



Air Conditioners

Technical Data

VRV[®]

Heating only hydrobox for VRV[®]



EEDEN11-204

HXHD-A

Air Conditioners

Technical Data

VRV[®]

Heating only hydrobox for VRV[®]



EEDEN11-204

HXHD-A

TABLE OF CONTENTS

HXHD-A

1	Specifications	2
	Technical Specifications	2
	Electrical Specifications	4
2	Selection procedure.....	5
	Selection Procedure	5
3	Combination table	6
	Combination Table	6
4	Dimensional drawings	7
	Dimensional Drawings	7
5	Piping diagrams	8
	Piping Diagrams	8
6	Wiring diagrams	9
	Wiring Diagrams - Single Phase	9
7	External connection diagrams	11
	External Connection Diagrams	11
8	Sound data	12
	Sound Power Spectrum	12
	Sound Pressure Spectrum	13
9	Operation range	14
	Operation Range	14
10	Hydraulic performance.....	15
	Static Pressure Drop Unit	15

1 Specifications

1-1 Technical Specifications					HXHD125A		
Heating capacity	Nom.			kW	14.0 (1)		
Casing	Colour				Metallic grey		
	Material				Precoated sheet metal		
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		
Pump	Type				DC motor		
	Nr of speeds				Inverter controlled		
	Nominal ESP unit	Heating		kPa	37.0 (2)		
Expansion vessel	Volume			l	7		
	Max. water pressure			bar	3		
	Pre pressure			bar	1		
Operation range	Heating	Ambient	Min.	°C	-20		
			Max.	°C	20 / 24 (11)		
		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 side heat exchanger	Type				Plate heat exchanger	
		Quantity				1	
Plates		Quantity			66		
Material				AISI 316			
Insulation material				Felt type			
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	
	Cascade compressor	Quantity				1	
Motor		Type			Hermetically sealed swing compressor		
		Starting method			Direct on line		
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		
Refrigerant oil	Type				FVC50K		
	Charged volume			l	0.75		
Sound power level	Nom.			dBA	55		
Sound pressure level	Nom.			dBA	42 (5) / 43 (6)		
	Night quiet mode	Level 1		dBA	38 (5)		
Water filter	Diameter perforations			mm	1		
	Material				Brass		

1 Specifications

1-1 Technical Specifications					HXHD125A	
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	Min.	l	20	
			Max.	l	200	
Installation place					Indoor	

1 Specifications

1-2 Electrical Specifications				HXHD125A	
Power supply	Phase			1~	
	Frequency		Hz	50	
	Voltage		V	220-240	
	Voltage range	Min.	%	-10	
		Max.	%	6	
Current	Zmax	Text		0.46	
	Minimum Ssc value		kVa	1,459	
	Maximum running current	Heating	A	16.5	
	Recommended fuses		A	20	
Multi tenant	Power supply	Voltage		V	24
		Voltage range	Min.	%	-20
			Max.	%	20
	Current	Maximum running current		A	1
		Recommended fuses		A	3.15
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	

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 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.
- (4) Values are sound pressure values measured at all sides (front, back, left, right, top) at 1m distance. The values do not occur simultaneously on all mentioned sides.
- (5) Sound levels are measured at: EW 55°C; LW 65°C
- (6) Sound levels are measured at: EW 70°C; LW 80°C
- (7) 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
- (8) EN/IEC 61000-3-11: European/international technical standard setting the limits for voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated ≤ 75A
- (9) EN/IEC 61000-3-12: European/international technical standard setting the limits for harmonic currents produced by equipment connected to public low-voltage system with input current > 16A and ≤ 75A per phase
- (10) Ssc: Short-circuit power
- (11) Field setting
- (12) At 60°C
- (13) 230VAC

2 Selection procedure

2 - 1 Selection Procedure

HXHD125A REYAAQ-P

I. Definitions

Index definition of HXHD125A

- 1) Index for selecting *piping*, calculating *refrigerant charge* and *total connection ratio*
→ Index = 125 (see installation manual & technical specs 3TW60651-1)
- 2) Index for performing unit *capacity* calculation/selection
→ Index depends on leaving water temperature ≠ 125 (details are explained below)

Selection procedure

- Outdoor unit heating capacity (design point conditions) = **HC_o** [kW]
- Outdoor unit power input (design point conditions) = **PI_o** (kW)
- HXHD125A capacity calculation index = **R**
- VRV DX indoor capacity index total = **S**
- Total indoor capacity index = index VRV DX connected + HXHD125A capacity calculation index = S + R = J
- HXHD125A heating capacity (design point conditions) = **HC** (kW)
- HXHD125A power input° (design point conditions) = **PI** (kW)
- HXHD125A cascade step power input = **P** (kW)
- ▶ HC = HC_o / J * 112
- ▶ See heating capacity table outdoor unit
- ▶ See heating capacity table outdoor unit
- ▶ To be looked up (see table below)
- ▶ To be looked up (depends on VRV DX indoor unit type)
- ▶ To be calculated
- ▶ To be calculated
- ▶ To be calculated
- ▶ To be looked up

Informational remark

▶ PI = PI_o / J * R + P

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

Ila. Cascade step power input and HXHD-A capacity calculation index

RWT [°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

RWT = entering water temperature

LWT = leaving water temperature

Ilb. Integrated heating capacity correction coefficient for REYAAQ

		Inlet port temperature of heat exchanger (°C/RH 85%)						
β	REYAAQ10/12P	0.97	0.95	0.90	0.86	0.87	0.92	1.00
	REYAAQ14/16P	0.96	0.94	0.89	0.85	0.86	0.91	1.00

Integrated heating capacity = A [kW]

Value given in table of capacity characteristics = B [kW]

Integrated correction factor for frost accumulation = β

A = B * β

III. Example

A. Make clear design point

DX indoor units: 4 * ± 5.5 kW @ -7°CDB/-7.6°CWB outdoor ambient conditions / 20°C indoor ambient conditions

Water heating ± 12kW @ -7°CDB/-7.6°CWB outdoor ambient conditions / 65°C LWT

Required capacity for building : ± 34kW

→ VRV DX indoor units "50" type

→ HXHD

→ REYAAQ14*

A1. Calculate total indoor capacity index

VRV indoor units: 4* "50" type: S

HXHD125A: R

→ J = R + S

S	200
R	96
J	296

A2. HXHD specifications at design point

HC = HC_o / J * 112

PI = PI_o / J * R + P

Heating capacity left for DX indoor units

Heating capacity left for DX indoor

HC [kW]	12.5
PI [kW]	5.39
[kW]	22.4 (x33.5*200/255)
[kW]	5.59

Capacity	6.30
p [kW]	2.33
HC _o [kW]	33.1
PI _o [kW]	9.44

Look up in heating capacity table [=f (Ta indoor; Ta outdoor; HP)]

Look up in heating capacity table [=f (Ta indoor; Ta outdoor; HP)]

Look up table above [=f (leaving water temperature)]

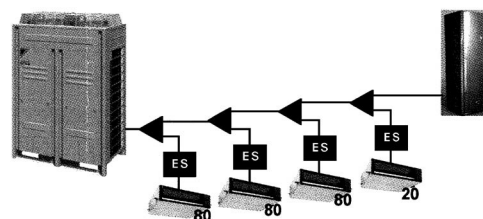
Look up table above [=f (leaving water temperature)]

→ Decide outdoor unit HP class

S: Depends on DX indoor unit selection

R: Look up table above

J: Σ (S, R)



B. Check connection ratio

At least 1HXHD-A			OK
DX connection ratio: 50% ≤ x ≤ 130 %	200/350	57%	OK
HXHD-A connection ratio ≤ 100%	125/350	36%	OK
Total connection ratio: 80% ≤ x ≤ 200%	325/350	93%	OK

3TW60669-2A

3 Combination table

3 - 1 Combination Table

HXHD-A
REYAQ-P

I. Outdoor/Indoor combination table

Heating only hydrobox indoor unit	Outdoor unit	REYAQ10P	REYAQ12P	REYAQ14	REYAQ16P
HXHD125A		0	0	0	0

II. Kit availability

1. Kits connected to the outdoor unit

Reference	Description	REYAQ10P	REYAQ12P	REYAQ14P	REYAQ16P
KHRQ(M)22M29H8	Refnet header	0	0	0	0
KHRQ(M)22M64H8	Refnet header		0	0	0
KHRQ(M)22M75H8	Refnet joint			0	0
KHRQ(M)22M20T8	Refnet joint	0	0	0	0
KHRQ(M)22M29T9	Refnet joint	0	0	0	0
KHRQ(M)22M64T8	Refnet joint		0	0	0
KHRQ(M)22M75T8	Refnet joint			0	0
KHRQ(M)23M29H8	Refnet header	0	0	0	0
KHRQ(M)23M64H8	Refnet header		0	0	0
KHRQ(M)23M75H8	Refnet joint			0	0
KHRQ(M)23M20T8	Refnet joint	0	0	0	0
KHRQ(M)23M29T9	Refnet joint	0	0	0	0
KHRQ(M)23M64T8	Refnet joint		0	0	0
KHRQ(M)23M75T8	Refnet joint			0	0
KWC25C450	Drain pan kit (1)	0	0	0	0
BSVQ100P8		0 (Δ2)	0 (Δ2)	0 (Δ2)	0 (Δ2)
BSVQ160P8	BSVQ box for Heat Recovery (Individual Branch Selector)	0 (Δ2)	0 (Δ2)	0 (Δ2)	0 (Δ2)
BSVQ250P8		0 (Δ2)	0 (Δ2)	0 (Δ2)	0 (Δ2)
BSV4Q100PV	BSVQ box for Heat Recovery (Multi Branch Selector)	0 (Δ2)	0 (Δ2)	0 (Δ2)	0 (Δ2)
BSV6Q100PV		0 (Δ2)	0 (Δ2)	0 (Δ2)	0 (Δ2)
EKBSVQLNP	Sound reduction kit for individual BSVQ box (Δ1)	0	0	0	0
BHGP26A1	Digital Pressure gauge kit	0	0	0	0

(Δ1): Only available for individual BSVQ boxes (not possible for Central BSV4Q/BSV6Q).
Allows to reduce operating sound of BSVQ-box (requires 1 sound kit per BSVQ - box)

(Δ2): - Multi tenant is possible - Need connect option-PCB DTA114A61 to each BSVQ-box & need compatible indoor unit.
- Not required for hydro box HXHD125A, only for connection of DX indoor units.

2. Kits connected to the indoor unit

Reference	Description	Indoor Unit
		HXHD125A
EKHTS200[AC]	Stainless domestic hot water tank 200 l	0
EKHTS260[AC]	Stainless domestic hot water tank 260 l	0
EKHTSU200[AC]	Stainless domestic hot water tank 260 l UK - version	0
EKHTSU260[AC]	Stainless domestic hot water tank 260 l UK - version	0
EKHWP300A	PP tank	0
EKHWP500A	PP tank	0
EKRP1HBAA	Digital I/O PCB	0
EKRP1AHTA	Demand PCB (3)	0
EKRUAHTB	Remote user interface [remocon] (4)	0
EKRTWA	Wired Room thermostat (2)	0
EKRTR1	Wireless Room thermostat (2)	0
EKRTETS	Remote sensor for Room thermostat (2)	0

3. Kits connected to the domestic hot water tank

Reference	Description	Domestic hot water tank			
		EKHTS		EKHTSU	
		200A	260A	200AA	260AA
EKUHWHTA	Option kit for UK EKHTSU200-260A	-	-	0	0
EKFMAHTB (5)	Option kit for floor mounted tank	0	0	0	0

Remark: Other combinations are not guaranteed.

(1) For allowed installation, see Installation Manual

(2) Requires Demand PCB EKRP1AHTA

(3) Requires to install to be able to connect Roomthermostat

(4) Same controller as supplied with Cascade unit can be mounted parallel or on other location. If 2 controllers are installed, the installer needs to select 1 master & 1 slave

(5) Only required if tank is NOT mounted on top of cascade indoor unit

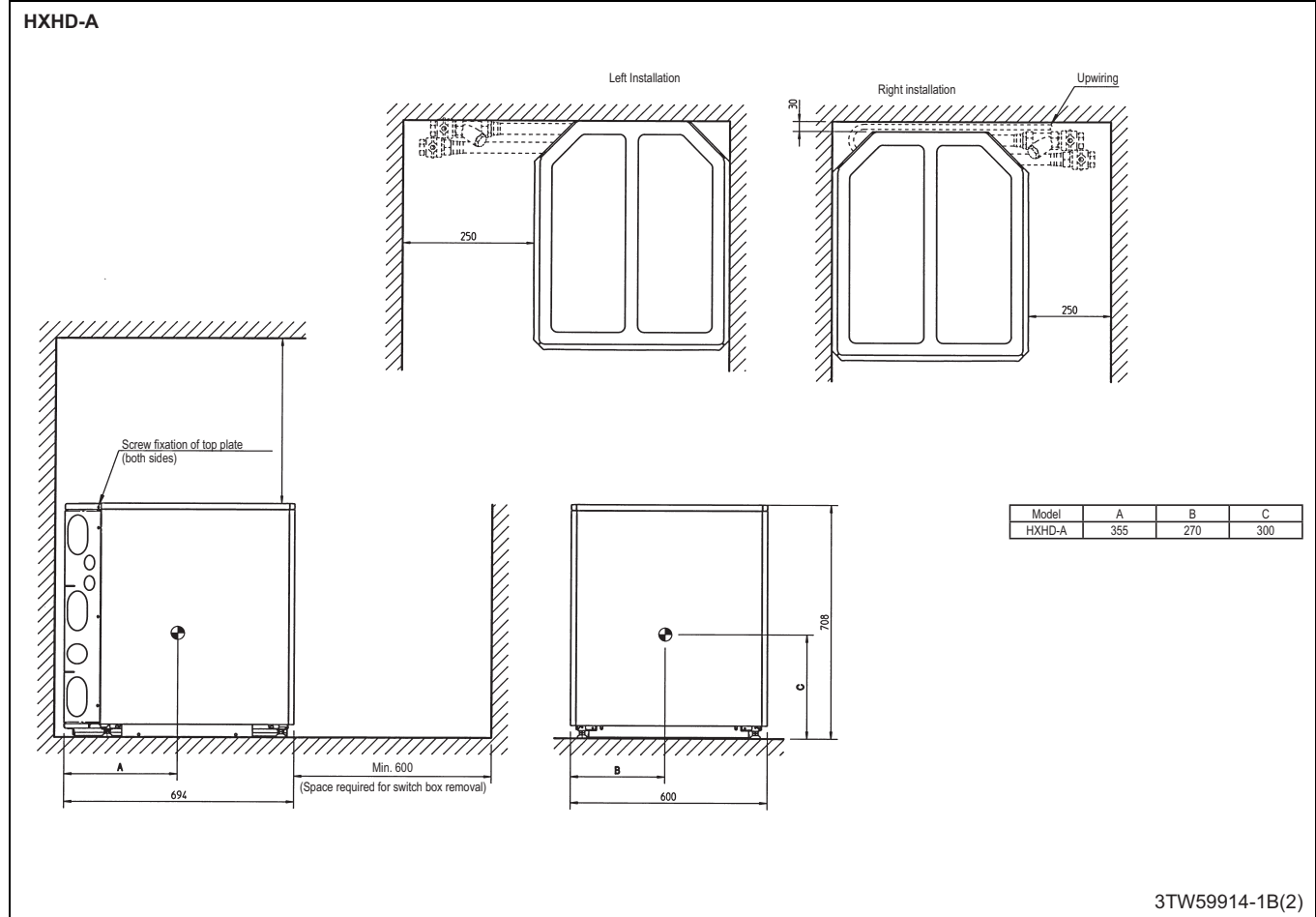
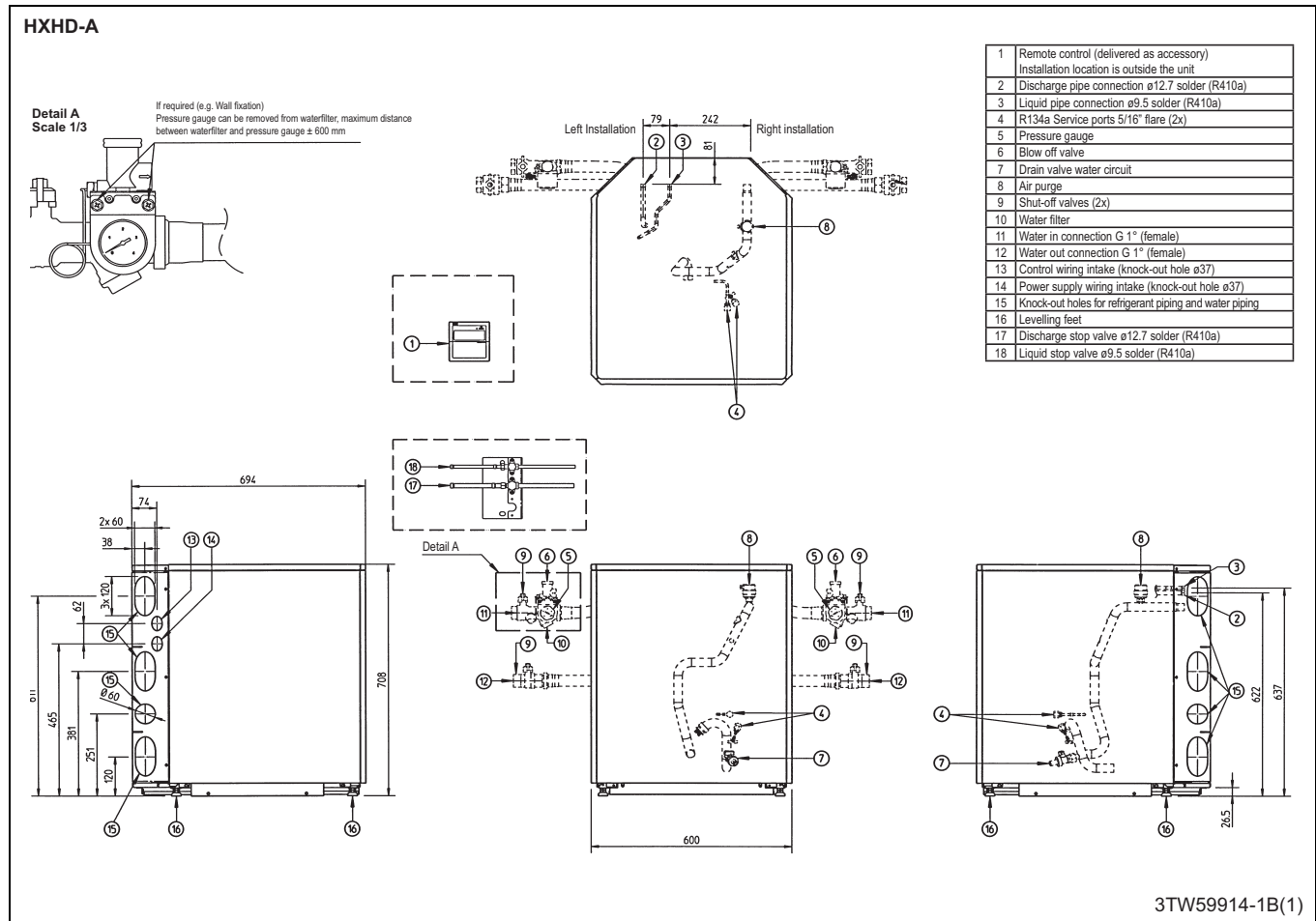
NOTES

- To one outdoor unit, multiple hydrobox units can be connected (≤100% connection ratio; further information, see technical data)
- All VRV indoor units can be connected.

3TW60659-1A

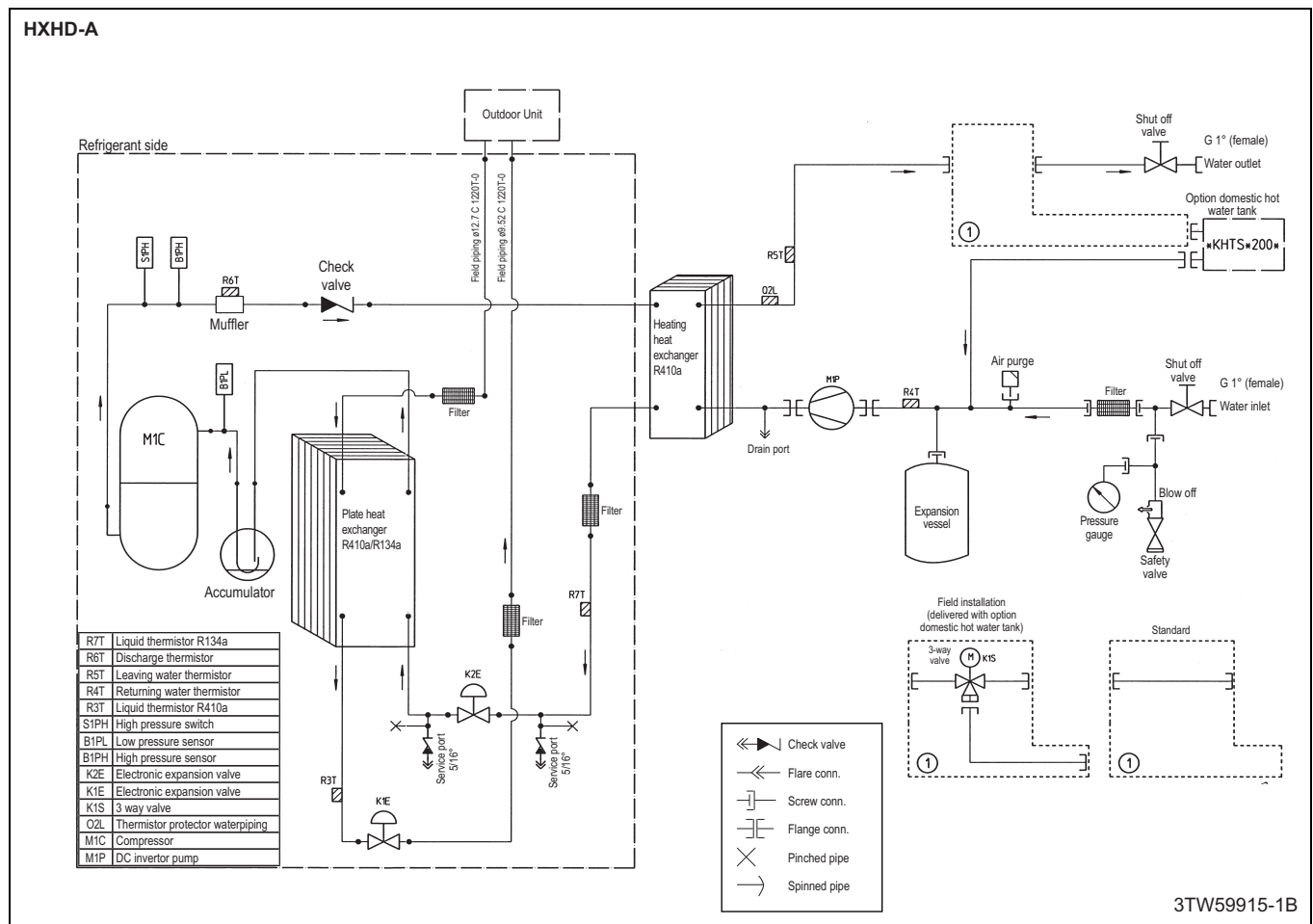
4 Dimensional drawings

4 - 1 Dimensional Drawings



5 Piping diagrams

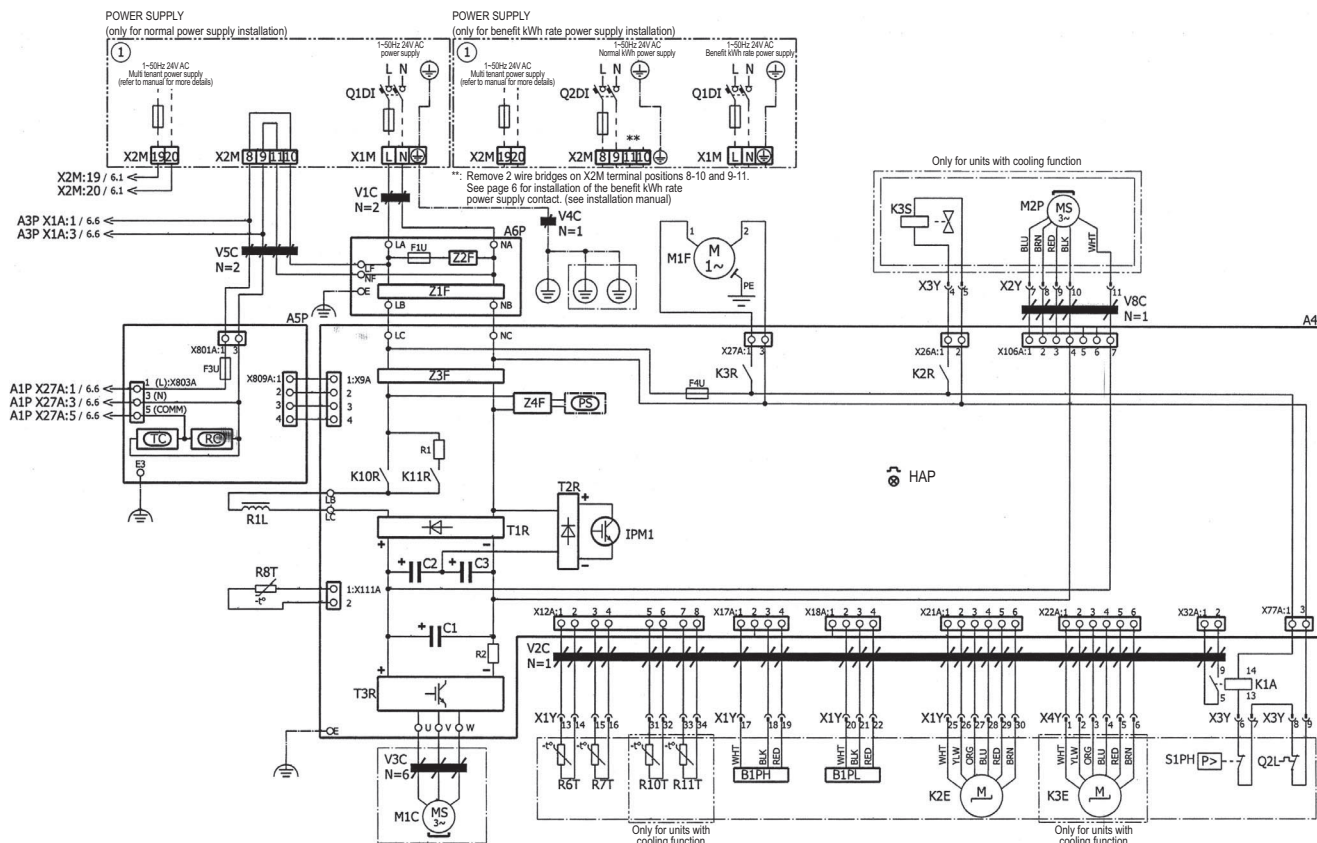
5 - 1 Piping Diagrams



6 Wiring diagrams

6 - 1 Wiring Diagrams - Single Phase

HXHD-A Compressor



Part Nr	Description	Part Nr	Description	Part Nr	Description
A1P	Main PCB	K1E-K3E	Electronic expansion valve	R7T	Liquid thermistor R134a
A2P	User interface PCB	K*R (A*P)	PCB relay	R8T	Fin thermistor
A3P	Control PCB	K1S	* 3-way valve	R9T	Leaving water thermistor (cooling)
A4P	Inverter PCB	K2S	3-way valve	R10T	Liquid thermistor (cooling)
A5P	QA PCB	K3S	2-way valve	R11T	Suction thermistor (cooling)
A6P	Filter PCB	K4S	# 2-way valve	RC (A*P)	Receiver circuit
A7P	* Digital I/O PCB	M1C	Compressor	S1PH	High pressure switch
A8P	* Demand PCB	M1F	Switch box cooling fan	S1S	# Benefit kWh rate power supply contact
A9P	Multi tenant PCB	M1P-M2P	DC inverter pump	S3S	# Input multiple setpoint 1
A10P	* Thermostat PCB	PC (A11P)	* Power circuit	S4S	# Input multiple setpoint 2
A11P	* Receiver PCB	PHC1 (A7P)	* Optocoupler input circuit	SS1 (A1P)	Selector switch (emergency)
B1PH	High pressure sensor	PS (A*P)	Switching power supply	SS1 (A2P)	Selector switch (master slave)
B1PL	Low pressure sensor	Q1DI-Q2DI	# Earth leakage protector	SS1 (A7P)	* Selector switch
C1-C3	Filter capacitor	Q2L	Thermal protector water piping	TC (A*P)	Transmitter circuit
C1-C3 (A4P)	PCB capacitor	R1R2 (A4P)	Resistance	T1R-T2R (A*P)	Diode bridge
DS1 A*P	Dip switch	R1L	Reactor	T3R	Power module
F1U	Fuse (T, 3.2A, 250V)	R1H (A10P)	* Humidity sensor	V1C-V8C	Ferrite core noise filter
F1U (A1P, A3P, A6P)	Fuse (T, 3.15A, 250V)	R2T (A10P)	* Ambient sensor	X1M-X3M	Terminal strip
F1U (A6P)	Fuse (T, 6.3A, 250V)	R2T	* Domestic hot water tank thermistor	X*M (A*P)	* PCB terminal strip
F1U-F2U (A7P)	* Fuse (5A, 250V)	R2T	* External sensor (floor or ambient)	X1Y-X4Y	Connector
F3U-F4U (A*P)	Fuse (T, 6.3A, 250V)	R3T	Liquid thermistor R410A	Z1F-Z5F (A*P)	Noise filter
HAP (A*P)	PCB LED	R4T	Returning water thermistor		
IPM1	Integrated power module	R5T	Leaving water thermistor (heating)		
K1A-K3A	Interface relay	R6T	Discharge thermistor		

* Included in option kit
Field supplied

NOTES to go through before starting the unit:

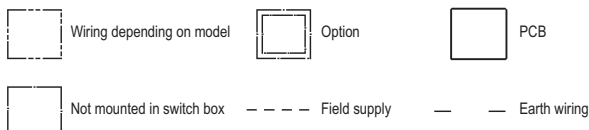
X1M: Main terminal
X2M: Field wiring terminal for high voltage
X3M: Field wiring terminal for low voltage

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

①: Several wiring possibilities

User installed options:

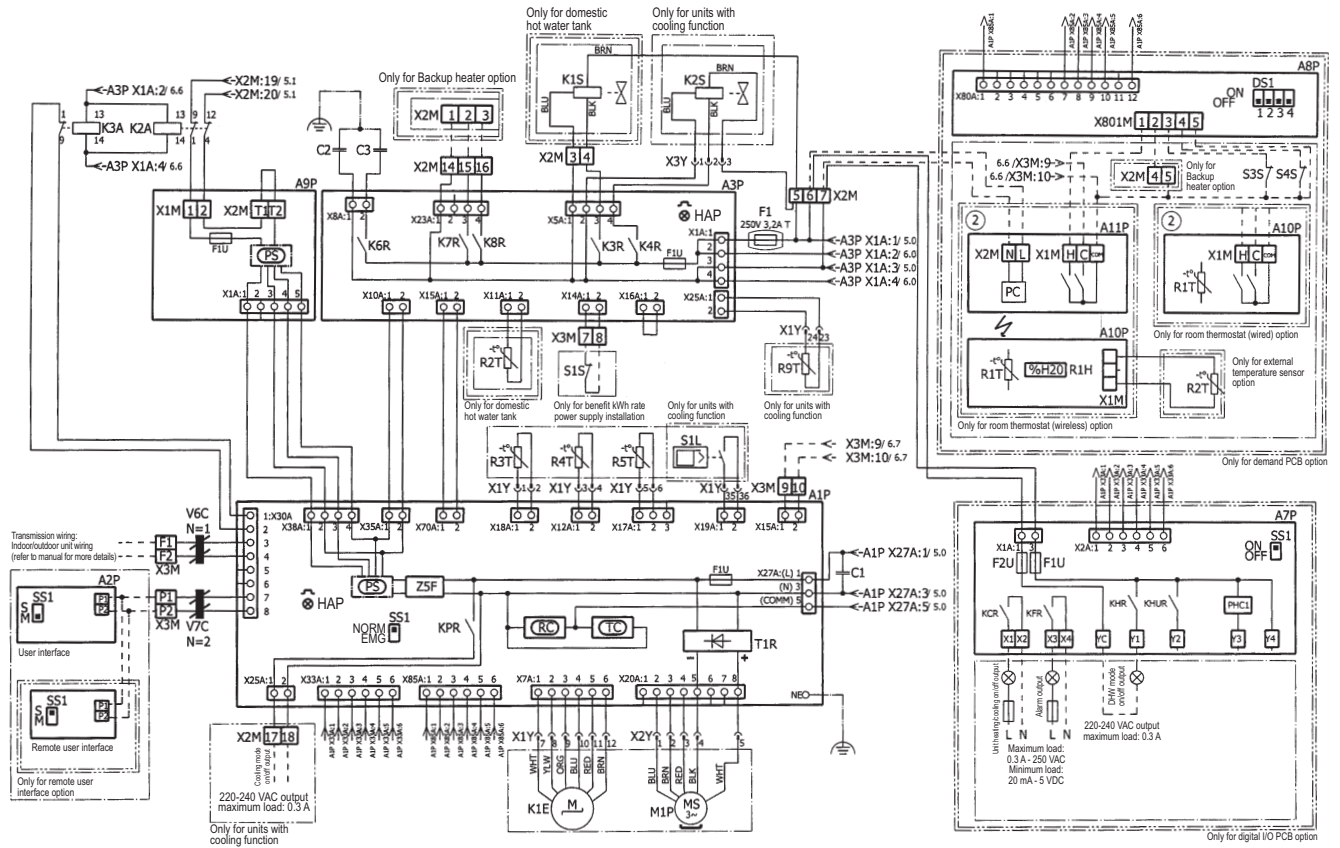
- ☐ Backup heater (includes wiring diagram of option)
- ☐ Domestic hot water tank
- ☐ Room thermostat (wired)
- ☐ Room thermostat (wireless)
- ☐ External temperature sensor
- ☐ Remote user interface
- ☐ Digital I/O PCB
- ☐ Demand PCB



6 Wiring diagrams

6 - 1 Wiring Diagrams - Single Phase

HXHD-A Control



Part Nr	Description	Part Nr	Description	Part Nr	Description
A1P	Main PCB	K1E-K3E	Electronic expansion valve	R7T	Liquid thermistor R134a
A2P	User interface PCB	K'R (A'P)	PCB relay	R8T	Fin thermistor
A3P	Control PCB	K1S	* 3-way valve	R9T	Leaving water thermistor (cooling)
A4P	Inverter PCB	K2S	3-way valve	R10T	Liquid thermistor (cooling)
A5P	QA PCB	K3S	2-way valve	R11T	Suction thermistor (cooling)
A6P	Filter PCB	K4S	# 2-way valve	RC (A'P)	Receiver circuit
A7P	* Digital I/O PCB	M1C	Compressor	S1PH	High pressure switch
A8P	* Demand PCB	M1F	Switch box cooling fan	S1S	# Benefit kWh rate power supply contact
A9P	Multi tenant PCB	M1P-M2P	DC inverter pump	S3S	# Input multiple setpoint 1
A10P	* Thermostat PCB	PC (A11P)	* Power circuit	S4S	# Input multiple setpoint 2
A11P	* Receiver PCB	PHC1 (A7P)	* Optocoupler input circuit	SS1 (A1P)	Selector switch (emergency)
B1PH	High pressure sensor	PS (A'P)	Switching power supply	SS1 (A2P)	Selector switch (master slave)
B1PL	Low pressure sensor	Q1DI-Q2DI	# Earth leakage protector	SS1 (A7P)	* Selector switch
C1-C3	Filter capacitor	Q2L	Thermal protector water piping	TC (A'P)	Transmitter circuit
C1-C3 (A4P)	PCB capacitor	R1-R2 (A4P)	Resistance	T1R-T2R (A'P)	Diode bridge
DS1 A'P)	Dip switch	R1L	Reactor	T3R	Power module
F1U	Fuse (T, 3.2A, 250V)	R1H (A10P)	* Humidity sensor	V1C-V8C	Ferrite core noise filter
F1U (A1P, A3P, A6P)	Fuse (T, 3.15A, 250V)	R1T (A10P)	* Ambient sensor	X1M-X3M	Terminal strip
F1U (A6P)	Fuse (T, 6.3A, 250V)	R2T	* Domestic hot water tank thermistor	X'M (A'P)	* PCB terminal strip
F1U-F2U (A7P)	* Fuse (5A, 250V)	R2T	* External sensor (floor or ambient)	X1Y-X4Y	Connector
F3U-F4U (A'P)	Fuse (T, 6.3A, 250V)	R3T	Liquid thermistor R410A	Z1F-Z5F (A'P)	Noise filter
HAP (A'P)	PCB LED	R4T	Returning water thermistor	* Included in option kit # Field supplied	
IPM1	Integrated power module	R5T	Leaving water thermistor (heating)		
K1A-K3A	Interface relay	R6T	Discharge thermistor		

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

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

①: Several wiring possibilities

User installed options:

- ☐ Backup heater (includes wiring diagram of option)
- ☐ Domestic hot water tank
- ☐ Room thermostat (wired)
- ☐ Room thermostat (wireless)
- ☐ External temperature sensor
- ☐ Remote user interface
- ☐ Digital I/O PCB
- ☐ Demand PCB

Wiring depending on model

Option

PCB

Not mounted in switch box

- Field supply

- Earth wiring

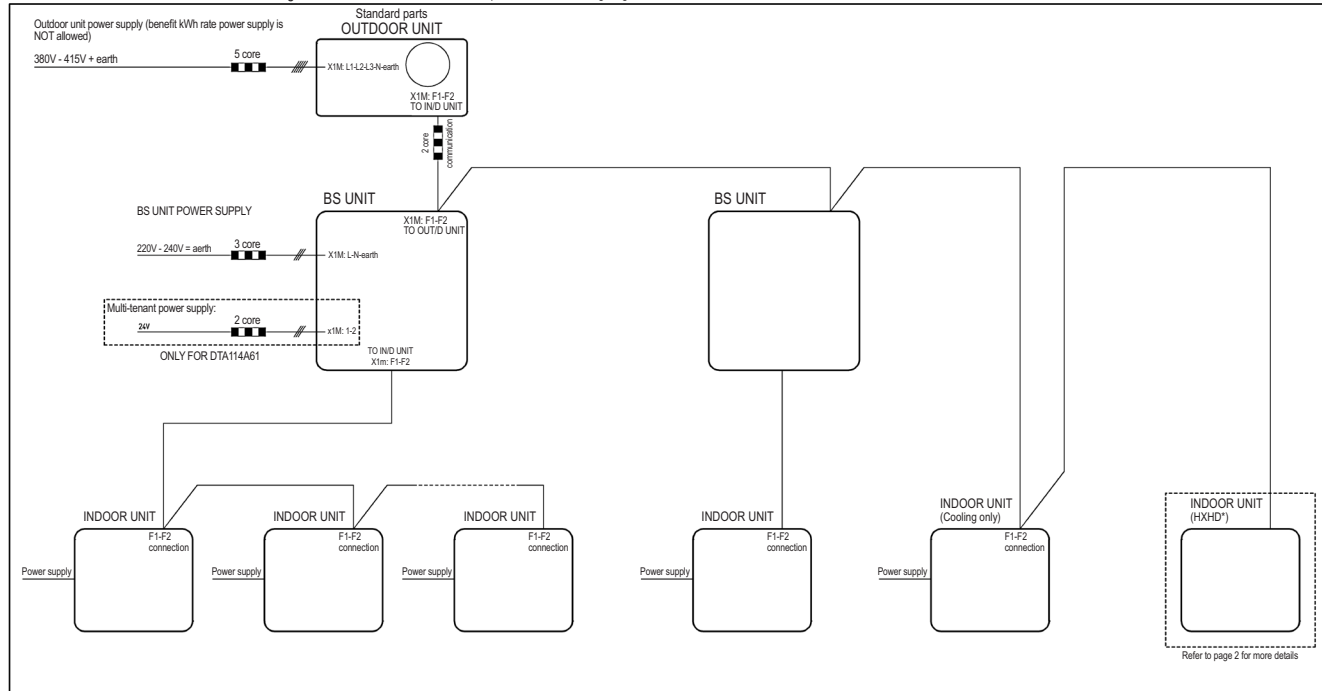
7 External connection diagrams

7 - 1 External Connection Diagrams

HXHD-A
REYAQ-P

Electrical connection diagram

For more details please check the wiring diagram of each unit.

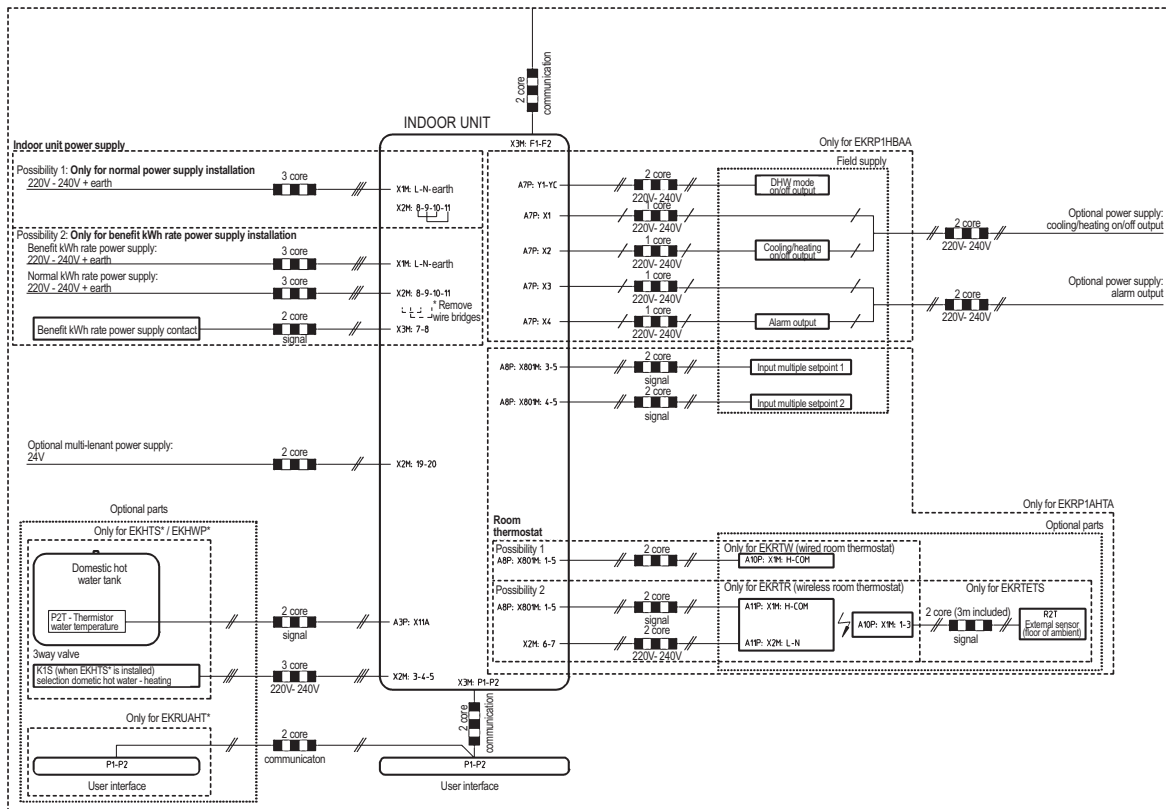


NOTES

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

2TW60656-1(1)

HXHD-A
REYAQ-P



Only for HXHD

2TW60656-1(2)

8 Sound data

8 - 1 Sound Power Spectrum

HXHD-A

	Sound Power Lw per Octave band (dB)							Total (dBA)
	125	250	500	1000	2000	4000	8000	LwA
HXHD125A	39	50	51	45	45	43	41	55

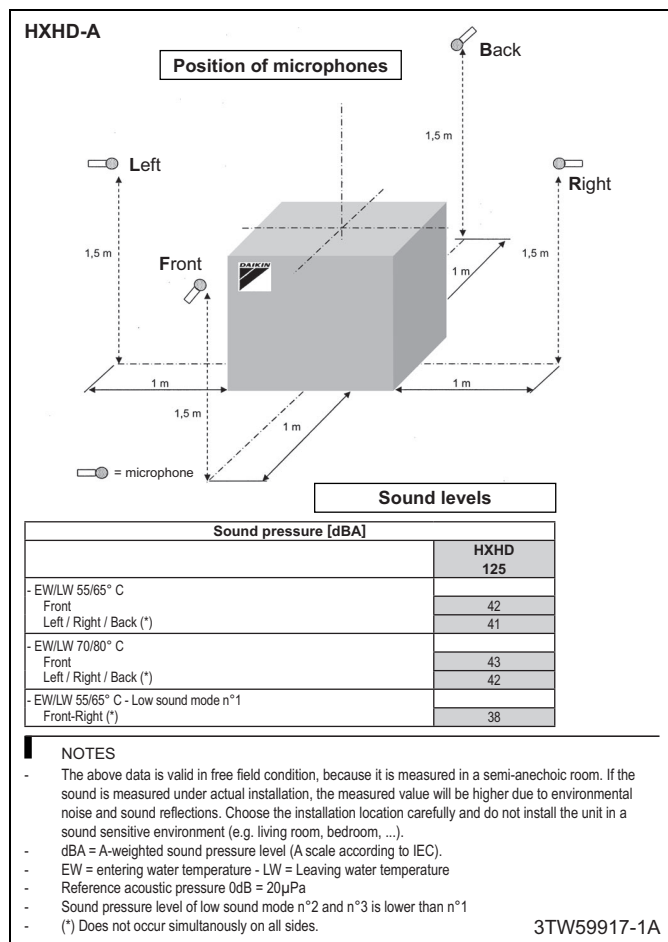
NOTES

- Measured according to ISO 3744
- Reference acoustic pressure 0dB = 10e-6 µW/m²
- dBA = A-weighted sound power level
- Unit condition: Ta = 7/6°C - heating setpoint 55/65°C - maximum compressor frequency
- If sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections. Choos the installation location carefully and do not install in a sound sensitive environment (e.g. living room, bedroom, ...).

3TW59917-2A

8 Sound data

8 - 2 Sound Pressure Spectrum

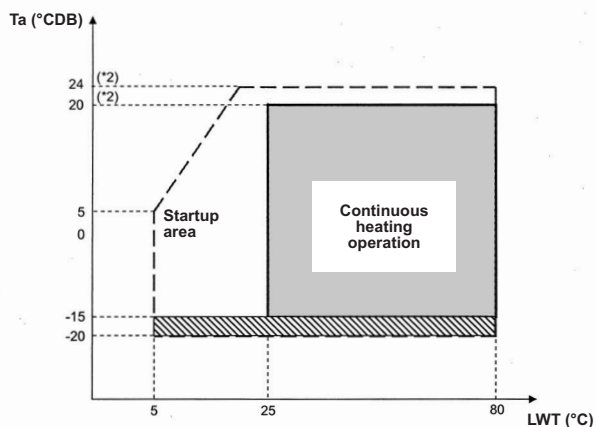


9 Operation range

9 - 1 Operation Range

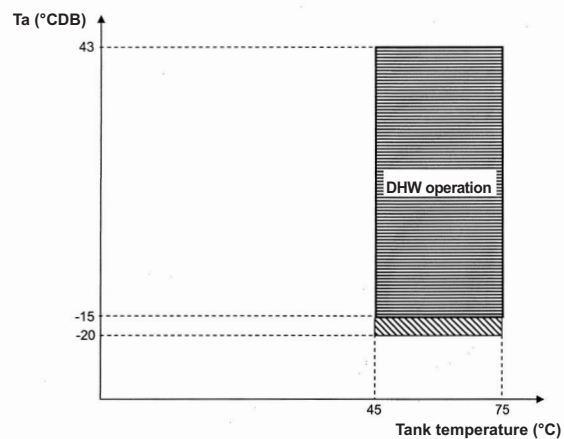
HXHD-A
REYAQ-P

Space heating mode



- : Continuous heating operation
- : Startup area
- : Operation possible, but no guarantee of capacity
- (*) : Can be adjusted by field setting

Domestic hot water mode

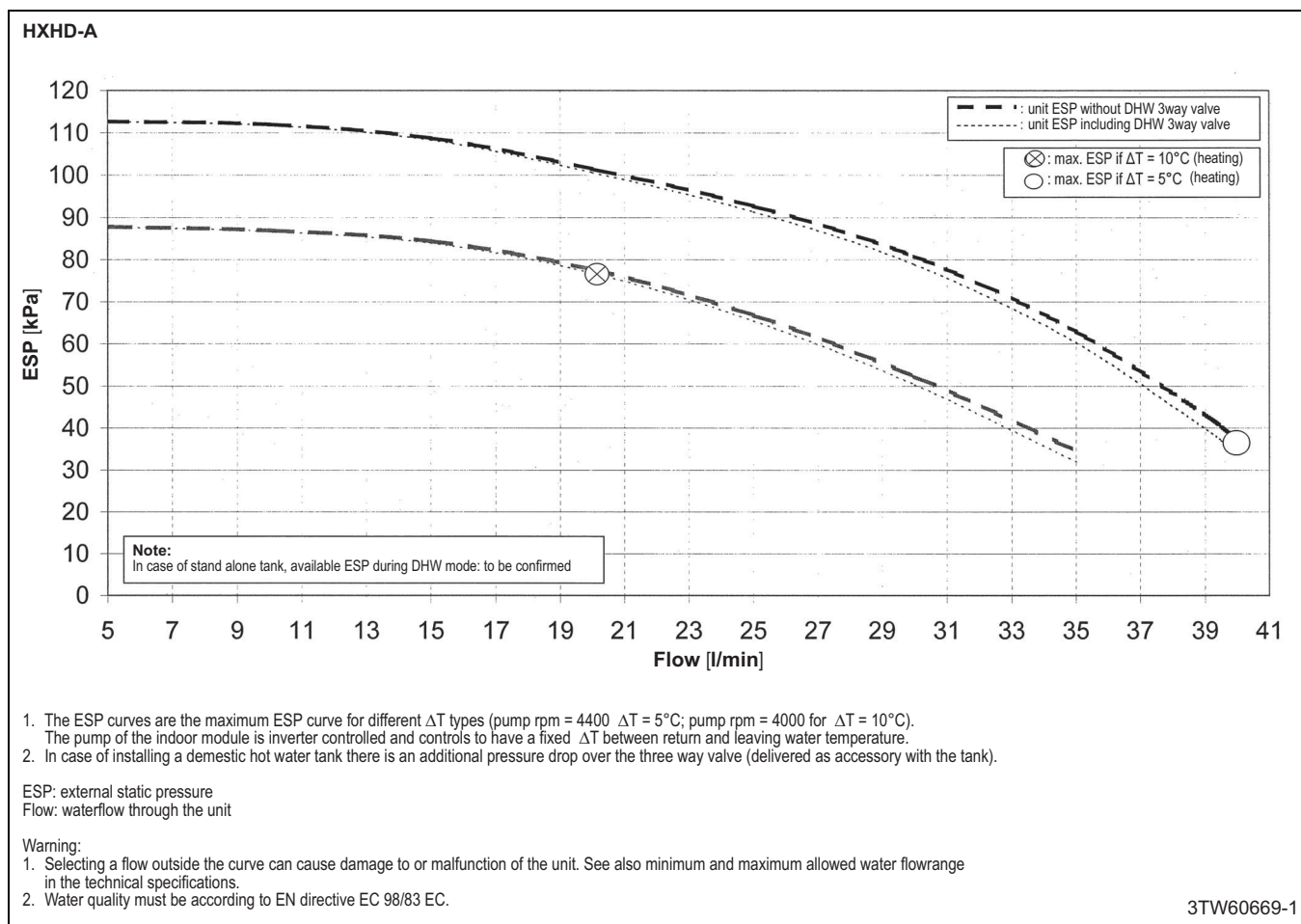


- : Domestic hot water operation
- : Operation possible, but no guarantee of capacity

3TW60653-1A

10 Hydraulic performance

10 - 1 Static Pressure Drop Unit





Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.



VRV® products are not within the scope of the Eurovent certification programme.

The present publication is drawn up by way of information only and does not constitute an offer binding upon Daikin Europe N.V. Daikin Europe N.V. has compiled the content of this publication to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Daikin Europe N.V. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this publication. All content is copyrighted by Daikin Europe N.V.

Daikin products are distributed by: