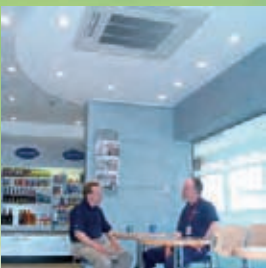


ecolution



VRF inverter multi-system air-conditioning products



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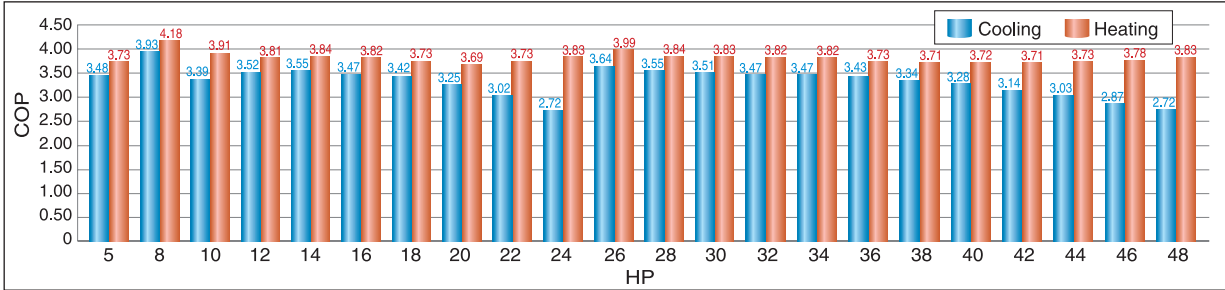
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KX4 Introduction

4-way ceiling recessed	Compact 4-way ceiling recessed 600mm x 600mm	Wall mounted	Ceiling suspended	Ceiling ducted cassette	Ducted horizontal	Ducted	Compact cassette	Compact ducted	Floor standing (exposed type)	Floor standing (hidden type)	Fresh air heat exchange unit	Compact outdoor unit	Single outdoor unit	Combination outdoor unit
														

Mitsubishi Heavy Industries proudly introduces the new Ecolution KX4 VRF Inverter Multi Air Conditioning System. KX4 represents the pinnacle of MHI's research and development of commercial air conditioning systems, with over 80 years of refrigeration engineering heritage, KX4 achieves the highest levels of efficiency and reliability through intelligent design.

Industry leading energy efficiency:
The co-efficient of performance (CoP) across the KX4 range ensures reduced running costs and reduced environmental impact:



CoP in heating of 3.6 means 3.6kW of heating for every 1kW of electricity used.

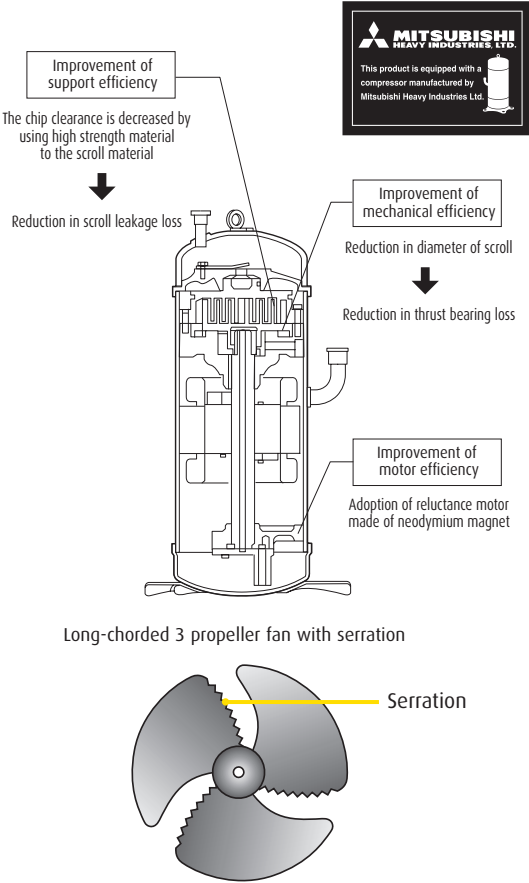
Several radical design changes and engineering developments have brought about this vast improvement of efficiency:

1) Utilising refrigerant R410a:
R410a brings many benefits, not least it is environmentally friendly with a zero ODP (Ozone Depleting Potential) rating. This refrigerant also has much better heat transfer properties than other common refrigerants and has a higher density which allows reduced tube diameter in the heat exchangers and inter-connecting pipework, thus reducing the over all amount of refrigerant required in the system.

2) Compressor design:
KX4 employs MHI's DC inverter compressors ONLY, improving performance and efficiency. The inverter constantly adjusts compressor output to meet the exact demand of the indoor units. No fixed speed compressors are used. Leakage loss and thrust bearing loss are decreased through optimal design of the scroll, with improved support and mechanical efficiency. A neodymium magnet is embedded in the core of the motor rotator, with efficiency improved at low speeds with the compound effect of Fleming force + reluctance torque. A high efficiency IPM (Intelligent Power Module) and high voltage drive motor further enhance efficiency.

3) Component Design:
DC fan motors are employed with fan blade design adapted from MHI's aerospace division - with serrated edges that deliver increased air volume with less power input.

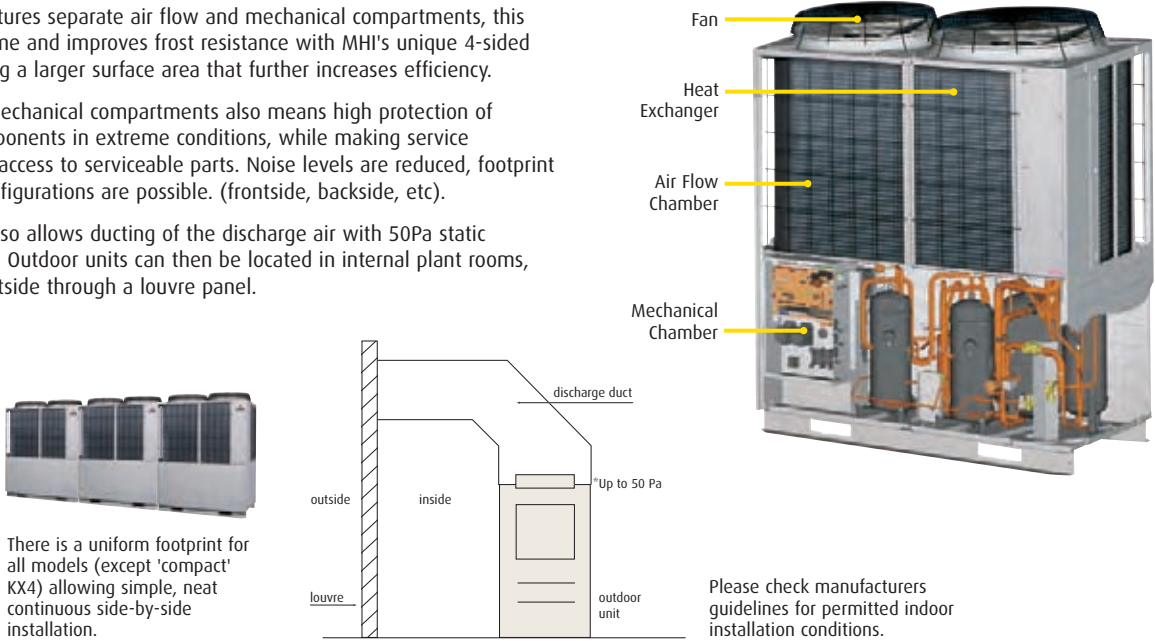
Electronic expansion valves constantly adjust during operation to ensure the most efficient use of refrigerant, while an up-sized accumulator stores unused refrigerant during low demand periods, optimising the flow of gas phase refrigerant and oil in to the compressor.



The condensing unit design features separate air flow and mechanical compartments, this improves over all air flow volume and improves frost resistance with MHI's unique 4-sided heat exchanger design providing a larger surface area that further increases efficiency.

Having separate air flow and mechanical compartments also means high protection of mechanical and electronic components in extreme conditions, while making service maintenance easy with simple access to serviceable parts. Noise levels are reduced, footprint is reduced and more piping configurations are possible. (frontside, backside, etc).

The vertical fan configuration also allows ducting of the discharge air with 50Pa static pressure in standard conditions. Outdoor units can then be located in internal plant rooms, with discharge air ducted to outside through a louvre panel.



Additional features:

- KX4 offers the biggest capacity single outdoor unit (24hp/68.0kW cooling) in the industry, with more connectable indoor units than any other system.
- Longer pipe runs than other manufacturers, with more deliverable capacity.
- Less compressors than other manufacturers at equivalent capacity, reducing cost and risk of failure.

KX4 also comes with a wide range of controls options including wired controllers with weekly programmable timer as standard, centralised controls, full-colour touch screen central control and monitoring, PC based control and monitoring and both LonWorks® and BACnet® interfaces for integration with any building management system.

MHI also offers service maintenance and monitoring software (Mente PC) for on site system interrogation via PC laptop or even PDA palm top, simply connecting to an RS232C port on the outdoor unit PCB

Enhanced Capital Allowance (ECA)/ Energy Technology List

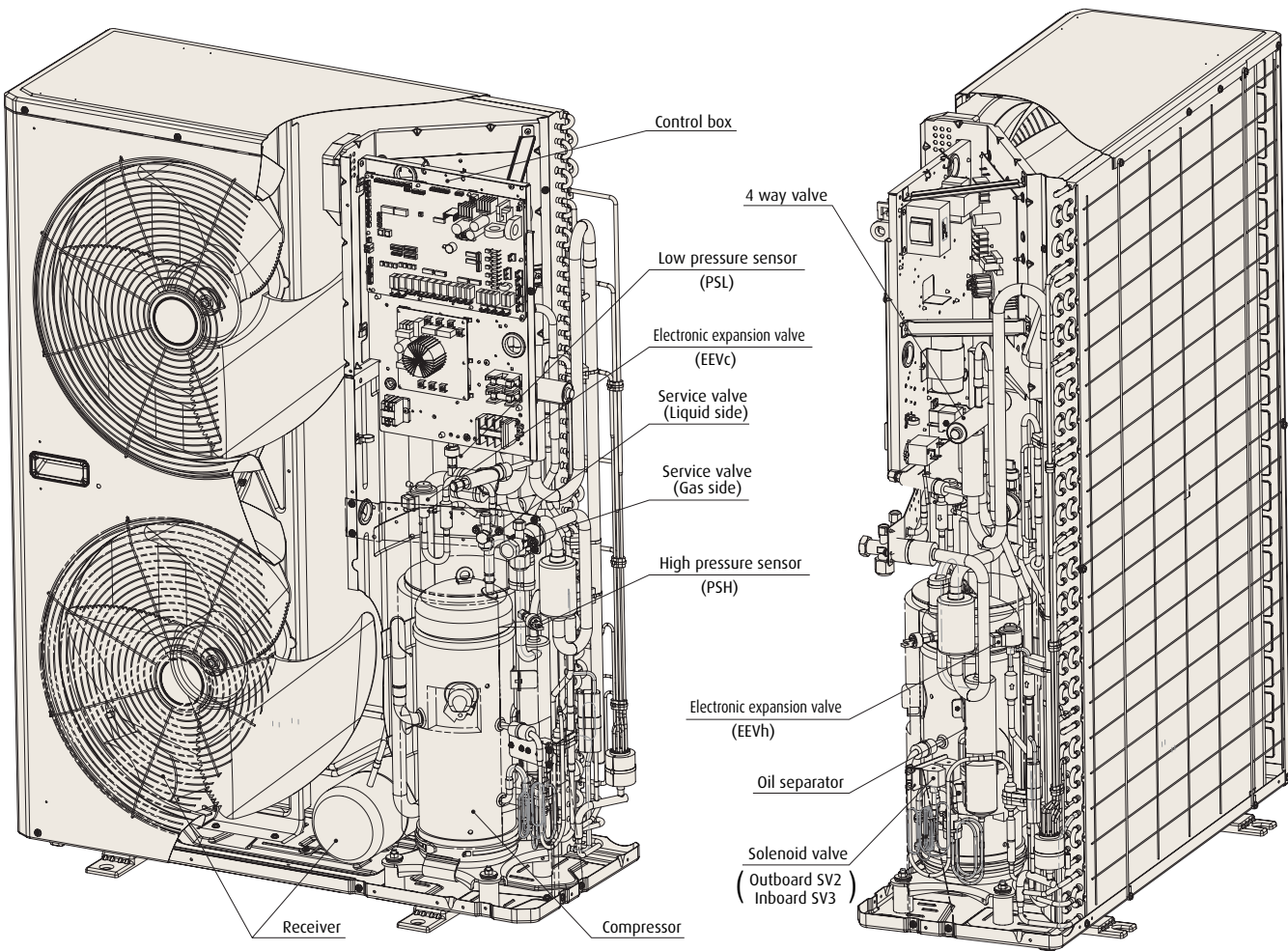
KX4 equipment is included on the Energy Technology List of the government's Carbon Trust, which means a company investing in MHI equipment can claim 100% of the fully installed value of the system as a capital allowance - reducing tax liability. Qualification is subject to individual system design, consult with MHI's dealers for further information.



KX4 Introduction

KX4 includes various control and safety devices which ensure both high efficiency and reliability. The systems can recognise and diagnose irregularities and report these via the microcomputer to the remote controls, PC boards or other monitoring devices.

KX4 compact outdoor unit



Low pressure sensor: this provides protection against leakage of refrigerant.

Electronic expansion valve: constantly adjusting to provide optimum refrigerant flow, pressure control and expansion of refrigerant for all varying loads of both cooling and heat pump operating conditions.

High pressure sensor: provides protection against compressor overload and malfunction of the refrigeration system.

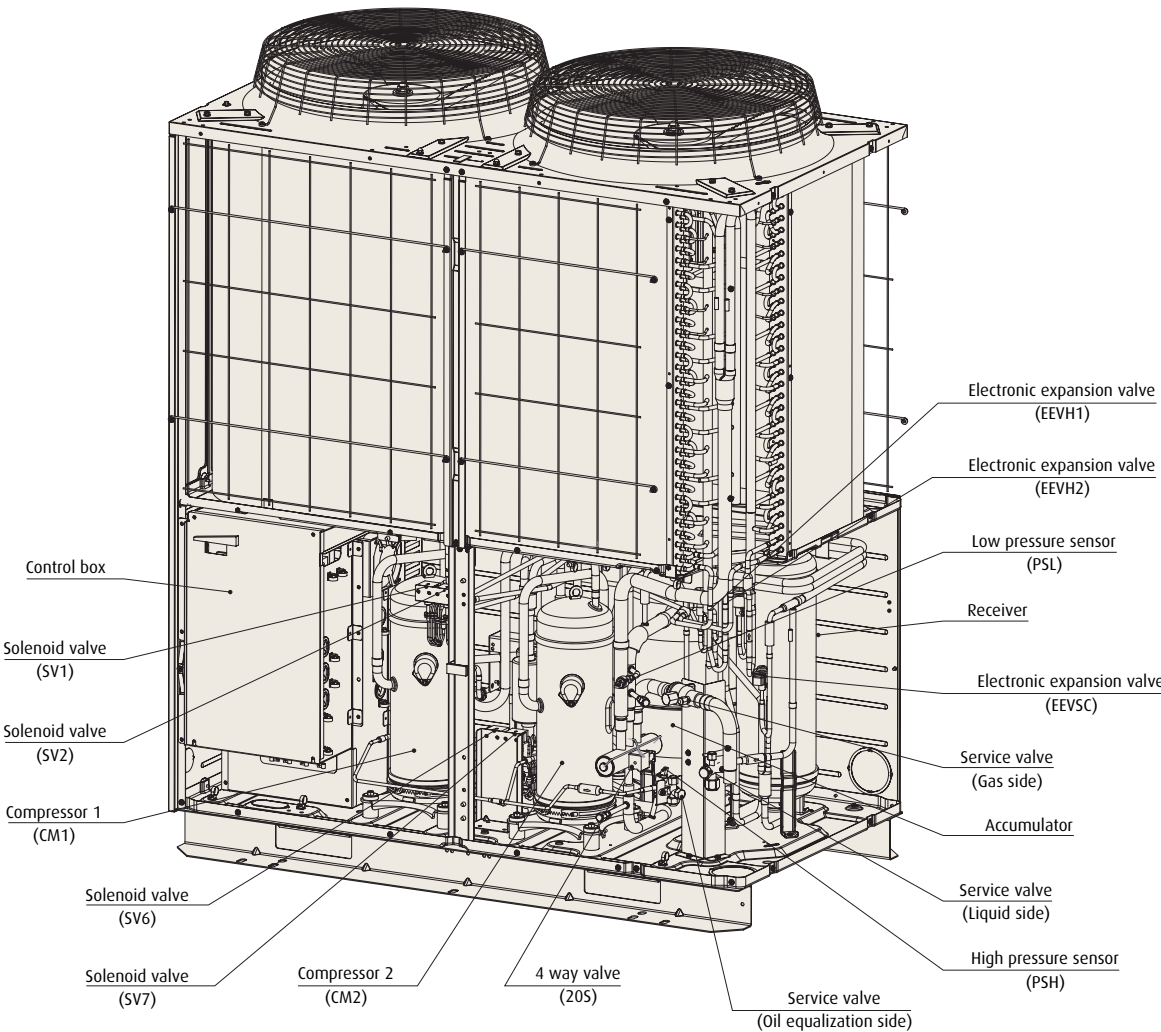
Accumulator - stores unused refrigerant at low demand and optimises the flow of gas phase refrigerant and oil to the compressor suction port.

DC Inverter compressor with variable speed control so that output matches exactly to the demand of the indoor units.

KX4 Introduction

On larger capacity systems that utilise two inverter compressors, further compressor protection is ensured with an alternating start-up feature, so that each time the system starts, the compressor that runs first is alternated between the two compressors, reducing wear. An oil equalisation pipe also connects both compressors to ensure equal oil distribution.

KX4/KXR4 outdoor unit (large capacity/2 compressor system)



Low pressure sensor: this provides protection against leakage of refrigerant.

Electronic expansion valve: constantly adjusting to provide optimum refrigerant flow, pressure control and expansion of refrigerant for all varying loads of both cooling and heat pump operating conditions.

High pressure sensor: provides protection against compressor overload and malfunction of the refrigeration system.

Accumulator - stores unused refrigerant at low demand and optimises the flow of gas phase refrigerant and oil to the compressor suction port.

DC Inverter compressor with variable speed control so that output matches exactly to the demand of the indoor units.

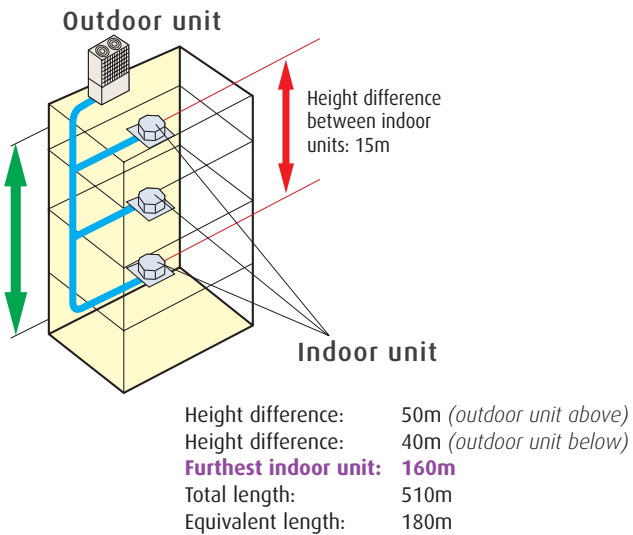
KX4 heat pump systems

KX4 heat pump systems operate with 2 inter-connecting pipes, thus commonly referred to as a '2-pipe system'.

These systems provide either a heating or cooling operation to all indoor units and are suitable for a wide range of applications from an individual apartment (with the KX4 compact 1/phase system) to an entire multi storey building, especially where there are significant open plan areas to be controlled.

The range starts with a compact, 1/phase model with 14.0kW cooling capacity, up to the largest capacity single outdoor unit in the industry (24hp) with 68.0kW cooling capacity. Outdoor units can also be “twinned” providing up to 48HP/136.0kW on a single system.

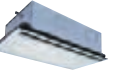
The KX4 range (8HP+) has a total piping length of 510m and the furthest indoor unit can be connected up to 160m from the outdoor unit.



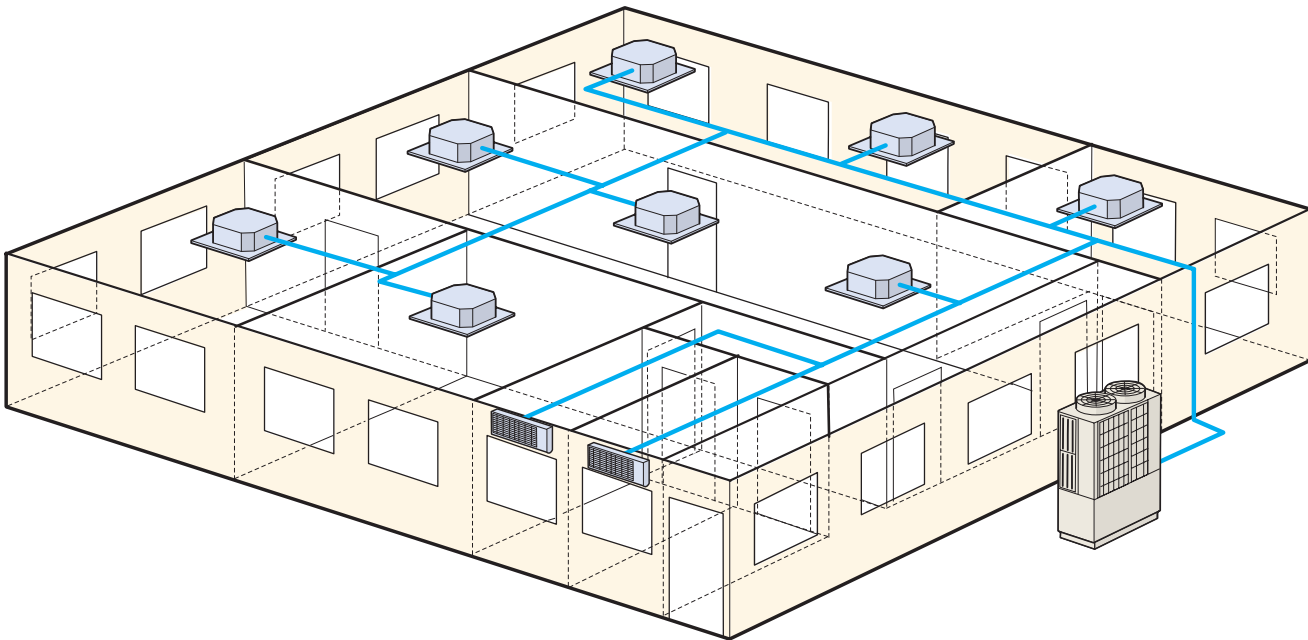
Up to 48 indoor units can be connected to the largest capacity outdoor unit, with a range of 15 types of exposed or concealed indoor unit, in several capacities, a choice of more than 70 indoor units is available.

Equivalent HP	5	8	10	12	14	16	18	20	22	24	26
Model	FDCA140HXKE4/S4	FDCA224HXKE4	FDCA280HXKE4	FDCA335HXKE4	FDCA400HXKE4	FDCA450HXKE4	FDCA504HXKE4	FDCA560HXKE4	FDCA615HXKE4	FDCA680HXKE4	FDCA735HXKE4
Number of connectable units	2~8	1~13	1~16	1~20	1~23	1~26	1~29	1~33	2~36	2~40	2~43

Equivalent HP	28	30	32	34	36	38	40	42	44	46	48
Model	FDCA800HXKE4	FDCA850HXKE4	FDCA900HXKE4	FDCA960HXKE4	FDCA1010HXKE4	FDCA1065HXKE4	FDCA1130HXKE4	FDCA1180HXKE4	FDCA1235HXKE4	FDCA1300HXKE4	FDCA1360HXKE4
Number of connectable units	2~47	2~48	2~48	2~48	2~48	2~48	3~48	3~48	3~48	3~48	3~48

						
FDTA	FDTCA	FDTWA	FD TSA	FDKA	FDEA	FDRA
						
FDUMA	FDURA	FDUA	FDTQA	FDQMA	FDFLA	FDFUA

KX4 heat pump systems



Fixed Cooling mode/fixed heating mode (summer/winter switch):
It is possible to fix the operational mode of the system (either cooling or heating) using a switch (SW3-7) on the outdoor unit PC board - this enables the building user to decide the operation of the system (e.g. cooling only in summer/heating only in winter), to avoid unnecessary energy wastage. It is also possible to wire the control switch to a remote location (inside the building) to a control room, or even linked to an ambient thermostat.

Refer to following pages for full details of all KX4 heat pump systems.



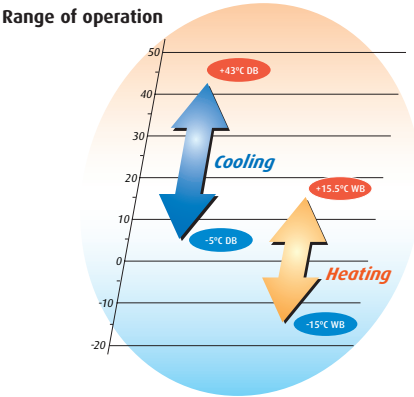
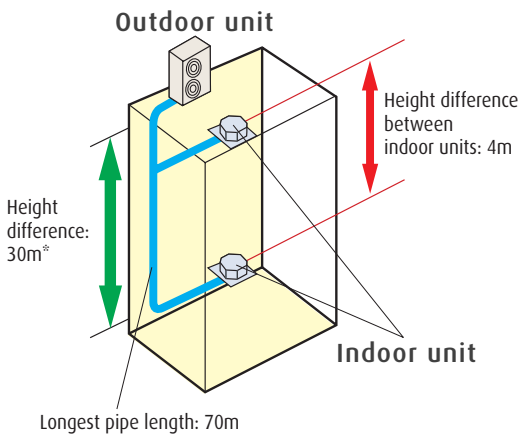
KX4 compact heat pump system 5hp (14.0kW)

Model No.	Nominal Cooling Capacity
FDCA140HKXEN4	14.0kW (1/phase)
FDCA140HKXE54	14.0kW (3/phase)

- The KX4 compact 2-pipe system offers high performance VRF for smaller commercial or residential applications with the 1/phase option.
- High efficiency with CoP (in cooling) of 3.4. CoP (heating) 3.8.
- Connect from 2 to 8 indoor units to a single outdoor unit.
- Compact and light weight: Footprint = 0.36m²
 Weight = 125kgs
- Connect indoor unit capacity up to 150% (max 6 indoor units) or up to 130% with 7-8 indoor units connected.
- **Factory pre-charged with refrigerant for maximum total piping length (100m).**
- **No need to add refrigerant on site.**



1/PHASE
POWER SUPPLY



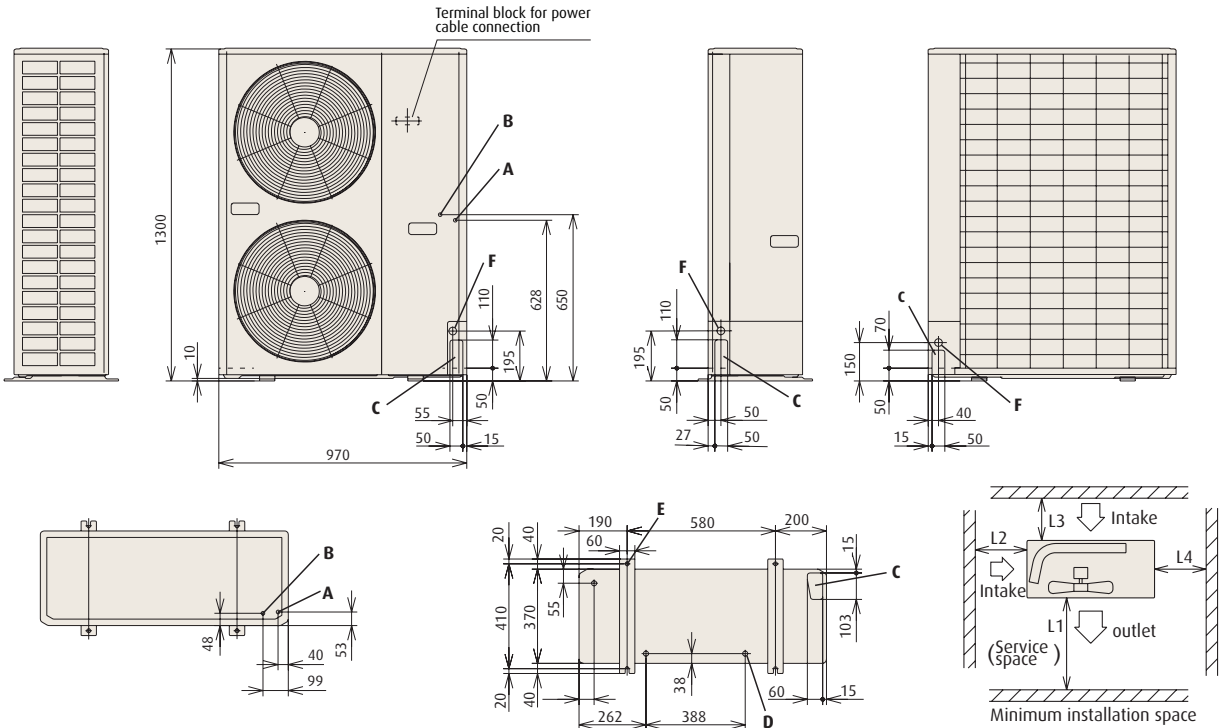
SPECIFICATIONS

Item	Model	FDCA140HKXEN4
Power source		1PHASE 220/240V, 50Hz
Nominal cooling capacity	kW	14.6
Nominal heating capacity	kW	16.6
UK cooling capacity	kW	14.2
Start current (max)	A	5
Power consumption (cooling)	kW	4.2
Power consumption (heating)	kW	4.45
Running current (cooling)	A	21.2/19.4
Running current (heating)	A	22.5/20.6
Noise level	dB(A)	53
Exterior dimensions (HxWxD)	mm	1300x970x370
Net weight	kg	125
Compressor motor	kW x units	3.0x1
Capacity control	%	20-100
Crankcase heater	W	33
Heat exchanger		Louvre fins & inner grooved tubing
Refrigerant		R410A
Quantity	kg	8.5
Refrigerant piping size	in (mm)	Liquid line: Ø3/8"(9.52) Gas line: Ø5/8"(15.88)

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KX4 compact heat pump system 5hp (14.0kW) outdoor unit dimensions

All measurements in mm.



Mark	Item	
A	Service valve connection (gas side)	ø5/8" (15.88) (flare)
B	Service valve connection (liquid line)	ø3/8" (9.52) (flare)
C	Pipe/cable draw-out port	4 places
D	Drain discharge port	ø20 x 3 places
E	Anchor bolt hole	M10 x 4 places
F	Cable draw-out port	ø30 x 3 places

	I	II	III
L1	Open	Open	500
L2	300	5	Open
L3	100	300	150
L4	5	5	5

- Notes:
- (1) It must not be surrounded by walls on the four sides.
 - (2) The unit must be fixed with anchor bolts. An anchor bolt must not protrude more than 15mm.
 - (3) Where the unit is subject to strong winds, lay it in such a direction that the blower outlet faces perpendicularly to the dominant wind direction.
 - (4) Leave a 1m or larger space above the unit.
 - (5) A wall in front of the blower outlet must not exceed the units height.
 - (6) The unit name plate is attached on the lower right corner of the front panel.

Refrigerant pipe limitations

Total length	100m or less
Farthest unit	70m or less
Ø3/8"(9.52mm) pipe length	50m or less
Height difference between units	
Indoor (lower) – outdoor (higher)	30m or less
Indoor (higher) – outdoor (lower)	15m or less
Indoor – indoor	4m or less

* When the outdoor unit is installed on a level lower than those of the indoor units, keep the height difference between them within 15m.

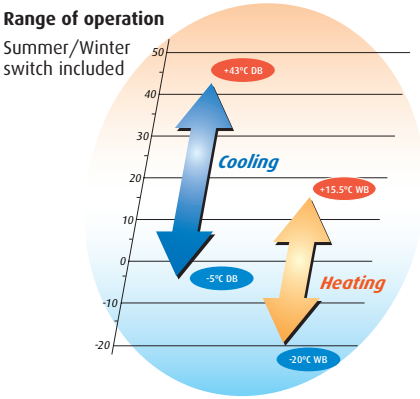
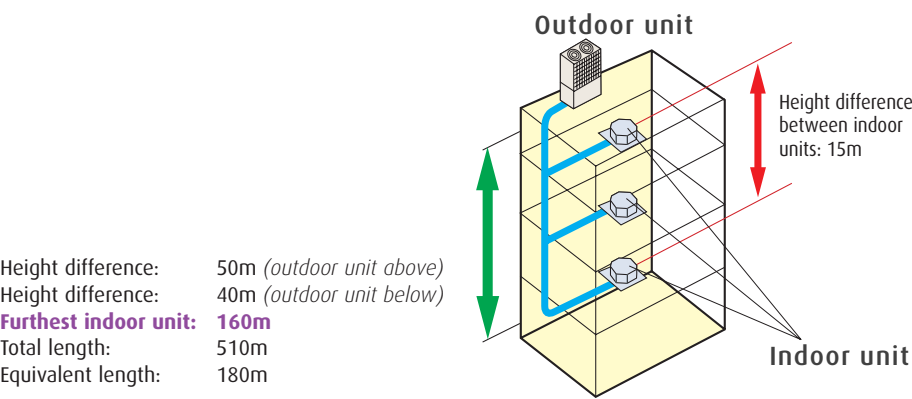
KX4 heat pump systems 8, 10, 12, 14, 16hp (22.4kW – 45.0kW)

Model No.	Nominal Cooling Capacity
FDCA224HKXE4	22.4kW
FDCA280HKXE4	28.0kW
FDCA335HKXE4	33.5kW
FDCA400HKXE4	40.0kW
FDCA450HKXE4	45.0kW

- The KX4 heat pump 2-pipe systems offer high performance VRF for applications that require either cooling only or heating only, ideal for open plan areas.
- Connect up to 26 indoor units/up to 130% capacity.
- High efficiency with CoP (in cooling) from 3.4 to 3.9.
- KX4 employs DC inverter compressors ONLY.
- Industry leading total piping length up to 510m and a maximum pipe run of 160m.



Uniform footprint of all models (from 8hp – 24 hp) allows continuous side-by-side installation



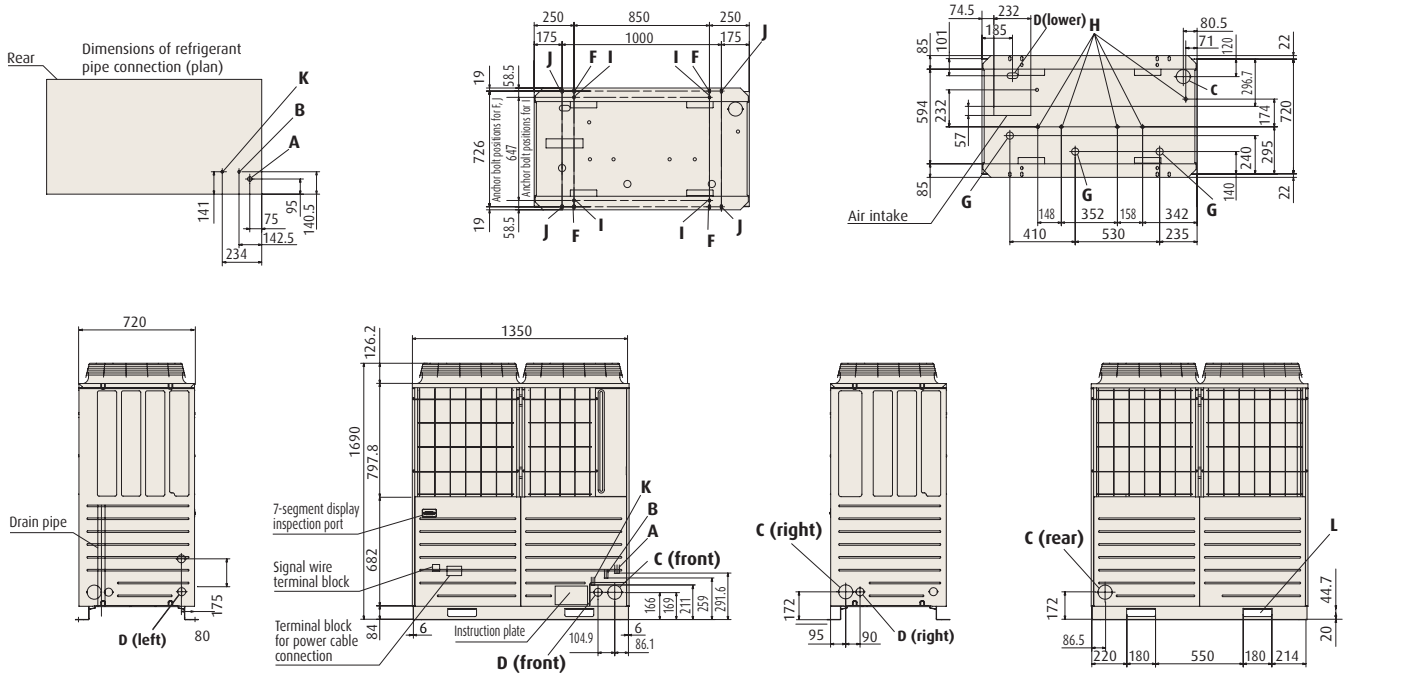
KX4 specifications

Item				FDCA224HKXE4	FDCA280HKXE4	FDCA335HKXE4	FDCA400HKXE4	FDCA450HKXE4
Nominal horse power				8HP	10HP	12HP	14HP	16HP
Power source				3 Phase 380/415V, 50Hz				
Nominal capacity	Cooling	kW	22.4	28.0	33.5	40.0	45.0	
	Heating		25.0	31.5	37.5	45.0	50.0	
UK cooling capacity			kW	19.3	24.1	28.9	34.5	38.8
Electrical characteristics	Starting current		A	5			8	
	Power consumption	Cooling	kW	5.70	8.26	9.53	11.27	12.97
		Heating		5.98	8.06	9.84	11.73	13.10
	Operating current	Cooling	A	9.6/8.8	13.6/12.4	15.5/14.2	18.4/16.9	21.1/19.3
Heating		9.6/8.8		13.3/12.2	16.3/14.9	19.6/17.9	21.7/19.9	
Exterior dimensions		HxWxD	mm	1690x1350x720				
Net weight			kg	245			310	
Refrigerant charge		R410A	kg	14.2			17.0	
Noise level (cooling/heating)			dB(A)	57/57	57/58	60.5/61	58.5/59	61/61
Refrigerant piping size	Liquid line	in (mm)	ø3/8"(9.52)			ø1/2"(12.70)		
	Gas line		ø3/4"(19.05)		ø7/8"(22.22)		ø1 1/8"(28.58)	
Capacity control			%	27-126	20-114	19-117	15-114	13-112
Number of connectable indoor units				13	16	20	23	26

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KX4 heat pump systems 8, 10, 12, 14, 16hp (22.4kW – 45.0kW) outdoor unit dimensions

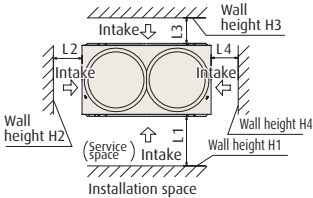
All measurements in mm.



Mark	Item	
A	Service valve connection (gas side)	For refrigerant piping, please refer to the unit specifications.
B	Service valve connection (liquid line)	
C	Refrigerant pipe draw-out port	ø88
D	Power cable draw-in port	ø50
F	Anchor bolt hole	M10 x 4 places
G	Drain hose hole	ø45 x 3 places
H	Drain discharge port	ø20 x 6 places
K	Oil-equalising pipe joint	ø3/8" flare
L	Sling holes for haulage or hoisting	180 x 44.7

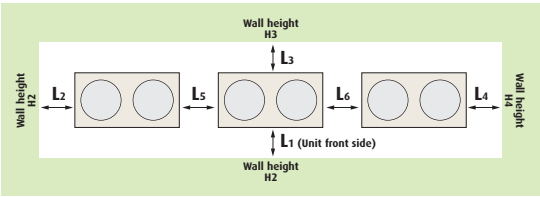
*14 + 16HP models only

Installation example		
Dimensions	1	2
L1	500	Open
L2	10	10
L3	100	100
L4	10	Open
H1	1500	-
H2	No restrictions	No restrictions
H3	1000	No restrictions
H4	No restrictions	-



- Notes:
- (1) The unit must be fixed with anchor bolts.
 - (2) Leave a 2m or larger space above the unit.
 - (3) The unit name plate is attached on the lower right corner of the front panel.
 - (4) The ports for refrigerant pipe and power cable penetrations are covered with half-blanks. Please cut off a half-blank with nippers in using these ports.
 - (5) Use a ø88 port for refrigerant pipe connection.
 - (6) Anchor holes marked "L" (four holes for M10) are for a renewal installation.
 - (7) The oil-equalising pipe K should be used when outdoor units are used in combination. (For 14-16Hp only)

When more than one unit is installed

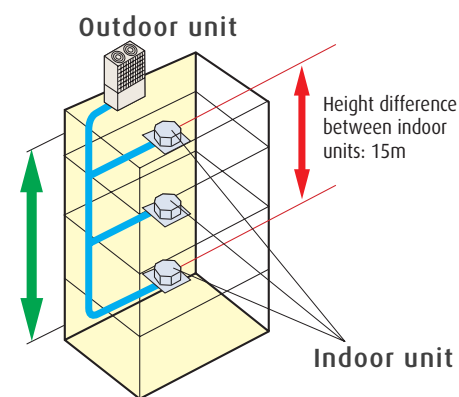


Installation example		
Dimensions	A	B
L1	500	Open
L2	10	200
L3	100	300
L4	10	Open
L5	0	400
L6	0	400
H1	1500	No restrictions
H2	No restrictions	No restrictions
H3	1000	No restrictions
H4	No restrictions	No restrictions

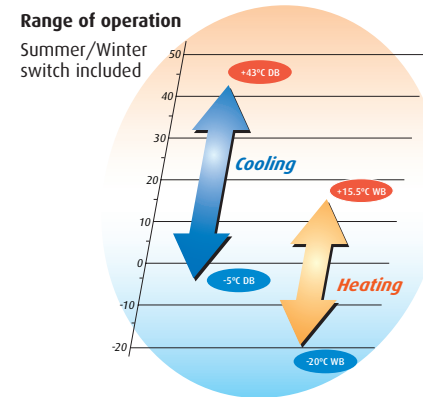
KX4 heat pump systems 18, 20, 22, 24hp
(50.4kW – 68.0kW)

Model No.	Nominal Cooling Capacity
FDCA504HKXE4	50.4kW
FDCA560HKXE4	56.0kW
FDCA615HKXE4	61.5kW
FDCA680HKXE4	68.0kW

- The KX4 heat pump 2-pipe systems offer high performance VRF for applications that require either cooling only or heating only, ideal for open plan areas.
- Connect up to 40 indoor units/up to 130% capacity.
- High efficiency with CoP (in cooling) of 3.4.
- KX4 employs DC inverter compressors ONLY.
- Industry leading total piping length up to 510m and a maximum pipe run of 160m.



Height difference: 50m (*outdoor unit above*)
 Height difference: 40m (*outdoor unit below*)
Furthest indoor unit: 160m
 Total length: 510m
 Equivalent length: 180m



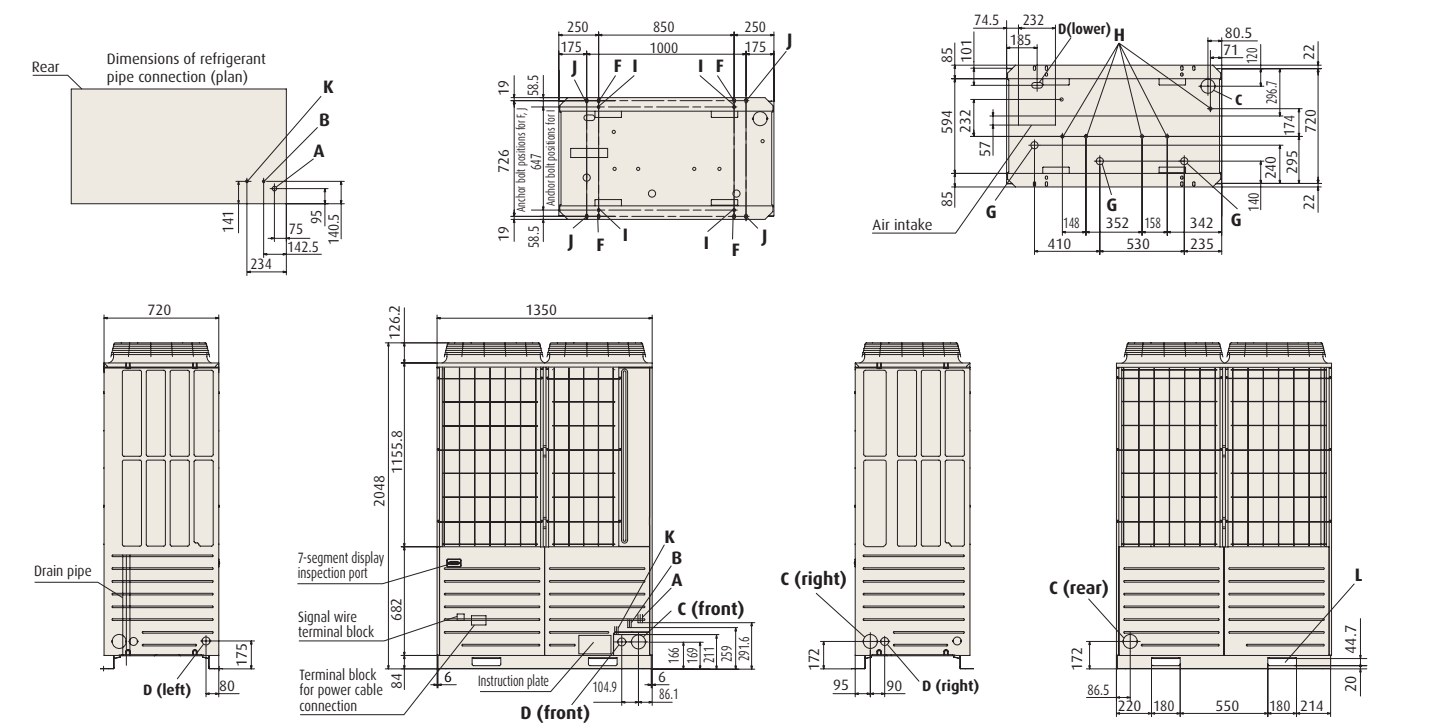
KX4 specifications

Item			FDCA504HKXE4	FDCA560HKXE4	FDCA615HKXE4	FDCA680HKXE4	
Nominal horse power			18HP	20HP	22HP	24HP	
Power source			3 Phase 380/415V, 50Hz				
Nominal capacity	Cooling	kW	50.4	56.0	61.5	68.0	
	Heating		56.5	63.0	69.0	73.0	
UK cooling capacity		kW	43.4	48.3	53.0	58.6	
Electrical characteristics	Starting current		A	8			
	Power consumption	Cooling	kW	14.73	17.21	20.37	24.98
		Heating		15.15	17.07	18.48	19.08
	Operating current	Cooling	A	24.1/22.0	28.2/25.8	33.1/30.3	40.3/36.9
Heating		25.2/23.1		28.5/26.1	30.7/28.1	31.6/29.0	
Exterior dimensions		HxWxD	mm 2048x1350x720				
Net weight		kg	340		360		
Refrigerant charge		R410A	kg 19.4		26.2		
Noise level (cooling/heating)		dB(A)	60/60.5	60.5/62.5	63/63	63.5/63.5	
Refrigerant piping size	Liquid line	in (mm)	ø1/2" (12.70)				
	Gas line		ø1 1/8" (28.58)				
Capacity control		%	11-110	10-113	9-110	8-108	
Number of connectable indoor units			29	33	36	40	

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

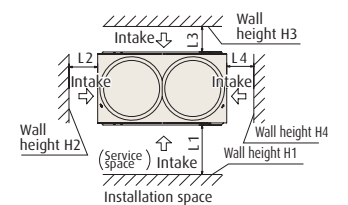
KX4 heat pump systems 18, 20, 22, 24hp
(50.4kW – 68.0kW) outdoor unit dimensions

All measurements in mm.



Mark	Item	
A	Service valve connection (gas side)	For refrigerant piping, please refer to the unit specifications.
B	Service valve connection (liquid line)	
C	Refrigerant pipe draw-out port	ø100
D	Power cable draw-in port	ø50
F	Anchor bolt hole	M10 x 4 places
G	Drain hose hole	ø45.3 x 3 places
H	Drain discharge port	ø20.5 x 3 places
K	Oil-equalising pipe joint	ø9.52 flare
L	Sling holes for haulage or hoisting	180 x 44.7

Installation example		
Dimensions	1	2
L1	500	Open
L2	10	10
L3	100	100
L4	10	Open
H1	1500	–
H2	No restrictions	No restrictions
H3	1000	No restrictions
H4	No restrictions	–



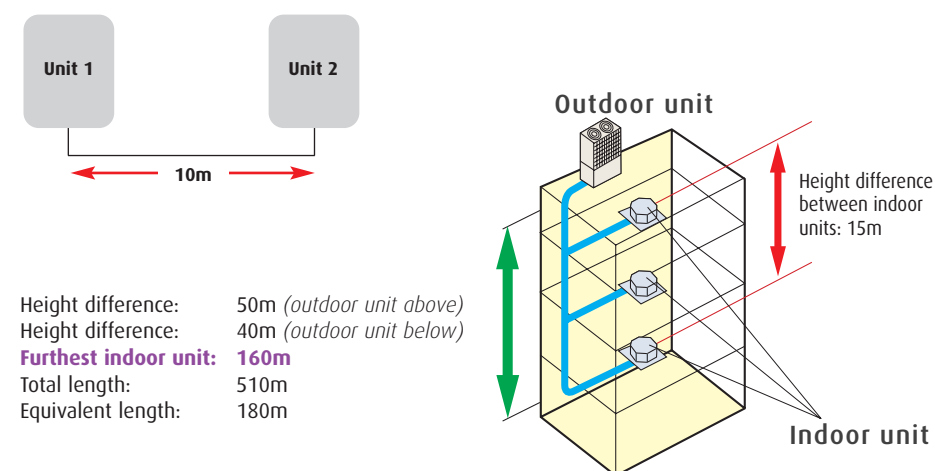
Notes:

- (1) The unit must be fixed with anchor bolts.
- (2) Leave a 2m or larger space above the unit.
- (3) The unit name plate is attached on the lower right corner of the front panel.
- (4) The ports for refrigerant pipe and power cable penetrations are covered with half-blanks. Please cut off a half-blank with nippers in using these ports.
- (5) Use a ø88 port for refrigerant pipe connection.
- (6) Anchor holes marked "LJ" (four holes for M10) are for a renewal installation.
- (7) The oil-equalising pipe K should be used when outdoor units are used in combination.

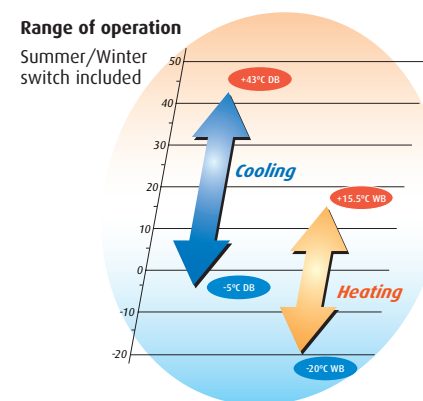
KX4 heat pump combination systems 26, 28, 30, 32hp
(73.5kW – 90.0kW)

Model No.	Nominal Cooling Capacity
FDCA735HKXE4 (FDCA335+FDCA400)	73.5kW
FDCA800HKXE4 (FDCA400x2)	80.0kW
FDCA850HKXE4 (FDCA400+FDCA450)	85.0kW
FDCA900HKXE4 (FDCA450x2)	90.0kW

- The KX4 heat pump 2-pipe systems offer high performance VRF for applications that require either cooling only or heating only, ideal for open plan areas.
- Connect up to 48 indoor units/up to 130% capacity.
- High efficiency with CoP (in cooling) from 3.4 to 3.6.
- KX4 employs DC inverter compressors ONLY.
- Industry leading total piping length up to 510m and a maximum pipe run of 160m.
- Twin units can be connected with up to 10m spacing.



Uniform footprint of all models (from 8hp – 24 hp) allows continuous side-by-side installation



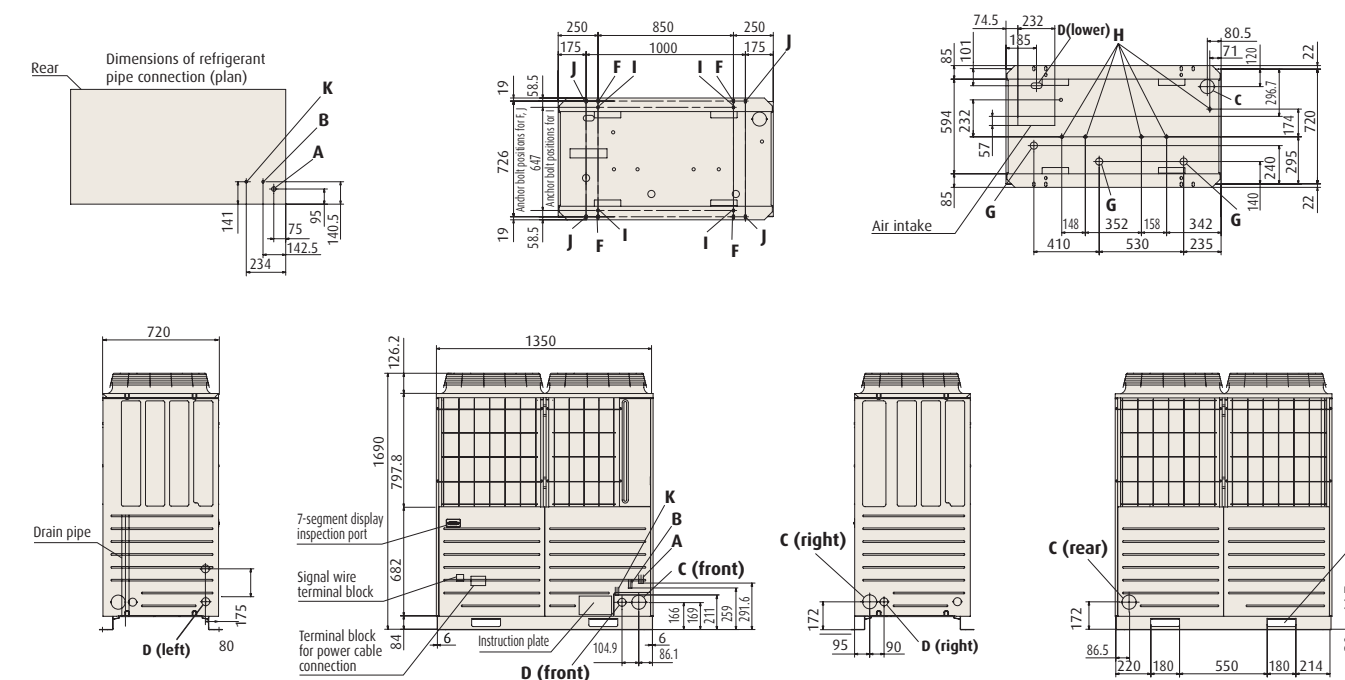
KX4 specifications

Item			FDCA735HKXE4	FDCA800HKXE4	FDCA850HKXE4	FDCA900HKXE4
Combination (FDCA)			400HKXE4	400HKXE4	450HKXE4	450HKXE4
			335HKXE4	400HKXE4	400HKXE4	450HKXE4
Nominal horse power			26HP	28HP	30HP	32HP
Power source			3 Phase 380/415V, 50Hz			
Nominal capacity	Cooling	kW	73.5	80.0	85.0	90.0
	Heating		82.5	90.0	95.0	100.0
UK cooling capacity		kW	63.4	69.0	73.3	77.6
Electrical characteristics	Starting current		A	16		
	Power consumption	Cooling Heating	kW	20.21	22.54	24.24
				20.66	23.46	24.83
	Operating current	Cooling Heating	A	32.9/30.2	36.8/33.7	39.5/36.1
				34.4/31.5	39.1/35.8	41.2/37.7
Exterior dimensions	HxWxD	mm	1690x2700x720			
Net weight		kg	310x2			
Refrigerant charge		kg	34.0			
Noise level (cooling/heating)		dB(A)	60.5/61	61.5/62	63/63	64/64
Refrigerant piping size	Liquid line	in (mm)	ø5/8"(15.88)			
	Gas line		ø1 3/8"(34.92)			
Capacity control		%	8-123	4-114	4-112	4-112
Number of connectable indoor units			43	47	48	48

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KX4 heat pump combination systems 26, 28, 30, 32hp
(73.5kW – 90.0kW) outdoor unit dimensions

All measurements in mm.



Mark	Item	
A	Service valve connection (gas side)	For refrigerant piping, please refer to the unit specifications.
B	Service valve connection (liquid line)	
C	Refrigerant pipe draw-out port	ø88
D	Power cable draw-in port	ø50
F	Anchor bolt hole	M10 x 4 places
G	Drain hose hole	ø45 x 3 places
H	Drain discharge port	ø20 x 6 places
K	Oil-equalising pipe joint	ø3/8" flare
L	Sling holes for haulage or hoisting	180 x 44.7

Notes:

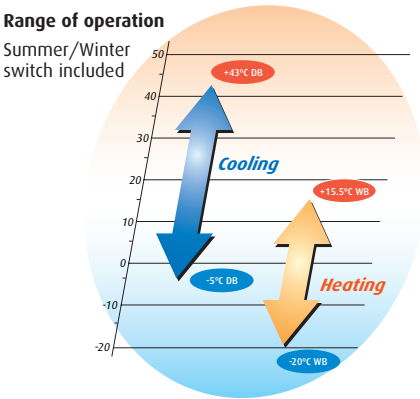
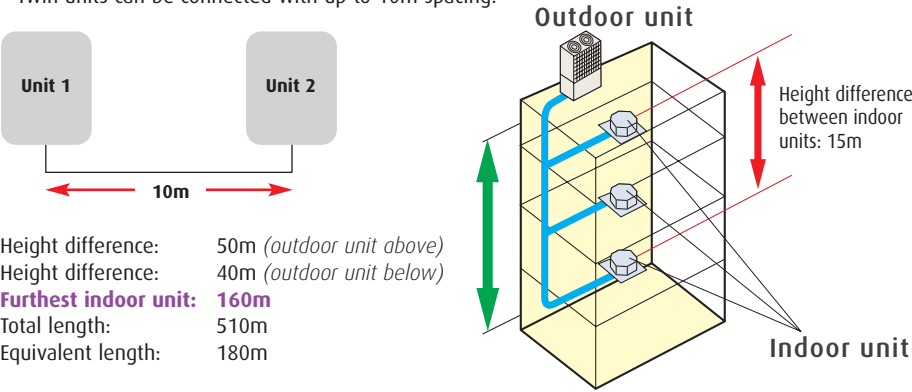
- Notes:
- (1) The unit must be fixed with anchor bolts.
 - (2) Leave a 2m or larger space above the unit.
 - (3) The unit name plate is attached on the lower right corner of the front panel.
 - (4) The ports for refrigerant pipe and power cable penetrations are covered with half-blanks. Please cut off a half-blank with nippers in using these ports.
 - (5) Use a $\varnothing 88$ port for refrigerant pipe connection.
 - (6) Anchor holes marked "L J" (four holes for M10) are for a renewal installation.
 - (7) The oil-equalising pipe K should be used when outdoor units are used in combination.

KX4 heat pump combination systems

34, 36, 38, 40, 42, 44, 46, 48hp (96.0kW – 136.0kW)

Model No.	Nominal Cooling Capacity
FDCA960HKXE4 (FDCA450+FDCA504)	96.0kW
FDCA1010HKXE4 (FDCA504x2)	101.0kW
FDCA1065HKXE4 (FDCA504+FDCA560)	106.5kW
FDCA1130HKXE4 (FDCA560x2)	113.0kW
FDCA1180HKXE4 (FDCA560+FDCA615)	118.0kW
FDCA1235HKXE4 (FDCA615x2)	123.5kW
FDCA1300HKXE4 (FDCA615+FDCA680)	130.0kW
FDCA1360HKXE4 (FDCA680x2)	136.0kW

- The KX4 heat pump 2-pipe systems offer high performance VRF for applications that require either cooling only or heating only, ideal for open plan areas.
- Connect up to 48 indoor units/up to 130% capacity.
- High efficiency with CoP (in cooling) of up to 3.2.
- KX4 employs DC inverter compressors ONLY.
- Industry leading total piping length up to 510m and a maximum pipe run of 160m.
- Twin units can be connected with up to 10m spacing.



KX4 specifications

Item			FDCA960HKXE4	FDCA1010HKXE4	FDCA1065HKXE4	FDCA1130HKXE4	FDCA1180HKXE4	FDCA1235HKXE4	FDCA1300HKXE4	FDCA1360HKXE4	
Combination (FDCA)			504HKXE4	504HKXE4	560HKXE4	560HKXE4	615HKXE4	615HKXE4	680HKXE4	680HKXE4	
			450HKXE4	504HKXE4	504HKXE4	560HKXE4	560HKXE4	615HKXE4	615HKXE4	680HKXE4	
Nominal horse power			34HP	36HP	38HP	40HP	42HP	44HP	46HP	48HP	
Power source			3 Phase 380/415V, 50Hz								
Nominal capacity	Cooling	kW	96.0	101.0	106.5	113.0	118.0	123.5	130.0	136.0	
	Heating		108.0	113.0	119.5	127.0	132.0	138.0	142.0	146.0	
UK cooling capacity		kW	82.8	87.1	91.8	97.4	101.7	106.5	112.1	117.2	
Electrical characteristics	Starting current		A								
	Power consumption	Cooling Heating	kW	27.70	29.46	31.93	34.41	37.57	40.74	45.35	49.96
				28.25	30.30	32.21	34.13	35.54	36.96	37.56	38.16
	Operating current	Cooling Heating	A	45.1/41.3	48.1/44.0	52.2/47.8	56.4/51.6	61.3/56.1	66.2/60.6	73.4/67.2	80.6/73.8
				46.9/42.9	50.4/46.2	53.7/49.2	57.1/52.2	59.2/54.2	61.4/56.2	62.3/57.1	63.2/57.9
Exterior dimensions	HxWxD	mm	2048x2700x720								
Net weight		kg	340+310		340x2		360+340		360x2		
Refrigerant charge	R410A	kg	36.4	38.8			45.6		52.4		
Noise level (cooling/heating)		dB(A)	63.5/64	63/63.5	63.5/64.5	63.5/65.5	65/66	66/66	66.5/66.5		
Refrigerant piping size	Liquid line	in (mm)	ø5/8"(15.88)			ø3/4"(19.05)					
	Gas line		ø1 3/8"(34.92)								
Capacity control		%	4-110	4-109	4-111	4-112	4-112	4-109	4-108	4-107	
Number of connectable indoor units			48								

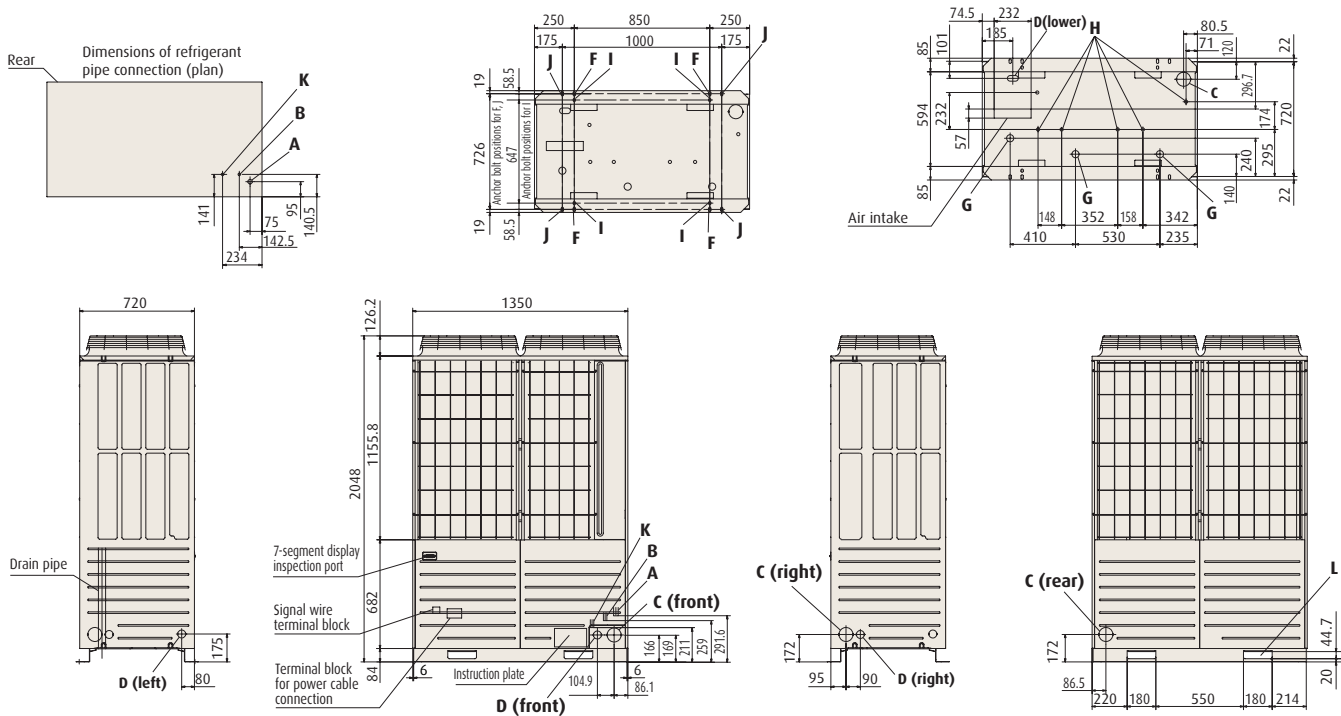
UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KX4 heat pump combination systems

34, 36, 38, 40, 42, 44, 46, 48hp (96.0kW – 136.0kW)

outdoor unit dimensions

All measurements in mm.



Mark	Item	
A	Service valve connection (gas side)	For refrigerant piping, please refer to the unit specifications.
B	Service valve connection (liquid line)	
C	Refrigerant pipe draw-out port	ø100
D	Power cable draw-in port	ø50
F	Anchor bolt hole	M10 x 4 places
G	Drain hose hole	ø45.3 x 3 places
H	Drain discharge port	ø20.5 x 3 places
K	Oil-equalising pipe joint	ø9.52 flare
L	Sling holes for haulage or hoisting	180 x 44.7

- Notes:
- (1) The unit must be fixed with anchor bolts.
 - (2) Leave a 2m or larger space above the unit.
 - (3) The unit name plate is attached on the lower right corner of the front panel.
 - (4) The ports for refrigerant pipe and power cable penetrations are covered with half-blanks. Please cut off a half-blank with nippers in using these ports.
 - (5) Use a ø88 port for refrigerant pipe connection.
 - (6) Anchor holes marked "L" (four holes for M10) are for a renewal installation.
 - (7) The oil-equalising pipe K should be used when outdoor units are used in combination.

KX4 refrigerant piping

Installation of Interconnecting Pipework
Mitsubishi KX4 equipment is manufactured to the highest standards of quality and reliability. It is imperative the method of installation and the materials used are also to high standards, to ensure trouble free operation and long term reliability.
The interconnecting pipework must be installed by a competent and trained engineer. Refrigeration quality copper tube must be used, soft copper coils or half-hard straight lengths. The refrigeration quality tube must be soft drawn seamless high grade copper pipe. The copper tube must be selected taking into account the higher operating pressures of R410A refrigerant, and that high pressures will occur throughout the system because of the reverse cycle operation. All pipework material used should be EN12735 European standard.

The supplied branch pipe kits, must be used to make connections to indoor units, and the supplied manifold kits must be used to make connections between outdoor units (where applicable); it is not permitted to use standard fittings such as elbows, tees etc. The branch pipes shall be installed in accordance with the manufacturer's instructions, allowing unrestricted flow of refrigerant, and in accordance with European standard E378:2000. All brazed joints shall be made with dry nitrogen purge to ensure the prevention of oxidation to the internal surface of the copper pipes. The ingress of moisture, dirt and any other contaminants to the interior of the copper pipes, and air conditioning units, must be prevented during the installation procedure. After the installation of pipework, prior to the connection of the outdoor units, and sealing of

insulation joints, the pipework must be pressure tested for leakage, using dry nitrogen. The pipe ends must be crimped and brazed, and a suitable service valve connection will need to be fitted (supplied by installer).

Pipe Insulation
The refrigeration pipework must be insulated with close cell Class 'O' fire performance with a minimum wall thickness of 13mm.

Additional Refrigerant
Additional R410A refrigerant only shall be used, and must be charged by weight only, using electronic scales. The amount of additional refrigerant must be accurately calculated from the manufacturer's data, based on the length and diameter of each section of the liquid refrigerant pipework of the system.

KX4 refrigerant piping

Outdoor unit (HP)		5	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	
Liquid pipe	Furthest indoor unit	3/8"			1/2"								5/8"						3/4"					
Gas pipe	=<90m	5/8"	3/4"	7/8"	1 1/8"								1 3/8"											
Liquid pipe	Furthest indoor unit	X	1/2"				5/8"				3/4"						7/8"							
Gas pipe	=>90m		7/8"	1 1/8"				1 3/8"																

Branch pipes



DIS-22-1/DIS-180-1

Header pipe

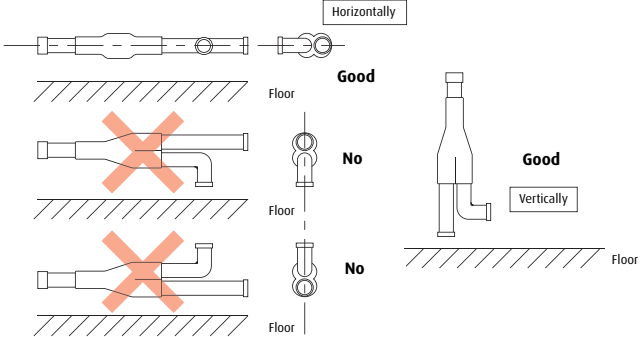


Head6-180-1

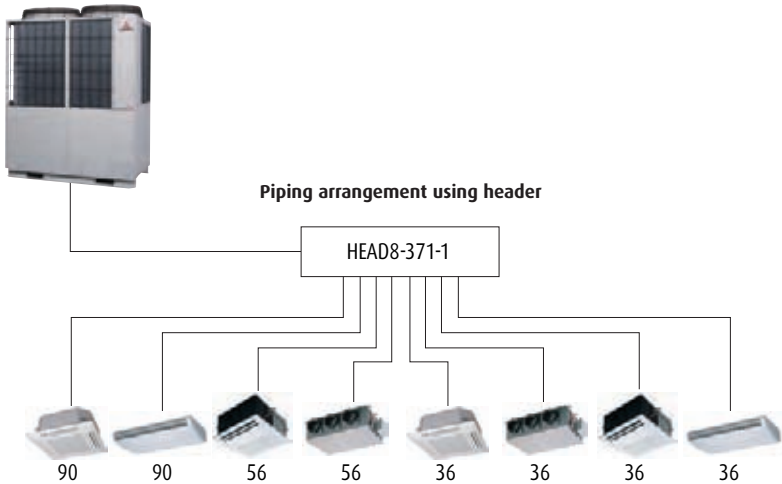
Combination outdoor unit manifold



DOS-2A-1



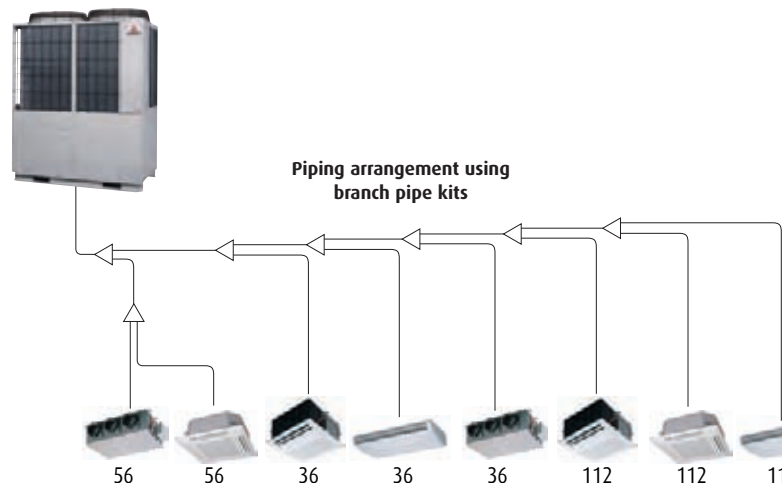
Single outdoor unit piping examples:



Piping arrangement using header

HEAD8-371-1

90 90 56 56 36 36 36 36



Piping arrangement using branch pipe kits

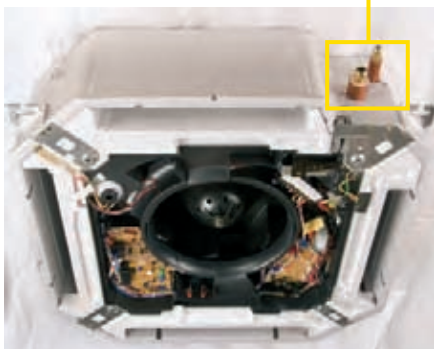
56 56 36 36 36 112 112 112



4-way cassette pipe connections

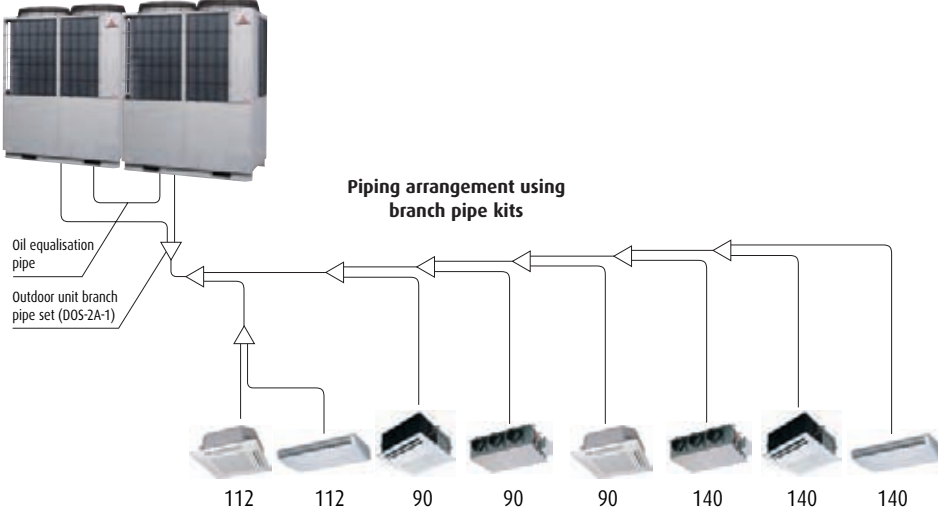
FDCA335HKXE4

Liquid pipe
Gas pipe



FDTA28KXE4A

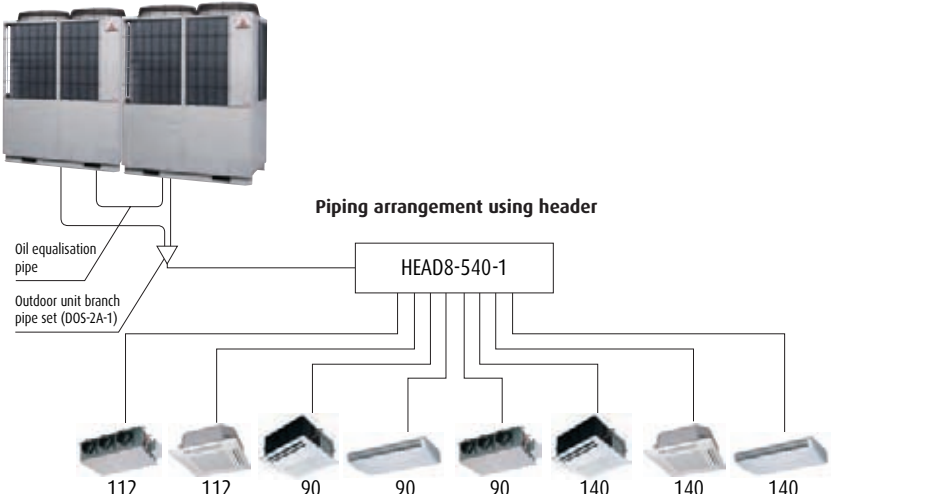
Combination outdoor unit piping examples:



Piping arrangement using branch pipe kits

Oil equalisation pipe
Outdoor unit branch pipe set (DOS-2A-1)

112 112 90 90 90 140 140 140

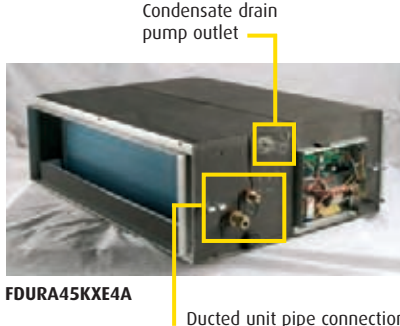


Piping arrangement using header

HEAD8-540-1

Oil equalisation pipe
Outdoor unit branch pipe set (DOS-2A-1)

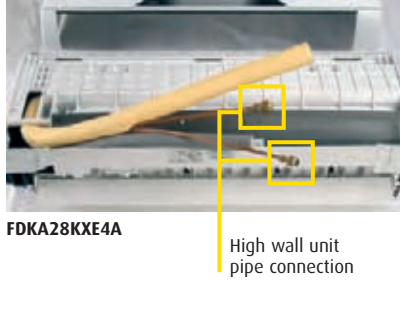
112 112 90 90 90 140 140 140



Condensate drain pump outlet

FDURA45KXE4A

Ducted unit pipe connection



FDKA28KXE4A

High wall unit pipe connection

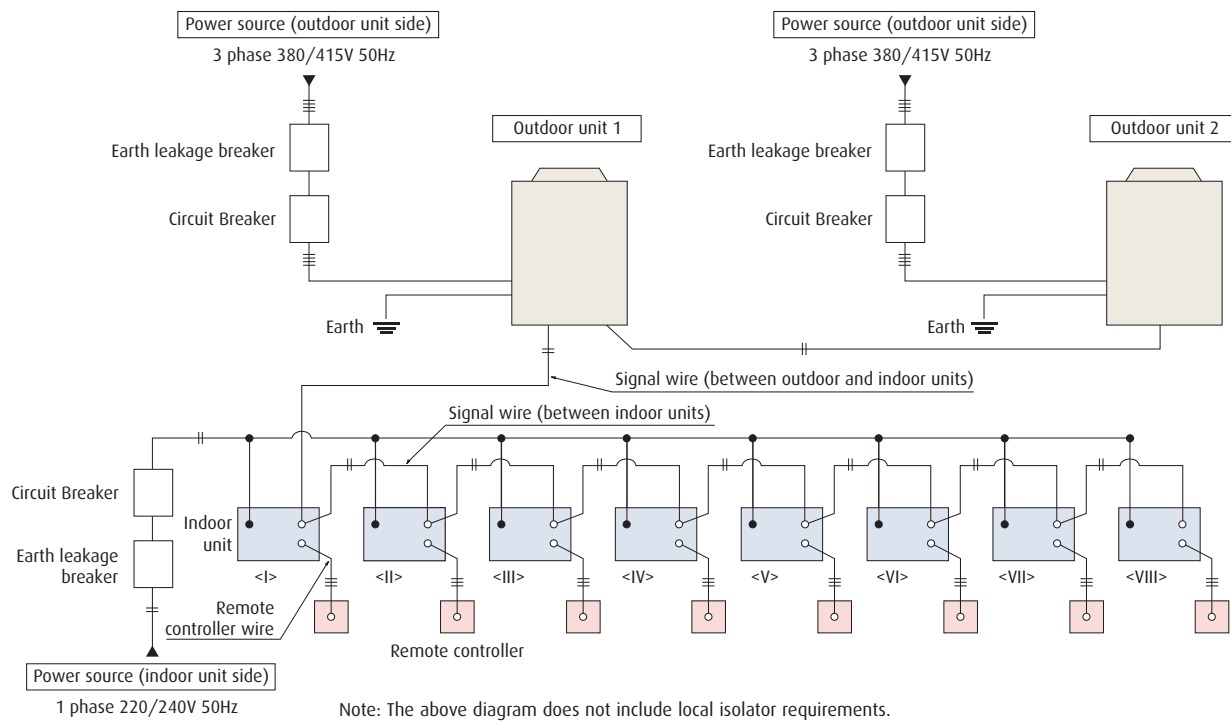
KX4 electrical wiring – power supply

KX4 new design includes greatly simplified wiring requirements utilising a ‘polarity-free’ two wire control loop connecting the indoor units.

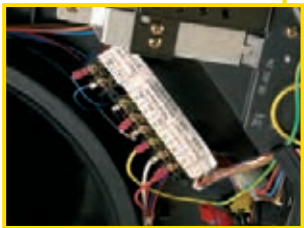
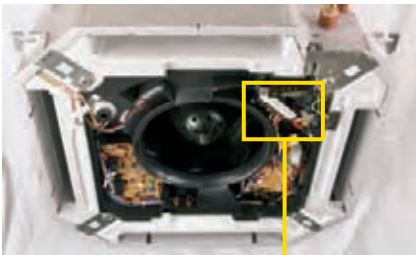
Power wiring

Cables can be laid through the front, right, left or bottom of the outdoor unit casing.

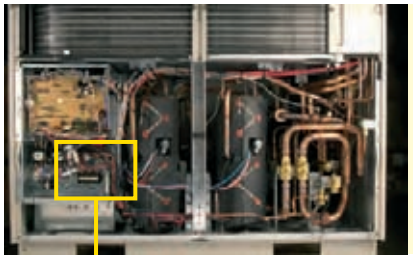
Separate power supplies should be used for the outdoor unit (3/phase) and the indoor units (3/phase). Only control wiring is connected from outdoor to indoor unit.



4-way cassette power supply connection



KX4 outdoor unit mechanical compartment



electrical component box



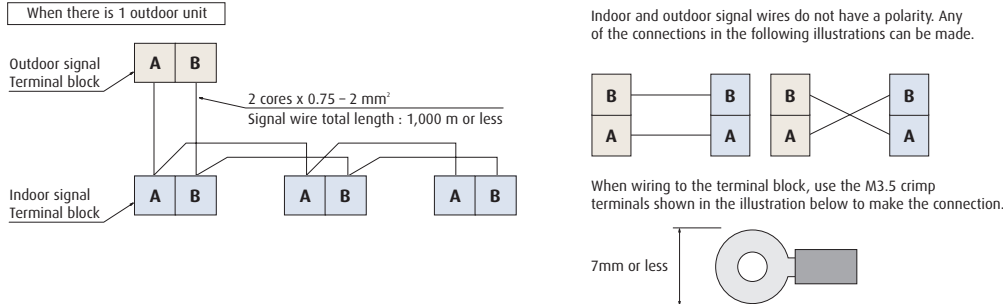
Outdoor unit power supply terminal block

Wall unit

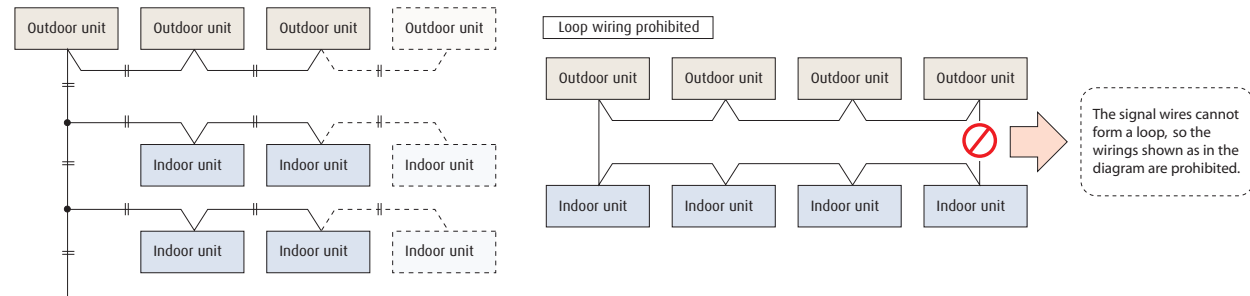


KX4 electrical wiring – control wiring

1. The control wiring is 5 Volt DC, non-polarised, two wire connection notated as ‘A’ and ‘B’. This ‘AB’ wiring connects outdoor unit to indoor unit and indoor unit to indoor unit.
2. This wiring must be a 2-core shielded cable size 0.75mm to 2.00mm². The maximum length of 2-core is 1000 metres.
3. We recommend only one end of the shield of the cable is connected to ground (earth) at one of the outdoor units. At all other terminal connections on the same network, connect all the shields together and electrically insulate them. This will prevent accidental grounding at 2 points and eliminate any electrical noise.
4. For current specification of 2-core (AB) wiring, please consult your MHI dealer.



- (a) The maximum number of indoor units that can be connected in a system is 48 and it is possible to configure outdoor units and/or indoor units as an outdoor or indoor unit group connected with each other with two wires.
- (b) The signal wires can also be connected using the method shown below.

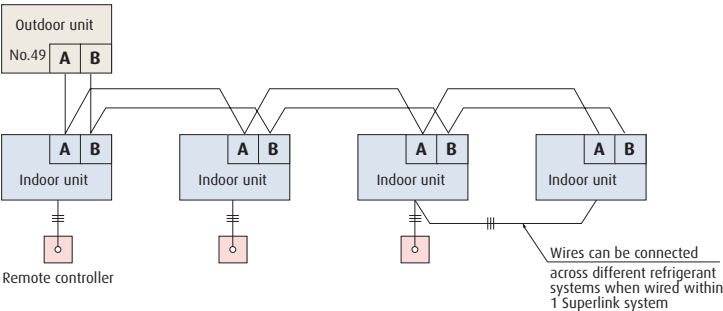


Remote controller wiring specifications

1. For interconnecting wiring between the remote controller and indoor units (XYZ wiring) use 3-core shielded cable size 0.3mm². The maximum length of 3-core cable is 600 metres. Where the 3-core wiring exceeds 100m, use the wire size detailed on the table opposite.
2. Be sure to ground (earth) only one end of the shield of the cable. When connecting more than one indoor unit to a remote controller, we recommend the shield of the cable is connected to ground (earth) at the first indoor unit only. At all subsequent terminal connections on the same loop, connect all the shields together and electrically insulate them. This will prevent accidental grounding at 2 points and eliminate any electrical noise.
3. For current specification of 3-core (XYZ) wiring, please consult your MHI dealer.

Length (m)	Wire size
100 to 200	0.5mm ² x 3 core
To 300	0.75mm ² x 3 core
To 400	1.25mm ² x 3 core
To 600	2.0mm ² x 3 core

For further information about system configuration, addressing and control, please see pages 70-71



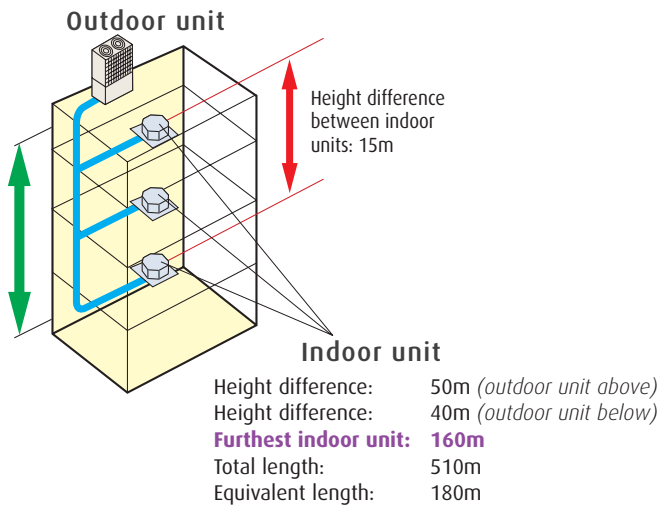
KXR4 heat recovery systems - for simultaneous heating and cooling

KXR4 heat recovery systems operate with 3 inter-connecting pipes, thus commonly referred to as a '3-pipe system'.

KXR4 systems provide both heating and cooling operations to individual indoor units according to the room condition/requirement. KXR4 incorporates highly sophisticated control to condition multiple indoor areas, whatever their requirement for cooling or heating, for applications where the building orientation (N, S, E, W) can mean that heat gain/loss varies on each side of the building.

The range starts from the 8hp model (22.4kW) cooling capacity, up to the largest capacity single outdoor unit in the industry (24hp) with 68.0kW cooling capacity. Outdoor units can also be "twinned" providing up to 48HP/136.0kW on a single system.

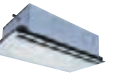
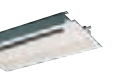
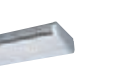
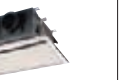
The KXR4 range (8HP+) has a total piping length of 510m and the furthest indoor unit can be connected up to 160m from the outdoor unit.



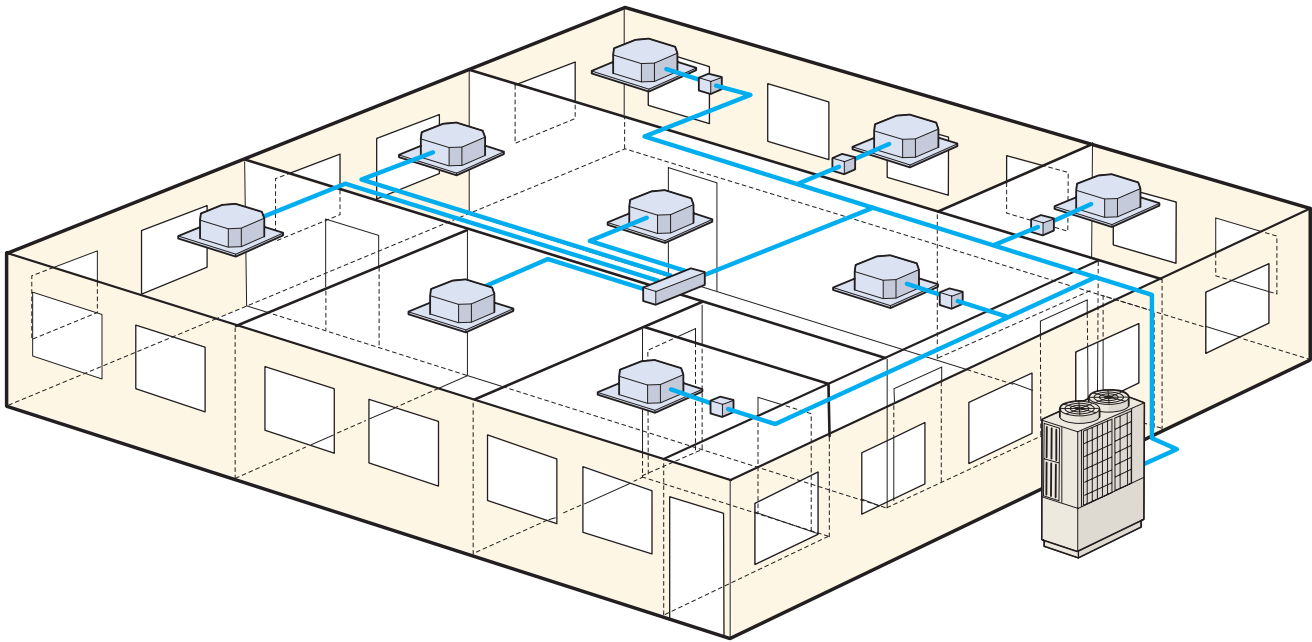
Up to 48 indoor units can be connected to the largest capacity outdoor unit, with a range of 15 types of exposed or concealed indoor unit, in several capacities, a choice of more than 70 indoor units is available.

Equivalent HP	8	10	12	14	16	18	20	22	24	26
Model	FDCA224HXRE4	FDCA280HXRE4	FDCA335HXRE4	FDCA400HXRE4	FDCA450HXRE4	FDCA504HXRE4	FDCA560HXRE4	FDCA615HXRE4	FDCA680HXRE4	FDCA735HXRE4
Number of connectable units	1~13	1~16	1~20	1~23	1~26	1~29	1~33	2~36	2~40	2~43

Equivalent HP	28	30	32	34	36	38	40	42	44	46	48
Model	FDCA800HXRE4	FDCA850HXRE4	FDCA900HXRE4	FDCA960HXRE4	FDCA1010HXRE4	FDCA1065HXRE4	FDCA1130HXRE4	FDCA1180HXRE4	FDCA1235HXRE4	FDCA1300HXRE4	FDCA1360HXRE4
Number of connectable units	2~47	2~48	2~48	2~48	2~48	2~48	3~48	3~48	3~48	3~48	3~48

						
FDTA	FDTC	FDTWA	FDTSA	FDKA	FDEA	FDRA
						
FDUMA	FDURA	FDUA	FDTQA	FDQMA	FDFLA	FDFUA

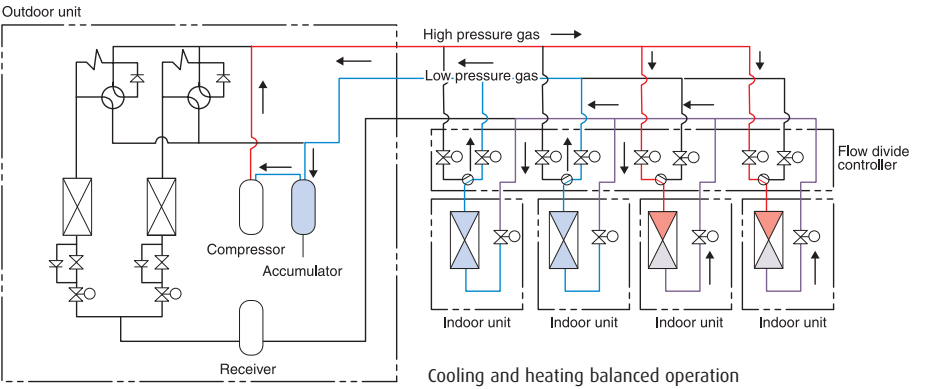
KXR4 heat recovery systems - for simultaneous heating and cooling



KXR4 heat recovery systems - for simultaneous heating and cooling

The KXR4 system interconnecting pipework has a unique arrangement, with two of the interconnecting pipes routed through a PFD Distribution Controller, and the third pipe connected directly to each indoor unit from the main pipe run. This reduces installation time, and the number of brazed connections on site. The PFD Distribution Controllers are available for single connection, or as a combined PFD 4-way connection, with each connected unit having independent cooling or heating operation.

For examples of pipework layout, see pages 38-39.



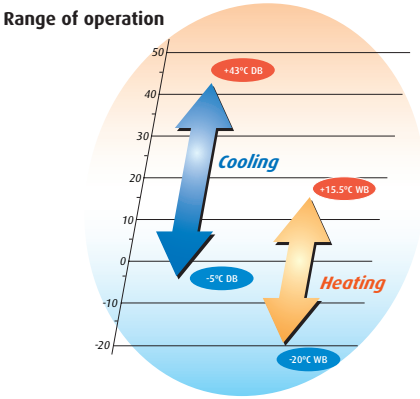
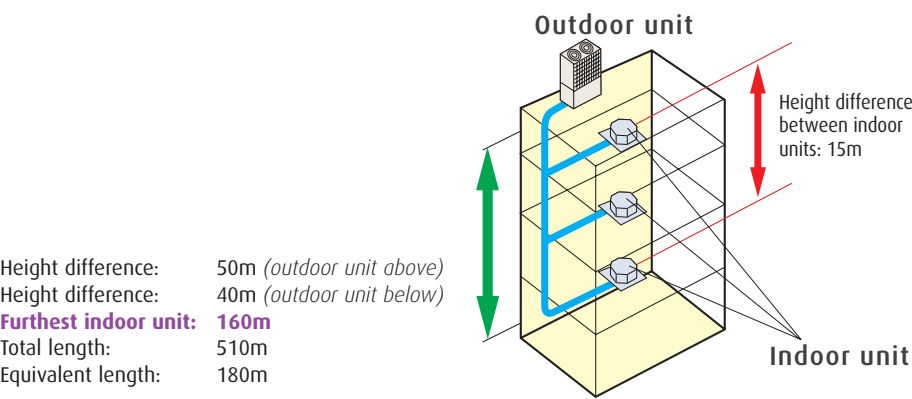
KXR4 heat recovery 3-pipe systems 8, 10, 12, 14, 16hp (22.4kW – 45.0kW) for simultaneous heating and cooling

Model No.	Nominal Cooling Capacity
FDCA224HKXRE4	22.4kW
FDCA280HKXRE4	28.0kW
FDCA335HKXRE4	33.5kW
FDCA400HKXRE4	40.0kW
FDCA450HKXRE4	45.0kW

- The KXR4 heat recovery systems offer high performance VRF for almost every type of building, with the capacity for simultaneous heating and cooling operations of individual indoor units. Energy efficiency is maximised by employing DC inverter compressors ONLY, and distributing surplus heat from cooling operations to areas where it is required (and vice versa) resulting in CoP (in cooling) from 3.0 to 3.4.
- Connect from 50% up to 130% capacity indoor units.
- Industry leading total piping length up to 510m and a maximum pipe run of 160m.



Uniform footprint of all models (from 8hp – 24 hp) allows continuous side-by-side installation



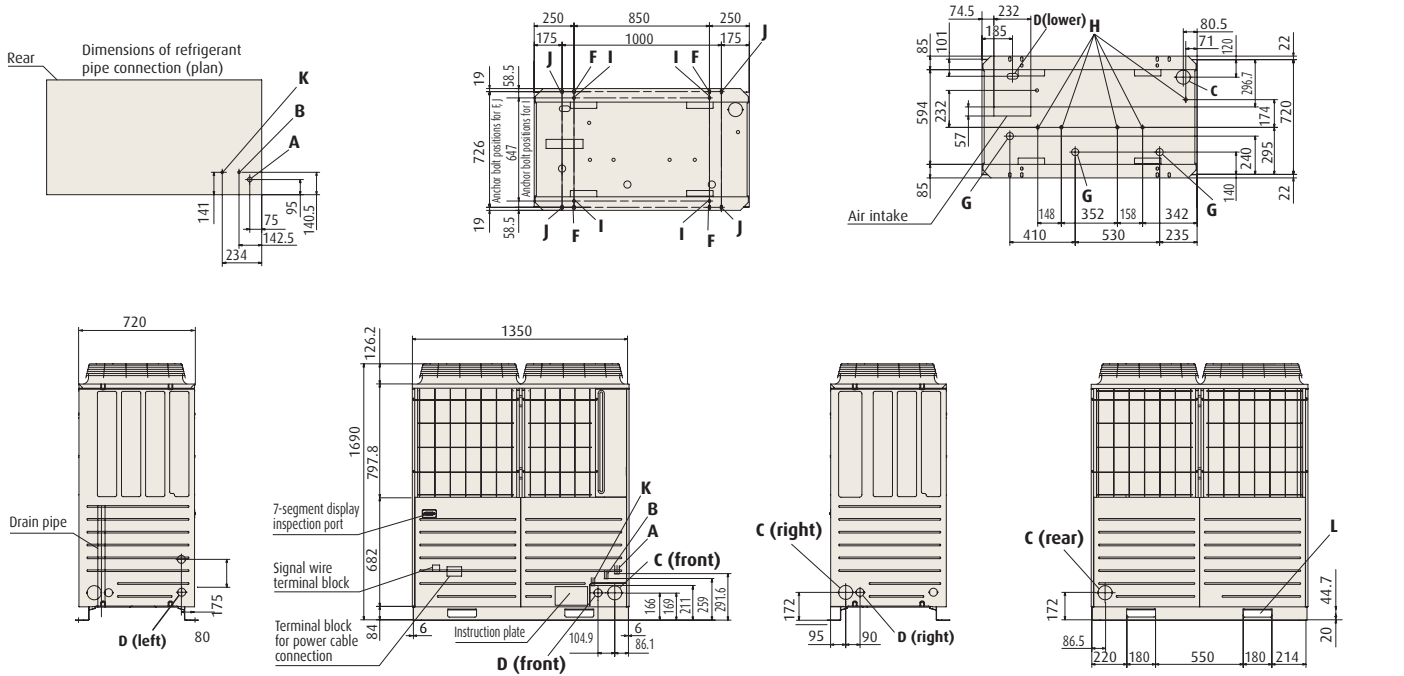
KXR4 specifications

Item				FDCA224HKXRE4	FDCA280HKXRE4	FDCA335HKXRE4	FDCA400HKXRE4	FDCA450HKXRE4
Nominal horse power				8HP	10HP	12HP	14HP	16HP
Power source				3 Phase 380/415V, 50Hz				
Nominal capacity	Cooling	kW	22.4	28.0	33.5	40.0	45.0	
	Heating		25.0	31.5	37.5	45.0	50.0	
UK cooling capacity		kW	19.3	24.1	28.9	34.5	38.8	
Electrical characteristics	Starting current A			5			8	
	Power consumption	Cooling	kW	6.66	9.23	10.17	11.61	13.57
		Heating		6.33	8.97	10.34	12.18	13.55
	Operating current	Cooling	A	10.1/9.2	14.7/13.4	16.5/15.1	19.0/17.4	21.6/19.8
		Heating		9.8/9.0	14.2/13.0	17.1/15.6	20.3/18.6	22.4/20.5
Exterior dimensions		HxWxD	mm 1690x1350x720					
Net weight			kg	250			315	
Refrigerant charge		R410A	kg	14.2			17	
Noise level (cooling/heating)			dB(A)	57/57	57/59	60.5/62.5	59.5/60	62.5/62.5
Refrigerant piping size	Liquid line		in (mm)	ø3/8"(9.52)			ø1/2"(12.70)	
	Gas suction line			ø3/4"(19.05)		ø7/8"(22.22)		
	Gas discharge line			ø5/8"(15.88)		ø1 1/8"(28.58)		
Capacity control			%	27-126	20-114	19-117	15-114	13-112
Number of connectable indoor units				13	16	20	23	26

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KXR4 heat recovery 3-pipe systems 8, 10, 12, 14, 16hp (22.4kW – 45.0kW) outdoor unit dimensions

All measurements in mm.

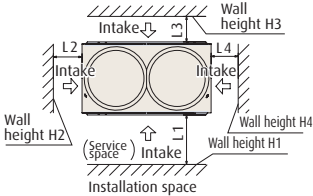


Mark	Item	
A	Service valve connection (gas side)	For refrigerant piping, please refer to the unit specifications.
B	Service valve connection (liquid line)	
C	Refrigerant pipe draw-out port	ø100
D	Power cable draw-in port	ø50
F	Anchor bolt hole	M10 x 4places
G	Drain hose hole	ø45 x 3places
H	Drain discharge port	ø20 x 6places
K	Oil-equalising pipe joint:	ø3/8" flare
L	Sling holes for haulage or hoisting	180 x 44.7

*14 + 16HP models only

- Notes:
- The unit must be fixed with anchor bolts.
 - Leave a 2m or larger space above the unit.
 - The unit name plate is attached on the lower right corner of the front panel.
 - The ports for refrigerant pipe and power cable penetrations are covered with half-blanks. Please cut off a half-blank with nippers in using these ports.
 - Use a ø100 port for refrigerant pipe connection.
 - Anchor holes marked "L J" (four holes for M10) are for a renewal installation.
 - The oil-equalising pipe K should be used when outdoor units are used in combination. (For 14-16HP only)

Installation example		
Dimensions	1	2
L1	500	Open
L2	10	10
L3	100	100
L4	10	Open
H1	1500	-
H2	No restrictions	No restrictions
H3	1000	No restrictions
H4	No restrictions	-



Outdoor side branching pipe set	
Outdoor unit	Branching pipe set
For two units (for 735 - 900)	DOS-2A-1-R

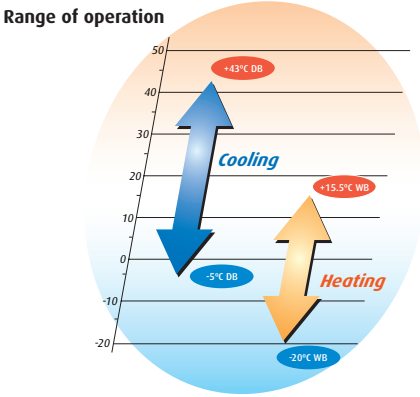
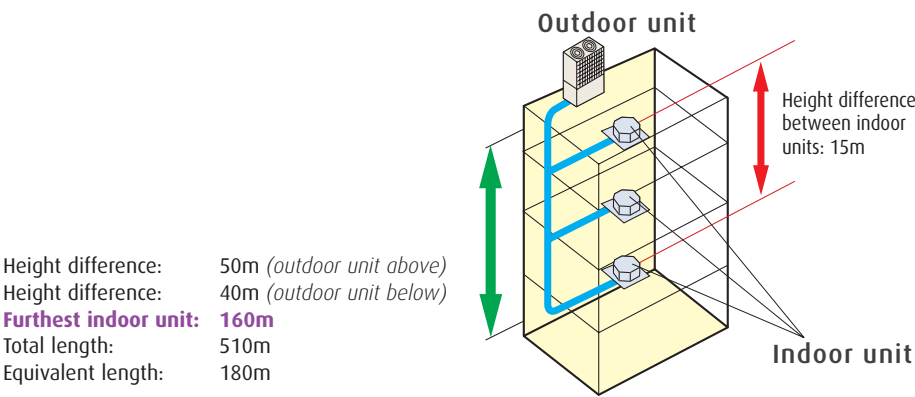
- Notes:
- Be sure to use this when combining units.
 - DOS-2A-1-R: Heat recovery.

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AIR CONDITIONING

KXR4 heat recovery 3-pipe systems 18, 20, 22, 24hp (50.4kW – 68.0kW) for simultaneous heating and cooling

Model No.	Nominal Cooling Capacity
FDCA504HKXRE4	50.4kW
FDCA560HKXRE4	56.0kW
FDCA615HKXRE4	61.5kW
FDCA680HKXRE4	68.0kW

- The KXR4 heat recovery systems offer high performance VRF for almost every type of building, with the capacity for simultaneous heating and cooling operations of individual indoor units. Energy efficiency is maximised by employing DC inverter compressors ONLY, and distributing surplus heat from cooling operations to areas where it is required (and vice versa) resulting in CoP (in cooling) of up to 3.4.
- Connect from 50% up to 130% capacity indoor units.
- Industry leading total piping length up to 510m and a maximum pipe run of 160m.



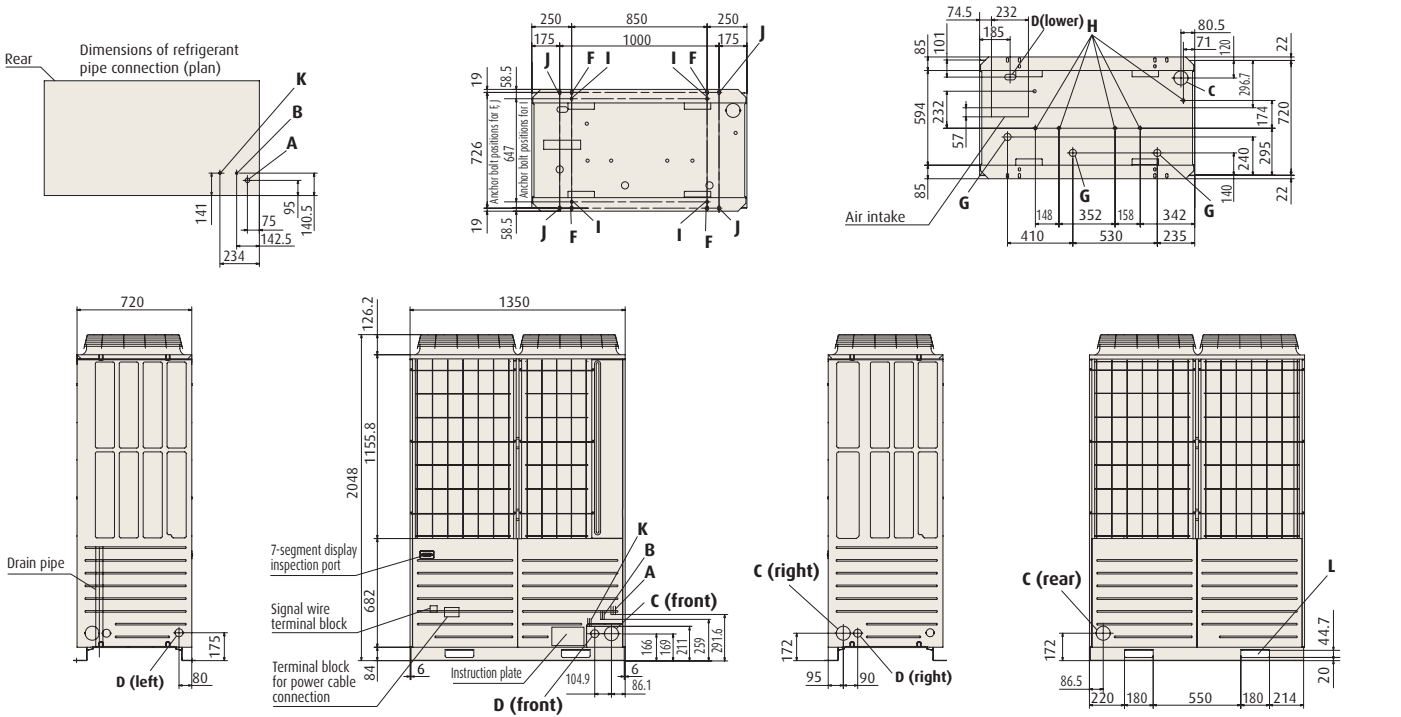
KXR4 specifications

Item				FDCA504HKXRE4	FDCA560HKXRE4	FDCA615HKXRE4	FDCA680HKXRE4
Nominal horse power				18HP	20HP	22HP	24HP
Power source				3 Phase 380/415V, 50Hz			
Nominal capacity	Cooling	kW	50.4	56.0	61.5	68.0	
	Heating		56.5	63.0	69.0	73.0	
UK cooling capacity		kW	43.4	48.3	53.0	58.6	
Electrical characteristics	Starting current		A	8			
	Power consumption	Cooling	kW	15.69	18.76	21.47	25.99
		Heating		15.62	17.69	19.11	19.69
	Operating current	Cooling	A	24.6/22.5	29.7/27.2	34.7/31.8	44.9/41.1
		Heating		26.1/23.9	29.5/27.0	31.6/28.9	34.0/31.1
Exterior dimensions		HxWxD	mm	2048x1350x720			
Net weight			kg	345		365	
Refrigerant charge		R410A	kg	19.4		26.2	
Noise level (cooling/heating)			dB(A)	61/61.5	62/62.5	64/64	64.5/64.5
Refrigerant piping size	Liquid line		in (mm)	ø1/2"(12.70)			
	Discharge Gas line			ø7/8"(22.22)			
	Suction Gas line			ø1 1/8"(28.58)			
Capacity control			%	11-110	10-113	9-110	8-108
Number of connectable indoor units				29	33	36	40

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

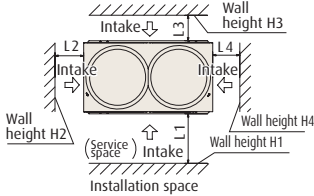
KXR4 heat recovery 3-pipe systems 18, 20, 22, 24hp (50.4kW – 68.0kW) outdoor unit dimensions

All measurements in mm.



Mark	Item	
A	Service valve connection (gas side)	For refrigerant piping, please refer to the unit specifications.
B	Service valve connection (liquid line)	
C	Refrigerant pipe draw-out port	ø100
D	Power cable draw-in port	ø50
F	Anchor bolt hole	M10 x 4 places
G	Drain hose hole	ø45.3 x 3 places
H	Drain discharge port	ø20.5 x 3 places
K	Oil-equalising pipe joint	ø9.52 flare
L	Sling holes for haulage or hoisting	180 x 44.7

Installation example		
Dimensions	1	2
L1	500	Open
L2	10	10
L3	100	100
L4	10	Open
H1	1500	-
H2	No restrictions	No restrictions
H3	1000	No restrictions
H4	No restrictions	-



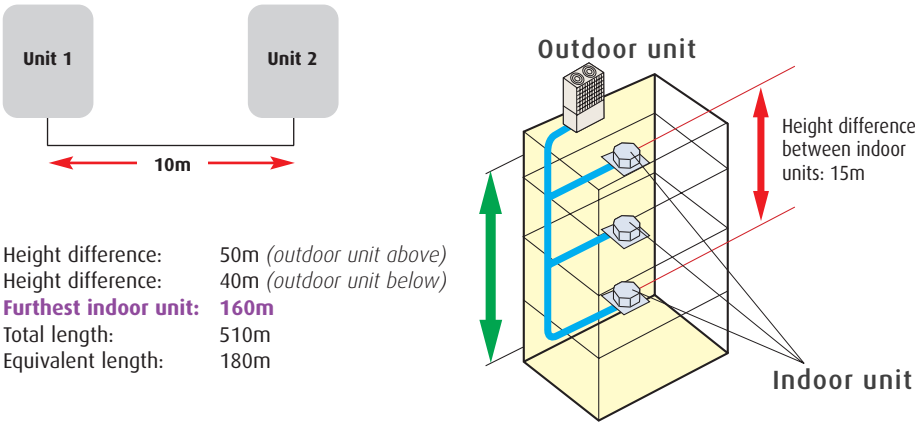
- Notes:
- The unit must be fixed with anchor bolts.
 - Leave a 2m or larger space above the unit.
 - The unit name plate is attached on the lower right corner of the front panel.
 - The ports for refrigerant pipe and power cable penetrations are covered with half-blanks. Please cut off a half-blank with nippers in using these ports.
 - Use a ø88 port for refrigerant pipe connection.
 - Anchor holes marked "L J" (four holes for M10) are for a renewal installation.
 - The oil-equalising pipe K should be used when outdoor units are used in combination.

KXR4 heat recovery 3-pipe combination systems

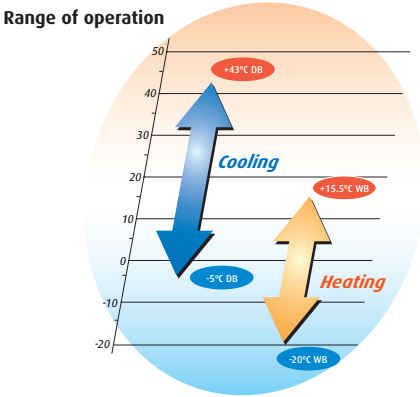
26, 28, 30, 32hp (73.5kW – 90.0kW) for simultaneous heating and cooling

Model No.	Nominal Cooling Capacity
FDCA735HKXRE4 (FDCA335R+FDCA400R)	73.5kW
FDCA800HKXRE4 (FDCA400Rx2)	80.0kW
FDCA850HKXRE4 (FDCA400R+FDCA450R)	85.0kW
FDCA900HKXRE4 (FDCA450Rx2)	90.0kW

- The KXR4 heat recovery systems offer high performance VRF for almost every type of building, with the capacity for simultaneous heating and cooling operations of individual indoor units. Energy efficiency is maximised by employing DC inverter compressors ONLY, and distributing surplus heat from cooling operations to areas where it is required (and vice versa) resulting in CoP (in cooling) of 3.3 to 3.4.
- Connect from 50% up to 130% capacity indoor units.
- Industry leading total piping length up to 510m and a maximum pipe run of 160m.
- Twin units can be connected with up to 10m spacing.



Uniform footprint of all models (from 8hp – 24 hp) allows continuous side-by-side installation



KXR4 specifications

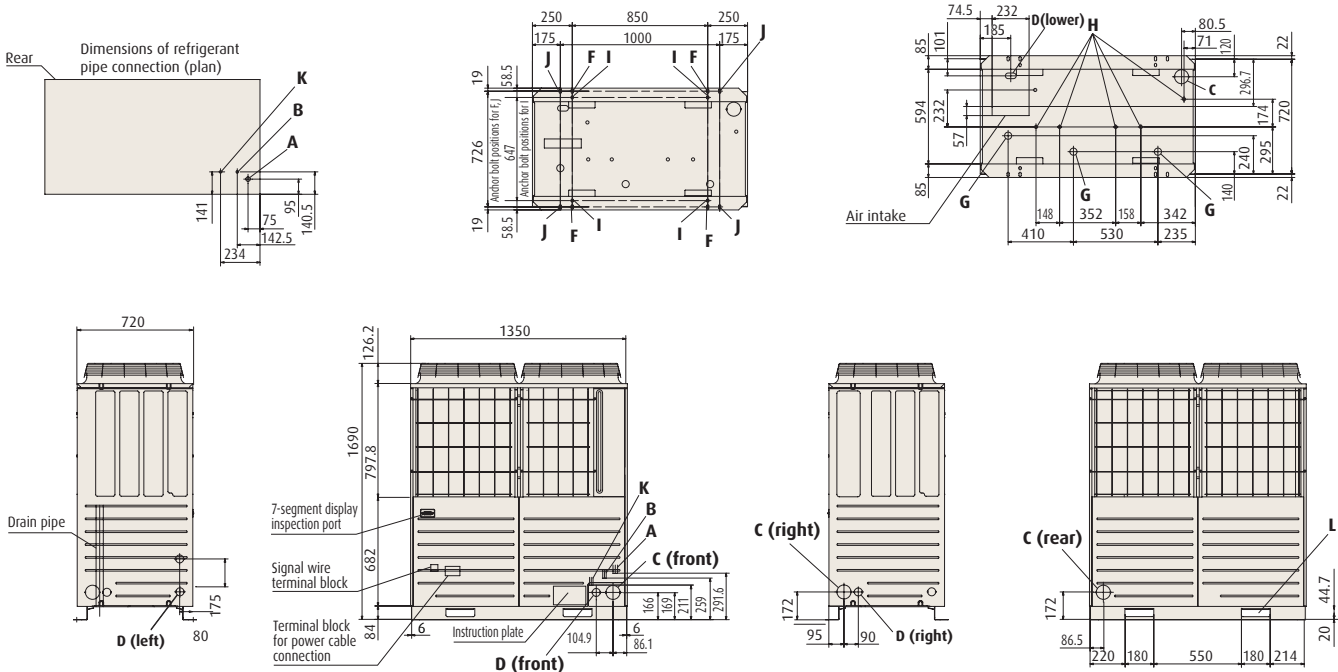
Item				FDCA735HKXRE4	FDCA800HKXRE4	FDCA850HKXRE4	FDCA900HKXRE4
Combination (FDCA)				400HKRE4	400HKRE4	450HKRE4	450HKRE4
				335HKRE4-K	400HKRE4	400HKRE4	450HKRE4
Nominal horse power				26HP	28HP	30HP	32HP
Power source				3 Phase 380/415V, 50Hz			
Nominal capacity	Cooling	kW		73.5	80.0	85.0	90.0
	Heating			82.5	90.0	95.0	100.0
UK cooling capacity			kW	63.4	69.0	73.3	77.6
Electrical characteristics	Starting current		A	16			
	Power consumption	Cooling	kW	21.08	23.22	25.18	27.14
		Heating		21.55	24.36	25.73	27.10
	Operating current	Cooling	A	34.4/31.5	38.0/34.8	40.6/37.3	43.2/39.6
		Heating		35.8/32.8	40.6/37.2	42.7/39.1	44.8/41.0
Exterior dimensions		HxWxD	mm	1690x2700x720			
Net weight			kg	315x2			
Refrigerant charge		R410A	kg	34			
Noise level (cooling/heating)			dB(A)	61.5/62	62.5/63	64.5/64.5	65.5/65.5
Refrigerant piping size	Liquid line		in (mm)	ø5/8"(15.88)			
	Discharge Gas line			ø1 1/8"(28.58)			
	Suction Gas line			ø1 3/8"(34.92)			
Capacity control			%	8-123	4-114	4-112	4-112
Number of connectable indoor units				43	47	48	48

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KXR4 heat recovery 3-pipe combination systems

26, 28, 30, 32hp (73.5kW – 90.0kW) outdoor unit dimensions

All measurements in mm.



Mark	Item	
A	Service valve connection (gas side)	For refrigerant piping, please refer to the unit specifications.
B	Service valve connection (liquid line)	
C	Refrigerant pipe draw-out port	ø88
D	Power cable draw-in port	ø50
F	Anchor bolt hole	M10 x 4 places
G	Drain hose hole	ø45 x 3 places
H	Drain discharge port	ø20 x 6 places
K	Oil-equalising pipe joint	ø3/8" flare
L	Sling holes for haulage or hoisting	180 x 44.7

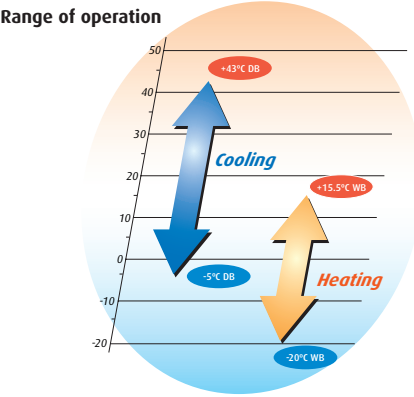
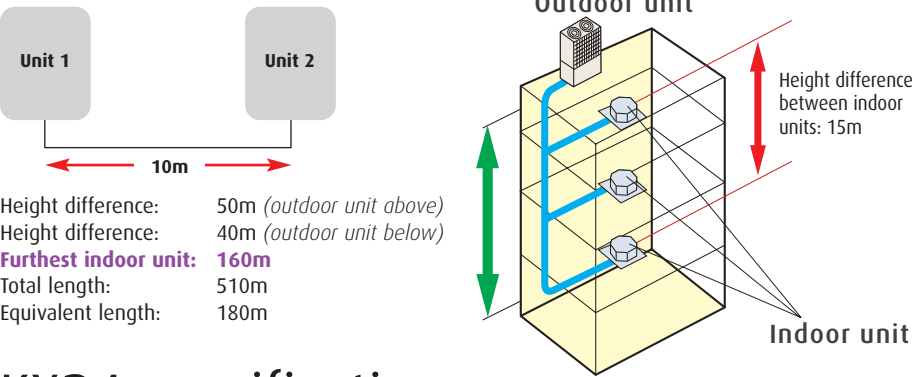
- Notes:
- (1) The unit must be fixed with anchor bolts.
 - (2) Leave a 2m or larger space above the unit.
 - (3) The unit name plate is attached on the lower right corner of the front panel.
 - (4) The ports for refrigerant pipe and power cable penetrations are covered with half-blanks. Please cut off a half-blank with nippers in using these ports.
 - (5) Use a ø88 port for refrigerant pipe connection.
 - (6) Anchor holes marked "L J" (four holes for M10) are for a renewal installation.
 - (7) The oil-equalising pipe K should be used when outdoor units are used in combination.

KXR4 heat recovery 3-pipe combination systems

34, 36, 38, 40, 42, 44, 46, 48hp (96.0kW – 136.0kW)

Model No.	Nominal Cooling Capacity
FDCA960HKXRE4 (FDCA450+FDCA504)	96.0kW
FDCA1010HKXRE4 (FDCA504x2)	101.0kW
FDCA1065HKXRE4 (FDCA504+FDCA560)	106.5kW
FDCA1130HKXRE4 (FDCA560x2)	113.0kW
FDCA1180HKXRE4 (FDCA560+FDCA615)	118.0kW
FDCA1235HKXRE4 (FDCA615x2)	123.5kW
FDCA1300HKXRE4 (FDCA615+FDCA680)	130.0kW
FDCA1360HKXRE4 (FDCA680x2)	136.0kW

- The KX4 heat recovery systems offer high performance VRF for almost every type of building, with the capacity for simultaneous heating and cooling operations of individual indoor units. Energy efficiency is maximised by employing DC inverter compressors ONLY, and distributing surplus heat from cooling operations to areas where it is required (and vice versa) resulting in CoP (in cooling) of up to 3.4.
- Connect from 50% up to 130% capacity indoor units.
- Industry leading total piping length up to 510m and a maximum pipe run of 160m.
- Twin units can be connected with up to 10m spacing.



KXR4 specifications

Item				FDCA960HKXRE4	FDCA1010HKXRE4	FDCA1065HKXRE4	FDCA1130HKXRE4	FDCA1180HKXRE4	FDCA1235HKXRE4	FDCA1300HKXRE4	FDCA1360HKXRE4
Combination (FDCA)				504HKXRE4	504HKXRE4	560HKXRE4	560HKXRE4	615HKXRE4	615HKXRE4	680HKXRE4	680HKXRE4
				450HKXRE4	504HKXRE4	504HKXRE4	560HKXRE4	560HKXRE4	615HKXRE4	615HKXRE4	680HKXRE4
Nominal horse power			34HP	36HP	38HP	40HP	42HP	44HP	46HP	48HP	
Power source			3 Phase 380/415V, 50Hz								
Nominal capacity	Cooling	kW	96.0	101.0	106.5	113.0	118.0	123.5	130.0	136.0	
	Heating		108.0	113.0	119.5	127.0	132.0	138.0	142.0	146.0	
UK cooling capacity		kW	82.8	87.1	91.8	97.4	101.7	106.5	112.1	117.2	
Electrical characteristics	Starting current		A	16							
	Power consumption	Cooling Heating	kW	29.26	31.38	34.45	37.52	40.23	42.94	47.46	51.98
				29.17	31.24	33.31	35.38	36.80	38.22	38.80	39.38
	Operating current	Cooling Heating	A	46.2/42.3	49.2/45.0	54.3/49.7	59.4/54.4	64.4/59.0	69.4/63.6	79.6/72.9	89.8/82.2
48.5/44.4				52.2/47.8	55.6/50.9	59.0/54.0	61.7/55.9	63.2/57.8	65.6/60.0	68.0/62.2	
Exterior dimensions	HxWxD		mm	2048x2700x720							
Net weight			kg	345+315	345x2			365+345	365x2		
Refrigerant charge	R410A		kg	36.4	38.8			45.6	52.4		
Noise level (cooling/heating)			dB(A)	65/65	64/64.5	64.5/65	65/65.5	66/66.5	67/67	67.5/67.5	
Refrigerant piping size	Liquid line	in (mm)	ø5/8"(15.88)			ø3/4"(19.05)					
	Discharge Gas line		ø1 1/8"(28.58)								
	Suction Gas line		ø1 3/8"(34.92)								
Capacity control			%	4-110	4-109	4-111	4-112	4-112	4-109	4-108	4-107
Number of connectable indoor units				48							

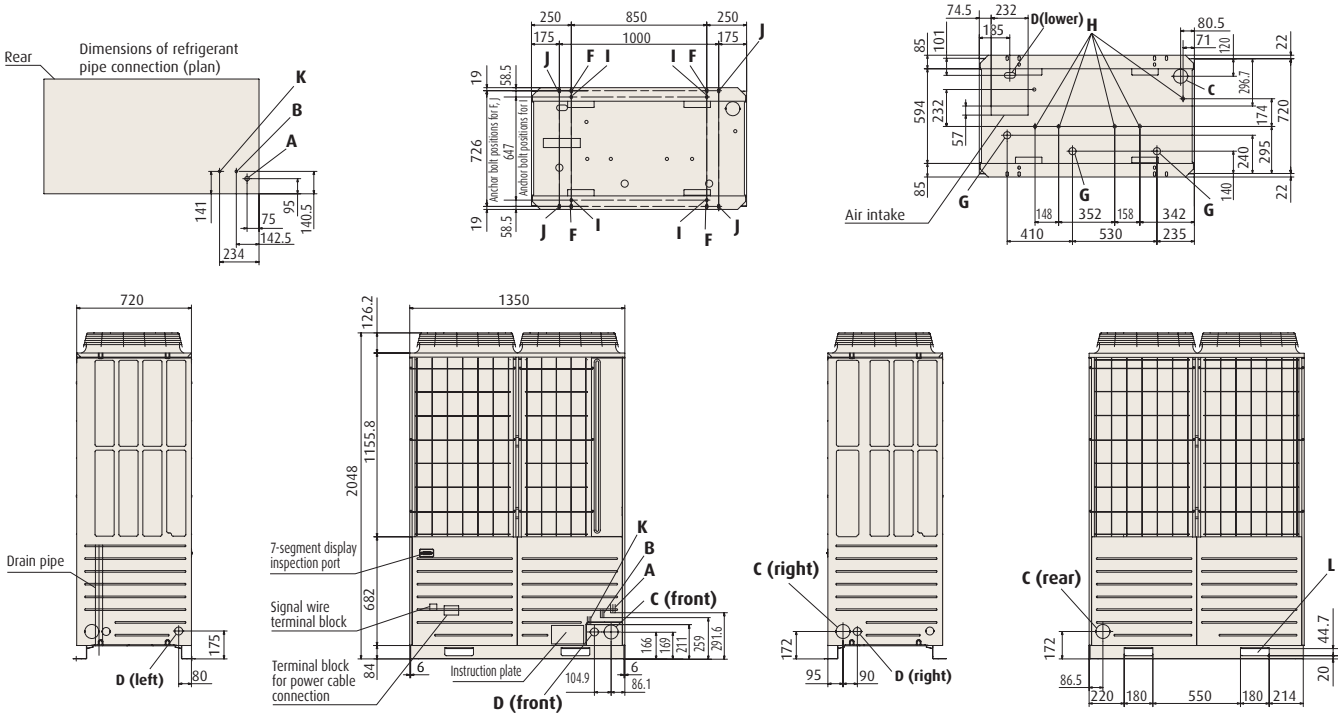
UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KXR4 heat recovery 3-pipe combination systems

34, 36, 38, 40, 42, 44, 46, 48hp (96.0kW – 136.0kW)

outdoor unit dimensions

All measurements in mm.



Mark	Item	
A	Service valve connection (gas side)	For refrigerant piping, please refer to the unit specifications.
B	Service valve connection (liquid line)	
C	Refrigerant pipe draw-out port	ø100
D	Power cable draw-in port	ø50
F	Anchor bolt hole	M10 x 4 places
G	Drain hose hole	ø45.3 x 3 places
H	Drain discharge port	ø20.5 x 3 places
K	Oil-equalising pipe joint	ø9.52 flare
L	Sling holes for haulage or hoisting	180 x 44.7

- Notes:
- (1) The unit must be fixed with anchor bolts.
 - (2) Leave a 2m or larger space above the unit.
 - (3) The unit name plate is attached on the lower right corner of the front panel.
 - (4) The ports for refrigerant pipe and power cable penetrations are covered with half-blanks. Please cut off a half-blank with nippers in using these ports.
 - (5) Use a ø88 port for refrigerant pipe connection.
 - (6) Anchor holes marked "L J" (four holes for M10) are for a renewal installation.
 - (7) The oil-equalising pipe K should be used when outdoor units are used in combination.

KXR4 piping/PFD controller

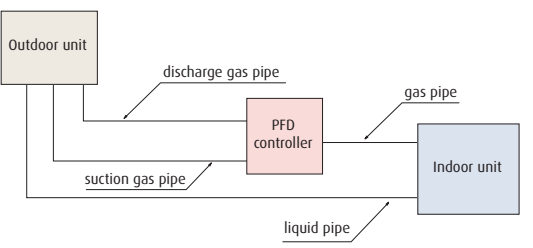
PFD refrigerant flow branch controller

(1 to 1 and 4 to 1 connection)

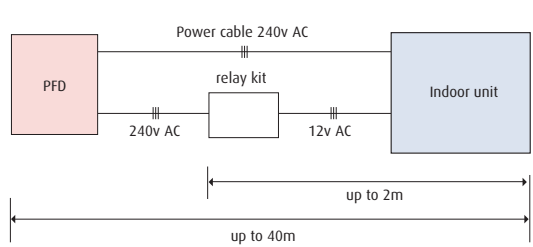
Model No.	Maximum downstream indoor unit capacity
PFD112-E	11.1kW
PFD180-E	17.9kW
PFD280-E	28.0kW
PFD112X4-E	37.0kW

• The PFD branch controller permits free design of simultaneous heating and cooling of indoor units. Each unit or group of units connected to the PFD controller can operate in it's individual mode irrespective of the demands of other areas of the building. The new design PFD refrigerant circuit includes an additional solenoid valve and capillary that reduces pressure difference and eliminates refrigerant noise during mode change over (cooling - heating - cooling).

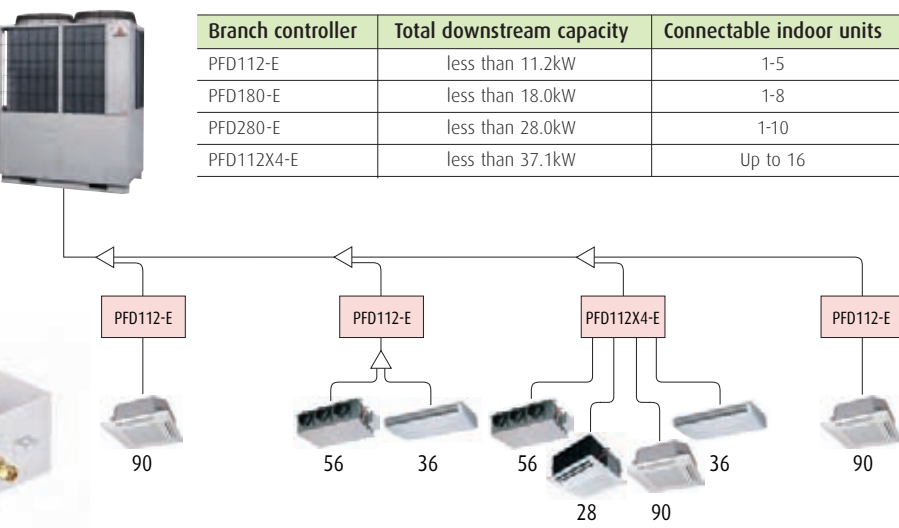
Easy installation
New PFD design means the connection of the indoor unit liquid pipe is made directly to the liquid line - bypassing the PFD. This means (x2) less pipe connections per indoor unit, reducing installation time and cost.



The PFD is connected to the indoor unit by 3 core signal wire via a relay kit (supplied) to be located within 2m of each other. The indoor unit however can be up to 40m away. Power to the PFD can be connected from the indoor unit or other supply.



Groups of indoor units can be connected (up to a total capacity 37.1kW) to a single PFD with branch piping and all units in that group will operate in the same mode only (cooling or heating).
Now MHI also introduces the 4-way PFD controller PFD112X4 which can connect up to four indoor units with individual control - simultaneous cooling or heating.

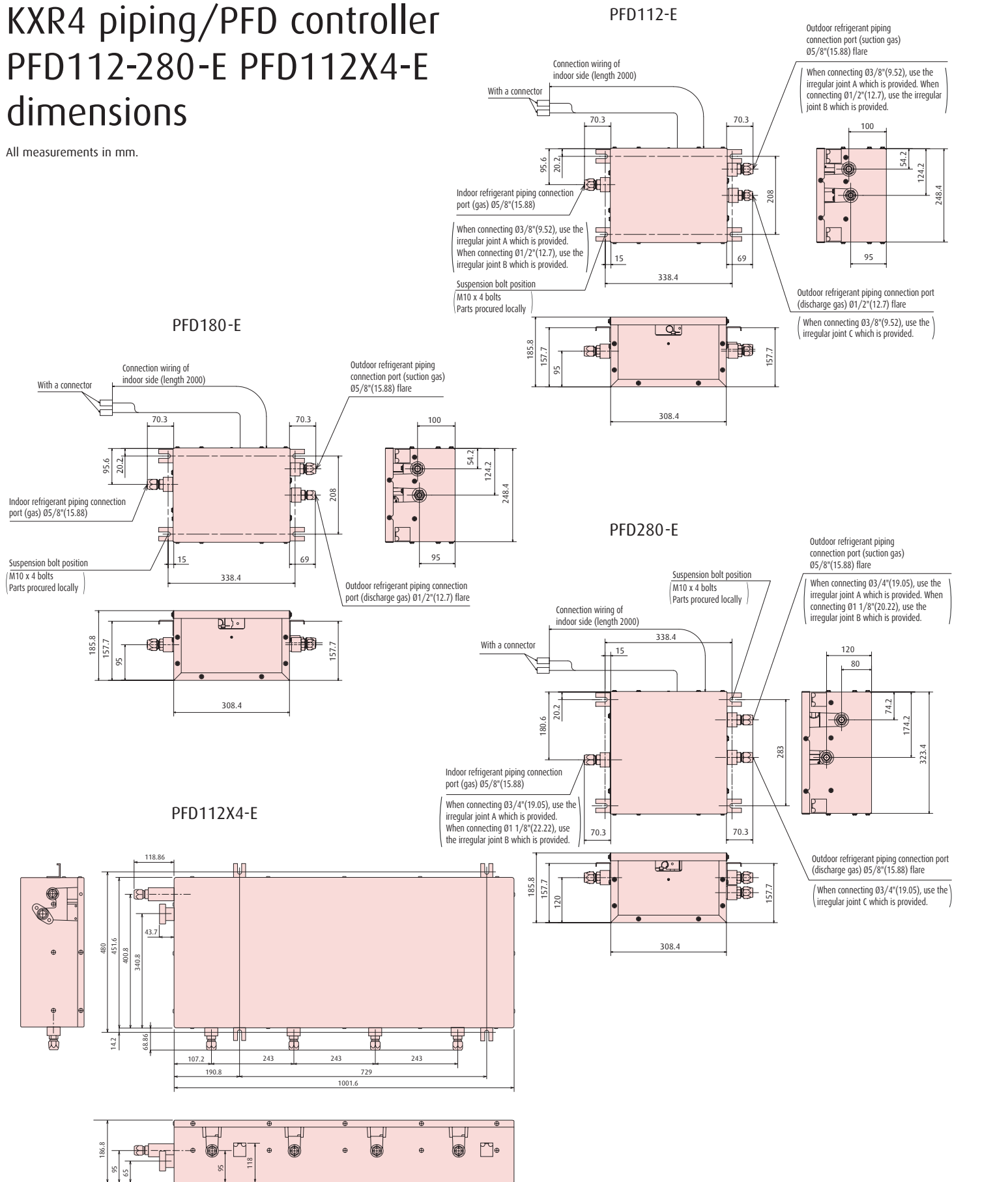


see page 38 & 39 for further examples of piping arrangements

KXR4 piping/PFD controller

PFD112-280-E PFD112X4-E dimensions

All measurements in mm.



KXR4 refrigerant piping

Installation of Interconnecting Pipework
Mitsubishi KX4 equipment is manufactured to the highest standards of quality and reliability. It is imperative the method of installation and the materials used are also to high standards, to ensure trouble free operation and long term reliability.
The interconnecting pipework must be installed by a competent and trained engineer. Refrigeration quality copper tube must be used, soft copper coils or half-hard straight lengths. The refrigeration quality tube must be soft drawn seamless high grade copper pipe. The copper tube must be selected taking into account the higher operating pressures of R410A refrigerant, and that high pressures will occur throughout the system because of the reverse cycle operation. All pipework material used should be EN12735 European standard.

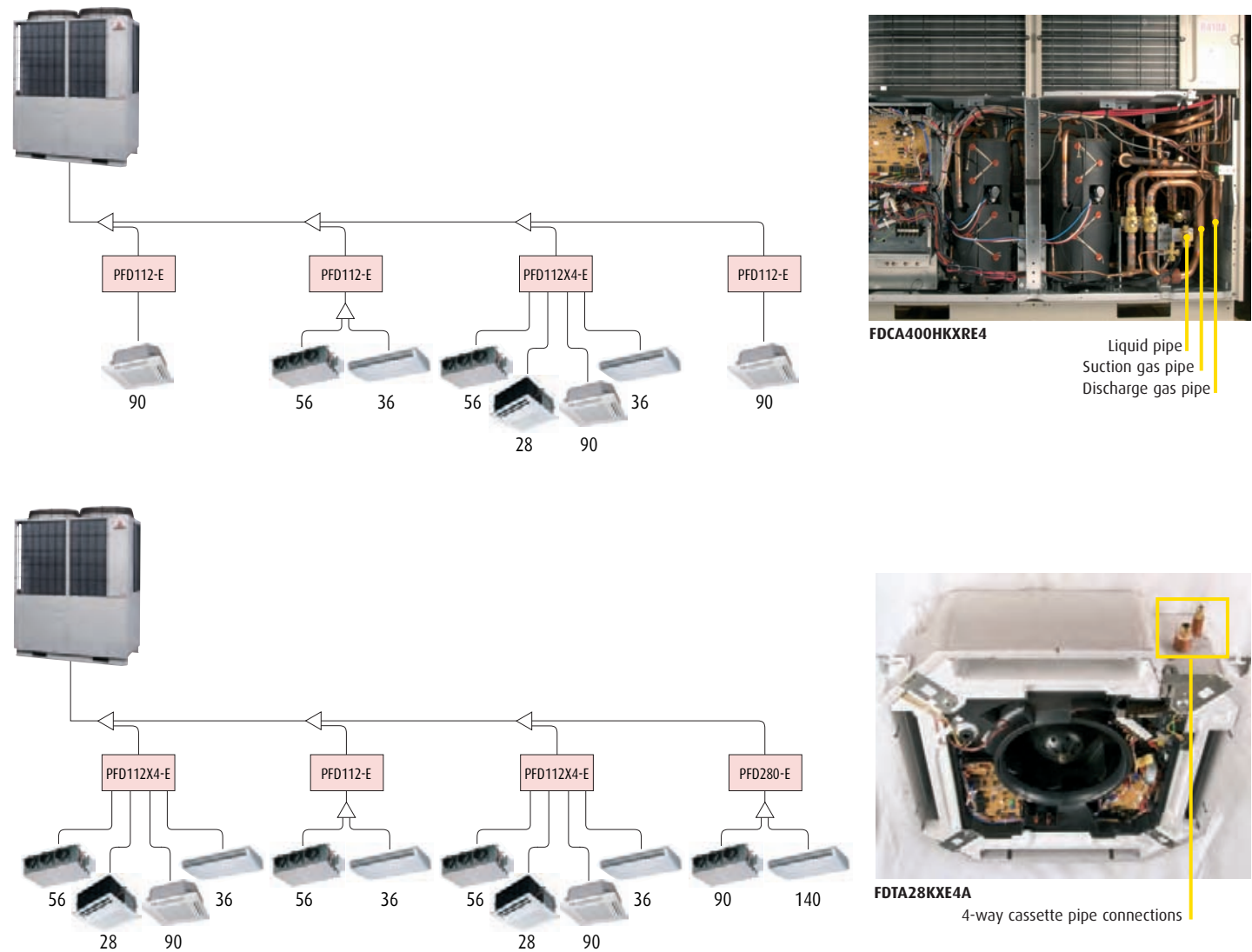
The supplied branch pipe kits, must be used to make connections to indoor units, and the supplied manifold kits must be used to make connections between outdoor units (where applicable); it is not permitted to use standard fittings such as elbows, tees etc. The branch pipes shall be installed in accordance with the manufacturer's instructions, allowing unrestricted flow of refrigerant, and in accordance with European standard E378:2000. All brazed joints shall be made with dry nitrogen purge to ensure the prevention of oxidation to the internal surface of the copper pipes. The ingress of moisture, dirt and any other contaminants to the interior of the copper pipes, and air conditioning units, must be prevented during the installation procedure. After the installation of pipework, prior to the connection of the outdoor units, and sealing of

insulation joints, the pipework must be pressure tested for leakage, using dry nitrogen. The pipe ends must be crimped and brazed, and a suitable service valve connection will need to be fitted (supplied by installer).

Pipe Insulation
The refrigeration pipework must be insulated with close cell Class 'O' fire performance with a minimum wall thickness of 13mm.

Additional Refrigerant
Additional R410A refrigerant only shall be used, and must be charged by weight only, using electronic scales. The amount of additional refrigerant must be accurately calculated from the manufacturer's data, based on the length and diameter of each section of the liquid refrigerant pipework of the system.

Single outdoor unit piping examples:



KXR4 refrigerant piping

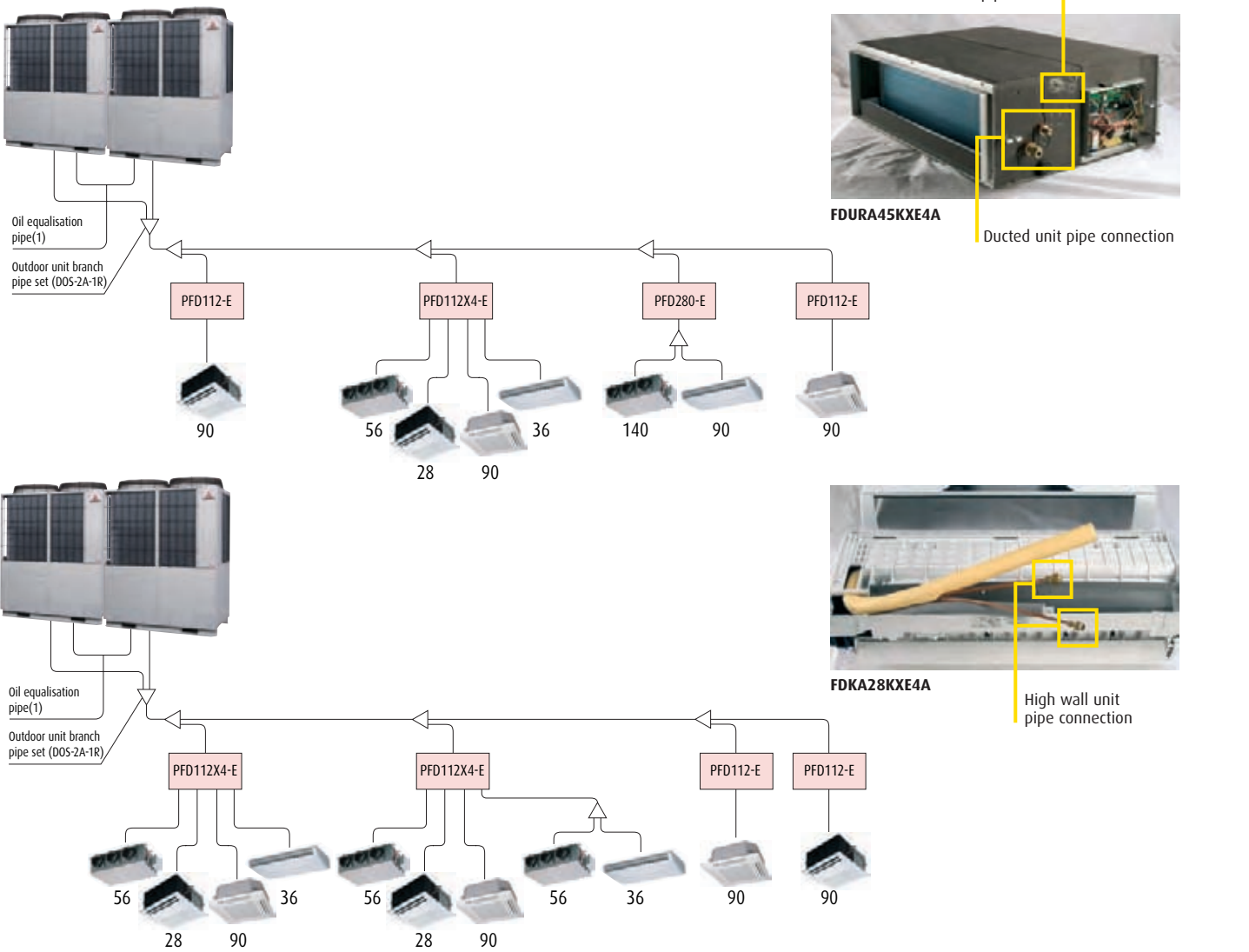
Outdoor unit (HP)		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Liquid pipe	Furthest indoor unit ≤90m	3/8"		1/2"				5/8"				3/4"										
Suction Gas pipe		3/4"	7/8"	1 1/8"				1 3/8"				1 3/8"										
Discharge Gas Pipe		5/8"	3/4"	7/8"				1 1/8"				1 1/8"										
Liquid pipe	Furthest indoor unit >90m	1/2"		5/8"				3/4"				7/8"										
Suction Gas pipe		7/8"		1 1/8"				1 3/8"				1 3/8"										
Discharge Gas Pipe		5/8"	3/4"	7/8"				1 1/8"				1 1/8"										

Branch pipes: DIS-22-1R/DIS-180-1R, DOS-2A-1R

Combination outdoor unit manifold: DOS-2A-1R

Good/No examples for horizontal and vertical piping configurations.

Combination outdoor unit piping examples:



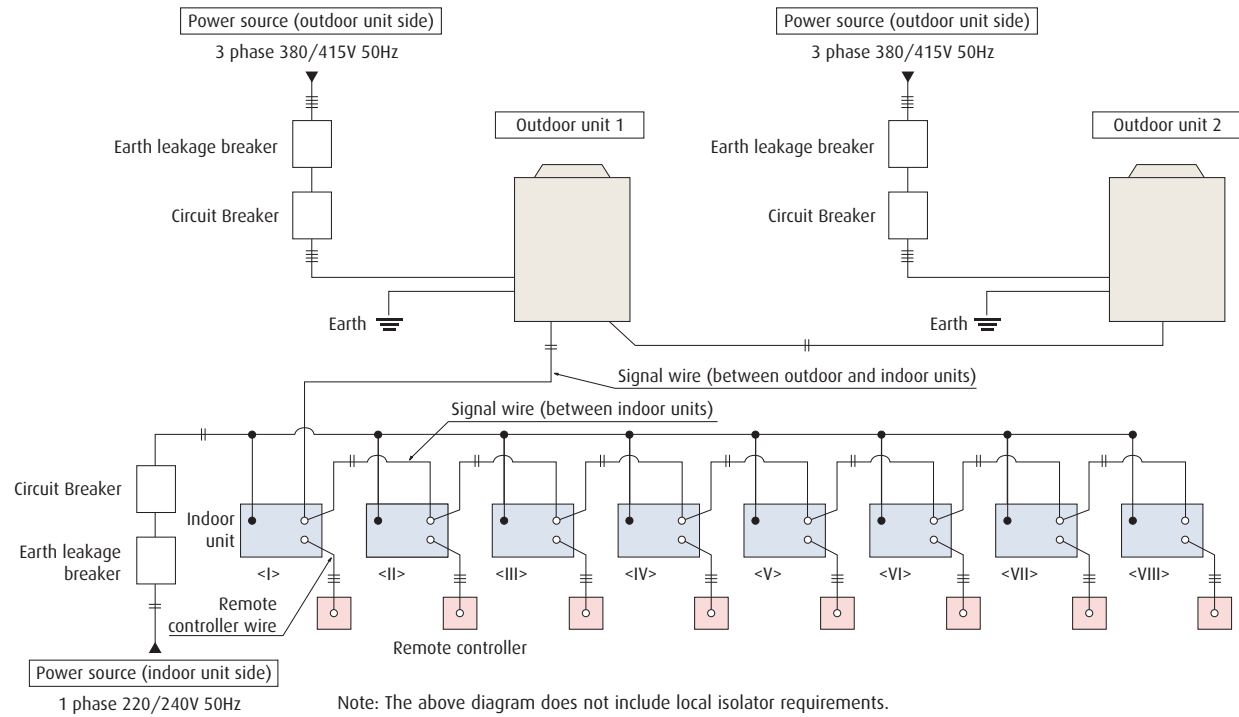
KXR4 electrical wiring – power supply

KX4 new design includes greatly simplified wiring requirements utilising a 'polarity-free' two wire control loop connecting indoor units.

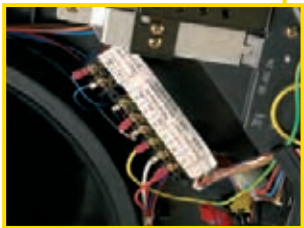
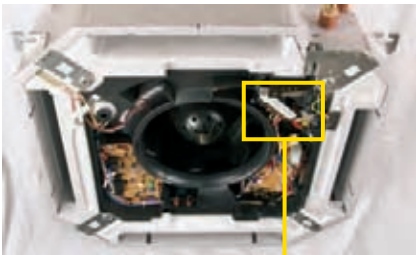
Power wiring

Cables can be laid through the front, right left or bottom of the outdoor unit casing.

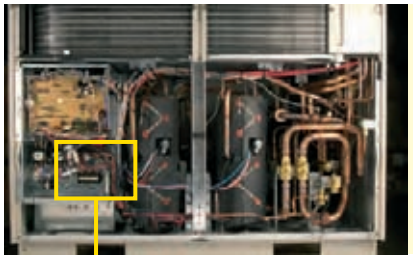
Separate power supplies should be used for the outdoor unit (3/phase) and the indoor units (3/phase). Only control wiring is connected from outdoor to indoor unit.



4-way cassette power supply connection



KXR4 outdoor unit mechanical compartment



electrical component box

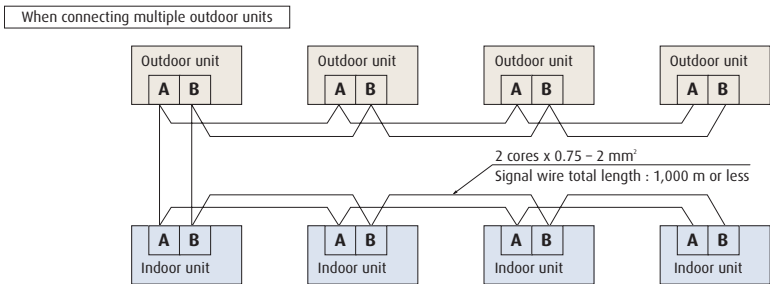
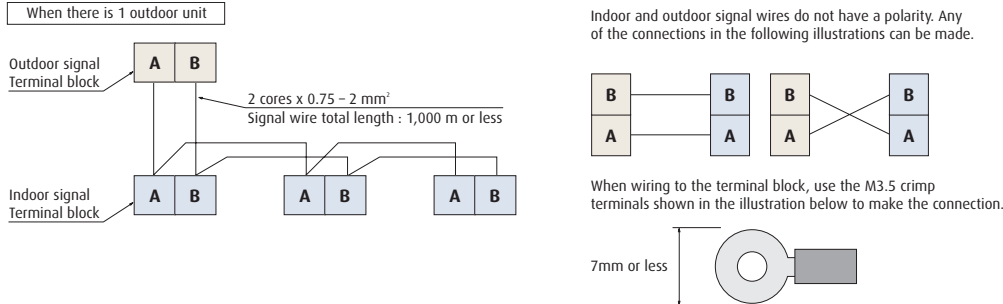


Wall unit

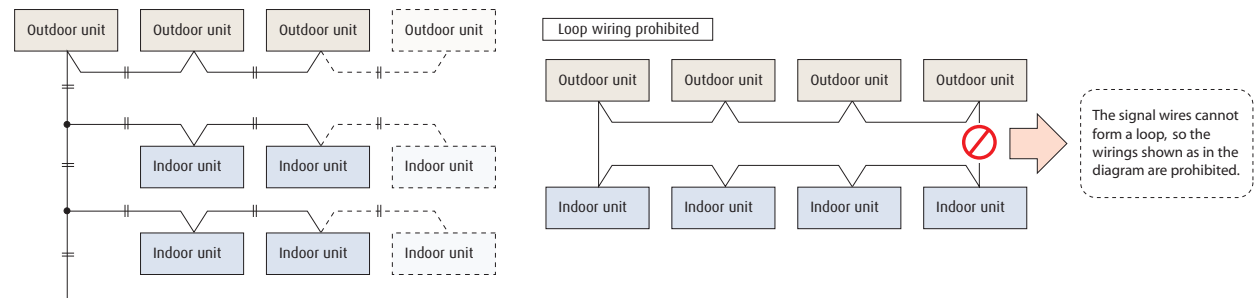


KXR4 electrical wiring – control wiring

- The control wiring is 5 Volt DC, non-polarised, two wire connection notated as 'A' and 'B'. This 'AB' wiring connects outdoor unit to indoor unit and indoor unit to indoor unit.
- This wiring must be a 2-core shielded cable size 0.75mm to 2.00mm². The maximum length of 2-core is 1000 metres.
- We recommend only one end of the shield of the cable is connected to ground (earth) at one of the outdoor units. At all other terminal connections on the same network, connect all the shields together and electrically insulate them. This will prevent accidental grounding at 2 points and eliminate any electrical noise.
- For current specification of 2-core (AB) wiring, please consult your MHI dealer.



- (a) The maximum number of indoor units that can be connected in a system is 48 and it is possible to configure outdoor units and/or indoor units as an outdoor or indoor unit group connected with each other with two wires.
- (b) The signal wires can also be connected using the method shown below.

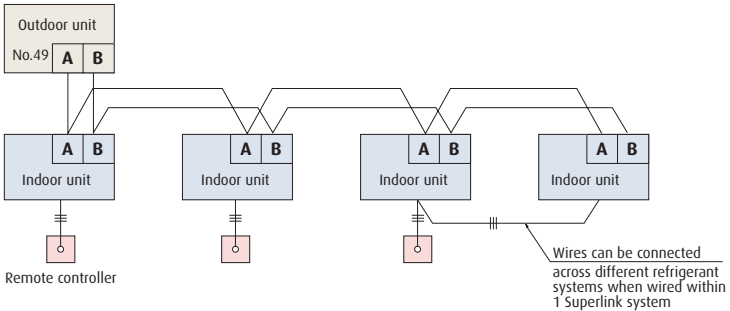


Remote controller wiring specifications

- For interconnecting wiring between the remote controller and indoor units (XYZ wiring) use 3-core shielded cable size 0.3mm². The maximum length of 3-core cable is 600 metres. Where the 3-core wiring exceeds 100m, use the wire size detailed on the table opposite.
- Be sure to ground (earth) only one end of the shield of the cable. When connecting more than one indoor unit to a remote controller, we recommend the shield of the cable is connected to ground (earth) at the first indoor unit only. At all subsequent terminal connections on the same loop, connect all the shields together and electrically insulate them. This will prevent accidental grounding at 2 points and eliminate any electrical noise.
- For current specification of 3-core (XYZ) wiring, please consult your MHI dealer.

Length (m)	Wire size
100 to 200	0.5mm ² x 3 core
To 300	0.75mm ² x 3 core
To 400	1.25mm ² x 3 core
To 600	2.0mm ² x 3 core

For further information about system configuration, addressing and control, please see pages 70-71



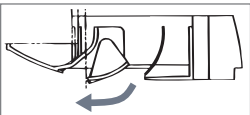
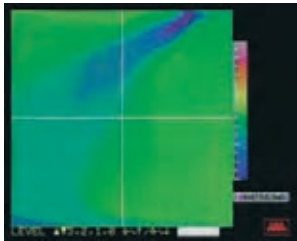
KX4 Indoor units

FDTA: 4-way ceiling cassette (2.8kW–14.0kW)

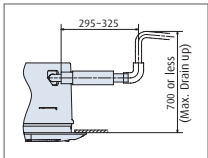
Model No.	Nominal Cooling Capacity
FDTA28KXE4	2.8kW
FDTA36KXE4	3.6kW
FDTA45KXE4	4.5kW
FDTA56KXE4	5.6kW
FDTA71KXE4	7.1kW
FDTA90KXE4	9.0kW
FDTA112KXE4	11.2kW
FDTA140KXE4	14.0kW



"CLEARER" AIR FLOW



New shape & angled louvre re-directs the air current away from the ceiling, to reduce ceiling stains



Condensate drain pump included as standard

INSTALLATION WORKABILITY



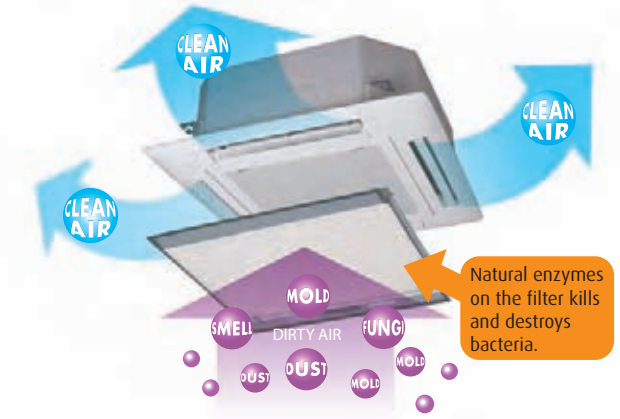
Installation height can be adjusted through the panel corner cover



For wireless control simply insert the infra-red receiver kit on any corner of the panel



OPTIONAL PART: CLEAN AIR ENZYME FILTER



Item	Model	FDTA28KXE4	FDTA36KXE4	FDTA45KXE4	FDTA56KXE4	FDTA71KXE4	FDTA90KXE4	FDTA112KXE4	FDTA140KXE4
Nominal cooling capacity	kW	2.8	3.6	4.5	5.6	7.1	9.0	11.2	14.0
Nominal heating capacity	kW	3.2	4.0	5.0	6.3	8.0	10.0	12.5	16.0
Total UK cooling capacity	kW	2.41	3.10	3.88	4.83	6.12	7.76	9.65	12.07
UK sensible cooling capacity	kW	2.32	2.73	3.16	3.59	4.56	6.01	7.59	8.93
Power source		1 Phase 220/240V 50Hz							
Noise level	dB(A)	Hi:35 Me:33 Lo:31			Hi:36 Me:34 Lo:32	Hi:37 Me:35 Lo:33	Hi:43 Me:41 Lo:38		Hi:45 Me:43 Lo:41
Exterior dimensions H x W x D	mm	Unit:270x840x840 Panel:35x950x950					Unit:295x840x840 Panel:35x950x950	Unit:365x840x840 Panel:35x950x950	
Net Weight	kg	Unit:24 Panel:7					Unit:26 Panel:7	Unit:31 Panel:7	
Air flow (Standard)	CMM	Hi:13 Me:12 Lo:11		Hi:14 Me:13 Lo:12		Hi:15 Me:14 Lo:13	Hi:21 Me:19 Lo:17	Hi:27 Me:23 Lo:20	Hi:29 Me:26 Lo:23
Fresh air intake		Possible							
Operation control		Remote control switch (Optional:RC-E1)							
Operation switch									
Installation data	in (mm)	Liquid line:ø1/4"(6.35) Gas line:ø3/8"(9.52)	Liquid line:ø1/4"(6.35) Gas line:ø1/2"(12.7)			Liquid line:ø3/8"(9.52), Gas line:ø5/8"(15.88)			
Refrigerant piping size									
Accessories		Mounting kit, Drain hose							

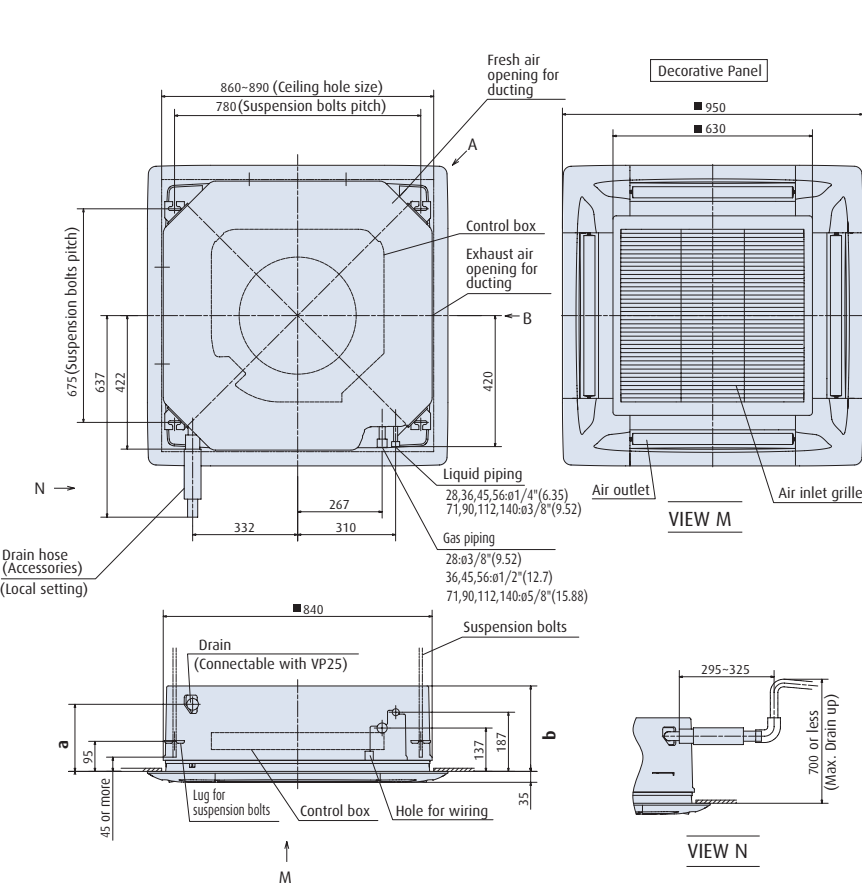
UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KX4 Indoor units

FDTA: 4-way ceiling cassette (2.8kW–14.0kW)

dimensions

All measurements in mm.



Dimension table

Model	a	b	c	d	e	f
FDTA28KXE4-71KXE4	212	270	123	43	122	52
FDTA90KXE4	212	295	148	68	147	77
FDTA112KXE4-140KXE4	269	365	218	138	215	147

KX4 Indoor units

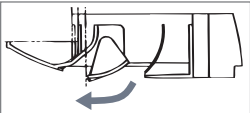
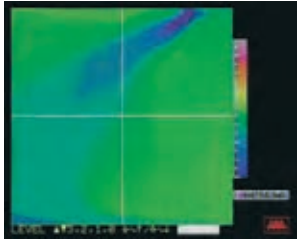
FDTCA: Compact (600x600)

4-way ceiling cassette (2.2kW–5.6kW)

Model No.	Nominal Cooling Capacity
FDTC A22KXE4	2.2kW
FDTC A28KXE4	2.8kW
FDTC A36KXE4	3.6kW
FDTC A45KXE4	4.5kW
FDTC A56KXE4	5.6kW



"CLEARER" AIR FLOW



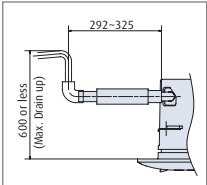
New shape & angled louvre re-directs the air current away from the ceiling, to reduce ceiling stains

INSTALLATION WORKABILITY

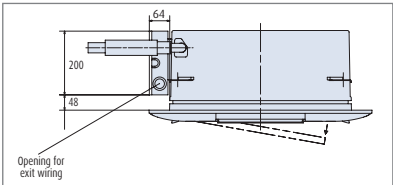


For wireless control simply insert the infra-red receiver kit on any corner of the panel

Receiver Kit



Condensate drain pump included as standard



Ultra slim design at just 248mm above the ceiling

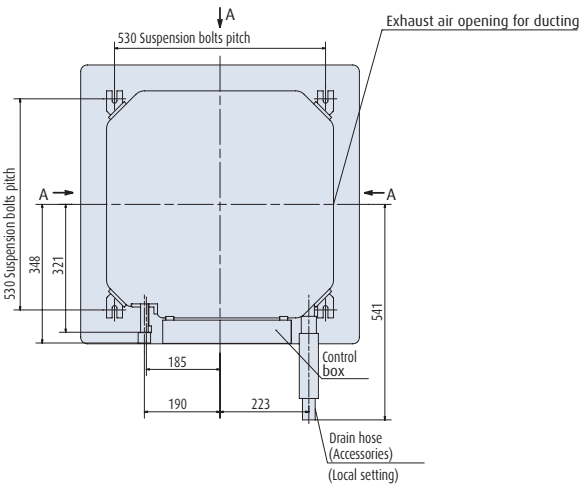
		FDTC A				
Item	Model	FDTC A22KXE4	FDTC A28KXE4	FDTC A36KXE4	FDTC A45KXE4	FDTC A56KXE4
Nominal cooling capacity	kW	2.2	2.8	3.6	4.5	5.6
Nominal heating capacity	kW	2.5	3.2	4.0	5.0	6.3
Total UK cooling capacity	kW	1.90	2.41	3.10	3.88	4.83
UK sensible cooling capacity	kW	1.79	2.00	2.57	3.04	3.68
Power source		1 Phase 220/240V 50Hz				
Noise level	dB(A)	Hi:35 Me:33 Lo:32		Hi:38 Me:36 Lo:34	Hi:40 Me:38 Lo:36	Hi:45 Me:42 Lo:39
Exterior dimensions H x W x D	mm	Unit:248x570x570 Panel:35x700x700				
Net Weight	kg	Unit:15 Panel:3.5		Unit:16 Panel:3.5		
Air flow (Standard)	CMM	Hi:9.5 Me:8.5 Lo:8		Hi:10 Me:9 Lo:8	Hi:11 Me:10 Lo:9	Hi:13 Me:11.5 Lo:10
Fresh air intake		-				
Panel		TC-PSA-24W-E				
Operation control		Remote control switch				
Operation switch		(Optional:RC-E1)				
Installation data Refrigerant piping size	in (mm)	Liquid line:ø1/4"(6.35), Gas line:ø3/8"(9.52)		Liquid line:ø1/4"(6.35), Gas line:ø1/2"(12.7)		

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KX4 Indoor units

FDTCA: Compact (600x600) 4-way ceiling cassette (2.2kW–5.6kW) dimensions

All measurements in mm.

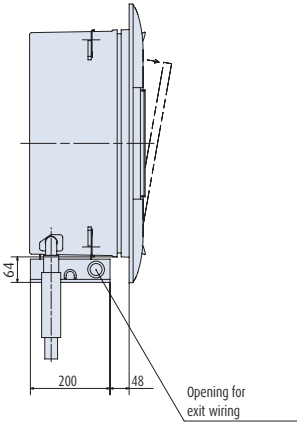


530 Suspension bolts pitch

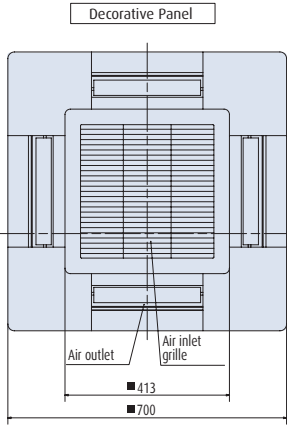
Exhaust air opening for ducting

Control box

Drain hose (Accessories) (Local setting)



Opening for exit wiring



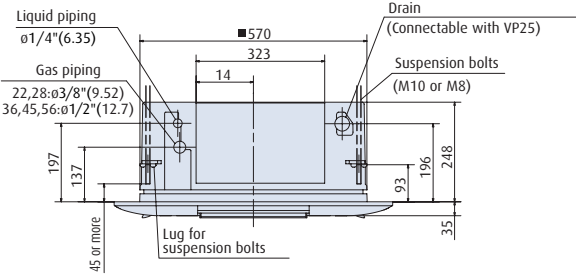
Decorative Panel

Air outlet

Air inlet grille

413

700



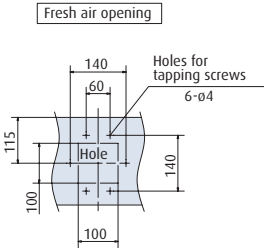
Liquid piping ø1/4"(6.35)

Gas piping 22.28:ø3/8"(9.52) 36.45,56:ø1/2"(12.7)

Drain (Connectable with VP25)

Suspension bolts (M10 or M8)

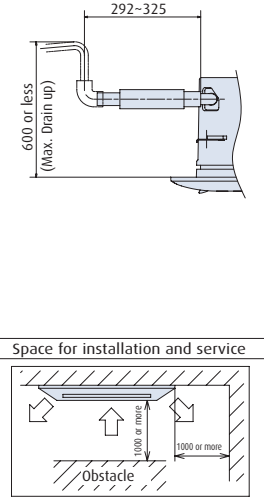
Lug for suspension bolts



Fresh air opening

Holes for tapping screws 6-ø4

VIEW A



292-325

600 or less (Max. Drain up)

Space for installation and service

Obstacle

1000 or more

KX4 Indoor units
FDTQA: Compact (600x600)
1-way ceiling cassette (2.2kW-3.6kW)

Model No.	Nominal Cooling Capacity
FDTQA22KXE4	2.2kW
FDTQA28KXE4	2.8kW
FDTQA36KXE4	3.6kW

- Comfortable effective cooling for small rooms, with low fan speed air flow at just 5.4m³/min.

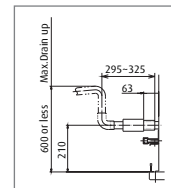


Fits into standard
600 x 600 ceiling
grid opening



Ultra slim design at just
250mm above the ceiling

Optional wide panel
shown for solid
ceilings



Condensate drain pump
included as standard

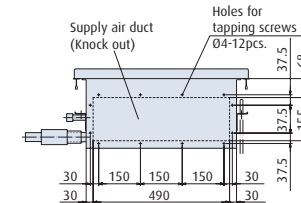
Item	Model	FDTQA22KXE4				FDTQA28KXE4				FDTQA36KXE4			
Panel Name		Direct blow panel		Duct panel		Direct blow panel		Duct panel		Direct blow panel		Duct panel	
Panel mode (Option)		TQ-PSA-13W-E	TQ-PSB-13W-E	QR-PNA-13W-E	QR-PNB-13W-E	TQ-PSA-13W-E	TQ-PSB-13W-E	QR-PNA-13W-E	QR-PNB-13W-E	TQ-PSA-13W-E	TQ-PSB-13W-E	QR-PNA-13W-E	QR-PNB-13W-E
Nominal cooling capacity	kW	2.2				2.8				3.6			
Nominal heating capacity	kW	2.5				3.2				4.0			
Total UK cooling capacity	kW	1.90				2.41				3.10			
UK sensible cooling capacity	kW	1.47				1.90				2.26			
Power source		1 Phase 220/240V 50Hz											
Noise level	dB(A)	Hi:38 Lo:34		Hi:42 Lo:39		Hi:38 Lo:34		Hi:42 Lo:39		Hi:38 Lo:34		Hi:42 Lo:39	
Exterior dimensions H x W x D	Unit mm Panel	250x570x570 35x625x650	250x570x570 35x780x650	250x570x570 35x625x650	250x570x570 35x780x650	250x570x570 35x625x650	250x570x570 35x625x650	250x570x570 35x780x650	250x570x570 35x780x650	250x570x570 35x625x650	250x570x570 35x780x650	250x570x570 35x625x650	250x570x570 35x780x650
Net Weight	kg	Unit:19 Panel:2.5	Unit:19 Panel:3	Unit:19 Panel:2.5	Unit:19 Panel:3	Unit:19 Panel:2.5	Unit:19 Panel:3	Unit:19 Panel:2.5	Unit:19 Panel:3	Unit:19 Panel:2.5	Unit:19 Panel:3	Unit:19 Panel:2.5	Unit:19 Panel:3
Air flow (Standard)	CMM	Hi:7 Lo:5.4		Hi:7 Lo:6.5		Hi:7 Lo:5.4		Hi:7 Lo:6.5		Hi:7 Lo:5.4		Hi:7 Lo:6.5	
Fresh Air intake		Possible											
Air filter, Quantity		Long life filter x1 (Washable)											
Operation control		Remote control switch											
Operation switch		(Optional:RC-E1)											
Installation data Refrigerant piping size	in(mm)	Liquid line:ø1/4"(6.35) Gas line:ø3/8"(9.52)									Liquid line:ø1/4"(6.35) Gas line:ø1/2"(12.7)		

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

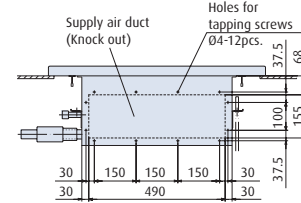
KX4 Indoor units
FDTQA: Compact (600x600)
1-way ceiling cassette (2.2kW–3.6kW) dimensions

All measurements in mm.

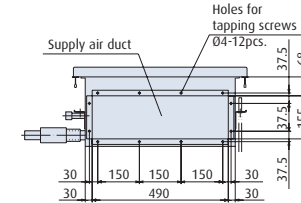
Direct blow panel (TQ-PSA-13W-E)



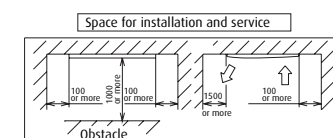
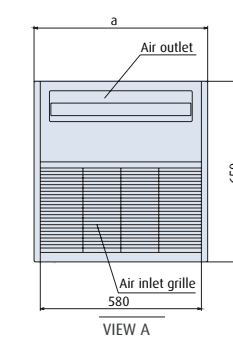
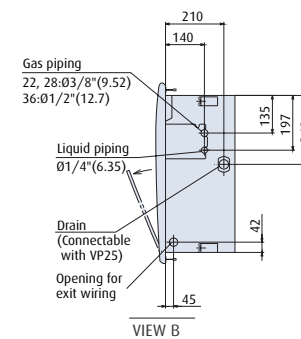
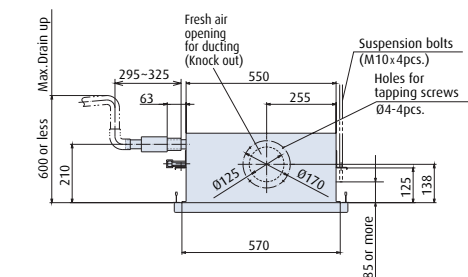
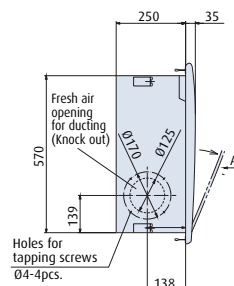
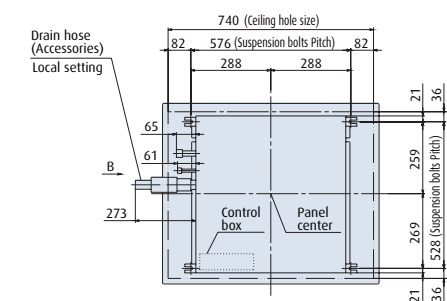
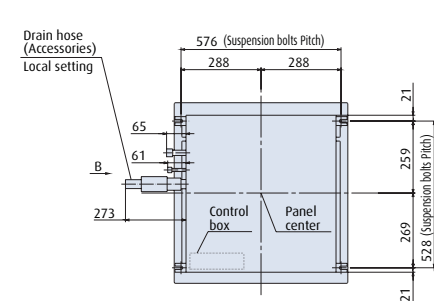
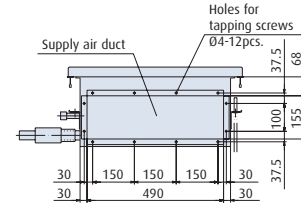
Direct blow panel (TQ-PSB-13W-E)



Duct panel (QR-PNA-13W-E)



Duct panel (QR-PNB-13W-E)



Dimension table

Model	a
Direct blow panel (TQ-PSA-13W-E) Duct panel (QR-PNA-13W-E)	625
Direct blow panel (TQ-PSB-13W-E) Duct panel (QR-PNB-13W-E)	780

KX4 Indoor units

FDKA: High Wall (2.2kW–7.1kW)

Model No.	Nominal Cooling Capacity
FDKA22KXE4	2.2kW
FDKA28KXE4	2.8kW
FDKA36KXE4	3.6kW
FDKA45KXE4	4.5kW
FDKA56KXE4	5.6kW
FDKA71KXE4	7.1kW

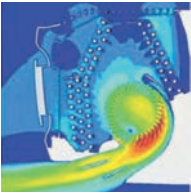


FDKA71



FDKA22-56

INNOVATIVE DESIGN



New FDKA models adopt the air flow design that’s proven to minimise resistance in a CFD analysis to achieve uniform air conditioning to the furthest corners of the room.

INSTALLATION WORKABILITY



The new slimmer design allows easy & neat installation even in tight spaces.

IMPROVED MAINTAINABILITY

Also included is a new easy clean mechanism where the front panel is opened/closed simply from the bottom to easily access the detachable filters.



Item	Model	FDKA22KXE4	FDKA28KXE4	FDKA36KXE4	FDKA45KXE4	FDKA56KXE4	FDKA71KXE4
Nominal cooling capacity	kW	2.2	2.8	3.6	4.5	5.6	7.1
Nominal heating capacity	kW	2.5	3.2	4.0	5.0	6.3	8.0
Total UK cooling capacity	kW	1.90	2.41	3.10	3.88	4.83	6.12
UK sensible cooling capacity	kW	1.82	2.05	2.58	3.10	3.89	4.93
Power source		1 Phase 220/240V 50Hz					
Noise level	dB(A)	Hi:40 Me:36 Lo:32		Hi:41 Me:37 Lo:33		Hi:41 Me:37 Lo:32	Hi:46 Me:43 Lo:39
Exterior dimensions H x W x D	mm	298x840x240					375x1436x194
Net Weight	kg	12			12.5	13	22
Air flow (Standard)	CMM	Hi:8 Me:7 Lo:6		Hi:10 Me:9 Lo:7		Hi:11 Me:9 Lo:7	Hi:14 Me:12 Lo:10
Air filter, Q'ty		Polypropylene net x2 (Washable)					Polypropylene net x3 (Washable)
Operation control		Remote control switch					
Operation switch		(Optional:RC-E1)					
Installation data		Liquid line:ø1/4"(6.35), Gas line:ø3/8"(9.52)		Liquid line:ø1/4"(6.35), Gas line:ø1/2"(12.7)			Liquid line:ø3/8"(9.52)
Refrigerant piping size	in(mm)						Gas line:ø5/8"(15.88)

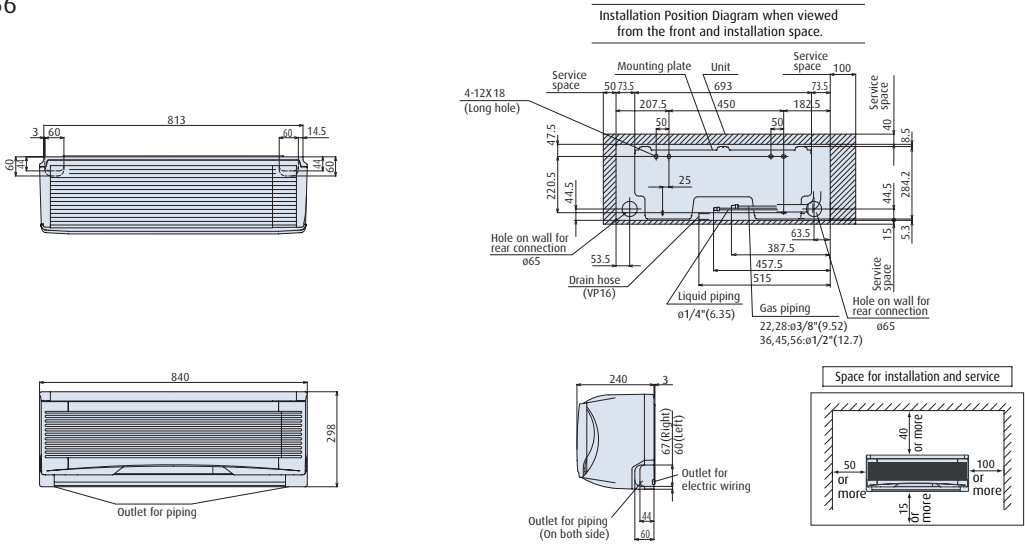
UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KX4 Indoor units

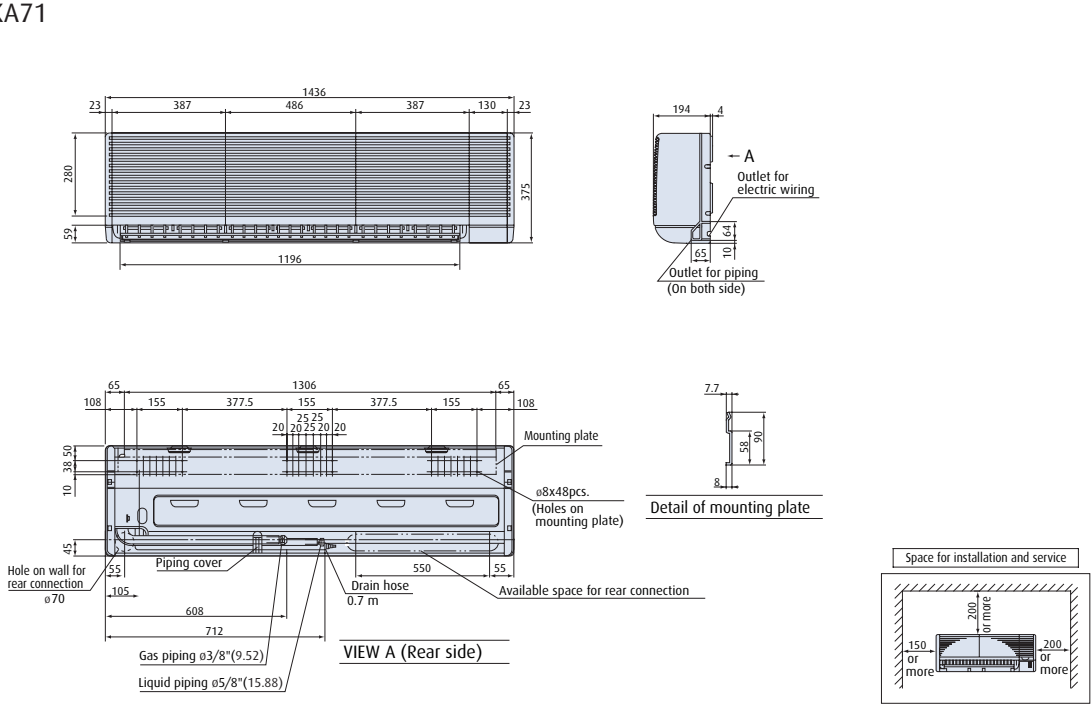
FDKA: High Wall (2.2kW–7.1kW) dimensions

All measurements in mm.

FDKA22-56



FDKA71

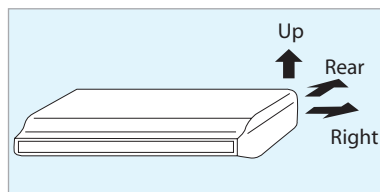


KX4 Indoor units
FDEA: Ceiling suspended (3.6kW-14.0kW)

Model No.	Nominal Cooling Capacity
FDEA36KXE4	3.6kW
FDEA45KXE4	4.5kW
FDEA56KXE4	5.6kW
FDEA71KXE4	7.1kW
FDEA112KXE4	11.2kW
FDEA140KXE4	14.0kW



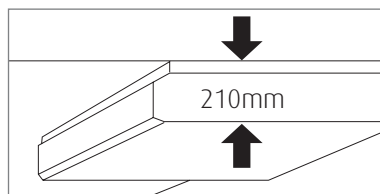
INSTALLATION WORKABILITY



Refrigerant piping can be routed in three directions (rear, up, right) & drain piping in left or right directions, allowing free layout to meet installation conditions.

- Small
- Light-weight
- Quiet
- Sleek, intelligent design

NEW SLIM DESIGN



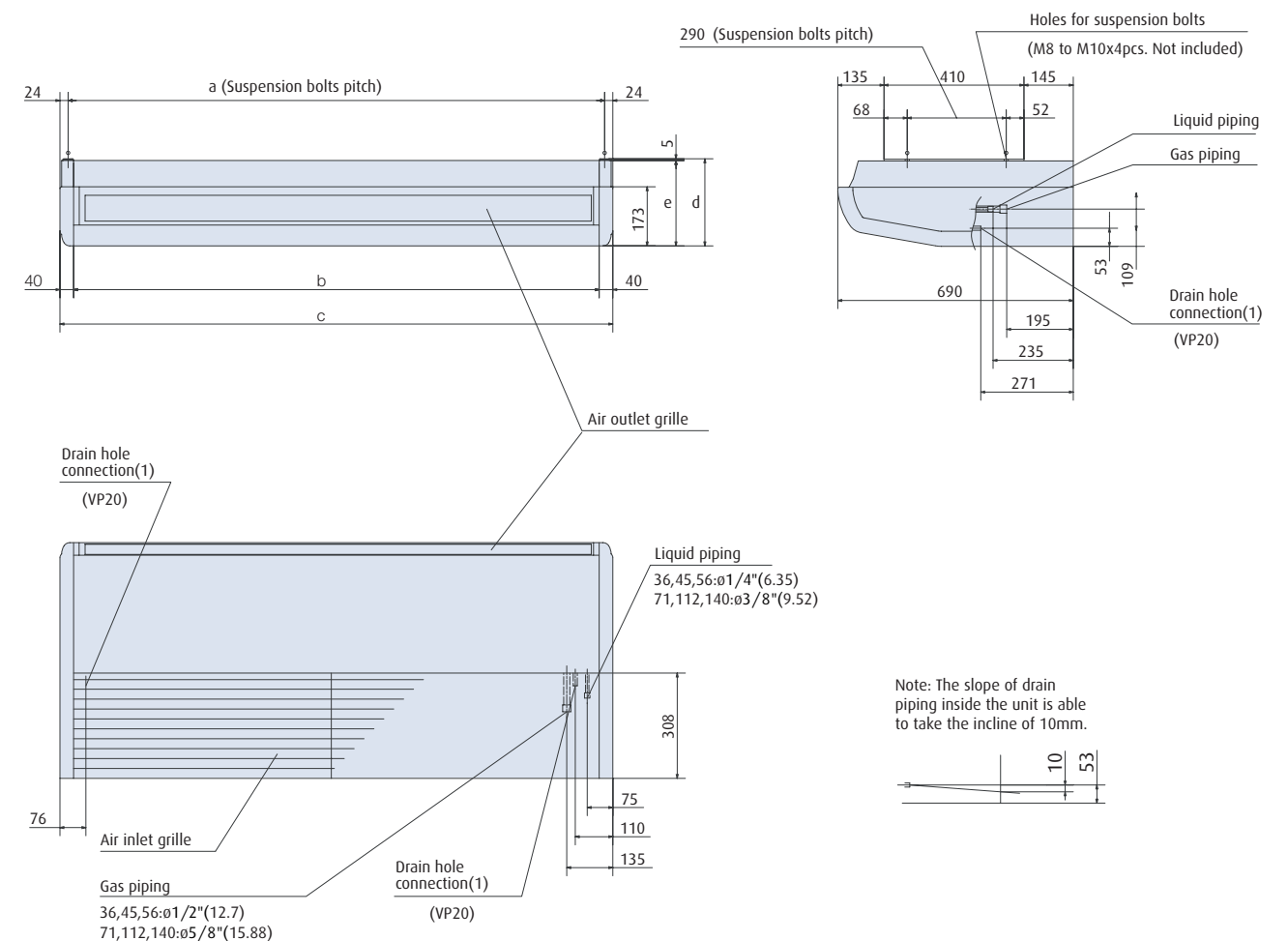
Slim and sleek design starting at just 30kgs in weight means quick, easy & neat installation.

Item	Model	FDEA36KXE4	FDEA45KXE4	FDEA56KXE4	FDEA71KXE4	FDEA112KXE4	FDEA140KXE4
Nominal cooling capacity	kW	3.6	4.5	5.6	7.1	11.2	14.0
Nominal heating capacity	kW	4.0	5.0	6.3	8.0	12.5	16.0
Total UK cooling capacity	kW	3.10	3.88	4.83	6.12	9.65	12.07
UK sensible cooling capacity	kW	2.68	3.03	3.53	4.93	7.50	8.97
Power source		1 Phase 220/240V 50Hz					
Noise level	dB(A)	Hi:39 Me:38 Lo:36			Hi:41 Me:39 Lo:37	Hi:44 Me:41 Lo:39	Hi:46 Me:44 Lo:43
Exterior dimensions H x W x D	mm	210x1070x690			210x1320x690	250x1620x690	
Net Weight	kg	30			36	46	
Air flow (Standard)	CMM	Hi:11 Me:9 Lo:7			Hi:18 Me:14 Lo:12	Hi:26 Me:23 Lo:21	Hi:29 Me:26 Lo:23
Air filter, Q'ty		Polypropylene net x2 (Washable)					
Operation control Operation switch		Remote control switch (Optional:RC-E1)					
Installation data Refrigerant piping size	in(mm)	Liquid line:ø1/4"(6.35), Gas line:ø1/2"(12.7)			Liquid line:ø3/8"(9.52), Gas line:ø5/8"(15.88)		

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

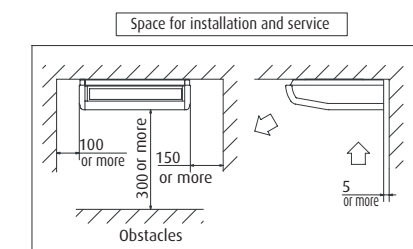
KX4 Indoor units
FDEA: Ceiling suspended (3.6kW–14.0kW) dimensions

All measurements in mm.



Dimension table

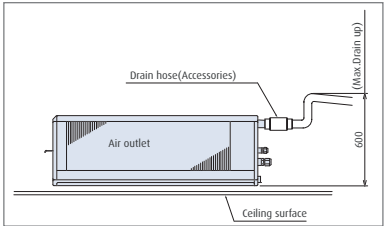
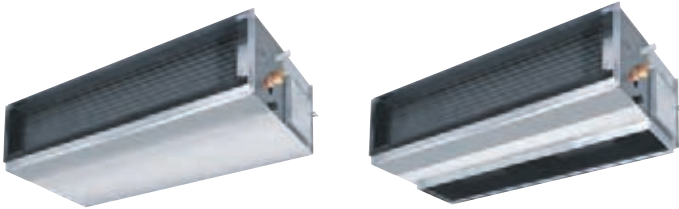
Model	a	b	c	d	E
FDEA36KXE4-56KXE4	1022	990	1070	215	210
FDEA71KXE4	1272	1240	1320	215	210
FDEA112KXE4-140KXE4	1572	1540	1620	255	250



KX4 Indoor units

FDURA: Ducted (4.5kW–14.0kW)

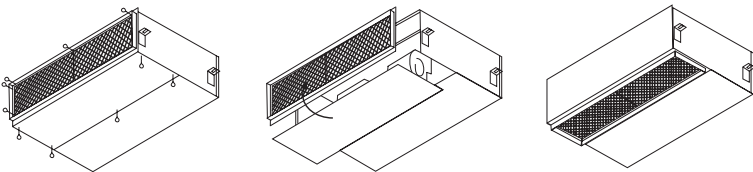
Model No.	Nominal Cooling Capacity
FDURA45KXE4	4.5kW
FDURA56KXE4	5.6kW
FDURA71KXE4	7.1kW
FDURA90KXE4	9.0kW
FDURA112KXE4	11.2kW
FDURA140KXE4	14.0kW



Condensate drain pump included as standard

Optional back or bottom return air inlet

- Return air filter included
- Adjustable resistance up 130pa
- New high energy transfer heat exchanger tubing means high performance & efficiency
- Condensate lift pump included as standard



Simple installation of the return air option

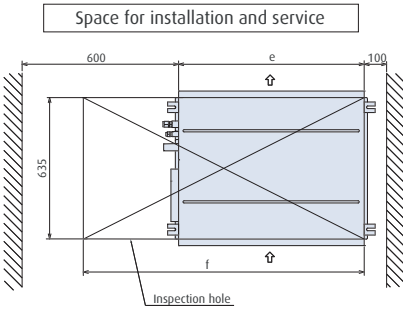
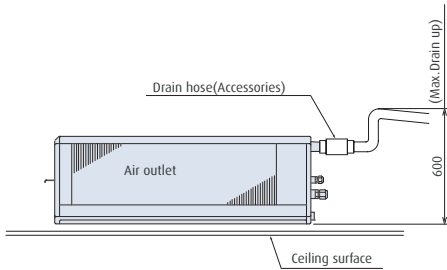
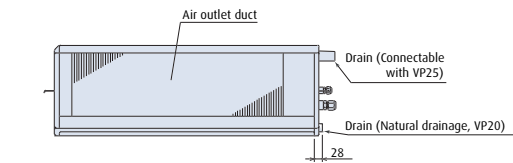
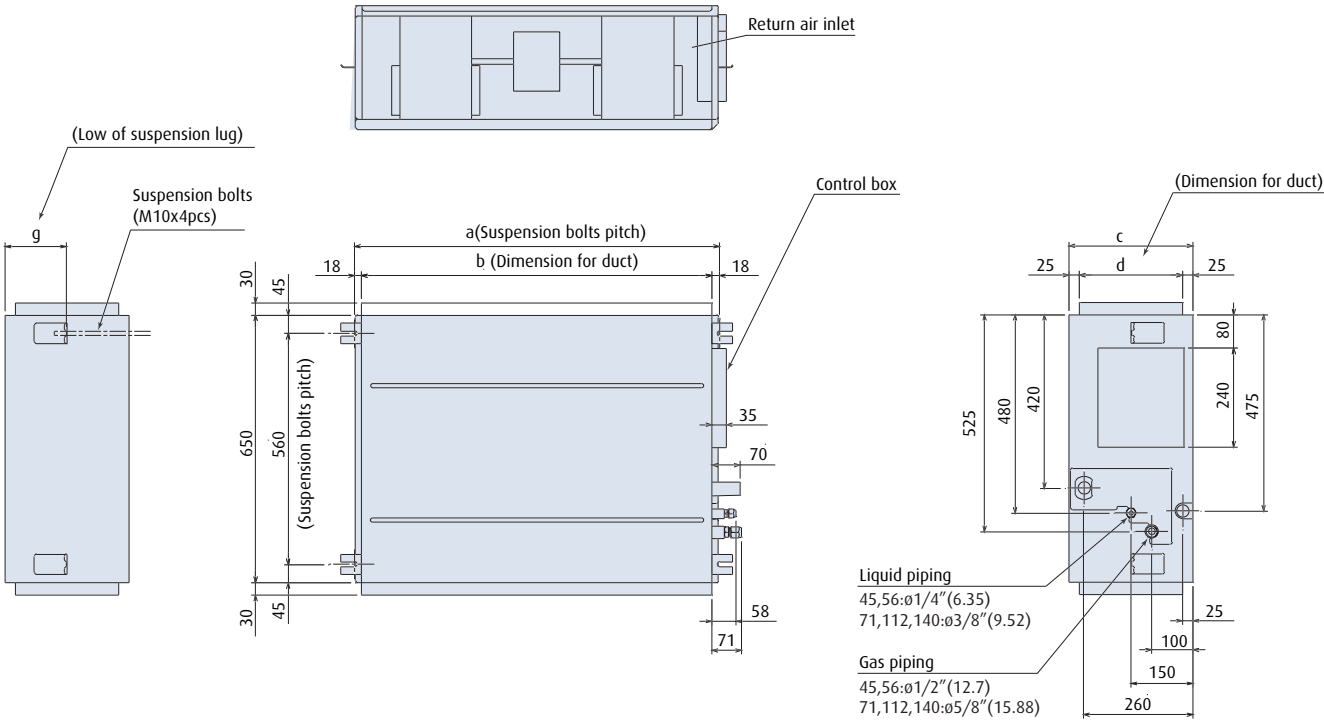
Item	Model	FDURA45KXE4	FDURA56KXE4	FDURA71KXE4	FDURA90KXE4	FDURA112KXE4	FDURA140KXE4
Nominal cooling capacity	kW	4.5	5.6	7.1	9.0	11.2	14.0
Nominal heating capacity	kW	5.0	6.3	8.0	10.0	12.5	16.0
Total UK cooling capacity	kW	3.88	4.83	6.12	7.76	9.65	12.07
UK sensible cooling capacity	kW	3.72	4.63	5.68	7.45	8.43	10.43
Power source		1 Phase 220/240V 50Hz					
Noise level	dB(A)	Hi:40 Lo:36	Hi:41 Lo:37		Hi:42 Lo:37	Hi:42 Lo:38	Hi:43 Lo:39
Exterior dimensions H x W x D	mm	295x850x650			350x1370x650		
Net Weight	kg	39		40	63		65
Air flow (Standard)	CMM	Hi:17 Lo:13.5	Hi:21 Lo:17	Hi:25 Lo:18.5	Hi:34 Lo:27		Hi:42 Lo:33.5
Fresh air intake		-					
Air filter, Q'ty		Polypropylene net x1 (Washable)					
Operation control Operation switch		Remote control switch (Optional:RC-E1)					
Installation data Refrigerant piping size	in(mm)	Liquid line:ø1/4"(6.35), Gas line:ø1/2"(12.7)		Liquid line:ø3/8"(9.52), Gas line:ø5/8"(15.88)			
Optional parts		Silent panel, Duct joint					

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KX4 Indoor units

FDURA: Ducted (4.5kW–14.0kW) dimensions

All measurements in mm.



Dimension table

Model	a	b	c	d	e	f	g
FDURA45KXE4-71KXE4	886	850	295	245	850	1200	145
FDURA90KXE4-140KXE4	1406	1370	350	300	1370	1720	173

KX4 Indoor units

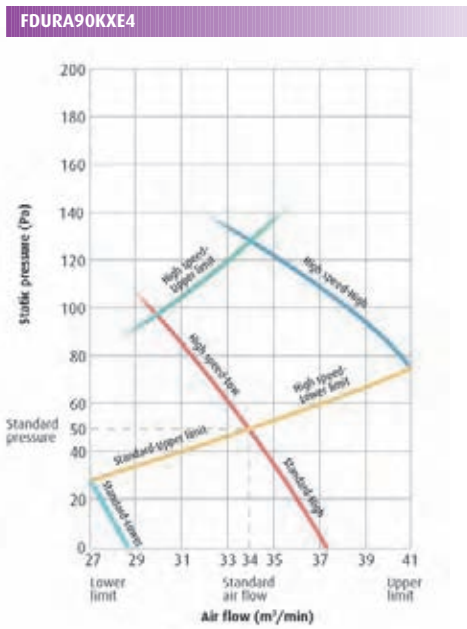
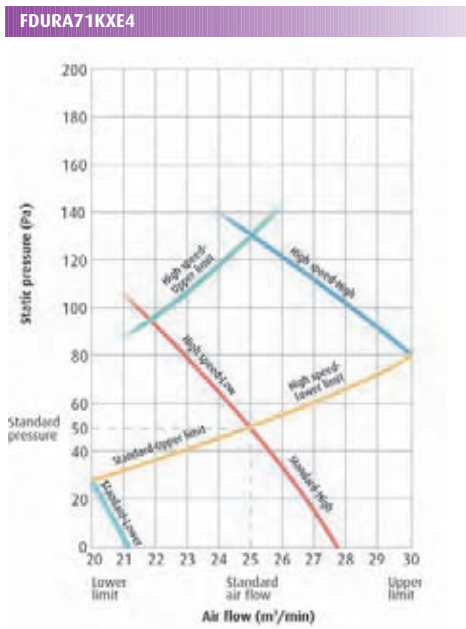
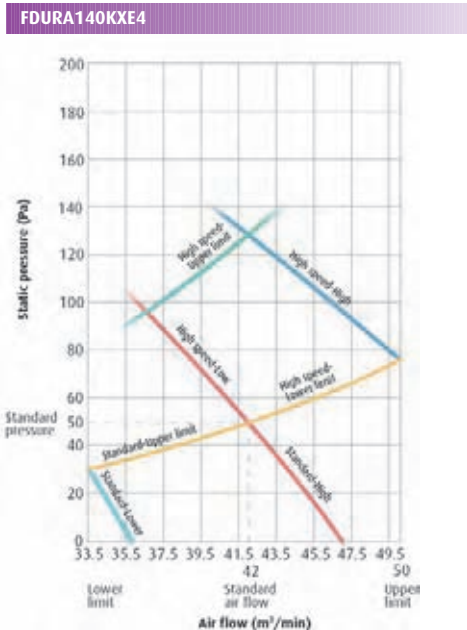
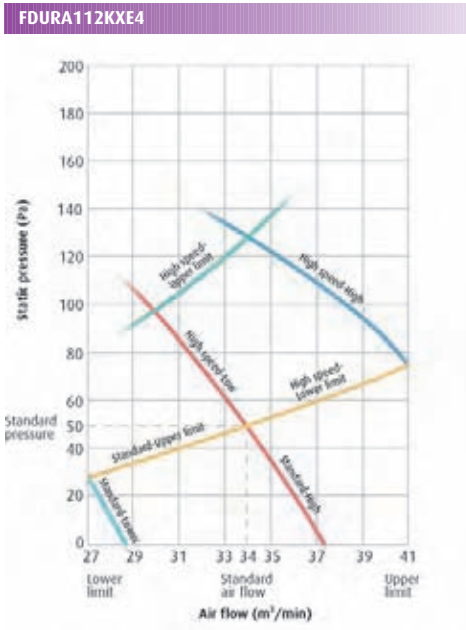
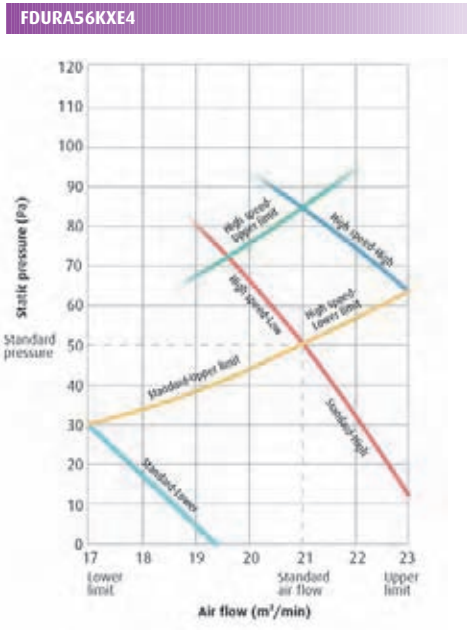
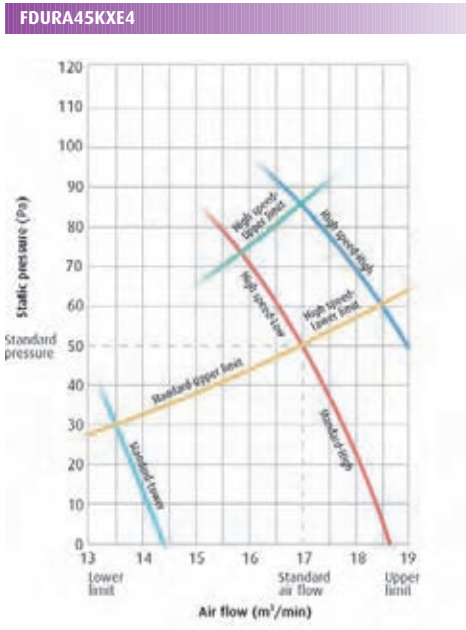
FDURA: Ducted (4.5kW–14.0kW)

Fan data

KX4 Indoor units

FDURA: Ducted (4.5kW–14.0kW)

Fan data/Noise level data

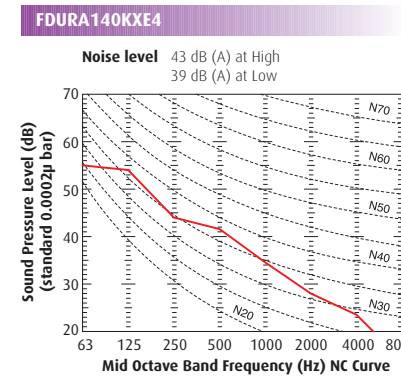
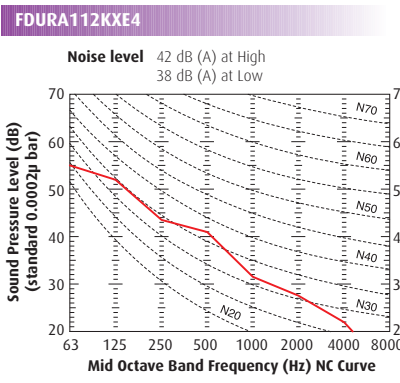
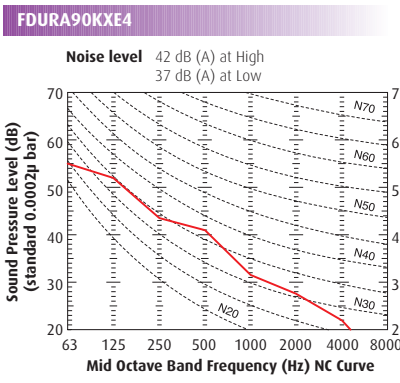
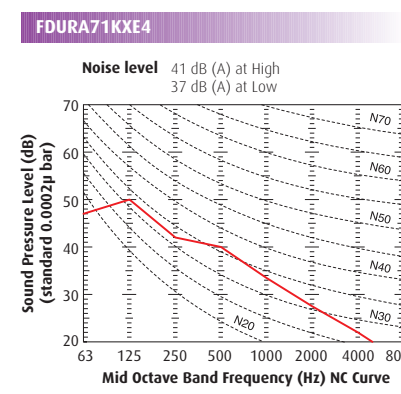
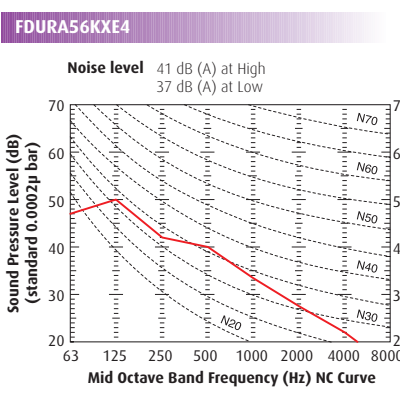
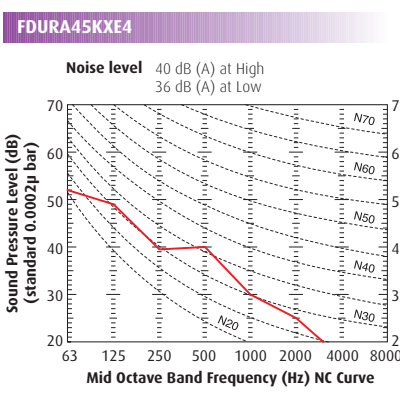


Measured base on JIS B 8616. Microphone position as shown here:

Unit

1.5 m

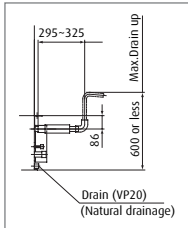
Mic (center & low points)



KX4 Indoor units

FDUMA: Ducted horizontal (3.6kW–14.0kW)

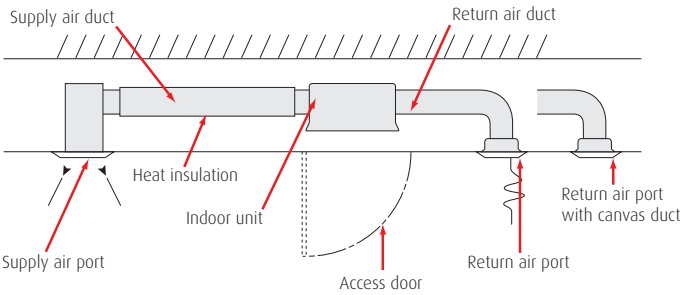
Model No.	Nominal Cooling Capacity
FDUMA36KXE4	3.6kW
FDUMA45KXE4	4.5kW
FDUMA56KXE4	5.6kW
FDUMA71KXE4	7.1kW
FDUMA90KXE4	9.0kW
FDUMA112KXE4	11.2kW
FDUMA140KXE4	14.0kW



Condensate drain pump included as standard



Easy to install duct work and slim design at 299mm height (up to model FDUMA90)



Item	Model	FDUMA36KXE4	FDUMA45KXE4	FDUMA56KXE4	FDUMA71KXE4	FDUMA90KXE4	FDUMA112KXE4	FDUMA140KXE4
Nominal cooling capacity	kW	3.6	4.5	5.6	7.1	9.0	11.2	14.0
Nominal heating capacity	kW	4.0	5.0	6.3	8.0	10.0	12.5	16.0
Total UK cooling capacity	kW	3.10	3.88	4.83	6.12	7.76	9.65	12.07
UK sensible cooling capacity	kW	2.77	3.31	3.84	4.92	5.89	7.74	9.51
Power source		Phase 220/240V 50Hz						
Noise level	dB(A)	Hi:34 Me:32 Lo:29	Hi:35 Me:32 Lo:29			Hi:36 Me:33 Lo:30	Hi:38 Me:35 Lo:32	Hi:39 Me:37 Lo:34
Exterior dimensions H x W x D	mm	299x750x635			299x950x635		350x1370x635	
Net Weight	kg	34			40		59	
Air flow (Standard)	CMM	Hi:12 Me:11 Lo:10	Hi:14 Me:12 Lo:11		Hi:18 Me:16 Lo:14	Hi:20 Me:18 Lo:15	Hi:28 Me:25 Lo:22	Hi:34 Me:31 Lo:27
Fresh air intake		Possible						
Operation control		Remote control switch (Optional:RC-E1)						
Operation switch								
Installation data								
Refrigerant piping size	in (mm)	Liquid line:ø1/4"(6.35), Gas line:ø1/2"(12.7)			Liquid line:ø3/8"(9.25), Gas line:ø5/8"(15.88)			

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

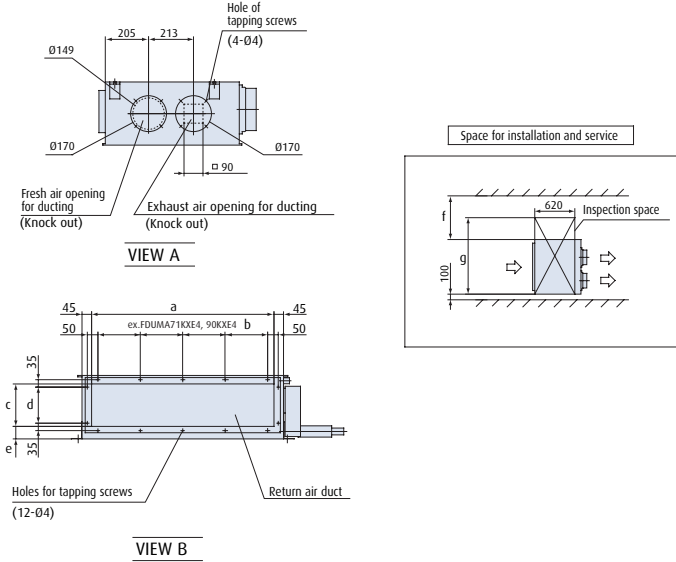
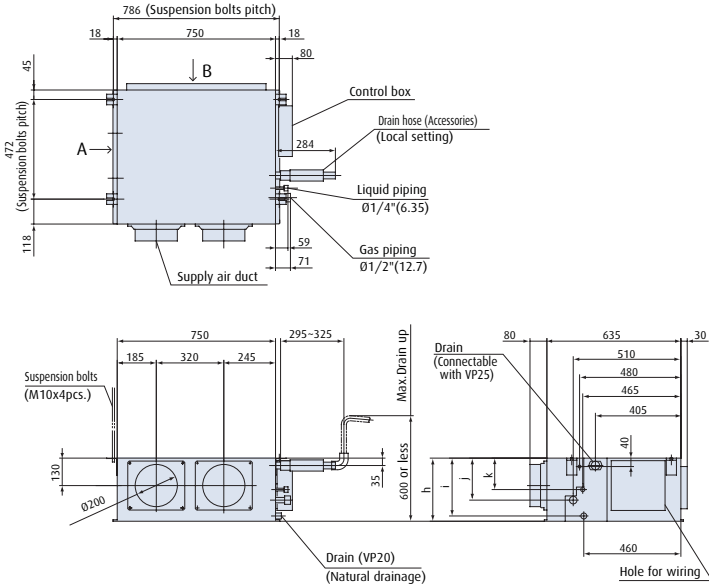
KX4 Indoor units

FDUMA: Ducted horizontal (3.6kW–14.0kW)

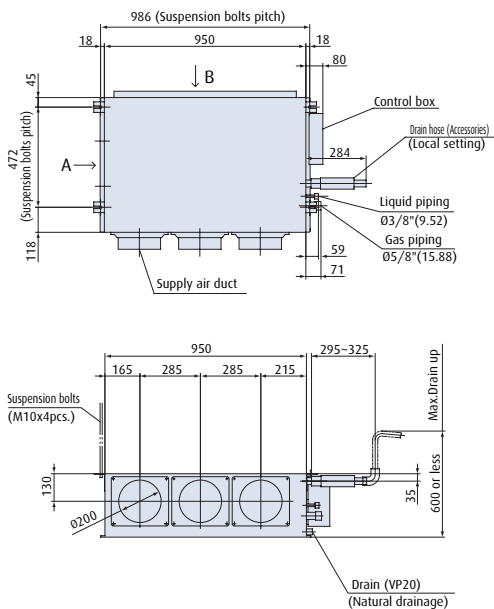
dimensions

All measurements in mm.

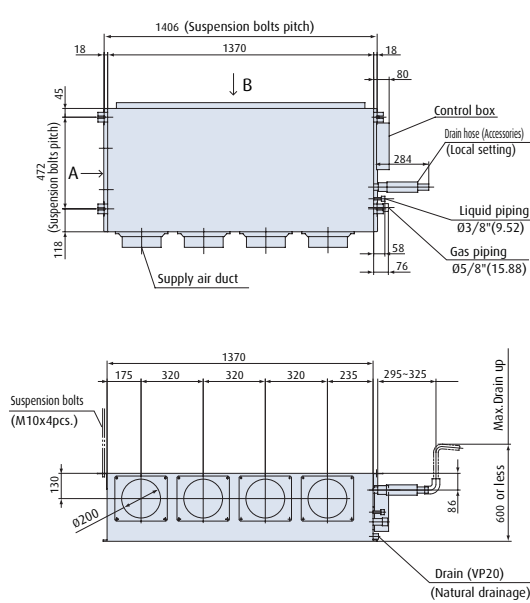
FDUMA36KXE4, 45KXE4, 56KXE4



FDUMA71KXE4, 90KXE4



FDUMA112KXE4, 140KXE4



Dimension table

Model	a	b	c	d	e	f	g	h	i	j	k
FDUMA36KXE4–56KXE4	660	3x200=600	200	170	59	630	1100	299	274	199	149
FDUMA71KXE4–90KXE4	860	4x200=800	200	170	59	830	1300	299	274	199	149
FDUMA112KXE4–140KXE4	1280	6x200=1200	240	210	70	1250	1720	350	325	250	200

KX4 Indoor units

FDUMA: Ducted horizontal (3.6kW–14.0kW)

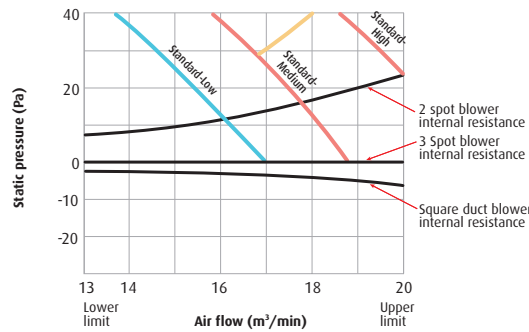
Fan data

External static pressure table (Unit Pa)

Duct Specs.		1 Spot closing		Standard		Square Duct	
Model	Air Flow (m³/min)	Standard	High Speed	Standard	High Speed	Standard	High Speed
FDUMA36	12	-	-	50	85	50	90
FDUMA45 56	14	-	-	50	85	50	90
FDUMA71	18	35	70	50	85	55	90
FDUMA90	20	30	65	50	85	55	90
FDUMA112	28	50	80	60	90	65	95
FDUMA140	34	50	75	60	85	65	95

How to interpret the blower characteristics table

Example: Case of FDUMA71KXE4



2 Spot blowout:
Internal resistance increases more than the standard 3-spot blowout.
Approx. 14Pa at 17m³/min

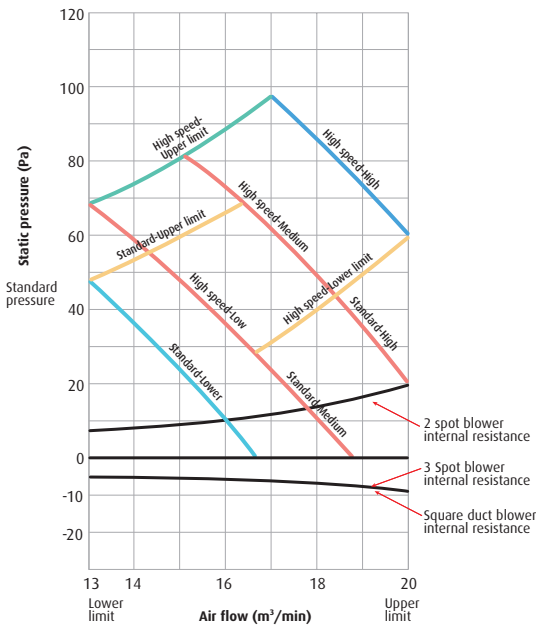
Square duct blowout:
Internal resistance decreases more than the standard round duct (ø200-3-spot).
3Pa at 17m³/min. External static pressure increases in reverse.

KX4 Indoor units

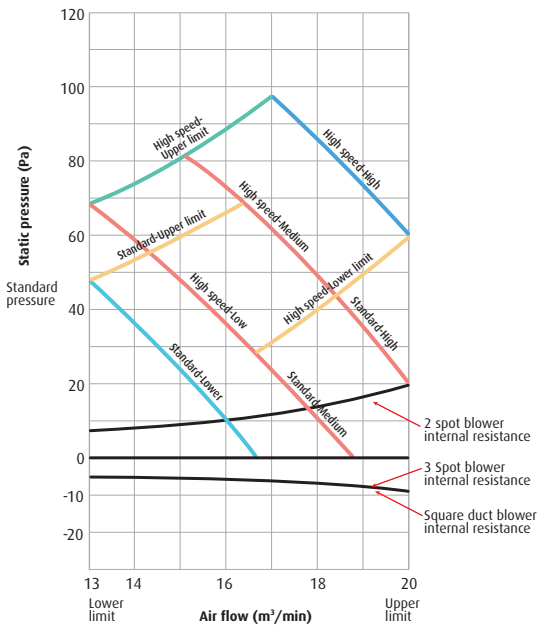
FDUMA: Ducted horizontal (3.6kW–14.0kW)

Fan data

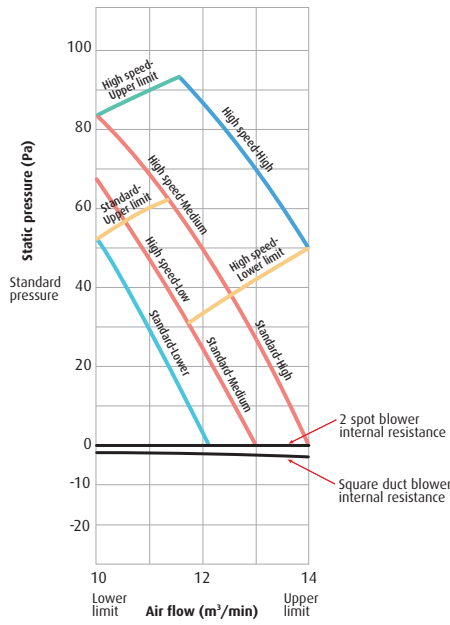
FDUMA71KXE4



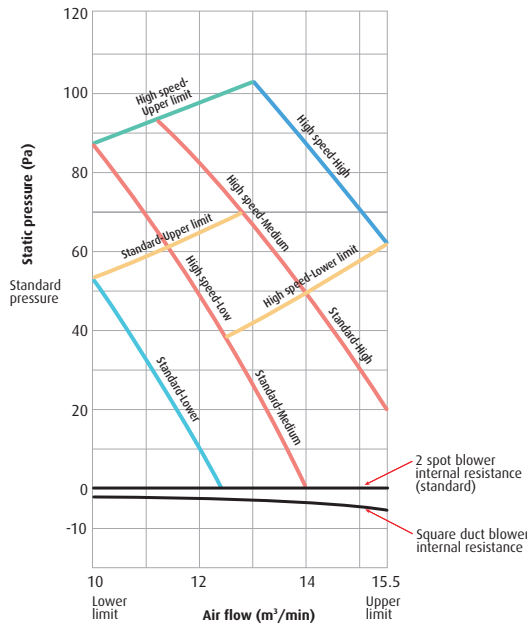
FDUMA90KXE4



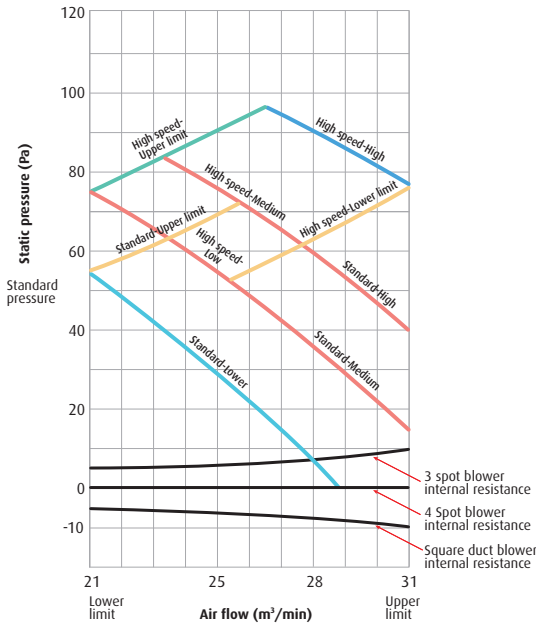
FDUMA36KXE4



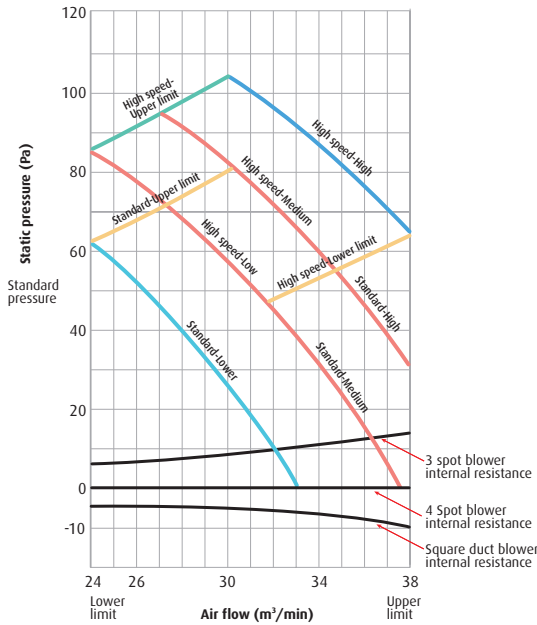
FDUMA45KXE4 & FDUMA56KXE4



FDUMA112KXE4



FDUMA140KXE4



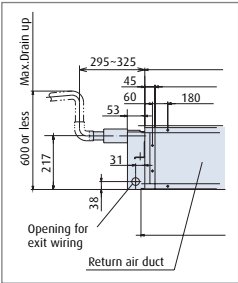
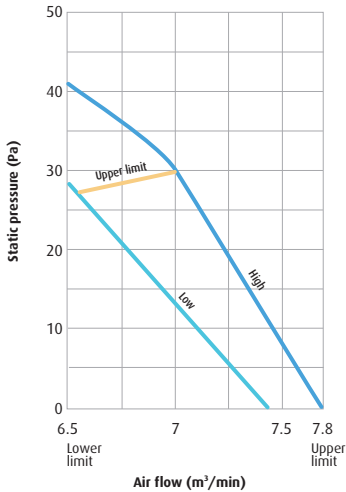
KX4 Indoor units

FDQMA: Compact ducted (2.2kW–3.6kW)

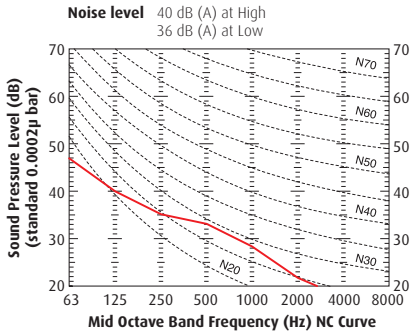
Model No.	Nominal Cooling Capacity
FDQMA22KXE4	2.2kW
FDQMA28KXE4	2.8kW
FDQMA36KXE4	3.6kW

Duct Specs.		1 Spot closing		Standard		Square Duct	
Model	Air Flow (m³/min)	Standard	High Speed	Standard	High Speed	Standard	High Speed
FDQMA22 28 36	7	-	-	30	-	-	-

FDQMA22KXE4/28KXE4/36KXE4



Condensate drain pump included as standard



Item	Model	FDQMA22KXE4	FDQMA28KXE4	FDQMA36KXE4
Nominal cooling capacity	kW	2.2	2.8	3.6
Nominal heating capacity	kW	2.5	3.2	4.0
Total UK cooling capacity	kW	1.90	2.41	3.10
UK sensible cooling capacity	kW	1.47	1.90	2.26
Power source		1 Phase 220/240V 50Hz		
Noise level	dB(A)	Hi:34 Lo:31		
Exterior dimensions H x W x D	mm	257x570x570		
Net Weight	kg	21		
Air flow (Standard)	CMM	Hi:7 Lo:6.5		
Fresh air intake		Side		
Air filter, Q'ty		-		
Operation control Operation switch		Remote control switch (Optional:RC-E1)		
Installation data Refrigerant piping size	in(mm)	Liquid line:ø1/4"(6.35), Gas line:ø3/8"(9.52)		Liquid line:ø1/4"(6.52), Gas line:ø1/2"(12.7)

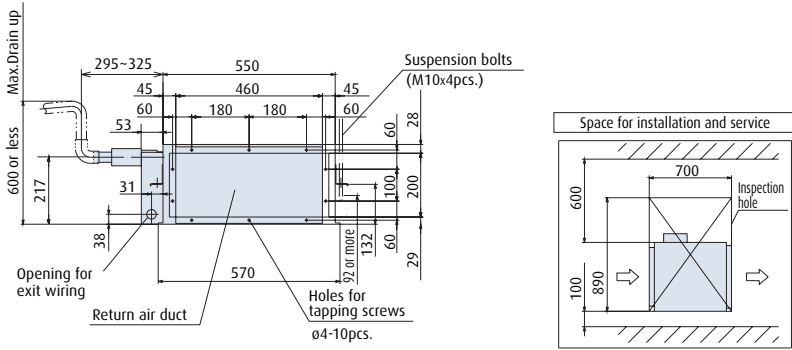
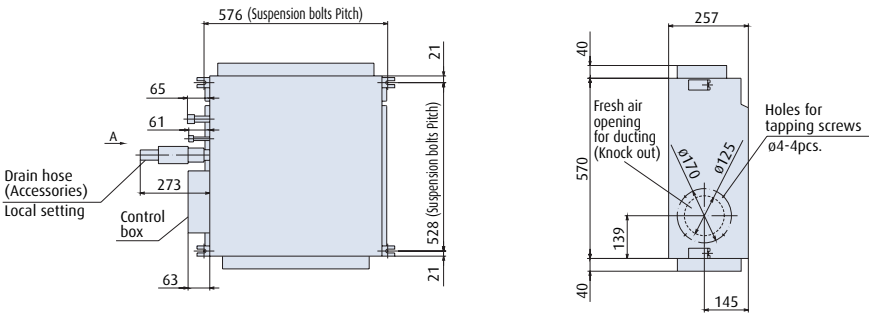
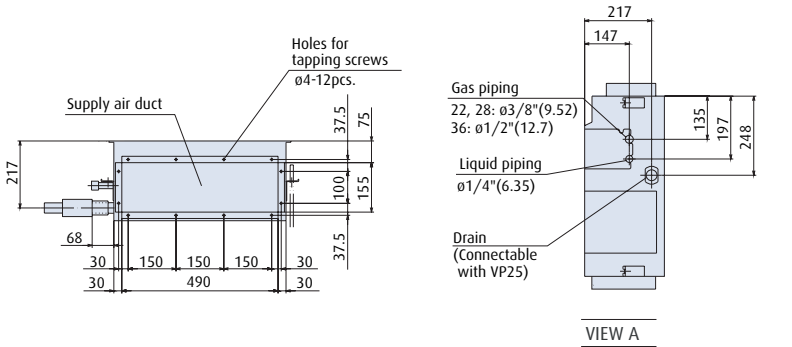
UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KX4 Indoor units

FDQMA: Compact ducted (2.2kW–3.6kW)

dimensions

All measurements in mm.

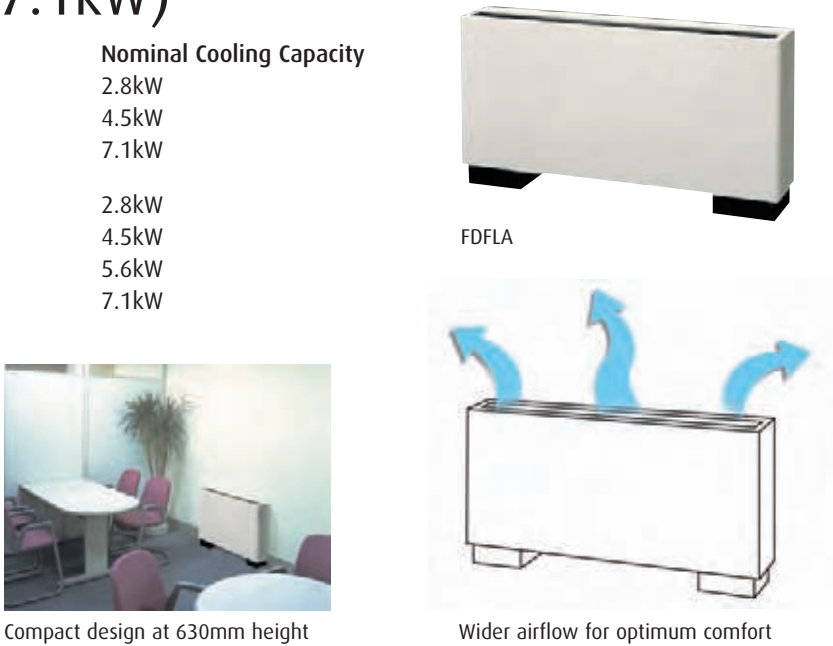


KX4 Indoor units

FDFLA: Floor mounted (with casing) (2.8kW–7.1kW)

FDFUA: Floor mounted concealed type (without casing) (2.8kW–7.1kW)

Model No.	Nominal Cooling Capacity
FDFLA28KXE4	2.8kW
FDFLA45KXE4	4.5kW
FDFLA71KXE4	7.1kW
FDFUA28KXE4	2.8kW
FDFUA45KXE4	4.5kW
FDFUA56KXE4	5.6kW
FDFUA71KXE4	7.1kW



Item	Model	FDFLA28KXE4	FDFLA45KXE4	FDFLA71KXE4	FDFUA28KXE4	FDFUA45KXE4	FDFUA56KXE4	FDFUA71KXE4
Nominal cooling capacity	kW	2.8	4.5	7.1	2.8	4.5	5.6	7.1
Nominal heating capacity	kW	3.2	5.0	8.0	3.2	5.0	6.3	8.0
Total UK cooling capacity	kW	2.41	3.88	6.12	2.41	3.88	4.83	6.12
UK sensible cooling capacity	kW	2.32	3.42	4.91	2.32	3.42	3.84	4.91
Power source		1 Phase 220/240V 50Hz						
Noise level	dB(A)	Hi:41 Me:38 Lo:36	Hi:43 Me:41 Lo:40		Hi:41 Me:38 Lo:36	Hi:43 Me:41 Lo:40		
Exterior dimensions H x W x D	mm	630x1196x225		630x1481x225	630x1077x225			630x1362x225
Net Weight	kg	32		40	25		32	
Air flow (Standard)	CMM	Hi:12 Me:11 Lo:10	Hi:14 Me:12 Lo:10	Hi:18 Me:15 Lo:12	Hi:12 Me:11 Lo:10	Hi:14 Me:12 Lo:10		Hi:18 Me:15 Lo:12
Air filter, Q'ty		Polypropylene net x2 (Washable)						
Operation control		Remote control switch (Optional:RC-E1)						
Operation switch								
Installation data	in(mm)	Liquid line:ø1/4"(6.35)	Liquid line:ø1/4"(6.35)	Liquid line:ø3/8"(9.52)	Liquid line:ø1/4"(6.35)	Liquid line:ø1/4"(6.35), Gas line:ø1/2"(12.7)		Liquid line:ø3/8"(9.52)
Refrigerant piping size		Gas line:ø3/8"(9.52)	Gas line:ø1/2"(12.7)	Gas line:ø5/8"(15.88)	Gas line:ø3/8"(9.52)	Gas line:ø5/8"(15.88)		

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

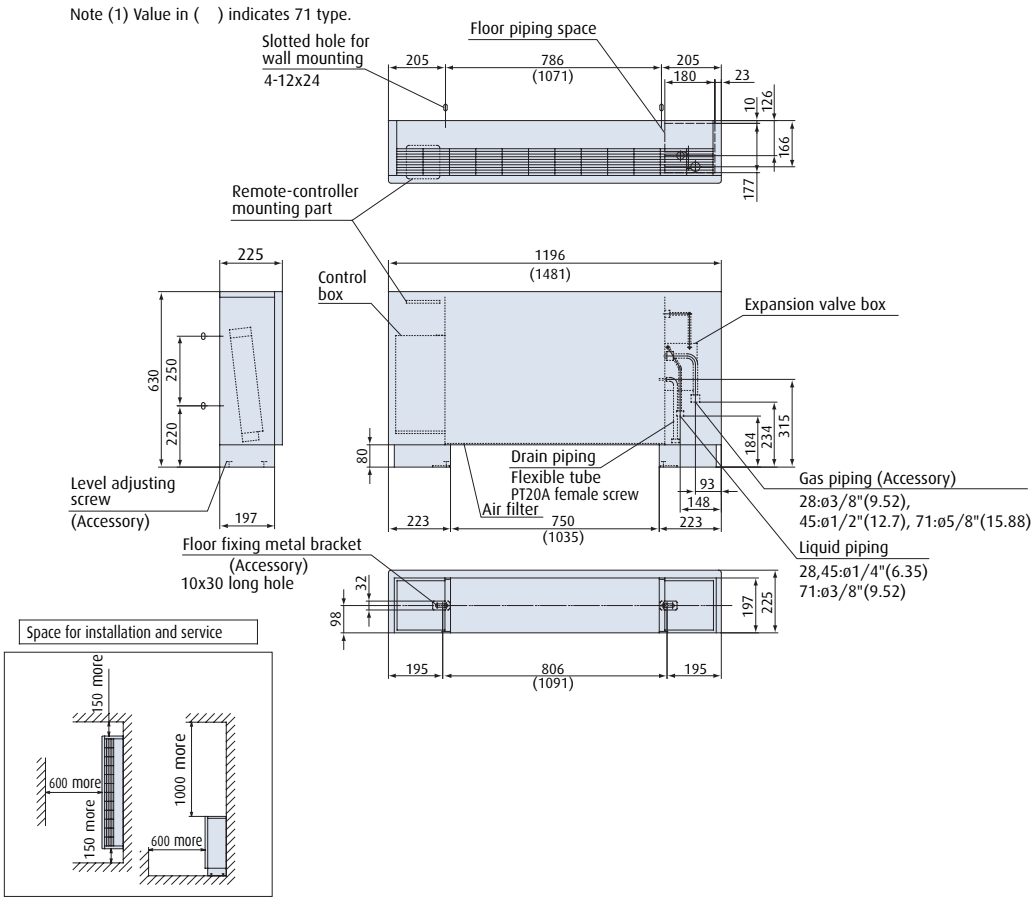
KX4 Indoor units

FDFLA: Floor mounted (with casing) (2.8kW–7.1kW)

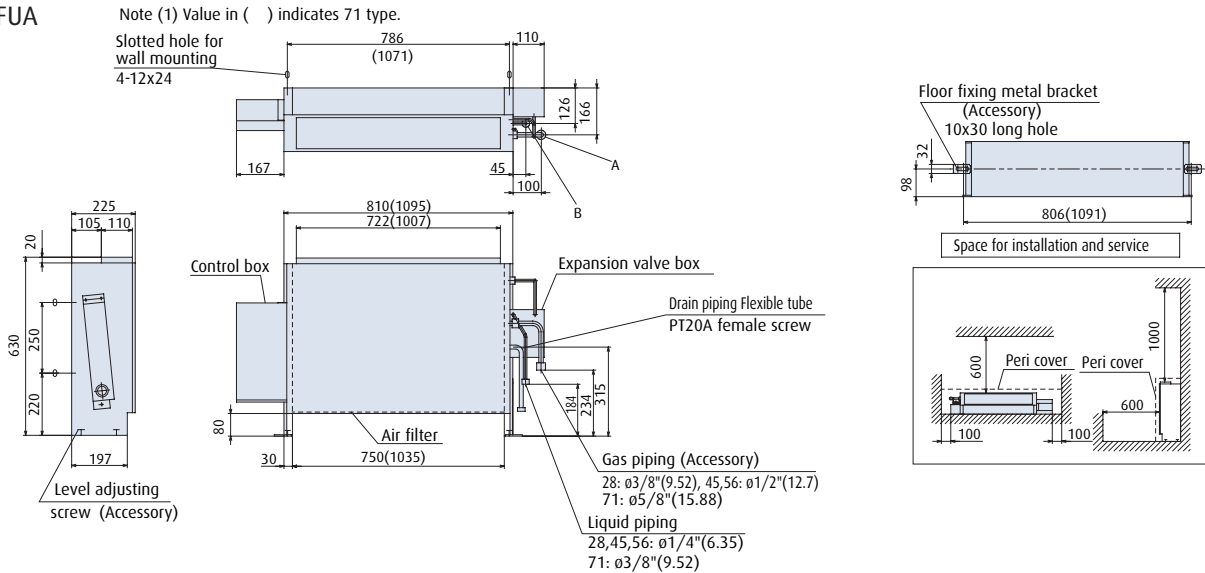
FDFUA: Floor mounted concealed type (without casing) (2.8kW–7.1kW) dimensions

All measurements in mm.

FDFLA



FDFUA

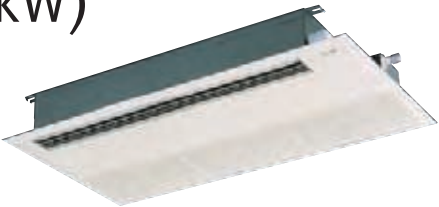


KX4 Indoor units

FDTSA 1-way ceiling cassette (4.5kW–7.1kW)

Model No.	Nominal Cooling Capacity
FDTSA45KXE4	4.5kW
FDTSA71KXE4	7.1kW

- Slim design 194mm height.
- Powerful airflow for high ceiling rooms.

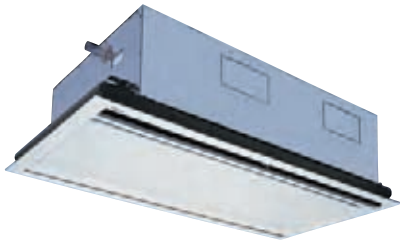


Item	Model	FDTSA45KXE4	FDTSA71KXE4
Nominal cooling capacity	kW	4.5	7.1
Nominal heating capacity	kW	5.0	8.0
Total UK cooling capacity	kW	3.88	6.12
UK sensible cooling capacity	kW	3.43	4.92
Power source		1 Phase 220/240V 50Hz	
Noise level	dB(A)	Hi:43 Me:40 Lo:38	Hi:44 Me:40 Lo:38
Exterior dimensions H x W x D	mm	Unit:194x1040x650 Panel:10x1290x770	Unit:194x1300x650 Panel:10x1500x790
Net Weight	kg	Unit:26 Panel:6	Unit:30 Panel:7
Air flow (Standard)		Hi:14 Me:12 Lo:10	Hi:18 Me:15 Lo:12
Fresh air intake	W	Possible	
Air filter, Q'ty	CMM	Long life filter x1 (Washable)	
Operation control Operation switch		Remote control switch (Optional:RC-E1)	
Installation data Refrigerant piping size	in(mm)	Liquid line:ø1/4"(6.35), Gas line:ø1/2"(12.7)	Liquid line:ø3/8"(9.52), Gas line:ø5/8"(15.88)

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

FDTWA 2-way ceiling cassette (2.8kW–14.0kW)

Model No.	Nominal Cooling Capacity
FDTWA28KXE4	2.8kW
FDTWA45KXE4	4.5kW
FDTWA56KXE4	5.6kW
FDTWA71KXE4	7.1kW
FDTWA90KXE4	9.0kW
FDTWA112KXE4	11.2kW
FDTWA140KXE4	14.0kW



Item	Model	FDTWA28KXE4	FDTWA45KXE4	FDTWA56KXE4	FDTWA71KXE4	FDTWA90KXE4	FDTWA112KXE4	FDTWA140KXE4
Nominal cooling capacity	kW	2.8	4.5	5.6	7.1	9.0	11.2	14.0
Nominal heating capacity	kW	3.2	5.0	6.3	8.0	10.0	12.5	16.0
Total UK cooling capacity	kW	2.41	3.88	4.83	6.12	7.76	9.65	12.07
UK sensible cooling capacity	kW	2.26	3.29	3.76	4.63	5.70	7.61	9.14
Power source		1 Phase 220/240V 50Hz						
Noise level	dB(A)	Hi:39 Me:36 Lo:33			Hi:41 Me:38 Lo:35	Hi:41 Me:39 Lo:36	Hi:44 Me:41 Lo:38	Hi:45 Me:42 Lo:39
Exterior dimensions H x W x D	mm	Unit:285x817x620 Panel:8x1055x680			Unit:335x1054x620 Panel:8x1300x680		Unit:357x1524x620 Panel:8x1770x680	
Net Weight	kg	Unit:19 Panel:7			Unit:26 Panel:9		Unit:38 Panel:11	
Air flow (Standard)	CMM	Hi:14 Me:12 Lo:10			Hi:16 Me:13 Lo:11	Hi:19 Me:16 Lo:12	Hi:28 Me:25 Lo:23	Hi:32 Me:28 Lo:24
Fresh air intake		Possible						
Air filter, Qty		Long life filter x1 (Washable)					Long life filter x2 (Washable)	
Operation control		Remote control switch (Optional:RC-E1)						
Operation switch								
Installation data	in(mm)	Liquid line:ø1/4"(6.35)	Liquid line:ø1/4"(6.35), Gas line:ø1/2"(12.7)			Liquid line:ø3/8"(9.52), Gas line:ø5/8"(15.88)		
Refrigerant piping size		Gas line:ø3/8"(9.52)						

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

KX4 Indoor units

FDRA ducted ceiling cassette (2.2kW–14.0kW)

Model No.	Nominal Cooling Capacity	Model No.	Nominal Cooling Capacity
FDRA22KXE4	2.2kW	FDRA71KXE4	7.1kW
FDRA28KXE4	2.8kW	FDRA90KXE4	9.0kW
FDRA45KXE4	4.5kW	FDRA112KXE4	11.2kW
FDRA56KXE4	5.6kW	FDRA140KXE4	14.0kW

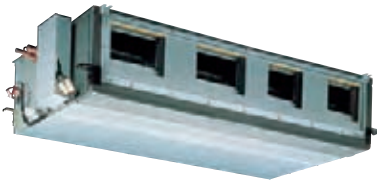


Item	Model	FDRA22KXE4	FDRA28KXE4	FDRA45KXE4	FDRA56KXE4	FDRA71KXE4	FDRA90KXE4	FDRA112KXE4	FDRA140KXE4
Air Inlet Panel		Silent panel	Silent panel	Silent panel	Silent panel	Silent panel	Silent panel	Silent panel	Silent panel
Panel model (Option)		R-PNLS-26W-E	R-PNLS-26W-E	R-PNLS-26W-E	R-PNLS-26W-E	R-PNLS-36W-E	R-PNLS-36W-E	R-PNLS-46W-E	R-PNLS-46W-E
Nominal cooling capacity	kW	2.2	2.8	4.5	5.6	7.1	9.0	11.2	14.0
Nominal heating capacity	kW	2.5	3.2	5.0	6.3	8.0	10.0	12.5	16.0
Total UK cooling capacity	kW	1.90	2.41	3.88	4.83	6.12	7.76	9.65	12.07
UK sensible cooling capacity	kW	1.78	2.15	3.31	3.84	4.92	5.89	7.74	9.51
Power source		1 Phase 220/240 50Hz							
Noise level	dB(A)	Hi:41 Me:39 Lo:36	Hi:42 Me:40 Lo:37	Hi:43 Me:40 Lo:37				Hi:45 Me:42 Lo:38	Hi:46 Me:43 Lo:39
Exterior dimensions H x W x D	mm	Unit:355x750x635 Panel:10x1040x750				Unit:355x950x635 Panel:10x1240x750		Unit:406x1370x635 Panel:10x1660x750	
Net Weight	kg	Unit:30 Panel:7				Unit:35 Panel:8		Unit:52 Panel:9	
Air flow (Standard)	CMM	Hi:10 Me:9 Lo:8	Hi:12 Me:11 Lo:10	Hi:14 Me:12 Lo:11		Hi:18 Me:16 Lo:14	Hi:20 Me:18 Lo:15	Hi:28 Me:25 Lo:22	Hi:34 Me:31 Lo:27
Fresh air intake		Side or Back							
Air filter, Q'ty		Long life filter x1 (Washable)						Long life filter x2 (Washable)	
Operation control		Remote control switch (Optional:RC-E1)							
Operation switch									
Installation data	in(mm)	Liquid line:ø1/4"(6.35)		Liquid line:ø1/4"(6.35)		Liquid line:ø3/8"(9.52)			
Refrigerant piping size		Gas line:ø3/8"(9.52)		Gas line:ø1/2"(12.7)		Gas line:ø5/8"(15.88)			
Optional parts		Silent panel, Canvas panel, Canvas duct							

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

FDDUA High static pressure ducted (22.4kW–28.0kW)

Model No.	Nominal Cooling Capacity
FDDUA224KXE4	22.4kW
FDDUA280KXE4	28.0kW



Item	Model	FDDUA224KXE4	FDDUA280KXE4
Nominal cooling capacity	kW	22.4	28.0
Nominal heating capacity	kW	25.0	31.5
Total UK cooling capacity	kW	19.31	24.14
UK sensible cooling capacity	kW	14.85	18.92
Power source		1 Phase 220/240V 50Hz	
Noise level	dB(A)	Hi:48	
Exterior dimensions H x W x D	mm	360x1570x830	
Net Weight	kg	92	
Air flow (Standard)	CMM	51	68
Air filter, Q'ty		Field purchased	
Fresh air intake		Available	
Operation control Operation switch		Remote control switch (Optional:RC-E1)	
Installation data Refrigerant piping size	in (mm)	Liquid line:ø3/8"(9.52), Gas line:ø3/4"(19.05)	
Optional parts		-	
Static pressure	Pa	Standard 100, Max 200	

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

SAF-E4

Fresh air ventilation and heat exchange unit

Model No.	Air Flow M ³ /h
SAF250E4	250
SAF350E4	350
SAF500E4	500
SAF800E4	800
SAF1000E4	1000



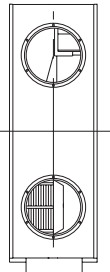
Re; Building Regulations Part L2

The Part L2 (April 2006) regulations limit the amount of electrical/gas power to be used to provide heating or cooling in commercial buildings. Therefore the building designer needs to select energy efficient heating/cooling equipment, and to minimise energy losses through ventilation systems.

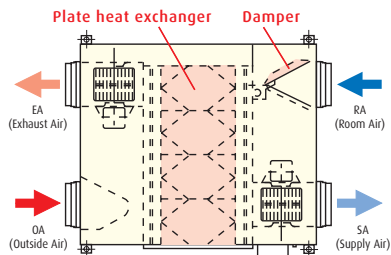
The SAF recovers heat energy which would otherwise be exhausted to atmosphere, and uses this energy to warm the air entering the building. The reverse happens in warmer climates, where the exhausted cool air is used to partially cool the incoming air.

Capturing this waste energy, means the heating/cooling requirements of the building are reduced, so smaller size plant can be selected, savings can be made in long term energy consumption, and carbon emissions are reduced.

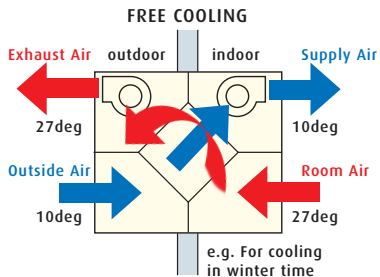
The inclusion of the SAF energy recovery ventilation units in the building design, will reduce the total amount of carbon emissions, and will make a significant contribution towards compliance with the criteria of Part L2.



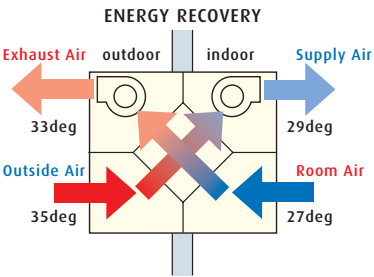
Structure (SAF1000E4)



Principle of operation (simple ventilation)



Principle of operation (heat exchanging)



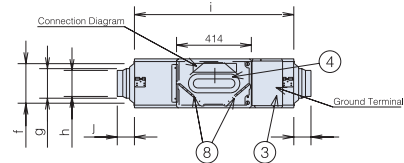
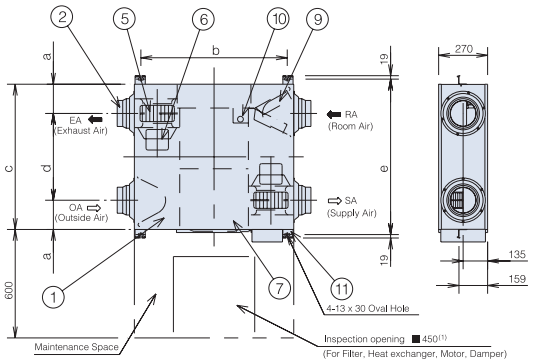
Item			Model		SAF250E4	SAF350E4	SAF500E4	SAF800E4	SAF1000E4
Power source					1 Phase 220-240V/50Hz				
Exterior dimensions					270x882x599	170x882x804	270x962x904	388x1322x884	388x1322x1135
Height x Width x Depth									
Exterior appearance					Galvanised steel sheet				
Capacity		Power input		W	99-114/118	124-137/149	169-188/202	309-359/391	360-399
		Running current		A	0.46/-0.48/0.55	0.59-0.60/0.75	0.79-0.81/1.00	1.48-1.50/1.92	1.85-1.93
		UHi	Enthalpy exchange efficiency	%	63	66	62	65	
			Heating		70	69	67	71	
			Temperature exchange efficiency		75				
		Hi	Enthalpy exchange efficiency		63	66	62	65	
			Heating		70	69	67	71	
			Temperature exchange efficiency		75				
		Lo	Enthalpy exchange efficiency		66/68	69/71	77/79	68/69	68
			Heating		73/75	71/73	67/69	74/75	73
Temperature exchange efficiency			77/78		77/79	75/79	76/77	76	
Motor & Q'ty		kW	0.02/0.02x2	0.018/0.044x2	0.035/0.062x2	0.081/0.117x2	0.118x2		
Air handling equipment Fan type & Q'ty					Sirocco fan x 2				
Air flow		UHi	m³/h	250	350	500	800	1000	
		Hi		250	350	500	800	1000	
		Lo		170/135	280/240	370/310	650/575	810	
Available static pressure		UHi	Pa	90/135	95/155	105/165	140/190	90	
		Hi		80/100	65/90	70/85	110/100	55	
		Lo		37/30	42/43	38/33	70/50	35	
Air filter	Outake intake air			Protection for element (Washable) PS400					
	Exhaust air								

UK Cooling Condition: Indoor 16°CWB, 23°CDB, Outdoor 30°CDB

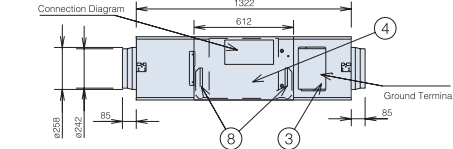
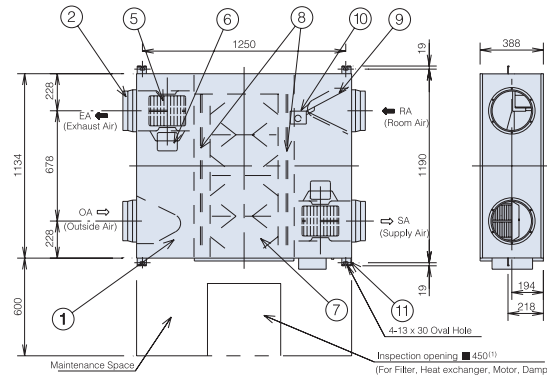
SAF-E4

Fresh air ventilation and heat exchange unit

All measurements in mm.
SAF250E4,350E4,500E4



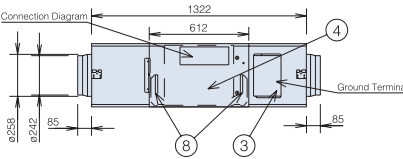
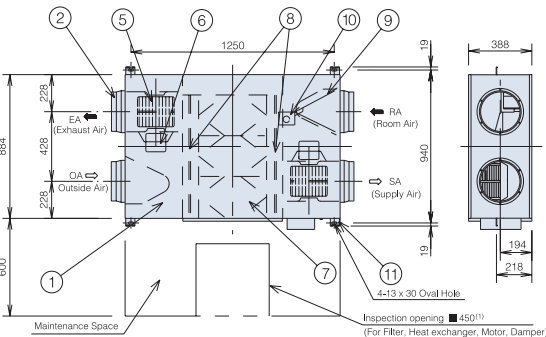
SAF1000E4, 1000E4S



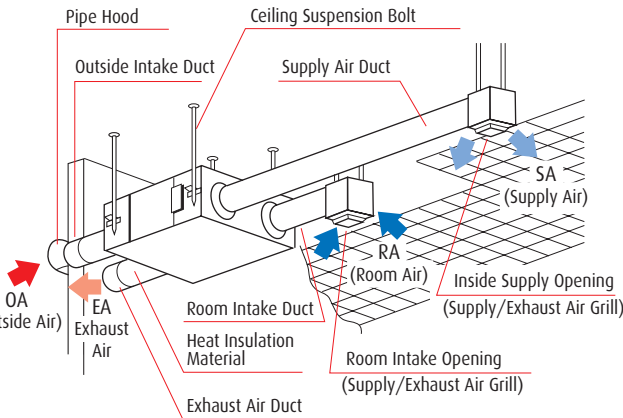
NO.	Name	Quantity	Material	Remarks
1	Frame	1	Zinc-plated steel	
2	Adaptor	4	ABS Resin	
3	Electrical Equipment Box	1	Zinc-plated steel	
4	Inspection Cover	1	Zinc-plated steel	
5	Fan	2	ABS Resin	
6	Motor	2	ABS Resin	
7	Heat Exchange Element	2	Flame Retardant Paper + Plastic	Air to air Heat Exchanger
8	Filter	2	Non-woven Cloth	Collection Efficiency Gravimetric Method 82%
9	Damper	1		
10	Damper Motor	1		
11	Ceiling Suspension Fixture	4	Zinc-plated Steel	

Note(1) An inspection port is needed for cleaning the heat exchanger and filter 1 or 2 times a year.

SAF800E4



Installation reference



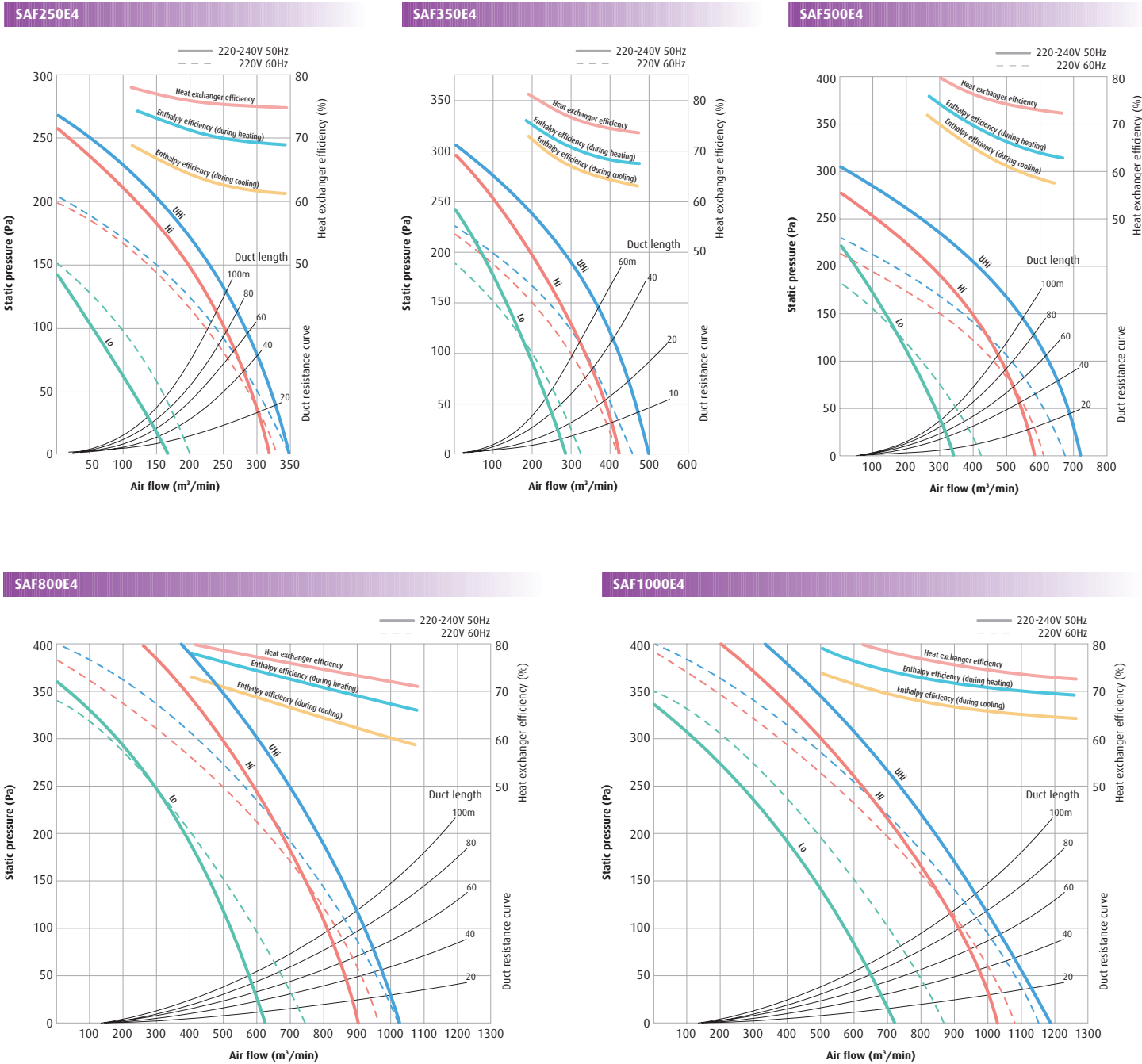
Dimension table

Model	a	b	c	d	e
SAF250E4	142	810	599	315	655
SAF350E4	162	810	804	480	860
SAF500E4	202	890	904	500	960

Model	f	g	h	i	j
SAF250E4	Ø219	Ø164	Ø144	882	95
SAF350E4	Ø219	Ø164	Ø144	882	95
SAF500E4	Ø246	Ø210	Ø194	962	107

SAF-E4

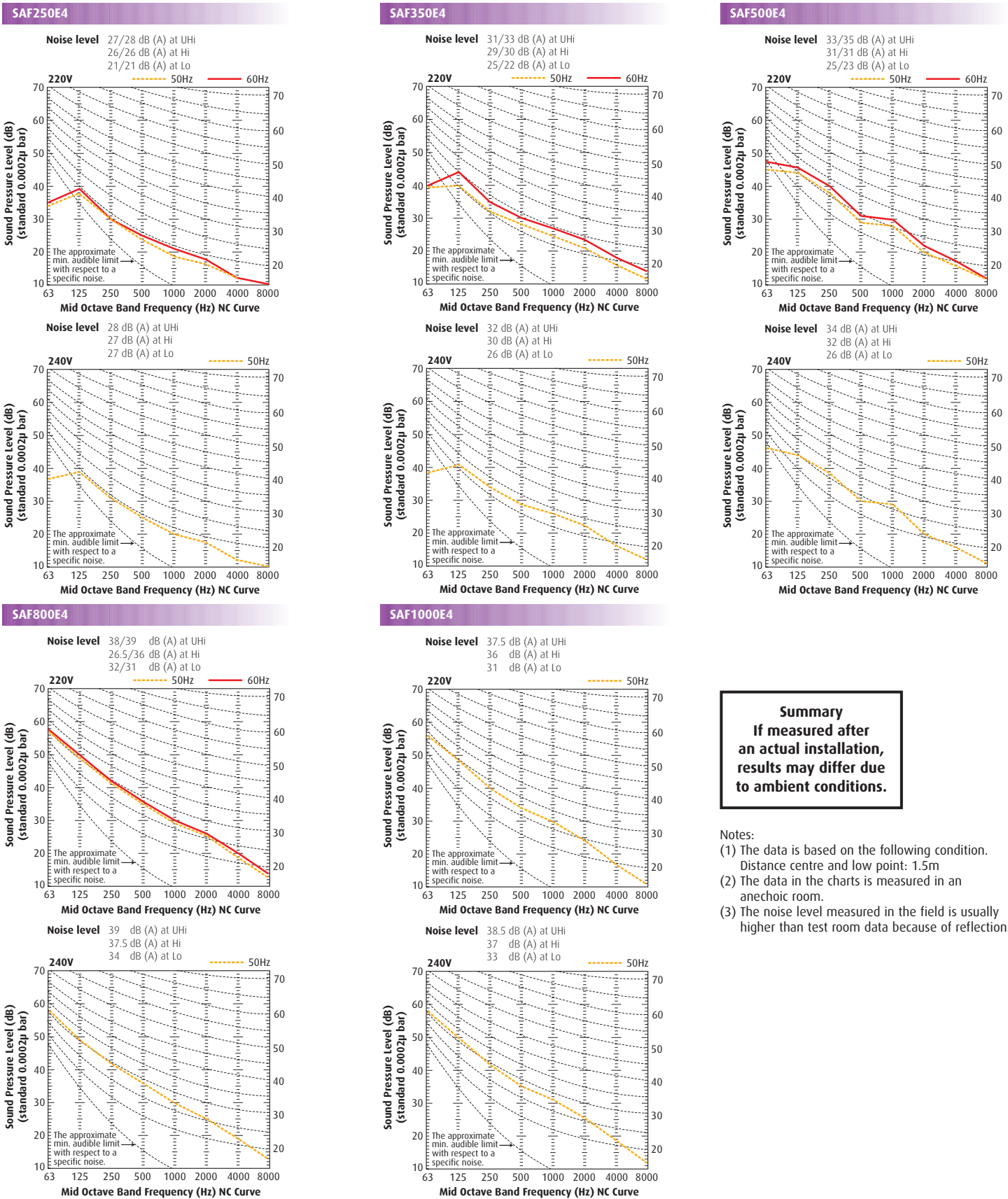
Fan data



Note: Duct length is equivalent to the length of straight pipe when λ (Resistance coefficient) = 0.020 (Friction loss coefficient)

SAF-E4

Noise level data



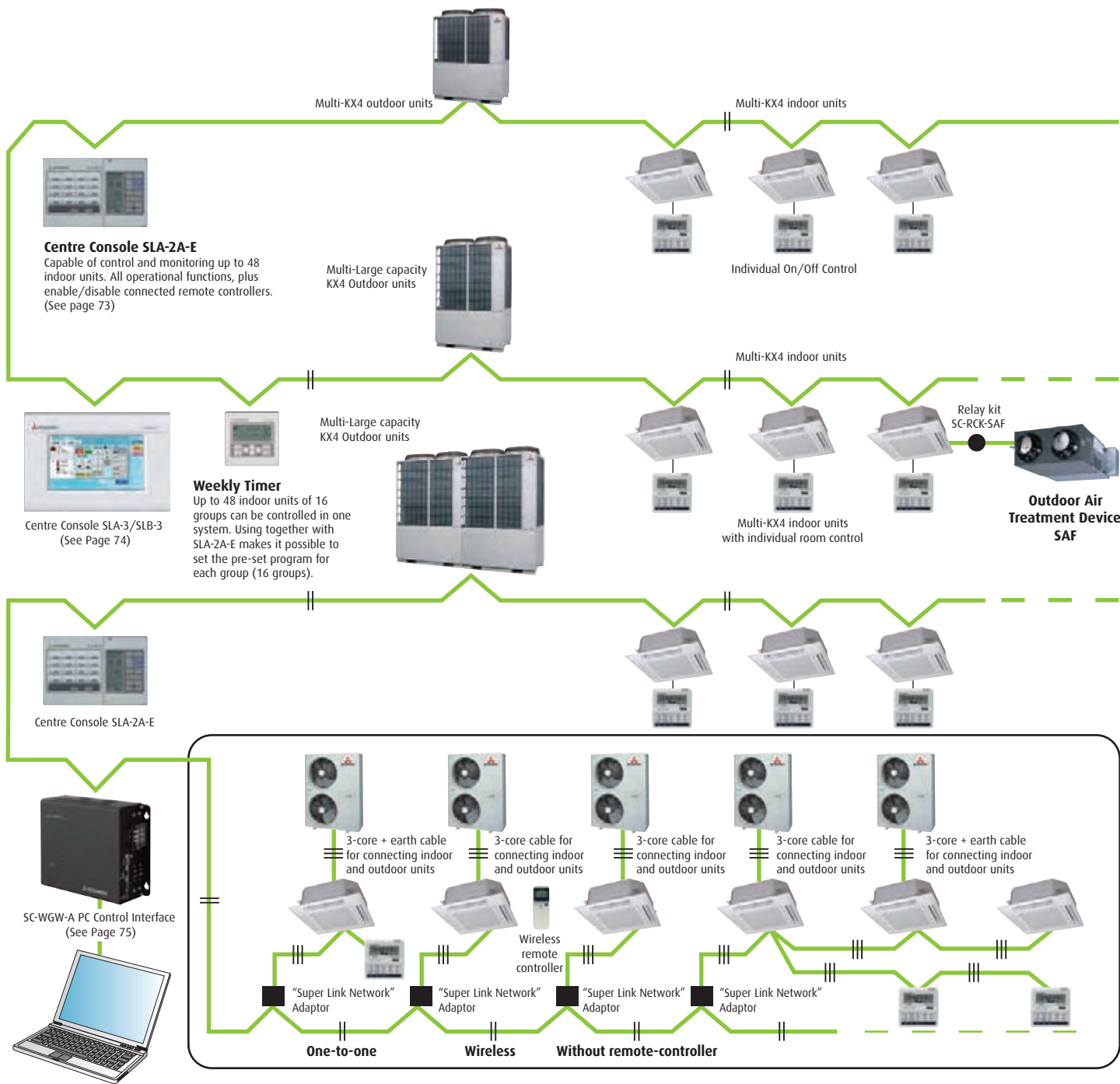
Summary
If measured after an actual installation, results may differ due to ambient conditions.

- Notes:
- (1) The data is based on the following condition.
Distance centre and low point: 1.5m
 - (2) The data in the charts is measured in an anechoic room.
 - (3) The noise level measured in the field is usually higher than test room data because of reflection.

KX4 Control System: SUPERLINK[®]

MHI has now combined simplicity of installation with our highly sophisticated Superlink control system, to offer building owners and occupiers a comprehensive control and management system, while providing complete commissioning and service maintenance assistance for installers and service engineers. The Superlink network utilises two wire, non-polar cable – for further details of wiring, please refer to pages 24/25 or pages 40/41.

Superlink[®] is an advanced high speed data transmission system that can connect up to 48 indoor units as a network. MHI offers a wide range of control options for the Superlink[®] network to suit any application large or small, as well as connection to new or existing building management systems. Individual MHI split systems can also be integrated on to the Superlink[®] network using an adaptor (SC-AD-E).



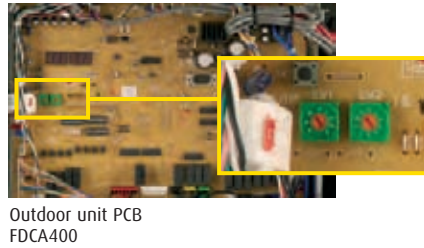
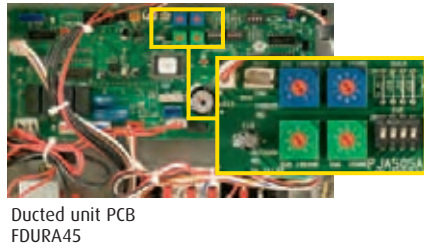
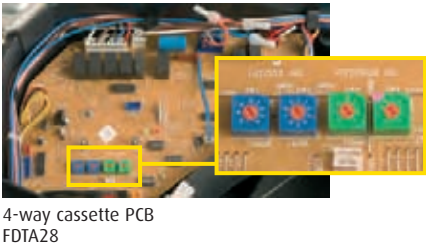
KX4 Control System: SUPERLINK[®]

System communication is enabled via the setting of an address code to each unit, which can be done in three ways:

- 1) Automatic address setting:** Once the power supply has been connected to all outdoor and indoor units, simply turn on the units (power on) in order and the system micro computer automatically allocates the address number to each unit and the address number is displayed on each remote controller and the central controller. The address settings are memorised after the power is turned off.
- 2) Address setting by remote controller:** When a wired remote controller is connected to the indoor units, it is possible to program the unit

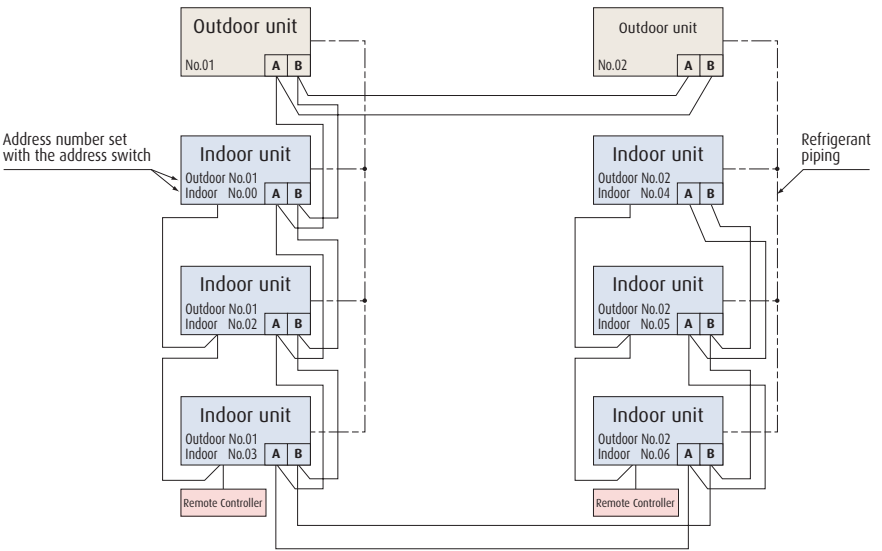
address by simply using the ▲ up ▼ down temperature set buttons on the controller. It is necessary to set the outdoor unit address number to 00-47 when setting the system in this way.

- 3) Manual address setting:** The outdoor unit has two rotary switches on the PCB which can be set to the required address number by simply turning with a slot screw driver. Likewise each indoor unit PCB has four rotary switches for setting the required address number - (two dials for the corresponding outdoor unit, two dials for the indoor unit address number).



The unit address setting should correspond with the table below for each method of addressing:

Method of setting address	Outdoor unit	Indoor unit	
	Outdoor No.	Outdoor No	Indoor No.
Automatic address setting	49	49	49
Remote control address setting	00 - 47	49	49
Manual address setting	00 - 47	00 - 47	00 - 47



KX4 Controls options: Wired controller RC-E-1

The RC-E-1 controller enables extensive access to service and maintenance technical data combined with easy to use functions and a clear LED display.



1 VENTILATION INDICATION
Displays operation of external fresh air fan

2 CENTRALISED CONTROL INDICATION
Illuminated when centralised control is functioning

3 TIMER INDICATION
Indicates time period ON/OFF when setting timer

4 SET TEMPERATURE
Displays set temperature °C

5 TIMER SETTING SWITCH
To set the weekly timer functions

6 GRILL RAKURINA SWITCH
To lower grill to access filter (optional accessory)

7 UNIT ADDRESS SWITCH
To select 'a' numbered unit within a connected group

8 MAINTENANCE DIAGNOSIS
To display error codes and history

9 TEST RUN SWITCH
Commissioning sequence in cooling

10 RESET SWITCH
To cancel previously set functions

11 WEEKLY TIMER
To select and set weekly operation schedule

12 FUNCTION SET SWITCH
To register selected operation setting

13 REMOTE CONTROL SENSOR
Ventilated opening to allow air movement to integral sensor

14 TIMER INDICATION
Shows sequence of four ON/OFF functions per day

15 FAN SPEED INDICATIONS
Indicates selected fan speed

16 OPERATION MODE
Indicates cooling/heating/fan only mode

17 OPERATION/FAULT INDICATION LAMP
Illuminated green when unit is operating, flashes red when error is detected

18 RUN/STOP SWITCH
To switch unit ON/OFF

19 MODE OPERATION SWITCH
To select operation mode cooling/heating/fan only

20 VENTILATION SWITCH
To run/stop external ventilation unit – can also be interlocked

21 FAN SPEED ADJUSTMENT
Selection of low/med/high fan speed

22 LOUVER SWITCH
To select louver position or auto swing function

Weekly timer function as standard
RC-E-1 provides (as a standard feature) a weekly timer, which allows one-week operation schedules to be registered. A user can specify up to four times a day to start/stop the air conditioner. (Temperature setting is also possible with the timer).

Run hour meters to facilitate maintenance checking
RC-E-1 stores operation data when an anomaly occurs and indicates the error on the LED. It also indicates cumulative operation hours of the air conditioner and compressor since commissioning.

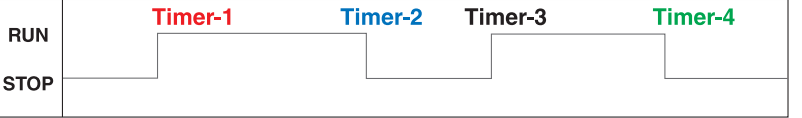
Room temperature controlled by the remote control sensor
The temperature sensor is housed in the top section of the remote control unit. This arrangement has improved the sensitivity of the remote control unit's heat sensor, which permits more finely controlled air conditioning.

Changeable set temperature ranges
RC-E-1 allows the upper and lower limits of a set temperature range to be specified separately. By adjusting a set temperature range, you can ensure energy saving air conditioning by avoiding excessive cooling or heating.

Changeable range	
Upper limit	(effective for heating operation)
Lower limit	(effective for non-heating operation)

- Optional mode settings**
Functional setting with remote control operation switches.
- High Ceiling Mode
 - Fan Tap No.
 - Filter Sign Enabled/Disabled
 - Remote Sensor Enabled/Disabled

Timer operation



No.	Data items of indoor units	Display range	No.	Data items of outdoor units	Display range
01	Operation mode	Cooling/heating/drying/air supply	21	Outdoor air temperature	-20 ~ (°C)
02	Set temperature	18 ~ 30 (°C)	22	Outdoor unit heat exchanger temperature (Main unit)	-20 ~ (°C)
03	Air return temperature	0°C or more	23	Outdoor unit heat exchanger temperature (Main unit)	-20 ~ (°C)
04	Inner heat exchanger Temperature 1	The same as above	24	Operation Hz (Main unit CM1)	0 ~ 100 (Hz)
05	Inner heat exchanger Temperature 2	The same as above	25	High pressure	0.0 ~ (MPa)
06	Inner heat exchanger Temperature 3		26	Low pressure	0.00 ~ (MPa)
07	Indoor fan speed		27	Discharge pipe temperature (Main unit CM1)	30 ~ (°C)
08	Required frequency		28	Compressor dome lower part temperature (Main unit CM1)	-20 ~ (°C)
09	Response frequency		29	CT current (Main unit CM1)	0 ~ (A)
10	Expansion valve opening	0 ~ 480 (pulse)	37	Expansion valve opening 1 (Main unit)	0 ~ 500 (pulse)
11	Indoor operation time	0 ~ 25500h	38	Expansion valve opening 2 (Main unit)	0 ~ 500 (pulse)

KX4 Controls options: Centralised controllers

Group On/Off Control SC-SLA1-E

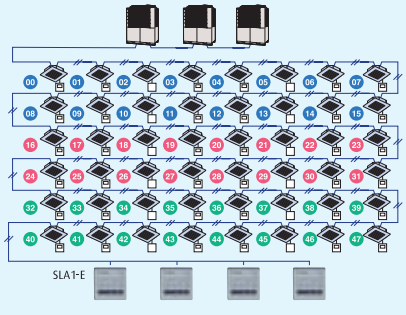


Start/stop control of up to 16 indoor units either individually or collectively.

Simple centralised control.

1. The SLA1 is connected to the Superlink network via 2-core, non-polar wires ('AB' connection).
2. It will monitor and control the start/stop function of up to 16 units, or 16 groups of units, with the sixteen operation switches.
3. The unit or group numbers in operation or in need of service are displayed with an LCD.
4. Collective start/stop is also available through the simultaneous on/off switch.
5. Up to 6 SC-SLA1-E units can be connected to a Superlink network (consisting of up to 48 indoor units).
6. If a power failure occurs, the SLA1 will resume the operation of the system according to a stored operation condition, once power is restored.
7. This centralised controller can be connected anywhere on the Superlink network, at indoor units as well as outdoor units. This can substantially reduce the amount of electrical installation work. This feature is common to both SLA1 and SLA2 controllers.

Example of control by a centre console SC-SLA1-E



More than one unit (up to 16) can be controlled for individual or collective start/stop operation and indication of unit statuses such as in operation or in need of service.

• Outer dimensions: H120 x W120 x D15+50°mm.

50° is the measurement including the part contained in a recess.

Centre Console SC-SLA2A-E



Centralised control of up to 48 indoor units.

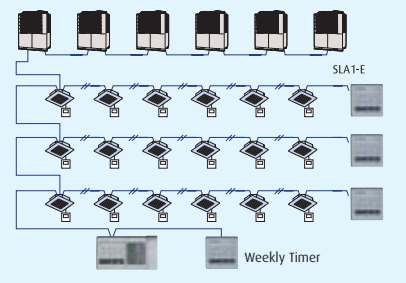
Connection with a weekly timer possible without using any interface.

1. The SLA2 is connected to the Superlink network via 2-core, non-polar wires ('AB' connection).
2. It will monitor and control the start/stop function of up to 16 units, or 16 groups of units, with the sixteen operation switches.
3. It also monitors and controls the following functions for individual units, groups of units or the complete network: operation mode, set point temperature, return air temperature, louver position, error code.
4. The unit or group numbers in operation or in need of service are displayed with an LCD.
5. Collective start/stop is also available through the simultaneous on/off switch.
6. If a power failure occurs, the SLA1 will resume the operation of the system according to a stored operation condition, once power is restored.
7. The SLA2 can be connected to an external timer to facilitate timed on/off cycles.
8. The number of SLA1 and SLA2 units connected to one network are detailed on the table below.
9. This centralised controller can be connected anywhere on the Superlink network, at indoor units as well as outdoor units. This can substantially reduce the amount of electrical installation work. This feature is common to both SLA1 and SLA2 controllers.

Number of controllers allowed in a network

SC-SLA1-E	0	1	2	3
SC-SLA2A-E	3	2	1	1

Example of control by a centre console SC-SLA2A-E



An SLA-2A-E performs the start/stop control, monitoring and mode setting of up to 48 units. It is a high quality air conditioner control system that allows up to 48 indoor units to be freely grouped into 1 to 16 groups. It allows not only the start/stop control but also the monitoring, indication of operation statuses such as in operation or in need of service and mode setting such as switching of operation modes of connected units collectively, by group or individually.

• Outer dimensions: H120 x W180 x D16+50°mm.

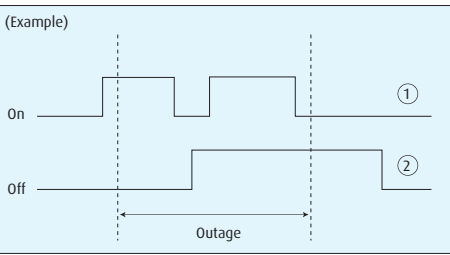
50° is the measurement including the part contained in a recess.

Weekly timer SCA-WT-E



Program daily and weekly operation schedules.

1. The SCA-WT-E is connected to the Superlink network via 2-core, non-polar wires ('AB' connection).
2. This timer is a fully programmable timer with three on/off times for each day. Different time functions on different days are available.
3. Programme override function allows timer to be ignored for the day.
4. 24 hour and actual day display.
5. All programmes are memorised and restored after power failure.
6. When used in conjunction with central controller SLA2, the individual groups defined within the central controller, can have different on and off times.
7. When used alone, a maximum of 48 indoor units can be controlled.
8. This centralised controller can be connected anywhere on the Superlink network, at indoor units as well as outdoor units. This can substantially reduce the amount of electrical installation work.



KX4 Controls options: Touch screen centralised controller SC-SLB3-E

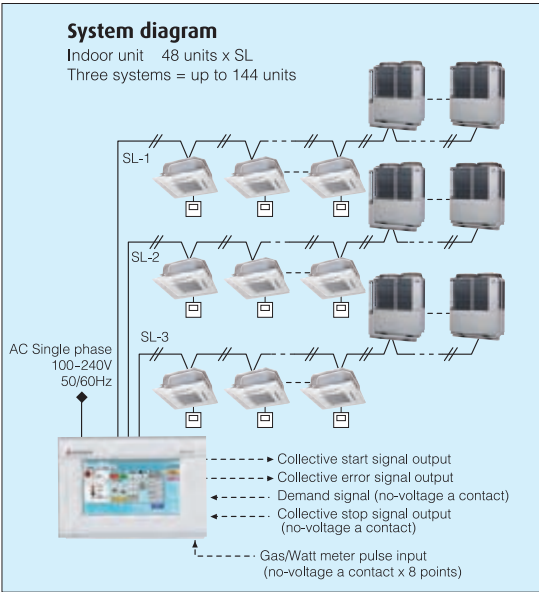
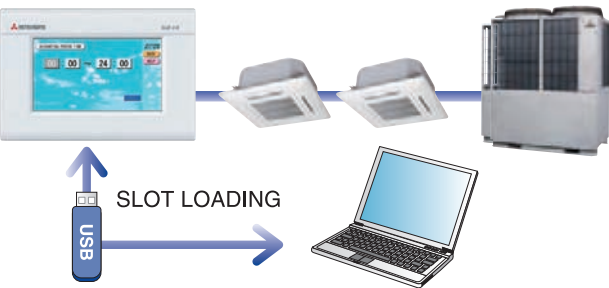
MHI introduces the full colour touch screen central controller SC-SLB3-E, with 7 inch interactive LCD display. Offers control, monitoring, scheduling and service/maintenance functions for up to 144 indoor units.

Indoor units can be controlled, scheduled, monitored and interrogated either individually, as groups or as blocks of groups with the following functions:



Control	Monitoring	Scheduling	Administration/Service
Run/Stop	Operating state	Yearly schedule	Block definition
Mode (cool/heat/fan)	Mode	Today's schedule	Group definition
Set temperature	Set temperature	Special day schedule	Unit definition
Operation permitted/prohibited	Room temperature		Time and date setting
Fan speeds	Operation enabled		Alarm history
Air direction	Fan speed		Energy consumption calculation period
Filter reset	Air direction		Energy consumption cumulative operation time
Filter sign			
Maintenance (1, 2 or back-up)			Demand control
Breakdown			Emergency stop
			Power failure recovery control

Energy consumption calculation and billing functions:
Eight input points are provided for connection to a pulse meter to monitor energy consumption and provide monthly billing calculations, based on either operating hours, refrigerant flow rate or Thermo ON. Operating data is stored per unit/per day, and can be downloaded via a USB port to an external device for use with commercial spreadsheet software.

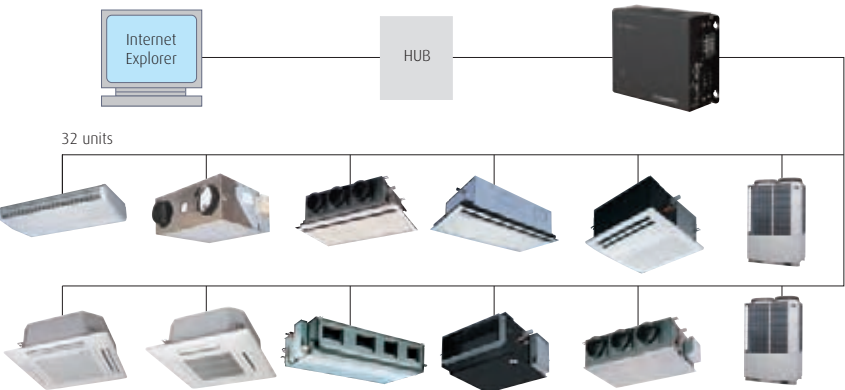


Item	Model	SC-SLA3-E
Ambient temperature during use		0 ~ 40°C
Power supply		1 Phase 100-240V 50/60Hz
Power consumption		23W
External dimensions (Height x Width x Depth)		162mm x 240mm x 108mm
Net weight		2.2kg
Maximum number of connectable units (indoor units)		Maximum 48 units system x 3 systems = 144 units
LCD touch panel		Colour LCD, 7 inches wide
Inputs	SL (Superlink) Signal inputs	3 systems
	Gas, Power pulse input*	8-point pulse width 100ms or more
	Fire signal input*	1 point non-voltage a contact input continuous input (closed, forced stop)
	Demand signal input*	1 point non-voltage a contact input continuous input (closed, demand control)
Outputs	Simultaneous operation output	1 point maximum rated current 40mA, 24 V During full stop; Open. If even one unit is operating; Closed
	Simultaneous error output	1 point maximum rated current 40mA, 24 V Normal; closed. If even one unit is abnormal; Open

* The receiving side power supply is DC 12V (10mA).
The air conditioning charges calculations of this unit are based on OIML, the international standard.

KX4 Controls options: PC windows centralised controller SC-WGW-A

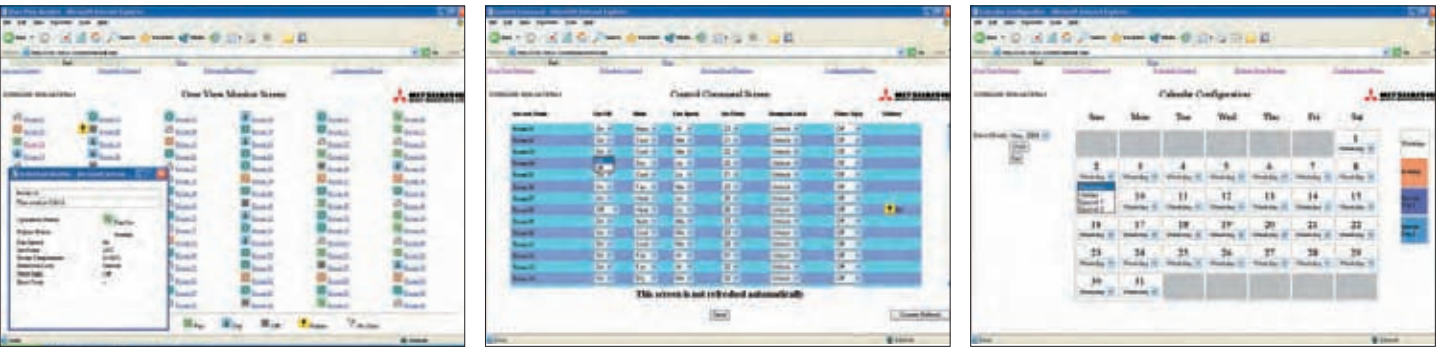
Control and monitoring of up to 96 indoor units centralised to a network PC using the Superlink® web gateway. Simple installation is assured with no special software requirements, operation is via Windows Explorer. A low power embedded CPU and compact flash ROM ensure a large storage capacity with high reliability (no moving parts such as a PC fan, etc). An IP address filter function combined with three-level user authentication check also ensures security.



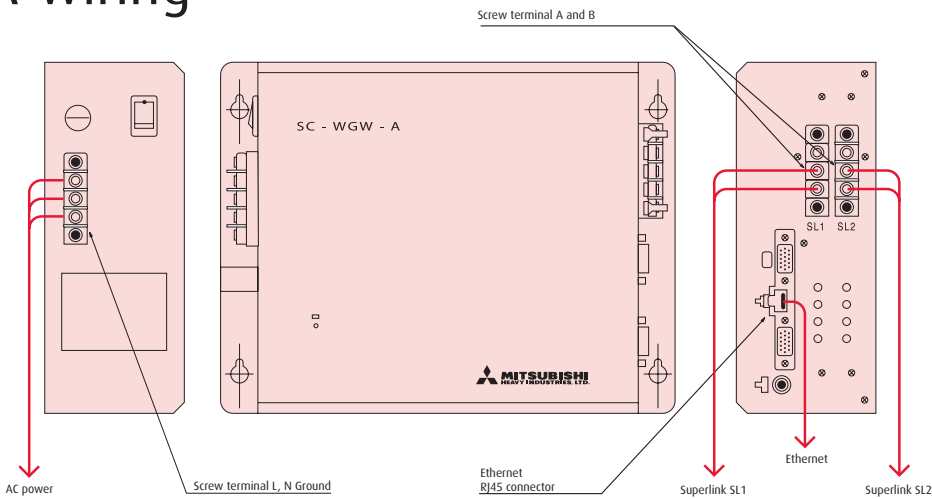
Ethernet 10BASE-T/100BASE-TX

PC requirements: Windows 2000 or Windows XP. Monitor resolution 1024 x 768.
Web browser requirements: Internet Explorer 6.0 or later.

Control Functions	Monitoring functions
Run/Stop	Run/Stop
Mode	Mode
Fan speed	Set point
Filter sign reset	Fan speed
Remote lock/unlock	Filter sign
System stop	Room temperature
Set temperature	Alarm
Yearly timer	Error code
	Remote lock/unlock

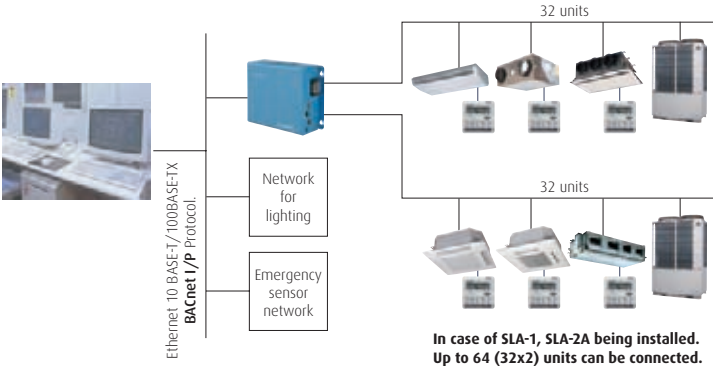


SC-WGW-A wiring



KX4 Controls options: BACnet[®] gateway BMS interface SC-BGW-A

SC-BGW-A is an interface device that converts MHI's Superlink communication data to BACnet[®] code. Control and monitoring functions of the a/c system for up to 96 indoor units can be integrated to a central control point via the building management system network.



Function list

Control functions

- 1 ON & OFF COMMAND
Control the Operation/Stop (On & Off) of each indoor unit.
- 2 OPERATION MODE SETTING
Conduct setting of the operation mode (automatic, cooling, air supply, heating) of each indoor unit.
- 3 TEMPERATURE SETTING
Determine the set temperature of indoor unit. Set value is set in the unit of 1°C. The scope is 18-30°C.
- 4 REMOTE CONTROLLER OPERATION PROHIBITION
Implement the setting of control room operation permit/prohibit. The function of uniform permit/prohibit of remote controller functions.
- 5 FILTER SIGN RESET
Reset the filter sign of each indoor unit.
- 6 SYSTEM FORCED STOP SETTING
Immediately stop the indoor unit under control, and prohibit operation from the remote controller.
- 7 FAN SPEED COMMAND
Send fan speed select command (Hi, Me, Lo) to an indoor unit.

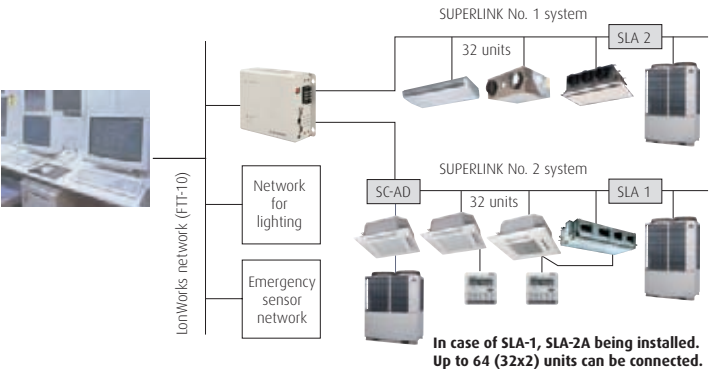
Monitor functions

- 1 ON & OFF STATUS NOTICE
Inform the operation/stop status of each indoor unit.
- 2 OPERATION MODE STATUS NOTICE
Inform the setting of operation mode of each indoor unit.
- 3 TEMPERATURE SETTING NOTICE
Inform the temperature setting of indoor unit.
- 4 FILTER SIGN NOTICE
Inform the filter sign that urges the cleaning of air suction filter of indoor unit.
- 5 FAILURE NOTICE
Inform with/without failure of indoor unit.
- 6 ROOM TEMPERATURE NOTICE
Inform the temperature of air return sensor of indoor unit (room temperature).
- 7 TEMPERATURE CONTROL STATUS NOTICE
Inform whether there is refrigerant flowing through the indoor unit.
- 8 INDOOR UNIT COMMUNICATION STATUS NOTICE.
Inform whether this interface equipment can communicate with each indoor unit.
- 9 FAN SPEED STATUS
Monitor fan speed select status of indoor unit.



KX4 Controls options: LONworks[®] gateway BMS interface SC-LGW-A

SC-LGW-A is an interface device that converts MHI's Superlink communication data to LONworks[®] code. Control and monitoring functions of the a/c system for up to 96 indoor units can be integrated to a central control point via the building management system network.



Function list

Control functions

- 1 ON & OFF COMMAND
Control the Operation/Stop (On & Off) of each indoor unit.
- 2 OPERATION MODE SETTING
Conduct setting of the operation mode (automatic, cooling, air supply, heating) of each indoor unit.
- 3 TEMPERATURE SETTING
Determine the set temperature of indoor unit. Set value is set in the unit of 1°C. The scope is 18-30°C.
- 4 REMOTE CONTROLLER OPERATION PROHIBITION
Implement the setting of control room operation permit/prohibit. The function of uniform permit/prohibit of remote controller functions.
- 5 FILTER SIGN RESET
Reset the filter sign of each indoor unit.
- 6 SYSTEM FORCED STOP SETTING
Immediately stop the indoor unit under control, and prohibit operation from the remote controller.
- 7 FAN SPEED COMMAND
Send fan speed select command (Hi, Me, Lo) to an indoor unit.

Monitor functions

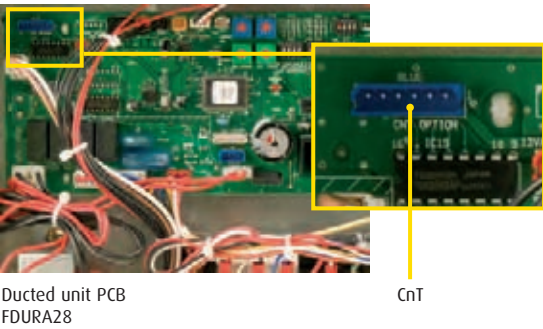
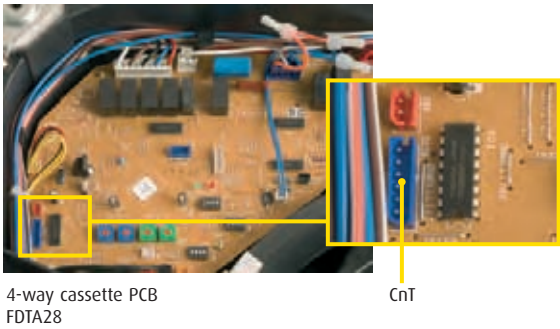
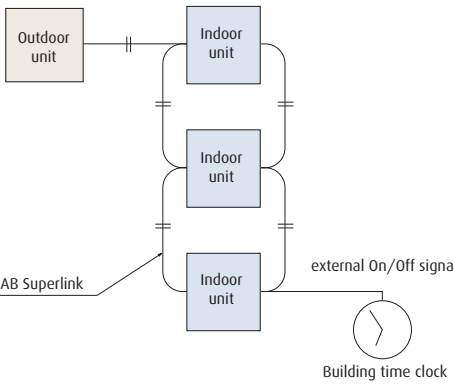
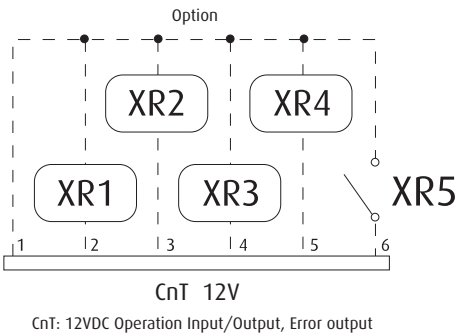
- 1 ON & OFF STATUS NOTICE
Inform the operation/stop status of each indoor unit.
- 2 OPERATION MODE STATUS NOTICE
Inform the setting of operation mode of each indoor unit.
- 3 TEMPERATURE SETTING NOTICE
Inform the temperature setting of indoor unit.
- 4 FILTER SIGN NOTICE
Inform the filter sign that urges the cleaning of air suction filter of indoor unit.
- 5 FAILURE NOTICE
Inform with/without failure of indoor unit.
- 6 ROOM TEMPERATURE NOTICE
Inform the temperature of air suction sensor of indoor unit (room temperature).
- 7 FAN SPEED STATUS
Monitor fan speed select status of indoor unit.
- 8 Monitor all air-conditioner forced off status.



KX4 Controls options: External switch connection CnT

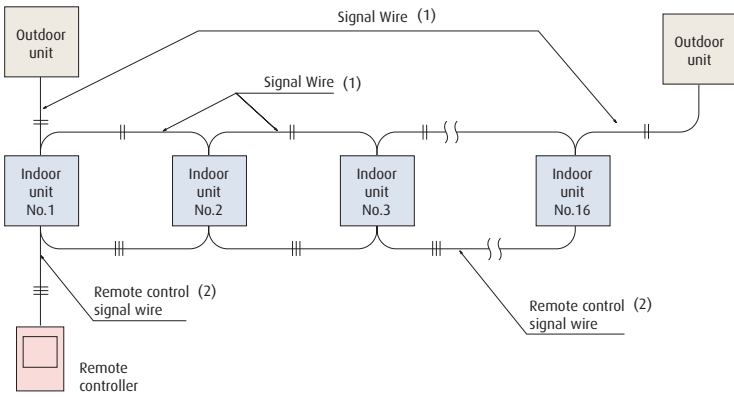
All KX4 indoor units are equipped with an additional connection point – CnT – to connect indoor units to an external ON/OFF switch; e.g. time clock, fire alarm, etc.

- XR1: Operation Output – Outputted when unit is in operation.
XR2: Heating Output – Outputted when the mode is HEATING.
XR3: Thermo ON Output (KX4) – Outputted when the compressor is in operation.
PFD box control Output (KXR4) – Coil on PFD box is controlled by this signal.
XR4: Inspection Output – Outputted when Error occurs.
XR5: Remote Operation Input – Inputted to operate the unit.



Simultaneous multiple unit control:

It is also possible to control up to 16 indoor units (even if connected to different outdoor units) simultaneously connected to a single wired controller. The operation mode can be set together with RUN/STOP function and if a unit in the group encounters a fault, an abnormal stop will be registered for that unit, however all other units in the group will continue to operate.



- Notes (1) The overall length of the signal wire shall be less than 1000m.
(2) The length of remote control signal wire and crossover for remote controller between rooms shall be less than 600m

KX4 Service/maintenance and monitoring

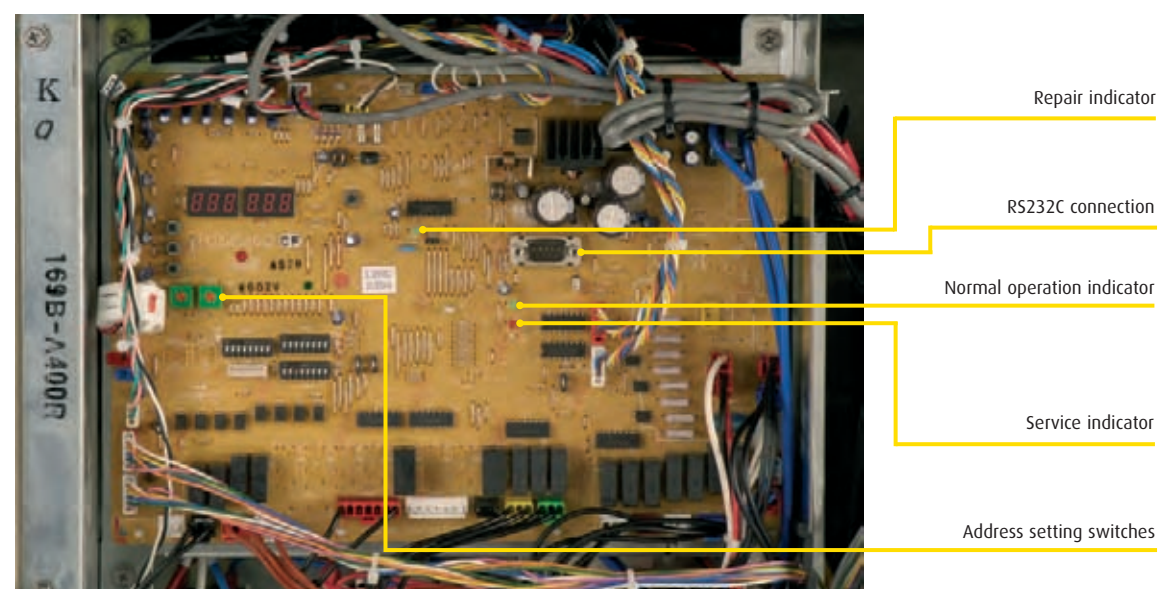
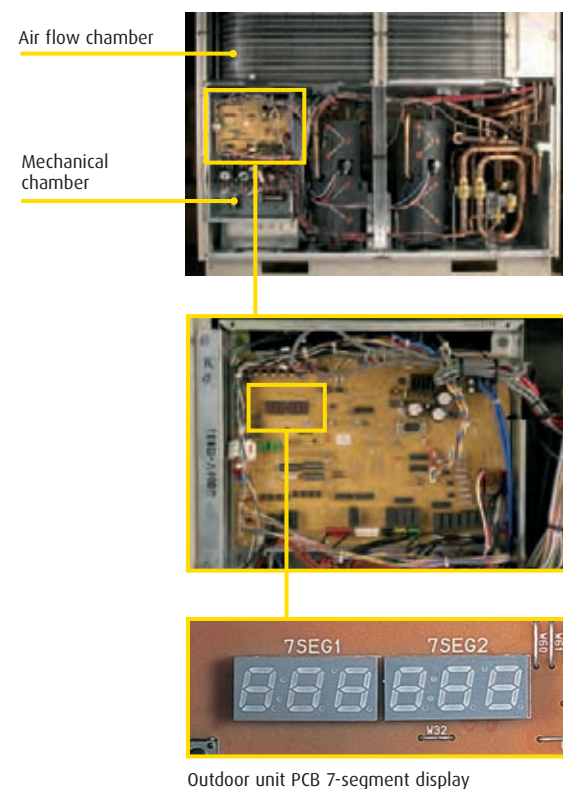
The design of the outdoor units separates the air flow compartment from the mechanical compartment, allowing easy access to serviceable parts by simply removing the panel.

This design also means that the base plate of the air flow compartment acts as a drain tray connected to a drain pipe that runs through the mechanical compartment, so a simple connection of a drain hose to the base of the unit is all that is required, no need for a separate drain tray to be installed.

Service maintenance and trouble shooting tasks can be carried out easily via the wired remote controller, as well as a cooling test operation to assist commissioning.

The outdoor unit control box is also equipped with a switch to invoke a 'test-run' mode. This function can be used to help detect any installation errors, indoor/outdoor unit matching errors, EEV and valve operation. A 'pump-down' switch on the PCB allows refrigerant to be recovered with the compressor protected.

All outdoor unit PCBs are also equipped with a 7-segment digital display for detailed operation history and fault finding. Operation data is stored for the 30 minute period preceding a fault occurring and details are displayed on the 7-segment reading.



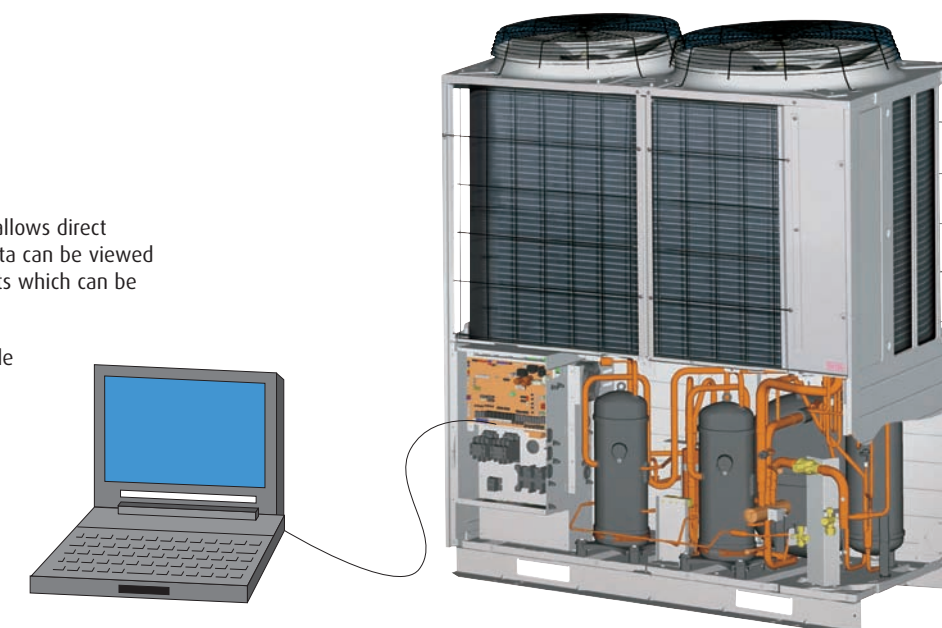
KX4 Service/maintenance and monitoring

MHI also offer a comprehensive service software tool - Mente PC - that permits detailed interrogation of the KX4 system, making service and trouble shooting easy.



An RS232C connector on the outdoor unit PCB allows direct connection to a PC or PDA, where operation data can be viewed and stored, as well as producing test run reports which can be downloaded to the PC.

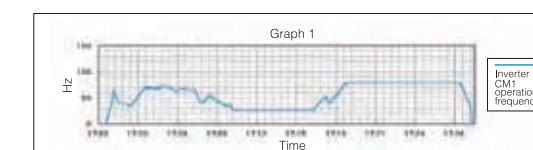
Real time monitoring and control is also possible through the Mente PC software.



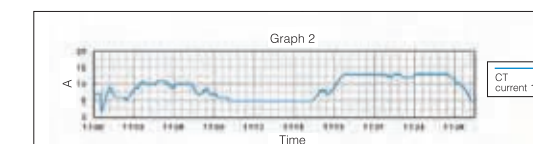
Automatically produced test-run report

[illegible]

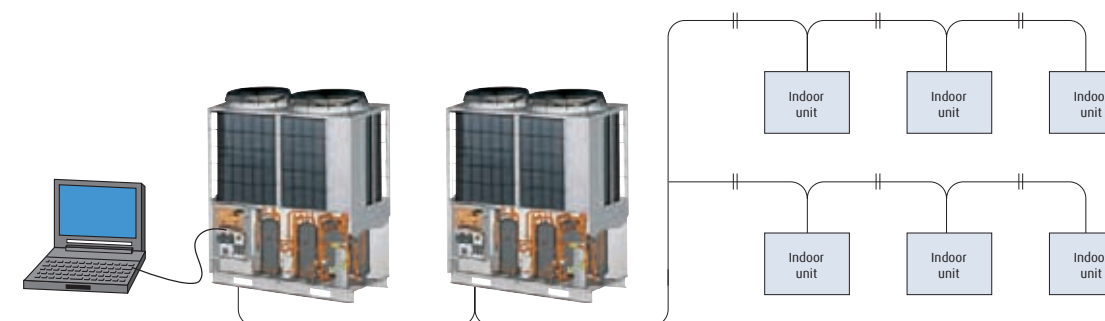
Operation data storage during servicing



Operation data storage when a fault occurs



Method of connecting Mente PC in the combination Multi system



Mitsubishi Heavy Industries KX4/further information

Mitsubishi Heavy Industries operates a continuous CSR (Corporate Social Responsibility) policy, with a role to realise a sustainable society through it's various areas of business.

Creed

- We strongly believe that the customer comes first and that we are obliged to be an innovative partner to society.
- We base our activities on honesty, harmony, and a clear distinction between public and private life.
- We shall strive for innovative management and technological development from an international perspective.

Reason for Instituting the Creed

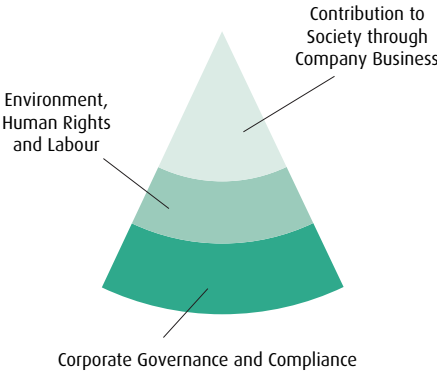
In Japan there are many enterprises with their own “creeds” which simply represent their management concept.

Mitsubishi Heavy Industries, Ltd. has a creed of this type, also. It was instituted in 1970 on the basis of the policy advocated by Koyata Iwasaki, president of Mitsubishi Goshi Kaisha in the 1920's, to indicate the essential attitude of the company, the mental attitude of the employees, and the future directions of the company.

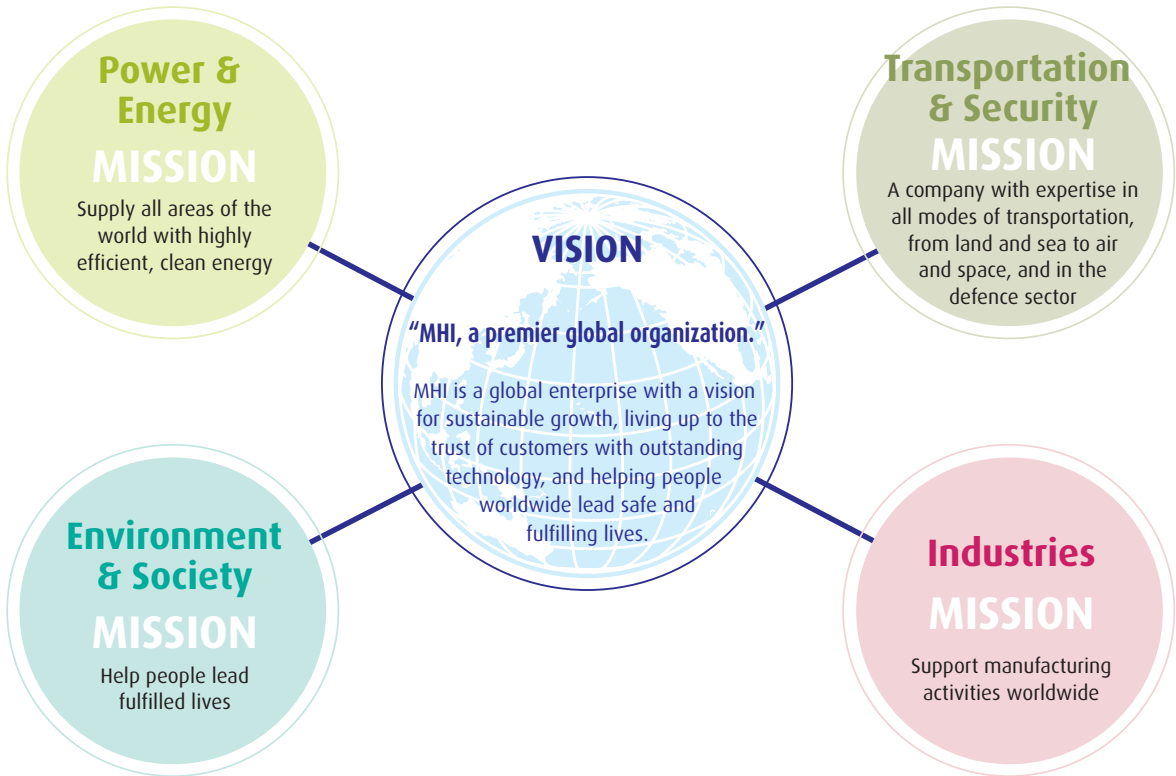
The reason for instituting the present creed is so that all of us can call to mind our one hundred years of tradition, and strive for further development in the future.

Issued 1 June 1970

MHI's creed was established based on “The Three Corporate Principles” shared by the Mitsubishi Group from the company's beginnings. In the spirit of this creed, MHI continues its efforts to fulfil its three corporate social responsibilities (CSRs): “corporate governance and compliance,” “the environment, human rights and labour,” and “contribution to society through business activities.”



Contribution to Society through Company Business



Mitsubishi Heavy Industries KX4/further information

The KX4 product range has been developed in compliance with the Mitsubishi Heavy Industries Policy on the Environment.

In order to make the sustainable development of society possible, a basic policy on environmental matters has been established.

Pursuant to the express provision of Section 1 of its creed that “We strongly believe that customers come first and that we are obligated to be an innovative partner to society,” MHI shall, as a matter of primary importance, strive, through its R&D, manufacturing and other business activities, to play a useful role in the development of society. To this end, while remaining aware that a business enterprise is a member of society, MHI shall endeavour, in all aspects of its business activities, to reduce the burden on the environment and shall concentrate and fully utilise its technological capabilities for the development of technologies and products that will protect the environment, thus contributing to the establishment of a society in which sustainable development is possible.

In order to realise its basic policy, MHI has set the following seven conduct guidelines.

1. Recognise that environmental protection is top priority in the company's operations, and encourage the entire company in its endeavours to protect and improve the environment.
2. Define roles and responsibilities regarding environmental protection by developing and maintaining a corporate organisation designated for environmental protection, and create and implement corporate policies and procedures on environmental matters.
3. Endeavour to reduce the burden on the environment by preventing pollution, saving resources, saving energy, reducing waste, reusing materials, and recycling in all aspects of the company's business activities in R&D, designing, procurement of materials, manufacturing, transportation, use, service and disposal.
4. Endeavour to develop and provide advanced, highly reliable, unique technologies and products that contribute to solving environmental and energy problems.
5. Comply with national and local environmental laws and regulations, beyond mere compliance by enacting, implementing and evaluating voluntary standards where necessary, and to endeavour to continuously improve and promote environmental protection activities by establishing environmental goals and targets.
6. Endeavour to protect the environments of foreign countries by carefully examining the consequences of the company's overseas business operations and the exportation of its products, and to become actively involved in technological co-operation overseas in areas of environmental protection.
7. Provide environmental training and other programs to enhance the environmental awareness of all company employees, and take steps to expand public relations activities, such as providing environment-related information to the public and social contribution activities.

ISO9001
Our Air Conditioning & Refrigeration Systems Headquarters is an ISO9001 approved factory for residential air conditioners and commercial-use air conditioners (including heat pumps).



BIWAJIMA PLANT
Mitsubishi Heavy Industries, Ltd.
Air-conditioning & Refrigeration Systems Headquarters
Certified ISO 9001
Certificate number : JQA-0759
Date of certification : December 16, 1994

ISO14001
Our Air Conditioning & Refrigeration Systems Headquarters has been assessed and found to comply with the requirements of ISO14001.



MITSUBISHI HEAVY INDUSTRIES-MAHAJAK AIR CONDITIONERS CO., LTD.
Certified ISO 9001
Certificate Number : 04100 1998 0013
Date of Registration : October 1998



BIWAJIMA PLANT
Mitsubishi Heavy Industries, Ltd.
Air-conditioning & Refrigeration Systems Headquarters
Certified ISO 14001
Certificate number : JQA-EM0256
Date of certification : November 20, 1998

Number of offices/plants and employees by region (Consolidated)*

Region	Major subsidiaries	Overseas offices & representatives	Employees
Europe	8		1,372
Asia	24	7	3,856
Oceania	1		16
Japan			104
North, Central & South America	16	1	2,863
Russia		1	7

*Overseas offices/plants: as of July 2004
Japanese offices/plants: as of April 1, 2005
Japanese subsidiaries: as of March 31, 2005
Total employees: as of March 31, 2005

On the land and sea, in the sky and even in space, MHI's stage of operations is expanding limitlessly. We manufacture more than 700 different products which support various industrial and civil activities in both domestic and international markets.

Ships, steel structures, power systems, machinery for both industrial and general use, air-conditioners, pollution reduction and environmental control systems, aerospace systems – the MHI product lines which create rich and comfortable living environments, are as harmonious as an orchestra.

What creates this harmony is MHI's general technological expertise developed over more than a century of hard work. We are highly esteemed in the world for providing high

quality products through untiring technological research and development. From new energy development and environmental concerns to the exploration of space, with the advent of the 21st century MHI is confronting a variety of issues to ensure the realisation of a society in which there is harmony between mankind and technology.



- Ultra-High Steel Stacks
- Refuse Incineration Plants
- Night Soil Treatment Plants
- Electrostatic Precipitators
- Flue Gas Desulfurization System
- Fluidized Incinerators
- CFC Collecting Equipment

- Crude Oil Storage Barges
- LNG Tanks
- Boilers & Turbines
- Oil Production Plants
- Contra-Rotating Propellers
- Thermal Power Plants
- Combined Cycle Plants
- Fuel Cells
- Water Turbines
- Wind Turbines
- Geothermal Power Plants
- PWR Nuclear Power Plants
- Uranium Enrichment Equipment
- FBRs
- Co-Generation Systems

- Chemical Plants
- Wind Tunnel/Experiment Equipment
- Casting Machines
- Strip Mill
- Cement Plant
- Stepless Variable Speed Gears
- Industrial Robots
- Injection Moulding Machines
- Pulp & Paper Machinery
- Corrugation Machines
- Box Making Machines
- Machine Tools

- Ceiling Recess Packaged Air Conditioners
- Automotive Air Conditioners
- Residential Use Split Air Conditioners
- Refrigeration Units
- Dry Cleaning Machines
- Food Machinery
- Cruise Ships
- Multi-purpose Dome
- Stage Machinery Systems

- Cable Layer
- Printing Machinery

- Oceanographic Research Ships
- Deep Submergence Research Vehicles
- Communications Satellite Rockets
- Space Transportation
- Rockets & Engines

- Submarines
- Naval Vessels
- Jet Fighters
- Helicopters
- Missiles
- Tanks & Infantry Fighting Vehicles

- Spillway Radial Gates
- Steel Bridges
- Penstocks
- Desalination Plants
- Physical Distribution Equipment
- Engines

- Unloader & Container Cranes
- Mechanical Parking Facilities
- Integrated Automated Storage Systems
- Rubber & Tyre Machinery
- Skyrails
- Monorail Cars
- New Transportation Systems
- Passenger Boarding Bridges

- Toll Collection Machine Systems
- Forklift Trucks
- Helicopters
- Aircraft
- Railway Maintenance Equipment
- LNG Carrier
- Container Ships

TRANSPORTATION
LOCAL DEVELOPMENT
ENVIRONMENT
RESOURCES/ENERGY
INDUSTRIAL
LEISURE/LIFESTYLE
INFORMATION SYSTEM
DEVELOPMENT
DEFENCE