

Applied Systems  
Technical Data

# EWAQ-BVP



- > EWAQ004BAVP
- > EWAQ005BAVP
- > EWAQ006BAVP
- > EWAQ008BAVP



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# 1 Features

- Top energy efficiency in the market for both cooling and heating: up to 3.14 for EER, up to 5.25 for ESEER and up to 3.44 for COP !
- Top product in terms of energy efficiency and operation range
- All capacities available in 2 versions: standard version and version with OP10 option (no freeze up of water when not in operation thanks to the water piping heater tape)
- Easy 'plug and play' installation
- Amongst the most quiet units in the market (63dBA - sound power)
- Single phase power supply and low starting currents make the unit ideal for residential applications
- Weight reduced with 20% compared with the previous models.
- Built-in Hydraulic kit: no buffer tank required, standard inverter driven pump, main flow sensor and switch included.
- Standard wired remote control enables setting of different set points (cooling, heating, water leaving temperature) or based on outdoor conditions (weather dependent control). It has an alarm history, night time noise reduction function and is language based.



## 2 Specifications

2-1 Technical Specifications				EWAQ004BVP	EWAQ005BVP	EWAQ006BVP	EWAQ008BVP	
Cooling capacity	Min.			2.0 (1)		3.0 (1)		
	Nom.			4.00 (1) / 4.01 (2)	4.93 (1) / 5.07 (2)	5.88 (1) / 6.07 (2)	7.95 (1) / 8.23 (2)	
Power input	Cooling	Nom.		1.27 (1) / 0.840 (2)	1.61 (1) / 1.12 (2)	1.87 (1) / 1.13 (2)	2.57 (1) / 1.65 (2)	
Capacity control	Method			Variable (inverter)				
EER				3.14 (1) / 4.80 (2)	3.06 (1) / 4.51 (2)	3.15 (1) / 5.35 (2)	3.10 (1) / 4.99 (2)	
ESEER				4.45 (3)	4.49 (3)	5.25 (4)	5.24 (4)	
Space heating general	Other	Poff (Off mode)	kW	-		0.013		
		Pto (Thermostat off)	kW	-		0.013		
		Psb (Standby mode)	kW	-		0.013		
		Pck (Crankcase heater mode)	kW	-		0.067		
Dimensions	Unit	Height	mm	735		997		
		Width	mm	1,090		1,160		
		Depth	mm	350		380		
	Packed unit	Height	mm	880		1,138		
		Width	mm	1,166		1,276		
		Depth	mm	432		450		
Weight	Unit		kg	83		106		
	Packed unit		kg	89		121		
Packing	Material			EPS / Carton / Wood		Carton / Wood / PE wrapping foil		
	Weight			kg	6		15	
Casing	Colour			Ivory white				
	Material			Polyester painted galvanised steel plate		Painted galvanized steel plate		
Water heat exchanger	Type			Brazen plate				
	Quantity			1				
	Water flow rate	Min.	l/min	11		13		
		Cooling	Nom.	l/min	11.5 (1) / 11.5 (2)	14.1 (1) / 14.5 (2)	16.9 (1) / 17.4 (2)	22.8 (1) / 23.6 (2)
	Water volume			l	1		2	
	Insulation material			Closed cell foam elastomer				
Air heat exchanger	Type			Cross fin coil/Hi-X tubes and chromate coated waffle louvre fins		Cross fin coil/Hi-X tubes and PE coated waffle louvre fins		
	Empty tubeplate hole			-				
	Face area			m <sup>2</sup>	-		0.87	
	Fin	Type			WF fin			
		Treatment			Anti-corrosion treatment (PE)			
	Fin pitch			mm	1,8		1,4	
	Length			mm	845		904	
	Passes	Quantity			-		12	
	Rows	Quantity			2			
	Stages	Quantity			32		44	
	Pump Standard	Nominal ESP unit	Cooling	kPa	73.8 (1) / 73.8 (2)	71.1 (1) / 70.6 (2)	70.9 (1) / 70.2 (2)	61.5 (1) / 59.9 (2)
Nr of speeds			PWM controlled					
Model			Wilo Yonos Para GT15/7.5 PWM1					
Power input			W	76				
Quantity			1					
Hydraulic components	Expansion vessel	Max. water volume in the system	l	105		250		
		Max. water pressure	bar	3				
		Pre pressure	bar	1				
		Volume	l	3		7		
	Safety valve			bar	3			
	Unit water volume			l	2.0 (5)		2.8 (6)	
	Water filter	Diameter	inch	1"				
		Diameter perforations	mm	1				
Material			Copper - brass - stainless steel					

## 2 Specifications

2-1 Technical Specifications					EWAQ004BVP	EWAQ005BVP	EWAQ006BVP	EWAQ008BVP	
Compressor	Type	Hermetically sealed swing compressor							
	Quantity	1							
	Model	2YC45DXD#C			2YC63SXD				
	Starting method	Inverter driven							
Fan	Type	Propeller fan							
	Quantity	1							
	Air flow rate	Cooling	Nom.	m <sup>3</sup> /min	53		72 (1)		
	Diameter				mm	455		510	
	Discharge direction	Horizontal							
Fan motor	Model	-							
	Drive	-							
	Output				W	53		200	
	Quantity	-							
Sound power level	Cooling	Nom.	dB(A)	63 (1)		64 (1)		69 (1)	
Sound pressure level	Cooling	Nom.	dB(A)	48 (7)		49 (7)		52 (3)	53 (3)
	Night quiet mode	Cooling	dB(A)	44 (7)			43 (3)		
Operation range	Air side	Cooling	Min.	°CDB	10				
			Max.	°CDB	43		46		
	Water side	Cooling	Min.	°CDB	5				
			Max.	°CDB	22				
Refrigerant	Type	R-410A							
	Circuits	Quantity							
	Control	Electronic expansion valve							
	GWP				2,088		2,087.5		
Refrigerant charge	Per circuit			kg	2.10		2.70		
				TCO <sub>2eq</sub>	4.4		5.6		
Water circuit	Air purge valve	Yes (Manually)							
	Drain valve / fill valve	Yes							
	flowswitch	Yes							
	Manometer	No							
	Minimum water volume in the system				l	20			
	Piping				inch	1" MBSP		-	
	Piping connections diameter				inch	-		1" MBSP	
	Shut off valve	Yes							
Refrigerant oil	Type	Daphne FVC50K							
	Charged volume				l	0.65		0.9	
Defrost method	Reversed cycle								
Defrost control	Sensor for outdoor heat exchanger temperature								
Safety devices	Item	01	High pressure (pressure switch)			High pressure switch			
		02	Fan motor thermal protection			Low pressure switch			
		03	Fuse			Fan driver overload protector			
		04	-			Fuse			
PED	Category	Category I / (8)			Category I / (9)				
	Most critical part	Name		Compressor				-	
		Ps*V	Bar*l		147				-
General	Supplier/ Manufacturer details	Name or trademark		Daikin Europe N.V.					
		Name and address		Daikin Industries Czech Republic s.r.o. U Nove Hospody 1/1155, 301 00			Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium		
	Product description	Air-to-water heat pump		Yes					
		Water-to-water heat pump		No					
		Brine-to-water heat pump		No					
		Low-temperature heat pump		No					
		Supplementary heater integrated		No					
Heat pump combination heater		No							

## 2 Specifications

2-2 Electrical Specifications				EWAQ004BVP	EWAQ005BVP	EWAQ006BVP	EWAQ008BVP
Unit	Starting current	Max	A	15.7 (10)		19.9 (5)	
	Current	Zmax	List	-		No requirements	
	Running current	Max	A	15.7		19.9	
	Minimum Ssc value			-		Equipment complying with EN/IEC 61000-3-12 / (11) / See note 9	
Power supply	Phase			1N~			
	Frequency			Hz			
	Voltage			V			
	Voltage range	Min.	%	-10			
		Max.	%	10			
Cable requirements	Power supply	Required number of conductors		2 + GND			
	Cooling/Heating output	Quantity of wires		2			
		Maximum running current	A	Minimum cable section 0.75 mm <sup>2</sup>			

### Notes

- (1) Cooling: entering evaporator water temp. 12°C; leaving evaporator water temp. 7°C; ambient air temp. 35°C
  - (2) Cooling: entering evaporator water temp. 23°C; leaving evaporator water temp. 18°C; ambient air temp. 35°C; standard: non-Eurovent
  - (3) All performance calculations are strictly according to Eurovent standard
  - (4) Heating: entering condenser water temp. 40°C; leaving condenser water temp. 45°C; ambient air temp. 7°CDB, 6°CWB; standard: Eurovent
  - (5) Including piping + PHE; excluding expansion vessel
  - (6) Heating: entering condenser water temp. 30°C; leaving condenser water temp. 35°C; ambient air temp. 7°CDB, 6°CWB; standard: Eurovent
  - (7) The sound pressure level is measured via a microphone at a certain distance from the unit. It is a relative value depending on the distance and acoustic environment. Refer to sound spectrum drawing for more information.
  - (8) PED unit category: excluded from scope of PED due to article 1, item 3.6 of 97/23/EC
  - (9) Operation area is extended to lower flow rates only in case the unit operates with heat pump only. (Not in startup, no BUH operation, no defrost operation).
  - (10) Inverter controlled compressor starting current always  $\leq$  max. running current
  - (11) Lower if back-up heater is installed; In case of no back-up heater, then heat pump operation starts at 10°C
- Assembly  $\leq$  category I: excluded from 2014/68/EU due to article 1, 2f

Ssc: Short-circuit power

European/international technical standard setting the limits for harmonic currents produced by equipment connected to public low-voltage system with input current larger than 16A and  $\leq$  75A per phase.

### 3 Electrical data

#### 3 - 1 Electrical Data

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#### EWAQ-BVP

##### \* Electrical meter specification

- Pulse meter type/voltage-free contact for 5 V DC detection by PCB.
- Possible number of pulses
  - 0.1 pulse/kWh
  - 1 pulse/kWh
  - 10 pulse/kWh
  - 100 pulse/kWh
  - 1000 pulse/kWh
- Pulse duration
  - minimum On time: 40ms
  - Minimum OFF time: 100ms
- Measurement type (depending on installation)
  - Single-phase AC meter
  - Three-phase AC meter
  - Balanced loads
  - Three-phase AC meter
  - Unbalanced loads

##### \* Electrical meter installation guideline

- the installer to cover
- Required number of electrical meters

Outdoor unit type		*EW(Y/A)Q(4/5/6/8)*			
Indoor unit type		Optional	*KMBUHCA(3V3/9W1)		
	Backup heater type		3V / 9W	9W	
	Backup heater power supply		1~ 230V	3~ 400V	
	Backup heater configuration		3 / 6 3 / 6 kW	6 / 9 kW	
Normal kWh rate power supply					
Electrical meter type	1~	1	1	1	-
	3~ balanced	-	-	1	-
	3~ unbalanced	-	-	-	1
Preferential kWh rate power supply					
Electrical meter type	1~	2	2	1	
	3~ balanced	-	-	-	
	3~ unbalanced	-	-	1	

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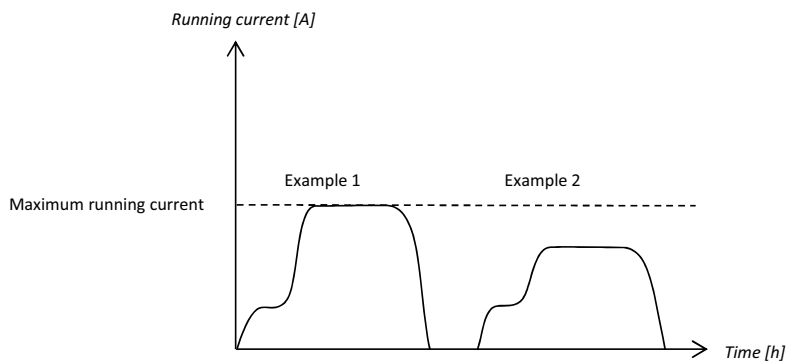
### 3 Electrical data

#### 3 - 1 Electrical Data

## EWAQ-BVP

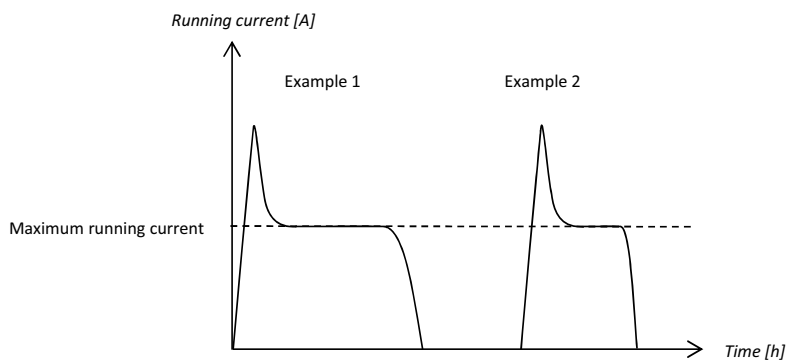
### Specifications Starting current

Inverter-controlled compressor starting current always  $\leq$  max. running current.



Standard On/OFF compressor starting current  $\gg$  max. running current

Not applicable for EW(A/Y)Q\*BAVP\* models.



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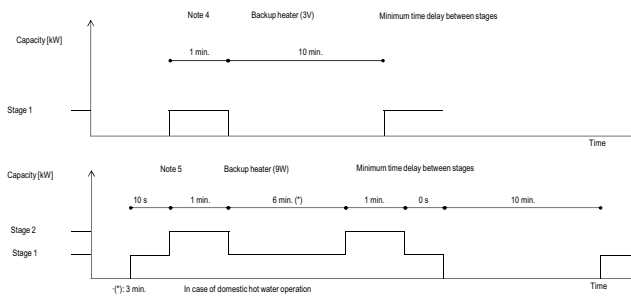
# 3 Electrical data

## 3 - 1 Electrical Data

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EWAQ-BVP

Electrical specifications Backup heater							
Backup heater	Type	3V		9W			
	Capacity setting		kW	3	3	6	9
	Capacity stage			1	1	2	2
	Capacity stage 1		kW	-	-	3	-
	Capacity stage 2		kW	-	-	-	9
	Minimum time delay between stages			Note 4	-	Note 5	-
Power supply	Phase			1-		3-	
(1)	Frequency		Hz		50		
	Voltage		V	230		400	
Current	Nominal running current		A	13	29	8.7	13
	Zmax (backup heater) (2)		Ω	-	-	-	-
			Complex				
	Minimum Ssc value		kVA	-	(3)	-	-
Notes	(1)	The above-mentioned power supply of the hydrobox is for the backup heater only.					
	(2)	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 ≤ Zmax.					
	(3)	The equipment complies with EN/IEC 61000-3-12.					
	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 current ≤ 75 A.					
	EN/IEC 61000-3-12	European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase.					
Zsys	System impedance						



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# 4 Options

## 4 - 1 Options

### EWAQ-BVP

Kit availability for EW(A/Y)Q\*BAVP\*

Reference	Description	Notes	EW(A/Y)Q	004BAVP*	006BAVP*
			EW(A/Y)Q	005BAVP*	008BAVP*
*KCB07CAV3	Control box			o	o
*KRUMCL1	Remote user interface			o	o
*KRSCA1	Remote sensor for outdoor	(8)		o	o
*KPCCAB*	PC cable kit	(9)		o	o
*KBPH14QL7*	Bottom plate heater	(10)			o

Kit availability for \*KCB\*C\* (1)

Reference	Description	Notes	#
*K2CB07CAV3	Option box	(2)	o
*KMBUHC*3V3	Backup heater kit	(4) (6) (5)	o
*KMBUHC*9W1	Backup heater kit	(4) (6) (5)	o
*KRRTWA	Wireless room thermostat		o
*KRTR1	Wireless room thermostat	(receiver included)	o
*KRTETS	External temperature sensor option kit	(3)	o

Kit availability for \*K2CB\*C\* (2)

Reference	Description	Notes	#
KRCS01-1	Remote sensor for indoor	(8)	o

Factory-mounted optional equipment for KMBUHC\* (5)

Description	#	
	*KMBUH*3V3	*KMBUH*9W1 (7)
Backup heater 3kW 1N~230 V	o	o
Backup heater 6kW 1N~230 V		o
Backup heater 6kW 3N~400 V		o
Backup heater 9kW 3N~400 V		o

Kit availability for \*KMBUHC\*

Reference	Description	Notes	#
EKMBHBP1	Valve kit	(6) (5)	o

Notes

- (1) To be able to use these options, it is required that control box \*KCB\*C\* is part of the system.
  - (a) Backup heater
  - (b) External room thermostat/heat pump convector
  - (c) Option box
  - (d) Electricity meter
  - (e) Power limitation digital inputs
- (2) To be able to use these options, it is required that option box \*K2CB\*C\* is part of the system.
  - (a) Control external heat source (bivalent operation).
  - (b) Output remote ON/OFF signal space heating/cooling
  - (c) Remote alarm output
  - (d) External indoor thermistor
- (3) \*KRTETS can only be used in combination with \*KRTR1
- (4) Only 1 of these options can be installed per indoor unit.
- (5) Only for reversible models
- (6) If condensation is expected, the installation of valve kit EKMBHBP1 is required.
- (7) Unified model, the actual backup heater capacity depends on the actual internal upwiring.
- (8) Only 1 sensor connectable: indoor or outdoor
- (9) Data cable for connection with PC.
- (10) In case of high humidity conditions (relative humidity >92%; outdoor ambient temperatures <-5°C ), an optional bottom plate heater is required. This to avoid freeze-up of the outdoor unit.

Remark

Other combinations than mentioned in this combination table are prohibited.

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# 5 Capacity tables

## 5 - 1 Cooling Capacity Tables

### EWAQ004-005BVP

Nominal cooling capacity													
	T <sub>amb</sub> [°C]	20		25		30		35		40		43	
		LWE [°C]	CC [kW]	PI [kW]	CC [kW]	PI [kW]	CC [kW]	PI [kW]	CC [kW]	PI [kW]	CC [kW]	PI [kW]	CC [kW]
EWAQ004*	7	5,16	0,91	4,82	1,02	4,41	1,15	4,00	1,27	3,35	1,32	2,96	1,35
	10	5,40	0,89	5,30	1,01	4,89	1,15	4,48	1,29	3,71	1,31	3,24	1,32
	13	5,64	0,87	5,78	1,01	5,37	1,15	4,96	1,30	4,06	1,30	3,53	1,30
	15	5,80	0,86	6,09	1,00	5,69	1,16	5,28	1,31	4,30	1,29	3,71	1,28
	18	6,04	0,84	6,57	1,00	6,16	1,16	5,76	1,33	4,66	1,28	4,00	1,26
22	6,35	0,82	7,21	0,99	6,80	1,17	6,39	1,35	5,13	1,27	4,38	1,23	
EWAQ005*	7	5,84	1,14	5,60	1,29	5,26	1,45	4,93	1,61	3,70	1,45	2,96	1,35
	10	6,20	1,15	6,17	1,30	5,78	1,46	5,38	1,63	4,04	1,44	3,24	1,32
	13	6,55	1,16	6,74	1,31	6,29	1,48	5,83	1,65	4,39	1,43	3,53	1,30
	15	6,79	1,16	7,13	1,32	6,63	1,49	6,13	1,66	4,62	1,42	3,71	1,28
	18	7,14	1,17	7,70	1,33	7,14	1,50	6,58	1,68	4,97	1,42	4,00	1,26
22	7,62	1,18	8,46	1,35	7,82	1,52	7,18	1,70	5,43	1,41	4,38	1,23	

#### Symbols

CC Cooling capacity at nominal operating frequency, measured according to EN 14511.  
 HC Heating capacity at maximum operating frequency, measured according to EN 14511  
 PI The power input is the total input according to EN 14511  
 LWE Leaving water evaporator temperature [°C]  
 LWC Leaving water condenser temperature [°C]  
 Tamb Ambient temperature; RH (heating) = 85%

#### Conditions

##### Cooling capacity

Capacity according to standard EN 14511 and valid for chilled water range  $\Delta T = 3\text{--}8\text{°C}$ .  
 Capacity values may not be extrapolated below 7°C leaving water temperature.

##### Heating capacity

Capacity according to standard EN 14511 and valid for heated water range  $\Delta T = 3\text{--}8\text{°C}$ .

##### Power input

Power input is the total input of indoor and outdoor units, including the circulation pump; according to EN 14511.

#### Notes

The capacity and the power input are valid for V3 models at 230 V.  
 The capacity and the power input are at maximum operation.

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# 5 Capacity tables

## 5 - 1 Cooling Capacity Tables

### EWAQ006-008BVP

Nominal cooling capacity															
	T <sub>amb</sub> [°C]	20		25		30		35		40		43		46	
		LWE [°C]	CC [kW]	PI [kW]	CC [kW]	PI [kW]	CC [kW]	PI [kW]	CC [kW]	PI [kW]	CC [kW]	PI [kW]	CC [kW]	PI [kW]	CC [kW]
EWA/Y/Q006*	7	8,22	1,35	7,43	1,51	6,64	1,68	5,85	1,84	4,74	2,00	4,07	2,09	3,40	2,18
	10	8,85	1,24	8,14	1,45	7,43	1,66	6,72	1,86	5,66	2,04	5,02	2,14	4,39	2,25
	13	9,49	1,14	8,85	1,39	8,22	1,64	7,59	1,88	6,58	2,08	5,97	2,19	5,37	2,31
	15	9,91	1,08	9,33	1,35	8,75	1,62	8,17	1,90	7,19	2,10	6,61	2,23	6,02	2,35
	18	10,54	0,98	10,04	1,29	9,54	1,61	9,04	1,92	8,12	2,15	7,56	2,28	7,01	2,42
	22	11,38	0,84	10,99	1,21	10,59	1,58	10,20	1,95	9,34	2,20	8,83	2,35	8,32	2,50
EWA/Y/Q008*	7	9,42	1,86	8,93	2,08	8,45	2,30	7,96	2,52	6,44	2,71	5,53	2,82	4,62	2,93
	10	9,46	1,51	9,23	1,86	9,00	2,22	8,77	2,58	7,24	2,71	6,33	2,79	5,41	2,87
	13	9,51	1,16	9,54	1,65	9,56	2,14	9,58	2,63	8,05	2,72	7,13	2,77	6,21	2,81
	15	9,55	0,92	9,74	1,51	9,93	2,09	10,12	2,67	8,58	2,72	7,66	2,75	6,74	2,78
	18	9,60	0,57	10,04	1,29	10,49	2,01	10,93	2,73	9,39	2,72	8,46	2,72	7,53	2,72
	22	9,66	0,10	10,44	1,00	11,23	1,90	12,01	2,81	10,46	2,73	9,53	2,68	8,59	2,64

**Symbols**

- CC Cooling capacity at nominal operating frequency, measured according to -EN 14511-
- HC Heating capacity at maximum operating frequency, measured according to EN 14511
- PI The power input is the total input according to -EN 14511:2013-
- LWE Leaving water evaporator temperature [°C]
- LWC Leaving water condenser temperature [°C]
- Tamb Ambient temperature; RH (heating) = 85%

**Conditions**

Cooling capacity

Capacity according to standard EN 14511 and valid for chilled water range  $\Delta T = 3\text{~}8^{\circ}\text{C}$ .  
Capacity values may not be extrapolated below 7°C leaving water temperature.

Heating capacity

Capacity according to standard EN 14511 and valid for heated water range  $\Delta T = 3\text{~}8^{\circ}\text{C}$ .

Power input

Power input is the total input of indoor and outdoor units, including the circulation pump; according to EN 14511.

**Notes**

The capacity and the power input are valid for V3 models at 230 V.  
The capacity and the power input are at maximum operation.

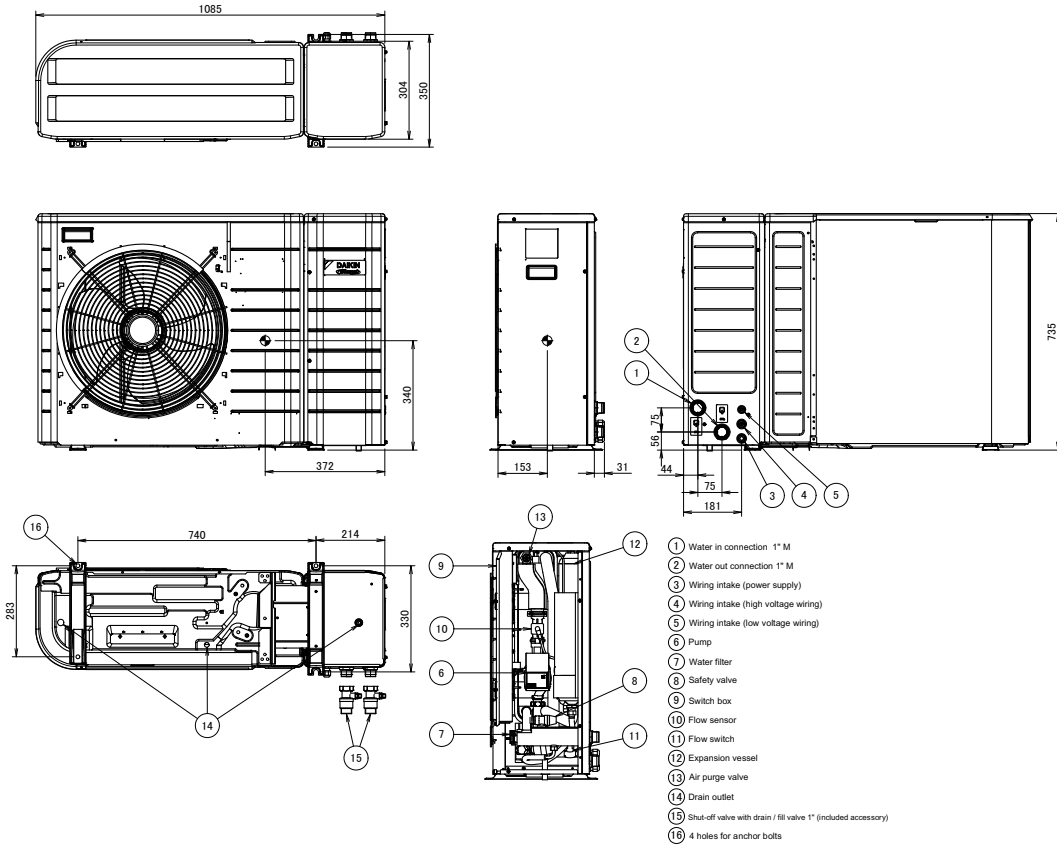
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# 6 Dimensional drawings

## 6 - 1 Dimensional Drawings

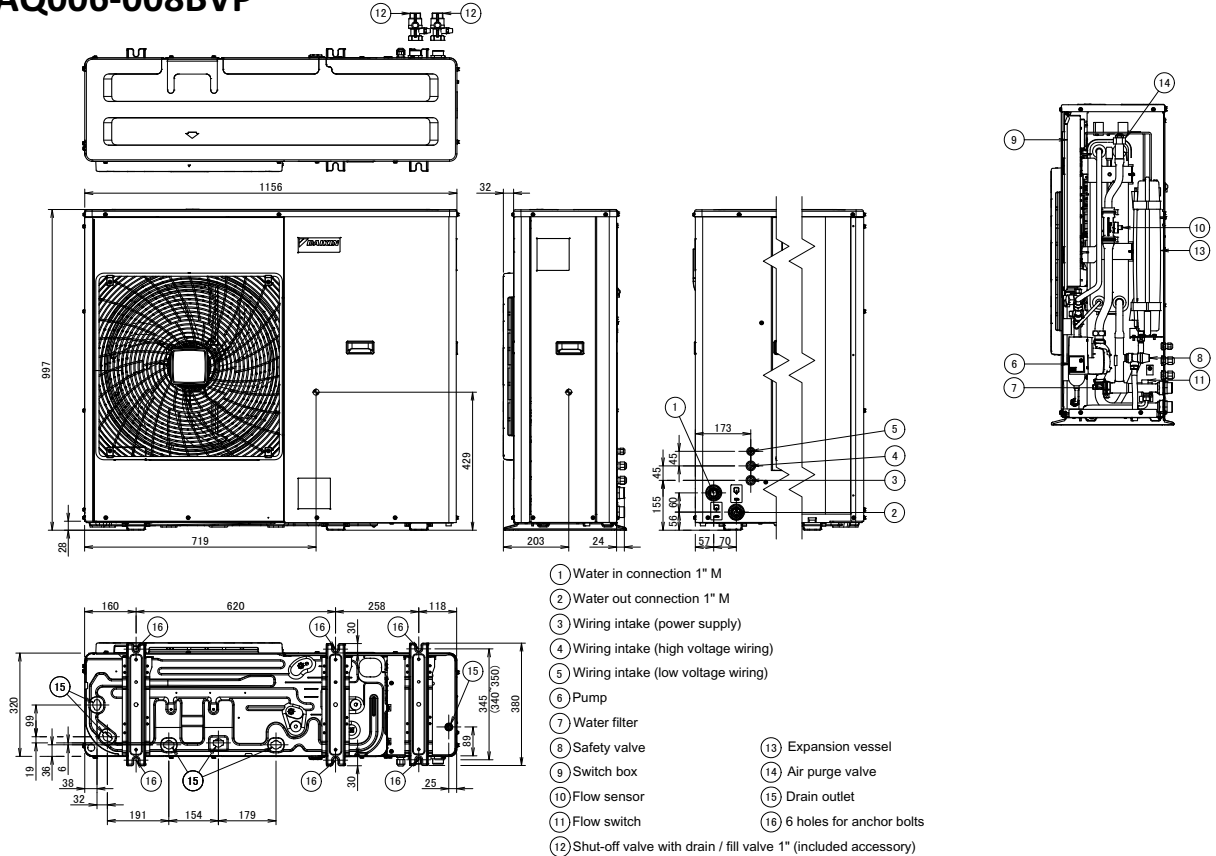
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### EWAQ004-005BVP



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### EWAQ006-008BVP

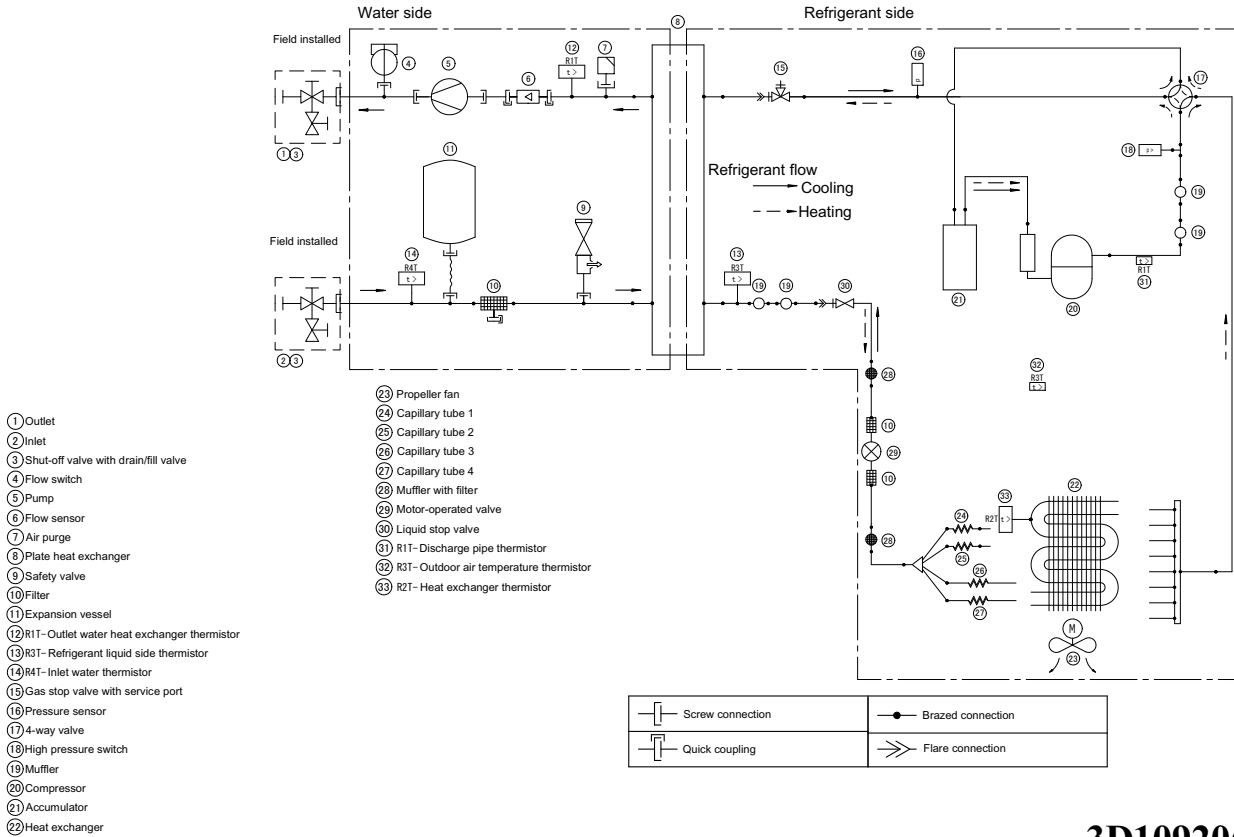


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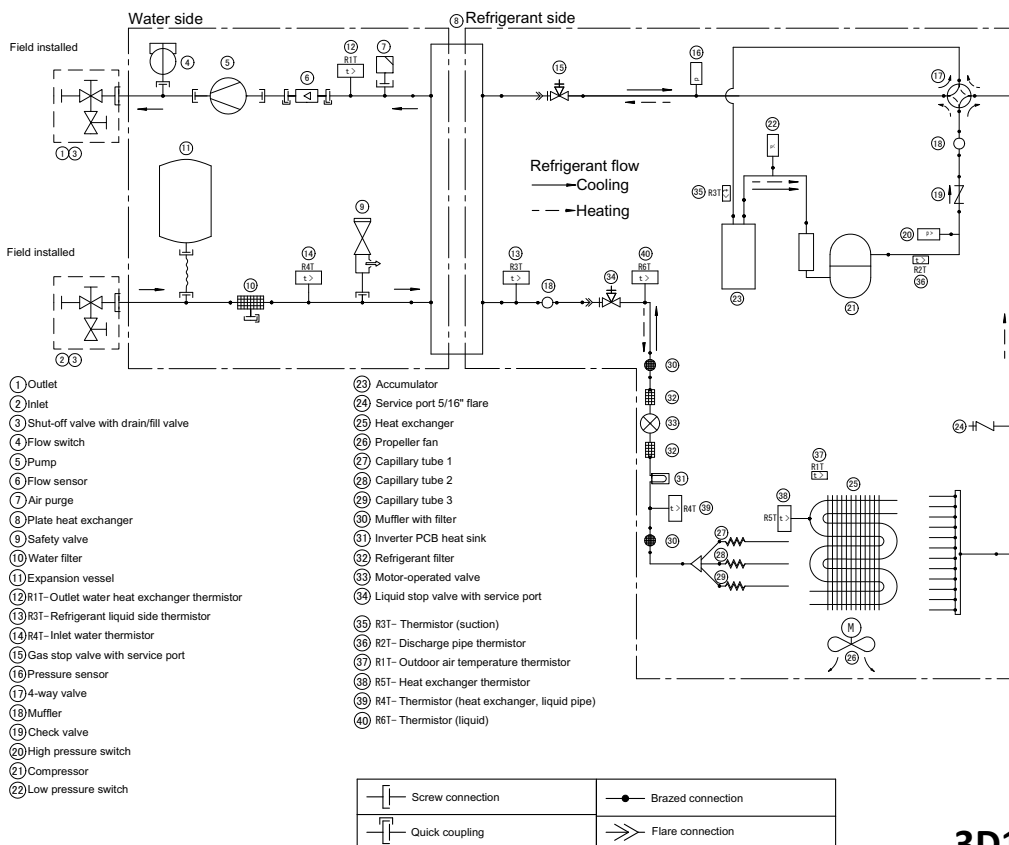
# 7 Piping diagrams

## 7 - 1 Piping Diagrams

### EWAQ004-005BVP



### EWAQ006-008BVP



# 8 Wiring diagrams

## 8 - 1 Wiring Diagrams - Single Phase

8

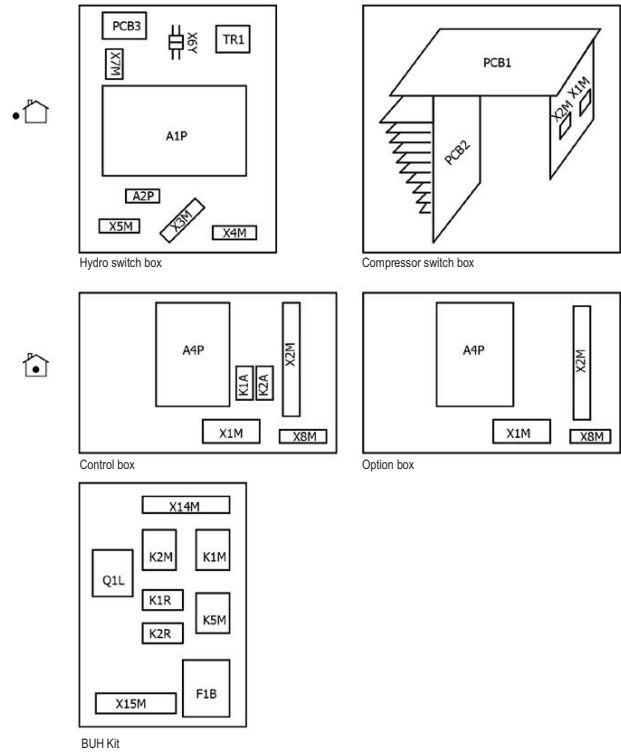
EWAQ004-005BVP

### NOTES to go through before starting the unit

- X4M : Main terminal
- : Earth wiring
- 15 : Wire number 15
- : Field supply
- ① : Several wiring possibilities
- Option
- Wiring depending on model
- switch box
- PCB

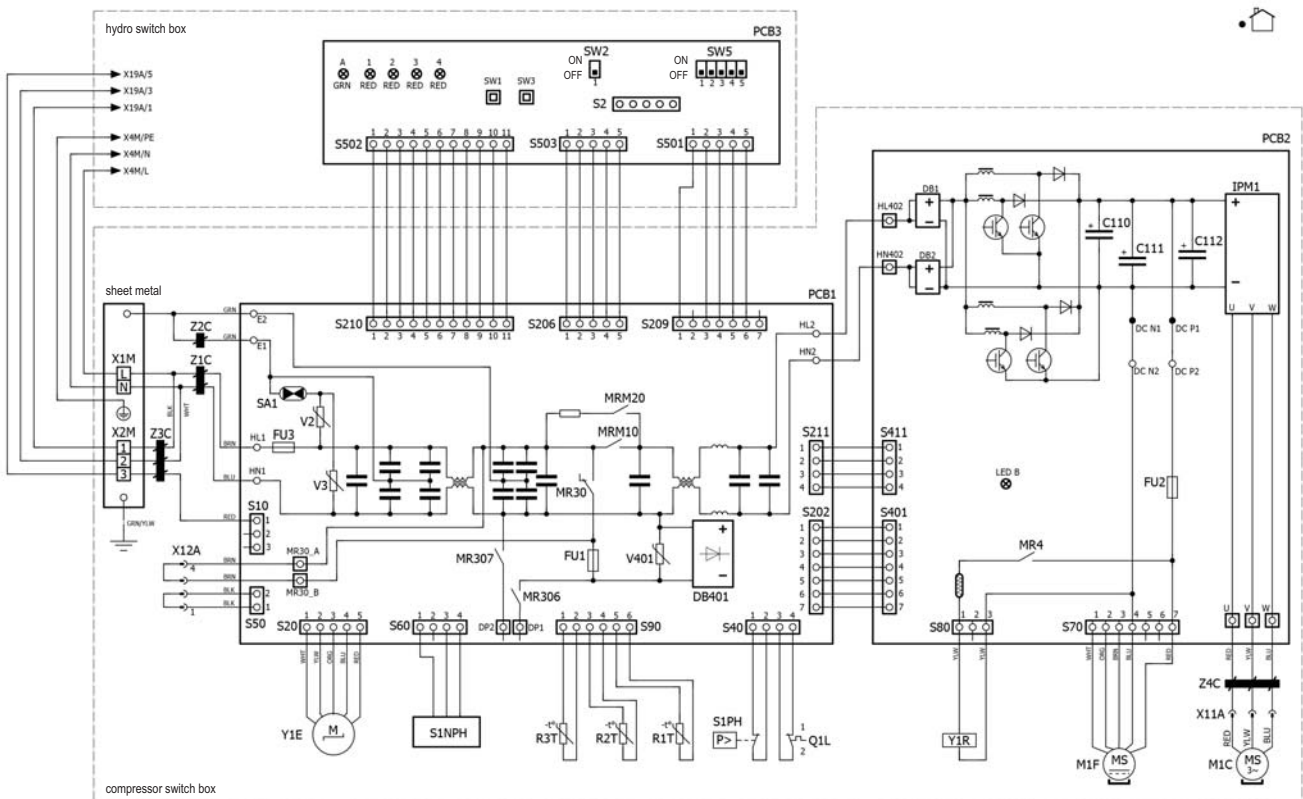
- User installed options:
- Remote user interface
  - Ext. outdoor thermistor
  - Control box
    - BUH Option
      - BUG Configuration (only for \*9W)
        - 6V3 (1N-, 230V, 6kW)
        - 6WN (3N-, 400V, 6kW)
        - 9WN (3B-, 400V, 9kW)
- Main LWT:
  - On/OFF thermostat (wired)
  - On/OFF thermostat (wireless)
    - Ext. Thermistor
- Option box
  - External indoor ambient thermistor

### POSITION IN SWITCH BOX



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EWAQ004-005BVP



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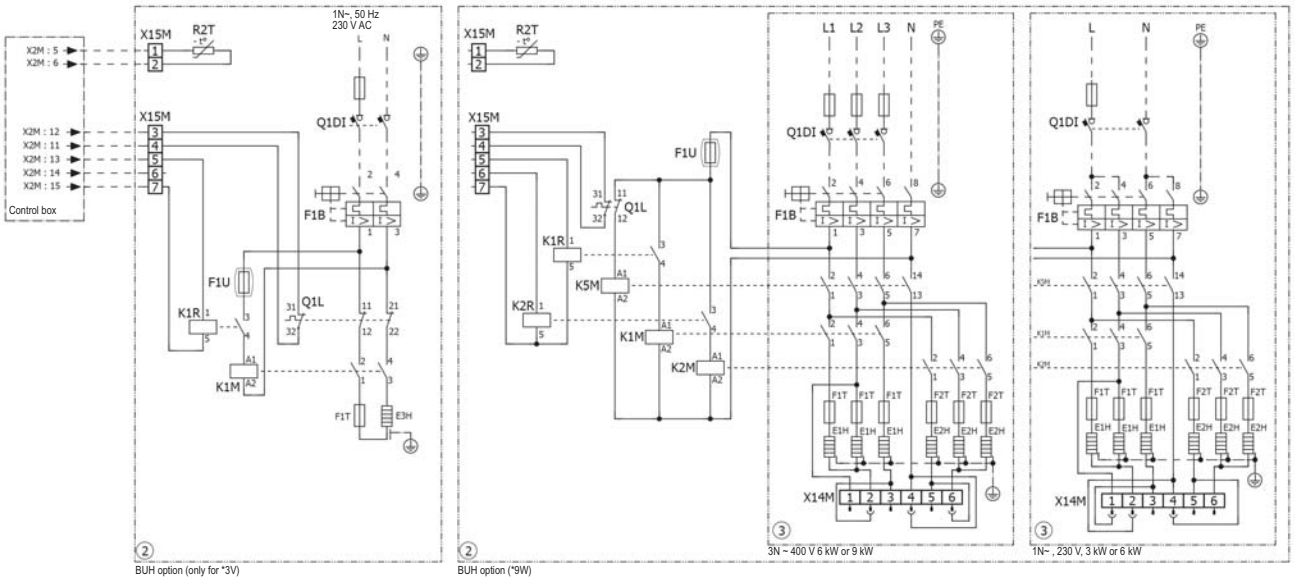


# 8 Wiring diagrams

## 8 - 1 Wiring Diagrams - Single Phase

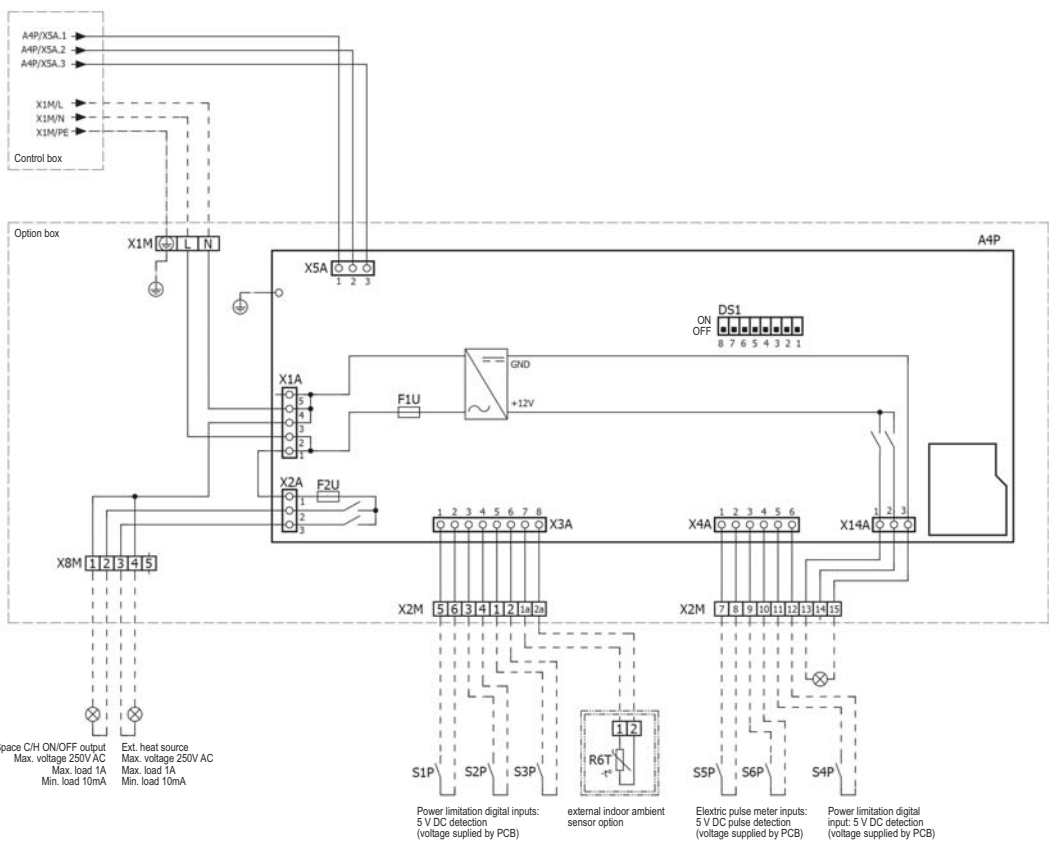
8

EWAQ004-005BVP



4D108719

EWAQ004-005BVP



4D108719

# 8 Wiring diagrams

## 8 - 1 Wiring Diagrams - Single Phase

EWAQ004-005BVP

### LEGEND



Translation can be found in the installation manual.

Part n°	Description
A1P	main PCB
A2P	current loop PCB
A3P	* On/OFF thermostat (PC=power circuit)
A4P	* extension PCB(control, optional)
A5P	user interface PCB
A7P	* receiver PCB (wireless On/OFF thermostat)
B1L	flow sensor
C110-C112 (PCB2)	capacitor
DB1-401 (PCB2-3)	rectifier bridge
DS1 (A4P)	* dipswitch
E1H	BUH element (1 kW)
E2H	BUH element (2 kW)
E3H	BUH element
F1B	* overcurrent fuse BUH
F1T, F2T	* thermal fuse backup heater
F1U	fuse T 5 A 500 V
F1U	fuse T 5 A 500 V BUH option
F1U (A4P)	fuse T 2 A 250 V
F2U (A4P)	fuse T 2 A 250 V for 3 way valve
FU1 (A1P)	fuse T 6,3 A 250 V
FU1 (PCB1)	fuse T 3,15 A H 250 V
FU2 (PCB2)	fuse T 3,15 A H 250 V
FU3 (PCB1)	fuse 30 A 250 V
IPM1 (PCB2)	intelligent power module
K1A	relay for heating
K1M	* contactor BUH (step 1)
K1R	* relay backup heater (step 1)
K2A	relay for cooling

Part n°	Description
K2M	* contactor BUH (step 2)
K2R	* relay backup heater (step 2)
K5M	* safety contactor BUH (only *9W)
K*R (A1P)	relay on PCB
LED 1-4 (PCB3)	indication lamps
LED A-B (PCB2-3)	pilot lamp
M1C	compressor motor
M1F	fan motor
M1P	main supply pump
M2S	# Shut-Off Valve
M4S	* Valve Kit
MRM*, MR30, MR4,	magnetic relay
MR306-307 (PCB1-2)	
PC (A7P)	Power Circuit
PCB1	main PCB
PCB2	inverter PCB
PCB3	service PCB
Q1L	* thermal protector backup heater
Q1L (PCB1)	overload protector
Q*DI	# earth leakage circuit breaker
R1H (A3P)	* humidity sensor
R1T (A1P)	outlet water heat exchanger thermistor
R1T (A3P)	* ambient sensor On/OFF thermostat
R1T (A5P)	ambient sensor user interface
R1T (PCB1)	thermistor (discharge)
R2T	* outlet backup heater thermistor
R2T (A3P)	* external sensor (floor or ambient)
R2T (PCB1)	thermistor (heat exchange)

Part n°	Description
R3T (A1P)	refrigerant liquid side thermistor
R3T (PCB1)	thermistor (air)
R4T (A1P)	inlet water thermistor
R6T (A1P)	* ext. outdoor ambient thermistor
R6T (A4P)	* ext. indoor ambient thermistor
S1L	flow switch
S1NPH	pressure sensor
S1PH	pressure switch (high)
S1S	# preferential kWh rate PS contact
S1-4P	# digital power limitation input 1-4
S2-S503	connector
(PCB1-2-3)	
S5P-S6P	# electrical meters
SA1 (PCB1)	surge arrester
SW1, SW3 (PCB3)	push buttons
SW2, SW3 (PCB3)	dip switches
TR1	power supply transformer
V2, V3, V401 (PCB1)	varistor
X*M	terminal strip
Y1E	electronic expansion valve coil
Y1R	reversing solenoid valve coil
Z1C-Z4C	ferrite core
MR30_A-B, DP1-2, E1-2, DC_P*, DC_N*, HN402, HL402, HL1-2, HN1-2 U, V, W, X*A, X*B, X*Y (PCB1-2-3)	connector

\* : optional

# : field supply

4D108719

EWAQ006-008BVP

### NOTES to go through before starting the unit

- X1M : Main terminal
- 15 : Earth wiring
- 15 : Wire number 15
- ① : Field supply
- ① : Several wiring possibilities
- [Option symbol] : Option
- [Wiring depending on model symbol] : Wiring depending on model
- [switch box symbol] : switch box
- [PCB symbol] : PCB

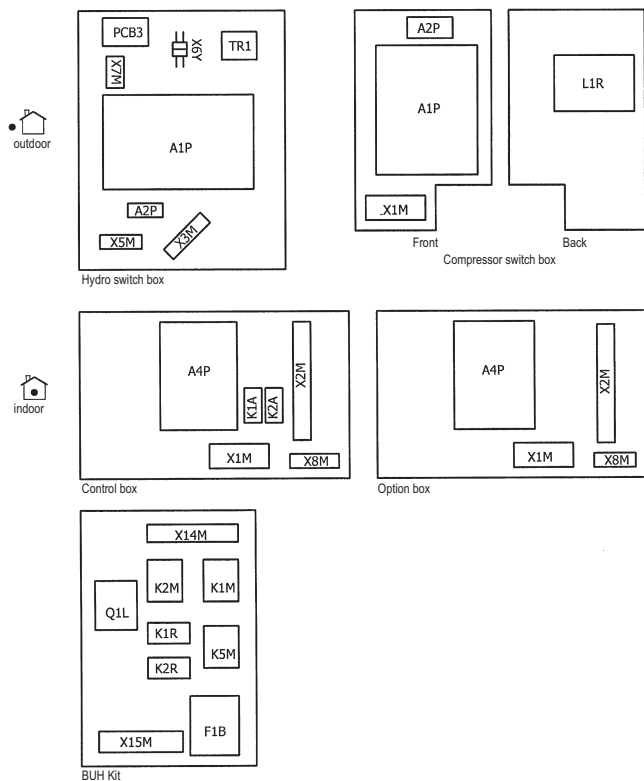
### NOTES

1. Refer to the wiring diagram sticker (on the back of the front plate) for how to use the BS1-BS4 and DS1 switches.
2. When operating, do not short-circuit protection device(s) S1PH, S1PL, S1NPH.
3. Refer to the combination table and the option manual for how to connect the wiring to X6A and X77A.

### User installed options:

- Remote user interface
- Ext. outdoor thermistor
- Control box
  - BUH Option
    - BUH configuration (only for \*9W)
      - 6V3 (1N-, 230V, 6kW)
      - 6WN (3N-, 400V, 6kW)
      - 9WN (3N-, 400V, 9kW)
- Main LWT:
  - ON/OFF thermostat (wired)
  - ON/OFF thermostat (wireless)
    - Ext. Thermistor
- Option box
  - External indoor ambient thermistor

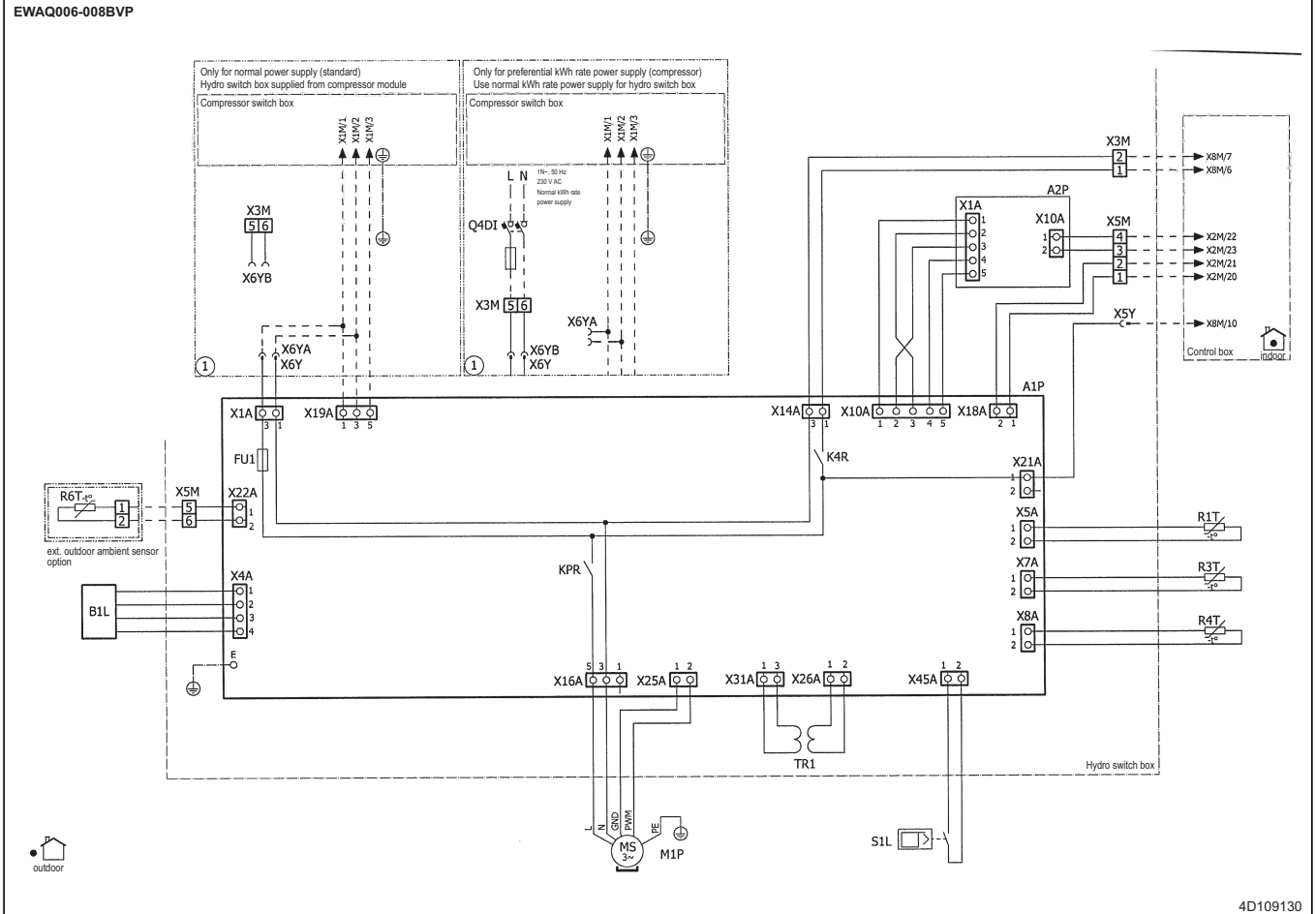
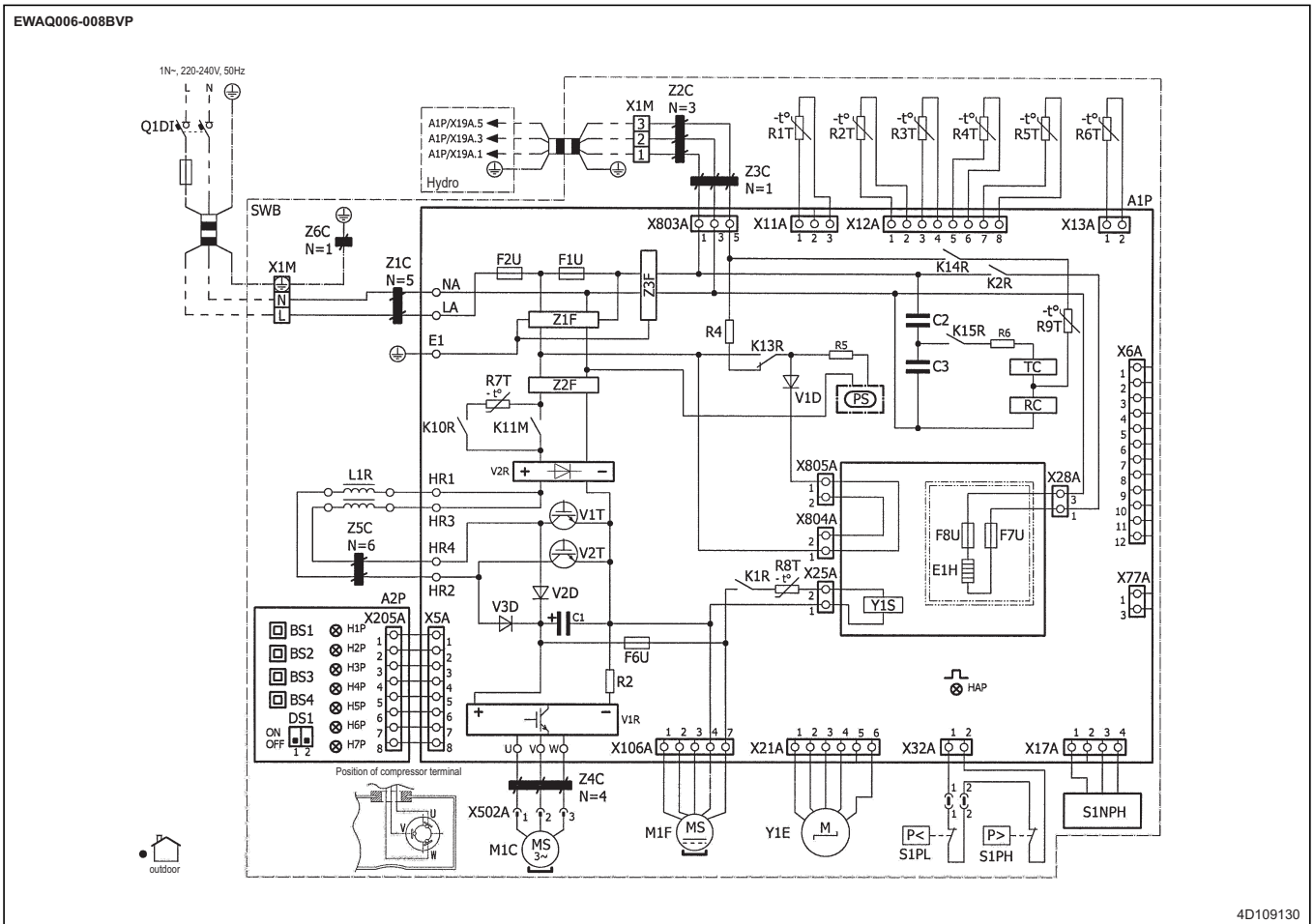
### POSITION IN SWITCH BOX



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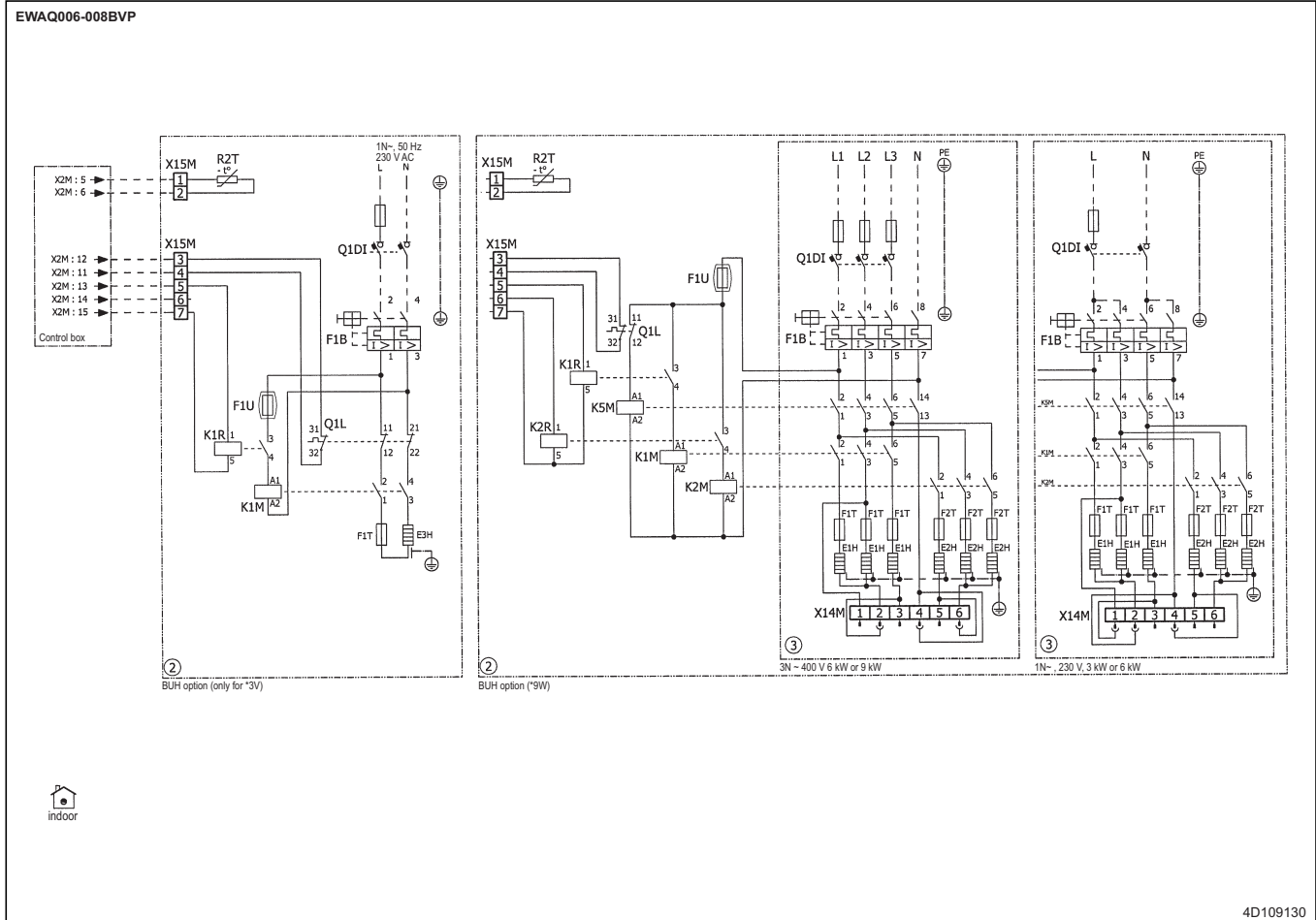
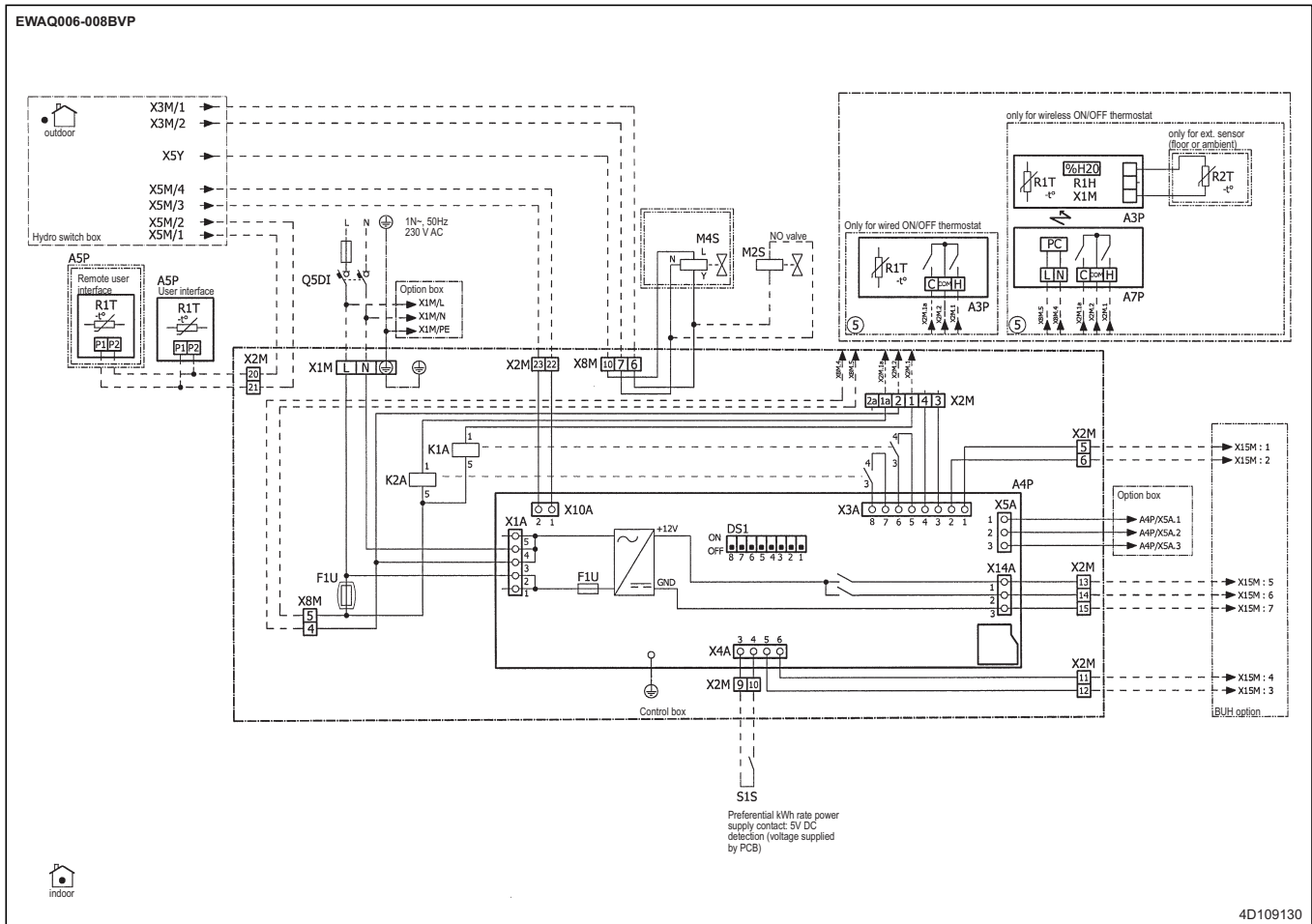
# 8 Wiring diagrams

## 8 - 1 Wiring Diagrams - Single Phase



# 8 Wiring diagrams

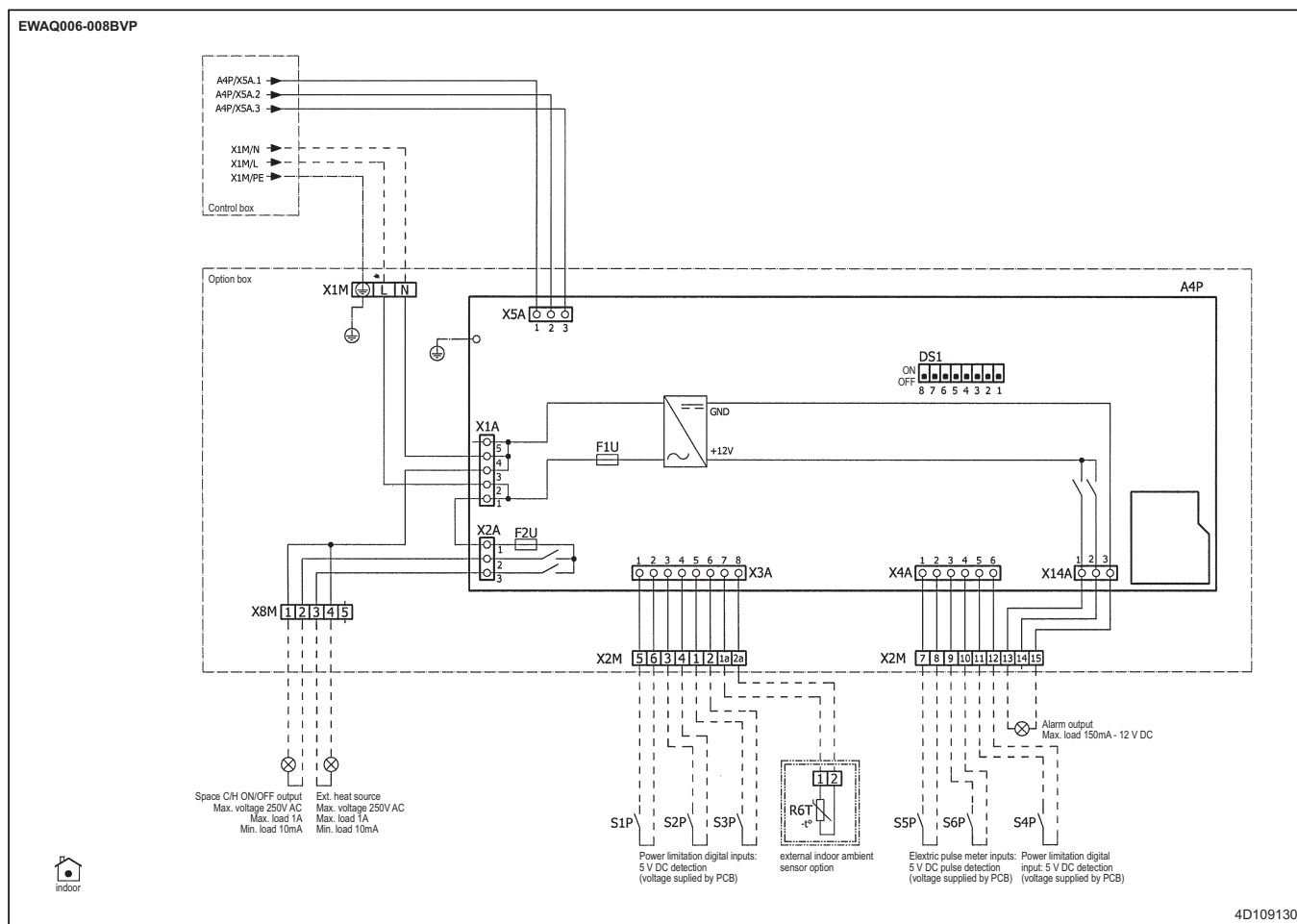
## 8 - 1 Wiring Diagrams - Single Phase



# 8 Wiring diagrams

## 8 - 1 Wiring Diagrams - Single Phase

8



EWAQ006-008BVP

### LEGEND (Outdoor compressor)

Part n°	Description
A1P	Printed circuit board (main)
A2P	Printed circuit board
BS1-BS4 (A2P)	Push-button switch
C1-C3 (A1P)	Capacitor
DS1 (A2P)	Dipswitch
E1H	* Bottom plate heater
F1U (A1P)	Fuse T 6 A 250 V
F2U (A1P)	Fuse T 31,5 A 250 V
F6U (A1P)	Fuse T 3,15 A 250 V
F7U-F8U	* Fuse T 1 A 250 V
H1P-H7P (A2P)	Light-emitting diode (service monitor is orange)
HAP (A1P)	Light-emitting diode (service monitor is green)
K1R (A1P)	Magnetic relay (Y1S)
K11M (A1P)	Magnetic contactor
K2R, K10R, K13R-K15R (A1P)	Magnetic relay
L1R	Reactor
M1C	Compressor motor
M1F	Fan motor
PS (A1P)	Switching power supply
Q1DI	Earth leakage circuit breaker (30mA)
R1T	Thermistor (air)
R2, R4-R6 (A1P)	Resistor

### LEGEND (Outdoor Hydro)

Part n°	Description
R2T	Thermistor (discharge)
R3T	Thermistor (suction)
R4T	Thermistor (heat exchanger)
R5T	Thermistor (heat exchanger middle)
R6T	Thermistor (liquid)
R7T-R9T (A1P)	Thermistor (positive temperature coefficient)
RC (A1P)	Signal receiver unit
S1NPH	Pressure sensor
S1PH	High pressure switch
S1PL	Low pressure switch
TC (A1P)	Signal transmission circuit
V1D-V3D (A1P)	Diode
V1R (A1P)	IGBT power module
V2R (A1P)	Diode module
V1T-V2T (A1P)	Insulated gate bipolar transistor (IGBT)
X1M	Terminal strip
Y1E	Electronic expansion valve
Y1S	Solenoid valve (4-way valve)
Z1C-Z8C	Noise filter (ferrite core)
Z1F-Z3F (A1P)	Noise filter
LA, NA, HR1-4, U, V, W, X'A (A1P-A2P)	Connector
A1P	Main PCB
A2P	Current loop PCB
B1L	Flow sensor
FU1 (A1P)	Fuse T 5 A 250 V
K4R, KPR (A1P)	Magnetic relay
M1P	Main supply pump
Q4DI	# Earth leakage circuit breaker
R1T	Thermistor (air)
R3T	Thermistor (suction)
R4T	Thermistor (heat exchanger)
R6T	* Ext. outdoor ambient thermistor
S1L	Flow switch
TR1	Power supply transformer
X'A, X'Y (A1P, A2P)	Connector
X'M	Terminal strip

\* : optional  
 # : field supply

4D109130

# 8 Wiring diagrams

## 8 - 1 Wiring Diagrams - Single Phase

LEGEND (Indoor control box)		LEGEND (Indoor BUH option)		LEGEND (Indoor option box)	
Part n°	Description	Part n°	Description	Part n°	Description
A3P	* ON/OFF thermostat (PC = power circuit)	E1H	BUH element (1 kW)	A4P	Extension PCB (control, optional)
A4P	* Extension PCB (control, optional)	E2H	BUH element (2 kW)	DS1 (A4P)	Dipswitch
A5P	User interface PCB	E3H	BUH element	F1U (A4P)	Fuse T 2 A 250 V
A7P	* Receiver PCB (wireless ON/OFF thermostat)	F1B	* Overcurrent fuse BUH	F2U (A4P)	Fuse T 2 A 250 V for 3 way valve
DS1 (A4P)	* Dipswitch	F1T, F2T	* Thermal fuse backup heater	R6T	* Ext. indoor ambient sensor option
F1U	Fuse T 5 A 500 V	F1U	Fuse T 5 A 500 V BUH option	S1-4P	# Digital power limitation input 1-4
F1U (A4P)	Fuse T 2 A 250 V	K1M	* Contactor BUH (step 1)	S5P-S6P	# Electrical meters
K1A	Relay for heating	K1R	* Relay backup heater (step 1)	X'A (A4P)	Connector
K2A	Relay for cooling	K2M	* Contactor BUH (step 2) (only *9W)	X'M	Terminal strip
M2S	# Shut-OFF Valve	K2R	* Relay backup heater (step 2) (only *9W)		
M4S	* Valve Kit	K5M	* Safety contactor BUH (only *9W)		
PC (A7P)	Power Circuit	Q1DI	# Earth leakage circuit breaker		
Q5DI	Earth leakage circuit breaker	Q1L	* Thermal protector backup heater		
R1H (A3P)	* Humidity sensor	R2T	* Outlet backup heater thermistor		
R1T (A3P)	* Ambient sensor ON/OFF thermostat	X'M	Terminal strip		
R1T (A5P)	Ambient sensor user interface				
R2T	* Ext. indoor floor/ambient thermistor				
S1S	# Preferential kWh rate PS contact				
X'A (A4P)	Connector				
X'M	Terminal strip				

\* : optional  
# : field supply

4D109130

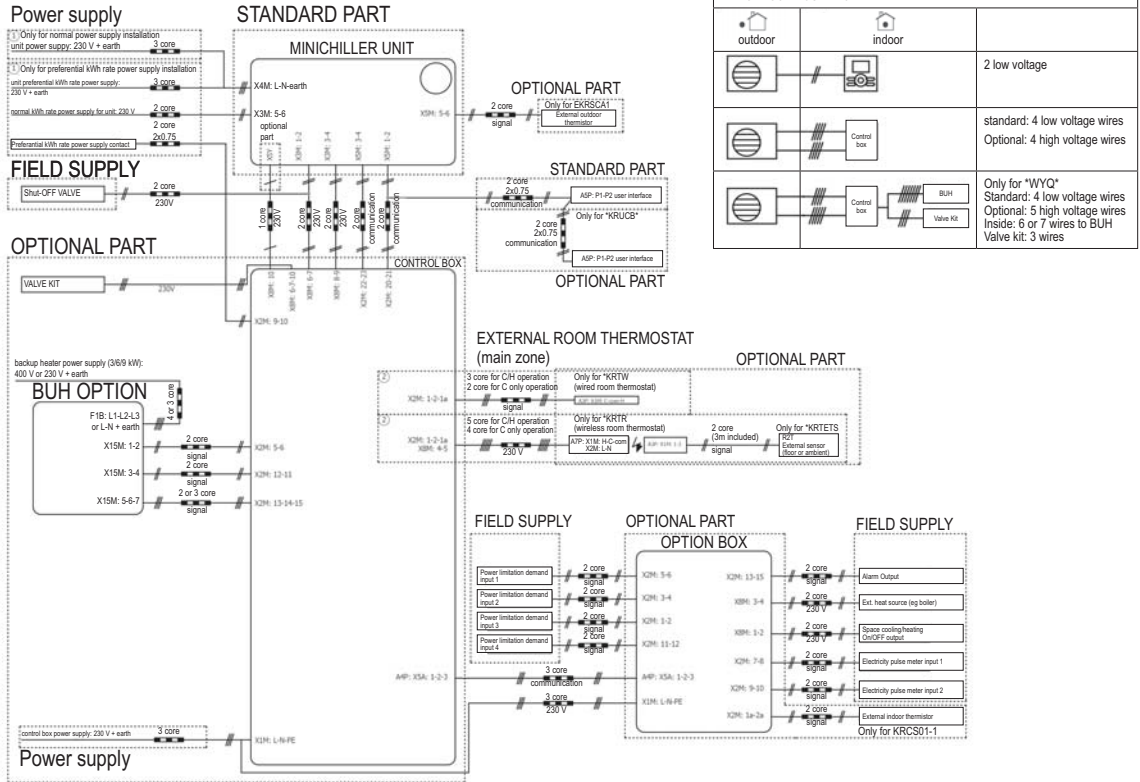


# 9 External connection diagrams

## 9 - 1 External Connection Diagrams

9

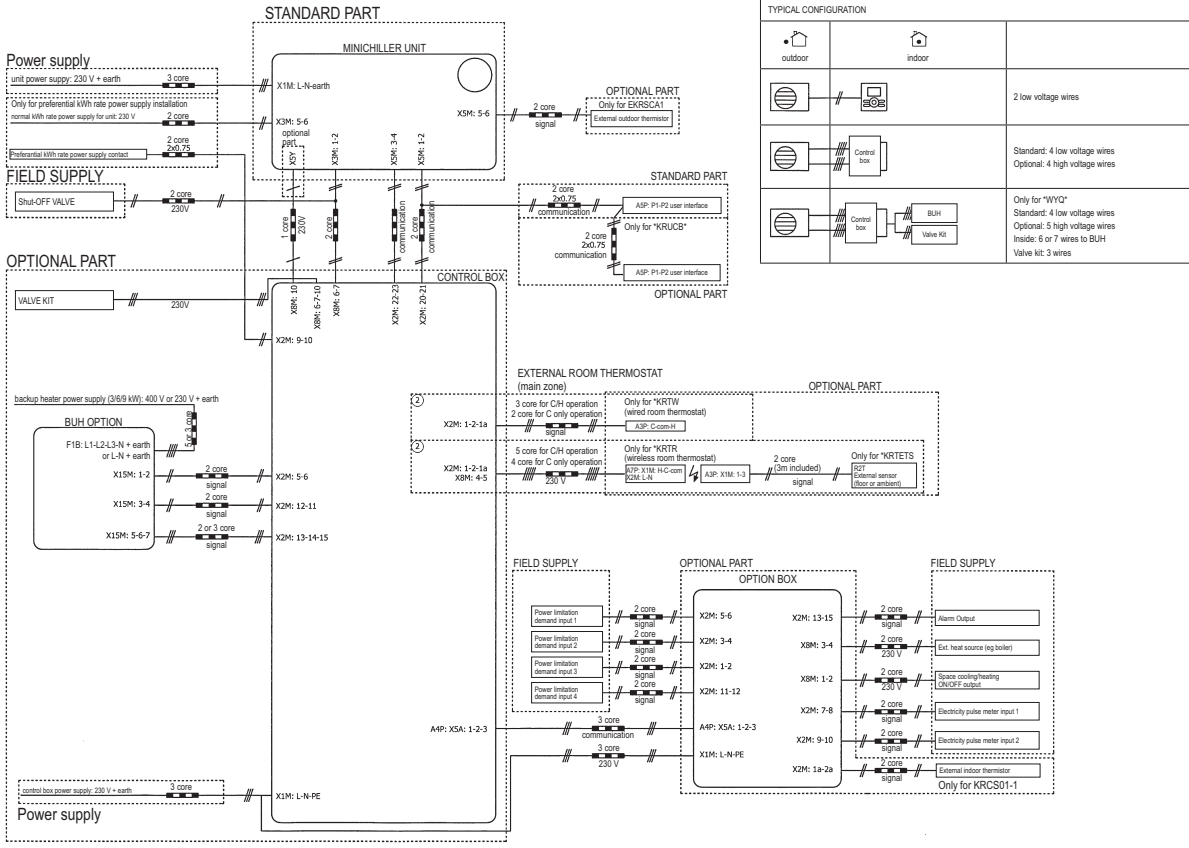
EWAQ004-005BVP



- NOTES**
- In case of signal cable, keep minimum distance to power cables > 5 cm
  - Available heaters: see combination table

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EWAQ006-008BVP



- NOTES**
- In case of signal cable, keep minimum distance to power cables > 5 cm
  - Available heaters: see combination table

4D109132

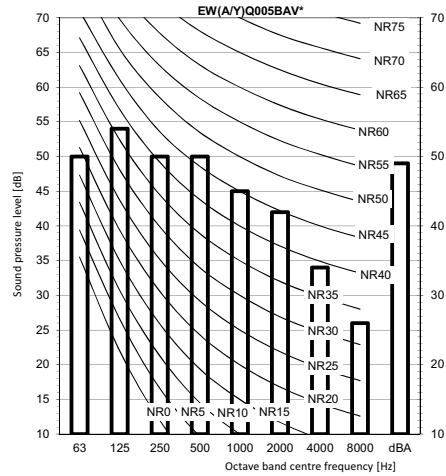
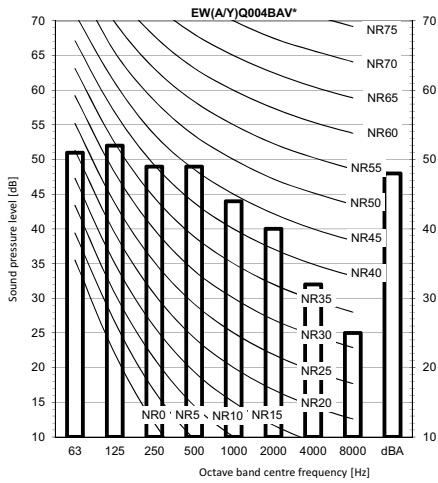


# 10 Sound data

## 10 - 1 Sound Pressure Spectrum - Cooling

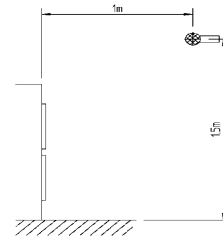
### EWAQ004-005BVP

Cooling



Notes

1. Data is valid at free field condition.  
Measured in a semi-anechoic chamber
2. Data is valid at nominal operation condition.
3. dBA = A-weighted sound pressure level (A scale according to IEC).
4. Reference acoustic pressure 0 dB = 20 µPa
5. If the sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.

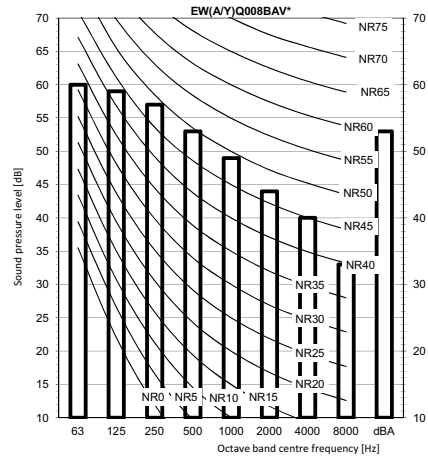
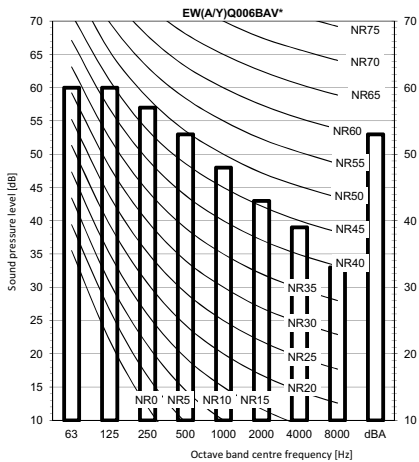


Measuring location (discharge side)

3D109245

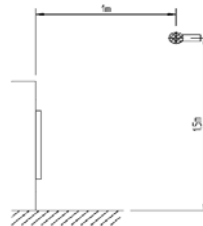
### EWAQ006-008BVP

Cooling



Notes

1. Data is valid at free field condition.  
Measured in a semi-anechoic chamber
2. Data is valid at nominal operation condition.
3. dBA = A-weighted sound pressure level (A scale according to IEC).
4. Reference acoustic pressure 0 dB = 20 µPa
5. If the sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.



Measuring location (discharge side)

3D109725

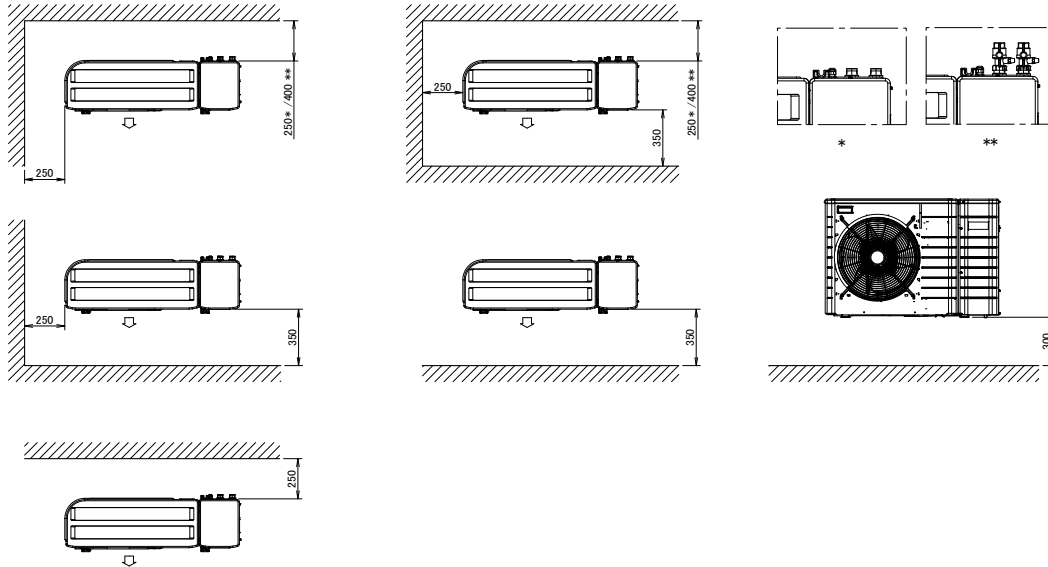
# 11 Installation

## 11 - 1 Installation Method

11

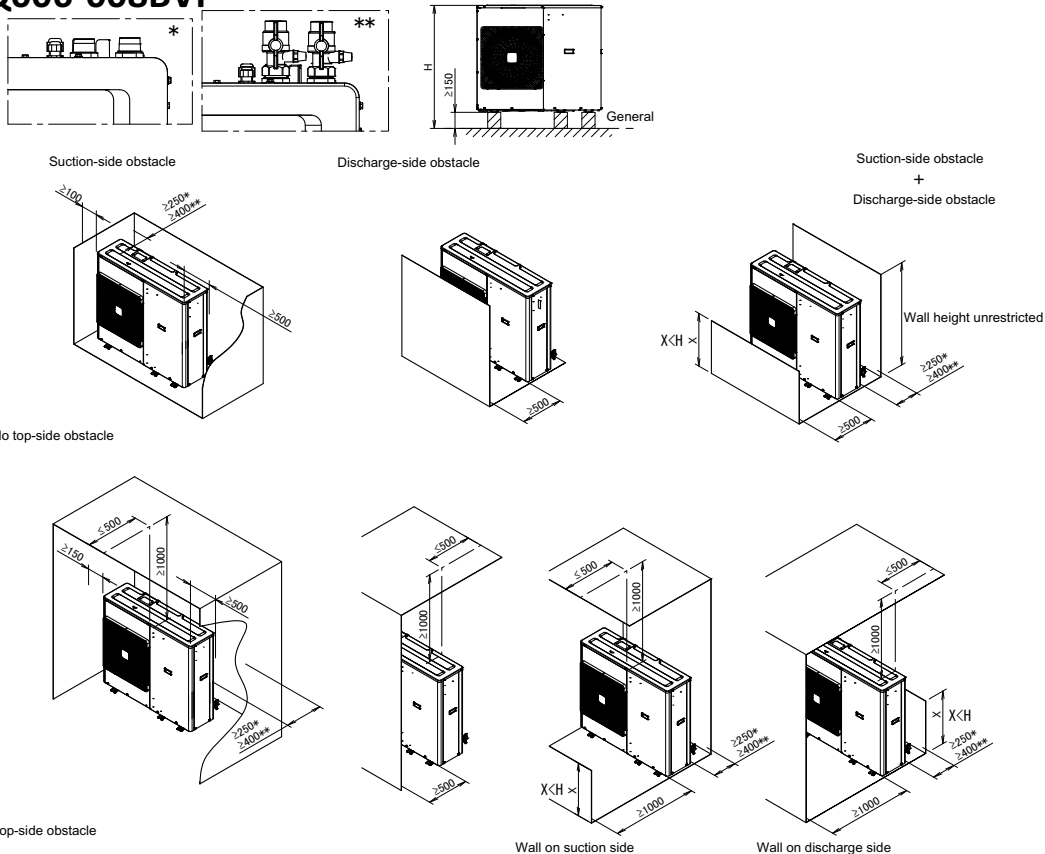
### EWAQ004-005BVP

Minimum space for air passage  
Wall height on air outlet side < 1200 mm



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### EWAQ006-008BVP

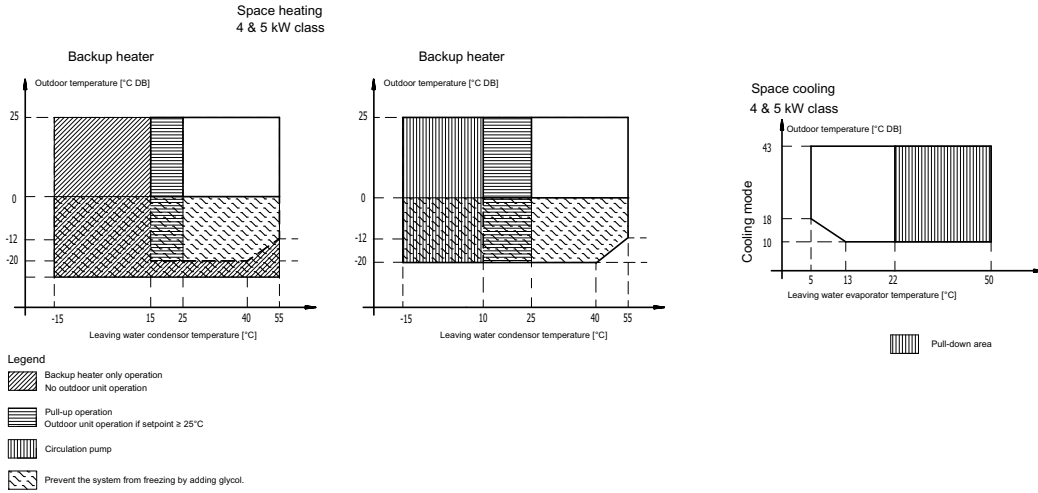


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# 12 Operation range

## 12 - 1 Operation Range

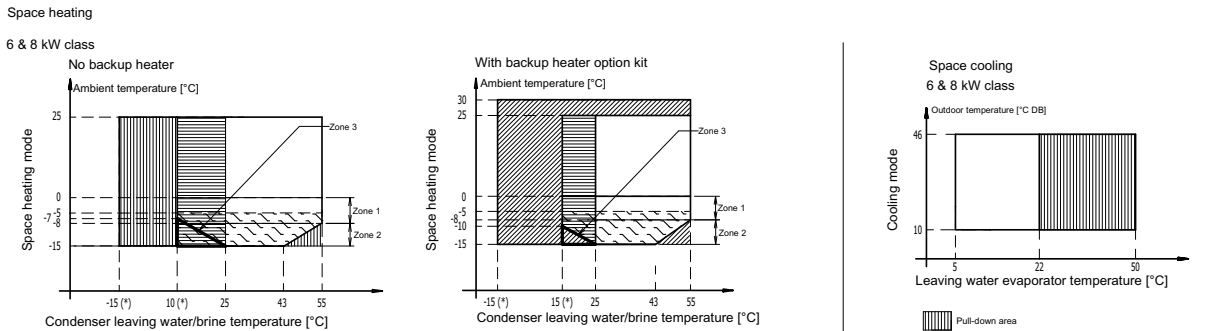
### EWAQ004-005BVP



Remark  
In restricted power supply mode, the outdoor unit and backup heater can only operate separately.

3D109243

### EWAQ006-008BVP



(\*) Minimum condenser entering water/brine temperature [°C]  
If negative ambient temperatures are expected, both in operation or at standstill, take adequate countermeasures against freezing.  
Add the required amount of glycol to the system.

OR

Use the model with heater tape protection.

**Zone 1**

Only operate in this area if using brine with a minimum glycol percentage of 20%.

OR

Use the model with heater tape protection.

If operation in zone 3 is expected, add the required amount of glycol.

**Zone 2**

Only operate in this area if using brine with a minimum glycol percentage of 35%.

OR

Use the model with heater tape protection.

If operation in zone 3 is expected, add the required amount of glycol.

**Zone 3**

Only operate in this area if using brine with a minimum glycol percentage of 35%.

**Legend**

- Pull-up operation
- Outdoor unit operation if setpoint ≥ 25°C
- Circulation pump operation only
- In case of high humidity conditions (relative humidity >92%; outdoor ambient temperatures <5°C), an optional bottom plate heater is required. This to avoid freeze-up of the outdoor unit.
- Backup heater only operation
- No outdoor unit operation

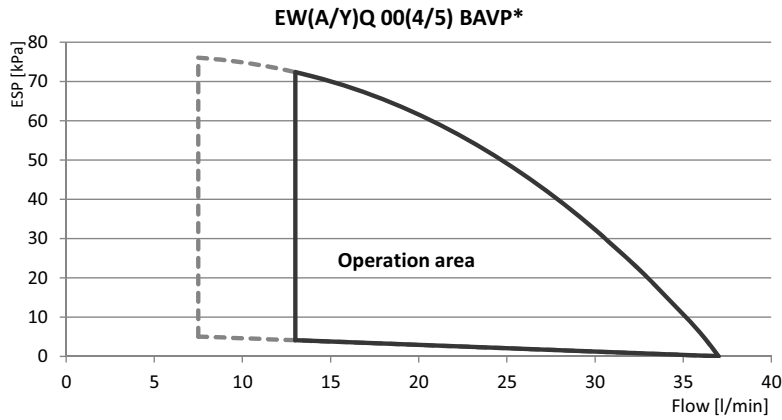
3D109723A

# 13 Hydraulic performance

## 13 - 1 Static Pressure Drop Unit

13

### EWAQ004-005BVP



ESP = External static pressure [kPa]                      Space heating/cooling circuit  
 Flow = Water/glycol flow through the unit              Space heating/cooling circuit

**Notes**

- The operation area is extended to lower flow rates only in case the unit operates with heat pump only, and the temperature of the flow medium is sufficiently high.  
 This does not apply to start-up operation, defrost operation, and backup heater operation in case a backup heater is installed.

See dashed lines

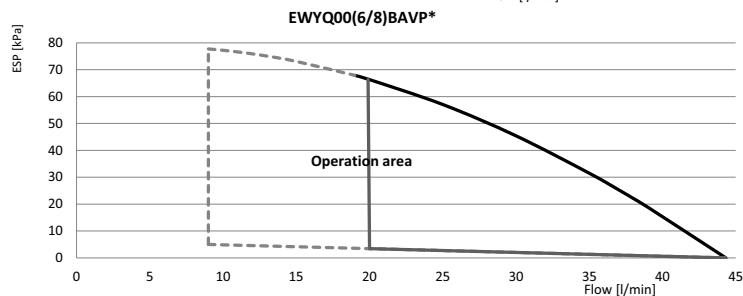
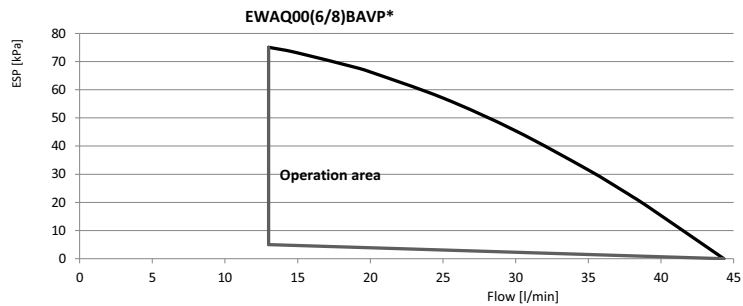
- The higher operation range limit is only valid if the flow medium is water. If glycol is added to the system, the limit is lower.

- 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.

4D109424

### EWAQ006-008BVP



ESP = External static pressure [kPa]                      Space heating/cooling circuit  
 Flow = Water/glycol flow through the unit              Space heating/cooling circuit

**Notes**

- See dashed lines  
 The operation area is extended to lower flow rates only in case the unit operates with heat pump only, and the temperature of the flow medium is sufficiently high.

This does not apply to start-up operation, defrost operation, and backup heater operation in case a backup heater is installed.

- The higher operation range limit is only valid if the flow medium is water. If glycol is added to the system, the limit is lower.

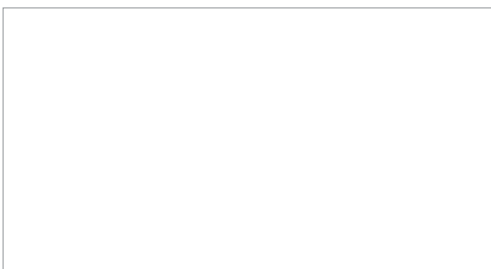
- Selecting a flow outside the operating area can damage the unit or cause the unit to malfunction.

See also the minimum and maximum allowed water flow range in the technical specifications.

4D109727A



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EEDEN17 08/17



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