Daikin Altherma mid temperature split Technical Data ETVZ12E6V ETVZ12E9W

ETVZ12S18EA6V
ETVZ12S23EA6V
ETVZ12S18EA9W
ETVZ12S23EA9W

EEDEN21

TABLE OF CONTENTS
ETVZ12E6V / ETVZ12E9W

1 Features

1 - 1 ETVZ12E6V, ETVZ12E9W

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

Daikin Residential Controller (optional)

2 Specifications

1 - 1 ETVZ12E6V, ETVZ12E9W

Technical specifications				ETVZ12S18E6V	ETVZ12S23E6V
Heater capacity	Step 1		kW	2	
	Step 2		kW	2 or 4	
Power input	Nom.		kW	0.15	
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	114	122
	Packed unit		kg	133	141
Packing	Material			Wood / Carton / PE wrapping foil / Metal	
	Weight		kg	16	
Pump Additional Zone	Nr of speeds			PWM	
	Power input		W	60	
	Type			Grundfos UPM3 K 15-75 130 EUX9	
Pump Main Zone	Nr of speeds			PWM	
	Power input		W	60	
	Type			Grundfos UPM3 K 15-75 130 EUX3 PWM	
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		Polyurethane foam	
		Heat loss	kWh/24h	1.2 (2)	1.4 (2)
	Corrosion protection			Pickling	
Tank	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^3/h	8	
		Domestic hot water tank	m^3/h	10	
3-way valve mixing	Coefficient of flow (kV)	Bypass	m^3/h	13	
		Main zone only	m^3/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	0 (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	
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	

2 Specifications

1 - 1 ETVZ12E6V, ETVZ12E9W

Technical specifications					ETVZ12S18E6V	ETVZ12S23E6V
Water circuit - Domestic hot water side	Piping material				Stainless steel	
	Piping connections	Cold water in / Hot water out		inch	G 3/4" FEMALE	
		Recirculation connection		inch	G 3/4" FEMALE	
Sound power level	Nom.			dBA	44.0 (5)	
Sound pressure level	Nom.			dBA	30.0 (6)	
Operation range	Heating	Ambient	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
Operation range	Heating	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	Water side	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
Safety devices	Item	01			Thermal cut out	

Electrical specifications					ETVZ12S18E6V	ETVZ12S23E6V
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	
		Voltage		V	230	
	Current	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+GRD	
		Remark			1.5 mm²	
	Electric meter	Quantity			2	
		Remark			Minimum 0.75 mm² (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 mm² (2A inrush, 1A continuous)	
	For power supply back-up heater	Quantity			Prewired	
	For connection with R6T	Quantity			2	
		Remark			Minimum 0.75 mm²	
	For connection with A3P	Quantity			Depends on thermostat type, cf. installation manual	
		Remark			Voltage: 230V / Max. current: 100mA / Min. 0.75mm²	
	For connection with M2S	Quantity			2	
		Remark			Voltage: 230V / Max. current: 100mA / Min. 0.75mm²	
	For connection with optional	Quantity			4	
		Remark			100 mA, minimum 0.75 mm²	

(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)ncluding 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.

2 Specifications

1 - 1 ETVZ12E6V, ETVZ12E9W

Technical specifications				ETVZ12S18E9W	ETVZ12S23E9W
Heater capacity	Step 1		kW	3	
	Step 2		kW	max. 6 kW	
Power input	Nom.		kW	0.15	
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	114	122
	Packed unit		kg	133	141
Packing	Material			Wood / Carton / PE wrapping foil / Metal	
	Weight		kg	16	
Pump Additional Zone	Nr of speeds			PWM	
	Power input		W	60	
	Type			Grundfos UPM3 K 15-75 130 EUX9	
Pump Main Zone	Nr of speeds			PWM	
	Power input		W	60	
	Type			Grundfos UPM3 K 15-75 130 EUX3 PWM	
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		Polyurethane foam	
		Heat loss	kWh/24h	1.2 (2)	1.4 (2)
	Corrosion protection			Pickling	
Tank	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^3/h	8	
		Domestic hot water tank	m^3/h	10	
3-way valve mixing	Coefficient of flow (kV)	Bypass	m^3/h	13	
		Main zone only	m^3/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	0 (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	
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	

2 Specifications

1 - 1 ETVZ12E6V, ETVZ12E9W

Technical specifications					ETVZ12S18E9W	ETVZ12S23E9W
Water circuit - Domestic hot water side	Piping material				Stainless steel	
	Piping connections	Cold water in / Hot water out		inch	G 3/4" FEMALE	
		Recirculation connection		inch	G 3/4" FEMALE	
Sound power level	Nom.			dBA	44.0 (5)	
Sound pressure level	Nom.			dBA	30.0 (6)	
Operation range	Heating	Ambient	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
Operation range	Heating	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	Water side	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
Safety devices	Item	01			Thermal cut out	

Electrical specifications					ETVZ12S18E9W	ETVZ12S23E9W
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		V	400	
	Current	Maximum running current		A	13.0	
	Recommended fuses			A	20.000 (9)	
Wiring connections	Communication cable	Quantity			3+GRD	
		Remark			1.5 mm²	
	Electric meter	Quantity			2	
		Remark			Minimum 0.75 mm² (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 mm² (2A inrush, 1A continuous)	
	For power supply back-up heater	Quantity			Prewired	
	For connection with R6T	Quantity			2	
		Remark			Minimum 0.75 mm²	
	For connection with A3P	Quantity			Depends on thermostat type, cf. installation manual	
		Remark			Voltage: 230V / Max. current: 100mA / Min. 0.75mm²	
	For connection with M2S	Quantity			2	
		Remark			Voltage: 230V / Max. current: 100mA / Min. 0.75mm²	
	For connection with optional	Quantity			4	
		Remark			100 mA, minimum 0.75 mm²	

(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)ncluding 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.

2 Specifications

1 - 1 ETVZ12E6V, ETVZ12E9W

3 Electrical data

3 - 1 Electrical Data

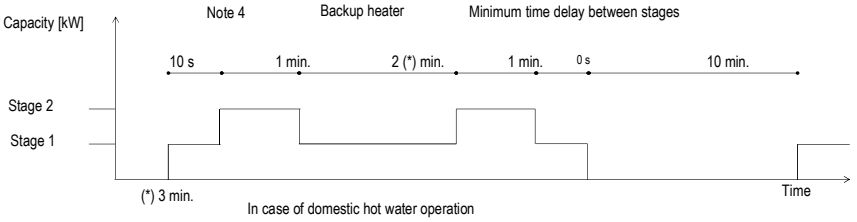
ETVH12E6V / ETVH16E6V / ETVH12UE6V / ETVH16UE6V / ETVH12E9W / ETVH16E9W
ETVX12E6V / ETVX16E6V / ETVX12E9W / ETVX16E9W
ETVZ12E6V / ETVZ16E6V / ETVZ12E9W / ETVZ16E9W

Electrical specifications

				6V						9W			
Backup heater	Capacity setting	[kW]		2 - 4	2 - 6	4 - 6	2-4 (in case of emergency: 2-6)		6	3 - 6	3 - 9	3 - 6 (in case of emergency: 3 - 9)	
	Capacity stage			2	2	2	2	2	1	2	2	2	2
	Capacity stage 1	kW		2	2	2	2	2	6	3	3	3	3
	Capacity stage 2	kW		4	6	4	4	6	-	6	9	6	9
	Minimum time delay between stages			Note 4						Note 4			
	Power supply (1) Phase			1~					3~	3~			
	Frequency	Hz		50						50			
	Voltage	V		230 +-10%						400 +-10%			
	Current Nominal running current	A		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	kVA			(3)			(3)				-	

Notes

(1)	The above-mentioned power supply of the hydrobox is for the backup heater only. Booster heater power supply
(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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3 Electrical data

3 - 1 Electrical Data

ETBH12E6V / ETBH12E9W / ETBX12E6V / ETBX12E9W
ETVH12E6V / ETVH12UE6V / ETVH12E9W / ETVX12E6V
ETVX12E9W / ETVZ12E6V / ETVZ12E9W

* 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

- 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(08/10/12)EA*					
Indoor unit type		ETB(H/X)12EF*			ETV(H/X/Z)12S(U)*EA*		
	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
		Normal kWh rate power supply					
Electrical meter type	1~	1	-	-	1	-	-
	3~ balanced	-	-	-	-	-	-
	3~ unbalanced	-	1	1	-	1	1
		Preferential kWh rate power supply					
Electrical meter type	1~	2	1	1	2	1	1
	3~ balanced	-	-	-	-	-	-
	3~ unbalanced	-	1	1	-	1	1

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4 Combination table

4 - 1 Combination Table

ETVH12E6V / ETVH16E6V / ETVH12UE6V / ETVH16UE6V / ETVH12E9W / ETVH16E9W
ETVX12E6V / ETVX16E6V / ETVX12E9W / ETVX16E9W
ETVZ12E6V / ETVZ16E6V / ETVZ12E9W / ETVZ16E9W

Factory-mounted equipment for ·ETV(H/X/Z)12S*EA*·

Description	ETV(H/X/Z)12S*EA*			
Heating only model ·ETVH·	18 - 6V (8)	18 - 9W (8)	23 - 6V (8)	23 - 9W (8)
Reversible model ·ETVX·	18 - 6V (8)	18 - 9W (8)	23 - 6V (8)	23 - 9W (8)
(Integrated Bizone)	18 - 6V (8)	18 - 9W (8)	23 - 6V (8)	23 - 9W (8)
Backup heater ·2-4-6kW 1N~230 V·	o	-	o	-
Backup heater ·2-4-6kW 3~230 V·	o	-	o	-
Backup heater ·3-6-9kW 3N~400 V·	-	o	-	o
Domestic hot water tank ·180L·	o	o	-	-
Domestic hot water tank ·230L·	-	-	o	o

Outdoor combination table for ·ETV(H/X/Z)12S(18/23)EA·

		EPRA08EA(V3/W1)	EPRA10EA(V3/W1)	EPRA12EA(V3/W1)
ETVH12S(18/23)EA*	Heating only indoor unit	o	o	o
ETVX12S(18/23)EA*	Reversible indoor unit	o	o	o
ETVZ12S(18/23)EA*	(Integrated Bizone)	o	o	o
ETVH12SU(18/23)EA*	Heating only indoor unit for the UK	o	o	o

Kit availability for indoor units

Reference	Description		ETV*12S*EA*					
ETVH*	Heating only indoor unit		18 - 6V	18 - 9W	23 - 6V	23 - 9W		
ETVX*	Reversible indoor unit		18 - 6V	18 - 9W	23 - 6V	23 - 9W		
ETVZ*	(Integrated Bizone)		18 - 6V	18 - 9W	23 - 6V	23 - 9W		
ETVH12SU*	Heating only indoor unit for the UK						18 -6V	23 -6V
EKRP1HBAA	Digital I/O PCB	*(1) (2)	o	o	o	o	o	o
EKRP1AHTA	Demand PCB	*(3)	o	o	o	o	o	o
BRC1HHDA*	HCI (Human Comfort Interface)		o	o	o	o	o	o
EKPCCAB4	PC cable	*(4)	o	o	o	o	o	o
KRCS01-1	Remote indoor sensor	*(5)	o	o	o	o	o	o
EKRSCA1	Remote sensor for outdoor	*(5)	o	o	o	o	o	o
EKCC8-W	Universal centralised user interface		o	o	o	o	o	o
DCOM-LT/IO	DCOM gateway		o	o	o	o	o	o
DCOM-LT/MB	DCOM gateway		o	o	o	o	o	o
EKCC8-W	Cascade control		o	o	o	o	o	o
EKHVCONV4	Conversion kit: heating only to reversible.		o	o	o	o		
FWXV10-15-20ATV3	Heat pump convector	*(6)	o	o	o	o	o	o
FWXT10-15-20ATV3	Heat pump convector	*(6)	o	o	o	o	o	o
FWXM10-15-20ATV3	Heat pump convector	*(6)	o	o	o	o	o	o
EKVKHPC	Heat pump convector valve kit		o	o	o	o	o	o
EKRTWA	Wired room thermostat		o	o	o	o	o	o
EKRTR1	Wireless room thermostat		o	o	o	o	o	o
EKRTETS	External sensor room thermostat	*(7)	o	o	o	o	o	o
EKWUFHTA1V3	Multi-zoning base unit 230 V	*(9)	o	o	o	o	o	o
EKWCTRD1V3	Digital thermostat 230 V	*(9)	o	o	o	o	o	o
EKWCTRAN1V3	Analogue thermostat 230 V	*(9)	o	o	o	o	o	o
EKWCVATR1V3	Actuator 230 V	*(9)	o	o	o	o	o	o
EKRELSG	Relay for Smart Grid		o	o	o	o	o	o
BRP069A71	WLAN module	*(10)	o	o	o	o	o	o
EKUHWG3D	·G3· kit	*(11)					o	o
AFVALVE1	Freeze protection valve		o	o	o	o	o	o
ESAE04A01*	Daikin Residential Controller		o	o	o	o	o	o

Kit availability for outdoor units

Reference	Description	EPRA08EA(V3/W1)	EPRA10EA(V3/W1)	EPRA12EA(V3/W1)
EKMST1	Mounting stand	o	o	o
EKMST2	Mounting stand	o	o	o

Reference	Description		
	Only applicable for ·ETVH* & ETVX*· models	ETVH*	ETVX*
EKMIKPOA	Mixing kit – PCB only	o	o
EKMIKPHA	Mixing kit – PCB with hydraulics	o	o
EKMIKHMA	Hydraulics – mixed pump group	*(12)	o	o
EKMIKHUA	Hydraulics – unmixed pump group	*(12)	o	o
EKMIKBVA	Balancing vessel	o	o
EKMIKDIA	Distributor for balancing vessel	*(13)	o	o

Notes

(1) PCB that provides additional output connections: · ·
  (a) Control external heat source (bivalent operation).
  (b) Output remote ON/OFF signal space heating/cooling
  (c) Remote alarm output
(2) Additional relays to allow bivalent control in combination with an external room thermostat are field-supplied.
(3) PCB to receive up to ·4· digital inputs for power limitation
(4) Data cable for connection with PC.
(5) Only 1 remote sensor can be connected: indoor OR outdoor sensor.
(6) The valve kit is mandatory if a heat pump convector is installed on a reversible model (not mandatory for heating only models).
(7) ·EKRTETS· can only be used in combination with ·EKRTR1·
(8) The backup heater capacity depends on a user interface setting.
(9) Multi-zoning wired controls
(10) The WLAN cartridge is supplied in the accessory bag of the unit and is meant to be plugged into the SD card slot on the MMI-2. In case of bad signal reception, the WLAN cartridge can be removed and replaced by the WLAN module.
(11) This kit is mandatory for the UK models.
(12) Only possible in combination with ·EKMIKPOA·
(13) Only possible in combination with ·EKMIKBVA· and ·EKMIKPHA· or ·EKMIKHUA·
(14) Only possible in combination with ·HBKIT*·
(15) Only possible in combination with ·ETVZ*·

Remark

Other combinations than mentioned in this combination table are prohibited.

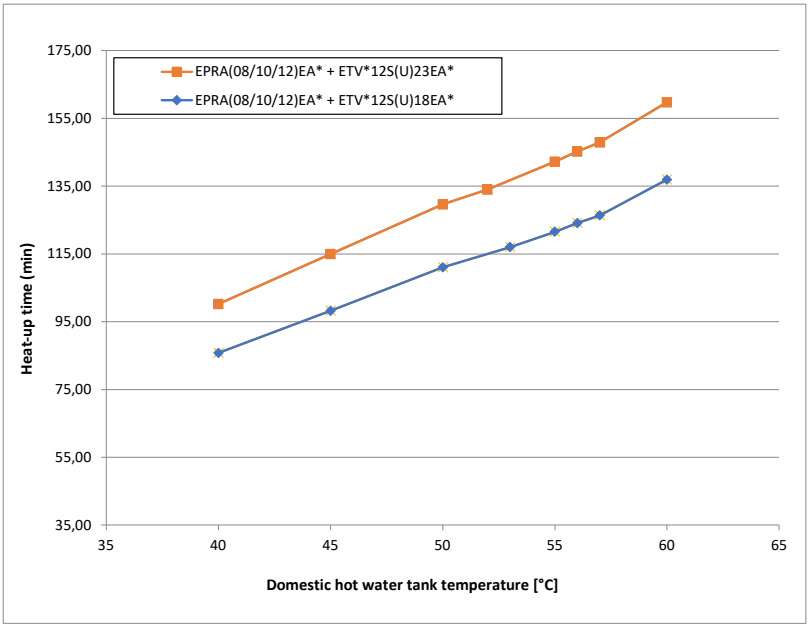
4D133479B

5 Capacity tables

5 - 1 Domestic Hot Water performance

ETBH12E6V / ETBH12E9W
ETBX12E6V / ETBX12E9W
ETVH12E6V / ETVH12UE6V
ETVH12E9W / ETVX12E6V
ETVX12E9W / ETVZ12E6V
ETVZ12E9W

Heat-up times



Notes

1. 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.

Model name	Heat-up time domestic hot water tank until 45°C
EPRA(08/10/12)EA* + ETV*12S(U)18EA*	·98· min.
EPRA(08/10/12)EA* + ETV*12S(U)23EA*	·115· min.

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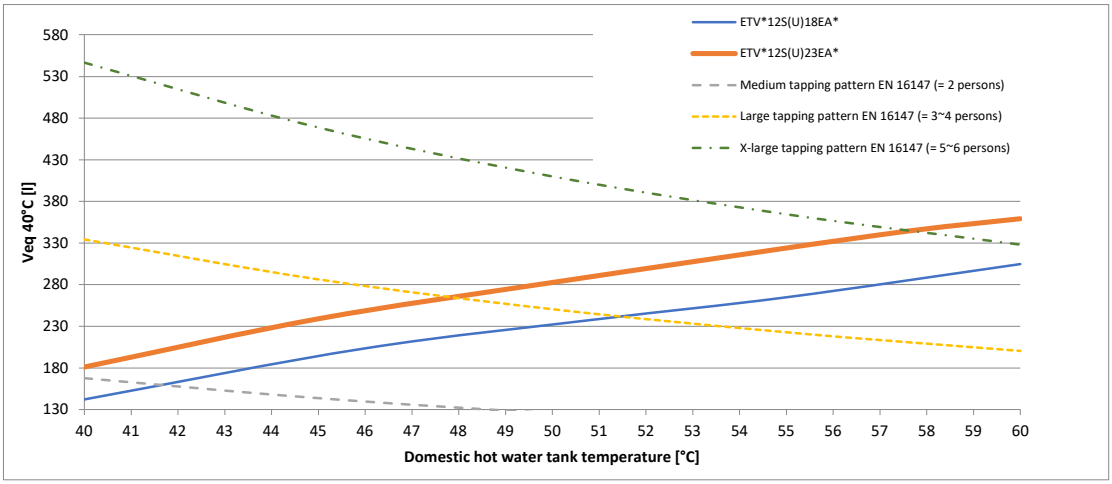
ETBH12E6V / ETBH12E9W / ETBX12E6V / ETBX12E9W
ETVH12E6V / ETVH12UE6V / ETVH12E9W / ETVX12E6V
ETVX12E9W / ETVZ12E6V / ETVZ12E9W

Selection guide for the domestic hot water tank volume

(1)

Veq 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 Veq 40°C is required, then additional heat-up cycles are required within 24 hours.
See the operation manual for more information.

Notes

(1) According to EN16147.

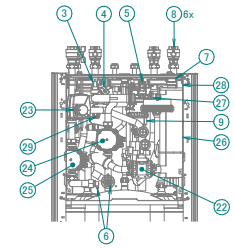
4D133480

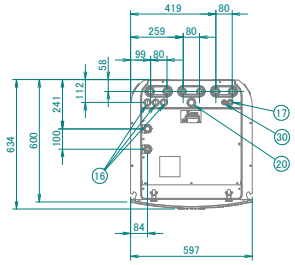
6 Dimensional drawings

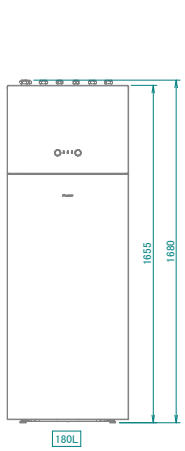
6 - 1 Dimensional Drawings

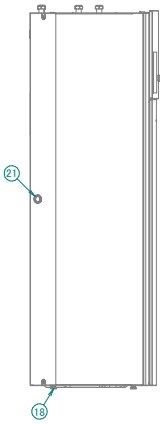
ETVZ12E6V / ETVZ12E9W

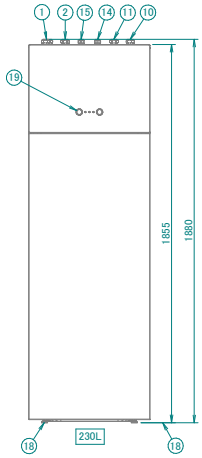
The additional zone is the temperature zone with the highest temperature.
The main zone is the temperature zone with the lowest temperature.

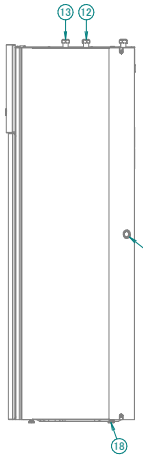








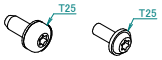




To outdoor unit

1. Water out connection ·1"·
2. Water in connection ·1"·
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 ·Ø 24mm·
17. Low voltage wiring intake ·Ø 15mm·
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)
30. Low voltage wiring intake (options)

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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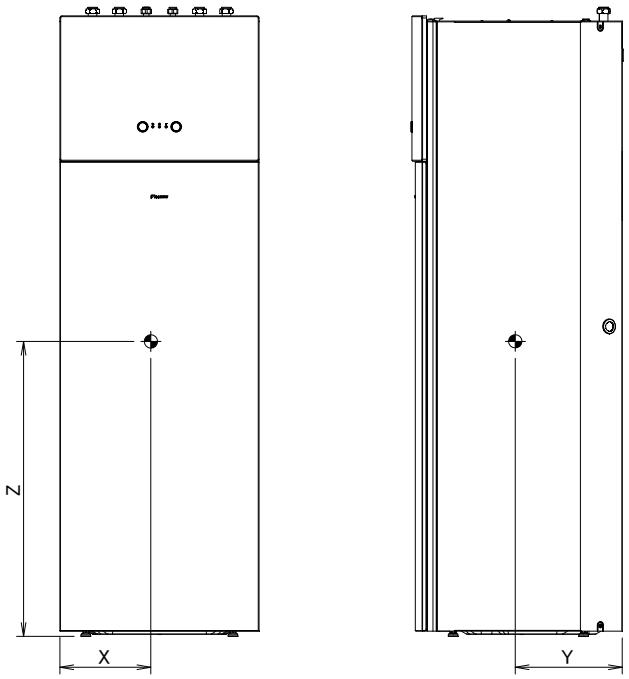
7 Centre of gravity

7 - 1 Centre of Gravity

ETVH12E6V / ETVH16E6V / ETVH12UE6V / ETVH16UE6V / ETVH12E9W / ETVH16E9W
ETVX12E6V / ETVX16E6V / ETVX12E9W / ETVX16E9W
ETVZ12E6V / ETVZ16E6V / ETVZ12E9W / ETVZ16E9W



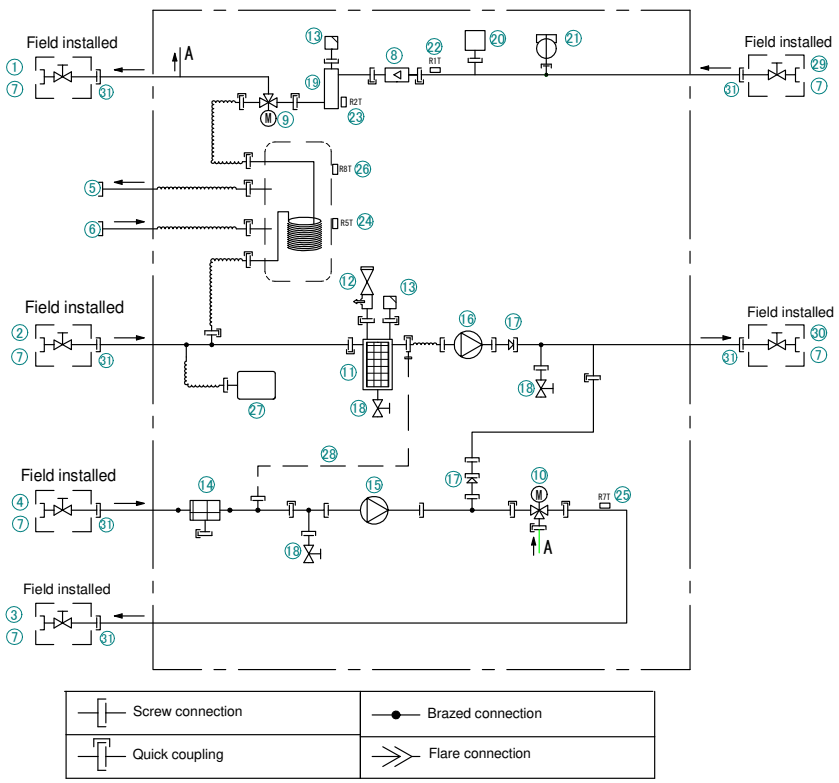
MODEL	X	Y	Z
EAV(H/X)16S18*	327	329	890
EAV(H/X)16S23*	327	329	1015
EAVZ16S18*	311	315	903
EAVZ16S23*	311	315	1028
ETV(H/X)16S18*	327	329	890
ETV(H/X)16S23*	327	329	1015
ETVZ16S18*	311	315	903
ETVZ16S23*	311	315	1028
ETV(H/X)12S18*	327	329	890
ETV(H/X)12S23*	327	329	1015
ETVZ12S18*	311	315	903
ETVZ12S18*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

3D121014D

8 Piping diagrams

8 - 1 Piping Diagrams

ETVZ12E6V / ETVZ16E6V
ETVZ12E9W / ETVZ16E9W



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"·

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9 Wiring diagrams

9 - 1 Notes & Legend

ETVZ12E6V / ETVZ12E9W

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
: Wiring depending on model
: Not mounted in switch box
: PCB

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

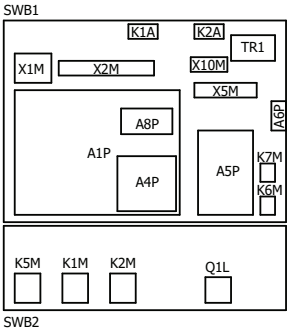
Backup heater power supply
- ☐ 6T1 (3~, 230V, 6kW)
- ☐ 6V3 (1N~, 230V, 6kW)
- ☐ 6WN/9WN (3N~, 400V, 6/9kW)

User installed options:
- ☐ Remote user interface
- ☐ Ext. indoor thermistor
- ☐ Ext. outdoor thermistor
- ☐ Digital I/O PCB
- ☐ Demand PCB
- ☐ Safety thermostat
- ☐ Smartgrid kit
- ☐ WLAN adapter module
- ☐ WLAN cartridge

Main LWT:
- ☐ ON/OFF thermostat (wired)
- ☐ ON/OFF thermostat (wireless)
  - ☐ Ext. thermistor
- ☐ Heat pump convector

Add LWT:
- ☐ ON/OFF thermostat (wired)
- ☐ ON/OFF thermostat (wireless)
  - ☐ Ext. thermistor
- ☐ Heat pump convector

POSITION IN SWITCH BOX



LEGEND

Part n°		Description
A1P		main PCB
A2P	*	ON/OFF thermostat (PC=power circuit)
A3P	*	heat pump convector
A4P	*	digital I/O PCB
A5P		bizone PCB
A6P		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 adapter module
B2L		flow sensor
B1PW		water pressure sensor
CN* (A4P)	*	connector
DS1 (A5P)		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 (A5P)		fuse T 3,15 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 (A*P)		relay on PCB
M1P		additional zone pump
M1S		mixing 3 way valve
M2P	#	domestic hot water pump
M2S	#	2 way valve for cooling mode
M3P		main zone pump

Part n°		Description
M3S		3 way valve for spaceheating/ 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)		outlet water heat exchanger 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	#	smartgrid feed-in
S6S-S9S	*	digital power limitation inputs
S10S-S11S	#	low voltage smartgrid contact
SS1 (A4P)	*	selector switch
SW1~2 (A12P)		turn buttons
SW3~5 (A12P)		push button
TR1		power supply transformer
X6M	#	BUH power supply terminal strip
X10M	*	smartgrid power supply terminal strip
X*, X*A, J* X*H*, X*Y		connector
X*M		terminal strip

* : optional #: field supply

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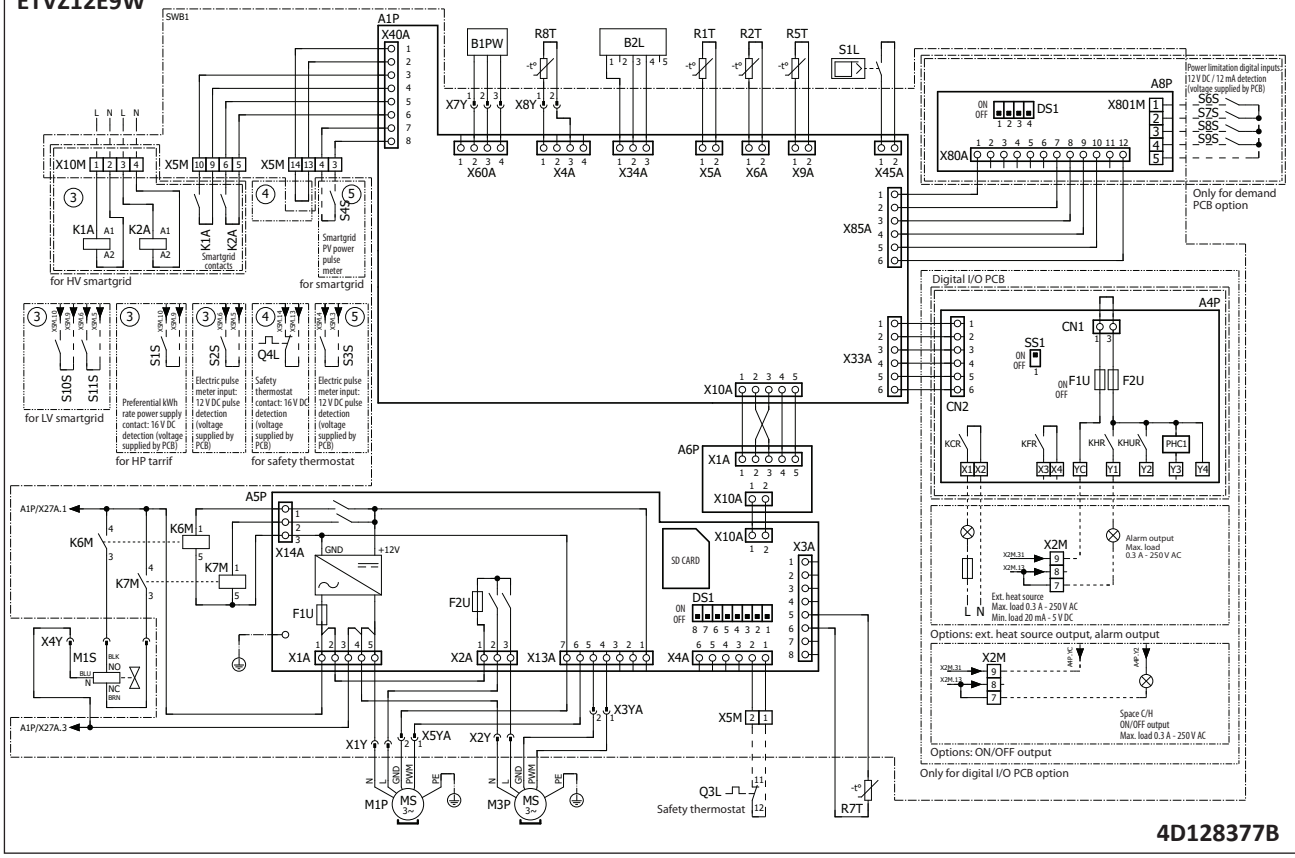
9 Wiring diagrams

9 - 2 Control Circuit

ETVZ12E6V
ETVZ12E9W



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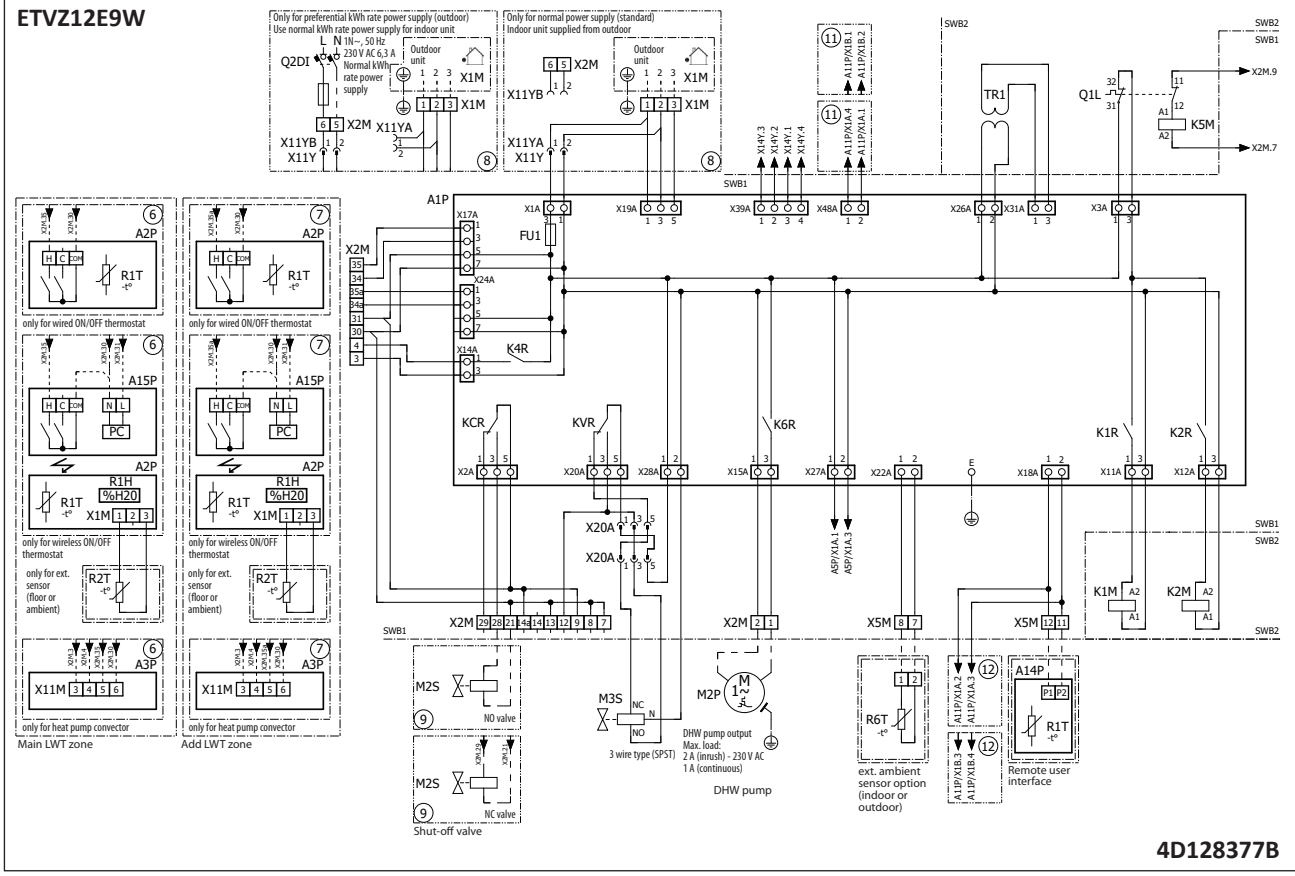
ETVZ12E6V
ETVZ12E9W



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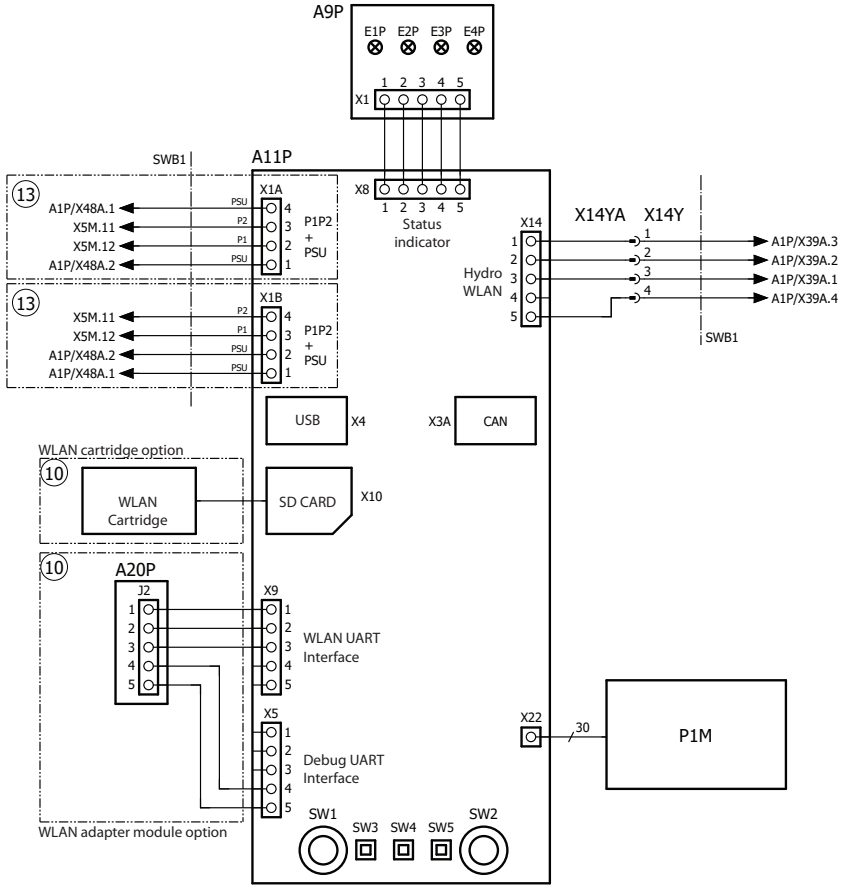
9 Wiring diagrams

9 - 2 Control Circuit

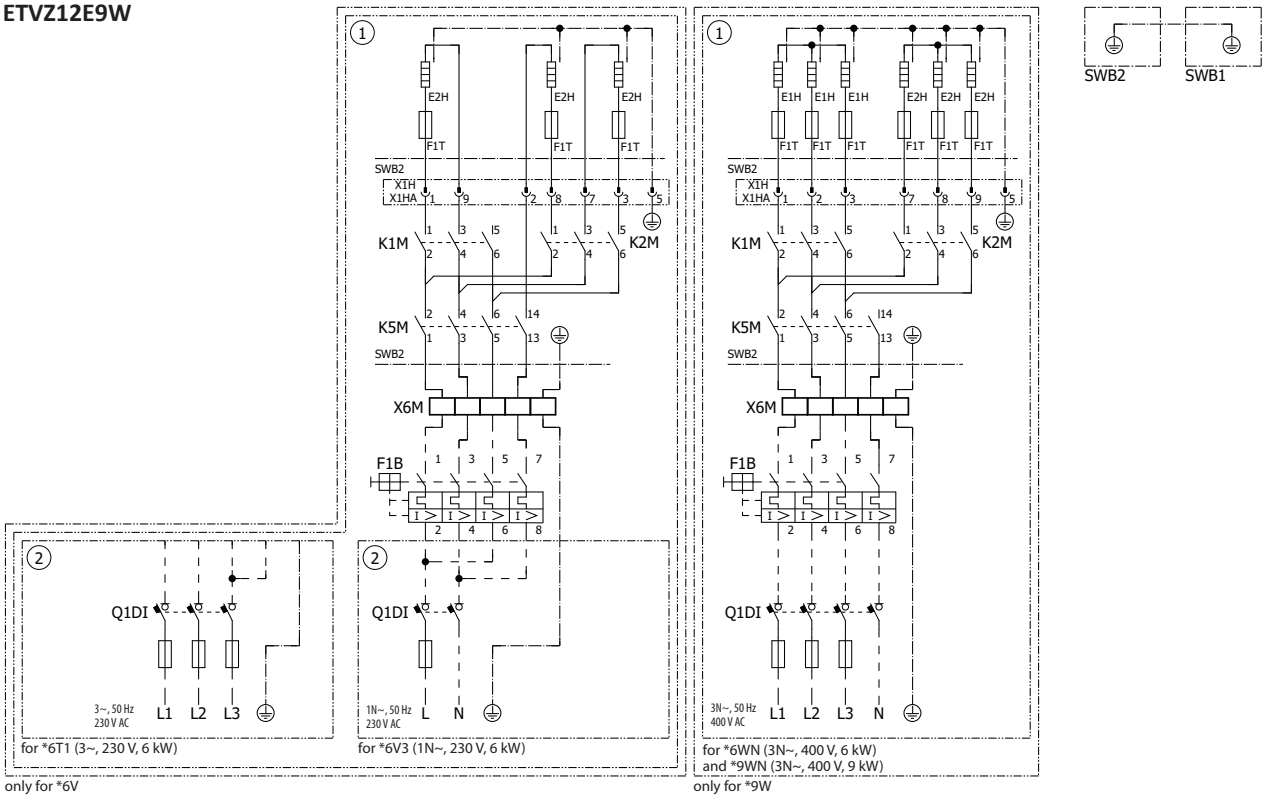
ETVZ12E6V
ETVZ12E9W



9 Wiring diagrams

9 - 3 Power Supply, Back-up Heater

ETVZ12E6V
ETVZ12E9W



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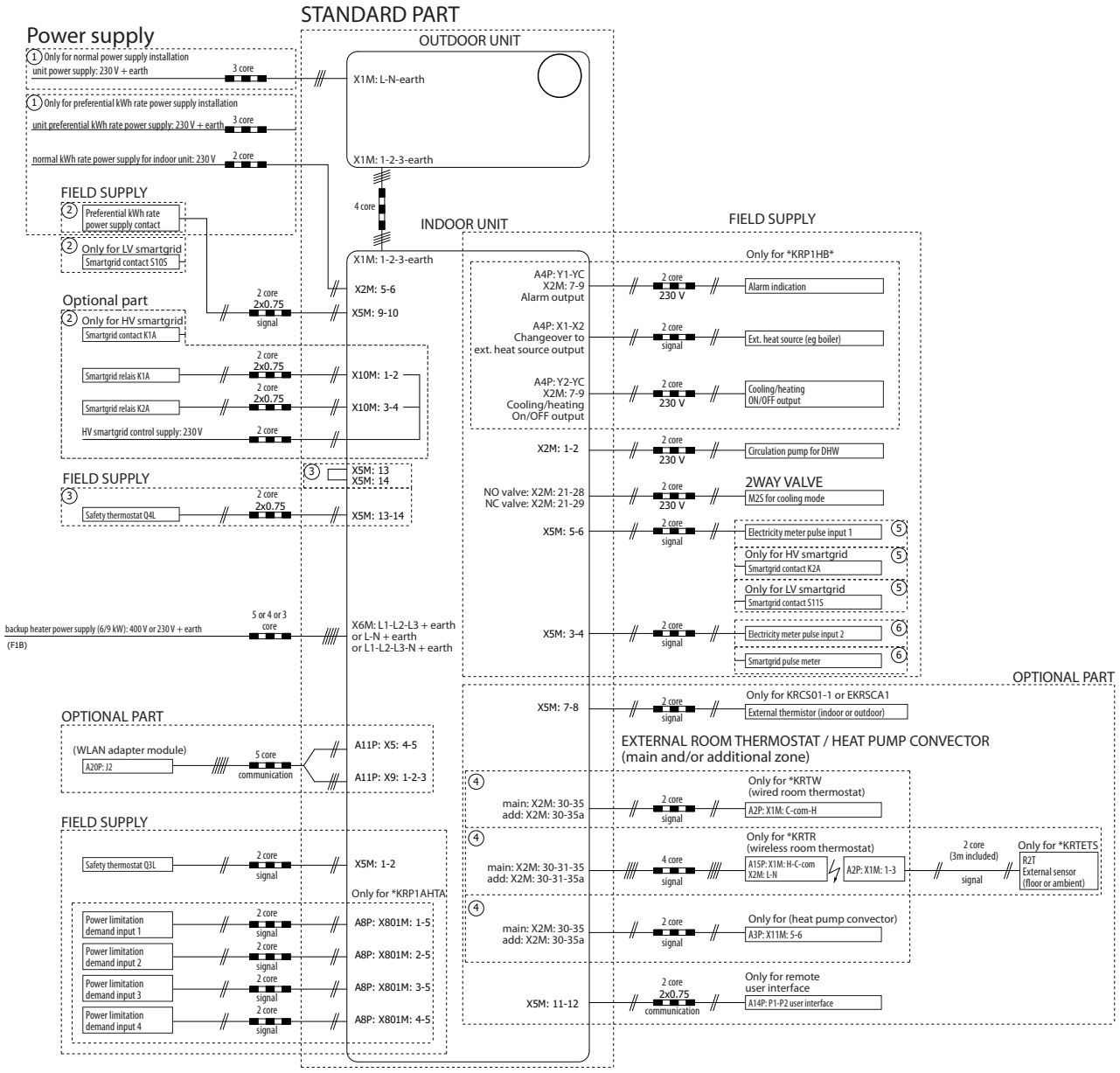
10 External connection diagrams

10 - 1 External Connection Diagrams

ETVZ12E6V
ETVZ12E9W

Electrical connection diagram Altherma Top Grade Small Bizone

For more details please check unit wiring



NOTE

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

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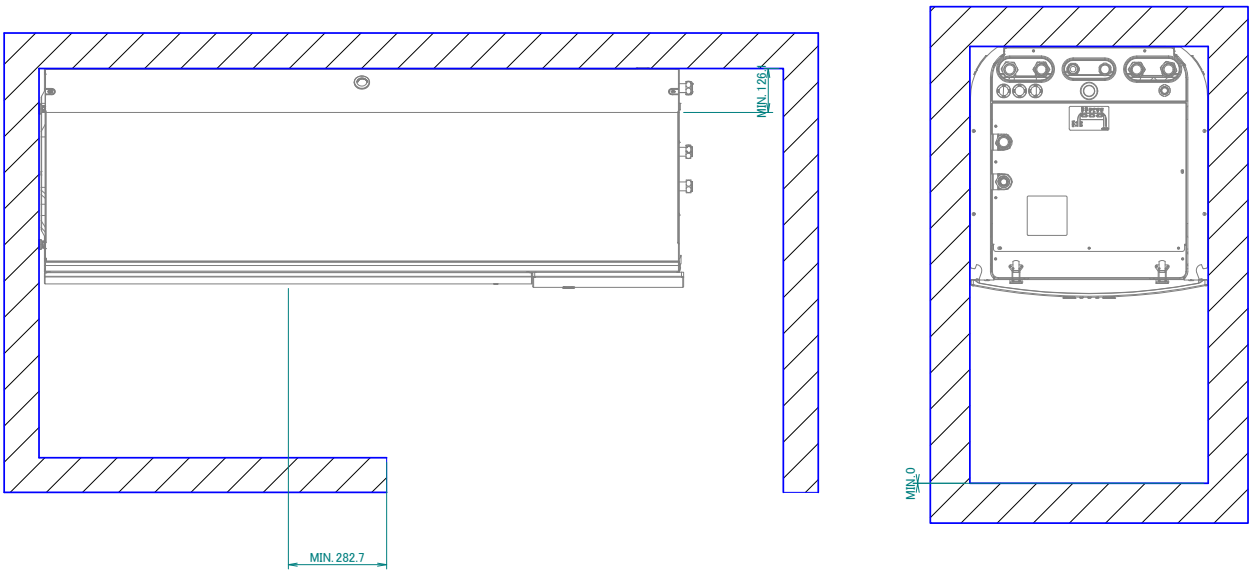
11 Installation

11 - 1 Installation Method

ETVZ12E6V / ETVZ16E6V
ETVZ12E9W / ETVZ16E9W



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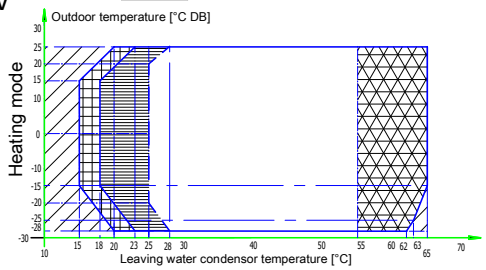
12 Operation range

12 - 1 Operation Range

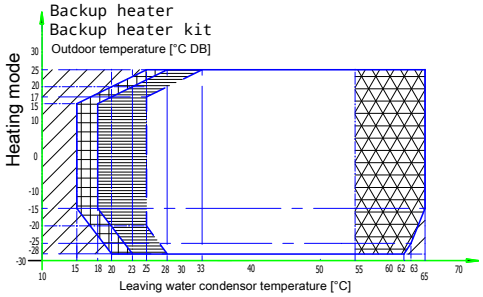
ETBH12E6V / ETBH12E9W
ETBX12E6V / ETBX12E9W
ETVH12E6V / ETVH12UE6V
ETVH12E9W / ETVX12E6V
ETVX12E9W / ETVZ12E6V
ETVZ12E9W

ETV*E* + ETB*E*

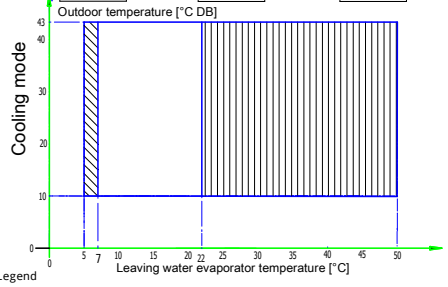


ETS*E*

Backup heater
Backup heater kit

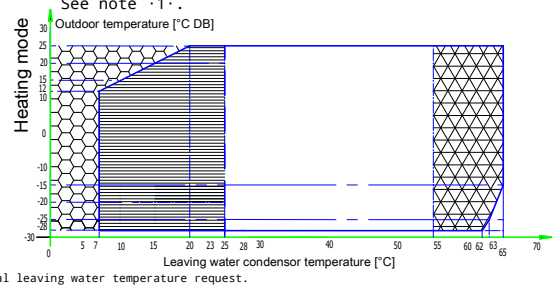


ETV*E* + ETB*E* + ETS*E*



ETS*E*

No backup heater
With tank preheating
See note ·1·.



Legend

- Backup heater only operation
  No outdoor unit operation
- Heat pump + backup heater operation
  Pull-up area
- Outdoor unit operation if controller setpoint is regulated to minimal leaving water temperature request.
  See dashed lines
- Circulation pump operation only
- Outdoor unit operation if setpoint >·55·°C and ΔT = ·10·°C (ΔT = outlet temperature – inlet temperature)
- Pull-down area
- In case valve kit ·AFVALVE1· is part of the system, then the minimum setpoint is ·7·°C.

Notes

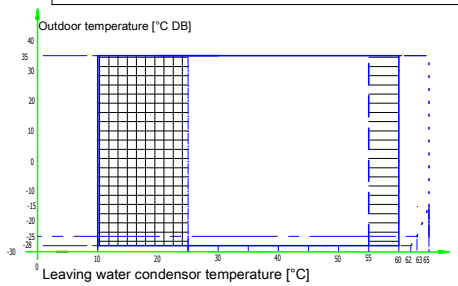
1. Tank preheating
   For details, see the installer reference guide.
2. If negative ambient temperatures are expected, both in operation or at standstill, take adequate countermeasures against freezing.
   For more information, refer to the installation manual.
3. In restricted power supply mode, the outdoor unit and backup heater can only operate separately.

3D133531

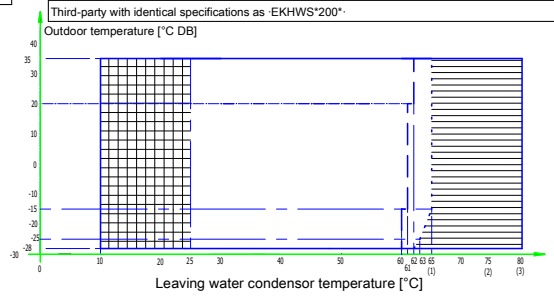
ETBH12E6V / ETBH12E9W
ETBX12E6V / ETBX12E9W
ETVH12E6V / ETVH12UE6V
ETVH12E9W / ETVX12E6V
ETVX12E9W / ETVZ12E6V
ETVZ12E9W

Domestic hot water heating mode

EKHWS*150*
EKHWS*180*
+
Third-party with identical specifications as ·EKHWS*150*·



ETV* + EKHWP* + ETS* + EKHWS*200* EKHWS*250* EKHWS*300*
+
Third-party with identical specifications as ·EKHWS*200*·



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) ETV*12*E*· indoor units only
  (2) Combination of ·EKHWS*· and ·ETB*12*E· indoor units /·ETS*12*E· indoor units only
  (3) Combination of ·EKHWP*· and ·ETB*12*E· indoor units

Notes

1. In restricted power supply mode (·EKHW*· only), the outdoor unit, booster heater and backup heater can only operate separately.
2. Third-party with identical specifications as ·EKHWS*150*·
   Coil surface >·1.05·m² and <·3.7·m²
   Tank thermistor and booster heater above heat pump coil.
3. If negative ambient temperatures are expected, both in operation or at standstill, take adequate countermeasures against freezing.
   For more information, refer to the installation manual.
4. Third-party with identical specifications as ·EKHWS*200*·
   Coil surface >·1.8·m² and <·3.7·m²
   Tank thermistor and booster heater above heat pump coil.

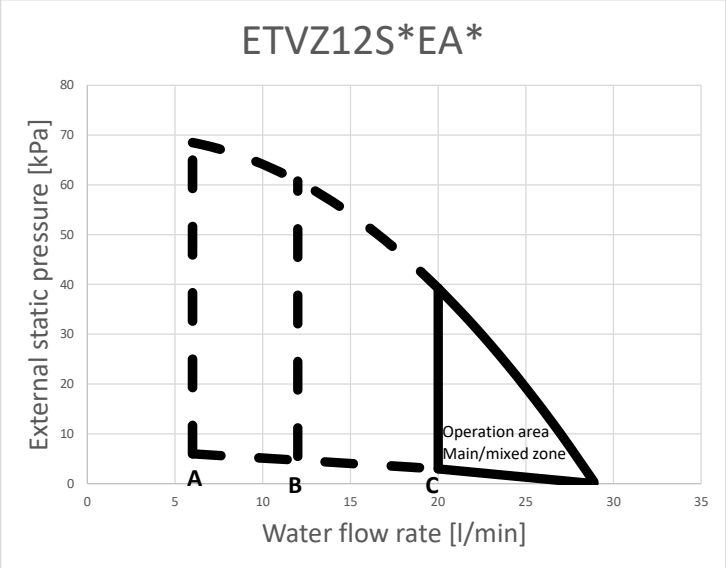
3D133532

13 Hydraulic performance

13 - 1 Static Pressure Drop Unit

13

ETVZ12E6V
ETVZ12E9W



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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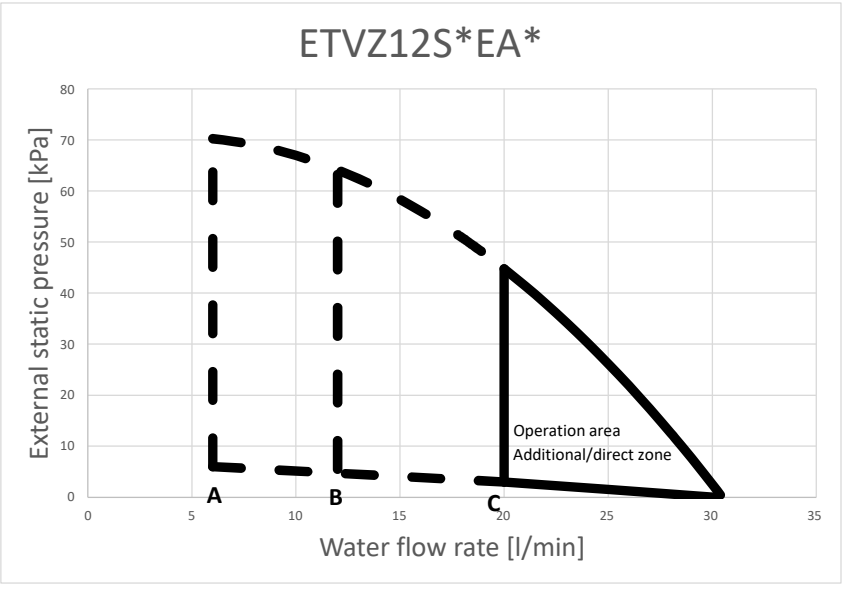
ETVZ12E6V
ETVZ12E9W



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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