



Daikin Altherma high  
temperature split  
Technical Data  
ETVZ16E6V7 /  
ETVZ16E9W7





# TABLE OF CONTENTS

## ETVZ16E6V7 / ETVZ16E9W7

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1	<b>Features</b>	4
	ETVZ16E6V7, ETVZ16E9W7	4
2	<b>Specifications</b>	5
3	<b>Electrical data</b>	10
4	<b>Capacity tables</b>	12
	Domestic Hot Water performance	12
5	<b>Dimensional drawings</b>	13
6	<b>Centre of gravity</b>	14
7	<b>Piping diagrams</b>	15
8	<b>Wiring diagrams</b>	16
	Notes & Legend	16
	Control Circuit	17
	Power Supply, Back-up Heater	19
9	<b>External connection diagrams</b>	20
10	<b>Installation</b>	21
	Installation Method	21
11	<b>Operation range</b>	22
12	<b>Hydraulic performance</b>	23
	Static Pressure Drop Unit	23

# 1 Features

## ETVZ16E6V7, ETVZ16E9W7

### Floor standing unit integrated with different temperature zones management

1

- › Integrated indoor unit: all-in-one floor standing unit including the domestic hot water tank
- › Inclusion of all hydraulic components means no third party components are required
- › The unit's sleek design blends in with other household appliances.
- › Bi-zone allows temperature monitoring for 2 zones. Connect underfloor heating to radiators to optimise efficiency
- › Quick configuration in 9 steps in a high resolution colour interface wizard



Onecta app  
(optional)

## 2 Specifications

Technical specifications				ETVZ16S18E6V7		ETVZ16S23E6V7		
Heater capacity	Step 1		kW			2		
	Step 2		kW			2 or 4		
Power input	Nom.		kW			0.33		
Casing	Material			Precoated sheet metal				
Dimensions	Unit	Height	mm	1,650		1,850		
		Width	mm			595		
		Depth	mm			625		
	Packed unit	Height	mm	1,820		2,020		
		Width	mm			720		
		Depth	mm			740		
Weight	Unit		kg	120		128		
	Packed unit		kg	138		146		
Packing	Material			Wood / Carton / PE wrapping foil / Metal				
	Weight			kg				
Pump	Type			-				
Pump Additional Zone	Nr of speeds			PWM				
	Power input		W	140				
	Type			Grundfos UPML GEO 25-105				
Pump Main Zone	Nr of speeds			PWM				
	Power input		W	140				
	Type			Grundfos UPML GEO 25-105				
Water side Heat exchanger	Water flow rate	Min.	l/min	20.0 (1)				
Expansion vessel	Volume			l				
	Max. water pressure			bar				
	Pre pressure			bar				
Water Filter Additional Zone	Diameter perforations			mm				
	Material			Plastic / Stainless steel				
Water filter Main Zone	Diameter perforations			mm				
	Material			Copper - brass - stainless steel				
Tank	Name			Stainless steel domestic hot water tank 180 l		Stainless steel domestic hot water tank 230 L		
	Water volume		l	180		230		
	Material			Stainless steel (EN 1.4521)				
	Maximum water temperature			°C				
	Maximum water pressure			bar				
	Insulation	Material	Heat loss	kWh/24h	1.2 (2)		1.4 (2)	
					Polyurethane foam			
Tank	Standing heat loss	S	W	50		58		
	Storage volume	V	l	180		220		
	Corrosion protection			Pickling				
General	Supplier/Manufacturer details	Name or trademark		Daikin Europe N.V.				
		Name and address		Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium				
3-way valve	Coefficient of flow (kV)	Space heating	m <sup>3</sup> /h	8				
		Domestic hot water tank	m <sup>3</sup> /h	10				
3-way valve mixing	Coefficient of flow (kV)	Bypass	m <sup>3</sup> /h	13				
		Main zone only	m <sup>3</sup> /h	8				
Water circuit	Piping material			Cu				
	Internal piping diameter			inch				
	Piping			1-1/4"				
	Safety valve			bar				
	Manometer			Digital				
	Drain valve / fill valve			No				
	Shut off valve			Yes				
	flowswitch			Yes				
	Air purge valve			Yes				
	Total water volume		l	3.5 (3)				
	Minimum water volume in the system for cooling		l	20 (4)				
	Minimum water volume in the system for heating		l	20 (4)				
	Water circuit - space heating side (additional zone)	Air purge valve			Yes			
Drain valve / fill valve				No				
Manometer				Yes				
Piping connections diameter			inch	G 1" (FEMALE)				
Safety valve			bar	3				
Shut off valve			Yes					

## 2 Specifications

2

Technical specifications				ETVZ16S18E6V7	ETVZ16S23E6V7	
Water circuit - space heating side (main zone)	Air purge valve			No		
	Manometer			Yes		
	Piping connections diameter	inch		G 1 (FEMALE)		
	Safety valve		bar	Yes		
	Shut off valve			Yes		
Water circuit - Domestic hot water side	Piping material			Stainless steel		
	Piping	Cold water in / Hot water out	inch	G 3/4" FEMALE		
	Recirculation connection		inch	G 3/4" FEMALE		
Sound power level	Nom.		dB(A)	44.0 (5)		
Sound pressure level	Nom.		dB(A)	30.0 (6)		
Operation range	Heating	Ambient	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
	Water side	Water	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35 (8)	
	Cooling	Ambient	Min.	°CDB	0 (7)	
			Max.	°CDB	0 (7)	
		Water side	Water	Min.	°C	0 (7)
				Max.	°C	0 (7)
		Domestic hot water side	Water	Min.	°C	0 (7)
				Max.	°C	0 (7)
Safety devices	Item	01		Thermal cut out		

Electrical specifications				ETVZ16S18E6V7	ETVZ16S23E6V7	
Power supply	Name			See note 10		
	Voltage range	Min.	%	10		
		Max.	%	10		
IP class	IP			IP X0B		
Electric heater	Power supply	Name		6V3		
		Phase		1~ / 3~		
		Frequency	Hz	50		
	Current	Voltage		V	230	
		Maximum running current		A	26.0	
		Zmax	List	Ω	0.22	
		Minimum Ssc value			Equipment complying with EN/IEC 61000-3-12	
Recommended fuses		A	20.000 (9)			
Wiring connections	Communication cable	Quantity		3		
		Remark		2.5 mm <sup>2</sup>		
	Electric meter	Quantity		2		
		Remark		Minimum 0.75 mm <sup>2</sup> (5VDC pulse detection)		
	Preferential kWh rate power supply	Quantity		Power: 2		
		Remark		Power 6.3A (Select diameter and type according to national and local regulations)		
	Domestic hot water pump	Quantity		2		
		Remark		Minimum 0.75 mm <sup>2</sup> (2A inrush, 1A continuous)		
	For power supply back-up heater	Quantity		Prewired		
		Remark				
	For connection with R6T	Quantity		2		
		Remark		Minimum 0.75 mm <sup>2</sup>		
	For connection with A3P	Quantity		Depends on thermostat type, cf. installation manual		
		Remark		Voltage: 230V / Max. current: 100mA / Min. 0.75mm <sup>2</sup>		
	For connection with M2S	Quantity		2		
Remark		Voltage: 230V / Max. current: 100mA / Min. 0.75mm <sup>2</sup>				
For connection with optional	Quantity		4			
	Remark		100 mA, minimum 0.75 mm <sup>2</sup>			

(1)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). ]

(2)Based on a dT of 45 K |

(3)Including piping + back-up heater; excluding expansion vessel |

(4)Excluding the water in the unit. This minimum water volume is sufficient for most applications. During critical processes extra water may be required. |

(5)Measured with a pressure drop of 10 kPa in the heating system at an operating condition of leaving water 47-55°C in a room with an ambient of 20°C. DB/WB 7°C/6°. |

## 2 Specifications

(6) Value measured in an anechoic room at 1m distance from the unit. It is a relative value, depending on the distance and acoustic environment. The sound pressure level mentioned is measured with a pressure drop of 10 kPa in the heating system at an operatin |

(7) Refer to operation range of the unit. |

(8) Depends on operation mode, refer to installation manual. |

(9) 4 pole 20 A curve 400V tripping class C (refer to wiring diagram) |

(10) Above mentioned power supply of the hydrobox is for the backup heater only. The switch box and the pump of the hydrobox are supplied via the outdoor unit. The optional domestic hot water tank has a separate power supply.

Technical specifications				ETVZ16S18E9W7	ETVZ16S23E9W7	
Heater capacity	Step 1		kW	3		
	Step 2		kW	max. 6 kW		
Power input	Nom.		kW	0.33		
	Casing	Material		Precoated sheet metal		
Dimensions	Unit	Height	mm	1,650	1,850	
		Width	mm	595		
		Depth	mm	625		
	Packed unit	Height	mm	1,820	2,020	
		Width	mm	720		
		Depth	mm	740		
Weight	Unit		kg	120	128	
	Packed unit		kg	138	146	
Packing	Material			Wood / Carton / PE wrapping foil / Metal		
	Weight		kg	16		
Pump	Type			-		
Pump Additional Zone	Nr of speeds			PWM		
	Power input		W	140		
	Type			Grundfos UPML GEO 25-105		
Pump Main Zone	Nr of speeds			PWM		
	Power input		W	140		
	Type			Grundfos UPML GEO 25-105		
Water side Heat exchanger	Water flow rate	Min.	l/min	20.0 (1)		
Expansion vessel	Volume		l	10		
	Max. water pressure		bar	3		
	Pre pressure		bar	1		
Water Filter Additional Zone	Diameter perforations		mm	0.8		
	Material			Plastic / Stainless steel		
Water filter Main Zone	Diameter perforations		mm	1.0		
	Material			Copper - brass - stainless steel		
Tank	Name			Stainless steel domestic hot water tank 180 l	Stainless steel domestic hot water tank 230 L	
	Water volume		l	180	230	
	Material			Stainless steel (EN 1.4521)		
	Maximum water temperature		°C	70.0		
	Maximum water pressure		bar	10		
	Insulation	Material	Heat loss	kWh/24h	Polyurethane foam	
					1.2 (2)	1.4 (2)
Tank	Standing heat loss	S	W	50	58	
	Storage volume	V	l	180	220	
	Corrosion protection			Pickling		
	Energy efficiency class			B		
General	Supplier/ Manufacturer details	Name or trademark		Daikin Europe N.V.		
		Name and address		Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium		
3-way valve	Coefficient of flow (kV)	Space heating	m <sup>3</sup> /h	8		
		Domestic hot water tank	m <sup>3</sup> /h	10		
3-way valve mixing	Coefficient of flow (kV)	Bypass	m <sup>3</sup> /h	13		
		Main zone only	m <sup>3</sup> /h	8		
Water circuit	Piping material			Cu		
	Internal piping diameter		inch	1-1/4"		
	Piping		inch	1"		
	Safety valve		bar	3		
	Manometer			Digital		
	Drain valve / fill valve			No		
	Shut off valve			Yes		
	flowswitch			Yes		
	Air purge valve			Yes		
	Total water volume		l	3.5 (3)		
	Minimum water volume in the system for cooling		l	20 (4)		
	Minimum water volume in the system for heating		l	20 (4)		

## 2 Specifications

2

Technical specifications				ETVZ16S18E9W7	ETVZ16S23E9W7
Water circuit - space heating side (additional zone)	Air purge valve			Yes	
	Drain valve / fill valve			No	
	Manometer			Yes	
	Piping connections diameter	inch		G 1" (FEMALE)	
	Safety valve	bar		3	
Water circuit - space heating side (main zone)	Shut off valve			Yes	
	Air purge valve			No	
	Manometer			Yes	
	Piping connections diameter	inch		G 1 (FEMALE)	
	Safety valve	bar		Yes	
Water circuit - Domestic hot water side	Shut off valve			Yes	
	Piping material			Stainless steel	
	Piping connections	Cold water in / Hot water out inch		G 3/4" FEMALE	
Sound power level	Nom.	dB(A)		44.0 (5)	
	Nom.	dB(A)		30.0 (6)	
Operation range	Heating	Ambient	Min.	°C	0 (7)
			Max.	°C	0 (7)
		Water side	Min.	°C	0 (7)
			Max.	°C	0 (7)
	Indoor installation	Ambient	Min.	°CDB	5
			Max.	°CDB	35 (8)
	Cooling	Ambient	Min.	°CDB	0 (7)
			Max.	°CDB	0 (7)
		Water side	Min.	°C	0 (7)
			Max.	°C	0 (7)
	Domestic hot water side	Water	Min.	°C	0 (7)
			Max.	°C	0 (7)
Safety devices	Item	01	Thermal cut out		

Electrical specifications				ETVZ16S18E9W7	ETVZ16S23E9W7	
Power supply	Name			See note 10		
	Voltage range	Min.	%	10		
		Max.	%	10		
IP class	IP			IP X0B		
Electric heater	Power supply	Name			9W	
		Phase			3~	
		Frequency	Hz	50		
	Voltage			400		
	Current	Maximum running current	A	13.0		
	Recommended fuses			20.000 (9)		
Wiring connections	Communication cable	Quantity	3			
		Remark	2.5 mm <sup>2</sup>			
	Electric meter	Quantity	2			
		Remark	Minimum 0.75 mm <sup>2</sup> (5VDC pulse detection)			
	Preferential kWh rate power supply	Quantity	Power: 2			
		Remark	Power 6.3A (Select diameter and type according to national and local regulations)			
	Domestic hot water pump	Quantity	2			
		Remark	Minimum 0.75 mm <sup>2</sup> (2A inrush, 1A continuous)			
	For power supply back-up heater	Quantity	Prewired			
		Remark				
	For connection with R6T	Quantity	2			
		Remark	Minimum 0.75 mm <sup>2</sup>			
For connection with A3P	Quantity	Depends on thermostat type, cf. installation manual				
	Remark	Voltage: 230V / Max. current: 100mA / Min. 0.75mm <sup>2</sup>				
For connection with M2S	Quantity	2				
	Remark	Voltage: 230V / Max. current: 100mA / Min. 0.75mm <sup>2</sup>				
For connection with optional	Quantity	4				
	Remark	100 mA, minimum 0.75 mm <sup>2</sup>				



## 2 Specifications

- (1) 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). |
- (2) Based on a  $\Delta T$  of 45 K |
- (3) Including piping + back-up heater; excluding expansion vessel |
- (4) Excluding the water in the unit. This minimum water volume is sufficient for most applications. During critical processes extra water may be required. |
- (5) Measured with a pressure drop of 10 kPa in the heating system at an operating condition of leaving water 47-55°C in a room with an ambient of 20°C. DB/WB 7°C/6° |
- (6) Value measured in an anechoic room at 1m distance from the unit. It is a relative value, depending on the distance and acoustic environment. The sound pressure level mentioned is measured with a pressure drop of 10 kPa in the heating system at an operatin |
- (7) Refer to operation range of the unit. |
- (8) Depends on operation mode, refer to installation manual. |
- (9) 4 pole 20 A curve 400V tripping class C (refer to wiring diagram) |
- (10) Above mentioned power supply of the hydrobox is for the backup heater only. The switch box and the pump of the hydrobox are supplied via the outdoor unit. The optional domestic hot water tank has a separate power supply.

### 3 Electrical data

#### 3 - 1 Electrical Data

3

ETBH16E6V7 / ETBH16E9W7 / ETBX16E6V7 / ETBX16E9W7  
 ETVH16E6V7 / ETVH16UE6V7 /  
 ETVH16E9W7 / ETVX16E6V7 /  
 ETVX16E9W7 / ETVZ16E6V7 /  
 ETVZ16E9W7

\* 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
  - Unbalanced loads

\* Electrical meter installation guideline

- It is the responsibility of the installer to cover the complete power consumption with electrical meters (combination of estimation and metering is not allowed).

- Required number of electrical meters

Outdoor unit type		EPRA(14/16/18)(D/E)A*					
Indoor unit type		ETB(H/X)16(D/E)A*			ETV(H/X/Z)16S*(D/E)A*		
Backup heater type		6V		9W	6V		9W
Backup heater power supply		1~ 230V	3~ 230V	3~ 400V	1~ 230V	3~ 230V	3~ 400V
Backup heater configuration		2 / 4 / 6 kW	6 kW	3 / 6 / 9 kW	2 / 4 / 6 kW	6 kW	3 / 6 / 9 kW
<b>Normal kWh rate power supply</b>							
Electrical meter type	1~	1	-	-	1	-	-
	3~ balanced	-	-	-	-	-	-
	3~ unbalanced	-	1	1	-	1	1
<b>Preferential kWh rate power supply</b>							
Electrical meter type	1~	2	1	1	2	1	1
	3~ balanced	-	-	-	-	-	-
	3~ unbalanced	-	1	1	-	1	1

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# 3 Electrical data

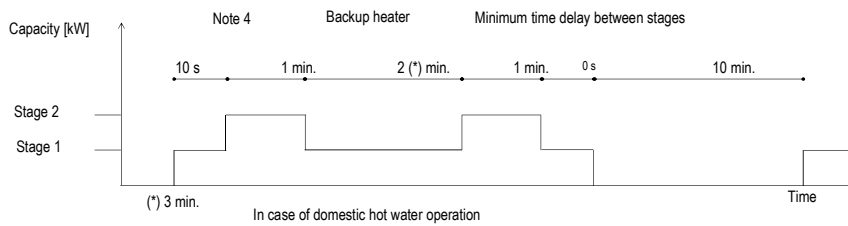
## 3 - 1 Electrical Data

ETVH16E6V7  
 ETVH16UE6V7  
 ETVH16E9W7  
 ETVX16E6V7  
 ETVX16E9W7  
 ETVZ16E6V7  
 ETVZ16E9W7

### Electrical specifications

Type	6V						9W							
	2-4			2-6			2-4 (in case of emergency: 2-6)			3-6			3-9	
Capacity setting	[kW]													
Capacity stage	2	2	2	2	2	2	1	2	2	2	2	2	2	
Capacity stage 1	kW													
Capacity stage 2	4	6	4	4	6	6	3	3	6	9	6	9		
Minimum time delay between stages	Note 4						Note 4							
Power supply (1)	Phase													
Frequency	Hz													
Voltage	230 +/-10%						400 +/-10%							
Nominal running current	17,4	26,1	26,1	17,4	26,1	15	8,7	13	8,7	13				
Zmax (backup heater) [2]	Ω													
Complex	-													
Minimum Ssc value	(3)						(3)							

Notes	Text
(1)	The above-mentioned power supply of the hydrobox is for the backup heater only.
(2)	Booster heater power supply 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



4D121000A

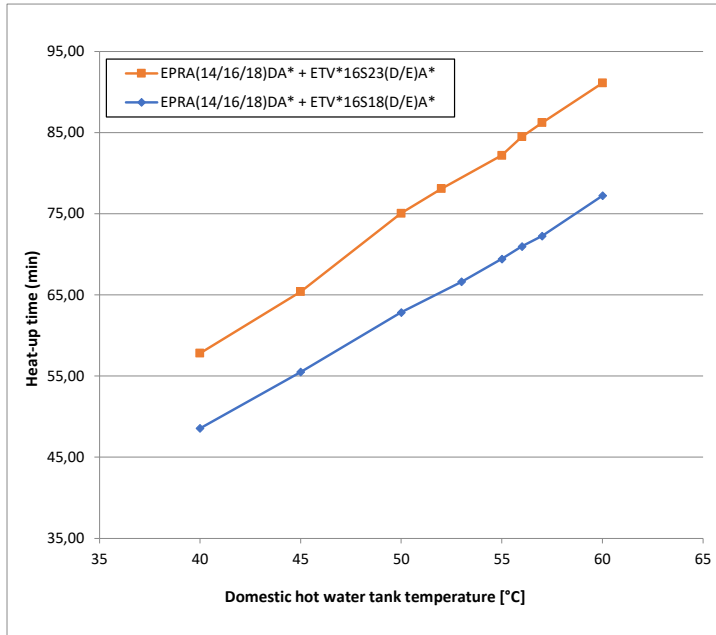
# 4 Capacity tables

## 4 - 1 Domestic Hot Water performance

4

ETVH16E6V7  
 ETVH16UE6V7  
 ETVH16E9W7  
 ETVX16E6V7  
 ETVX16E9W7  
 ETVZ16E6V7  
 ETVZ16E9W7

### Heat-up times



Model name	Heat-up time domestic hot water tank until 45°C
EPRA(14/16/18)DA* + ETV*16S18(D/E)A*	55 min.
EPRA(14/16/18)DA* + ETV*16S23(D/E)A*	65 min.

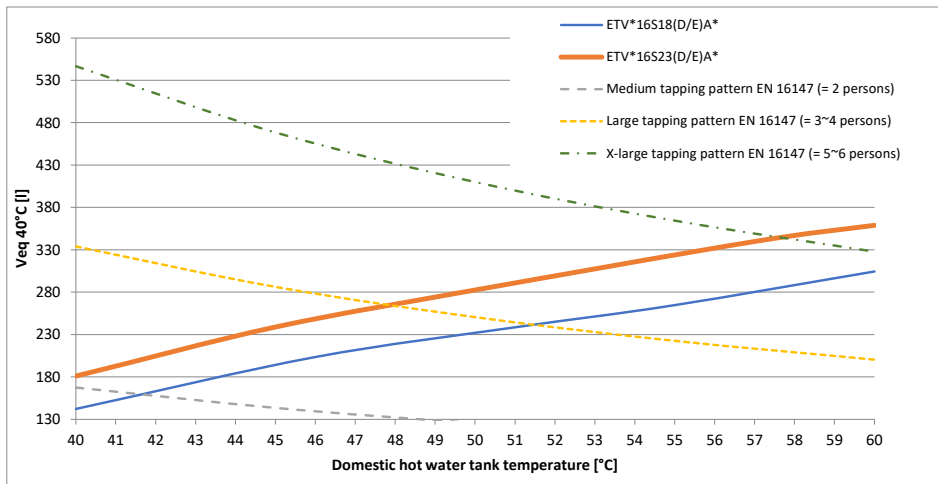
**Notes**

- Time the indoor unit (**heat pump only operation**) requires to heat up the domestic hot water tank from 10°C to the indicated temperature.  
 See the operation range for maximum domestic hot water tank temperature during heat pump only operation.

### Selection guide for the domestic hot water tank volume

(1)

Ve<sub>q</sub> 40°C = the amount of water with a temperature of 40°C that can be tapped when the domestic hot water tank is heated to a certain temperature, and the temperature of the cold inlet water is 10°C.



If a higher daily Ve<sub>q</sub> 40°C is required, then additional heat-up cycles are required within 24 hours.  
 See the operation manual for more information.

**Notes**

- According to EN16147.

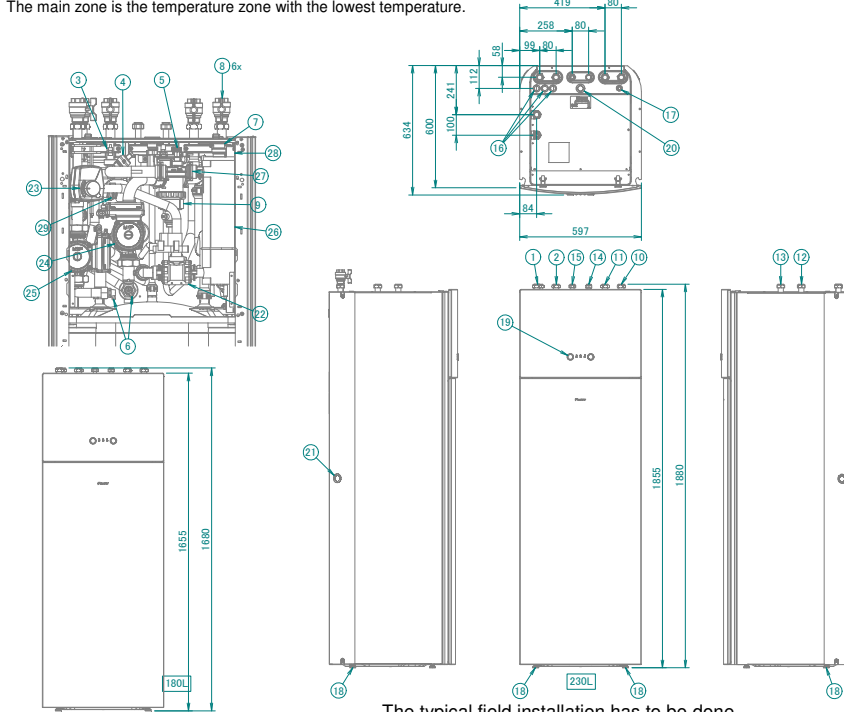
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# 5 Dimensional drawings

## 5 - 1 Dimensional Drawings

### ETVZ16E6V7 ETVZ16E9W7

The additional zone is the temperature zone with the highest temperature.  
The main zone is the temperature zone with the lowest temperature.



- ① Water out connection -1" To outdoor unit
- ② Water in connection -1" To outdoor unit
- ③ Flow switch
- ④ Space heating water pressure sensor
- ⑤ Safety valve
- ⑥ Drain valve water circuit
- ⑦ Air purge
- ⑧ Shut-off valve
- ⑨ Magnetic filter / dirt separator (additional/direct zone)
- ⑩ Water IN connection (additional/direct zone) ·1" F BSP. (female)
- ⑪ Water OUT connection (additional/direct zone) ·1" F BSP. (female)
- ⑫ Water IN connection (main/mixed zone) ·1" F BSP. (female)
- ⑬ Water OUT connection (main/mixed zone) ·1" F BSP. (female)
- ⑭ Domestic hot water: cold water in ·3/4" F BSP.
- ⑮ Domestic hot water: hot water out ·3/4" F BSP.
- ⑯ High voltage wiring intake ·Ø24mm
- ⑰ Low voltage wiring intake ·Ø15mm
- ⑱ Levelling feet
- ⑲ User interface
- ⑳ Recirculation connection ·G 3/4" (female)
- ㉑ Drain outlet (unit + safety valve)
- ㉒ 3-way valve (space heating/domestic hot water)
- ㉓ 3-way valve (mixing valve for the main/mixed zone)
- ㉔ Pump (additional/direct zone)
- ㉕ Pump (main/mixed zone)
- ㉖ Backup heater
- ㉗ Flow sensor
- ㉘ Expansion vessel
- ㉙ Water filter (main/mixed zone)

Screws used in this unit:



The typical field installation has to be done according to the applicable legislation.  
For examples, refer to the installer reference guide.

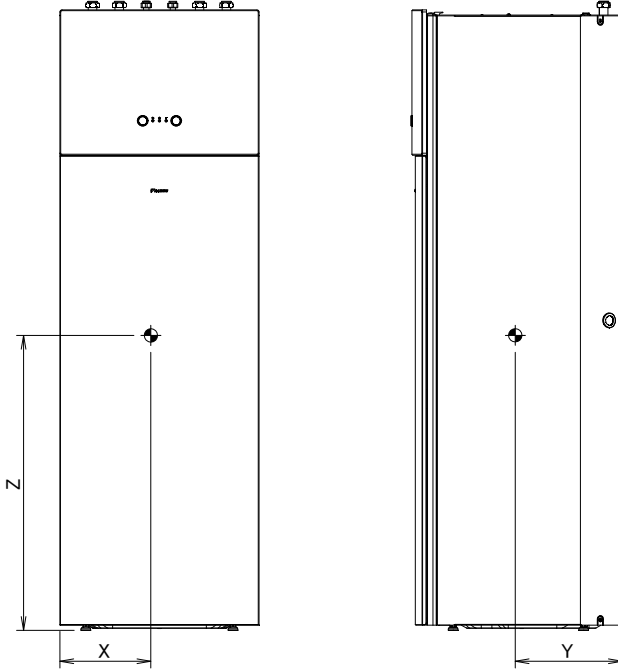
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# 6 Centre of gravity

## 6 - 1 Centre of Gravity

6

ETVH16E6V7  
 ETVH16UE6V7  
 ETVH16E9W7  
 ETVX16E6V7  
 ETVX16E9W7  
 ETVZ16E6V7  
 ETVZ16E9W7



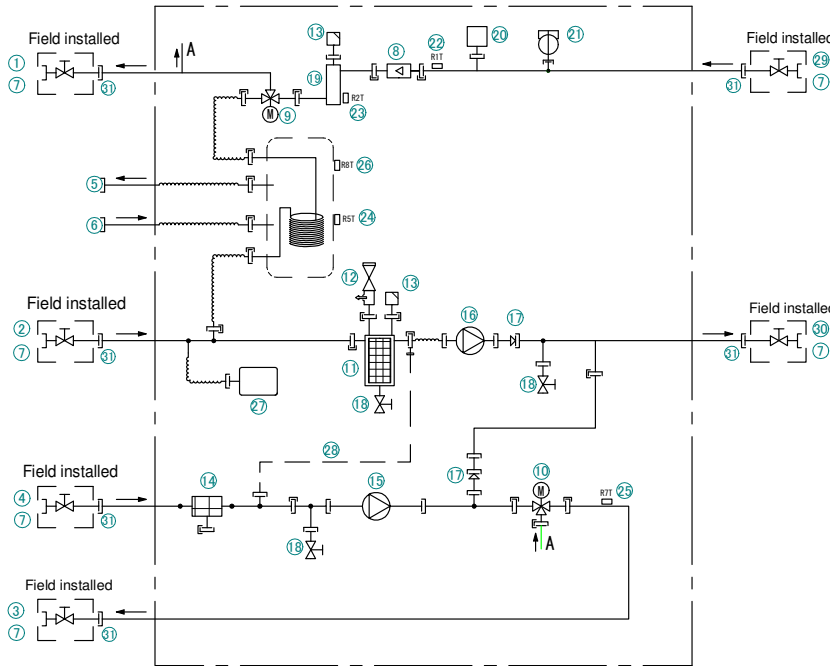
MODEL	X	Y	Z
EAV (H/X) 16S18*	327	329	890
EAV (H/X) 16S23*	327	329	1015
EAVZ16S18*	311	315	903
EAVZ16S23*	311	315	1028
ETV (H/X) 16S18*	327	329	890
ETV (H/X) 16S23*	327	329	1015
ETVZ16S18*	311	315	903
ETVZ16S23*	311	315	1028
ETV (H/X) 12S18*	327	329	890
ETV (H/X) 12S23*	327	329	1015
ETVZ12S18*	311	315	903
ETVZ12S23*	311	315	1028
ETVH12SU18*	327	329	890
ETVH12SU23*	327	329	1015
ETVH16SU18*	327	329	890
ETVH16SU23*	327	329	1015

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# 7 Piping diagrams

## 7 - 1 Piping Diagrams

ETVZ16E6V7  
ETVZ16E9W7



- ① Space heating - water OUT (additional/direct zone)
- ② Space heating - water IN (additional/direct zone)
- ③ Space heating - water OUT (main/mixed zone)
- ④ Space heating - water IN (main/mixed zone)
- ⑤ Domestic hot water: hot water out ·3/4"·
- ⑥ Domestic hot water: cold water in ·3/4"·
- ⑦ Shut-off valve ·1"· (male-female)
- ⑧ Flow sensor
- ⑨ 3-way valve (space heating/domestic hot water)
- ⑩ 3-way valve (mixing valve for the main/mixed zone)
- ⑪ Magnetic filter / dirt separator
- ⑫ Safety valve
- ⑬ Air purge
- ⑭ Water filter (main/mixed zone)
- ⑮ Pump (main/mixed zone)
- ⑯ Pump (additional/direct zone)
- ⑰ Check valve
- ⑱ Drain valve
- ⑲ Backup heater
- ⑳ Space heating water pressure sensor
- ㉑ Flow switch
- ㉒ R1T - Inlet water thermistor
- ㉓ R2T - Outlet water backup heater thermistor
- ㉔ R5T - Tank thermistor
- ㉕ R7T - Water outlet thermistor (main/mixed zone)
- ㉖ R8T - Tank thermistor
- ㉗ Expansion vessel
- ㉘ Capillary tube
- Field piping connections
- ㉙ Water in connection ·1"·
- ㉚ Water out connection ·1"·
- ㉛ Screw connection ·1"·

Screw connection	Brazed connection
Quick coupling	Flare connection

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# 8 Wiring diagrams

## 8 - 1 Notes & Legend

8

### ETVZ16E6V7 / ETVZ16E9W7

#### NOTES to go through before starting the unit

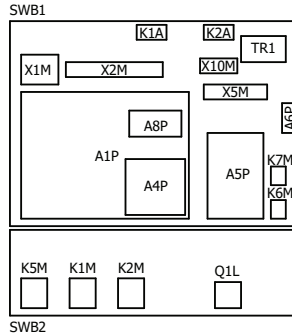
- X1M : Main terminal
- X2M : Field wiring terminal for AC
- X5M : Field wiring terminal for DC
- X6M : BUH Power supply terminal
- X10M : Smartgrid terminal
- : Earth wiring
- - - - - : Field supply
- ① : Several wiring possibilities
- [Option symbol] : Option
- [Wiring depending on model symbol] : Wiring depending on model
- [Not mounted in switch box symbol] : Not mounted in switch box
- [PCB symbol] : PCB

#### NOTES

1. Connection point of the power supply for the BUH should be foreseen outside the unit.

- Backup heater power supply
  - 6T1 (3~, 230V, 6kW)
  - 6V3 (1N~, 230V, 6kW)
  - 6WN/9WN (3N~, 400V, 6/9kW)
- User installed options:
  - Remote user interface
  - Ext. indoor thermistor
  - Ext. outdoor thermistor
  - Digital I/O PCB
  - Demand PCB
  - Safety thermostat
  - Smartgrid
  - WLAN adapter module
  - WLAN cartridge
- Main LWT:
  - ON/OFF thermostat (wired)
  - ON/OFF thermostat (wireless)
  - Ext. thermistor
  - Heat pump convactor
- Add LWT:
  - ON/OFF thermostat (wired)
  - ON/OFF thermostat (wireless)
  - Ext. thermistor
  - Heat pump convactor

#### POSITION IN SWITCH BOX



#### LEGEND

Part n°	Description
A1P	main PCB
A2P	* ON/OFF thermostat (PC=power circuit)
A3P	* heat pump convactor
A4P	* digital I/O PCB
ASP	bizone PCB
AGP	current loop PCB
A8P	* demand PCB
A9P	status indicator
A11P	MMI main PCB
A14P	* user interface PCB
A15P	* receiver PCB (wireless ON/OFF thermostat)
A20P	* WLAN module
B2L	flow sensor
B1PW	water pressure sensor
CN* (A4P)	* connector
DS1 (ASP)	dipswitch
DS1 (A8P)	* dipswitch
E1H	backup heater element (1 kW)
E2H	backup heater element (2 kW)
E*P (A9P)	indication LED
F1B	# overcurrent fuse backup heater
F1T	thermal fuse backup heater
F1U, F2U (A4P)	* fuse 5 A 250 V for digital I/O PCB
F1U, F2U (ASP)	fuse T 2 A 250 V for PCB
FU1 (A1P)	fuse T 5 A 250 V for PCB
K1A, K2A	* high voltage smartgrid relay
K1M, K2M	contactor backup heater
K5M	safety contactor BUH
K6M	relay 3 way valve bypass
K7M	relay 3 way valve flow
K*R (A1P-A4P)	relay on PCB
M1P	additional zone pump
M1S	mixing 3 way valve
M2P	# domestic hot water pump
M2S	# 2 way valve for cooling mode

Part n°	Description
M3P	main zone pump
M3S	3 way valve for space heating/domestic hot water
P1M	MMI display
PC (A15P)	* power circuit
PHC1 (A4P)	* optocoupler input circuit
Q1L	thermal protector backup heater
Q3L, Q4L	# safety thermostat
Q*DI	# earth leakage circuit breaker
R1H (A2P)	* humidity sensor
R1T (A1P)	inlet water thermistor
R1T (A2P)	* ambient sensor ON/OFF thermostat
R1T (A14P)	* ambient sensor user interface
R2T (A1P)	outlet backup heater thermistor
R2T (A2P)	* external sensor (floor or ambient)
R5T, R8T	domestic hot water thermistor
R6T	* external indoor or outdoor ambient thermistor
R7T	mixed leaving water thermistor
S1L	flow switch
S1S	# preferential kWh rate PS contact
S2S	# electrical meter pulse input 1
S3S	# electrical meter pulse input 2
S4S	# smart grid feed-in
S6S-S9S	* digital power limitation inputs
S10S-S11S	# low voltage smartgrid contact
SS1 (A4P)	* selector switch
SW1-2 (A11P)	turn buttons
SW3-5 (A11P)	push button
TR1	power supply transformer
X6M	# BUH power supply terminal strip
X10M	* smartgrid power supply terminal strip
X*, X*A, J*	connector
X*H*, X*Y	
X*M	terminal strip

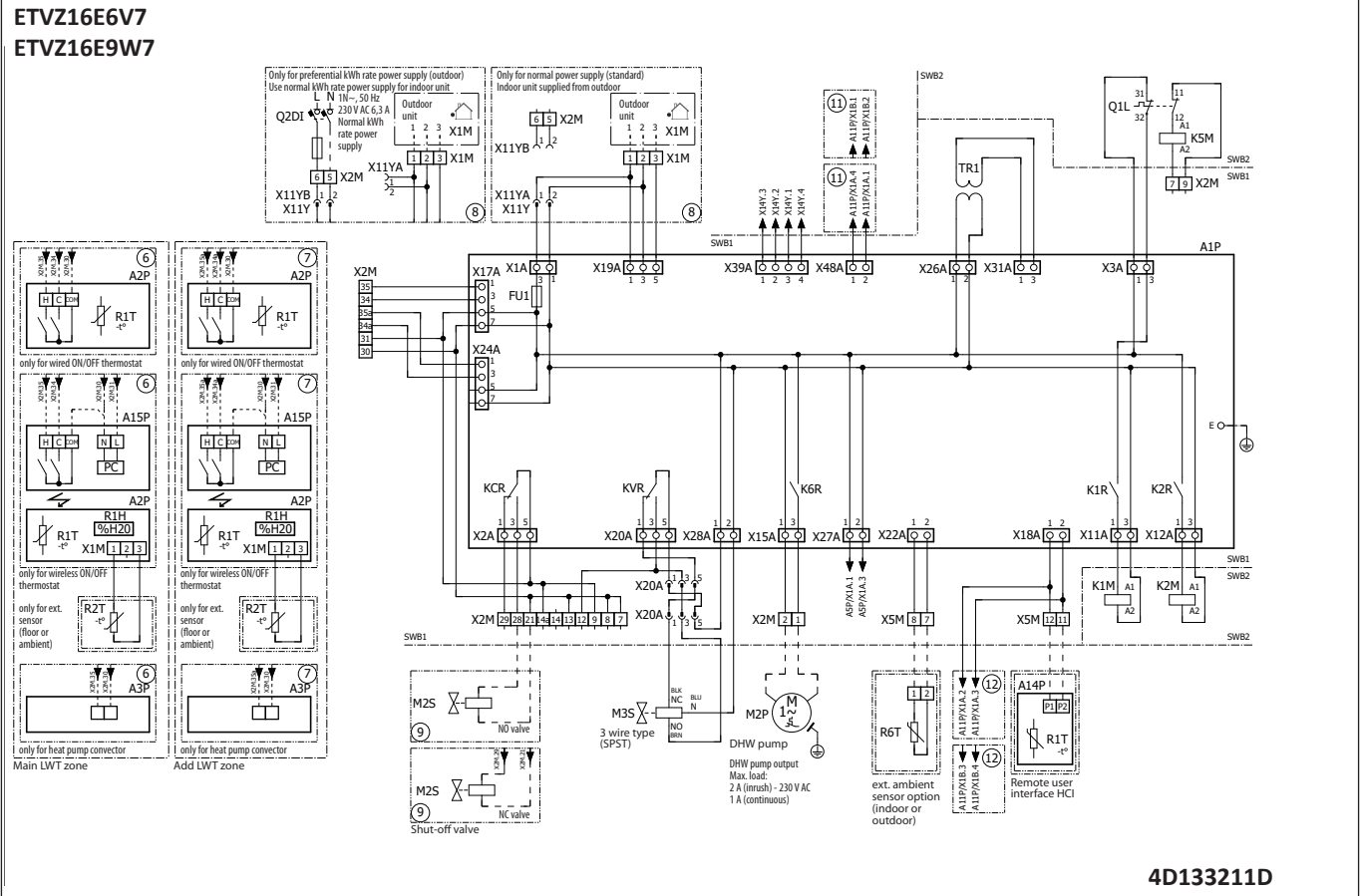
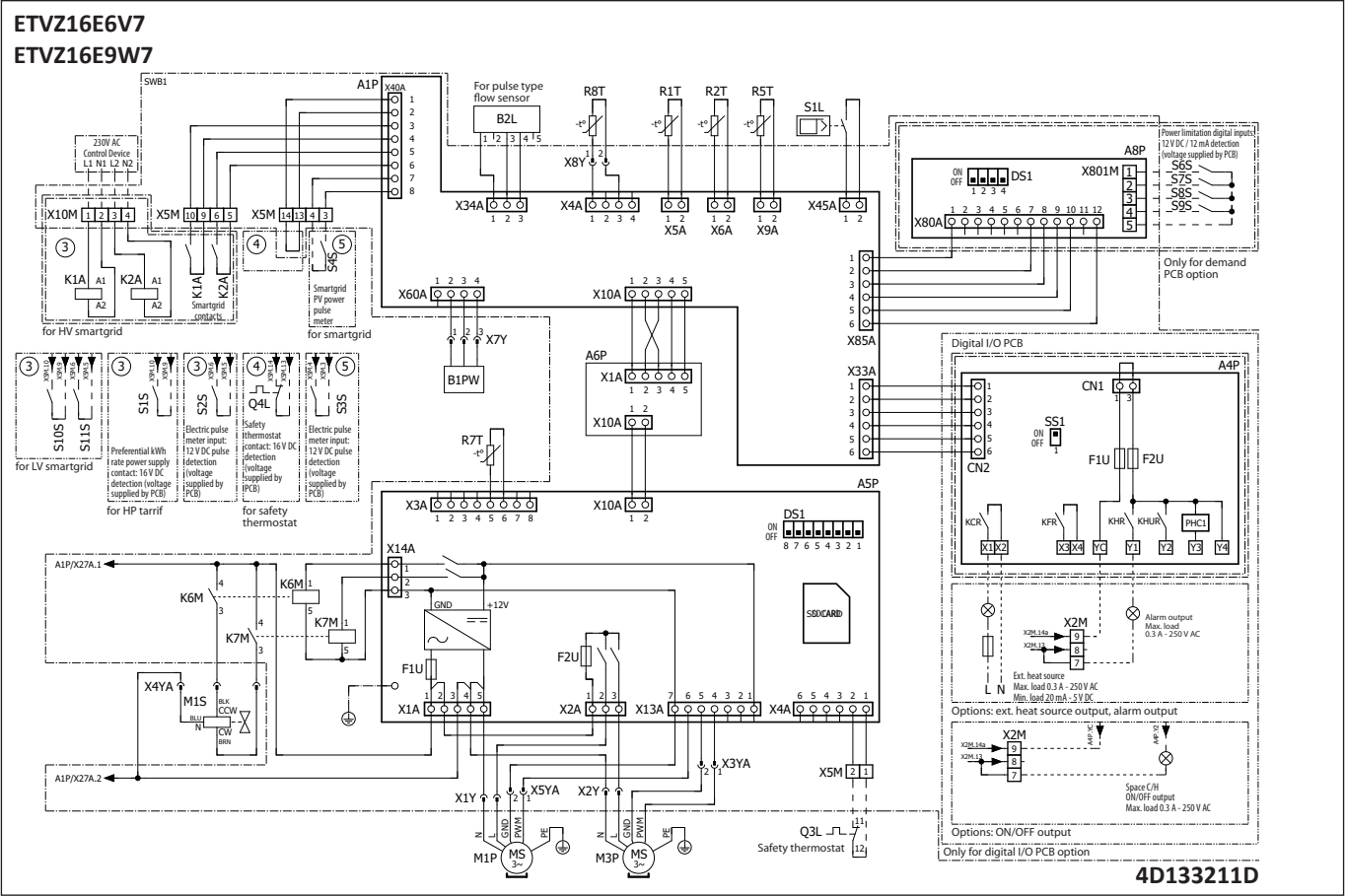
\*: optional #: field supply

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# 8 Wiring diagrams

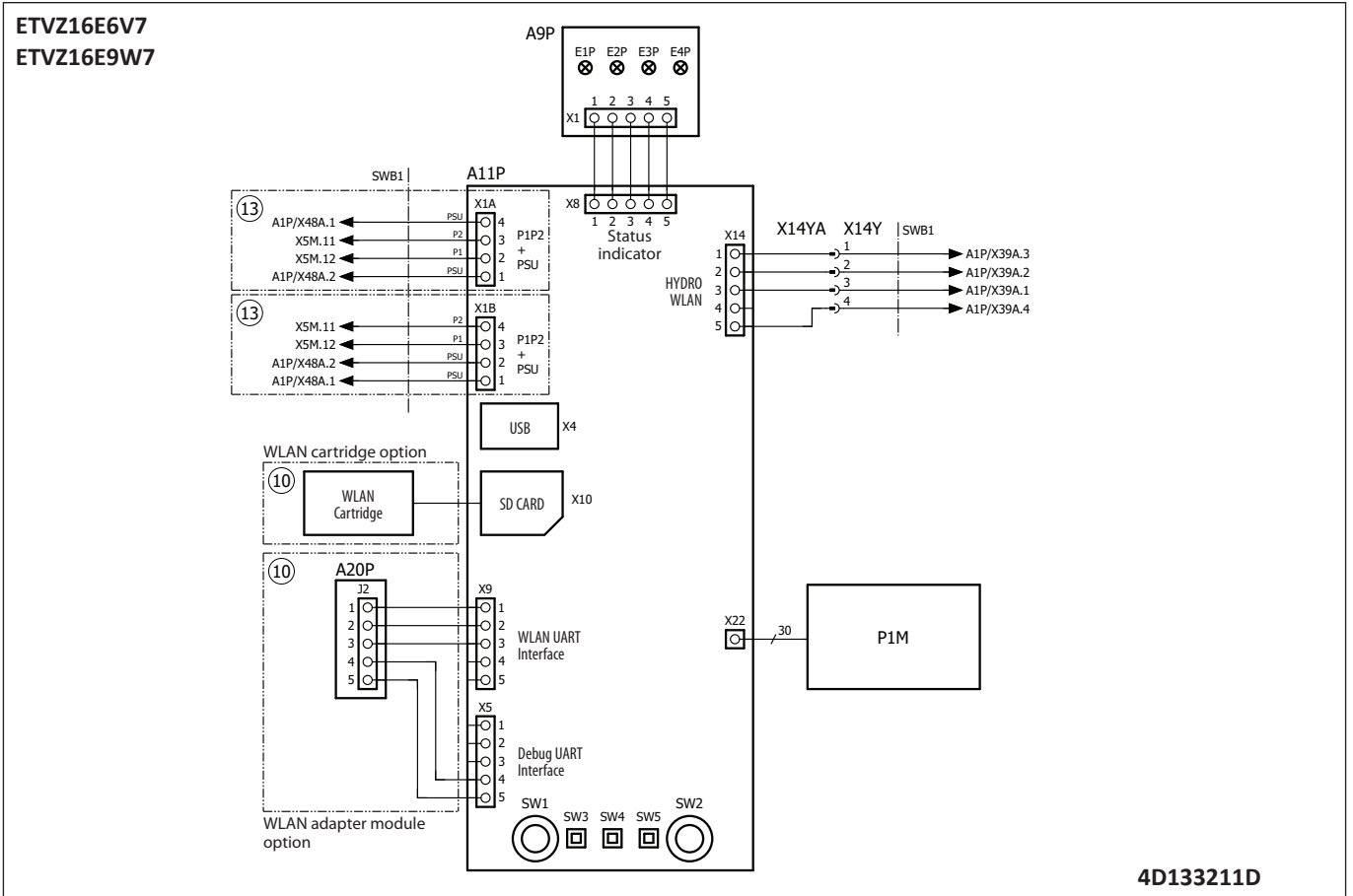
## 8 - 2 Control Circuit



# 8 Wiring diagrams

## 8 - 2 Control Circuit

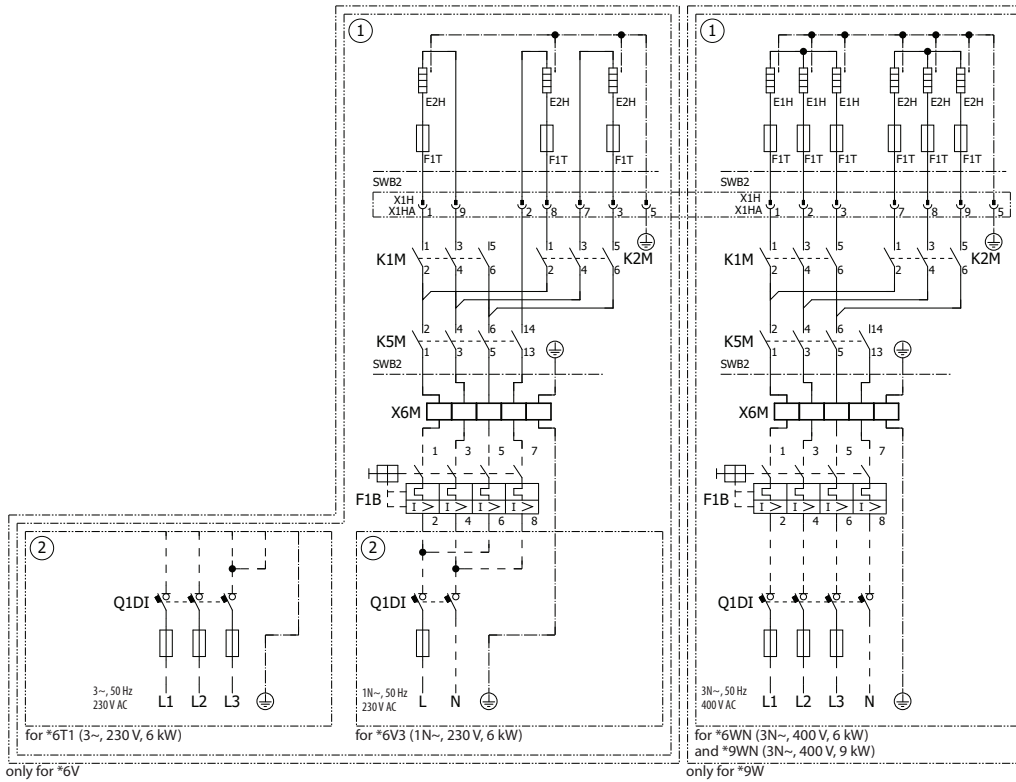
8



# 8 Wiring diagrams

## 8 - 3 Power Supply, Back-up Heater

ETVZ16E6V7 / ETVZ16E9W7



only for \*6V

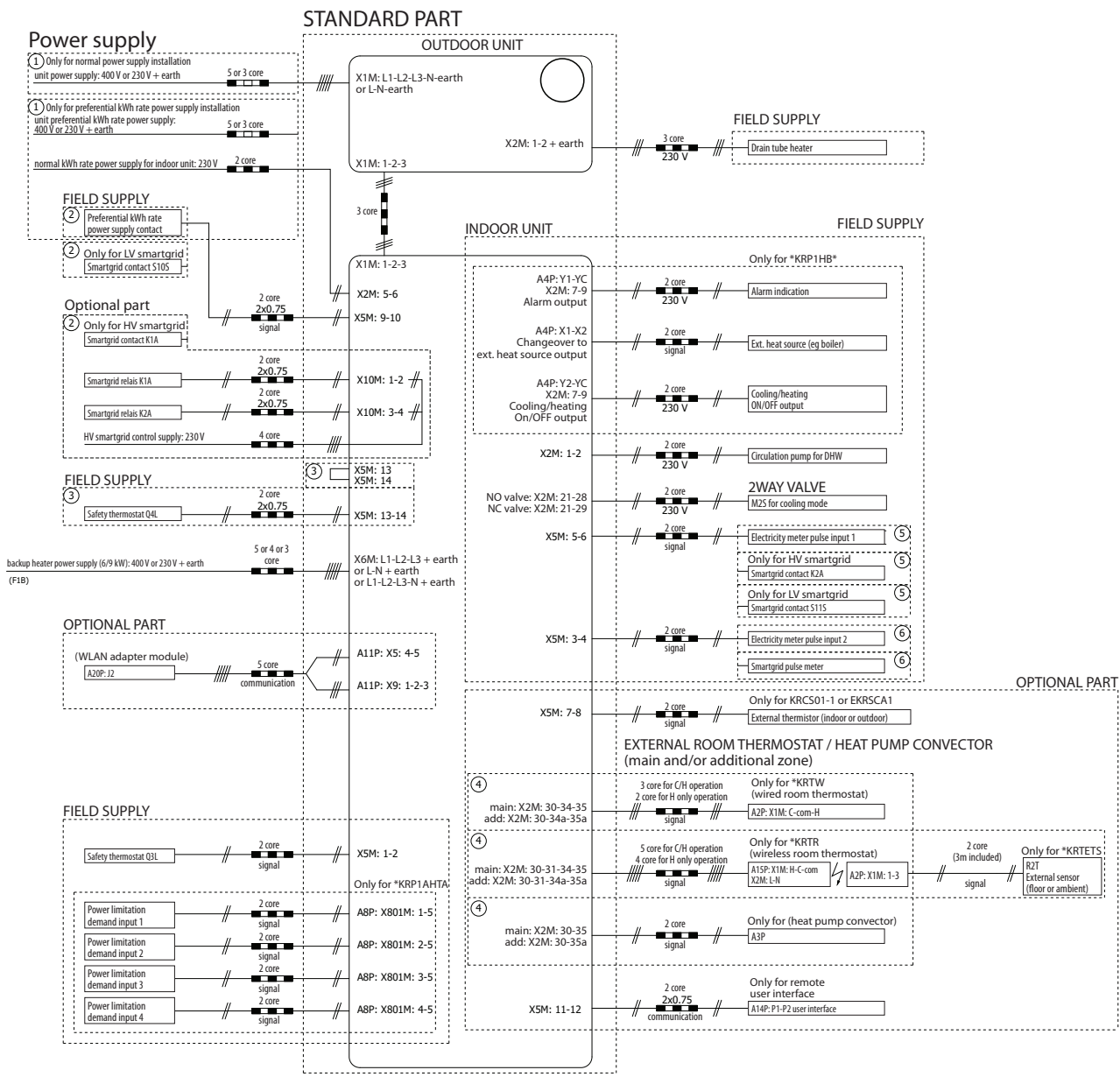
only for \*9W

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# 9 External connection diagrams

## 9 - 1 External Connection Diagrams

ETVZ16E6V7  
ETVZ16E9W7



**NOTE**

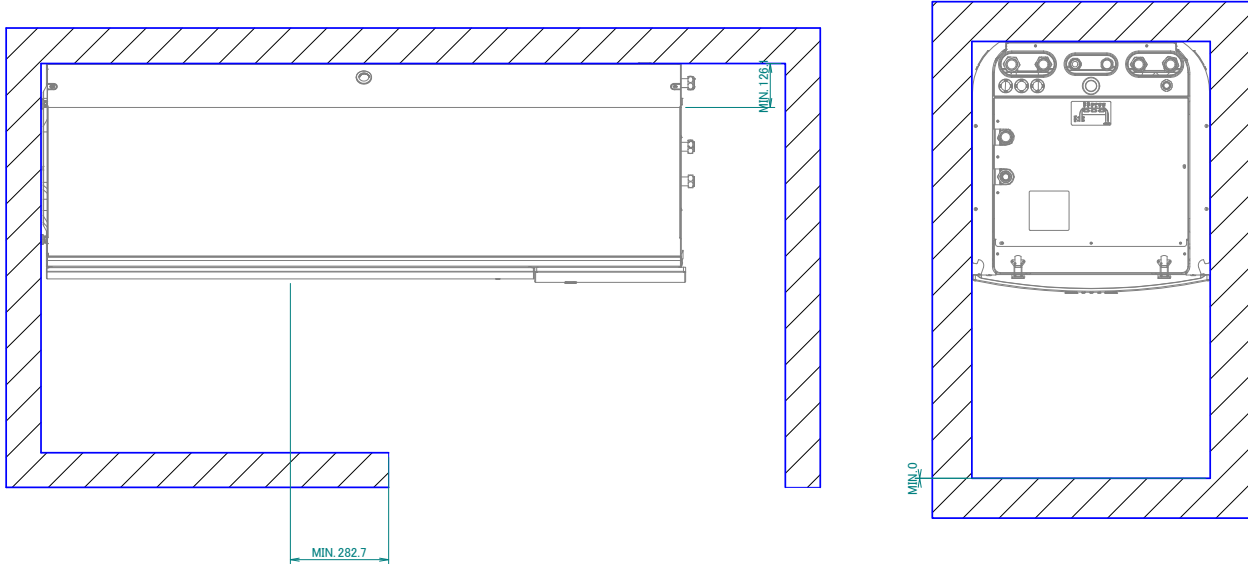
- In case of signal cable: keep minimum distance to power cables > 5 cm

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# 10 Installation

## 10 - 1 Installation Method

ETVZ16E6V7  
ETVZ16E9W7



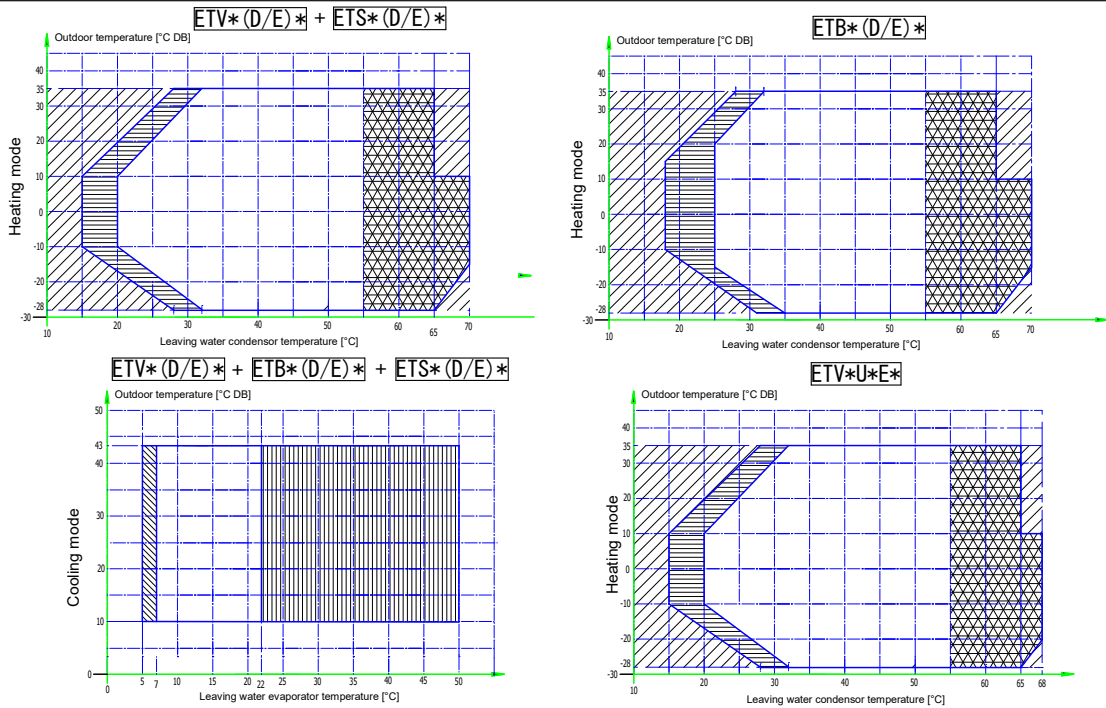
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# 11 Operation range

## 11 - 1 Operation Range

11

ETBH16E6V7  
 ETBH16E9W7  
 ETBX16E6V7  
 ETBX16E9W7  
 ETVH16E6V7  
 ETVH16E9W7  
 ETVH16UE6V7  
 ETVX16E6V7  
 ETVX16E9W7  
 ETVZ16E6V7  
 ETVZ16E9W7



**Legend**

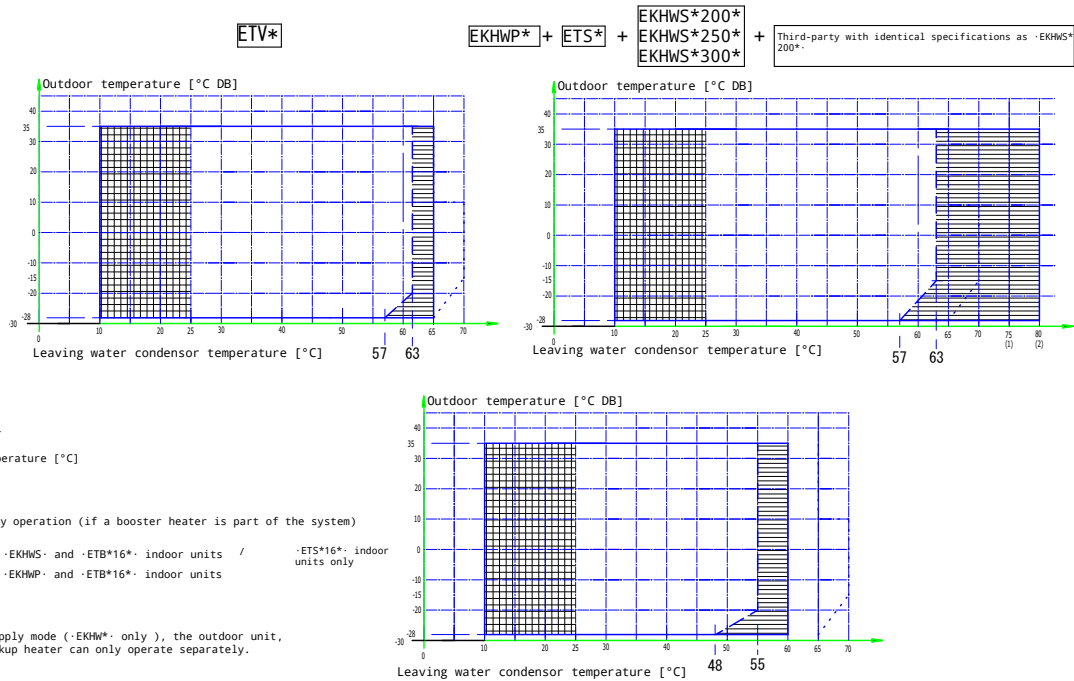
- Backup heater only operation  
No outdoor unit operation
- Outdoor unit operation if setpoint ≥ -20°
- Pull-down area
- Outdoor unit operation if setpoint > 55 °C and ΔT = -10 °C (ΔT = outlet temperature - inlet temperature)
- In case valve kit -AFVALVE1- is part of the system, then the minimum setpoint is -7 °C.

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

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### Domestic hot water heating mode

ETBH16E6V7  
 ETBH16E9W7  
 ETBX16E6V7  
 ETBX16E9W7  
 ETVH16E6V7  
 ETVH16E9W7  
 ETVH16UE6V7  
 ETVX16E6V7  
 ETVX16E9W7  
 ETVZ16E6V7  
 ETVZ16E9W7



**Legend**

- Setpoint [°C]  
Domestic hot water
  - Leaving water temperature [°C]
  - Pull-up area
  - Booster heater only operation (if a booster heater is part of the system)
- (1) Combination of ·EKHS· and ·ETB\*16\*· indoor units / ·ETS\*16\*· indoor units only  
 (2) Combination of ·EKHP· and ·ETB\*16\*· indoor units

**Remark**  
 1. In restricted power supply mode (·EKHP\*· only), the outdoor unit, booster heater and backup heater can only operate separately.

2 Third-party with identical specifications as ·EKHS\*150\*·  
 · Coil surface > 1.05·m<sup>2</sup>  
 Tank thermostat: top part of heat pump coil. Small overlap.

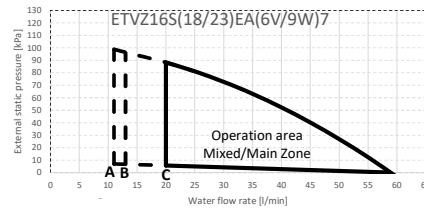
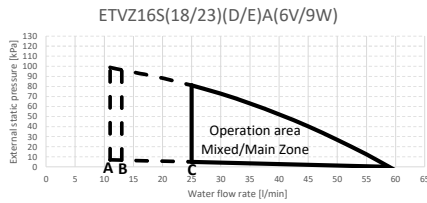
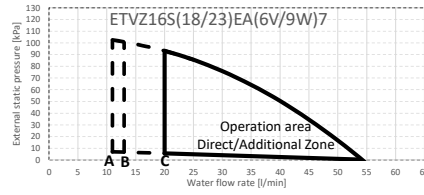
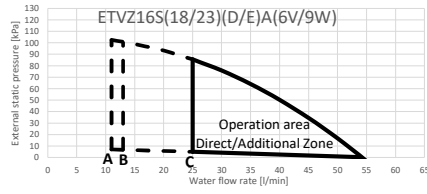
3 Third-party with identical specifications as ·EKHS\*200\*·  
 · Coil surface > 1.8·m<sup>2</sup>  
 Tank thermostat: top part of heat pump coil. Small overlap.

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# 12 Hydraulic performance

## 12 - 1 Static Pressure Drop Unit

### ETVZ16E6V7 / ETVZ16E9W7



- A Minimum water flow rate during normal operation
- B Minimum water flow rate during backup heater operation
- C Minimum water flow rate during defrost operation

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.)

See dashed lines

**Notes**

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.

- A Minimum water flow rate during normal operation
- B Minimum water flow rate during backup heater operation
- C Minimum water flow rate during defrost operation

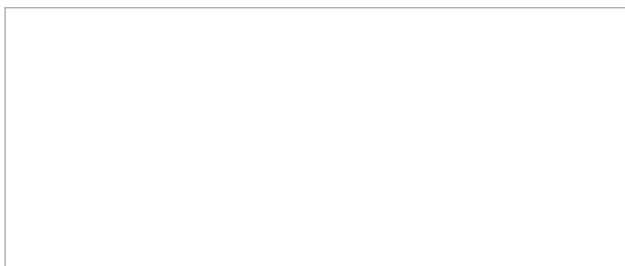
Operation area is extended to lower flow rates only in case the unit operates with heat pump only.  
(Not in startup, no BUH operation, no defrost operation.)

See dashed lines

**Notes**

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.

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05/2022



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