DAIKIN

Air Conditioning

Technical Data

High temperature hydrobox for VRV

EEDEN15-204

HXHD-A8

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HXHD-A8

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1 Features

For efficient hot water production and space heating

- Air to water connection to VRV for applications such as bathrooms, sinks, underfloor heating, radiators and air handling units
- Leaving water temperature range from 25 to 80°C without electric heater
- "Free" heating and hot water production provided by transferring heat from areas requiring cooling to areas requiring heating or hot water
- Uses heat pump technology to produce hot water efficiently, providing up to 17% savings compared to a gas boiler
- Possibility to connect thermal solar collectors to the domestic hot water tank
- Super wide operating range for hot water production from -20 to +43°C ambient outdoor temperature
- Saves time on system design as all water-side components are fully integrated with direct control over leaving water temperature
- Various control possibilities with weather dependant set point or thermostat control
- The indoor unit and domestic hot water tank can be stacked to save space, or installed next to each other, if only limited height is available
- No gas connection or oil tank needed
- Connectable to VRV IV heat recovery

2 Specifications

2-1 Technical Specifications					HXHD125A8
Heating capacity	Nom.			kW	14.0 (1)
Dimensions	Unit	Height		mm	705
		Width		mm	600
		Depth		mm	695
	Packed unit	Height		mm	860
		Width		mm	680
		Depth		mm	800
Weight	Unit			kg	92
	Packed unit			kg	103
Packing	Material				EPS / Cardboard / MDF / Wood (pallet) / Metal
	Weight			kg	8.75
Casing	Colour				Metallic grey
	Material				Precoated sheet metal
Pump	Type				DC motor
	Nr of speeds				Inverter controlled
	Nominal ESP unit	Heating		kPa	46.6 (2)
Expansion vessel	Volume			l	7
	Max. water pressure			bar	3
	Pre pressure			bar	1
Sound power level	Nom.			dBA	55 (3)
Sound pressure level	Nom.			dBA	42 (3) / 43 (4)
	Night quiet mode	Level 1		dBA	38 (3)
Operation range	Heating	Ambient	Min.	°C	-20
			Max.	°C	20 / 24 (5)
		Water side	Min.	°C	25
			Max.	°C	80
	Domestic hot water	Ambient	Min.	°CDB	-20
			Max.	°CDB	43
		Water side	Min.	°C	45
			Max.	°C	75
Refrigerant	Type				R-134a
	Charge			kg	2
Refrigerant circuit	Gas side diameter			mm	12.7
	Liquid side diameter			mm	9.52
	High pressure side	Design pressure		bar	38
Water circuit	Piping connections diameter			inch	G 1" (female)
	Piping			inch	1"
	Safety valve			bar	3
	Manometer				Yes
	Drain valve / fill valve				Yes
	Shut off valve				Yes
	Air purge valve				Yes
	Heating water system	Water volume	Max.	l	200
			Min.	l	20
Refrigerant oil	Charged volume			l	0.75
	Type				FVC50K
Refrigerant side heat exchanger	Type				Plate heat exchanger
	Quantity				1
	Plates	Quantity			66
	Material				AISI 316
	Insulation material				Felt type

2 Specifications

2-1 Technical Specifications					HXHD125A8
Water side Heat exchanger	Water flow rate	Min.		l/min	5
		Heating	Nom.	l/min	40.1 (2)
	Heating	Type			Plate heat exchanger
		Quantity			1
		Plates	Quantity		72
		Material			AISI 316
		Water volume		l	2.2
		Insulation material			Felt type
Water filter	Diameter perforations			mm	1.0
	Material				Brass
Cascade compressor	Quantity				1
	Motor	Type			Hermetically sealed swing compressor
		Starting method			Direct on line
Installation place					Indoor

2-2 Electrical Specifications				HXHD125A8
Power supply	Phase			1~
	Frequency		Hz	50
	Voltage		V	220-240
	Voltage range	Min.	%	-10
		Max.	%	6
Current	Minimum Ssc value		kVa	1459 / (6)
	Maximum running current	Heating	A	16.5
	Recommended fuses		A	20
Wiring connections	For power supply	Quantity		2G
		Type of wires		Select diameter and type according to national and local regulations
	Benefit kWh rate power supply installations	Quantity		2G+2G
		Type of wires		Select diameter and type according to national and local regulations
	For power supply multi tenant	Quantity		2G
		Remark		Select diameter and type according to national and local regulations
	For connection with outdoor unit	Quantity		2
		Remark		F1 + F2
Power supply intake				Both indoor and outdoor unit
Multi tenant	Power supply	Voltage	V	24
		Voltage range Min.	%	-20
		Voltage range Max.	%	20
	Current	Maximum running current	A	1
		Recommended fuses	A	3.15

2 Specifications

Notes

(1) EW 40°C; LW 45°C; Dt 5°C; ambient conditions: 7°CDB/6°CWB

(2) For water Dt 5°C

(3) Sound levels are measured at: EW 55°C; LW 65°C

(4) Sound levels are measured at: EW 70°C; LW 80°C

(5) Field setting

(6) Short-circuit power

Sound level is valid in free field condition because it is measured in a semi-anechoic room. Measured value under actual installation conditions will be higher due to environmental noise and sound reflections.

EW = entering water temperature - LW = leaving water temperature

In accordance with EN/IEC 61000-3-11, it may be necessary to consult the distribution network operator to ensure that the equipment is connected only to a supply with Zsys (system impedance) ≤ Zmax

European/International Technical Standard setting the limits for voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated current ≤ 75A.

Zsys: system impedance

3 Options

3 - 1 Options

HXHD-A8

1. Options

Indoor unit

Reference		Description	Indoor unit
			HXHD125A*V1B
EKHTS200[AC]		Stainless domestic hot water tank 200l	O
EKHTS260[AC]		Stainless domestic hot water tank 260l	O
EKHTSU200[AC]		Stainless domestic hot water tank 200l (UK)	O
EKHTSU260[AC]		Stainless domestic hot water tank 260l (UK)	O
EKHWP300B		PP 300l tank	O
EKHWP500B		PP 500l tank	O
EKRP1HBAA		Digital I/O PCB	O
EKRP1AHTA	(2)	Demand PCB	O
EKRUAHTB	(3)	Remote user interface	O
EKRTWA	(1)	Wired room thermostat	O
EKRTR1	(1)	Wireless room thermostat	O
EKRTETS	(1)	Remote sensor for room thermostat	O

2. Options

Domestic hot water tank

	Reference	Description	Domestic hot water tank			
			EKHTS		EKHTSU	
			200A	260A	200A	260A
	EKUHWHTB	Option kit for the UK EKHTSU200-260A	-	-	O	O
(4)	*EKFMAHTB*	Option kit for standalone tank	O	O	O	O

Notes

(1) Requires demand PCB EKRP1AHTA

(2) To be able to connect the room thermostat kit, its installation is required.

(3) The kit contains the same user interface as is standard delivered with the indoor unit. It can be mounted next to the indoor unit's standard user interface, or on another location. If you install two user interfaces, designate one as master and the other as slave.

(4) Only required if the tank is NOT mounted on top of the HXHD unit.

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4 Selection procedure

4 - 1 Selection Procedure

HXHD-A8

I. Definitions

Index definition of HXHD125A8

1) Index for selecting the piping and calculating the refrigerant charge and the total connection ratio
→ Index = 125 (see the installation manual and technical specifications drawing 3D097616)
2) Index for calculating and selecting the unit capacity
→ Index depends on leaving water temperature ≠ 125 (see below for details)

Selection procedure

- Outdoor unit heating capacity (design point conditions) = HCo [kW]	► See the heating capacity table of the outdoor unit
- Outdoor unit power input (design point conditions) = PIo [kW]	► See the heating capacity table of the outdoor unit
- HXHD125A8 capacity calculation index = R	► To be looked up (see table below)
- VRV DX + HXY indoor unit capacity index total = S	► To be looked up (depends on the type of VRV DX indoor unit)
- Total indoor unit capacity index = index of connected VRV DX + HXY indoor units + HXHD125A8 capacity calculation index = S+R = J	► To be calculated
- HXHD125A8 heating capacity (design point conditions) = HC [kW]	► To be calculated
- HXHD125A8 power input (design point conditions) = PI [kW]	► To be calculated
- HXHD125A8 cascade step power input = P [kW]	► To be looked up

► HC = HCo / J * 112

Information

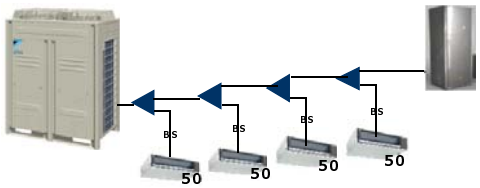
► PI = PIo / J * R + P

: Total power input required to operate the cascade system = fraction of outdoor unit power input + HXHD cascade step power input

IIa. Cascade step power input and HXHD* capacity calculation index

EWT [°C]	30	40	45	55	65
LWT [°C]	**35**	**45**	**55**	**65**	**75**
P [kW]	1.50	1.79	1.83	2.33	3.25
R	103	100	100	96	88

EWT = Entering water temperature
LWT = Leaving water temperature



III. Example

A. *Make clear the design point*

DX indoor units: 4 * ± 5,5kW at -7°CDB/-7.6°CWB outdoor ambient conditions, and 20°C indoor ambient conditions
Water heating: ± 12kW at -7°CDB/-7.6°CWB outdoor ambient conditions, and 65°C leaving water temperature
Required capacity for the building: ± 34kW
→ "50"-type VRV DX indoor units
→ HXHD

Capacity	6.30	Look up the nominal point in the indoor unit capacity table
P [kW]	2.33	See table above [=f(leaving water temperature)]
HC_o [kW]	33.1	Look up in the heating capacity table [=f(Ta indoor; Ta outdoor; HP)] ~ correct with β
PI_o [kW]	9.44	Look up in the heating capacity table [=f(Ta indoor; Ta outdoor; HP)]
		→ Determine the outdoor unit HP class

A1. *Calculate the total indoor unit capacity index*

4* "50"-type VRV indoor units	:	S	200	S: Depends on the selection of DX indoor units
HXHD125*	:	R	96	R: See table above [=f(leaving water temperature)]
→ J = R + S		J	296	J: Σ(S,R)

A2. *HXHD* specifications at the design point*

HC = HC_o / J * 112	**HC [kW]**	**12.5**	
PI = PI_o / J * R + P	PI [kW]	5.39	
Heating capacity left for DX indoor units	[kW]	22.4	(=33,5*200/296)
Heating capacity left per DX indoor unit	[kW]	**5.59**	

B. *Check the connection ratio*

At least one HXHD*			OK
DX connection ratio: 50% <= x <= 110%	200/350	57%	OK
HXHD connection ratio: <= 100%	125/350	36%	OK
Total connection ratio: 50% <= x <= 200%	296/350	93%	OK

For more information about the combination restrictions, refer to drawing 3D088013
For more information about the allowed connection ratios, refer to drawing 3D088012

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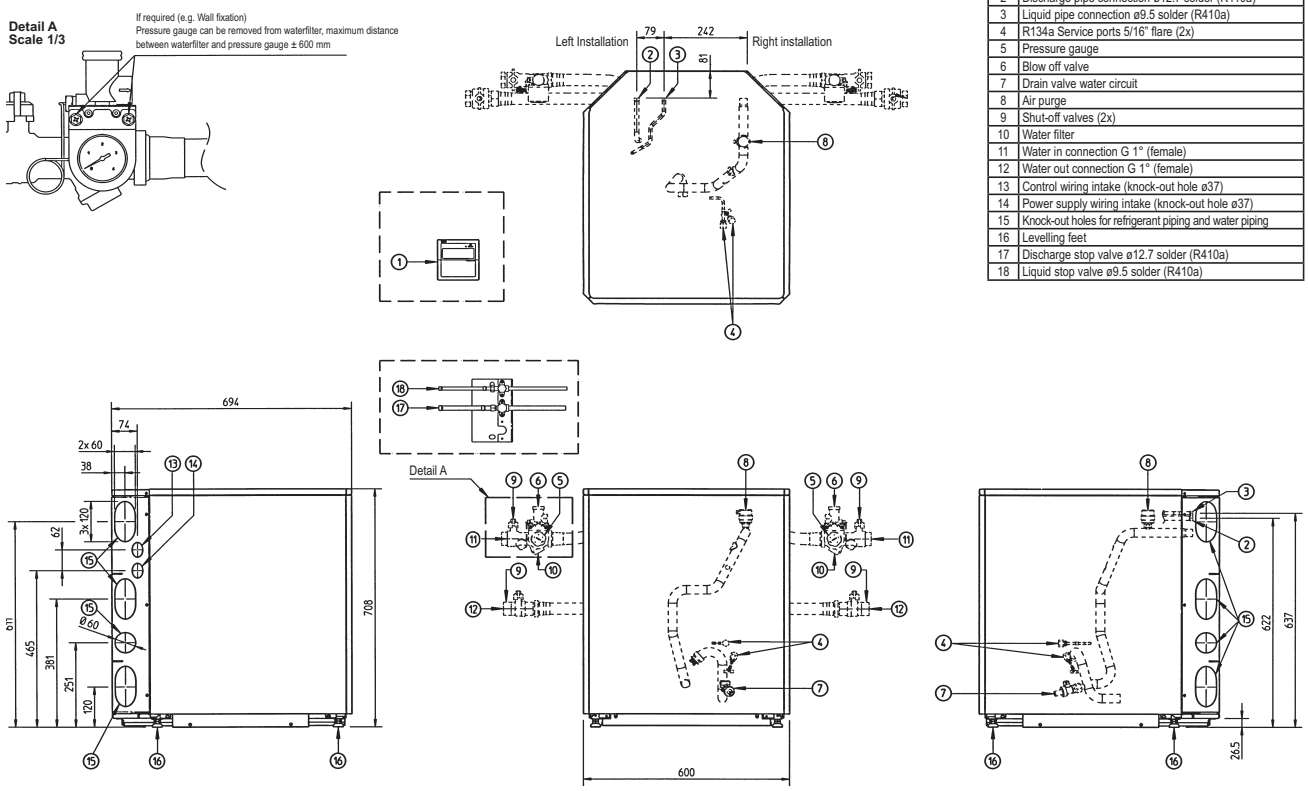
5 Dimensional drawings

5 - 1 Dimensional Drawings

HXHD-A8



1	Remote control (delivered as accessory) Installation location is outside the unit
2	Discharge pipe connection ø12.7 solder (R410a)
3	Liquid pipe connection ø9.5 solder (R410a)
4	R134a Service ports 5/16" flare (2x)
5	Pressure gauge
6	Blow off valve
7	Drain valve water circuit
8	Air purge
9	Shut-off valves (2x)
10	Water filter
11	Water in connection G 1° (female)
12	Water out connection G 1° (female)
13	Control wiring intake (knock-out hole ø37)
14	Power supply wiring intake (knock-out hole ø37)
15	Knock-out holes for refrigerant piping and water piping
16	Levelling feet
17	Discharge stop valve ø12.7 solder (R410a)
18	Liquid stop valve ø9.5 solder (R410a)

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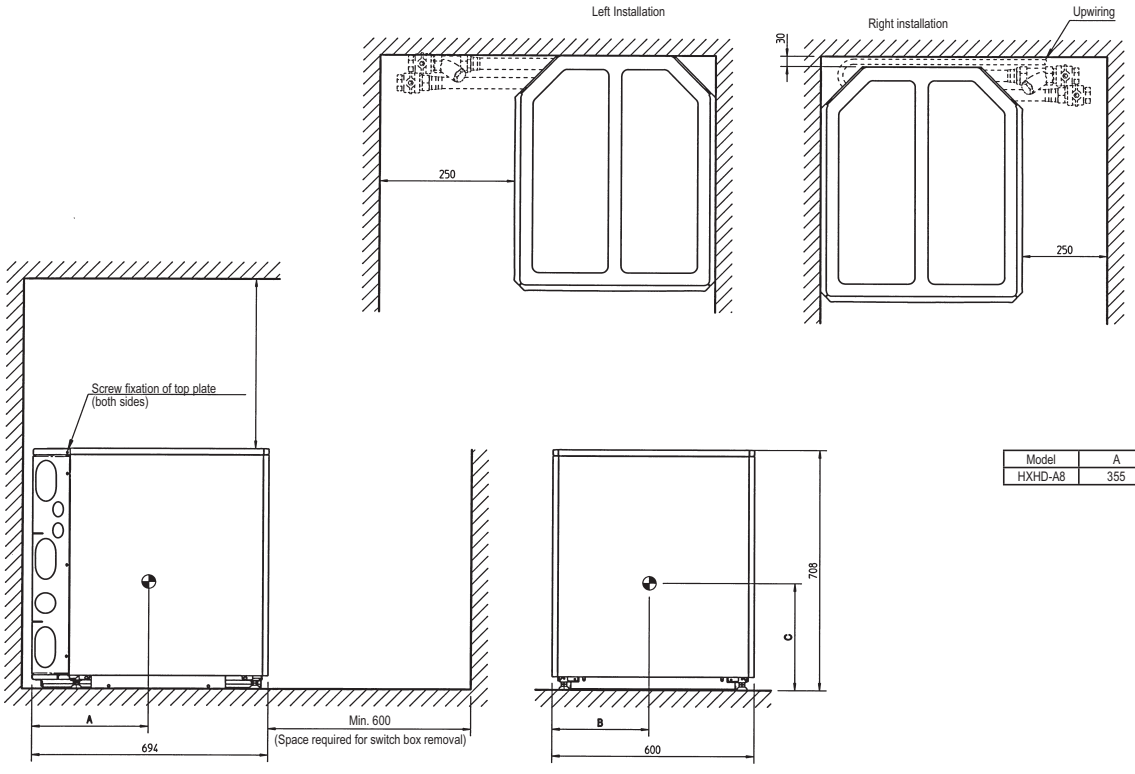
HXHD-A8



Model	A	B	C
HXHD-A8	355	270	300

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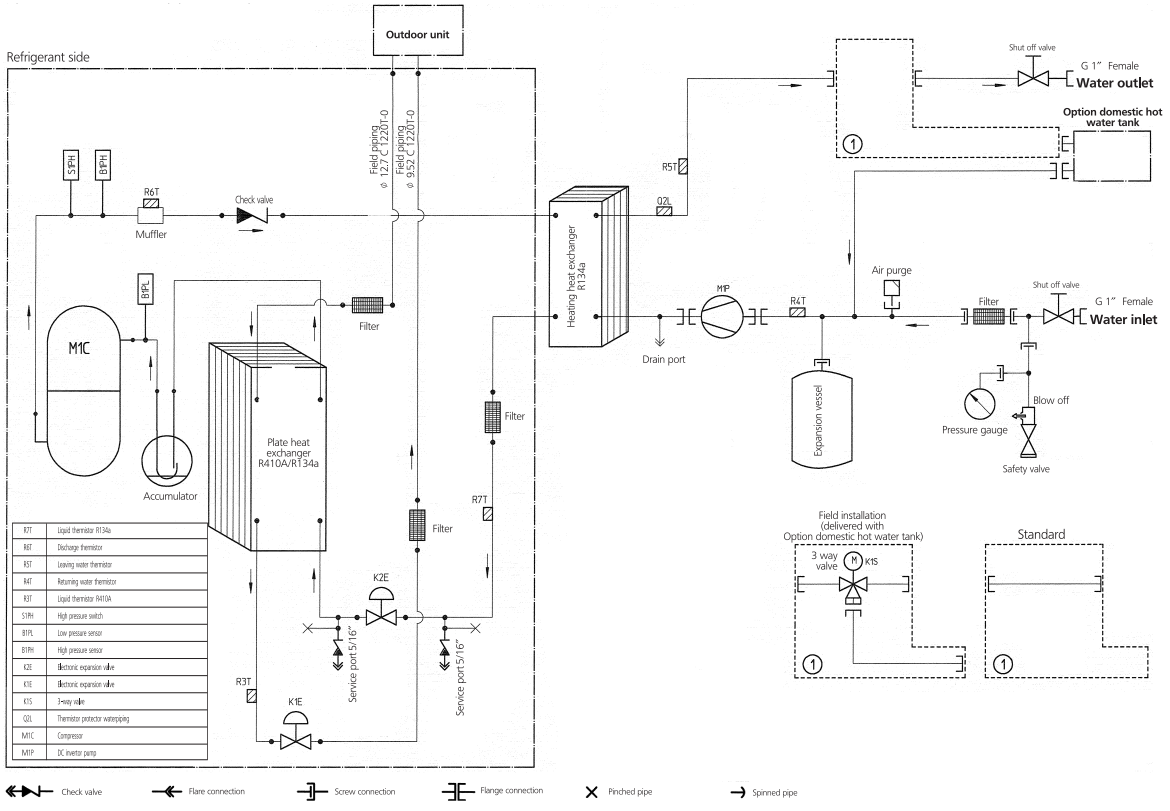
6 Piping diagrams

6 - 1 Piping Diagrams

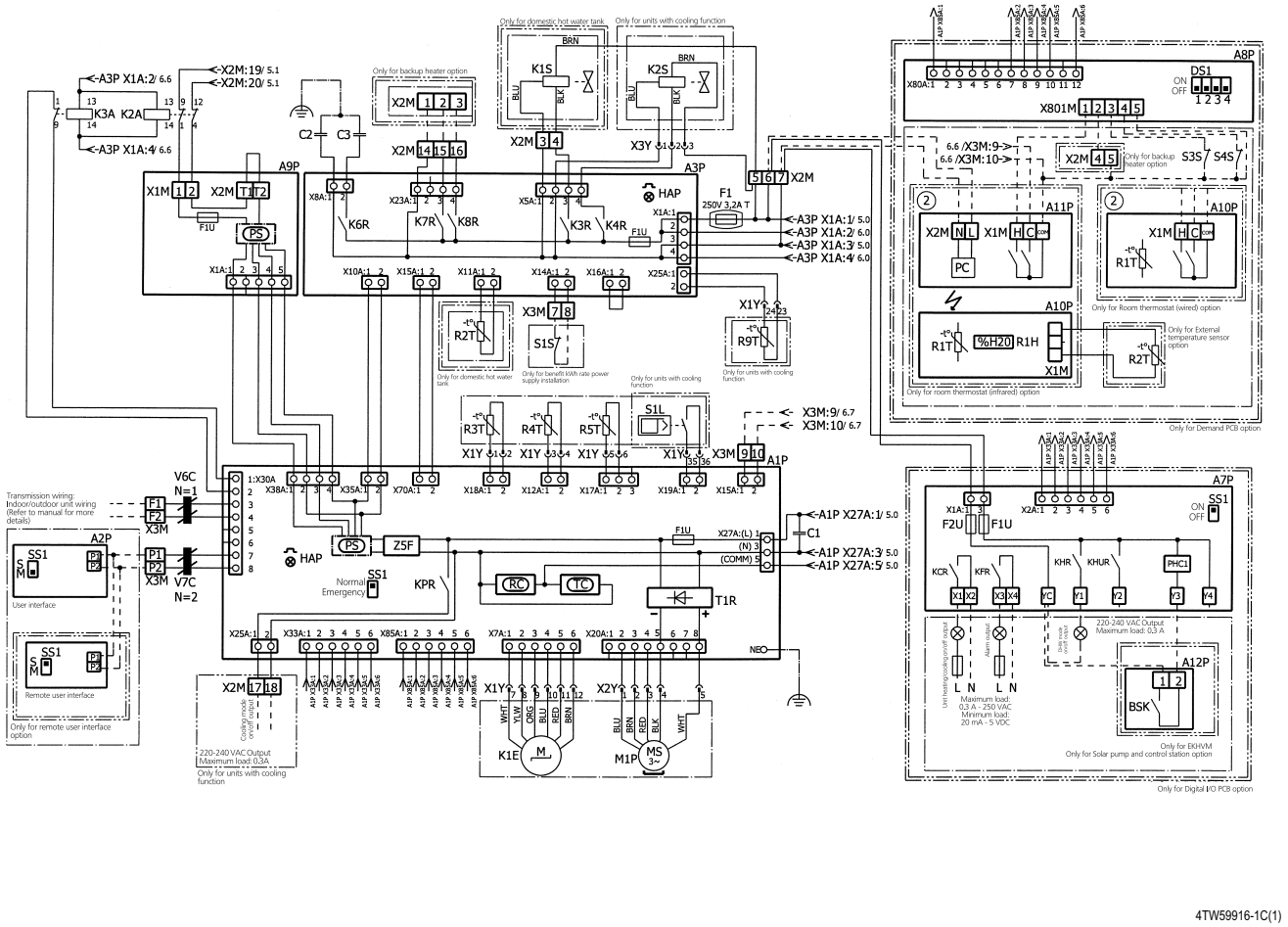
HXHD-A8



7 Wiring diagrams

7 - 1 Wiring Diagrams - Single Phase

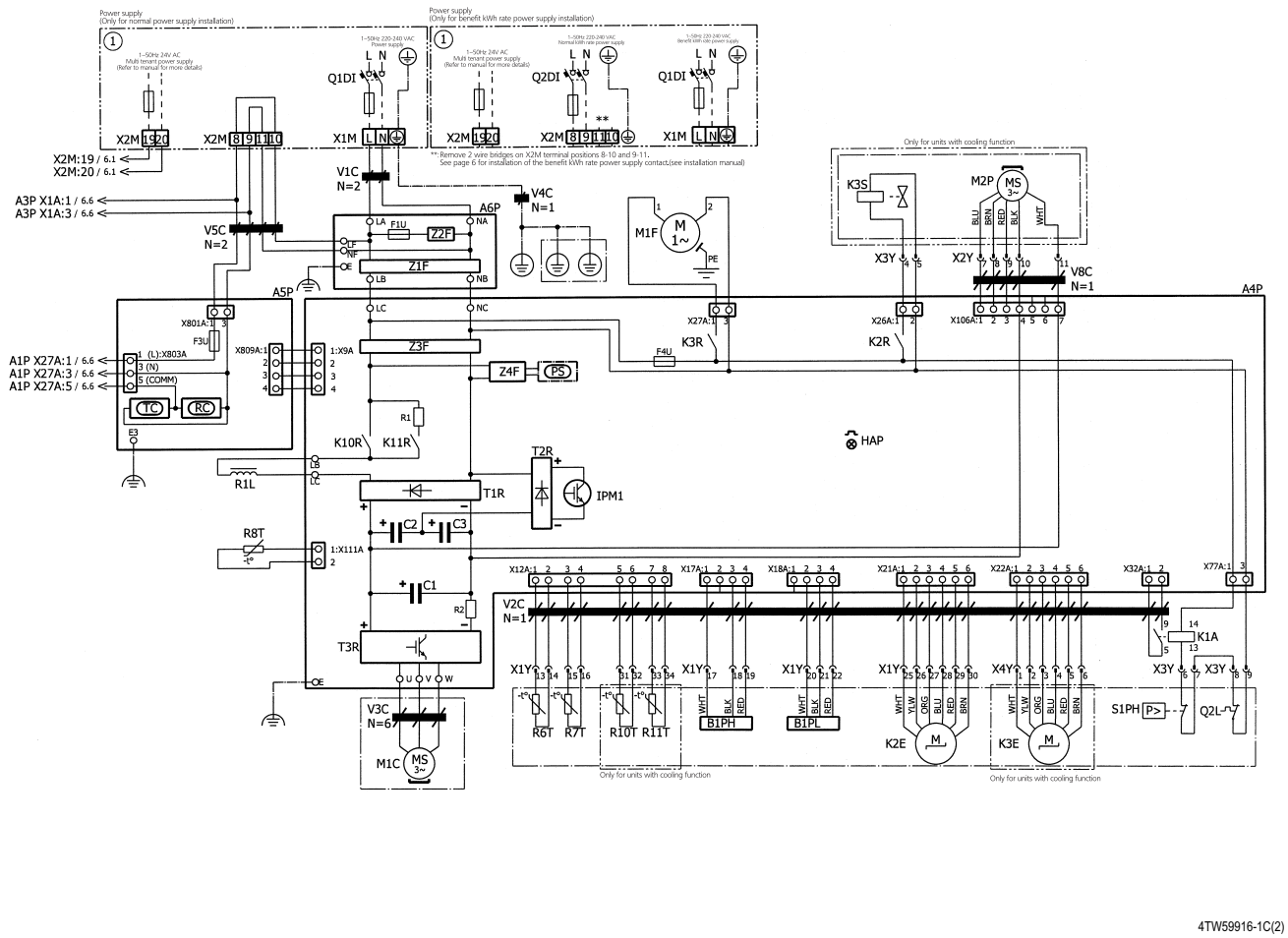
HXHD-A8
Control



7 Wiring diagrams

7 - 1 Wiring Diagrams - Single Phase

HXHD-A8
Compressor



7 Wiring diagrams

7 - 1 Wiring Diagrams - Single Phase

NOTES TO GO THROUGH BEFORE STARTING THE UNIT

X1M : Main terminal
X2M : Field wiring terminal for high voltage
X3M : Field wiring terminal for low voltage

— - — - : Earth wiring
---------- : Field supply


: Option


: Wiring depending on model


: Not mounted in switchbox


: PCB

—**/12.2 : Connection ** continues on page 12 column 2


: Several wiring possibilities

User installed options:

- □ Backup heater (includes wiring diagram of option)
- □ Domestic hot water tank
- □ Domestic hot water tank with solar connection (Only for EKHVM)
- □ Room thermostat (Wired)
- □ Room thermostat (Wireless)
- □ External temperature sensor
- □ Remote user interface
- □ Digital I/O PCB
- □ Demand PCB
- □ Solar pump and control station (Only for EKHVM)

Legend

* : included in option kit
\# : field supplied

A1P		: Main PCB
A2P		: User interface PCB
A3P		: control PCB
A4P		: Inverter PCB
A5P		: QA PCB
A6P		: Filter PCB
A7P	*	: Digital I/O PCB
A8P	*	: Demand PCB
A9P		: Multi tenant PCB
A10P	*	: Thermostat PCB
A11P	*	: Receiver PCB
A12P	*	: Solar pump station PCB
B1PH		: High pressure sensor
B1PL		: Low pressure sensor
BSK	*	: Solar pump station relay
C1-C3		: Filter capacitor
C1-C3 (A4P)		: PCB Capacitor
DS1 (A*P)		: Dipswitch
F1U		: Fuse (T, 3.2A, 250V)
F1U (A1P,A3P,A9P)		: Fuse (T, 3.15A, 250V)
F1U (A6P)		: Fuse (T, 6.3A, 250V)
F1U-F2U (A7P)	*	: Fuse (5A, 250V)
F3U-F4U (A*P)		: Fuse (T, 6.3A, 250V)
HAP (A*P)		: PCB LED
IPM1		: Integrated power module
K1A-K3A		: Interface relay
K1E-K3E		: Electronic expansion valve
K*R (A*P)		: PCB Relay
K1S	*	: 3 way valve
K2S		: 3 way valve
K3S		: 2 way valve
K4S	#	: 2 way valve
M1C		: Compressor
M1F		: Switchbox cooling fan
M1P-M2P		: DC inverter pump
PC (A11P)	*	: Power circuit
PHC1 (A7P)	*	: Optocoupler input circuit
PS (A*P)		: Switching power supply
Q1DI-Q2DI	#	: Earth leakage protector
Q2L		: Thermal protector water piping
R1-R2 (A4P)		: Resistance
R1L		: Reactor
R1H (A10P)	*	: Humidity sensor
R1T (A10P)	*	: Ambient sensor
R2T	*	: Domestic hot water tank Thermistor
R2T	*	: External sensor (floor or ambient)
R3T		: Liquid thermistor R410A
R4T		: Returning water thermistor
R5T		: Leaving water thermistor (heating)
R6T		: Discharge thermistor
R7T		: Liquid thermistor R134a
R8T		: Fin thermistor
R9T		: Leaving water thermistor (cooling)
R10T		: Liquid thermistor (cooling)
R11T		: Suction thermistor (cooling)
RC (A*P)		: Receiver circuit
S1PH		: High pressure switch
S1S	#	: benefit kWh rate power supply contact
S3S	#	: Input multiple setpoint 1
S4S	#	: Input multiple setpoint 2
SS1 (A1P)		: Selector switch (Emergency)
SS1 (A2P)		: Selector switch (master slave)
SS1 (A7P)	*	: Selector switch
TC (A*P)		: Transmitter circuit
T1R-T2R (A*P)		: Diode bridge
T3R		: Power module
V1C-V8C		: Ferrite core noise filter
X1M-X3M		: Terminal strip
X*M (A*P)	*	: PCB terminal strip
X1Y-X4Y		: Connector
Z1F-Z5F (A*P)		: Noise filter

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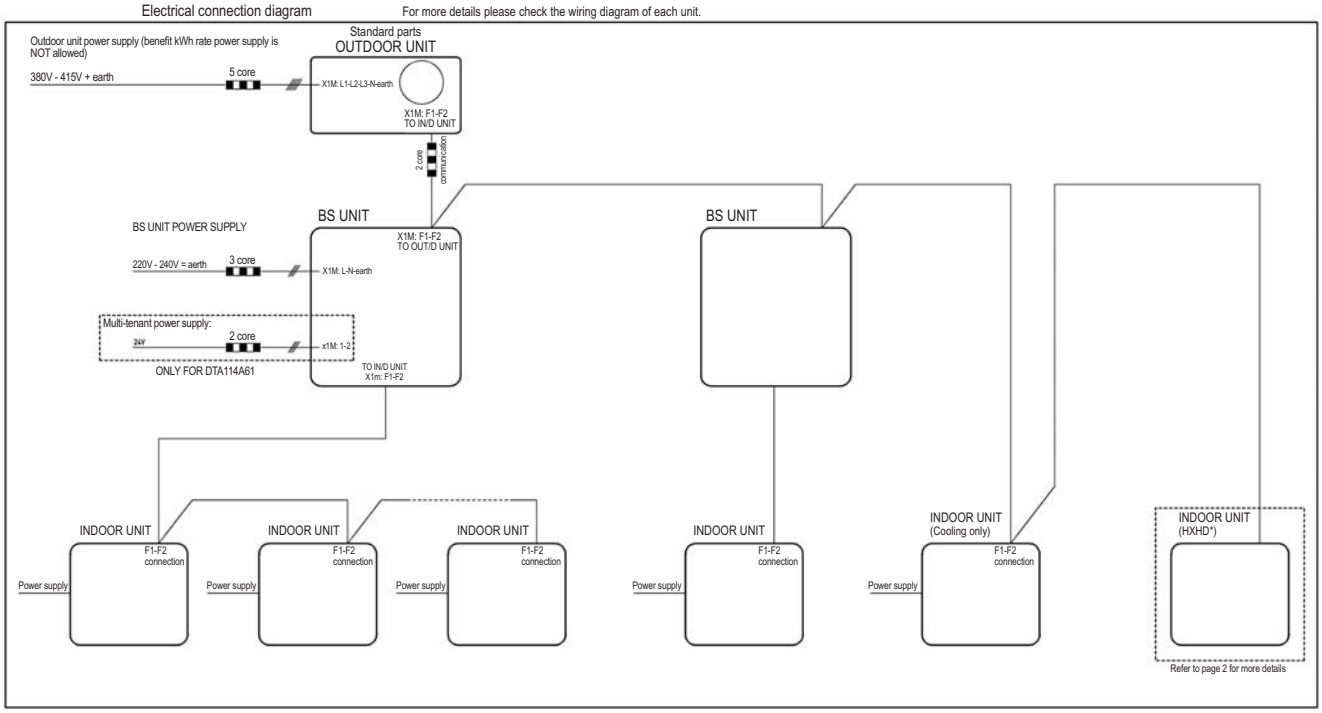
8 External connection diagrams

8 - 1 External Connection Diagrams

HXHD-A8



NOTES

In case of signal cable or communication cable. Keep minimum distance to power cables > 25mm.

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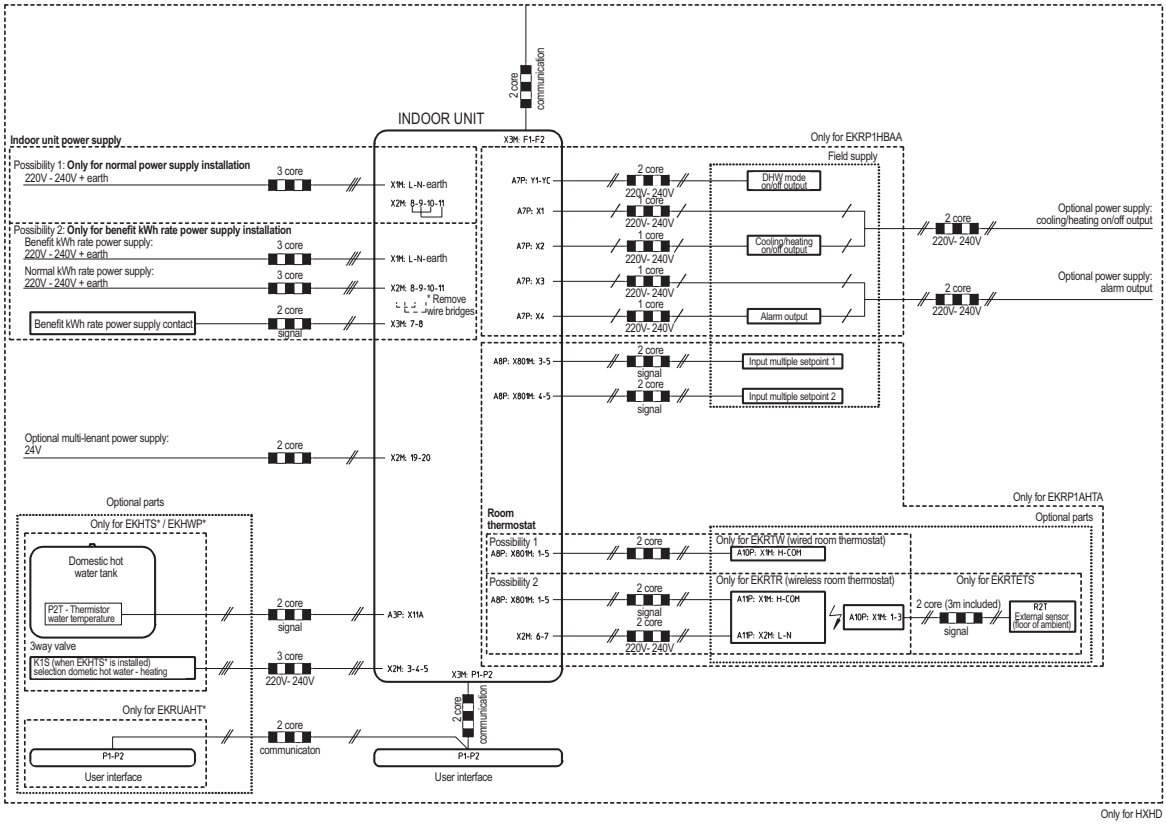
HXHD-A8



2TW60656-1(2)

9 Sound data

9 - 1 Sound Power Spectrum

HXHD-A8

	Sound power level (Lw) per octave band [dB]							Total dBA
	125	250	500	1000	2000	4000	8000	LwA
HXHD125A*V1B	39	50	51	45	45	43	41	55

Notes

Measured according to ISO 3744

Reference acoustic pressure 0 dB = 10e-6µW/m²

dBA = A-weighted sound power level (A scale according to IEC).

Conditions

Ambient temperature: 7/6℃

Heating setpoint: 55/65℃

Maximum compressor frequency

If the sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.

Choose the installation location carefully and do not install in a sound sensitive environment (e.g living room, bed room, …)

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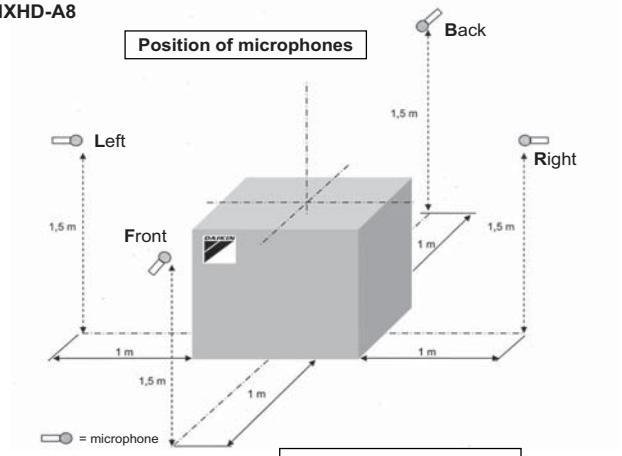
9 Sound data

9 - 2 Sound Pressure Spectrum

HXHD-A8

Position of microphones



Sound levels

Sound pressure [dBA]	
	HXHD 125
- EW/LW 55/65° C	
Front	42
Left / Right / Back (*)	41
- EW/LW 70/80° C	
Front	43
Left / Right / Back (*)	42
- EW/LW 55/65° C - Low sound mode n°1	
Front-Right (*)	38

NOTES

- The above data is valid in free field condition, because it is measured in a semi-anechoic room. If the sound is measured under actual installation, the measured value will be higher due to environmental noise and sound reflections. Choose the installation location carefully and do not install the unit in a sound sensitive environment (e.g. living room, bedroom, ...).
- dBA = A-weighted sound pressure level (A scale according to IEC).
- EW = entering water temperature - LW = Leaving water temperature
- Reference acoustic pressure 0dB = 20µPa
- Sound pressure level of low sound mode n°2 and n°3 is lower than n°1
- (*) Does not occur simultanously on all sides.

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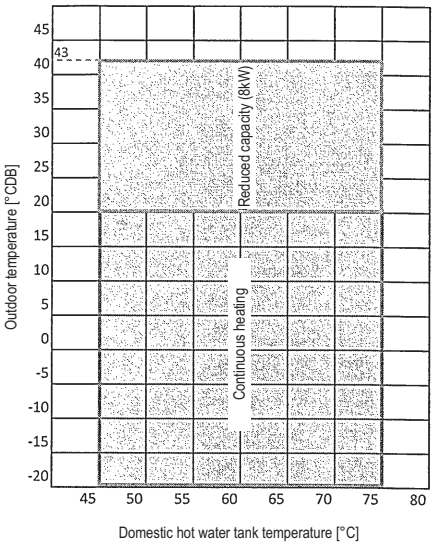
10 Operation range

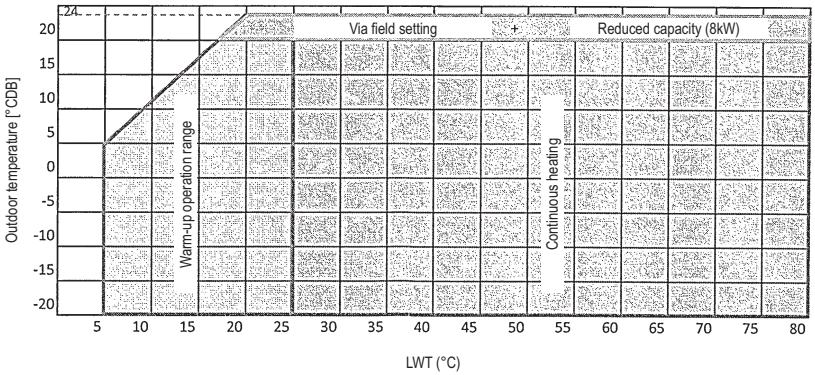
10 - 1 Operation Range

HXHD-A8

· HT · domestic hot water



· HT · space heating



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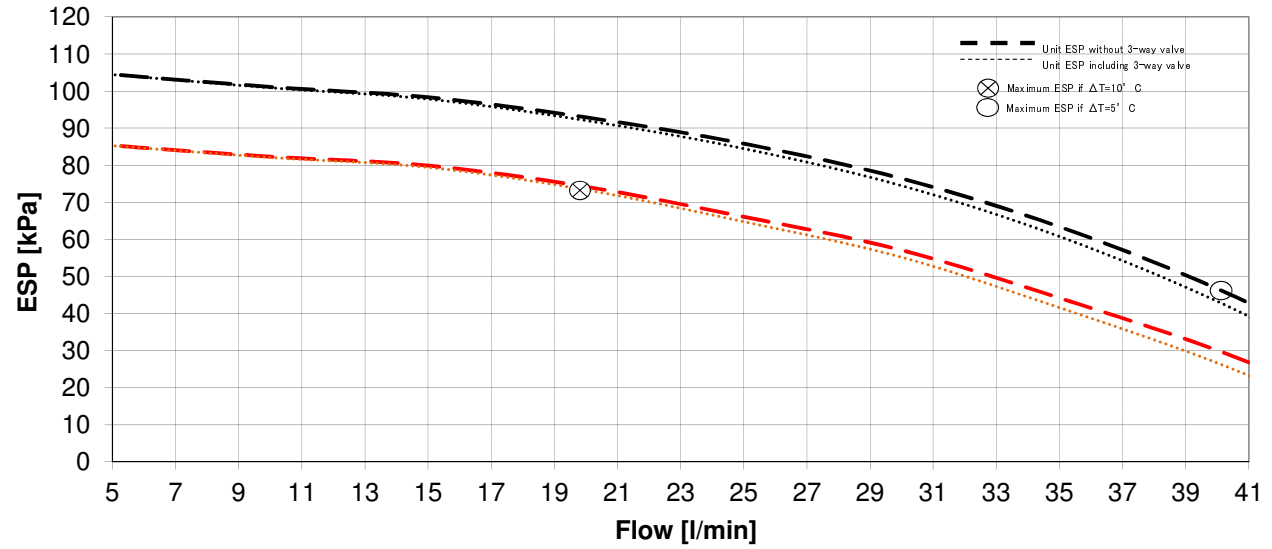
11 Hydraulic performance

11 - 1 Static Pressure Drop Unit

HXHD-A8



Notes

1. The ESP curves are the maximum ESP curves for different ΔT types (pump rpm=4200 for ΔT=5°C; pump rpm=3800 for ΔT=10°C).
   The pump of the indoor unit is inverter-controlled and functions to have a fixed ΔT between the return water temperature and the leaving water temperature.
2. In case of installing a domestic hot water tank, there is an additional pressure drop over the 3-way valve (delivered as an accessory with the tank).

ESP: External Static Pressure
Flow: water flow through the unit

Warning

1. Selecting a flow outside the operating area can damage the unit or cause the unit to malfunction.
   See also the minimum and maximum allowed water flow range in the technical specifications.
2. Water quality must be according to EU directive 98/83 EC.

3D097621

These products are not within the scope of the Eurovent certification program

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