

ECOLUTION KX6

VRF inverter multi-system air conditioning



SIXTH SENSE



CONTENTS

Introduction

- 3 Inverter multi-system air conditioning
- 4~5 KX6 Heat pump – Single unit & Combination unit
- 6~7 KXR6 Heat recovery (3-pipe) – Single unit & Combination unit
- 8 KX6 Indoor Units
- 9 KX6 Control Options

Outdoor Unit Product Ranges

- 10 MICRO KX6 Heat pump systems
- 11 MINI KX6 Heat pump systems
- 12-13 KX6 Heat pump systems
- 14~15 KXR6 Heat recovery systems

KX6 Indoor Units

- 16~17 Ceiling cassette – 4way/2way/1way
- 18 Duct connected – High static pressure – FDU
- 19 Duct connected – Low/medium static pressure – FDUM
Duct connected (slim) – Low static pressure – FDUT
- 20 Duct connected (compact & flexible) FDUH
Wall mounted - FDK
- 21 Ceiling suspended – FDE
Outdoor air processing unit – FDU-F
- 22 Floor standing – 2way – FDFW
Floor standing (with casing) FDFL & Floor standing
(without casing) FDFU
- 23 Fresh air ventilation and heat exchange unit SAF-E4

Case Studies

- 24 Crossways Academy, Lewisham
- 25 Ford Showroom, Swindon
- 26 Icon Hotel, Luton
- 27 Curve Theatre, Leicester & High Timber, London
- 28 Office Complex, Humberside
- 29 Pullman Fleet Services, South Yorkshire

30-31 Global Activity

"Information included in this brochure is for guidance only and does not form part of a contract. Information relating to electrical power supplies are shown for guidance only and must be subject to IEE regulations as well as site requirements"



NEW ECOLUTION KX6

Inverter multi-system air conditioning

HIGH EFFICIENCY

Efficient Technology

Advances in technologies have improved both the EER and COP of the new generation KX6 series from Mitsubishi Heavy Industries. Utilisation of new twin rotary and 3D scroll compressors, compact heat exchangers and DC motors allow the KX6 units to achieve class "A" criteria on energy saving labels essential for claiming Enhanced Capital Allowances.*

* Please consult with your MHI distributor representative about ECA qualifying systems

COMPACT DESIGN

Drastic reductions in the size and weight of all heat pump outdoor units from 4hp to 12hp allow KX6 systems to be installed in various space restricted applications, with a side blow fan configuration enabling wall mounting of outdoor units with a capacity of up to 33.5kW nominal cooling.

DESIGN FLEXIBILITY

Increased unit connection

The new KX6 series has improved indoor unit connection capacity. The capacity ratio has been increased to up to 200% (14-16HP) allowing design flexibility for both the designer and installer.

The KX6 range also offers industry leading pipe length of 160m (actual) achieved by improved compressor design and utilising thinner pipe work and reducing refrigerant volume. KX6 models (14hp up) now achieve an incredible 1000m total pipe length, while the height difference between indoor units has been extended to 18m enabling installation in taller buildings.



KX6 Heat pump – Single unit

The new KX6 VRF range brings the most comprehensive line up of outdoor units available, from 11.2kW nominal cooling capacity up to the world's largest capacity single outdoor unit FDC680KXE6 at 68.0kW.

The new range also introduces single and twin fan horizontal blow outdoor units from 11.2kW up to 33.5kW nominal cooling capacity, enabling installation in the smallest of plant spaces or even wall hung installation.

Heat pump outdoor unit range (single unit type)







Model	FDC112KXEN6	FDC112KXE6	FDC140KXEN6	FDC140KXE6	FDC155KXEN6	FDC155KXE6
Nominal Cooling Capacity kW	11.2	11.2	14.0	14.0	15.5	15.5
Horsepower Rating	4HP	4HP	5HP	5HP	6HP	6HP
Power Supply	1/phase	3/phase	1/phase	3/phase	1/phase	3/phase
Unit Appearance						

KX6 Heat pump – Combination unit

KX6 outdoor units can also be combined for even greater capacity systems, enabling up to 136.0kW nominal capacity on a single refrigerant circuit. The foot print of all combination units is uniform meanwhile in order to allow ease of planning for plant space and simple neat installation.

KX6 outdoor units and combination outdoor units can also be installed in indoor plant space by applying suitable duct work.







Heat pump outdoor unit range (combination unit type)

Model	FDC735KXE6	FDC800KXE6	FDC850KXE6	FDC900KXE6	FDC960KXE6	FDC1010KXE6
Combination	FDC335KXE6-K + FDC400KXE6	FDC400KXE6 + FDC400KXE6	FDC400KXE6 + FDC450KXE6	FDC450KXE6 + FDC450KXE6	FDC450KXE6 + FDC504KXE6	FDC504KXE6 + FDC504KXE6
Nominal Cooling Capacity kW	73.5	80.0	85.0	90.0	96.0	101.0
Horsepower Rating	26HP	28HP	30HP	32HP	34HP	36HP
Power Supply	3/phase	3/phase	3/phase	3/phase	3/phase	3/phase
Unit Appearance						



	FDC224KXE6	FDC280KXE6	FDC335KXE6	FDC400KXE6	FDC450KXE6	FDC504KXE6	FDC560KXE6	FDC615KXE6	FDC680KXE6
	22.4	28.0	33.5	40.0	45.0	50.4	56.0	61.5	68.0
	8HP	10HP	12HP	14HP	16HP	18HP	20HP	22HP	24HP
	3/phase	3/phase	3/phase	3/phase	3/phase	3/phase	3/phase	3/phase	3/phase
									



	FDC1065KXE6	FDC1130KXE6	FDC1180KXE6	FDC1235KXE6	FDC1300KXE6	FDC1360KXE6
	FDC504KXE6 + FDC560KXE6	FDC560KXE6 + FDC560KXE6	FDC560KXE6-K + FDC615KXE6	FDC615KXE6 + FDC615KXE6	FDC615KXE6 + FDC680KXE6	FDC680KXE6 + FDC680KXE6
	106.5	113.0	118.0	123.5	130.0	136.0
	38HP	40HP	42HP	44HP	46HP	48HP
	3/phase	3/phase	3/phase	3/phase	3/phase	3/phase
						

KXR6 Heat recovery (3-pipe) – Single unit

The new KXR6 VRF range brings the most comprehensive line up of outdoor units available, from 22.4kW nominal cooling capacity up to the world's largest capacity single outdoor unit FDC680KXRE6 at 68.0kW.

KXR6 systems provide both heating and cooling operations to individual indoor units according to the room condition/requirement.

KXR6 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.

Heat recovery (3-pipe) outdoor unit range (single unit type)







Model	FDC224KXRE6	FDC280KXRE6	FDC335KXRE6	FDC400KXRE6	FDC450KXRE6	FDC504KXRE6	
Nominal Cooling Capacity kW	22.4	28.0	33.5	40.0	45.0	50.4	
Horsepower Rating	8HP	10HP	12HP	14HP	16HP	18HP	
Power Supply	3/phase	3/phase	3/phase	3/phase	3/phase	3/phase	
Unit Appearance							

KXR6 Heat recovery (3-pipe) – Combination unit

KXR6 outdoor units can also be combined for even greater capacity systems, enabling up to 136.0kW nominal capacity on a single refrigerant circuit. The foot print of all combination units is uniform in order to allow ease of planning for plant space and simple neat installation.

KXR6 outdoor units and combination outdoor units can also be installed in indoor plant space by applying suitable duct work.







Heat recovery (3-pipe) outdoor unit range (combination unit type)

Model	FDC735KXRE6	FDC800KXRE6	FDC850KXRE6	FDC900KXRE6	FDC960KXRE6	FDC1010KXRE6	
Combination	FDC335KXRE6-K + FDC400KXRE6	FDC400KXRE6 + FDC400KXRE6	FDC400KXRE6 + FDC450KXRE6	FDC450KXRE6 + FDC450KXRE6	FDC450KXRE6 + FDC504KXRE6	FDC504KXRE6 + FDC504KXRE6	
Nominal Cooling Capacity kW	73.5	80.0	85.0	90.0	96.0	101.0	
Horsepower Rating	26HP	28HP	30HP	32HP	34HP	36HP	
Power Supply	3/phase	3/phase	3/phase	3/phase	3/phase	3/phase	
Unit Appearance							



	FDC560KXRE6	FDC615KXRE6	FDC680KXRE6
	56.0	61.5	68.0
	20HP	22HP	24HP
	3/phase	3/phase	3/phase
			



	FDC1065KXRE6	FDC1130KXRE6	FDC1180KXRE6	FDC1235KXRE6	FDC1300KXRE6	FDC1360KXRE6
	FDC504KXRE6 + FDC560KXRE6	FDC560KXRE6 + FDC560KXRE6	FDC560KXRE6-K + FDC615KXRE6	FDC615KXRE6 + FDC615KXRE6	FDC615KXRE6 + FDC680KXRE6	FDC680KXRE6 + FDC680KXRE6
	106.5	113.0	118.0	123.5	130.0	136.0
	38HP	40HP	42HP	44HP	46HP	48HP
	3/phase	3/phase	3/phase	3/phase	3/phase	3/phase
						

Indoor units

A range of 15 types of exposed or concealed indoor units, in a wide range of capacities, 78 indoor models. The best selection of indoor units for many kinds of rooms are available from our full lineup.

Indoor units lineup

Type			Capacity	0.8HP	1HP	1.25HP	1.6HP	2HP	2.5HP	3.2HP	4HP	5HP	6HP	8HP	10HP
			Model Index: kW	22	28	36	45	56	71	90	112	140	160	224	280
Ceiling Cassette	4way	FDT													
	4way Compact (600 x 600)	FDTc													
	2way	FDTw													
	1way Compact (600 x 600)	FDTq													
Duct Connected	High Static Pressure	FDU													
	Low/Middle Static Pressure	FDUM													
	Low Static Pressure (slim)	FDUT													
	Compact & Flexible	FDUH													
Wall Mounted		FDK													
Ceiling Suspended		FDE													
Floor Standing	2way	FDfW													
	with casing	FDfL													
	without casing	FDfU													
OA Processing unit		FDU-F													

Type		Air Flow m ³ /h	250	350	500	800	1000
Fresh Air Ventilation and Heat Exchange unit	SAF						



Control options



The KX6 range comes with a variety of individual and centralised control options.



RC-E4
wired controller



RCH-E3
simplified wired controller



SC-SL1N-E
group ON/OFF



SC-SL2NA-E
centralised controller



SC-SL3N-AE/BE
touch screen centralised controller



SC-WGWNA-A/B
centralised PC based controller

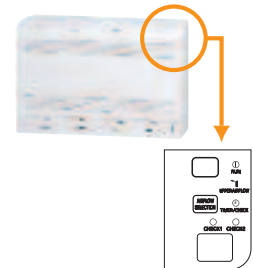
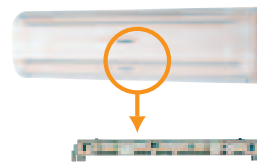
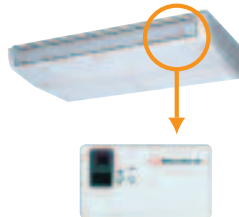
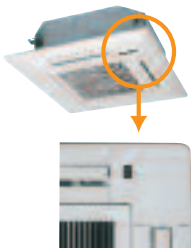


SC-LGWNA-A/B
LonWorks BMS gateway



SC-BGWNA-A/B
BACnet BMS gateway

Wireless control is also available by simply inserting an infra red receiver in the indoor unit fascia panel (FDT, FDEN, FDK and FDFW models only).



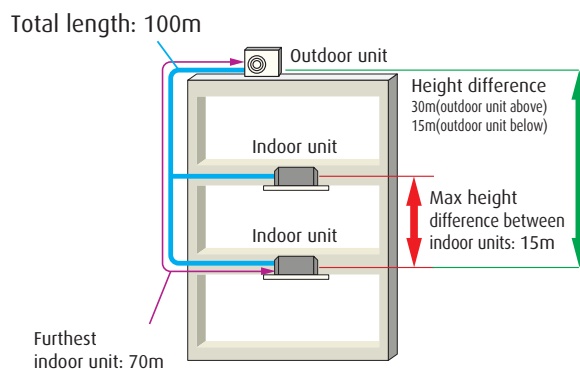
Wireless control is available on all other indoor models with the installation of RCN-KIT3-E infra red receiver and controller option.

MICRO KX6 – Heat pump systems

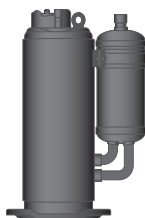
Model No.	Nominal cooling capacity
FDC112KXEN6	11.2kW (1phase)
FDC140KXEN6	14.0kW (1phase)
FDC155KXEN6	15.5kW (1phase)
FDC112KXES6	11.2kW (3phase)
FDC140KXES6	14.0kW (3phase)
FDC155KXES6	15.5kW (3phase)



- The KX6 heat pump systems offer high performance VRF for applications that require either cooling only or heating only, ideal for open plan areas.
- Connect up to 8 indoor units/up to 150% capacity.
- High efficiency with COP (in cooling) up to 4.0.
- KX6 employs DC inverter compressors ONLY.
- Industry leading total piping length up to 100m and a maximum pipe run of 70m.



* The total length of $\varnothing 9.52\text{mm}(3/8")$ liquid piping must be 50m or less



MHI's unique new twin rotary compressor design increases energy efficiency with CoP of up to 4.33 in heating mode.



Compact and light weight, the MICRO KX6 outdoor units are easily transported and installed in the smallest plant space, balcony or alternatively wall mounted

Unit specifications – 11.2kW - 15.5kW

Item	Model	FDC112KXEN6	FDC140KXEN6	FDC155KXEN6	FDC112KXES6	FDC140KXES6	FDC155KXES6	
Nominal horse power		4HP	5HP	6HP	4HP	5HP	6HP	
Power source		1 Phase 220-240V, 50Hz			3 Phase 380-415V, 50Hz			
Nominal capacity	Cooling	11.2	14.0	15.5	11.2	14.0	15.5	
	Heating	12.5	16.0	16.3	12.5	16.0	16.3	
Electrical characteristics	Starting current		A					
	Power consumption	Cooling	2.80	4.17	4.71	2.80	4.17	4.71
		Heating	2.89	4.31	4.38	2.89	4.31	4.38
	Running current	Cooling	13.5-12.4	20.6-18.9	23.3-21.3	4.5-4.1	6.9-6.3	7.8-7.1
Heating		14.1-12.9	21.5-19.7	21.9-20.1	4.7-4.3	7.2-6.6	7.3-6.7	
Exterior dimensions	HxWxD	mm 845x970x370						
Net weight	kg	85			87			
Refrigerant charge	R410A	kg 5.0						
Sound pressure level	Cooling/Heating	dB(A) 52/54		53/55	53/56		52/54	
							53/55	
Refrigerant piping size	Liquid line	mm(in) $\varnothing 9.52(3/8")$						
	Gas line	mm(in) $\varnothing 15.88(5/8")$						
Capacity connection	%	80~150						
Number of connectable indoor units		6	8	8	6	8	8	

1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB. Piping length is 7.5m.

2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

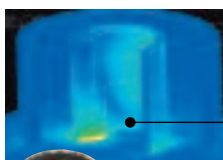
3. [] : Pipe sizes applicable to European installations are shown in parentheses.



MINI KX6 – Heat pump systems

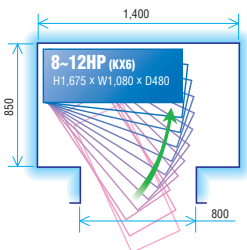
Model No.	Nominal cooling capacity
FDC224KXE6	22.4kW
FDC280KXE6	28.0kW
FDC335KXE6	33.5kW

- The KX6 heat pump systems offer high performance VRF for applications that require either cooling only or heating only, ideal for open plan areas.
- Connect up to 22 indoor units/up to 150% capacity.
- High efficiency with COP (in cooling) up to 4.0.
- KX6 employs DC inverter compressors ONLY.
- Industry leading total piping length up to 510m and a maximum pipe run of 160m.

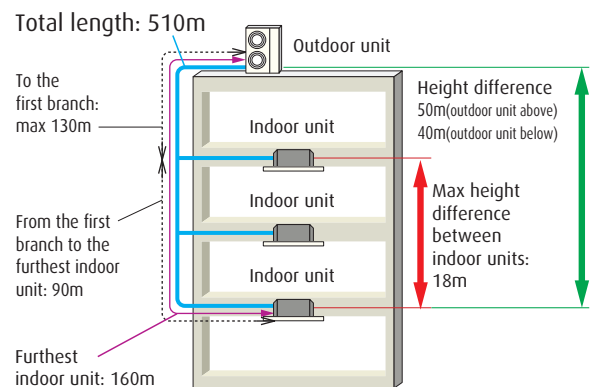


MHI's unique 3D scroll compressor design increases energy efficiency with CoP of up to 4.15 in heating mode.

High strength due to the lower teeth inside.



Due to significant reduction in size and foot print, transportation in an elevator (Width:1400mm, Depth:850, Open area:800mm) is possible, eliminating cost of a crane and reducing labor.



Unit specifications – 22.4kW - 33.5kW

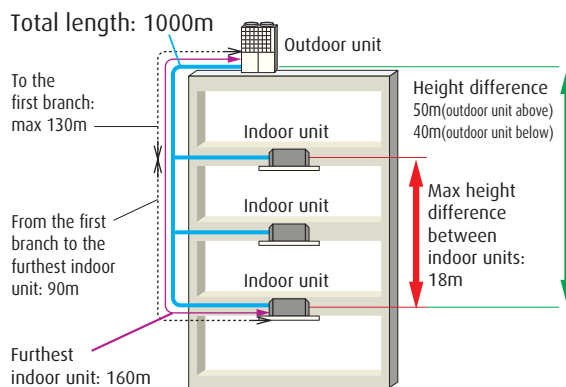
Item	Model	FDC224KXE6	FDC280KXE6	FDC335KXE6	
Nominal horse power		8HP	10HP	12HP	
Power source		3 Phase 380-415V, 50Hz			
Nominal capacity	Cooling	22.4	28.0	33.5	
	Heating	25.0	31.5	37.5	
Electrical characteristics	Starting current		5		
	Power consumption	Cooling	5.60	8.09	9.82
		Heating	6.03	8.21	10.12
	Running current	Cooling	9.25-8.47	13.22-12.10	15.87-14.53
Heating		9.85-9.02	13.41-12.28	16.36-14.98	
Exterior dimensions	HxWxD	mm 1675x1080x480			
Net weight	kg	221		224	
Refrigerant charge	R410A	kg 11.5			
Sound pressure level	Cooling/Heating	dB(A) 58/58		59/60	
				61/61	
Refrigerant piping size	Liquid line	mm(in) $\varnothing 9.52(3/8")$			
	Gas line	$\varnothing 19.05(3/4")$	$\varnothing 22.22(7/8")$	$\varnothing 25.4(1")$ [$\varnothing 28.58(1 1/8")$]	
Capacity connection	%	50~150			
Number of connectable indoor units		15	19	22	

1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB. Piping length is 7.5m.
 2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
 3. [] : Pipe sizes applicable to European installations are shown in parentheses.

KX6 – Heat pump systems

Model No.	Nominal cooling capacity
FDC400KXE6	40.0kW
FDC450KXE6	45.0kW
FDC504KXE6	50.4kW
FDC560KXE6	56.0kW
FDC615KXE6	61.5kW
FDC680KXE6	68.0kW
FDC735KXE6 (FDC335-K+FDC400)	73.5kW
FDC800KXE6 (FDC400x2)	80.0kW
FDC850KXE6 (FDC400+FDC450)	85.0kW
FDC900KXE6 (FDC450x2)	90.0kW
FDC960KXE6 (FDC450+FDC504)	96.0kW
FDC1010KXE6 (FDC504x2)	101.0kW
FDC1065KXE6 (FDC504+FDC560)	106.5kW
FDC1130KXE6 (FDC560x2)	113.0kW
FDC1180KXE6 (FDC560-K+FDC615)	118.0kW
FDC1235KXE6 (FDC615x2)	123.5kW
FDC1300KXE6 (FDC615+FDC680)	130.0kW
FDC1360KXE6 (FDC680x2)	136.0kW

- The KX6 heat pump systems offer high performance VRF for applications that require either cooling only or heating only, ideal for open plan areas.
- Connect up to 80 indoor units/up to 160% capacity.
- High efficiency with COP (in cooling) up to 3.6.
- KX6 employs DC inverter compressors ONLY.
- Industry leading total piping length up to 1000m and a maximum pipe run of 160m.

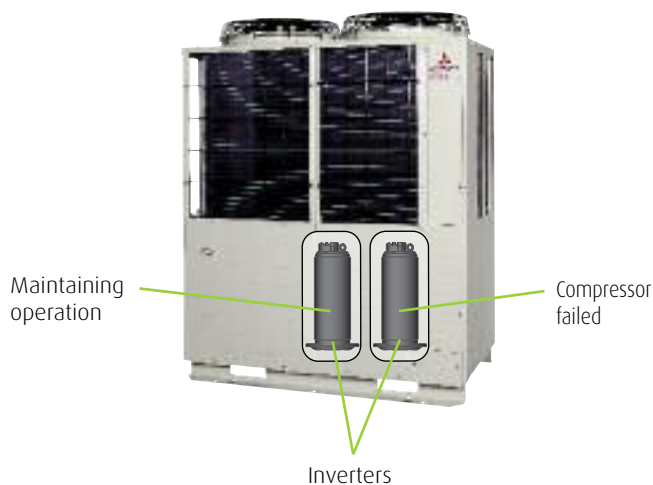


Inverter Compressor Technology

KX6 uses MHI inverter compressors only - no fixed speed compressors are employed - so in the event of a compressor failure, the back up operation maintains efficient inverter control.

Blue Fin

Due to the application of blue coated fins for the heat exchanger of new outdoor units, corrosion resistance has been improved compared to previous models.





AIR CONDITIONING

Single unit specifications – 40.0kW - 68.0kW

Item	Model	FDC400KXE6	FDC450KXE6	FDC504KXE6	FDC560KXE6	FDC615KXE6	FDC680KXE6	
Nominal horse power		14HP	16HP	18HP	20HP	22HP	24HP	
Power source		3 Phase 380-415V, 50Hz						
Nominal capacity	Cooling	40.0	45.0	50.4	56.0	61.5	68.0	
	Heating	45.0	50.0	56.5	63.0	69.0	73.0	
Electrical characteristics	Starting current	A 8						
	Power consumption	Cooling	11.27	12.97	14.73	16.79	20.37	24.98
		Heating	11.73	13.10	15.12	16.79	18.48	19.08
	Running current	Cooling	18.4-16.9	21.1-19.3	24.1-22.0	27.4-25.1	33.1-30.3	40.3-36.9
Heating		19.6-17.9	21.7-19.9	25.2-23.1	28.0-25.7	30.7-28.1	31.6-29.0	
Exterior dimensions	HxWxD	mm 1690x1350x720			2048x1350x720			
Net weight		kg 317			341		355	
Refrigerant charge	R410A	kg 11.5						
Sound pressure level	Cooling/Heating	dB(A) 59.5/60		62.5/62.5	61.5/62.0	63.0/63.5	64.5/64.0 65.0/65.0	
Refrigerant piping size	Liquid line	mm(in) ø12.7(1/2")						
	Gas line	ø25.4(1") [ø28.58(1 1/8")]			ø28.58(1 1/8")			
Capacity connection		% 50~200			50~160			
Number of connectable indoor units		36	40	36	40	44	49	

Combination units specifications – 73.5kW - 90.0kW

Item	Model	FDC735KXE6	FDC800KXE6	FDC850KXE6	FDC900KXE6	
Combination (FDC)		335KXE6-K	400KXE6	400KXE6	450KXE6	
		400KXE6	400KXE6	450KXE6	450KXE6	
Nominal horse power		26HP	28HP	30HP	32HP	
Power source		3 Phase 380-415V, 50Hz				
Nominal capacity	Cooling	73.5	80.0	85.0	90.0	
	Heating	82.5	90.0	95.0	100.0	
Electrical characteristics	Starting current	A 16				
	Power consumption	Cooling	20.21	22.54	24.24	25.94
		Heating	20.66	23.46	24.83	26.20
	Running current	Cooling	32.9-30.2	36.8-33.8	39.5-36.2	42.2-38.6
Heating		34.4-31.4	39.2-35.8	41.3-37.8	43.4-39.8	
Exterior dimensions	HxWxD	mm 1690x2700x720				
Net weight		kg 317x2				
Refrigerant charge	R410A	kg 11.5x2				
Refrigerant piping size	Liquid line	mm(in) ø15.88(5/8")				
	Gas line	ø31.8(1 1/4") [ø34.92(1 3/8")]				
Capacity connection		% 50~160				
Number of connectable indoor units		53	58	61	65	

Combination units specifications – 96.0kW - 136.0kW

Item	Model	FDC960KXE6	FDC1010KXE6	FDC1065KXE6	FDC1130KXE6	FDC1180KXE6	FDC1235KXE6	FDC1300KXE6	FDC1360KXE6	
Combination (FDC)		450KXE6	504KXE6	504KXE6	560KXE6	560KXE6-K	615KXE6	615KXE6	680KXE6	
		504KXE6	504KXE6	560KXE6	560KXE6	615KXE6	615KXE6	680KXE6	680KXE6	
Nominal horse power		34HP	36HP	38HP	40HP	42HP	44HP	46HP	48HP	
Power source		3 Phase 380-415V, 50Hz								
Nominal capacity	Cooling	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	
Electrical characteristics	Starting current	A 16								
	Power consumption	Cooling	27.70	29.46	31.52	33.58	37.16	40.74	45.35	49.96
		Heating	28.22	30.24	31.91	33.58	35.27	36.96	37.56	38.16
	Running current	Cooling	45.2-41.3	48.2-44.0	51.5-47.1	54.8-50.2	60.5-55.4	66.2-60.6	73.4-67.2	80.6-73.8
Heating		46.9-43.0	50.4-46.2	53.2-48.8	56.0-51.4	58.7-53.8	61.4-56.2	62.3-57.1	63.2-58.0	
Exterior dimensions	HxWxD	mm 2048x2700x720								
Net weight		kg 341+317		341x2			355x2			
Refrigerant charge	R410A	kg 11.5x2								
Refrigerant piping size	Liquid line	mm(in) ø15.88(5/8")			ø19.05(3/4")					
	Gas line	ø34.92(1 3/8")								
Capacity connection		% 50~160		50~130						
Number of connectable indoor units		69	59	62	66	69	72	76	80	

- The data are measured under the following conditions(ISO-11). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB. Piping length is 7.5m.
- Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
- [] : Pipe sizes applicable to European installations are shown in parentheses.

KXR6 – Heat recovery (3-pipe) systems

Model No.

Model No.	Nominal cooling capacity
FDC224KXRE6	22.4kW
FDC280KXRE6	28.0kW
FDC335KXRE6	33.5kW
FDC400KXRE6	40.0kW
FDC450KXRE6	45.0kW
FDC504KXRE6	50.4kW
FDC560KXRE6	56.0kW
FDC615KXRE6	61.5kW
FDC680KXRE6	68.0kW
FDC735KXRE6 (FDC335-K+FDC400)	73.5kW
FDC800KXRE6 (FDC400x2)	80.0kW
FDC850KXRE6 (FDC400+FDC450)	85.0kW
FDC900KXRE6 (FDC450x2)	90.0kW
FDC960KXRE6 (FDC450+FDC504)	96.0kW
FDC1010KXRE6 (FDC504x2)	101.0kW
FDC1065KXRE6 (FDC504+FDC560)	106.5kW
FDC1130KXRE6 (FDC560x2)	113.0kW
FDC1180KXRE6 (FDC560-K+FDC615)	118.0kW
FDC1235KXRE6 (FDC615x2)	123.5kW
FDC1300KXRE6 (FDC615+FDC680)	130.0kW
FDC1360KXRE6 (FDC680x2)	136.0kW

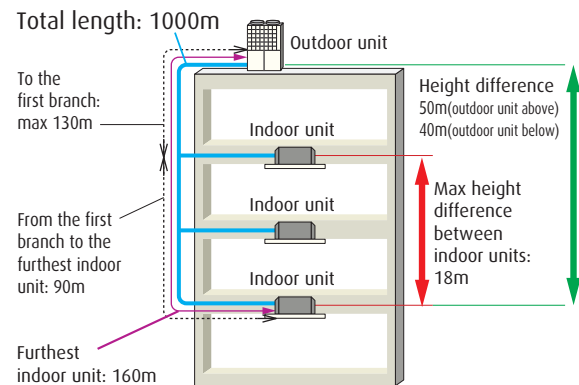


FDC224-450KXRE6



FDC504-680KXRE6

- The KXR6 3-pipe heat recovery systems offer high performance VRF for applications that require simultaneous heating and cooling where the building orientation (N, S, E, W) can mean that heat gain/loss varies on each side of the building.
- Connect up to 80 indoor units/up to 200% capacity.
- High efficiency with COP (in cooling) up to 3.8.
- KXR6 employs DC inverter compressors ONLY.
- Industry leading total piping length up to 1000m and a maximum pipe run of 160m.



Single unit specifications – 22.4kW - 45.0kW

Item			FDC224KXRE6	FDC280KXRE6	FDC335KXRE6	FDC400KXRE6	FDC450KXRE6	
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	kW	25.0	31.5	37.5	45.0	50.0	
Electrical characteristics	Starting current		A		8			
	Power consumption	Cooling	kW		5.90	8.46	9.98	11.61
		Heating	kW		5.90	8.46	9.55	11.93
	Operating current	Cooling	A		9.1-8.3	13.5-12.3	15.9-14.8	19.0-17.4
Heating		A		9.2-8.4	13.4-12.3	15.5-14.2	19.9-18.2	
Exterior dimensions		HxWxD	mm 1690x1350x720					
Net weight		kg	252		256	337		
Refrigerant charge		R410A	kg 8.7	9.9	11.4	11.5		
Sound pressure level		Cooling/Heating	dB(A) 57/57		58/59	62/63	60/60 62.5/62.5	
Refrigerant piping size	Liquid line		ø9.52(3/8")			ø12.7(1/2")		
	Suction Gas line	mm(in)	ø19.05(3/4")	ø25.4(1") [ø22.22(7/8")]		ø25.4(1") [ø28.58(1 1/8")]		
	Discharge Gas line	mm(in)	ø15.88(5/8")	ø19.05(3/4")		ø22.22(7/8")		
Capacity connection		%	50~200					
Number of connectable indoor units			20	25	30	36	40	

1. The data are measured under the following conditions (ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB. Piping length is 7.5m.
 2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
 3. [] : Pipe sizes applicable to European installations are shown in parentheses.



single unit specifications – 50.4kW - 68.0kW

Item		FDC504KXRE6	FDC560KXRE6	FDC615KXRE6	FDC680KXRE6	
Nominal horse power		18HP	20HP	22HP	24HP	
Power source		3 Phase 380-415V, 50Hz				
Nominal capacity	Cooling	50.4	56.0	61.5	68.0	
	Heating	56.5	63.0	69.0	73.0	
Electrical characteristics	Starting current		8			
	Power consumption	Cooling	15.18	17.95	21.47	25.99
		Heating	15.12	16.79	19.11	19.69
	Operating current	Cooling	23.8-21.8	28.4-26.0	34.7-31.8	44.9-41.1
Heating		25.2-23.1	28.0-25.7	31.6-28.9	34.0-31.1	
Exterior dimensions	HxWxD	mm 2048x1350x720				
Net weight		kg 361		kg 375		
Refrigerant charge	R410A	kg 11.5				
Sound pressure level	Cooling/Heating	dB(A) 62/62	63.5/63.5	64/64.5	65.5/65.5	
Refrigerant piping size	Liquid line	mm(in) ϕ 12.7(1/2")				
	Suction Gas line	mm(in) ϕ 28.58(1 1/8")				
	Discharge Gas line	mm(in) ϕ 22.22(7/8")		mm(in) ϕ 25.4(1") [ϕ 22.22(7/8")]		
Capacity connection		% 50~160				
Number of connectable indoor units		36	40	44	49	

Combination units specifications – 73.5kW - 90.0kW

Item		FDC735KXRE6	FDC800KXRE6	FDC850KXRE6	FDC900KXRE6	
Combination (FDC)		335KXRE6-K 400KXRE6	400KXRE6 400KXRE6	400KXRE6 450KXRE6	450KXRE6 450KXRE6	
Nominal horse power		26HP	28HP	30HP	32HP	
Power source		3 Phase 380-415V, 50Hz				
Nominal capacity	Cooling	73.5	80.0	85.0	90.0	
	Heating	82.5	90.0	95.0	100.0	
Electrical characteristics	Starting current		A 16			
	Power consumption	Cooling	21.08	23.22	25.10	26.98
		Heating	21.3	23.86	25.25	26.64
	Operating current	Cooling	34.4-31.5	38.0-34.8	40.6-37.2	43.2-39.6
Heating		35.4-32.4	39.8-36.4	41.9-38.3	44.0-40.2	
Exterior dimensions	HxWxD	mm 1690x2700x720				
Net weight		kg 674				
Refrigerant charge	R410A	kg 33				
Refrigerant piping size	Liquid line	mm(in) ϕ 15.88(5/8")				
	Suction Gas line	mm(in) ϕ 31.75(1 1/4") [ϕ 34.92(1 3/8")]				
	Discharge Gas line	mm(in) ϕ 25.4(1") [ϕ 28.58(1 1/8")]	mm(in) ϕ 28.58(1 1/8")			
Capacity connection		% 50~160				
Number of connectable indoor units		53	58	61	65	

Combination units specifications – 96.0kW - 136.0kW

Item		FDC960KXRE6	FDC1010KXRE6	FDC1065KXRE6	FDC1130KXRE6	FDC1180KXRE6	FDC1235KXRE6	FDC1300KXRE6	FDC1360KXRE6	
Combination (FDC)		450KXRE6 504KXRE6	504KXRE6 504KXRE6	504KXRE6 560KXRE6	560KXRE6 560KXRE6	560KXRE6-K 615KXRE6	615KXRE6 615KXRE6	615KXRE6 680KXRE6	680KXRE6 680KXRE6	
Nominal horse power		34HP	36HP	38HP	40HP	42HP	44HP	46HP	48HP	
Power source		3 Phase 380-415V, 50Hz								
Nominal capacity	Cooling	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	
Electrical characteristics	Starting current		A 16							
	Power consumption	Cooling	28.67	30.36	33.13	35.9	39.42	42.94	47.46	51.98
		Heating	28.44	30.24	31.91	33.58	35.9	38.22	38.80	39.38
	Operating current	Cooling	45.4-41.6	47.6-43.6	52.2-47.8	56.8-52.0	63.1-57.8	69.4-63.6	79.6-72.9	89.8-82.2
Heating		47.2-43.2	50.4-46.2	53.2-48.8	56.0-51.4	59.6-54.6	63.2-57.8	65.6-60.0	68.0-62.2	
Exterior dimensions	HxWxD	mm 2048x2700x720								
Net weight		kg 698	kg 722			kg 750				
Refrigerant charge	R410A	kg 33								
Refrigerant piping size	Liquid line	mm(in) ϕ 15.88(5/8")			mm(in) ϕ 19.05(3/4")					
	Suction Gas line	mm(in) ϕ 31.75(1 1/4") [ϕ 34.92(1 3/8")]		mm(in) ϕ 38.1(1 1/2") [ϕ 34.92(1 3/8")]						
	Discharge Gas line	mm(in) ϕ 28.58(1 1/8")								
Capacity connection		% 50~160		% 50~130						
Number of connectable indoor units		69	59	62	66	69	72	76	80	

1. The data are measured under the following conditions (ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB. Piping length is 7.5m.
 2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
 3. [] : Pipe sizes applicable to European installations are shown in parentheses.

Ceiling cassette – 4way – FDT

Model No.

FDT28KXE6D FDT90KXE6D
 FDT36KXE6D FDT112KXE6D
 FDT45KXE6D FDT140KXE6D
 FDT56KXE6D FDT160KXE6D
 FDT71KXE6D



Item	Model	FDT28KXE6D	FDT36KXE6D	FDT45KXE6D	FDT56KXE6D	FDT71KXE6D	FDT90KXE6D	FDT112KXE6D	FDT140KXE6D	FDT160KXE6D		
Nominal cooling capacity	kW	2.8	3.6	4.5	5.6	7.1	9.0	11.2	14.0	16.0		
Nominal heating capacity	kW	3.2	4.0	5.0	6.3	8.0	10.0	12.5	16.0	18.0		
Power source		1 Phase 220-240V, 50Hz										
Power consumption	Cooling	0.03-0.03			0.04-0.04		0.10-0.10		0.14-0.14			
	Heating	0.03-0.03			0.04-0.04		0.10-0.10		0.14-0.14			
Sound pressure level**	dB(A)	Hi:33 Me:31 Lo:30			Hi:33 Me:31 Lo:30		Hi:33 Me:31 Lo:30		Hi:40 Me:37 Lo:35		Hi:42 Me:40 Lo:37	Hi:43 Me:41 Lo:38
Exterior dimensions H x W x D	mm	Unit:246x840x840 Panel:35x950x950					Unit:298x840x840 Panel:35x950x950					
Net weight	kg	Unit:22 Panel:5.5			Unit:24 Panel:5.5			Unit:27 Panel:5.5				
Air flow**	CMM	Hi:18 Me:16 Lo:14					Hi:27 Me:24 Lo:20		Hi:30 Me:27 Lo:23			
Outside air intake		Possible										
Panel		T-PSA-3AW-E										
Air filter, Q'ty		Pocket Plastic net x1 (Washable)										
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-T-36W-E										
Installation data Refrigerant piping size	mm(in)	Liquid line:ø6.35(1/4") Gas line:ø9.52(3/8")	Liquid line:ø6.35(1/4") Gas line:ø12.7(1/2")			Liquid line:ø9.52(3/8") Gas line:ø15.88(5/8")						

1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.

2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

** Powerful-Hi can be selected. Sound pressure level: FDT28/36/45 37dB(A), FDT56 39dB(A), FDT71 46dB(A), FDT90/112/140/160 51dB(A). Air flow: FDT28/36/45/56 20CMM, FDT71 28CMM, FDT90/112/140/160 37CMM.

Ceiling cassette – 4way compact (600 x 600) – FDTC

Model No.

FDTC22KXE6D
 FDTC28KXE6D
 FDTC36KXE6D
 FDTC45KXE6D
 FDTC56KXE6D



Item	Model	FDTC22KXE6D	FDTC28KXE6D	FDTC36KXE6D	FDTC45KXE6D	FDTC56KXE6D	
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	
Power source		1 Phase 220-240V, 50Hz					
Power consumption	Cooling	0.03-0.03			0.04-0.04		
	Heating	0.03-0.03			0.04-0.04		
Sound pressure level**	Cooling	Hi:35 Me:33 Lo:30		Hi:38 Me:36 Lo:31		Hi:40 Me:37 Lo:31	Hi:45 Me:39 Lo:31
	Heating	Hi:35 Me:33 Lo:32		Hi:38 Me:36 Lo:34		Hi:40 Me:37 Lo:34	Hi:45 Me:39 Lo:34
Exterior dimensions H x W x D	mm	Unit:248x570x570 Panel:35x700x700					
Net weight	kg	Unit:14 Panel:3.5		Unit:15 Panel:3.5			
Air flow**	Cooling	Hi:9.5 Me:8.5 Lo:7		Hi:10 Me:9 Lo:7		Hi:11 Me:9 Lo:7	Hi:13 Me:10 Lo:7
	Heating	Hi:9.5 Me:8.5 Lo:8		Hi:10 Me:9 Lo:8		Hi:11 Me:9 Lo:8	Hi:13 Me:10 Lo:8
Outside air intake		Not possible					
Panel		TC-PSA-25W-E					
Air filter, Q'ty		Pocket Plastic net x1 (Washable)					
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-TC-24W-ER					
Installation data Refrigerant piping size	mm(in)	Liquid line:ø6.35(1/4") Gas line:ø9.52(3/8")		Liquid line:ø6.35(1/4") Gas line:ø12.7(1/2")			

1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.

2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

** Powerful-Hi can be selected. Sound pressure level: FDTC22/28 44dB(A), FDTC36 46dB(A), FDTC45 48dB(A), FDTC56 49dB(A). Air flow: FDTC22/28 12CMM, FDTC36 13CMM, FDTC45 15CMM, FDTC56 16CMM.



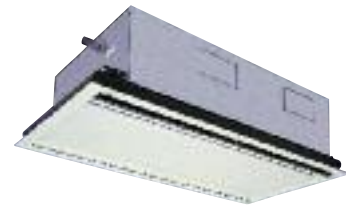
Ceiling cassette – 2way – FDTW

Model No.

FDTW28KXE6D FDTW71KXE6D
FDTW45KXE6D FDTW90KXE6D
FDTW56KXE6D FDTW112KXE6D
FDTW140KXE6D



FDTW28~56



FDTW71~140

Item	Model	FDTW28KXE6D	FDTW45KXE6D	FDTW56KXE6D	FDTW71KXE6D	FDTW90KXE6D	FDTW112KXE6D	FDTW140KXE6D
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
Power source		1 Phase 220-240V, 50Hz						
Power consumption	Cooling	0.09-0.10			0.10-0.11	0.12-0.13	0.18-0.20	0.20-0.24
	Heating	0.09-0.10			0.10-0.11	0.12-0.13	0.18-0.20	0.20-0.24
Sound pressure level	※ dB(A)	Hi:39 Me:34 Lo:32			Hi:41 Me:36 Lo:35	Hi:41 Me:37 Lo:36	Hi:44 Me:41 Lo:39	Hi:45 Me:41 Lo:39
Exterior dimensions H x W x D	mm	Unit:287x817x620 Panel:8x1055x680			Unit:342x1054x620 Panel:8x1300x680		Unit:357x1524x620 Panel:8x1770x680	
Net weight	kg	Unit:18 Panel:7	Unit:19 Panel:7		Unit:26 Panel:9		Unit:38 Panel:11	
Air flow	※ 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
Outside air intake		Possible						
Panel		TW-PSA-25W-E			TW-PSA-35W-E		TW-PSA-45W-E	
Air filter, Q'ty		Pocket Plastic net x1 (Washable)					Pocket Plastic net x2 (Washable)	
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-KIT3-E						
Installation data Refrigerant piping size	mm(in)	Liquid line:ø6.35(1/4") Gas line:ø9.52(3/8")	Liquid line:ø6.35(1/4") Gas line:ø12.7(1/2")		Liquid line:ø9.52(3/8") Gas line:ø15.88(5/8")			

1. The data are measured under the following conditions (ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.

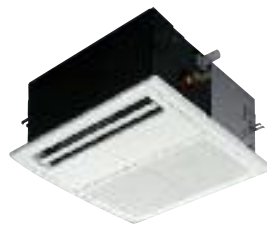
2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

※ Powerful-Hi can be selected. Sound pressure level: FDTW28/45/56 39dB(A), FDTW71/90 41dB(A), FDTW112 44dB(A), FDTW140 45dB(A). Air flow: FDTW28/45/56 14CMM, FDTW71 16CMM, FDTW90 19CMM, FDTW112 28CMM, FDTW140 32CMM.

Ceiling cassette – 1way compact (600 x 600) – FDTQ

Model No.

FDTQ22KXE6D
FDTQ28KXE6D
FDTQ36KXE6D



Item	Model	FDTQ22KXE6D				FDTQ28KXE6D				FDTQ36KXE6D							
Panel Name		Direct blow panel		Duct panel		Direct blow panel		Duct panel		Direct blow panel		Duct panel					
Panel mode (Option)		TQ-PSA-15W-E	TQ-PSB-15W-E	QR-PNA-14W-ER	QR-PNB-14W-ER	TQ-PSA-15W-E	TQ-PSB-15W-E	QR-PNA-14W-ER	QR-PNB-14W-ER	TQ-PSA-15W-E	TQ-PSB-15W-E	QR-PNA-14W-ER	QR-PNB-14W-ER				
Nominal cooling capacity	kW	2.2				2.8				3.6							
Nominal heating capacity	kW	2.5				3.2				4.0							
Power source		1 Phase 220-240V, 50Hz															
Power consumption	Cooling	0.05-0.07				0.05-0.07				0.05-0.07							
	Heating	0.05-0.07				0.05-0.07				0.05-0.07							
Sound pressure level	※ dB(A)	Hi:41 Me:38 Lo:33		Hi:41 Me:38 Lo:33		Hi:41 Me:38 Lo:33		Hi:41 Me:38 Lo:33		Hi:41 Me:38 Lo:33		Hi:41 Me:38 Lo:33					
Exterior dimensions H x W x D	mm	250x570x570															
	Unit	35x625x650				35x780x650				35x625x650				35x780x650			
	Panel	Unit:23 Panel:2.5		Unit:23 Panel:3		Unit:23 Panel:2.5		Unit:23 Panel:3		Unit:23 Panel:2.5		Unit:23 Panel:3					
Net weight	kg	Unit:23 Panel:2.5	Unit:23 Panel:3	Unit:23 Panel:2.5	Unit:23 Panel:3	Unit:23 Panel:2.5	Unit:23 Panel:3	Unit:23 Panel:2.5	Unit:23 Panel:3	Unit:23 Panel:2.5	Unit:23 Panel:3	Unit:23 Panel:2.5	Unit:23 Panel:3				
Air flow	※ CMM	Hi:7 Me:6 Lo:5		Hi:7 Me:6 Lo:5		Hi:7 Me:6 Lo:5		Hi:7 Me:6 Lo:5		Hi:7 Me:6 Lo:5		Hi:7 Me:6 Lo:5					
Outside air intake		Possible															
Air filter, Q'ty		Pocket Plastic net x1 (Washable)															
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-KIT3-E															
Installation data Refrigerant piping size	mm(in)	Liquid line:ø6.35(1/4") Gas line:ø9.52(3/8")						Liquid line:ø6.35(1/4") Gas line:ø12.7(1/2")									

1. The data are measured under the following conditions (ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.

2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

※ Powerful-Hi can be selected. Sound pressure level: FDTQ22/38/36 45dB(A). Air flow: FDTQ22/38/36 8CMM.

Duct connected – High static pressure – FDU

Model No.

FDU71KXE6D
FDU90KXE6D
FDU112KXE6D
FDU140KXE6D



Item	Model	FDU71KXE6D	FDU90KXE6D	FDU112KXE6D	FDU140KXE6D
Nominal cooling capacity	kW	7.1	9.0	11.2	14.0
Nominal heating capacity	kW	8.0	10.0	12.5	16.0
Power source		1 Phase 220-240V, 50Hz			
Power consumption	Cooling	0.29-0.32	0.35-0.39	0.39-0.45	
	Heating	0.27-0.30	0.34-0.38	0.34-0.39	
Sound pressure level	dB(A)	Hi:41 Lo:37	Hi:42 Lo:37	Hi:42 Lo:38	Hi:43 Lo:39
Exterior dimensions H x W x D	mm	297x850x650	350x1370x650		
Net weight	kg	40	63		
Air flow (Standard)	CMM	Hi:20 Lo:17	Hi:34 Lo:27		Hi:42 Lo:33.5
External Static pressure	Pa	Standard:60, Max:130			
Outside air intake		Possible(on Return duct)			
Air filter, Q'ty		Procure locally			
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-KIT3-E			
Installation data Refrigerant piping size	mm(in)	Liquid line:ø9.52(3/8") Gas line:ø15.88(5/8")			

- The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB. External static pressure of indoor unit is 60Pa.
- Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
- External static pressure can be changed from standard external static pressure (factory setting) to maximum external static pressure (high static pressure setting) by remote control.
- Values of sound pressure level become increased 5dB(A), when external static pressure is 130Pa.

Duct connected – High static pressure – FDU

Model No.

FDU224KXE6D
FDU280KXE6D



Item	Model	FDU224KXE6D	FDU280KXE6D
Nominal cooling capacity	kW	22.4	28.0
Nominal heating capacity	kW	25.0	31.5
Power source		1 Phase 220-240V, 50Hz	
Power consumption	Cooling	0.94-1.03	0.96-1.05
	Heating	0.86-0.90	0.88-0.96
Sound pressure level	dB(A)	Hi:51	Hi:52
Exterior dimensions H x W x D	mm	360x1570x830	
Net weight	kg	92	
Air flow (Standard)	CMM	Hi:51	Hi:68
External Static pressure	Pa	200	
Outside air intake		Possible(on Return duct)	
Air filter, Q'ty		Procure locally	
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-KIT3-E	
Installation data Refrigerant piping size	mm(in)	Liquid line:ø9.52(3/8") Gas line:ø19.05(3/4")	Liquid line:ø9.52(3/8") Gas line:ø22.22(7/8")

- The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB. External static pressure of indoor unit is 100Pa.
- Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
- Values of sound pressure level become increased 5dB(A), when external static pressure is 200Pa (factory setting).
- Values of air flow volume are those at external static pressure 200Pa (factory setting).



Duct connected – Low/medium static pressure – FDUM

Model No.

FDUM22KXE6D	FDUM71KXE6D
FDUM28KXE6D	FDUM90KXE6D
FDUM36KXE6D	FDUM112KXE6D
FDUM45KXE6D	FDUM140KXE6D
FDUM56KXE6D	



Item	Model	FDUM22KXE6D	FDUM28KXE6D	FDUM36KXE6D	FDUM45KXE6D	FDUM56KXE6D	FDUM71KXE6D	FDUM90KXE6D	FDUM112KXE6D	FDUM140KXE6D	
Nominal cooling capacity	kW	2.2	2.8	3.6	4.5	5.6	7.1	9.0	11.2	14.0	
Nominal heating capacity	kW	2.5	3.2	4.0	5.0	6.3	8.0	10.0	12.5	16.0	
Power source		1 Phase 220-240V, 50Hz									
Power consumption	Cooling	0.10-0.12		0.13-0.15		0.16-0.18		0.17-0.19		0.18-0.21	
	Heating	0.10-0.12		0.13-0.15		0.16-0.18		0.17-0.19		0.18-0.21	
Sound pressure level*	dB(A)	Hi:33 Me:31 Lo:28	Hi:34 Me:31 Lo:28		Hi:35 Me:32 Lo:29		Hi:35 Me:32 Lo:29	Hi:36 Me:33 Lo:30	Hi:37 Me:35 Lo:32	Hi:38 Me:36 Lo:33	
Exterior dimensions H x W x D	mm	299 x 750 x 635					299 x 950 x 635		350 x 1370 x 635		
Net weight	kg	33	34			40		59			
Air flow *	CMM	Hi:10 Me:9 Lo:8	Hi:12 Me:11 Lo:10		Hi:13 Me:12 Lo:11		Hi:16 Me:15 Lo:14	Hi:20 Me:18 Lo:15	Hi:28 Me:25 Lo:22	Hi:28 Me:25 Lo:22	
External Static pressure	Pa	85 (at 10CMM)	85(at 12CMM)		85(at 14CMM)		85 (at 18CMM)	85 (at 20CMM)	90 (at 28CMM)	85 (at 34CMM)	
Outside air intake		Possible									
Air filter, Q'ty		Procure locally									
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-KIT3-E									
Installation data Refrigerant piping size	mm(in)	Liquid line:ø6.35(1/4") Gas line:ø9.52(3/8")		Liquid line:ø6.35(1/4") Gas line:ø12.7(1/2")			Liquid line:ø9.52(3/8") Gas line:ø15.88(5/8")				

1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB. External static pressure of indoor unit is 60Pa.

2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

* Powerful-Hi can be selected. Sound pressure level: FDUM22/28/36 35dB(A), FDUM45/56 36dB(A), FDUM71/90 38dB(A), FDUM112/140 41dB(A). Air flow: FDUM22 12CMM, FDUM28/36/45/56 14CMM, FDUM71 18CMM, FDUM90 23 CMM, FDUM112/140 34CMM.

Duct connected (slim) – Low static pressure – FDUT

Model No.

FDUT22KXE6D
FDUT28KXE6D
FDUT36KXE6D
FDUT45KXE6D
FDUT56KXE6D



Item	Model	FDUT22KXE6D	FDUT28KXE6D	FDUT36KXE6D	FDUT45KXE6D	FDUT56KXE6D	
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	6.0	
Power source		1 Phase 220-240V, 50Hz					
Power consumption	Cooling	0.05-0.06			0.06-0.07		0.08-0.09
	Heating	0.05-0.06			0.06-0.07		0.08-0.09
Sound pressure level	dB(A)	Hi:29 Me:26 Lo:24		Hi:33 Me:31 Lo:28		Hi:35 Me:32 Lo:28	
Exterior dimensions H x W x D	mm	220x750x520			220x950x520		
Net weight	kg	26			28		
Air flow (Standard)	CMM	Hi:7.5 Me:6 Lo:5		Hi:8.5 Me:7 Lo:6		Hi:12 Me:10 Lo:8	
External Static pressure	Pa	10					
Outside air intake		Not possible					
Suction guard(Air filter)		Procure locally					
Remote control(option)		wired:RC-E4 RCH-E3 wireless:RCN-KIT3-E					
Installation data Refrigerant piping size	mm(in)	Liquid line:ø6.35(1/4") Gas line:ø9.52(3/8")			Liquid line:ø6.35(1/4") Gas line:ø12.7(1/2")		

1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB. External static pressure of indoor unit is 10Pa.

2. The data of nominal cooling and heating capacity and sound pressure level are measured with 10Pa of external static pressure.

3. The sound level indicates the value of rear-intake type with duct in anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

4. In case of using the duct air supply kit, the maximum external static pressure of FDUT22/28/36KXE6D is 35Pa and that of FDUT45/56KXE6D is 50Pa.

5. Maximum external static pressure should be 35Pa when using duct flange plate kit "UT-DAS1E" and 50Pa when using "UT-DAS2E".

Duct connected (compact & flexible) FDUH

Model No.

FDUH22KXE6D
FDUH28KXE6D
FDUH36KXE6D



Control box and drain piping can be installed on either left or right hand side of the unit.

Item	Model	FDUH22KXE6D	FDUH28KXE6D	FDUH36KXE6D
Nominal cooling capacity	kW	2.2	2.8	3.6
Nominal heating capacity	kW	2.5	3.2	4.0
Power source		1 Phase 220-240V, 50Hz		
Power consumption	Cooling	0.05-0.07		
	Heating	0.05-0.07		
Sound pressure level**	dB(A)	Hi: 33 Me: 30 Lo: 27		
Exterior dimensions HxWxD	mm	257x570x530		
Net weight	kg	22		
Air flow **	CMM	Hi: 7 Me: 6.5 Lo: 6		
External static pressure	Pa	30		
Outside air intake		Not possible		
Air filter, Q'ty		Procure locally		
Remote control(option)		wired:RC-E4,RCH-E3 wireless:RCN-KIT3-E		
Installation data Refrigerant piping size	mm(in)	Liquid line:ø6.35(1/4")		Liquid line:ø6.35(1/4")
		Gas line:ø9.52(3/8")		Gas line:ø12.7(1/2")

1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.
2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

** Powerful-Hi can be selected. Sound pressure level: FDUH22/28/36 39dB(A). Air flow: FDUH22/28/36 8.5CMM.

Wall mounted - FDK

Model No.

FDK22KXE6D FDK45KXE6D
FDK28KXE6D FDK56KXE6D
FDK36KXE6D FDK71KXE6D



Item	Model	FDK22KXE6D	FDK28KXE6D	FDK36KXE6D	FDK45KXE6D	FDK56KXE6D	FDK71KXE6D	
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	
Power source		1 Phase 220-240V, 50Hz						
Power consumption	Cooling	0.05			0.05		0.09	
	Heating	0.04			0.05		0.09	
Sound pressure level **	Cooling	Hi:35 Me:33 Lo:31	Hi:39 Me:35 Lo:31	Hi:41 Me:35 Lo:31	Hi:42 Me:37 Lo:33	Hi:46 Me:42 Lo:37	Hi:47 Me:43 Lo:39	
	Heating	Hi:35 Me:33 Lo:31	Hi:39 Me:35 Lo:31	Hi:41 Me:35 Lo:31	Hi:42 Me:37 Lo:33	Hi:46 Me:42 Lo:37	Hi:47 Me:43 Lo:39	
Exterior dimensions H x W x D	mm	298 x 840 x 259					318 x 1098 x 248	
Net weight	kg	12			12.5	13	15.5	
Air flow **	CMM	Hi:8 Me:7 Lo:6	Hi:9 Me:8 Lo:7	Hi:10 Me:9 Lo:7	Hi:11 Me:9 Lo:7	Hi:14 Me:12 Lo:10	Hi:21 Me:18 Lo:15	
Outside air intake		Not possible						
Air filter, Q'ty		Polypropylene net x2 (Washable)						
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-K-E (for FDK22-56), RCN-K71-E (for FDK71)						
Installation data Refrigerant piping size	mm(in)	Liquid line:ø6.35(1/4")			Liquid line:ø6.35(1/4")		Liquid line:ø9.52(3/8")	
		Gas line:ø9.52(3/8")			Gas line:ø12.7(1/2")		Gas line:ø15.88(5/8")	

1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.
2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

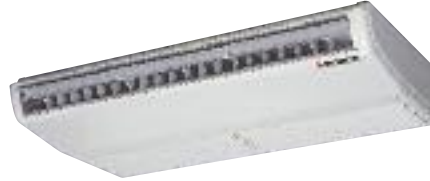
** Powerful-Hi can be selected. Sound pressure level: FDK22/28 38dB(A), FDK36/45 48dB(A)(Cooling)&42dB(A)(Heating), FDK56 48dB(A)(Cooling)&46dB(A)(Heating), FDK71 47dB(A). Air flow: FDK22/28 11CMM, FDK36/45 15CMM, FDK56 16CMM, FDK71 24CMM.



Ceiling suspended – FDE

Model No.

FDE36KXE6D FDE71KXE6D
FDE45KXE6D FDE112KXE6D
FDE56KXE6D FDE140KXE6D



Item	Model	FDE36KXE6D	FDE45KXE6D	FDE56KXE6D	FDE71KXE6D	FDE112KXE6D	FDE140KXE6D
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
Power source		1 Phase 220-240V, 50Hz					
Power consumption	Cooling	0.04-0.05			0.08-0.09	0.12-0.14	0.14-0.15
	Heating	0.04-0.05			0.07-0.08	0.11-0.13	0.13-0.14
Sound pressure 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	210 x 1070 x 690			210 x 1320 x 690	250 x 1620 x 690	
Net weight	kg	28			37	49	
Air flow ※	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
Outside air intake		Not possible					
Air filter, Q'ty		Pocket Plastic net x2 (Washable)					
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-E-E					
Installation data Refrigerant piping size	mm(in)	Liquid line:ø6.35(1/4") Gas line:ø12.7(1/2")			Liquid line:ø9.52(3/8") Gas line:ø15.88(5/8")		

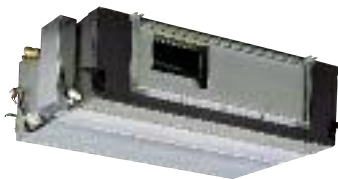
1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.
2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

※ Powerful-Hi can be selected. Sound pressure level: FDE36/45/56 46dB(A), FDE71 50dB(A), FDE112 46dB(A), FDE140 50dB(A). Air flow: FDE36/45/56 13CMM, FDE71 22CMM, FDE112 28CMM, FDE140 32CMM.

Outdoor air processing unit – FDU-F

Model No.

FDU500FKXE6D
FDU850FKXE6D
FDU1300FKXE6D
FDU1800FKXE6D



Item	Model	FDU500FKXE6D	FDU850FKXE6D	FDU1300FKXE6D	FDU1800FKXE6D
Nominal cooling capacity	kW	9.0	14.0	22.4	28.0
Nominal heating capacity	kW	4.2	7.0	10.9	14.8
Power source		1 Phase 220-240V, 50Hz			
Power consumption	Cooling	0.11	0.16	0.27	0.31
	Heating	0.11	0.16	0.27	0.31
Sound pressure level	dB(A)	38	41	43	46
Exterior dimension HxWxD	mm	360x820x830	360x1200x830	360x1570x830	
Net weight	kg	48	62	82	84
Air flow (Standard)	CMM	8.5	14	22	30
	CMH	510	840	1320	1800
External static pressure	Pa	200			
Air filter, Q'ty		Procure locally			
Remote control(option)		wired:RC-E4,RCH-E3 wireless:RCN-KIT3-E			
Installation data Refrigerating piping size	mm (in)	Liquid line:ø9.52(3/8") Gas line:ø15.88(5/8")		Liquid line:ø9.52(3/8") Gas line:ø19.05(3/4")	Liquid line:ø9.52(3/8") Gas line:ø22.22(7/8")

1. The data are measured at 33°CDB 28°CWB (68%RH) during cooling and 0°CDB 2.9°CWB (50%RH) during heating (no frost). External static pressure of indoor unit with optional fan controlling kit "U-FCRB" is 100Pa.

2. Temperature range of outdoor air must be 20~40°CDB (32°CWB) during cooling and -10~24°CDB during heating.

3. Operation sound is measured in an anechoic room based on JIS standard. In case of actual room installation, it usually becomes higher than the displayed value due to the surrounding noise and echo.

4. The total connection capacity of the other standard air conditioning units and the outdoor air processing units must be from 50% to 100% (the total includes the outdoor air processing unit).The connection capacity of the outdoor air processing unit must not exceed 30% of the capacity of the outdoor unit.

5. Single outdoor air processing unit can be used alone. The connection capacity of the outdoor air processing unit must be from 50% to 100% of the total capacity of the outdoor unit.

6. Single outdoor air processing unit can be used alone. Maximum number of outdoor air processing units that can be connected to the outdoor unit is 2units.

7. Values of sound pressure level become increased 5dB(A), when external static pressure is 200Pa (factory setting).

8. Values of air flow volume are those at external static pressure 200Pa (factory setting).

Floor standing – 2way – FDFW

Model No.

FDFW28KXE6D
FDFW45KXE6D
FDFW56KXE6D



Item	Model	FDFW28KXE6D	FDFW45KXE6D	FDFW56KXE6D
Nominal cooling capacity	kW	2.8	4.5	5.6
Nominal heating capacity	kW	3.2	5.0	6.3
Power source		1 Phase 220-240V, 50Hz		
Power consumption	Cooling	0.02-0.02	0.03-0.03	0.05-0.05
	Heating	0.02-0.02	0.03-0.03	0.05-0.05
Sound pressure level	dB(A)	Hi:36 Me:34 Lo:30	Hi:38 Me:36 Lo:33	Hi:44 Me:37 Lo:33
Exterior dimensions H x W x D	mm	600x860x238		
Net weight	kg	19	20	
Air flow (Standard)	CMM	Hi:9 Me:8 Lo:7		Hi:11 Me:9 Lo:8
Air filter, Q'ty		Polypropylene net x1 (Washable)		
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-FW-E		
Installation data Refrigerant piping size	mm(in)	Liquid line:ø6.35(1/4") Gas line:ø9.52(3/8")	Liquid line:ø6.35(1/4") Gas line:ø12.7(1/2")	

1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.
2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

Floor standing (with casing) FDFL & Floor standing (without casing) FDFU

Model No.

FDFL71KXE6D FDFU28KXE6D
FDFU45KXE6D
FDFU56KXE6D
FDFU71KXE6D



FDFL



FDFU (concealed type)

Item	Model	FDFL71KXE6D	FDFU28KXE6D	FDFU45KXE6D	FDFU56KXE6D	FDFU71KXE6D
Nominal cooling capacity	kW	7.1	2.8	4.5	5.6	7.1
Nominal heating capacity	kW	8.0	3.2	5.0	6.3	8.0
Power source		1 Phase 220-240V, 50Hz				
Power consumption	Cooling	0.09-0.10	0.09-0.10			0.09-0.10
	Heating	0.09-0.10	0.09-0.10			0.09-0.10
Sound pressure level	dB(A)	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	630x1481x225	630x1077x225			630x1362x225
Net weight	kg	40	25			32
Air flow (Standard)	CMM	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 x1 (Washable)				
Remote control(option)		wired:RC-E4, RCH-E3 wireless:RCN-KIT3-E				
Installation data Refrigerant piping size	mm(in)	Liquid line:ø9.52(3/8") Gas line:ø15.88(5/8")	Liquid line:ø6.35(1/4") Gas line:ø9.52(3/8")	Liquid line:ø6.35(1/4") Gas line:ø12.7(1/2")		Liquid line:ø9.52(3/8") Gas line:ø15.88(5/8")

1. The data are measured under the following conditions(ISO-T1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.
2. Sound pressure level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.



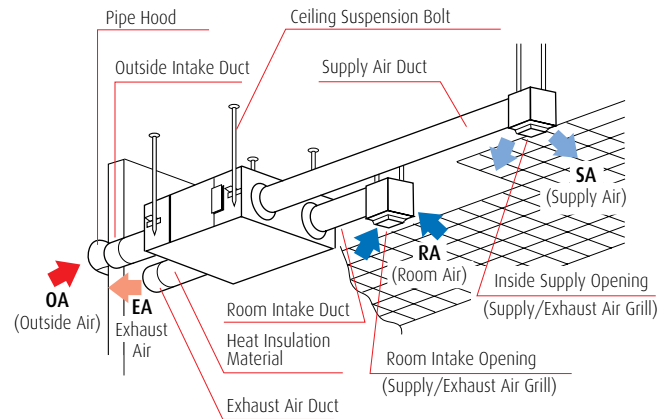
Fresh air ventilation and heat exchange unit SAF-E4

Model No.

- SAF250E4
- SAF350E4
- SAF500E4
- SAF800E4
- SAF1000E4



Installation reference

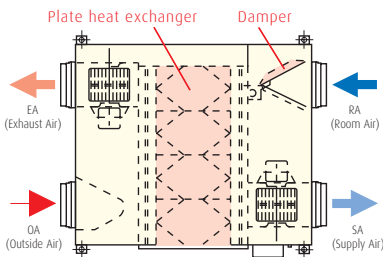


The SAF recovers heat energy which would otherwise be exhausted to atmosphere, and uses this energy to warm the air entering the building. The reverse happens in warmer climates, where the exhausted cool air is used to partially cool the incoming air.

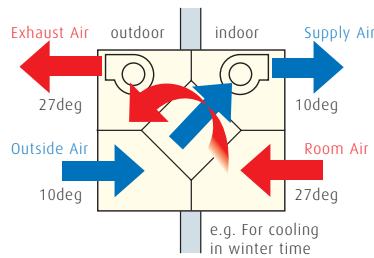
Capturing this waste energy, means the heating/ cooling requirements of the building are reduced, so smaller size plant can be selected, savings can be made in long term energy consumption, and carbon emissions are reduced.

The inclusion of the SAF energy recovery ventilation units in the building design, will reduce the total amount of carbon emissions.

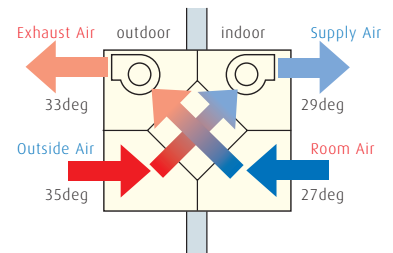
Structure (SAF1000E4)



Principle of operation (simple ventilation) FREE COOLING



Principle of operation (heat exchanging) ENERGY RECOVERY



Item	Model	SAF250E4	SAF350E4	SAF500E4	SAF800E4	SAF1000E4	
Power source		1 Phase 220-240V, 50Hz					
Exterior dimensions Height x Width x Depth	mm	270x882x599	170x882x804	270x962x904	388x1322x884	388x1322x1135	
Exterior appearance		Galvanised steel sheet					
Power input	W	99-114	124-137	169-188	309-359	360-399	
	Running current	A	0.46-0.48	0.59-0.60	0.79-0.81	1.48-1.50	1.85-1.93
Capacity	UHi	Enthalpy exchange efficiency	Cooling	63	66	62	65
			Heating	70	69	67	71
		Temperature exchange efficiency	75				
	Hi	Enthalpy exchange efficiency	Cooling	63	66	62	65
			Heating	70	69	67	71
		Temperature exchange efficiency	75				
Lo	Enthalpy exchange efficiency	Cooling	66	69	77	68	68
		Heating	73	71	67	74	73
	Temperature exchange efficiency	77					
Motor & Q'ty	kW	0.02x2	0.044x2	0.062x2	0.117x2	0.137x2	
Air handling equipment Fan type & Q'ty		Sirocco fan x 2					
Air flow	UHi	250	350	500	800	1000	
	Hi	250	350	500	800	1000	
	Lo	170	280	370	650	810	
Available static pressure	UHi	90	95	105	140	90	
	Hi	80	65	70	110	55	
	Lo	37	42	38	70	35	
Remote control		Standard equipment					
Air filter	Out take intake air Exhaust air	Protection for element (Washable) PS400					

CASE STUDIES

Crossways Academy, Lewisham

The Crossways Academy in Lewisham, South East London, opened in 2005 and since then a changing curriculum and a substantial increase in the level of IT equipment employed by staff and students has prompted the need for additional cooling in classrooms, the main hall and in the library/resources centre.

The building's original design placed great emphasis on energy efficiency using natural ventilation and an under floor heating system. The college therefore wanted to ensure that the new air conditioning system would complement this energy conscious concept, meeting high and variable heat loads while delivering top levels of energy efficiency under typically tight budget constraints.

Variable Demand

Comfortable temperatures need to be maintained as economically as possible where large numbers of students will enter or leave classrooms at the same time. I.T. equipment being switched on and off and the use of electric blinds to control glare will all contribute to the substantial fluctuations in heat load.

Design engineers concluded MHI's KX6 2-pipe system would be the best option, providing cooling via 30 ceiling or wall mounted indoor units which were selected to allow minimal disruption during the retro-fit. The original building design relied on natural ventilation with electronically operated windows, the KX6 system was linked into this control system to shut off indoor units when windows are opened.

The Best Package

The college went on to explain: "The MHI system provided the best package of performance, economy in use and competitive capital cost for this application, with the added advantage of needing little plant space due to the compact size of the units".



Left:

VRF Outdoor Units on the roof top plant space.

Below:

Crossways Academy main entrance.





Ford Showroom, Swindon

The new Allen Ford car showroom and service centre facility recently opened in Swindon selected MHI's KX6 and MICRO KX6 VRF heat pump systems to provide comfortable conditions in all seasons for customers and staff.

Allen Ford's new car and commercial vehicles dealership premises includes a 600m² sales area comprising of a showroom, offices and meeting room which all required air conditioning, together with a 900m² adjoining building for service and repairs where the reception area, offices and canteen also required comfort cooling and heating.

Planning constraints at the site required low profile outdoor units to be applied, making the MICRO KX6 systems an ideal solution. The 12.0kW cooling capacity outdoor units are connected to five ceiling concealed ducted indoor units (FDUM type) to provide cooling to the showroom, offices and meeting room.

Also integrated with the cooling system are three MHI fresh air heat recovery units (SAF800E4) each ventilating the sales area at 800m³/h and economically using the waste stream to pre-cool or pre-heat the incoming air, helping to reduce the overall energy demand to cool or heat the building and thus comply with Part L2 building regulations.

Meanwhile the service centre building employs an additional KX6 heat pump system (28.0kW cooling capacity) connected to two compact and two standard ceiling cassette indoor units (FDTC and FDT type) for the reception area and office spaces, while a ceiling concealed ducted indoor unit serves the canteen area.

The Best Solution

The entire system has been integrated on to a single control network that enables individual unit control as well as centralised control from the main reception area. Allen Ford's spokesman explained "after receiving several design and cost proposals, we concluded the MHI systems were the best solution based on their specification, energy efficiency, reliability and price".



Top:
Allen Ford's showroom.
Above:
Low profile MICRO KX6
Outdoor Units.

Icon Hotel, Luton

The Icon is Luton's newest four star hotel and is born out of the redevelopment and annexing of two substantial office buildings, creating a luxury boutique hotel close to the town centre.

The 34 guest bedrooms are air conditioned by a KXR6 heat recovery system that comprises of a single outdoor unit of 61.5kW cooling/69.0kW heating capacity, connected to a ceiling concealed ducted indoor unit (FDUH type) in the bulk head of each of the rooms. The KXR6 heat recovery system enables simultaneous heating and cooling of individual rooms according to the guests' requirement, recovering waste heat energy to provide highly efficient heating to rooms with a heating demand.

MHI's simplified remote controller (RCH-E3), designed specifically for hotel room usage, is wall

mounted in each room so that guests may control their room climate as they wish without any complication, while the hotel management can limit the range of temperature settings as necessary in order to maximise efficiency of use.

Open Plan Areas

The ground floor facilities including the reception, bar and fitness suite are served by a single KX6 heat pump system that again comprises of a single outdoor unit of 61.5kW cooling/69.0kW heating capacity connected to ceiling mounted 4-way cassette (FDT type) indoor units. The open plan design of the ground floor means that only either all cooling or all heating from the indoor units is required at any one time.

Two split systems with 7.1kW cooling capacity are also installed to serve the managers office and a data room via wall mounted (FDK type) indoor units. All of the hotels air conditioning is linked through MHI's LonWorks gateway interface (SC-LGWN-A) to the hotel's building management system.

The Icon's developer Franco Anacreonte explained: "MHI's KX6 systems enabled us to apply highly efficient heating and cooling to the entire building at a very competitive cost, while maintaining high levels of control from both the guest and the management point of view. We can monitor and control the system operation to maximise comfort levels and minimise energy usage".

Left:

Icon reception area.

Below:

Icon lounge & bar.



Curve Theatre, Leicester

The brand new Curve Theatre building in Leicester is equipped with the latest in theatre technology including two auditoria with a total of 1,200 seats, as well as several studios, rehearsal and dressing rooms, dining and workshop areas.

Consulting engineers Arup designed and specified a KX6 system of more than 200kW cooling capacity to provide efficient comfort cooling and heating to the various zones of the theatre building, applying a mixture of ceiling mounted (FDUM/FDT type) and wall mounted (FDK type) indoor units.

BMS Integration

Meanwhile additional MHI split systems were installed in the theatre's transformer room to provide constant year round cooling and along with the KX6 system are fully integrated with the theatre's BMS linked through the MHI BACnet gateway interface. (SC-BGWN-A)

The Curve's building management explained; "the new theatre is a complex building with several zones with widely differing heating/cooling requirements – however climate control of the site is simple and effective, while linking to our BMS system enables us to maximise the efficiency of use of the air conditioning".



Above:
Curve Theatre's impressive frontage.

High Timber, London



Above:
High Timber's 80 seat restaurant.

The High Timber restaurant in London's Square Mile boasts the only Thames-side seating in the City, it focuses on relaxed fine wine dining and is the brainchild of South African winemakers Gary and Kathy Jordan.

Four MHI Micro KX6 systems were selected to provide comfort cooling and heating to the 80 seat ground floor restaurant area and its adjoining kitchen, together with a private dining room and an office area in the basement which also has temperature controlled wine cellars housing some 40,000 bottles.

Compact Units

KX6 wall mounted (FDK type) indoor units serve the basement and kitchen areas while ceiling mounted cassettes (FDT type) serve the open plan restaurant. The four Micro KX6 outdoor units are installed in a ventilated plant room above the restaurant, as explained by installer Adcock's; "It was essential to preserve as much space as possible in the plant room for other activities and routine maintenance while ensuring good ventilation to the VRF units.

"The KX6 micro units have a low height dimension with their single fan arrangement, unlike the usual twin fan products for which we had no room. This enabled us to apply a product with all the advantages of control and efficiency of a VRF system while using absolute minimal plant space".

Office Complex, Humberside

Severely limited plant space was a major factor in determining the right VRF system to be installed at a new office building development in Humberside. The building orientation and the cellular layout of the internal space also meant there was a requirement for a heat recovery system that can simultaneously heat and cool different rooms or zones of the building through individual indoor units.

Simultaneous Heating & Cooling

The MHI KXR6 heat recovery (3-pipe) system provided the ideal solution as the total cooling demand for the building at almost 400kW could only be accommodated within the restricted plant space by the compact design of the KXR6 outdoor units. The climate control for the entire building is served through 127 indoor units, with ceiling concealed ducted units (FDUM type) serving the open plan areas and compact 4-way ceiling cassettes (FDTC type) serving individual office areas.

Meanwhile the KXR6 control system has been fully integrated with the controls for the other facilities through the building's BMS system via a BACnet interface (SC-BGW-NA), also supplied by MHI. The BACnet interface is just one of several controls options that can be used to integrate MHI VRF systems to any new or existing BMS or BEMS system.

Right:
4way Ceiling Cassette (FDT TYPE).
Below:
The limited roof top plant space.





Pullman Fleet Services, South Yorkshire

Part of the Wincanton Group, the leading supply chain solutions provider, Pullman Fleet Services specialises in fleet management and maintenance for commercial transport operations, including refrigerated vehicles.

Cost Effective Heating

A build up of heat throughout the head office building's three stories during summer months prompted PFS Operations Director Terry Siddle to seek more effective climate control: "We had tried portable air conditioning units but they were largely ineffective, particularly in the larger open plan areas. Our facilities management recommended the MHI KX6 VRF system to keep us cool in the summer and provide cost effective heating in the winter".

Six systems each with 40kW cooling capacity are installed connected to 42 ceiling cassette indoor units (FDT type) serving the cellular office areas while the larger open plan areas are served by ten ceiling concealed ducted indoor units (FDUM type).

Energy Efficiency

Mr Siddle also explained "the KX6 system offered a solution with leading levels of energy efficiency and the wide product range ensured our challenging design brief could be met without any issues".

Above:
KX6 Outdoor Units.

Top:
4way cassette (FDT type).

GLOBAL ACTIVITY

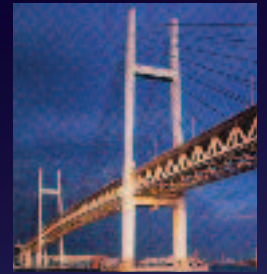
On the land and sea, in the sky and even in space, MHI's stage of operations is expanding limitlessly. We manufacture more than 700 different products which support various industrial and civil activities in both domestic and international markets.

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.

ENVIRONMENT

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



RESOURCES/ENERGY

- 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



LOCAL DEVELOPMENT

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



INFORMATION SYSTEM

- Cable Layer
- Printing Machinery

LEISURE/LIFESTYLE

- 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



DEVELOPMENT

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



TRANSPORTATION



- 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

INDUSTRIAL

- 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



DEFENCE

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





Head Office

Rougham Industrial Estate
Rougham, Bury St Edmunds
Suffolk IP30 9XA

Tel: 01359 270888 Fax: 01359 271132
headoffice@hrpltd.co.uk
www.hrponline.co.uk

HRP Group Technical Centre

159 Edinburgh Avenue
Slough Trading Estate
Slough SL1 4UE

Tel: 01753 495700 Fax: 01753 495701
training@hrponline.co.uk
www.hrponline.co.uk/tc/

3D Air Sales Ltd

159 Edinburgh Avenue
Slough Trading Estate
Slough SL1 4UE

Tel: 01753 495720 Fax: 01753 495721
sales@3dair.co.uk
www.3dair.co.uk

Bedford

Unit B6
Manton Centre
Manton Lane
Bedfordshire
MK41 7PX

Tel: 01234 272702
bedford@hrpltd.co.uk

Fareham

Unit 2
Stephenson Road
Segensworth, Fareham
Hampshire
PO15 5RU

Tel: 01329 443515
fareham@hrpltd.co.uk

Newcastle

Unit K4, Hamar Close
Tyne Tunnel Trading Estate
North Shields
Tyne & Wear
NE29 7XB

Tel: 0191 258 3492
newcastle@hrpltd.co.uk

Southampton

Unit 2, South Hampshire
Industrial Park
Salisbury Road
Totton, Southampton
Hampshire SO40 3SA

Tel: 02380 869966
southampton@hrpltd.co.uk

Birmingham

Unit 16 & 17, Fulford Drive
Minworth Industrial Park
Minworth, Sutton Coldfield
West Midlands B76 1DR

Tel: 0121 313 6720
birmingham@hrpltd.co.uk

Glasgow

140 St. Andrew's Road
Pollokshields
Glasgow
G41 1PP

Tel: 0141 420 1606
glasgow@hrpltd.co.uk

Norwich

4/6 Murrayfield Road
Fifers Lane
Norwich
Norfolk NR6 6NQ

Tel: 01603 409616
norwich@hrpltd.co.uk

Swanley

Teardrop Centre
London Road
Swanley
Kent BR8 8TJ

Tel: 01322 614811
swanley@hrpltd.co.uk

Bristol

Unit 100
The Quadrant
Ash Ridge Road
Bradley Stoke
Bristol BS32 4QA

Tel: 01454 456430
bristol@hrpltd.co.uk

Leeds

Unit 1, Aintree Court
Hunslet Business Park
National Road Leeds
West Yorkshire
LS10 1TF

Tel: 0113 277 5000
leeds@hrpltd.co.uk

Sheffield

Unit 2, Brightside
443 Brightside Lane
Sheffield
South Yorkshire
S9 2RS

Tel: 0114 244 8222
sheffield@hrpltd.co.uk

Walthamstow

Unit 12
Waltham Park Way
Billett Road
Walthamstow
London E17 5DU

Tel: 0208 531 9321
walthamstow@hrpltd.co.uk

Bury St. Edmunds

Rougham Industrial Estate
Rougham
Bury St Edmunds
Suffolk IP30 9XA

Tel: 01359 270888
rougham@hrpltd.co.uk

Merton

Unit 2
Saxon Business Centre
Windsor Avenue
Merton, London, SW19 2RR

Tel: 0208 544 1010
merton@hrpltd.co.uk

Slough

159 Edinburgh Avenue
Slough Trading Estate
Slough
SL1 4UE

Tel: 01753 495710
slough@hrpltd.co.uk

Warrington

5 Rivington Court
Hardwick Grange
Warrington
Cheshire WA1 4RT

Tel: 01925 837688
warrington@hrpltd.co.uk



www.mitsubishiaircon.co.uk