity. Always use the "High" fan speed L/S value. This is available from the A/C Unit manufacturer.

It is recommended to use 3 speed fan setting for best use of the "Auto Fan" Function

Only available on certain A/C unit makes

A/C Unit Configuration

Fan Auto



Touch here to scroll Fan Auto Setup

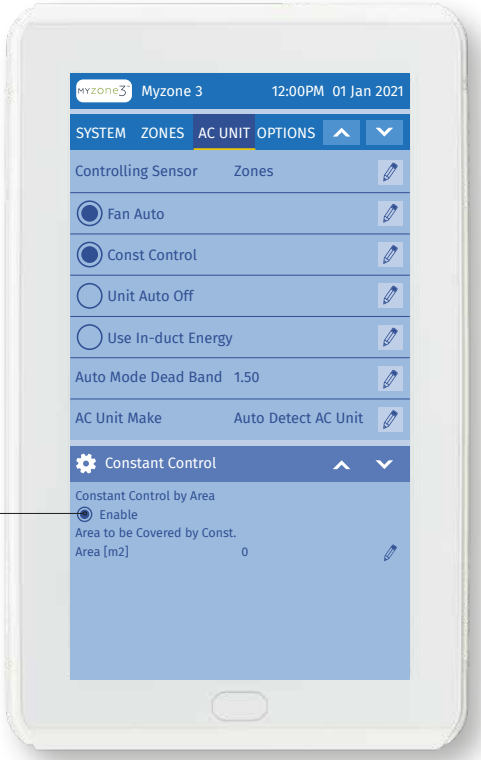
Touch here to set the area in square meters

Indicates area of Bypass zone. Only a Bypass zone can be set to 1 sqm.

NOTE: A zone operating at e.g. 45% open is deemed (for the systems calculations) to be air conditioning 45% of its total set area

A/C Unit Configuration

Constant Control



Advanced constant control will use area (m²) in lieu of % of total zones open to control the constant zone or bypass damper. NOTE: all room areas must be entered accurately for this to function correctly.

If the zone areas total 50m² and the equivalent of 25m² of zones are open, with a minimum area to be covered of 35m², then the constant or bypass will open in % to the equivalent of 10m².

E.g.

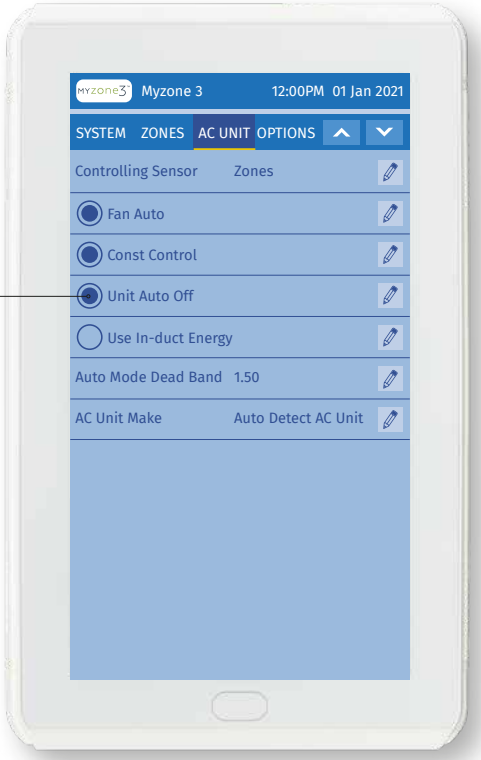
Zone 1 Area = 13m² @20% Open

Zone 2 Area = 12m² @30% Open

Constant or Bypass = 10m² @ 15% Open

A/C Unit Configuration

Unit Auto-Off

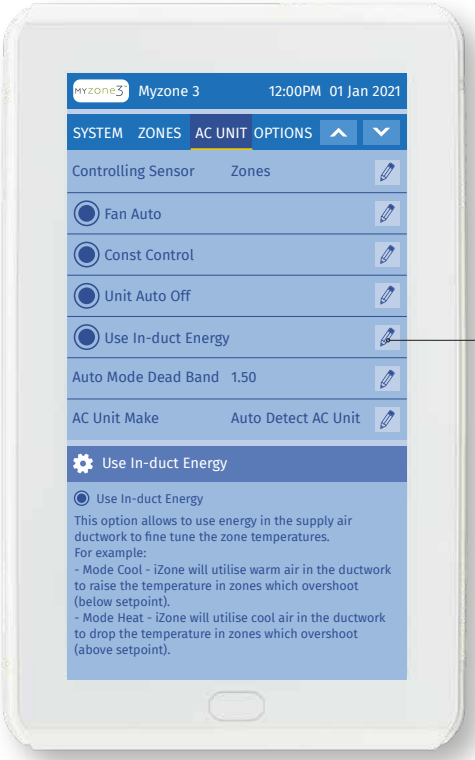


Touch here to enable/ disable this feature.

NOTE: This will shut down both outdoor and indoor unit when all zones are closed. Opening a zone will not turn the unit back on, unit will need to be turned back on using the on/off button.

A/C Unit Configuration

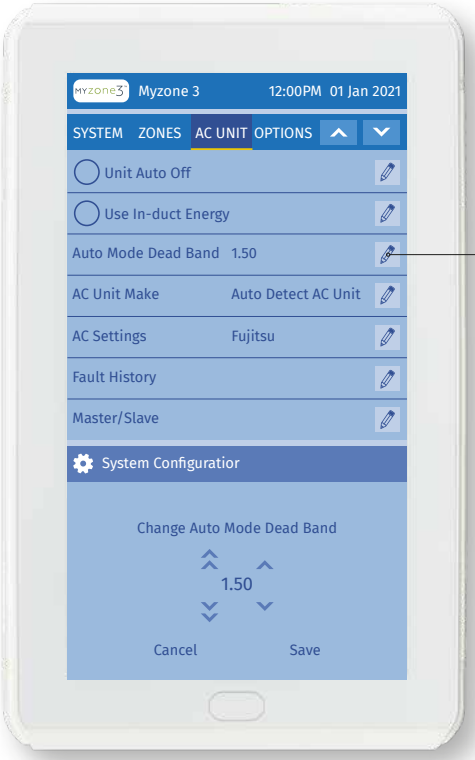
In-Duct Energy



Touch here to enable/disable the use of In-Duct Energy

A/C Unit Configuration

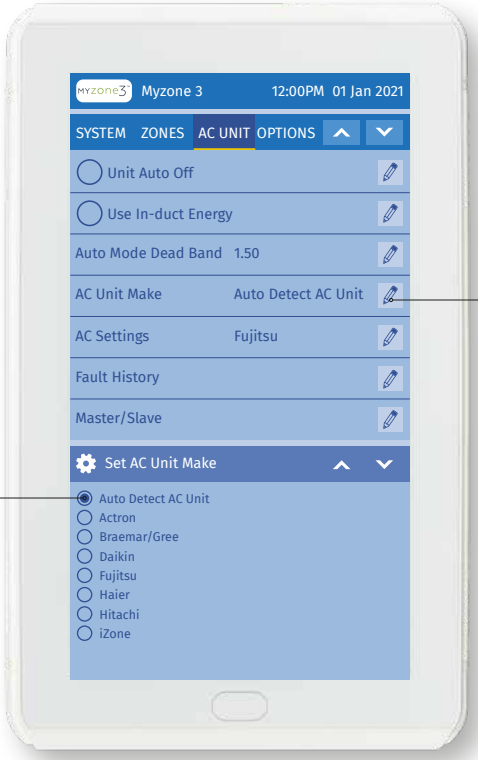
Auto Deadband



The deadband represents a temperature range in the AUTO mode set point in which neither cooling nor heating turns on. The deadband prevents the thermostat from activating cooling and heating in rapid succession.

A/C Unit Configuration

A/C Unit Make

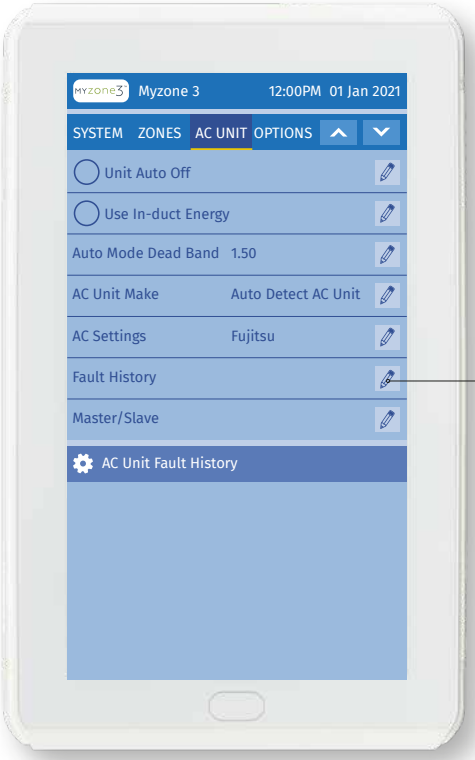


Touch here to change the A/C Unit Make

Auto Detect is the factory default setting and should not need to be changed

A/C Unit Configuration

Fault History



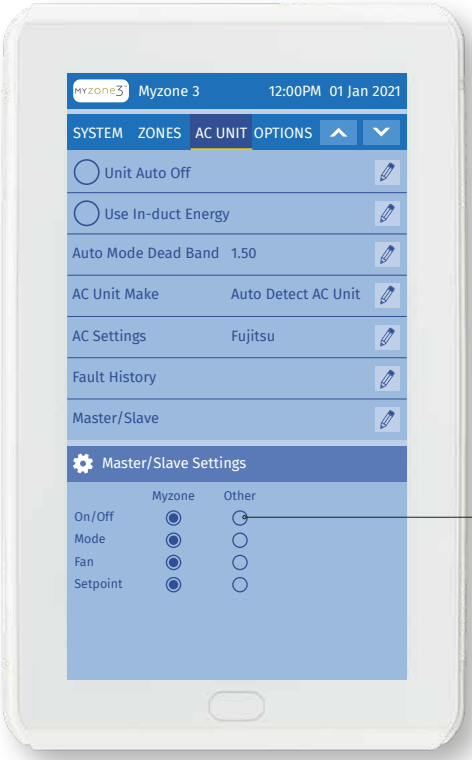
Press here to view the A/C Unit Fault History. All Manufacturers error codes will display here with date and time of error.

A/C Unit Configuration

Master/Slave

Note:

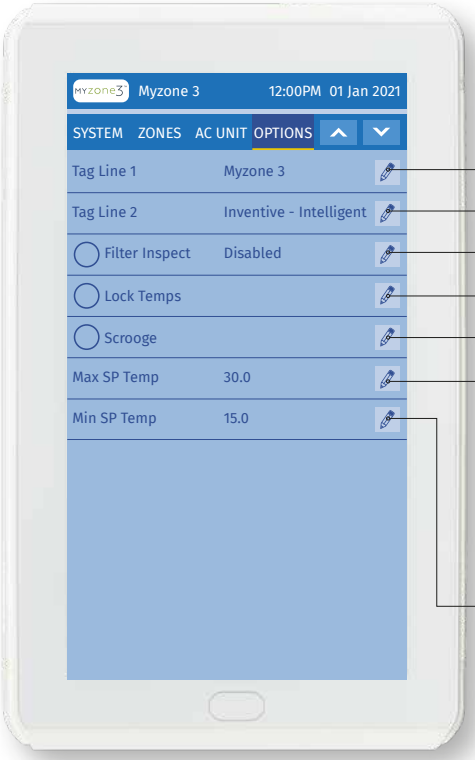
- This is an Advanced setting and should only be attempted by suitably qualified Myzone technicians.
- These settings will only work with certain makes and models of A/C units. Contact Reece to check if your system is suitable.
- The A/C system controls may require additional PCML5Bs, Master/Slave adjustments or controller addressing for these functions to operate.
- Reece does not accept responsibility if these settings do not work correctly on your particular system.



Use these settings to adjust Master/Slave control configurations with Myzone and another control.

E.g. selecting both Myzone and Other for ON/OFF will allow the unit to be turned ON/OFF from both the Myzone and other controller.

System Options



Press here to change the Tag Line 1

Press here to change the Tag Line 2

Press here to change the filter clean reminder frequency

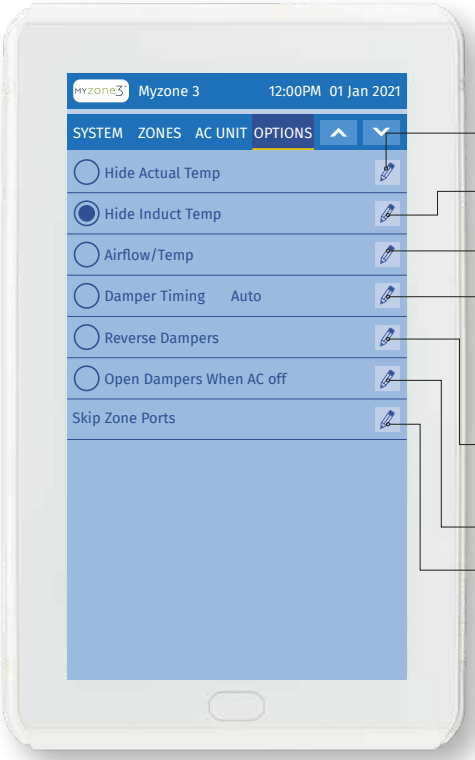
Press here to lock the MIN/MAX set point temperatures

Press here to activate the "Scrooge" function. This will utilise the MIN/MAX set point locks, however the user will still be able to adjust the set point to the full range. When this mode is selected, the Actual temp is automatically hidden.

Press here to adjust the Max Set Point Temperature for the Lock and Scrooge Functions

Press here to adjust the Min Set Point Temperature for the Lock and Scrooge Functions

System Options



Press here to hide the actual temp from the end users view

Press here to hide the actual temp from the end users view

Press here to show Set Temp and Actual Temp in the zone summary menu instead of Set Temp and Airflow

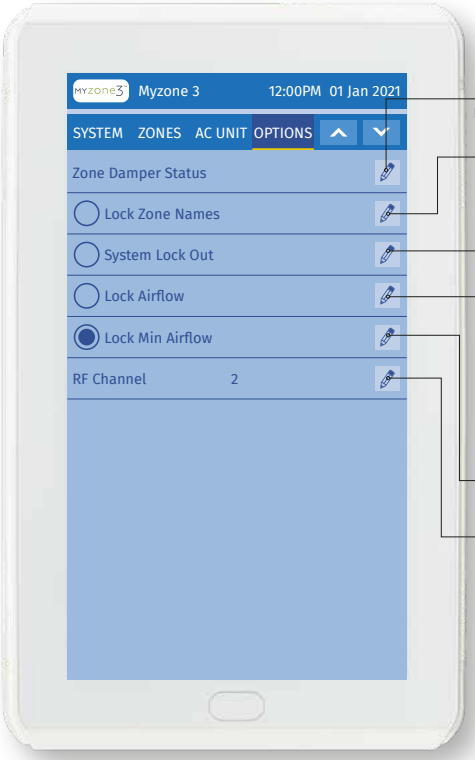
Press here to adjust the Damper timing from Auto to Manual. (Only activate this option with Siemens or Belimo Damper Motors).

Press here to reverse the polarity of all zone motors connected to the system.

Press here to activate this function

Press here and then select a zone port to skip. Can be utilised if there is a faulty port. Select the faulty port and move all zones to the next consecutive port.

System Options



Press here to check the status of the zone dampers

Press here to lock zone names so that they cannot be changed/ re-named unless the lock is de-activated

Touch to lock the A/C Unit. You will need to enter a PIN number and then the number of days you want the system to operate for, until it is locked off. Do not forget your PIN. WARNING! If pin code is forgotten, the CPU will need to be reprogrammed.

Press here to lock MAX/MIN airflow adjustments

Press here to lock MIN airflow adjustment only

Press here to change the Radio Frequency channel the system operates on. NOTE: if this is changed all RF signal components need to be re-paired (Sensors, Wi-Fi Bridge etc.)

Installing the Myzone 3 App

Hardware Requirements

- Smartphone or Tablet. The following platforms are supported: Apple & Android.
- Myzone 3 Wi-Fi Bridge.
- Modem/Router.

Software/Systems Requirements

iOS SOFTWARE REQUIREMENTS

- Compatible with iPhone, iPod touch, and iPad. iOS 6.0 and higher.

iOS SOFTWARE REQUIREMENTS

- Requires Android: 2.1 and higher.

INTERNET REQUIREMENTS

- Active Internet Service.

Download the Myzone 3 Home App

- You will need an account with the manufacturer of your phone to enable you to download Apps from their respective store.
- Apple — Apple App Store.
- Android—Google Play Store.
- Login to the respective store.
- To search for the Myzone 3 App type “Myzone3” into the stores search menu.
- Select and download the Myzone3 App.

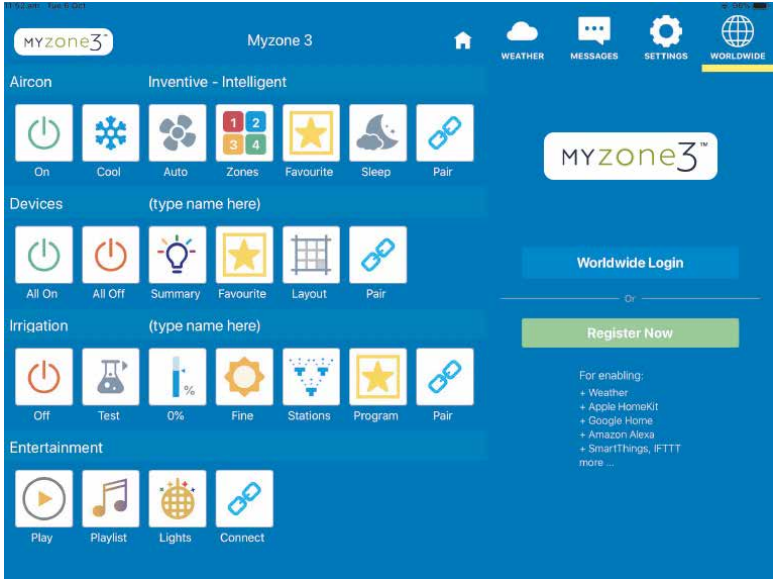
Worldwide Service Registration

World Wide Service

You can only have access to the system from outside your local Wi-Fi range after you have successfully registered your system on the World Wide Service.

To register your system you must:

- Be inside the Wi-Fi area your system is connected to.
- On the App Press worldwide and then press Register Now.
- Complete all the fields making sure you get the Suburb, State and Postcode 100% correct to ensure the correct weather data is displayed on your Nexus screen (if fitted).
- The App will display all the systems/devices it finds in the Wi-Fi area and will simultaneously register all system/devices displayed. Choose a name for your system.
- You must agree to the Worldwide Terms. Once you click submit, a verification email will be sent, to complete registration, check you email and verify your account.
- Make sure you remember your password as you will need it when you login via World Wide
- When you login to World Wide there is an option to save your username and password (Login and Remember Me). We recommend you select this option to make it faster and easier to login to your system remotely.
- To reduce the data usage there may be a slight delay between changing a setting on your phone, and the system updating, when using World Wide.
- Do not use World Wide when you are in your Wi-Fi zone unless you have turned off the Wi-Fi on your smart phone or tablet.



Home Automation Integration

Myzone systems can be integrated into almost any home automation system that has an Ethernet interface, including Google Assistant, Amazon Alexa, Control 4, IFTTT, Apple HomeKit*

For interface specifications please contact Reece Pty Ltd.

Your home automation integrator will need to write suitable code to control your A/C system. This service is not provided by Reece or Myzone.

IFTTT

*Apple Homekit requires an Open Connection “COCB” Bridge to be compatible

Further Assistance

1. If you require assistance with design, installation or configuration of the Myzone system you can visit www.metalflex.com.au/brands/myzone or contact your nearest Reece, Actrol or Metalflex Branch.
2. To lodge a warranty claim please call Reece Customer Care – 1800 080 055.

MYzone3™

Rev 11— 24/05/21

Reece Pty Ltd
118 Burwood Highway
Burwood Victoria 3125
Australia
Tel: 1800 080 055
Made in China

Project Summary

Pacific Ventilation

SINCLAIR BACK DRAFT DAMPERS

Quote Nº VENTQLD-0821-0255
Quote Date 11/08/2021
Tender Doc Ref
Revision

Account Mgr **Peter Morris**
Branch **Pacific Ventilation - Qld**
Phone 1300 733 833
Peter.Morris@pacificventilation.com

Product ID / Description	Qty	Mot (KW)/RPS / V/Hz/Ph	Selected Vol / Prs	Duty Vol / Prs	Sound Spectrum (Khz) 63	125	250	500	1k	2k	4k	8k	dB(A) @
Reference		**Location**											
RSK150	**47**	0.00/0	l/s	l/s									
Butterfly Damper RSK		0/0/0		0 Pa									
Reference		**Location**											
RSK200	**78**	0.00/0	l/s	l/s									
Butterfly Damper RSK		0/0/0		0 Pa									

RSK150

Butterfly Damper RSK

Pacific Ventilation

Location	Reference	
Performance Data	**Specified**	**Actual**
Design Flow (l/s)		
Design Pressure (Pa)		
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

Fan Data

Part Number	RSK150
Description	
Fan Diameter (mm)	
Impeller Type	
Impeller Material	
Weight (Kg)	
Fan Speed (RPM)	0
Absorbed Power (kW)	0.00
Peak Power (kW)	0.00
Total Efficiency (%)	0.0
Static Efficiency (%)	0.0
Frequency (Hz)	0

Motor Data

Rated (kW)	0.00
Motor Pole	
Voltage (V)	
Phase	
Full Load Current (A)	
Starting Current (A)	
Class	
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@m dB(A)

Dimensions

Wiring

Pacific Ventilation Pty Ltd, 2/63 Wells Rd, Chelsea Heights, Victoria 3196 Australia
1300 733 833 (AUS) info@pacificventilation.com www.pacificventilation.com

RSK200

Butterfly Damper RSK

Pacific Ventilation

Location	Reference	
Performance Data	**Specified**	**Actual**
Design Flow (l/s)		
Design Pressure (Pa)		
Air Density (kg/m3)	1.204	
Temperature (C°)	20	
Altitude (m)	0	
Humidity (%)	0	

Fan Data

Part Number	RSK200
Description	
Fan Diameter (mm)	
Impeller Type	
Impeller Material	
Weight (Kg)	
Fan Speed (RPM)	0
Absorbed Power (kW)	0.00
Peak Power (kW)	0.00
Total Efficiency (%)	0.0
Static Efficiency (%)	0.0
Frequency (Hz)	0

Motor Data

Rated (kW)	0.00
Motor Pole	
Voltage (V)	
Phase	
Full Load Current (A)	
Starting Current (A)	
Class	
Frame Size (mm)	
Mount	
Shaft Size (mm)	

Sound Data

A weighted sound pressure value is spherical free field for comparison use only.

Sound Power Spectrum (dB)

The sound power level ratings are shown in decibels & referred to in 10 $^{-12}$ watts.

Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	Total SPL@m dB(A)

Dimensions

Wiring

Pacific Ventilation Pty Ltd, 2/63 Wells Rd, Chelsea Heights, Victoria 3196 Australia
1300 733 833 (AUS) info@pacificventilation.com www.pacificventilation.com

SIGRIST DESIGN PTY. LTD.
CLEAN AIR PRODUCTS

63 Westgate St, Wacol, QLD, 4076
Tel: (07) 3271 4415
Web: www.sigristdesign.com.au, Email: sales@sigristdesign.com.au

SIM-HG-150-2E TECHNICAL DATASHEET

Product Name: SIM-HG-150-2E
Fan Type: SILENT MIXED FLOW
Install. Type: INLINE DUCT MOUNTED

Reference: -

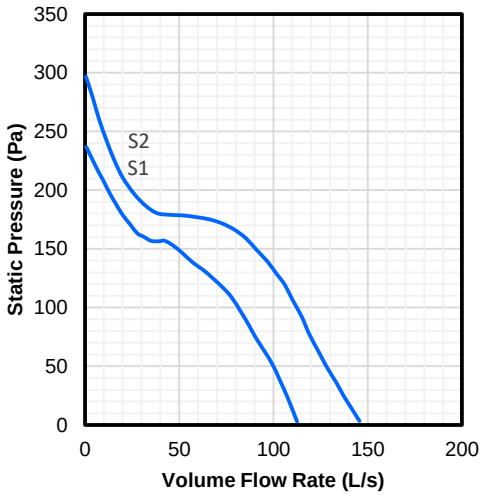
FAN PERFORMANCE

➤ **REQUESTED**

Parameter	Value	UoM
Air Qty:	-	L/s
Static Pressure:	-	Pa

➤ **ACTUAL**

Parameter	Value	UoM
Air Qty:	-	L/s
Static Pressure:	-	Pa



MOTOR SPECIFICATIONS

Parameter	Value	UoM
Electrical Supply:	240, 1, 50	V, ph, Hz
Motor Power:	0.048/0.054	kW
Full Load Current:	0.21/0.24	A
Motor Poles:	2	Ea
Fan Speed:	1850/2550	RPM

FAN SPECIFICATIONS

Parameter	Value	UoM
Speed Setting:	1/2	-
Mass:	4	kg

SOUND DATA

Spectrum (Hz):	125	250	500	1K	2K	4K	8K	dBA @ 3m
Inlet S1	-	-	-	-	-	-	-	26
Inlet S2	-	-	-	-	-	-	-	31
-	-	-	-	-	-	-	-	-

Sound levels are quoted as in-duct values at the point of optimal performance. Spectrum values are sound power levels Lw (dB).
Overall sound pressure Lp is for an average spherical free-field for comparative use only.

TEST SPECIFICATIONS

Fan performance has been tested according to ISO 5801.

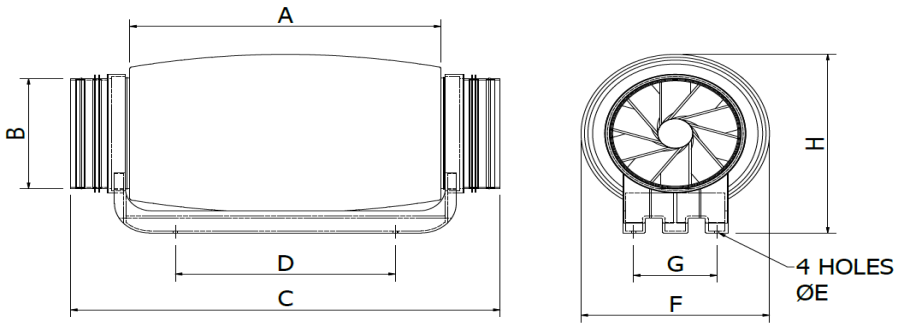
DISCLAIMERS:

1. Data shown is manufacturer's data, or data derived from manufacturer's data, that has been adjusted, where necessary, to consider the fully assembly of the product.
2. Sigrist Design reserves the right to make changes to the product at any time without notice as part of our continuous improvement process. Information provided by Sigrist Design is believed to be accurate and reliable. However, no responsibility is assumed by Sigrist Design for its use, nor for any infringements of patents or other rights of third parties which may result from its use.
3. Product shown may not be the exact listed product. Used for visualisation purposes only.

63 Westgate St, Wacol, QLD, 4076
Tel: (07) 3271 4415
Web: www.sigristdesign.com.au, Email: admin@sigristdesign.com.au

SIM-HG-150-2E TECHNICAL DATASHEET

DIMENSIONS



A	B	E	C	D	F	G	H
352	149	5	488	251	221	95	244

All dimensions are in millimetres.

APPENDIX 2

EQUIPMENT SCHEDULES

CARPARK EXHAUST FAN
BASEMENT

CEF-1
18.5 KW
32 FLA
ON
ISOL.
VSD
CB 1
40A

CARPARK SUPPLY FAN
BASEMENT

CSF-1
4.0 KW
7.9 FLA
ON
ISOL.
VSD
CB 2
16A

CARPARK EXHAUST FAN
BASEMENT

CSF-2
3.0 KW
5.9 FLA
ON
ISOL.
VSD
CB 3
16A

FULL LOAD AMPS: 55A

FORM: 2

FIELD WIRING
SW/BOARD WIRING:

415/3/50 N&E SUBMAINS BY OTHERS
MAIN ISOLATOR 63A

415V 3 PHASE
40 240V AC
200 24V AC
203 24V AC

N

LAMP TEST 203

200
VTCB 1 6A
202
VT 1
240V 24V
160 VA
201

IR1 250
251
FAR1B FAR1A
FR1 252
RR1 253
R L
G L

SR1 254
255
FAR2B FAR2A
FR2 256
RR2 257

SR1 258
259
FAR3B FAR3A
FR3 260
RR3 261

201 24V N
N2 240V N

SWBD WIRING
FIELD WIRING

205 206 207 200 208 209
DDC AO 0-10VDC CONTROL
16 13 12 11 10 18 25 27 22 24 2+ 3-
CEF-1 ABB VSD

210 211 212 200 213 214
DDC AO 0-10VDC CONTROL
16 13 12 11 10 18 25 27 22 24 2+ 3-
CSF-1 ABB VSD

215 216 217 200 218 219
DDC AO 0-10VDC CONTROL
16 13 12 11 10 18 25 27 22 24 2+ 3-
CSF-2 ABB VSD

__CONT. ON DWG. 994-02__

WIRING COLOUR CODE													
WER WIRING	CONTROL WIRING	A	AMMETER	GFAR	GEN. FIRE ALARM RLY.	S	SWITCH	VT	VOLTAGE TRANSFORMER				
NIMUM SIZE: 2.5mm²	MINIMUM SIZE: SIZE ²	AHT	AFTER HOURS TIMER	HPR	HEAT PROTECT RELAY	SR	START RELAY	IR	INTERFACE RELAY				
PHASE RED	LV ACTIVE LVAC	AMR	ALARM MUTE RELAY	HRM	HOUR RUN METER	TDR	TIME DELAY RELAY						
PHASE WHITE	LV NEUTRAL LVNC	AR	ALARM RELAY	KWH	KILOWATT HOUR METER	TR	TIMER RELAY						
PHASE BLUE	ELV ACTIVE ELVAC	COR	CHANGE OVER RELAY	L	PILOT LAMP	TS	TIME SWITCH						
UTRAL BLACK	ELV NEUTRAL ELVNC	CUR	CALL UP RELAY	LTR	LAMP TEST RELAY	TSR	TIME SWITCH RELAY						
RTH GREEN/YELLOW	EARTH GREEN/YELLOW	FAR	FIRE ALARM RELAY	PFR	PHASE FAIL RELAY	TT	TRANSITION TIMER			A	G.J.B	ORIGINAL ISSUE FOR APPROVAL	05/21
		FR	FAULT RELAY	RR	RUN RELAY	V	VOLTMETER			ISSUE	BY	AMENDMENTS	DATE

ACIS (QLD) Pty Ltd
PO BOX 8202, GOLD COAST MC QLD 9726
PH: 0419 756405 FAX: 07 55935088

THE SINCLAIR – 148 WELLINGTON RD EAST BRISBANE
MECHANICAL SERVICES: ELECTRICAL WIRING DIAGRAM
MSSR-B BASEMENT 1

DESIGN/DWN G.J.B.	CONTRACTOR SNOWDONIA		
CHECKED S.P.	SCALE N.T.S.	EWCB No. 54240	
PROJECT No 994	SIZE A3	SHEET 1 OF 5	
ABN	DRAWING NUMBER 994-01		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

FIELD WIRING
SWBD WIRING

40 — 415V 3 PHASE
200 — 40 240V AC
203 — 200 24V AC
203 24V AC

CONT. FROM DWG. 949-02

CONT. ON DWG. 949-04

IR2 262
IR3 263

SR1 2 – 1

R L

FAR1A 1 – 1
FAR1B – 1 1
FAR2A 1 – 1
FAR2B – 1 1
FAR3A 1 – 1
FAR3B – 1 1

RR1
RR2
RR3

201 — 201 24V N
N2 — N2 240V N

RED STROBE LIGHT MOUNTED ON TOP OF SWITCHBOARD

SWBD WIRING
FIELD WIRING

200	230	231	232	233	234	235	236	237	238	239	240	241
24V	CEF-1 START	CEF-1 STOP	CSF-1 START	CSF-1 STOP	CSF-2 START	CSF-2 STOP	CEF-1 STATUS		CSF-1 STATUS		CSF-2 STATUS	

FIRE ALARM INTERFACE
(BY OTHERS)

WIRING COLOUR CODE	
NER WIRING	CONTROL WIRING
NIMUM SIZE: 2.5mm²	MINIMUM SIZE: SIZE ²
PHASE RED	LV ACTIVE LVAC
PHASE WHITE	LV NEUTRAL LVNC
PHASE BLUE	ELV ACTIVE ELVAC
UTRAL BLACK	ELV NEUTRAL ELVNC
RTH GREEN/YELLOW	EARTH GREEN/YELLOW

A	AMMETER	GFAR	GEN. FIRE ALARM RLY.	S	SWITCH	VT	VOLTAGE TRANSFORMER
AHT	AFTER HOURS TIMER	HPR	HEAT PROTECT RELAY	SR	START RELAY	IR	INTERFACE RELAY
AMR	ALARM MUTE RELAY	HRM	HOUR RUN METER	TDR	TIME DELAY RELAY	HLR	KITCHEN HOOD LIGHTS RELAY
AR	ALARM RELAY	KWH	KILOWATT HOUR METER	TR	TIMER RELAY		
COR	CHANGE OVER RELAY	L	PILOT LAMP	TS	TIME SWITCH		
CUR	CALL UP RELAY	LTR	LAMP TEST RELAY	TSR	TIME SWITCH RELAY		
FAR	FIRE ALARM RELAY	PFR	PHASE FAIL RELAY	TT	TRANSITION TIMER		
FR	FAULT RELAY	RR	RUN RELAY	V	VOLTMETER		

ISSUE	BY	AMENDMENTS	DATE
A	G.J.B	ORIGINAL ISSUE FOR APPROVAL	05/21

ACIS (QLD) Pty Ltd
PO BOX 8202, GOLD COAST MC QLD 9726
PH: 0419 756405 FAX: 07 55935088

THE SINCLAIR – 148 WELLINGTON RD EAST BRISBANE
MECHANICAL SERVICES: ELECTRICAL WIRING DIAGRAM
MSSB-B BASEMENT 1

DESIGN/DWN	CONTRACTOR
G.J.B.	SNOWDONIA
CHECKED	SCALE	EWCB No.
S.P.	N.T.S.	54240
PROJECT No	SIZE	SHEET
994	A3	2 OF 5
ABN	DRAWING NUMBER
	994-03

__CONT. FROM DWG. 994-02__

__CONT. ON DWG. 994-04__

DDC GPO

SWBD WIRING
FIELD WIRING

E IN1

CB 4 16A R

CB 4 6A W

CSF-1 VSD 0-10VDC CONTROL + -

CSF-2 VSD 0-10VDC CONTROL + -

CEF-1 VSD 0-10VDC CONTROL + -

40 415V 3 PHASE
40 240V AC
200 24V AC

700 24V AC
701 24V N

12VDC RELAYS

IR1 1 +

IR2 1 -

IR3 1 -

720 CSF-1 START/STOP 721

722 CSF-1/2 START/STOP 723

724 HI CO ALARM 725

F1 2A

F2 2A

L E N UNO-IPS/100 + -

240/24VDC POWER SUPPLY

MACH-PROZONE CONTROLLER MPZ-88-C

OUTPUTS: 1+ 1- 2+ 2- 3+ 3- 4+ 4- 5+ 5- 6+ 6- 7+ 7- 8+ 8-

POWER SUPPLY: 24V 24VAC GND GND

INPUTS: 1+ 1- 2+ 2- 3+ 3- 4+ 4- 5+ 5- 6+ 6- 7+ 7- 8+ 8-

NETWORK: A B

DATA GND +5V CLK

SSL: DATA GND +5V CLK

CAT 5 CABLE

726 FR1 727
FR2
FR3
COMMON FAULT

LAN TO DDC 2

MACH-PROZONE CONTROLLER MPZ-48-C

OUTPUTS: 1+ 1- 2+ 2- 3+ 3- 4+ 4-

POWER SUPPLY: 24V 24VAC GND GND

INPUTS: 1+ 1- 2+ 2- 3+ 3- 4+ 4- 5+ 5- 6+ 6- 7+ 7- 8+ 8-

NETWORK: A B

DATA GND +5V CLK

LAN FROM DDC 1

LAN TO DDC 3

201 700 24V AC
N2 201 24V N
N2 240V N

SWBD WIRING
FIELD WIRING

F4 2A: 705 706 707 708

F5 2A: 709 710 711 712

F6 2A: 713 714 715 716

F7 2A: 717 718 719 720

RED BLUE GAS-CO-300

SENSOR B1-1 SENSOR B1-2 SENSOR B1-3 SENSOR B1-4 SENSOR B1-5 SENSOR B1-6 SENSOR B1-7 SENSOR B1-8

BASEMENT 1 CO SENSORS

SENSOR B2-1 SENSOR B2-2 SENSOR B2-3 SENSOR B2-4 SENSOR B2-5 SENSOR B2-6 SENSOR B2-7 SENSOR B2-8

BASEMENT 2 CO SENSORS

WIRING COLOUR CODE		A	AMMETER	GFAR	GEN. FIRE ALARM RLY.	S	SWITCH	VT	VOLTAGE TRANSFORMER
POWER WIRING	CONTROL WIRING	AHT	AFTER HOURS TIMER	HPR	HEAT PROTECT RELAY	SR	START RELAY	IR	INTERFACE RELAY
MINIMUM SIZE: 2.5mm²	MINIMUM SIZE: SIZE ²	AMR	ALARM MUTE RELAY	HRM	HOUR RUN METER	TDR	TIME DELAY RELAY		
PHASE RED	LV ACTIVE LVAC	AR	ALARM RELAY	KWH	KILOWATT HOUR METER	TR	TIMER RELAY		
PHASE WHITE	LV NEUTRAL LVNC	COR	CHANGE OVER RELAY	L	PILOT LAMP	TS	TIME SWITCH		
PHASE BLUE	ELV ACTIVE ELVAC	CUR	CALL UP RELAY	LTR	LAMP TEST RELAY	TSR	TIME SWITCH RELAY		
NEUTRAL BLACK	ELV NEUTRAL ELVNC	FAR	FIRE ALARM RELAY	PFR	PHASE FAIL RELAY	TT	TRANSITION TIMER		
EARTH GREEN/YELLOW	EARTH GREEN/YELLOW	FR	FAULT RELAY	RR	RUN RELAY	V	VOLTMETER		

ISSUE	BY	AMENDMENTS	DATE
A	G.J.B	ORIGINAL ISSUE FOR APPROVAL	05/21

ACIS (QLD) Pty Ltd
PO BOX 8202, GOLD COAST MC QLD 9726
PH: 0419 756405 FAX: 07 55935088

THE SINCLAIR – 148 WELLINGTON RD EAST BRISBANE
MECHANICAL SERVICES: ELECTRICAL WIRING DIAGRAM
MSSB-B BASEMENT 1

DESIGN/DWN	CONTRACTOR
G.J.B.	SNOWDONIA
CHECKED S.P.	SCALE N.T.S. / EWCB No. 54240
PROJECT No 993	SIZE A3 / SHEET 3 OF 5
ABN 29009467188	DRAWING NUMBER 993-03

SWBD WIRING
FIELD WIRING

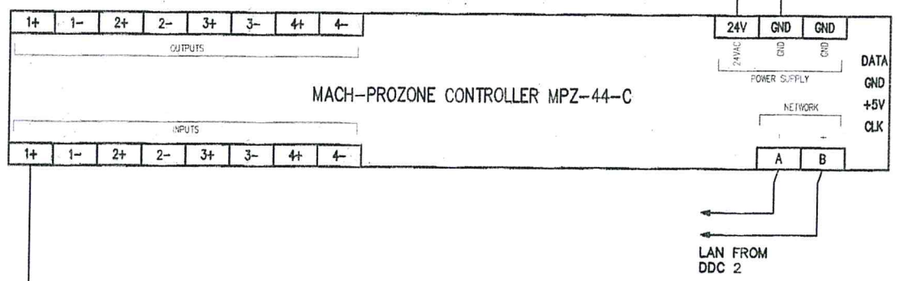
40
200

415V 3 PHASE
40 240V AC
200 24V AC

700
701

F3
2A

CONT. FROM DWG. 994-03



LAN FROM
DDC 2

720
700
201
N2

700 24V AC
201 24V N
N2 240V N

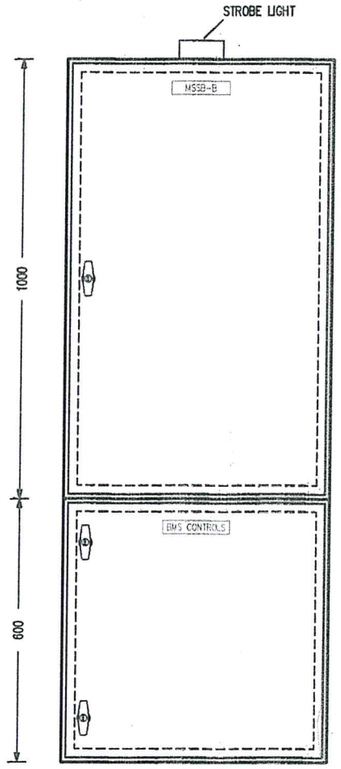
SWBD WIRING
FIELD WIRING

WIRING COLOUR CODE													
WER WIRING	CONTROL WIRING	A	AMMETER	GFAR	GEN. FIRE ALARM RLY.	S	SWITCH	VT	VOLTAGE TRANSFORMER				
IMUM SIZE: 2.5mm²	MINIMUM SIZE: SIZE ²	AHT	AFTER HOURS TIMER	HPR	HEAT PROTECT RELAY	SR	START RELAY	IR	INTERFACE RELAY				
PHASE RED	LV ACTIVE LVAC	AMR	ALARM MUTE RELAY	HRM	HOUR RUN METER	TDR	TIME DELAY RELAY						
PHASE WHITE	LV NEUTRAL LVNC	AR	ALARM RELAY	KWH	KILOWATT HOUR METER	TR	TIMER RELAY						
PHASE BLUE	ELV ACTIVE ELVAC	COR	CHANGE OVER RELAY	L	PILOT LAMP	TS	TIME SWITCH						
UTRAL BLACK	ELV NEUTRAL ELVNC	CUR	CALL UP RELAY	LTR	LAMP TEST RELAY	TSR	TIME SWITCH RELAY						
RTH GREEN/YELLOW	EARTH GREEN/YELLOW	FAR	FIRE ALARM RELAY	PFR	PHASE FAIL RELAY	TT	TRANSITION TIMER						
		FR	FAULT RELAY	RR	RUN RELAY	V	VOLTMETER	A	G.J.B	ORIGINAL ISSUE FOR APPROVAL		05/21	
								ISSUE	BY	AMENDMENTS		DATE	

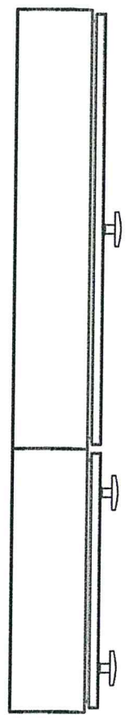
ACIS (QLD) Pty Ltd
PO BOX 8202, GOLD COAST MC QLD 9726
PH: 0419 756405 FAX: 07 55935088

THE SINCLAIR – 148 WELLINGTON RD EAST BRISBANE
MECHANICAL SERVICES: ELECTRICAL WIRING DIAGRAM
MSSB P BASEMENT 1

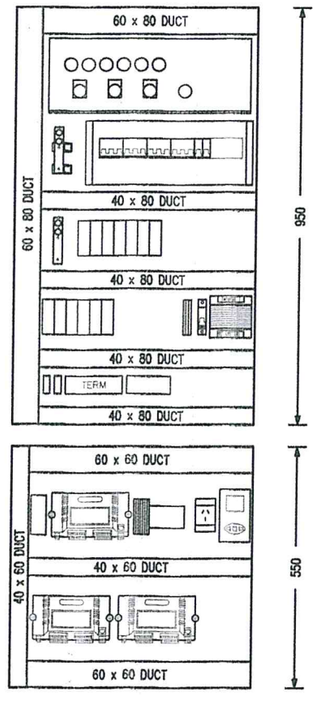
DESIGN/DWN	CONTRACTOR
G.J.B.	SNOWDONIA
CHECKED	SCALE / EWCB No.
S.P.	N.T.S. / 54240
PROJECT No	SIZE / SHEET
994	A3 / 4 OF 5
ABN	DRAWING NUMBER



FRONT VIEW



END VIEW

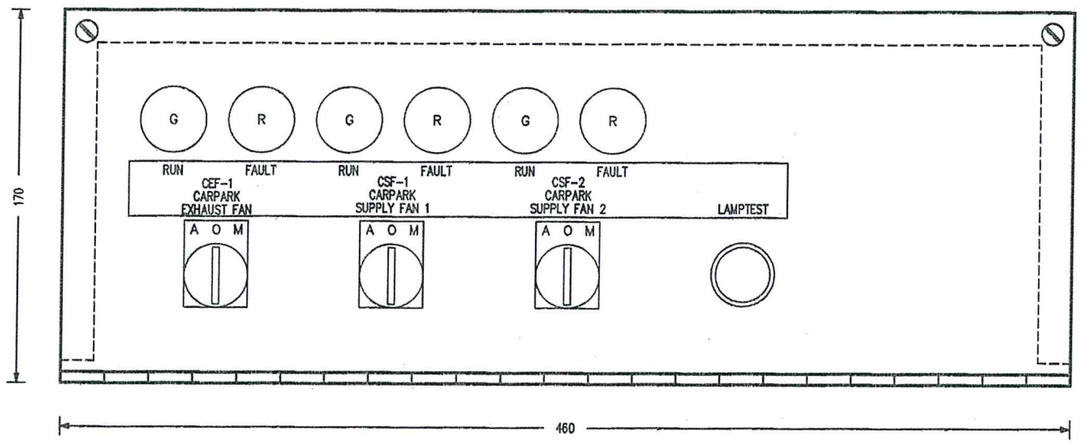


EQUIPMENT PANEL LAYOUT

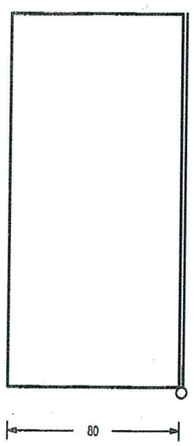
ENCLOSURE DETAILS

MAKE: IDE
IP RATING: 65
PAINT: ORANGE RAL2008
WALL MOUNTED
DEPTH: 200mm

EQUIPMENT LIST		SUPPLIER:	MAKE:	CATALOGUE No.
1	ENCLOSURE	IPD	IDE	MSB1006020A
2	ENCLOSURE	IPD	IDE	MSB606020A
3	MAIN SWITCH	SCHNEIDER	ACTI 9 SERIES	A9S66363
4	NEUTRAL LINK	DORE	DTN	165E6
5	EARTH BAR	DORE	DTN	165E6
6	240/24V TRANSFORMER	DORE	EROD	TOH160
7	CIRCUIT BREAKER	SCHNEIDER	ACTI 9 SERIES	IC60N
8	RELAY	NHP	FINDER	38.51.0054
9	RELAY	NHP	FINDER	55.34.0054
10	AOM SWITCHES	SCHNEIDER	HARMONY RANGE	ZB4-BD3
11	PUSH BUTTON	SCHNEIDER	HARMONY RANGE	ZB4-BA2
12	PILOT LIGHTS	SCHNEIDER	HARMONY RANGE	XB4BVB*
13	TERMINALS	DKSH	WIELAND	58.503.0055.0
14	CABLE DUCT	DORE	TERMCO	CSD ** **
15	–	–	–	–
16	–	–	–	–
17	–	–	–	–
18	–	–	–	–
19	–	–	–	–
20	–	–	–	–



TEST SWITCH PANEL DETAILS



END VIEW

ISSUE	BY	AMENDMENTS	DATE
A	G.J.B	ORIGINAL ISSUE FOR APPROVAL	05/21

ACIS (QLD) Pty Ltd
PO BOX 8202, GOLD COAST MC QLD 9726
PH: 0419 756405 FAX: 07 55935088

THE SINCLAIR – 148 WELLINGTON RD EAST BRISBANE
MECHANICAL SERVICES: SWITCHBOARD CONSTRUCTION
MSSB-B BASEMENT 1

DESIGN/DWN G.J.B.		CONTRACTOR SNOWDONIA	
CHECKED S.P.	SCALE N.T.S.	EWCB No. 54240	
PROJECT No 994	SIZE A3	SHEET 5 OF 5	
ABN	DRAWING NUMBER 994-05		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**SINCLAIR**															
2	**BUILDING 1 AC SCHEDULE_V1.0**						**Supply Air**	**Outside**	**GTH**	**GTSH**	**Coil entering**	**conditions**	**Coil leaving**	**conditions**	**REFRIGERANT PIPEWORK**	
3	**AREA SERVED**	**INDOOR UNIT NO.**	**UNIT TYPE**		**OUTDOOR UNIT NO.**	**LOCATION**	**l/s**	**l/s**	**kW**	**kW**	**CDB**	**CWB**	**CDB**	**CWB**	Vertical Rise (m)	Total Pipe Length (incl. all pipe fittings)(m)
4	GYM	AC-GYM	SPLIT DUCTED	HEAT PUMP	CU-GYM	GROUND	700	203	23.3	13.9	26.4	19.6	10	9.2	25.7	57.9
5	L1 LOBBY / CON. DSK	AC-L1 LOBBY / CON. DSK	SPLIT DUCTED	VRF	CU-LOB	ROOF	481	60	10.7	7.67	25	18.2	11.9	11.3	25.7	73.14
6	MAN. OFFICE	AC-MAN. OFFICE	WALL MOUNTED				51	10	1.17	0.81	25.6	18.8	12.4	11.8		
7	MSB ROOM	AC-MSB ROOM	WALL MOUNTED	COOLING ONLY	CU-MSB	ROOF	246	0	3.24	3.07	24	17.1	13.7	13	1	16.08
8	1101	AC-1101	SPLIT DUCTED	HEAT PUMP	CU-1101	ROOF	502	0	9.12	7.32	24	17.1	11.9	11.3	25.7	46.97
9	1102	AC-1102	SPLIT DUCTED	HEAT PUMP	CU-1102	ROOF	701	0	11.6	9.71	24	17.1	12.5	11.9	25.7	48.22
10	1103	AC-1103	SPLIT DUCTED	HEAT PUMP	CU-1103	ROOF	513	0	8.25	7.02	24	17.1	12.7	12	25.7	54.01
11	1104	AC-1104	SPLIT DUCTED	HEAT PUMP	CU-1104	ROOF	513	0	8.25	7.02	24	17.1	12.7	12	25.7	62.5
12	1105	AC-1105	SPLIT DUCTED	HEAT PUMP	CU-1105	ROOF	678	0	11.2	9.41	24	17.1	12.5	11.9	25.7	66.92
13	1106	AC-1106	SPLIT DUCTED	HEAT PUMP	CU-1106	ROOF	444	0	7.52	6.24	24	17.1	12.4	11.7	25.7	65.24
14	1201	AC-1201	SPLIT DUCTED	HEAT PUMP	CU-1201	ROOF	430	0	7.45	6.11	24	17.1	12.2	11.6	20.7	49.94
15	1202	AC-1202	SPLIT DUCTED	HEAT PUMP	CU-1202	ROOF	793	0	12.7	10.8	24	17.1	12.7	12.1	20.7	48.96
16	1203	AC-1203	SPLIT DUCTED	HEAT PUMP	CU-1203	ROOF	476	0	7.55	6.47	24	17.1	12.8	12.1	20.7	44.59
17	1204	AC-1204	SPLIT DUCTED	HEAT PUMP	CU-1204	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	20.7	50.11
18	1205	AC-1205	SPLIT DUCTED	HEAT PUMP	CU-1205	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	20.7	60.13
19	1206	AC-1206	SPLIT DUCTED	HEAT PUMP	CU-1206	ROOF	583	0	9.06	7.85	24	17.1	12.9	12.2	20.7	76.97
20	1207	AC-1207	SPLIT DUCTED	HEAT PUMP	CU-1207	ROOF	623	0	10.6	8.77	24	17.1	12.3	11.7	20.7	62.61
21	1208	AC-1208	SPLIT DUCTED	HEAT PUMP	CU-1208	ROOF	423	0	7.26	5.98	24	17.1	12.3	11.7	20.7	61.01
22	1301	AC-1301	SPLIT DUCTED	HEAT PUMP	CU-1301	ROOF	430	0	7.45	6.11	24	17.1	12.2	11.6	17.7	47.63
23	1302	AC-1302	SPLIT DUCTED	HEAT PUMP	CU-1302	ROOF	793	0	12.7	10.8	24	17.1	12.7	12.1	17.7	44.78
24	1303	AC-1303	SPLIT DUCTED	HEAT PUMP	CU-1303	ROOF	588	0	9.32	7.99	24	17.1	12.8	12.1	17.7	40.3
25	1304	AC-1304	SPLIT DUCTED	HEAT PUMP	CU-1304	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	17.7	44.05
26	1305	AC-1305	SPLIT DUCTED	HEAT PUMP	CU-1305	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	17.7	53.93
27	1306	AC-1306	SPLIT DUCTED	HEAT PUMP	CU-1306	ROOF	572	0	8.93	7.71	24	17.1	12.8	12.2	17.7	71.24
28	1307	AC-1307	SPLIT DUCTED	HEAT PUMP	CU-1307	ROOF	623	0	10.6	8.77	24	17.1	12.3	11.7	17.7	58.7
29	1308	AC-1308	SPLIT DUCTED	HEAT PUMP	CU-1308	ROOF	423	0	7.26	5.98	24	17.1	12.3	11.7	17.7	57.48
30	1401	AC-1401	SPLIT DUCTED	HEAT PUMP	CU-1401	ROOF	430	0	7.45	6.11	24	17.1	12.2	11.6	14.6	47.03
31	1402	AC-1402	SPLIT DUCTED	HEAT PUMP	CU-1402	ROOF	793	0	12.7	10.8	24	17.1	12.7	12.1	14.6	44.18
32	1403	AC-1403	SPLIT DUCTED	HEAT PUMP	CU-1403	ROOF	588	0	9.32	7.99	24	17.1	12.8	12.1	14.6	39.7
33	1404	AC-1404	SPLIT DUCTED	HEAT PUMP	CU-1404	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	14.6	43.45
34	1405	AC-1405	SPLIT DUCTED	HEAT PUMP	CU-1405	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	14.6	53.63
35	1406	AC-1406	SPLIT DUCTED	HEAT PUMP	CU-1406	ROOF	572	0	8.93	7.71	24	17.1	12.8	12.2	14.6	70.94
36	1407	AC-1407	SPLIT DUCTED	HEAT PUMP	CU-1407	ROOF	623	0	10.6	8.77	24	17.1	12.3	11.7	14.6	58.4
37	1408	AC-1408	SPLIT DUCTED	HEAT PUMP	CU-1408	ROOF	423	0	7.26	5.98	24	17.1	12.3	11.7	14.6	57.18
38	1501	AC-1501	SPLIT DUCTED	HEAT PUMP	CU-1501	ROOF	569	0	9.38	7.88	24	17.1	12.5	11.9	11.6	65.86
39	1502	AC-1502	SPLIT DUCTED	HEAT PUMP	CU-1502	ROOF	788	0	12.7	10.8	24	17.1	12.6	12	11.6	44.28
40	1503	AC-1503	SPLIT DUCTED	HEAT PUMP	CU-1503	ROOF	588	0	9.32	7.99	24	17.1	12.8	12.1	11.6	39.2
41	1504	AC-1504	SPLIT DUCTED	HEAT PUMP	CU-1504	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	11.6	42.95
42	1505	AC-1505	SPLIT DUCTED	HEAT PUMP	CU-1505	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	11.6	53.13
43	1506	AC-1506	SPLIT DUCTED	HEAT PUMP	CU-1506	ROOF	572	0	8.93	7.71	24	17.1	12.8	12.2	11.6	70.44
44	1507	AC-1507	SPLIT DUCTED	HEAT PUMP	CU-1507	ROOF	731	0	12.1	10.1	24	17.1	12.5	11.9	11.6	61.63
45	1601	AC-1601	SPLIT DUCTED	HEAT PUMP	CU-1601	ROOF	568	0	9.37	7.87	24	17.1	12.5	11.9	8.6	64.16
46	1602	AC-1602	SPLIT DUCTED	HEAT PUMP	CU-1602	ROOF	787	0	12.7	10.8	24	17.1	12.6	12	8.6	43.78
47	1603	AC-1603	SPLIT DUCTED	HEAT PUMP	CU-1603	ROOF	588	0	9.32	7.99	24	17.1	12.8	12.1	8.6	38.7
48	1604	AC-1604	SPLIT DUCTED	HEAT PUMP	CU-1604	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	8.6	42.45
49	1605	AC-1605	SPLIT DUCTED	HEAT PUMP	CU-1605	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	8.6	51.33
50	1606	AC-1606	SPLIT DUCTED	HEAT PUMP	CU-1606	ROOF	572	0	8.93	7.71	24	17.1	12.8	12.2	8.6	69.94
51	1607	AC-1607	SPLIT DUCTED	HEAT PUMP	CU-1607	ROOF	731	0	12.1	10.1	24	17.1	12.5	11.9	8.6	61.13
52	1701	AC-1701	SPLIT DUCTED	HEAT PUMP	CU-1701	ROOF	568	0	9.37	7.87	24	17.1	12.5	11.9	5.6	63.66
53	1702	AC-1702	SPLIT DUCTED	HEAT PUMP	CU-1702	ROOF	787	0	12.7	10.8	24	17.1	12.6	12	5.6	42.08
54	1703	AC-1703	SPLIT DUCTED	HEAT PUMP	CU-1703	ROOF	588	0	9.32	7.99	24	17.1	12.8	12.1	5.6	38.2
55	1704	AC-1704	SPLIT DUCTED	HEAT PUMP	CU-1704	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	5.6	41.95
56	1705	AC-1705	SPLIT DUCTED	HEAT PUMP	CU-1705	ROOF	447	0	7.46	6.23	24	17.1	12.5	11.8	5.6	50.83
57	1706	AC-1706	SPLIT DUCTED	HEAT PUMP	CU-1706	ROOF	572	0	8.93	7.71	24	17.1	12.8	12.2	5.6	68.14
58	1707	AC-1707	SPLIT DUCTED	HEAT PUMP	CU-1707	ROOF	731	0	12.1	10.1	24	17.1	12.5	11.9	5.6	60.53
59	1801	AC-1801	SPLIT DUCTED	HEAT PUMP	CU-1801	ROOF	626	0	10.1	8.57	24	17.1	12.7	12	2.3	62.76
60	1802	AC-1802	SPLIT DUCTED	HEAT PUMP	CU-1802	ROOF	885	0	13.9	12	24	17.1	12.8	12.2	2.3	41.18
61	1803	AC-1803	SPLIT DUCTED	HEAT PUMP	CU-1803	ROOF	646	0	10	8.69	24	17.1	12.9	12.2	2.3	36.1
62	1804	AC-1804	SPLIT DUCTED	HEAT PUMP	CU-1804	ROOF	487	0	7.94	6.71	24	17.1	12.6	12	2.3	41.05
63	1805	AC-1805	SPLIT DUCTED	HEAT PUMP	CU-1805	ROOF	487	0	7.94	6.71	24	17.1	12.6	12	2.3	49.93

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**SINCLAIR**															
2	**BUILDING 1 AC SCHEDULE_V1.0**						**Supply Air**	**Outside**	**GTH**	**GTSH**	**Coil entering**	**conditions**	**Coil leaving**	**conditions**	**REFRIGERANT PIPEWORK**	
3	**AREA SERVED**	**INDOOR UNIT NO.**	**UNIT TYPE**		**OUTDOOR UNIT NO.**	**LOCATION**	**l/s**	**l/s**	**kW**	**kW**	**CDB**	**CWB**	**CDB**	**CWB**	Vertical Rise (m)	Total Pipe Length (incl. all pipe fittings)(m)
64	1806	AC-1806	SPLIT DUCTED	HEAT PUMP	CU-1806	ROOF	611	0	9.4	8.19	24	17.1	12.9	12.3	2.3	67.24
65	1807	AC-1807	SPLIT DUCTED	HEAT PUMP	CU-1807	ROOF	807	0	13	11	24	17.1	12.7	12	2.3	58.43

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**SINCLAIR**															
2	**BUILDING 2 AC SCHEDULE_V1.0**						**Supply Air**	**Outside**	**GTH**	**GTSH**	**Coil entering**	**conditions**	**Coil leaving**	**conditions**	**REFRIGERANT PIPEWORK**	
3	**AREA SERVED**	**INDOOR UNIT NO.**	**UNIT TYPE**		**OUTDOOR UNIT NO.**	**LOCATION**	**l/s**	**l/s**	**kW**	**kW**	**CDB**	**CWB**	**CDB**	**CWB**	Vertical Rise (m)	Total Pipe Length (incl. all pipe fittings)(m)
4	REFUSE ROOM	AC-REF	CASSETTE	COOLING ONLY	CU-REFUSE ROOM	GROUND			10		24	16			1	39.57
5	RETAIL	AC-RETAIL	SPLIT DUCTED	HEAT PUMP	CU-RETAIL	ROOF	1071	504	38.7	22.3	27.9	21	10.7	10.3	27	67.09
6	L1 LOBBY	AC-L1 LOBBY	SPLIT DUCTED	VRF HEAT PUMP	CU-L1 LOBBY	ROOF	682	70	13.8	10.2	24.7	17.9	12.3	11.7	27	50.5
7	L1 STORE RM	AC-L1 STORE RM	WALL MOUNTED				52	0	0.77	0.68	24	17.1	13.1	12.5		
8	LIBRARY	AC-LIBRARY	SPLIT DUCTED	HEAT PUMP	CU-LIBRARY	GROUND	148	66	5.49	3.17	27.7	20.8	10	9.6	1	16.48
9	2101	AC-2101	SPLIT DUCTED	HEAT PUMP	CU-2101	ROOF	529	0	8.44	7.21	24	17.1	12.7	12.1	27	50.63
10	2102	AC-2102	SPLIT DUCTED	HEAT PUMP	CU-2102	ROOF	622	0	10.6	8.76	24	17.1	12.3	11.7	27	46.86
11	2103	AC-2103	SPLIT DUCTED	HEAT PUMP	CU-2103	ROOF	479	0	7.84	6.61	24	17.1	12.6	11.9	27	47.5
12	2104	AC-2104	SPLIT DUCTED	HEAT PUMP	CU-2104	ROOF	479	0	7.84	6.61	24	17.1	12.6	11.9	27	56.07
13	2105	AC-2105	SPLIT DUCTED	HEAT PUMP	CU-2105	ROOF	479	0	7.84	6.61	24	17.1	12.6	11.9	27	64.87
14	2201	AC-2201	SPLIT DUCTED	HEAT PUMP	CU-2201	ROOF	433	0	7.47	6.14	24	17.1	12.3	11.6	27	56.32
15	2202	AC-2202	SPLIT DUCTED	HEAT PUMP	CU-2202	ROOF	539	0	9.56	7.75	24	17.1	12.1	11.5	22	45.1
16	2203	AC-2203	SPLIT DUCTED	HEAT PUMP	CU-2203	ROOF	538	0	8.89	7.46	24	17.1	12.5	11.9	22	52.91
17	2204	AC-2204	SPLIT DUCTED	HEAT PUMP	CU-2204	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	22	45.4
18	2205	AC-2205	SPLIT DUCTED	HEAT PUMP	CU-2205	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	22	54.04
19	2206	AC-2206	SPLIT DUCTED	HEAT PUMP	CU-2206	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	22	64.29
20	2207	AC-2207	SPLIT DUCTED	HEAT PUMP	CU-2207	ROOF	552	0	8.81	7.52	24	17.1	12.7	12.1	22	70.73
21	2208	AC-2208	SPLIT DUCTED	HEAT PUMP	CU-2208	ROOF	569	0	10	8.14	24	17.1	12.2	11.5	22	68.39
22	2209	AC-2209	SPLIT DUCTED	HEAT PUMP	CU-2209	ROOF	436	0	7.4	6.13	24	17.1	12.4	11.7	22	66.55
23	2301	AC-2301	SPLIT DUCTED	HEAT PUMP	CU-2301	ROOF	433	0	7.47	6.14	24	17.1	12.3	11.6	19	52.12
24	2302	AC-2302	SPLIT DUCTED	HEAT PUMP	CU-2302	ROOF	539	0	9.56	7.75	24	17.1	12.1	11.5	19	44.5
25	2303	AC-2303	SPLIT DUCTED	HEAT PUMP	CU-2303	ROOF	524	0	8.72	7.3	24	17.1	12.5	11.9	19	51.11
26	2304	AC-2304	SPLIT DUCTED	HEAT PUMP	CU-2304	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	19	42.4
27	2305	AC-2305	SPLIT DUCTED	HEAT PUMP	CU-2305	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	19	52.24
28	2306	AC-2306	SPLIT DUCTED	HEAT PUMP	CU-2306	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	19	61.39
29	2307	AC-2307	SPLIT DUCTED	HEAT PUMP	CU-2307	ROOF	539	0	8.67	7.38	24	17.1	12.7	12	19	69.03
30	2308	AC-2308	SPLIT DUCTED	HEAT PUMP	CU-2308	ROOF	557	0	9.84	8	24	17.1	12.1	11.5	19	65.49
31	2309	AC-2309	SPLIT DUCTED	HEAT PUMP	CU-2309	ROOF	423	0	7.25	5.98	24	17.1	12.3	11.7	19	63.65
32	2401	AC-2401	SPLIT DUCTED	HEAT PUMP	CU-2401	ROOF	433	0	7.47	6.14	24	17.1	12.3	11.6	15.9	50.22
33	2402	AC-2402	SPLIT DUCTED	HEAT PUMP	CU-2402	ROOF	539	0	9.56	7.75	24	17.1	12.1	11.5	15.9	43.9
34	2403	AC-2403	SPLIT DUCTED	HEAT PUMP	CU-2403	ROOF	524	0	8.72	7.3	24	17.1	12.5	11.9	15.9	51.71
35	2404	AC-2404	SPLIT DUCTED	HEAT PUMP	CU-2404	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	15.9	43
36	2405	AC-2405	SPLIT DUCTED	HEAT PUMP	CU-2405	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	15.9	51.64
37	2406	AC-2406	SPLIT DUCTED	HEAT PUMP	CU-2406	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	15.9	62.19
38	2407	AC-2407	SPLIT DUCTED	HEAT PUMP	CU-2407	ROOF	539	0	8.67	7.38	24	17.1	12.7	12	15.9	68.63
39	2408	AC-2408	SPLIT DUCTED	HEAT PUMP	CU-2408	ROOF	557	0	9.84	8	24	17.1	12.1	11.5	15.9	65.09
40	2409	AC-2409	SPLIT DUCTED	HEAT PUMP	CU-2409	ROOF	423	0	7.25	5.98	24	17.1	12.3	11.7	15.9	63.25
41	2501	AC-2501	SPLIT DUCTED	HEAT PUMP	CU-2501	ROOF	548	0	8.77	7.48	24	17.1	12.7	12.1	12.9	38.85
42	2502	AC-2502	SPLIT DUCTED	HEAT PUMP	CU-2502	ROOF	593	0	10.3	8.42	24	17.1	12.2	11.6	12.9	44.35
43	2503	AC-2503	SPLIT DUCTED	HEAT PUMP	CU-2503	ROOF	524	0	8.72	7.3	24	17.1	12.5	11.9	12.9	52.52
44	2504	AC-2504	SPLIT DUCTED	HEAT PUMP	CU-2504	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	12.9	42.4
45	2505	AC-2505	SPLIT DUCTED	HEAT PUMP	CU-2505	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	12.9	50.3
46	2506	AC-2506	SPLIT DUCTED	HEAT PUMP	CU-2506	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	12.9	59.29
47	2507	AC-2507	SPLIT DUCTED	HEAT PUMP	CU-2507	ROOF	539	0	8.67	7.38	24	17.1	12.7	12	12.9	68.03
48	2508	AC-2508	SPLIT DUCTED	HEAT PUMP	CU-2508	ROOF	632	0	10.7	8.89	24	17.1	12.4	11.7	12.9	62.25
49	2601	AC-2601	SPLIT DUCTED	HEAT PUMP	CU-2601	ROOF	548	0	8.77	7.48	24	17.1	12.7	12.1	9.9	39.95
50	2602	AC-2602	SPLIT DUCTED	HEAT PUMP	CU-2602	ROOF	593	0	10.3	8.42	24	17.1	12.2	11.6	9.9	45.45
51	2603	AC-2603	SPLIT DUCTED	HEAT PUMP	CU-2603	ROOF	524	0	8.72	7.3	24	17.1	12.5	11.9	9.9	51.82
52	2604	AC-2604	SPLIT DUCTED	HEAT PUMP	CU-2604	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	9.9	41.7
53	2605	AC-2605	SPLIT DUCTED	HEAT PUMP	CU-2605	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	9.9	49.6
54	2606	AC-2606	SPLIT DUCTED	HEAT PUMP	CU-2606	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	9.9	58.59
55	2607	AC-2607	SPLIT DUCTED	HEAT PUMP	CU-2607	ROOF	539	0	8.67	7.38	24	17.1	12.7	12	9.9	67.43
56	2608	AC-2608	SPLIT DUCTED	HEAT PUMP	CU-2608	ROOF	632	0	10.7	8.89	24	17.1	12.4	11.7	9.9	61.65
57	2701	AC-2701	SPLIT DUCTED	HEAT PUMP	CU-2701	ROOF	548	0	8.77	7.48	24	17.1	12.7	12.1	6.9	39.35
58	2702	AC-2702	SPLIT DUCTED	HEAT PUMP	CU-2702	ROOF	593	0	10.3	8.42	24	17.1	12.2	11.6	6.9	44.85
59	2703	AC-2703	SPLIT DUCTED	HEAT PUMP	CU-2703	ROOF	524	0	8.72	7.3	24	17.1	12.5	11.9	6.9	51.32

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**SINCLAIR**															
2	**BUILDING 2 AC SCHEDULE_V1.0**						**Supply Air**	**Outside**	**GTH**	**GTSH**	**Coil entering**	**conditions**	**Coil leaving**	**conditions**	**REFRIGERANT PIPEWORK**	
3	**AREA SERVED**	**INDOOR UNIT NO.**	**UNIT TYPE**		**OUTDOOR UNIT NO.**	**LOCATION**	**l/s**	**l/s**	**kW**	**kW**	**CDB**	**CWB**	**CDB**	**CWB**	Vertical Rise (m)	Total Pipe Length (incl. all pipe fittings)(m)
60	2704	AC-2704	SPLIT DUCTED	HEAT PUMP	CU-2704	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	6.9	41.2
61	2705	AC-2705	SPLIT DUCTED	HEAT PUMP	CU-2705	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	6.9	49.1
62	2706	AC-2706	SPLIT DUCTED	HEAT PUMP	CU-2706	ROOF	422	0	7.16	5.93	24	17.1	12.4	11.7	6.9	58.09
63	2707	AC-2707	SPLIT DUCTED	HEAT PUMP	CU-2707	ROOF	539	0	8.67	7.38	24	17.1	12.7	12	6.9	66.83
64	2708	AC-2708	SPLIT DUCTED	HEAT PUMP	CU-2708	ROOF	632	0	10.7	8.89	24	17.1	12.4	11.7	6.9	61.05
65	2801	AC-2801	SPLIT DUCTED	HEAT PUMP	CU-2801	ROOF	601	0	9.41	8.11	24	17.1	12.8	12.2	3.6	38.45
66	2802	AC-2802	SPLIT DUCTED	HEAT PUMP	CU-2802	ROOF	664	0	11.1	9.27	24	17.1	12.5	11.8	3.6	43.95
67	2803	AC-2803	SPLIT DUCTED	HEAT PUMP	CU-2803	ROOF	514	0	8.61	7.18	24	17.1	12.5	11.8	3.6	50.32
68	2804	AC-2804	SPLIT DUCTED	HEAT PUMP	CU-2804	ROOF	462	0	7.64	6.41	24	17.1	12.5	11.9	3.6	40.2
69	2805	AC-2805	SPLIT DUCTED	HEAT PUMP	CU-2805	ROOF	462	0	7.64	6.41	24	17.1	12.5	11.9	3.6	48.1
70	2806	AC-2806	SPLIT DUCTED	HEAT PUMP	CU-2806	ROOF	462	0	7.64	6.41	24	17.1	12.5	11.9	3.6	57.09
71	2807	AC-2807	SPLIT DUCTED	HEAT PUMP	CU-2807	ROOF	576	0	9.1	7.81	24	17.1	12.8	12.1	3.6	55.63
72	2808	AC-2808	SPLIT DUCTED	HEAT PUMP	CU-2808	ROOF	822	0	13	11.2	24	17.1	12.8	12.1	3.6	49.85

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**THE SINCLAIR**												
2	**FAN SCHEDULE**												
3	**ITEM**	**DESCRIPTION**	**AIR FLOW (L/s)**	**STATIC (Pa)**	**DIAMETER (mm)**	**SPEED**	**FLA/kW**	**V/Hz/Ph**	**dBA**	**QTY**	**CONTROL**	**SMOKE CONTROL DUTY**	**TYPE**
4	KEX-1	KITCHEN EXHAUST FAN	3000	600	630	1440	4.0	415/50/3	70	1	VSD/KSF-1	N/A	HERITAGE SERIES VERTICAL DISCHARGE ROOF MOUNTED
5	KEX-2	KITCHEN EXHAUST FAN	1500	450	560	1440	2.2	415/50/3	66	1	VSD/KSF-1	N/A	HERITAGE SERIES VERTICAL DISCHARGE ROOF MOUNTED
6	KSF-1	KITCHEN SUPPLY FAN	1400	300	400	2880	0.8	415/50/3	66	1	VSD/KEX-1&2	N/A	IN LINE DUCTED
7	CEF-1	CAR PARK EXHAUST FAN	13850	500	1118	695	45.0	415/50/3	73	1	VSD	FIP	SWSI - CENTRIFUGAL
8	CSF-1	CAR PARK SUPPLY FAN	5635	350	800	1440	4.4	415/50/3	69	1	VSD	FIP	IN-LINE AXIAL
9	CSF-2	CAR PARK SUPPLY FAN	4840	350	800	1440	4.4	415/50/3	69	1	VSD	FIP	IN-LINE AXIAL
10	SF-1	SPRINKLER PUMP ROOM SUPPLY	700	250	315	2880	0.6	415/50/3	64	1	PUMP/EF-3	N/A	IN-LINE AXIAL
11	EF-1	BIN ROOM	280	250	315	2880	0.4	415/50/3	64	1	TIME CLOCK	N/A	IN-LINE AXIAL
12	EF-2	HYDRANT PUMP ROOM	250	150	315	2880	0.4	415/50/3	64	1	THERMOSTAT	N/A	IN-LINE AXIAL
13	EF-3	SPRINKLER PUMP ROOM EXHAUST	750	300	315	2880	0.6	415/50/3	64	1	PUMP/SF-1	N/A	IN-LINE AXIAL
14	TEF-1	RETAIL PWD	100	100	150	2500	0.1	240/50/1	29	1	TIME CLOCK	N/A	IN-LINE AXIAL
15	TEF-R1	ROOF AMENITIES	100	100	150	2500	0.1	240/50/1	29	1	TIME CLOCK	N/A	IN-LINE AXIAL
16	TEF-R2	ROOF AMENITIES	100	100	150	2500	0.1	240/50/1	29	1	TIME CLOCK	N/A	IN-LINE AXIAL
17	EF-R1	ROOF STORE	100	100	150	2500	0.1	240/50/1	29	1	TIME CLOCK	N/A	IN-LINE AXIAL
18	EF-4	BIN ROOM	300	200	315	2880	0.4	415/50/3	64	1	TIME CLOCK	N/A	IN-LINE AXIAL
19	TEF-1101	UNIT-1101	90	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
20	TEF-1102	UNIT-1102	90	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
21	TEF-1103	UNIT-1103	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
22	TEF-1104	UNIT-1104	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
23	TEF-1105	UNIT-1105	90	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
24	TEF-1106	UNIT-1106	90	150	150	950	0.06	220/50/1	38	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
25	TEF-1201	UNIT-1201	115	150	150	950	0.06	220/50/1	38	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
26	TEF-1202	UNIT-1202	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
27	TEF-1203	UNIT-1203	65	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
28	TEF-1204	UNIT-1204	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
29	TEF-1205	UNIT-1205	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
30	TEF-1206	UNIT-1206	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
31	TEF-1207	UNIT-1207	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
32	TEF-1208	UNIT-1208	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
33	TEF-1301	UNIT-1301	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
34	TEF-1302	UNIT-1302	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
35	TEF-1303	UNIT-1303	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
36	TEF-1304	UNIT-1304	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
37	TEF-1305	UNIT-1305	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
38	TEF-1306	UNIT-1306	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
39	TEF-1307	UNIT-1307	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
40	TEF-1308	UNIT-1308	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
41	TEF-1401	UNIT-1401	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
42	TEF-1402	UNIT-1402	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
43	TEF-1403	UNIT-1403	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
44	TEF-1404	UNIT-1404	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
45	TEF-1405	UNIT-1405	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
46	TEF-1406	UNIT-1406	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
47	TEF-1407	UNIT-1407	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
48	TEF-1408	UNIT-1408	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
49	TEF-1501	UNIT-1501	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
50	TEF-1502	UNIT-1502	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
51	TEF-1503	UNIT-1503	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**THE SINCLAIR**												
2	**FAN SCHEDULE**												
3	**ITEM**	**DESCRIPTION**	**AIR FLOW (L/s)**	**STATIC (Pa)**	**DIAMETER (mm)**	**SPEED**	**FLA/kW**	**V/Hz/Ph**	**dBA**	**QTY**	**CONTROL**	**SMOKE CONTROL DUTY**	**TYPE**
52	TEF-1504	UNIT-1504	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
53	TEF-1505	UNIT-1505	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
54	TEF-1506	UNIT-1506	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
55	TEF-1507	UNIT-1507	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
56	TEF-1601	UNIT-1601	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
57	TEF-1602	UNIT-1602	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
58	TEF-1603	UNIT-1603	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
59	TEF-1604	UNIT-1604	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
60	TEF-1605	UNIT-1605	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
61	TEF-1606	UNIT-1606	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
62	TEF-1607	UNIT-1607	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
63	TEF-1701	UNIT-1701	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
64	TEF-1702	UNIT-1702	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
65	TEF-1703	UNIT-1703	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
66	TEF-1704	UNIT-1704	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
67	TEF-1705	UNIT-1705	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
68	TEF-1706	UNIT-1706	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
69	TEF-1707	UNIT-1707	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
70	TEF-1801	UNIT-1801	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
71	TEF-1802	UNIT-1802	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
72	TEF-1803	UNIT-1803	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
73	TEF-1804	UNIT-1804	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
74	TEF-1805	UNIT-1805	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
75	TEF-1806	UNIT-1806	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
76	TEF-1807	UNIT-1807	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
77	TEF-2101	UNIT-2101	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
78	TEF-2102	UNIT-2102	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
79	TEF-2103	UNIT-2103	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
80	TEF-2104	UNIT-2104	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
81	TEF-2105	UNIT-2105	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
82	TEF-2201	UNIT-2201	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
83	TEF-2202	UNIT-2202	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
84	TEF-2203	UNIT-2203	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
85	TEF-2204	UNIT-2204	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
86	TEF-2205	UNIT-2205	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
87	TEF-2206	UNIT-2206	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
88	TEF-2207	UNIT-2207	65	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
89	TEF-2208	UNIT-2208	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
90	TEF-2209	UNIT-2209	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
91	TEF-2301	UNIT-2301	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
92	TEF-2302	UNIT-2302	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
93	TEF-2303	UNIT-2303	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
94	TEF-2304	UNIT-2304	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
95	TEF-2305	UNIT-2305	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
96	TEF-2306	UNIT-2306	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
97	TEF-2307	UNIT-2307	65	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
98	TEF-2308	UNIT-2308	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
99	TEF-2309	UNIT-2309	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**THE SINCLAIR**												
2	**FAN SCHEDULE**												
3	**ITEM**	**DESCRIPTION**	**AIR FLOW (L/s)**	**STATIC (Pa)**	**DIAMETER (mm)**	**SPEED**	**FLA/kW**	**V/Hz/Ph**	**dBA**	**QTY**	**CONTROL**	**SMOKE CONTROL DUTY**	**TYPE**
100	TEF-2401	UNIT-2401	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
101	TEF-2402	UNIT-2402	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
102	TEF-2403	UNIT-2403	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
103	TEF-2404	UNIT-2404	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
104	TEF-2405	UNIT-2405	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
105	TEF-2406	UNIT-2406	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
106	TEF-2407	UNIT-2407	65	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
107	TEF-2408	UNIT-2408	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
108	TEF-2409	UNIT-2409	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
109	TEF-2501	UNIT-2501	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
110	TEF-2502	UNIT-2502	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
111	TEF-2503	UNIT-2503	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
112	TEF-2504	UNIT-2504	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
113	TEF-2505	UNIT-2505	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
114	TEF-2506	UNIT-2506	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
115	TEF-2507	UNIT-2507	65	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
116	TEF-2508	UNIT-2508	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
117	TEF-2601	UNIT-2601	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
118	TEF-2602	UNIT-2602	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
119	TEF-2603	UNIT-2603	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
120	TEF-2604	UNIT-2604	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
121	TEF-2605	UNIT-2605	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
122	TEF-2606	UNIT-2606	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
123	TEF-2607	UNIT-2607	65	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
124	TEF-2608	UNIT-2608	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
125	TEF-2701	UNIT-2701	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
126	TEF-2702	UNIT-2702	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
127	TEF-2703	UNIT-2703	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
128	TEF-2704	UNIT-2704	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
129	TEF-2705	UNIT-2705	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
130	TEF-2706	UNIT-2706	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
131	TEF-2707	UNIT-2707	65	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
132	TEF-2708	UNIT-2708	115	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
133	TEF-2801	UNIT-2801	65	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
134	TEF-2802	UNIT-2802	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
135	TEF-2803	UNIT-2803	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
136	TEF-2804	UNIT-2804	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
137	TEF-2805	UNIT-2805	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
138	TEF-2806	UNIT-2806	115	150	150	2500	0.05	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
139	TEF-2807	UNIT-2807	65	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL
140	TEF-2808	UNIT-2808	90	150	150	250	0.06	240/50/1	29	1	LIGHT SWITCH	N/A	IN-LINE AXIAL

APPENDIX 3

COMMISSIONING RESULTS & CERTIFICATION

APPENDIX 4

WARRANTIES

MITSUBISHI ELECTRIC AUSTRALIA PTY LTD
A.B.N. 58 001 215 792

Da Vinci Business Park
Building 101 / 2A Boronia Road,
Brisbane Airport QLD 4008
Tel: (07) 3623 2000
Fax: (07) 3630 1888

WARRANTY

Split & Multi Split Systems - M,S & P product Series
Residential Application - 5 years parts & labour.
Commercial Application - 5 years parts & labour.
Server/Communication Room Application - 1 year parts & 1 year labour.

Air Curtains, Jet Towel & Lossnay
- 1 year parts & labour for all applications.

City Multi

Residential applications - 5 years parts & labour*.

Please note that the term City Multi residential application relates to a project where the property owner actually owns the City Multi system or systems.
In multi apartment projects, where tenants or residential owners share a VRF system, i.e. one condenser is shared by many tenants, 5 year warranty does not apply, this is considered to be a commercial application, see note below.

Commercial Applications - 2 years parts & 1 year labour*.
Server/Communication Room Application - 1 year parts & 1 year labour.

City Multi warranty is conditional on receipt of completed commissioning data sheets, available from this office, & commences from the date of commissioning.

When brazing refrigerant pipe work using Oxy Acetylene, it is a condition of our warranty that dry nitrogen be used at all times to ensure that no contamination occurs within the refrigerant circuit.

Warranty will not apply if the products are used for a purpose other than the cooling or heating of air for the physical comfort of humans.

The products of Mitsubishi Electric Australia come with guarantees, additional to this Warranty, that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Product Warranty

1. Except as specifically set out herein, any term, condition or warranty in respect of the quality, fitness for purpose, condition, description, assembly, manufacture, design or performance of the Goods, whether implied by statute, common law, trade usage, custom or otherwise, is hereby expressly excluded.

2. **The Company warrants that all Goods manufactured or supplied by it will be free of defects in workmanship and materials for a period of 12 months from the date of commissioning but not exceeding eighteen (18) months from the date of invoice to the Customer provided that the Goods are installed according to the requirements of AS/NZS3000:2007 Australian/New Zealand wiring rules.**

3. **Products manufactured and distributed by Pacific Ventilation are subject to routine maintenance as set out in manuals supplied with the equipment. Failure to maintain the equipment supplied according to the schedules and intervals outlined may void the warranty. It is a requirement that adequate plant log book records be kept to provide evidence of routine maintenance being conducted.**

4. The Company is not liable for any indirect or consequential losses or expenses suffered by the Customer or any third party, howsoever caused arising from the supply of the Goods, including but not limited to loss of turnover, profits, business or goodwill.

5. The Company will not be liable for any loss, damage or claim suffered by the Customer where the Company has failed to meet any delivery date or cancels or suspends the supply of Goods or for any Goods that display a "use by" date that are sold or distributed by the Customer after that date.

6. Nothing in these terms and conditions is to be interpreted as excluding, restricting or modifying or having the effect of excluding, restricting or modifying the application of any State or Federal legislation applicable to the sale of Goods which cannot be excluded, restricted or modified. If any of these terms and conditions is inconsistent with State or Federal legislation, such terms and conditions must be read down only to the extent necessary to comply with such legislation and will otherwise apply to the fullest extent legally possible.

7. If the Customer is a "consumer" within the meaning of Schedule 2 of the Competition and Consumer Act 2010 (Cth) and the Goods are not of a kind ordinarily acquired for personal, domestic or household use or consumption, the Company's liability for a breach of a condition, warranty or guarantee (whether express or implied) is limited to any one of the following as determined by the Company:
   7.1. the replacement of the Goods or the supply of equivalent Goods or in the case of services, supply the services again or pay the costs of having the services supplied again; or
   7.2. the payment of the cost or replacement of the Goods or of acquiring equivalent Goods.

8. The Customer acknowledges that neither the Company nor any person purporting to act on its behalf has made any representation or given any promise or undertaking which is not expressly set out in the Order or these terms and conditions whether as to the fitness of the Goods for any particular purpose or any other matter.

9. Where the Company is not the manufacturer, the Company relies on the specifications and warranties supplied by the manufacturer.

11. WARRANTIES AND LIABILITY

11.1 Except as provided for in these Conditions of Quotation and Sale, to the maximum extent permitted by law, all warranties, conditions, representations and guarantees (whether express or implied) in respect of the Agreement, the Goods or the Services are excluded. Used Goods are sold in an 'as is' condition and no warranties (express or implied) of any kind are given in respect of used Goods.

11.2 The Company will provide the Customer with details of any applicable manufacturers' warranties in respect of the Goods (where the Company is not the manufacturer), which will be the only warranties given to the Customer in respect of those Goods.

11.3 Any Product found to be defective within one year from the date of commissioning or eighteen (18) months from date of shipment from our factory, whichever is the sooner will be repaired or exchanged F.O.B the Company's factory. This clause relates to Products not Plant. The Company's liability is limited, at the Company's election, to the replacement or repair of the defective materials or the repair of the defective workmanship. This warranty does not cover labour for removal or installation, or parts or exchange components. The Customer will bear all transportation and handling costs.

11.4 The Company warrants that any major Plant it manufactures will be free from defects in materials and workmanship for 180 days from the date the Plant is delivered to the Customer. The Company's liability is limited, at the Company's election, to the replacement or repair of the defective materials or the repair of the defective workmanship. This warranty does not cover labour for removal or installation, or parts or exchange components. The Customer will bear all transportation and handling costs.

11.5 The Company warrants that any repair Services it supplies will be free from defects in materials and workmanship for 90 days from completion of the relevant work. The Company's liability is limited to the supply of the repair Services again. This warranty does not cover labour for removal or installation, or parts or exchange components. The Customer will bear all transportation and handling costs.

11.6 The Customer agrees that it has satisfied itself before placing its Order as to the condition and suitability of the Goods for the Customer's intended use. Subject

to clause 11.7, the Company makes no representation or warranty as to the suitability of the Goods for the Customer's intended use.

11.7 If a condition, representation or guarantee is imposed by law and is not able to be excluded, as far as the law permits the Company's liability for a breach of that condition, representation or guarantee will be limited to: (a) in the case of Goods, the replacement or repair of the Goods or the supply of equivalent goods, or the payment of the cost of replacement, repair or equivalent supply; and (b) in the case of Services, the supply of the Services again or the payment of the cost of having the Services supplied again.

11.8 Nothing in this Agreement affects any rights or remedies the Customer may have under the Australian Consumer Law or any other law if, and to the extent that, those rights or remedies may not lawfully be excluded or modified.

11.9 The Company's liability for loss or damage, including consequential, special or indirect loss or loss of profits, arising under or in connection with the Agreement, the Goods or the Services, whether in contract, tort (including negligence) at law or in equity, is excluded to the maximum extent permitted by law.

11.10 The Customer must use best endeavours to ensure that any goods to be serviced or repaired by the Company (whether on the Company's premises or otherwise) are not contaminated by hazardous material (including asbestos). Any apparent risk of contamination must immediately be notified to the Company.

11.11 The Customer is responsible for ensuring that all: (a) applicable health and safety regulations are observed and other appropriate steps taken in respect of the storage, handling and use of the Goods; and (b) safety information, operating instructions and notices supplied with the Goods are attached to (or contained in) the Goods, conveyed to and observed by any person using the Goods and not defaced or removed from the Goods.

11.12 The Company will not be liable to the Customer for any loss or damage whatsoever if the Company is delayed or prevented from delivering Goods, supplying Services or otherwise performing its obligations under the Agreement due to any cause or circumstance beyond the Company's reasonable control.

11.13 The Company reserves the right to dispose or otherwise deal with an abandoned product or part at its discretion.

APPENDIX 5

SERVICE & MAINTENANCE PROCEDURES

Form 16 Inspection certificate

Queensland Government

This form is to be used for the purposes of section 10 of the *Building Act 1975* and section 53 of the Building Regulation 2021. The relevant building certifier, another building certifier or a appointed competent person is stating a stage of work is compliant with the building development approval.

Explanatory information relevant to completion of this form is in the Appendix at the end of this form.

1. Stage of the building work

See section 44 of the Building Regulation 2021 (BR 2021) for what constitutes a stage of assessable building work.

List stage/s of building work (indicate the stage)

Mechanical Ventilation & Air Conditioning

2. Property description

The description must identify all land the subject of the application.

The lot and plan details (e.g. SP/RP) are shown on title documents or a rates notice.

If the plan is not registered by title, provide previous lot and plan details.

Street address *(include number, street, suburb/locality and postcode)*

Mixed-use Development, 130-148 Wellington Road

East Brisbane State QLD Postcode 4169

Lot and plan details *(attach list if necessary)*

Lot 5 RP11425, Lot 2 RP44663, Lot 4-10 RP11424

Local government area the land is situated in

Brisbane City Council

3. Building/structure description

Building/structure description	Class of building/structure
Residential	Class 2
Commercial	Class 6

4. Description of component/s certified

Clearly describe the extent of work covered by this certificate, e.g. all structural aspects of the steel roof beams.

Air conditioning to residential apartments, common areas and retail tenancies
Mechanical ventilation to residential apartments, common area amenities, retail tenancy kitchen exhaust (provision for) and car parking facilities

5. Basis of certification

Detail the basis for giving the certificate and the extent to which tests, specifications, rules, standards, codes of practice and other publications were relied upon by the inspecting person.

NCC 2019 Section J.5
AS 1668.1:2015 Fire & smoke control in buildings
AS 1668.2: 2012 Mechanical ventilation in buildings
AS 3000: 2018 Australian/New Zealand Wiring Rules
AS 3666: 2011 Air handling and water systems - Microbial control
AS 4254: 2021 Ductwork for air handling systems in buildings - Flexible duct
AS 4254: 2021 Ductwork for air handling systems in buildings - Rigid duct

Brisbane Planning Scheme Codes/Policies Clauses 24 & 76 Plant & Equipment Certification: "All mechanical equipment has been adequately noise-attenuated. All outdoor condensing sets have been installed on 10mm rubber 'waffle pad' to isolate vibration and noise transmission through the building."

6. Reference documentation

Clearly identify any relevant documentation, e.g. numbered structural engineering plans or aspect inspection certificates.

BCA Consultants Specification 8121M "Mechanical Services Performance Brief"
BCA Consultants Series Drawings M100 to M116
Snowdonia HVAC Mechanical Services Return Brief Rev A (17/00/20)
Snowdonia HVAC 18752 Series Drawings M-00-1 to M-R.3_1

7. Building certifier reference number and building development approval number

Building certifier reference number

Building development approval number

8. Building certifier or appointed competent person

Under Part 6 of the Building Regulation a person must be assessed, by the relevant building certifier as competent to give inspection help for the stage work.

Name *(in full)*
Charles Aquiliner

Company name *(if applicable)*
Snowdonia HVAC

Contact person
Andy Tucker

Business phone number
07 3482 0700

Mobile number
0488 680 404

Email address
info@snowdonia.com.au

Postal address
3/26 Flinders Parade

NORTH LAKES State QLD Postcode 4509

Licence class or registration type *(if applicable)*
Refrigeration, Air Conditioning & Mechanical Services - Unlimited Des

Licence or registration number *(if applicable)*
1222687

9. Signature of building certifier or appointed competent person

Note: a building certifier must sign this form for temporary swimming pool fencing under section 4 of Schedule 1 of the QDC MP 3.4.

Signature

RPEQ 04468

Date
12-05-2022

LOCAL GOVERNMENT USE ONLY

Date received		**Reference number/s**	

Appendix – explanatory information

IMPORTANT NOTE: a competent person who knowingly or reasonably suspects the information they are giving to the building certifier is false or misleading, including the information contained in this certificate (Form 16), commits an offence and is liable to a maximum penalty of 100 penalty units.

Who can complete this certificate? (sections 10 of the *Building Act 1975* (Building Act) and 53(2) of Building Regulation 2021 (BR 2021)). This form must be completed and signed by a building certifier for the work or another building certifier or the appointed competent person (inspections) – the **inspecting persons**.

When is a Form 16 needed?
This form is to be completed when an inspecting person inspects a stage of assessable building work, as stated in a notice for inspection and is satisfied that all relevant aspects of the stage of work have been completed and comply with the building development approval for the work.

The inspection time for a stage of work is to be agreed between the builder and building certifier and must be carried out by the inspecting person in accordance with best industry practice.

If satisfied the stage is compliant the inspecting person must give the builder for the stage of work the completed and signed Form 16. The regulation requires the inspecting person to provide the reasons why they are satisfied all aspects of the stage are completed and compliant, including any tests, specifications, rules, standards, codes of practice or other publications relied upon when making the assessment.

The inspecting person may rely on an aspect certificate from an appointed competent person (inspections), (Form 12 – Aspect Inspection Certificate) or a QBCC licensee (Form 43 – Aspect certificate (QBCC licensee)).

Restrictions for who can sign a Form 16 (section 46 of the BR 2021)
For a single detached class 1a building and class 10 building or structure (excluding swimming pools and swimming pool barriers) only the building certifier for the assessable building work, or another building certifier, can sign the certificate of inspection (Form 16) for the following stages:

- if the building is to have footings (footing stage) – the stage of the building work that is after excavation of foundation material but before the placement of formwork, reinforcement for the footings and the pouring of the concrete for the footings
- if the building is to have a slab (slab stage) – after the placement of formwork and reinforcement for the slab but before the concrete for the slab is poured
- the final stage of the work.

Nothing prevents a competent person (inspection) who is not a building certifier from giving inspection help for an aspect of a stage mentioned above. However, for a single detached class 1a building the building certifier must not accept an aspect inspection certificate for all aspects of the final stage.

The relevant building certifier can also use another building certifier to inspect the stages mentioned above, without assessing and appointing the person as a competent person.

For the footing or slab stages of the building or structure, a building certifier may appoint a Queensland registered professional engineer as a competent person to inspect aspects of work for this stage. While the building certifier can accept a competent person's aspect inspection certificate – Form 12 as part of their compliance assessment for the stage of work, it remains the building certifier's responsibility to complete and sign the Form 16 for the three stages of work mentioned above.

Competent person (section 10 of the *Building Act 1975* and Part 6 of the BR 2021)
A building certifier must assess and decide to appoint an individual as a competent person before they can, as a competent person, give design-specification help. The building certifier is required to keep detailed records about what was considered when appointing a competent person.

A competent person cannot give inspection help to a building certifier until they have been appointed by the building certifier. For further information about assessment of someone as a competent person refer to the **Guideline for the assessment of competent persons.**

Inspection help (section 34 of the BR 2021)
A building certifier must be satisfied that an individual is competent to give the type of inspection help having regard to the individual's experience, qualifications and skills and if required by law to hold a licence or registration, that the individual is appropriately registered or licensed.

For further information about conducting inspections for class 2 to 9 buildings, refer to the **Guideline for inspection of class 2 to 9 buildings.**

For further information about conducting inspections for detached class 1a and 10 buildings or structures refer to the **Guideline for inspections of class 1 and 10 buildings and structures.**

Additional information
It is considered good practice for a building certifier or appointed competent person who is accepting and relying on this form and any attached certificates i.e. aspect certificates, to check the information or details contained in the form.

This form is also the inspection certificate to be used for temporary swimming pool fencing.

Form 43 – Aspect certificate (QBCC licensee) – for aspect work for a single detached class 1a building and class 10 buildings and structures a building certifier or the appointed competent person can accept and rely on Form 43, the approved form from a QBCC licensee with the appropriate licence class that the work is compliant with the building development approval.

Form 12 – Aspect Inspection Certificate (appointed competent person) – for aspects of a stage or other aspect work for all classes of buildings and structures the building certifier may accept and rely on a Form 12 from an appointed competent person stating the aspect work is compliant with the building development approval.

Aspect certificate for accepted development (self-assessable), as prescribed under Schedule 1 of the BR 2021
Form 30 – section 70 allows the QBCC licensee to give a Form 30 to the builder for the building work or the owner of the building, stating the subject aspect work complies with the relevant provisions, standards and codes.

PRIVACY NOTICE
The Department of Energy and Public Works is collecting personal information as required under the *Building Act 1975*. This information may be stored by the Department, and will be used for administration, compliance, statistical research and evaluation of building laws. Your personal information will be disclosed to other government agencies, local government authorities and third parties for purposes relating to administering and monitoring compliance with the *Building Act 1975*. Personal information will otherwise only be disclosed to third parties with your consent or unless authorised or required by law.

APPENDIX 6

AS-BUILT DRAWINGS

END OF OPERATIONS AND MAINTENANCE MANUAL

Snowdonia HVAC