Daikin Altherma high temperature split Technical Data ETSH16E7 / ETSHB16E7 / ETSX16E7 / ETSXB16E7

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ETSH16E7 / ETSHB16E7 / ETSX16E7 / ETSXB16E7

1 Features
ETSH16E7, ETSHB16E7

Floor standing air to water heat pump for heating and hot water with thermal solar support

1

- Integrated solar unit, offering top comfort in heating and hot water
- Maintenance-free tank: no corrosion, anode, scale or lime deposits, and no loss of water through safety valve
- Maximum use of renewable energy: uses heat pump technology for heating and solar support for space heating and domestic hot water production
- Fresh water principle: hygienic water, with no need for thermal legionella disinfection
- Quick configuration in 9 steps in a high resolution colour interface wizard

Fresh hot water

Solar ready

Onecta app (optional)

1 Features

ETSXB16E7, ETSX16E7

Floor standing air to water heat pump for bivalent heating, cooling and hot water with thermal solar support

- Integrated solar unit, offering top comfort in heating, hot water and cooling
- Maintenance-free tank: no corrosion, anode, scale or lime deposits, and no loss of water through safety valve
- Maximum use of renewable energy: uses heat pump technology for heating and solar support for space heating and domestic hot water production
- Fresh water principle: hygienic water, with no need for thermal legionella disinfection
- Quick configuration in 9 steps in a high resolution colour interface wizard

Fresh hot water

Solar ready

Onecta app (optional)

2 Specifications

Technical specifications				ETSH16P30E7	ETSH16P50E7
Casing	Colour			Traffic white (RAL9016) / Traffic black (RAL9017)	
	Material			Impact resistant polypropylene	
Dimensions	Unit	Height	mm	1,892	1,910
		Width	mm	594	792
		Depth	mm	644	816
	Packed unit	Height	mm	2,028	2,046
		Width	mm	800	
		Depth	mm	900	
Weight	Unit		kg	75	98
	Packed unit		kg	87	110
Packing	Material			Plastic foil / Wood (pallet) / Corrugated board	
	Weight		kg	12	
Pump	Type			Grundfos UPMXL 20-125 CHBL RT	
	Nr of speeds			PWM	
	IP class			IPX2D	
	Power input		W	180	
Water side Heat exchanger	Insulation material			EPP	
Tank	Water volume		l	294	477
	Material			Polypropylen	
	Maximum water temperature		°C	85	
	Insulation	Material		HFC-free Polyurethane foam	
		Heat loss	kWh/24h	1.5 (1)	1.7 (1)
	Standing heat loss	S	W	64	72
	Specific heat loss	U Asb, S, a	W/K	1.43	1.59
	Storage volume	V	l	294	477
	Energy efficiency class			B	
	Vbu (Solar, BUH)	Volume of the non-solar storage tank	l	290	464
Heat exchanger	Quantity			2	
	Charging	Quantity		1	
		Tube material		Stainless steel (1.4404)	
		Face area	m^2	3.26	3.40
		Internal coil volume	l	16.0	16.4
		Operating pressure	bar	3.0	
	Domestic hot water	Face area	m^2	5.60	7.50
		Internal coil volume	l	27.3	36.2
		Operating pressure	bar	10.0	
Heat exchanger	Domestic hot water	Quantity		1	
		Tube material		Stainless steel (1.4404)	
General	Supplier/ Manufacturer details	Name or trademark		Daikin Europe N.V.	
		Name and address		Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium	
Water circuit	Piping connections diameter		inch	G 1" (male)	
	Piping material			Brass (CW614N/CW617N)	
	Safety valve		bar	3.0	
	Manometer			Digital	
	Drain valve / fill valve			Yes	
	Shut off valve			Yes	
	flowswitch			Yes	
	Air purge valve			Yes	
	Pressure	Heating Max.	bar	3	
Water circuit - space heating side (main zone)	Air purge valve			Yes	
	Drain valve / fill valve			Yes	
	Manometer			Yes	
	Piping connections diameter		inch	G1 (MALE)	
	Safety valve		bar	3	
	Shut off valve			Yes	
Water circuit - Domestic hot water side	Piping material			Brass(CW617N)	
	Piping connections	Cold water in / Hot water out	inch	G 1" (male)	
Sound power level	Nom.		dBA	45.6	
Sound pressure level	Nom.		dBA	32.8	

2 Specifications

Technical specifications					ETSH16P30E7	ETSH16P50E7
Operation range	Heating	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35	
	Cooling	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Domestic hot water	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
Control systems	Class of temperature control				II	
	Contribution to seasonal space heating efficiency			%	2.0	
Installation place					Indoor	

Electrical specifications				ETSH16P30E7	ETSH16P50E7
Power supply	Phase			1~	
	Frequency		Hz	50	
	Voltage		V	230	
	Voltage range	Min.	%	10	
		Max.	%	10	
IP class	IP			IPX4	

(1)Heatloss according to EN12897 |
(2)Refer to operation limits drawings

Technical specifications					ETSHB16P30E7	ETSHB16P50E7
Casing	Colour				Traffic white (RAL9016) / Traffic black (RAL9017)	
	Material				Impact resistant polypropylene	
Dimensions	Unit	Height		mm	1,892	1,910
		Width		mm	594	792
		Depth		mm	644	816
	Packed unit	Height		mm	2,028	2,046
		Width		mm	800	
		Depth		mm	900	
Weight	Unit			kg	76	100
	Packed unit			kg	88	112
Packing	Material				Plastic foil / Wood (pallet) / Corrugated board	
	Weight			kg	12	
Pump	Type				Grundfos UPMXL 20-125 CHBL RT	
	Nr of speeds				PWM	
	IP class				IPX2D	
	Power input			W	180	
Water side Heat exchanger	Insulation material				EPP	
Tank	Water volume			l	294	477
	Material				Polypropylen	
	Maximum water temperature			°C	85	
	Insulation	Material			HFC-free Polyurethane foam	
		Heat loss		kWh/24h	1.5 (1)	1.7 (1)
	Standing heat loss	S		W	64	72
	Specific heat loss	U Asb, S, a		W/K	1.43	1.59
	Storage volume	V		l	294	477
	Energy efficiency class				B	
	Vbu (Solar, BUH)	Volume of the non-solar storage tank		l	290	464
Heat exchanger	Quantity				3	
	Charging	Quantity			1	
		Tube material			Stainless steel (1.4404)	
		Face area		m^2	3.26	3.40
		Internal coil volume		l	16.0	16.4
		Operating pressure		bar	3.0	
	Domestic hot water	Face area		m^2	5.60	7.50
		Internal coil volume		l	27.3	36.2
		Operating pressure		bar	10.0	

2 Specifications

Technical specifications					ETSHB16P30E7	ETSHB16P50E7
Heat exchanger	Domestic hot water	Quantity			1	
		Tube material			Stainless steel (1.4404)	
	Pressurised solar	Face area		m^2	0.74	1.83
		Internal coil volume		l	3.9	9.1
		Operating pressure		bar	6.0	
		Quantity			1	
		Tube material			Stainless steel (1.4404)	
General	Supplier/ Manufacturer details	Name or trademark			Daikin Europe N.V.	
		Name and address			Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium	
Water circuit	Piping connections diameter			inch	G 1" (male)	
	Piping material				Brass (CW614N/CW617N)	
	Safety valve			bar	3.0	
	Manometer				Digital	
	Drain valve / fill valve				Yes	
	Shut off valve				Yes	
	flowswitch				Yes	
	Air purge valve				Yes	
	Pressure	Heating	Max.	bar	3	
Water circuit - space heating side (main zone)	Air purge valve				Yes	
	Drain valve / fill valve				Yes	
	Manometer				Yes	
	Piping connections diameter			inch	G1(MALE)	
	Safety valve			bar	3	
	Shut off valve				Yes	
Water circuit - Domestic hot water side	Piping material				Brass(CW617N)	
	Piping connections	Cold water in / Hot water out		inch	G 1" (male)	
Piping connections	Pressurised solar heat exchanger			inch	G 1" (male)	
Sound power level	Nom.			dBA	45.6	
Sound pressure level	Nom.			dBA	32.8	
Operation range	Heating	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35	
	Cooling	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
Operation range	Cooling	Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Domestic hot water	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
Control systems	Class of temperature control				II	
	Contribution to seasonal space heating efficiency			%	2.0	
Installation place					Indoor	

Electrical specifications				ETSHB16P30E7	ETSHB16P50E7
Power supply	Phase			1~	
	Frequency		Hz	50	
	Voltage		V	230	
	Voltage range	Min.	%	10	
		Max.	%	10	
IP class	IP			IPX4	

(1)Heatloss according to EN12897 |
(2)Refer to operation limits drawings

Technical specifications					ETSX16P30E7	ETSX16P50E7
Casing	Colour				Traffic white (RAL9016) / Traffic black (RAL9017)	
	Material				Impact resistant polypropylene	
Dimensions	Unit	Height		mm	1,892	1,910
		Width		mm	594	792
		Depth		mm	644	816
	Packed unit	Height		mm	2,028	2,046
		Width		mm	800	
		Depth		mm	900	

2 Specifications

Technical specifications				ETSX16P30E7	ETSX16P50E7
Weight	Unit		kg	75	98
	Packed unit		kg	87	110
Packing	Material			Plastic foil / Wood (pallet) / Corrugated board	
	Weight		kg	12	
Pump	Type			Grundfos UPMXL 20-125 CHBL RT	
	Nr of speeds			PWM	
	IP class			IPX2D	
	Power input		W	180	
Water side Heat exchanger	Insulation material			EPP	
Tank	Water volume		l	294	477
	Material			Polypropylen	
	Maximum water temperature		°C	85	
	Insulation	Material		HFC-free Polyurethane foam	
		Heat loss	kWh/24h	1.5 (1)	1.7 (1)
	Standing heat loss	S	W	64	72
	Specific heat loss	U Asb, S, a	W/K	1.43	1.59
	Storage volume	V	l	294	477
	Energy efficiency class			B	
	Vbu (Solar, BUH)	Volume of the non-solar storage tank	l	290	464
Heat exchanger	Quantity			2	
	Charging	Quantity		1	
		Tube material		Stainless steel (1.4404)	
		Face area	m^2	3.26	3.40
		Internal coil volume	l	16.0	16.4
		Operating pressure	bar	3.0	
	Domestic hot water	Face area	m^2	5.60	7.50
		Internal coil volume	l	27.3	36.2
		Operating pressure	bar	10.0	
Heat exchanger	Domestic hot water	Quantity		1	
		Tube material		Stainless steel (1.4404)	
General	Supplier/ Manufacturer details	Name or trademark		Daikin Europe N.V.	
		Name and address		Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium	
Water circuit	Piping connections diameter		inch	G 1" (male)	
	Piping material			Brass (CW614N/CW617N)	
	Safety valve		bar	3.0	
	Manometer			Digital	
	Drain valve / fill valve			Yes	
	Shut off valve			Yes	
	flowswitch			Yes	
	Air purge valve			Yes	
	Pressure	Heating Max.	bar	3	
Water circuit - space heating side (main zone)	Air purge valve			Yes	
	Drain valve / fill valve			Yes	
	Manometer			Yes	
	Piping connections diameter		inch	G1 (MALE)	
	Safety valve		bar	3	
	Shut off valve			Yes	
Water circuit - Domestic hot water side	Piping material			Brass(CW617N)	
	Piping connections	Cold water in / Hot water out	inch	G 1" (male)	
Sound power level	Nom.		dBA	45.6	
Sound pressure level	Nom.		dBA	32.8	

2 Specifications

Technical specifications					ETSX16P30E7	ETSX16P50E7
Operation range	Heating	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35	
	Cooling	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Domestic hot water	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
Control systems	Class of temperature control				II	
	Contribution to seasonal space heating efficiency			%	2.0	
Installation place					Indoor	

Electrical specifications				ETSX16P30E7	ETSX16P50E7
Power supply	Phase			1~	
	Frequency		Hz	50	
	Voltage		V	230	
	Voltage range	Min.	%	10	
		Max.	%	10	
IP class	IP			IPX4	

(1)Heatloss according to EN12897 |
(2)Refer to operation limits drawings

Technical specifications					ETSXB16P30E7	ETSXB16P50E7
Casing	Colour				Traffic white (RAL9016) / Traffic black (RAL9017)	
	Material				Impact resistant polypropylene	
Dimensions	Unit	Height		mm	1,892	1,910
		Width		mm	594	792
		Depth		mm	644	816
	Packed unit	Height		mm	2,028	2,046
		Width		mm	800	
		Depth		mm	900	
Weight	Unit			kg	76	100
	Packed unit			kg	88	112
Packing	Material				Plastic foil / Wood (pallet) / Corrugated board	
	Weight			kg	12	
Pump	Type				Grundfos UPMXL 20-125 CHBL RT	
	Nr of speeds				PWM	
	IP class				IPX2D	
	Power input			W	180	
Water side Heat exchanger	Insulation material				EPP	
Tank	Water volume			l	294	477
	Material				Polypropylen	
	Maximum water temperature			°C	85	
	Insulation	Material			HFC-free Polyurethane foam	
		Heat loss		kWh/24h	1.5 (1)	1.7 (1)
	Standing heat loss	S		W	64	72
	Specific heat loss	U Asb, S, a		W/K	1.43	1.59
	Storage volume	V		l	294	477
	Energy efficiency class				B	
	Vbu (Solar, BUH)	Volume of the non-solar storage tank		l	290	464
Heat exchanger	Quantity				3	
	Charging	Quantity			1	
		Tube material			Stainless steel (1.4404)	
		Face area		m^2	3.26	3.40
		Internal coil volume		l	16.0	16.4
		Operating pressure		bar	3.0	
	Domestic hot water	Face area		m^2	5.60	7.50
		Internal coil volume		l	27.3	36.2
		Operating pressure		bar	10.0	

2 Specifications

Technical specifications					ETSXB16P30E7	ETSXB16P50E7
Heat exchanger	Domestic hot water	Quantity			1	
		Tube material			Stainless steel (1.4404)	
	Pressurised solar	Face area		m^2	0.74	183
		Internal coil volume		l	3.9	9.1
		Operating pressure		bar	6.0	
		Quantity			1	
		Tube material			Stainless steel (1.4404)	
General	Supplier/ Manufacturer details	Name or trademark			Daikin Europe N.V.	
		Name and address			Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium	
Water circuit	Piping connections diameter			inch	G 1" (male)	
	Piping material				Brass (CW614N/CW617N)	
	Safety valve			bar	3.0	
	Manometer				Digital	
	Drain valve / fill valve				Yes	
	Shut off valve				Yes	
	flowswitch				Yes	
	Air purge valve				Yes	
	Pressure	Heating	Max.	bar	3	
Water circuit - space heating side (main zone)	Air purge valve				Yes	
	Drain valve / fill valve				Yes	
	Manometer				Yes	
	Piping connections diameter			inch	G1(MALE)	
	Safety valve			bar	3	
	Shut off valve				Yes	
Water circuit - Domestic hot water side	Piping material				Brass(CW617N)	
	Piping connections	Cold water in / Hot water out		inch	G 1" (male)	
Piping connections	Pressurised solar heat exchanger			inch	G 1" (male)	
Sound power level	Nom.			dBA	45.6	
Sound pressure level	Nom.			dBA	32.8	
Operation range	Heating	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35	
	Cooling	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
Operation range	Cooling	Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Domestic hot water	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
Control systems	Class of temperature control				II	
	Contribution to seasonal space heating efficiency			%	2.0	
Installation place					Indoor	

Electrical specifications				ETSXB16P30E7	ETSXB16P50E7
Power supply	Phase			1~	
	Frequency		Hz	50	
	Voltage		V	230	
	Voltage range	Min.	%	10	
		Max.	%	10	
IP class	IP			IPX4	

(1)Heatloss according to EN12897 |
(2)Refer to operation limits drawings

3 Electrical data

3 - 1 Electrical Data

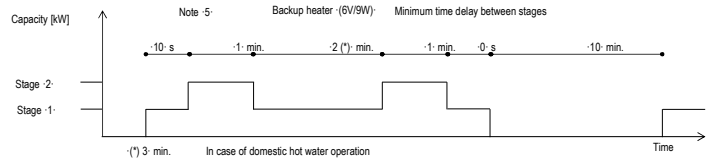
ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7

Electrical specifications of the backup heaters and booster heaters

						EKECBU*3V			EKECBU*6V				EKECBU*9W			
Backup heater	Capacity setting				[kW]	1	1-2	1-2-3	2 - 4	2 - 6	·2-4· (in case of emergency: ·2-6·)		3 - 6	3 - 9	·3 - 6· (in case of emergency: ·3 - 9·)	
	Capacity stage · ·					(4)			2	2	2	2	2	2	2	2
	Capacity stage ·1·				kW				2	2	2	2	3	3	3	3
	Capacity stage ·2·				kW				4	6	4	6	6	9	6	9
	Minimum time delay between stages					-			Note ·5·				Note ·5·			
	Power supply	Phase				1~							3~			
	(1)	Frequency			Hz	50										
		Voltage			V	230 +-10%							400 +-10%			
	Current	Nominal running current			A	4.4	8.7	13.1	17,4	26,1	17,4	26,1	8,7	13	8,7	13
		Zmax (backup heater)	(2)		Ω	-							-			
					Complex	-			0,22				-			
		Minimum Ssc value			kVA	-			(3)				-			

Notes

(1)	The above-mentioned power supply of the hydrobox is for the backup heater only. The optional domestic hot water tank has a separate 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.
(4)	For the 3V model, the system variably choses from 3 available capacity steps the adequate capacity for the given operating conditions.
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

ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7

* 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(14/16/18)DA*		
Indoor unit type		ETS*16*EF*		
	Backup heater type (optional)	EKECBU*3V	EKECBU*6V	EKECBU*9W
	Backup heater power supply	1~ 230V	1~ 230V	3~ 400V
	Backup heater configuration	1/2/3 kW	2 / 4 / 6 kW	3 / 6 / 9 kW
		Normal kWh rate power supply		
Electrical meter type	1~	1	1	-
	3~ balanced	-	-	-
	3~ unbalanced	-	-	1
		Preferential kWh rate power supply		
Electrical meter type	1~	2	2	1
	3~ balanced	-	-	-
	3~ unbalanced	-	-	1

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4 Combination table

4 - 1 Combination Table

ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7

Factory-mounted equipment for ·ETS(H/X)*12*E*· and ·ETS(H/X)*16*E*·

Description	ETS(H/X)*12P30E*	ETS(H/X)*12P50E*
Domestic hot water tank ·300l integrated·	o	-
Domestic hot water tank ·500l integrated·	-	o

Description	ETS(H/X)*16P30E*	ETS(H/X)*16P50E*
Domestic hot water tank ·300l integrated·	o	-
Domestic hot water tank ·500l integrated·	-	o

Outdoor combination table for ·ETS(H/X)*12*E*· and ·ETS(H/X)*16*E*·

		EPRA08EA(V3/W1)	EPRA10EA(V3/W1)	EPRA12EA(V3/W1)
ETSH12P(30/50)E*	Heating only indoor unit, Std	o	o	o
ETSHB12P(30/50)E*	Heating only indoor unit, bivalent	o	o	o
ETSX12P(30/50)E*	Reversible indoor unit, Std	o	o	o
ETSXB12P(30/50)E*	Reversible indoor unit, bivalent	o	o	o

		EPRA(14/16/18)DAW1*	EPRA(14/16/18)DAV3*
ETSH16P(30/50)E*	Heating only indoor unit, Std	o	o
ETSHB16P(30/50)E*	Heating only indoor unit, bivalent	o	o
ETSX16P(30/50)E*	Reversible indoor unit, Std	o	o
ETSXB16P(30/50)E*	Reversible indoor unit, bivalent	o	o

Kit availability for indoor units

Reference	Description		ETS(H/X)12P*E* ETS(H/X)16P*E*	ETS(H/X)B12P*E* ETS(H/X)B16P*E*
EKECBUAF3V	Inline backup heater 3kW *(16)		Mandatory	o *(17)
EKECBUAF6V	Inline backup heater 6kW *(16)		Mandatory	o *(17)
EKECBUAF9W	Inline backup heater 9kW *(16)		Mandatory	o *(17)
EKECBUCO1AF	Inline BUH connection kit TGS/TGL		Mandatory	o *(17)
EKRP1HBAA	Digital I/O PCB	*(1) (2)	-	-
EKRP1AHTA	Demand PCB	*(3)	o	o
BRC1HHDA*	HCI (Human Comfort Interface)		o	o
EKPCCAB4	PC cable	*(4)	o	o
KRCS01-1	Remote indoor sensor	*(5)	o	o
EKRSCA1	Remote sensor for outdoor	*(5)	o	o
EKCC8-W	Universal centralised user interface		o	o
DCOM-LT/IO	DCOM gateway		-	-
DCOM-LT/MB	DCOM gateway		-	-
EKCC8-W	Cascade control		o	o
EKHVCONV4	Conversion kit: heating only to reversible.		-	-
FWXV10-15-20ATV3	Heat pump convector	*(6)	o	o
FWXT10-15-20ATV3	Heat pump convector	*(6)	o	o
FWXM10-15-20ATV3	Heat pump convector	*(6)	o	o
EKVKHPC	Heat pump convector valve kit		-	-
EKRTWA	Wired room thermostat		o	o
EKRTR1, EKRTRB	Wireless room thermostat		o	o
EKRTETS	External sensor room thermostat	*(7)	o	o
EKWUFHTA1V3	Multi-zoning base unit 230 V	*(9)	-	-
EKWCTRDI1V3	Digital thermostat 230 V	*(9)	-	-
EKWCTRAN1V3	Analogue thermostat 230 V	*(9)	-	-
EKWCVATR1V3	Actuator 230 V	*(9)	-	-
EKRELSG	Relay for Smart Grid		o	o
BRP069A61	LAN adapter with solar connectivity		o	o
BRP069A62	LAN adapter		o	o
BRP069A71	WLAN module	*(10)	o	o
EKUHWG3D	·G3· kit		-	-
AFVALVE1	Freeze protection valve		o	o
ESAE04A01*	Daikin Residential Controller		-	-
156021	dirt seperator		o	o
EKECBIVCO1AF	Biv Connector Kit		-	o
EKECDBCO1AF	DB connector Kit		o *(18)	o *(18)
EKSRPS4AB	Drain back solar control pump station		o	o

Reference	Description		ETS(H/X)*12P*E*
EKMIKPOAF	Mixing kit – PCB only		o
EKMIKPHAF	Mixing kit – PCB with hydraulics		o
EKMIKHMAF	Hydraulics – mixed pump group	*(12)	o
EKMIKHUAF	Hydraulics – unmixed pump group	*(12)	o
EKMIKBVAF	Balancing vessel		o
EKMIKDIAF	Distributor for balancing vessel	*(13)	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 ·EKMIKPOAF·
(13) Only possible in combination with ·EKMIKBVAF· and ·EKMIKPHAF· or ·EKMIKHUAF·
(14) Only possible in combination with ·HBKIT*·
(15) Only possible in combination with ·ETVZ*·
(16) Only 1 Backup heater can be connected on one unit: 3 or 6* or 9 kW (*No 6T1-model applicable). EKECBUCO*AF is needed to connect the backup heater to the main unit
(17) Mandatory for installations without a bivalent heat source (oil or gas)
(18) Only for ETS*(12/16)P30E*

Remark

Other combinations than mentioned in this combination table are prohibited.

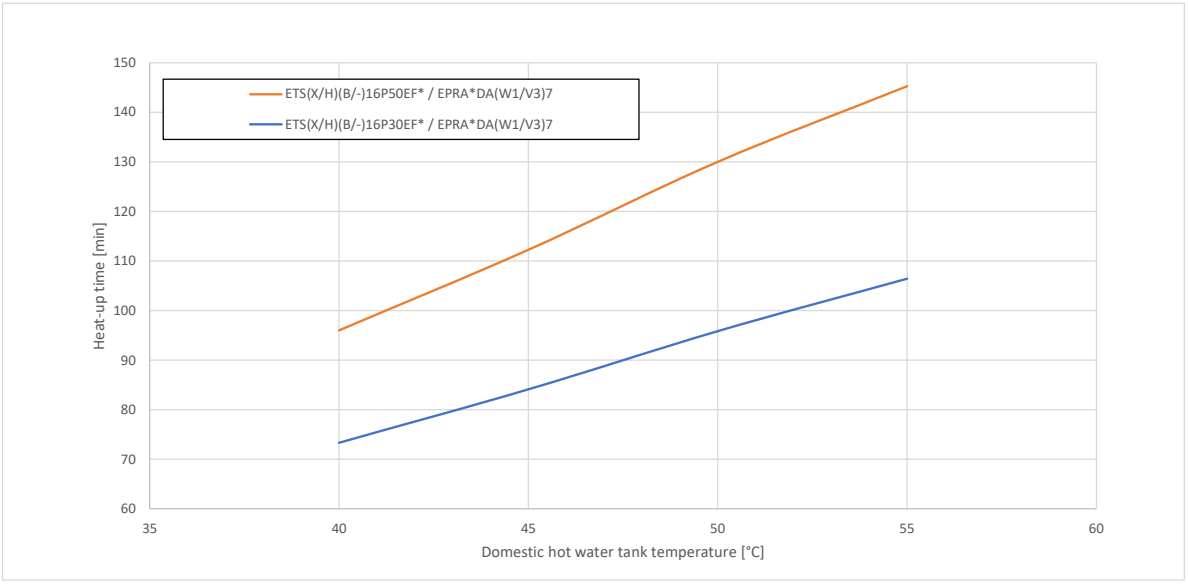
3D136055C

5 Capacity tables

5 - 1 Domestic Hot Water performance

ETSH16E7 / ETSHB16E7
ETSX16E7 / ETSXB16E7

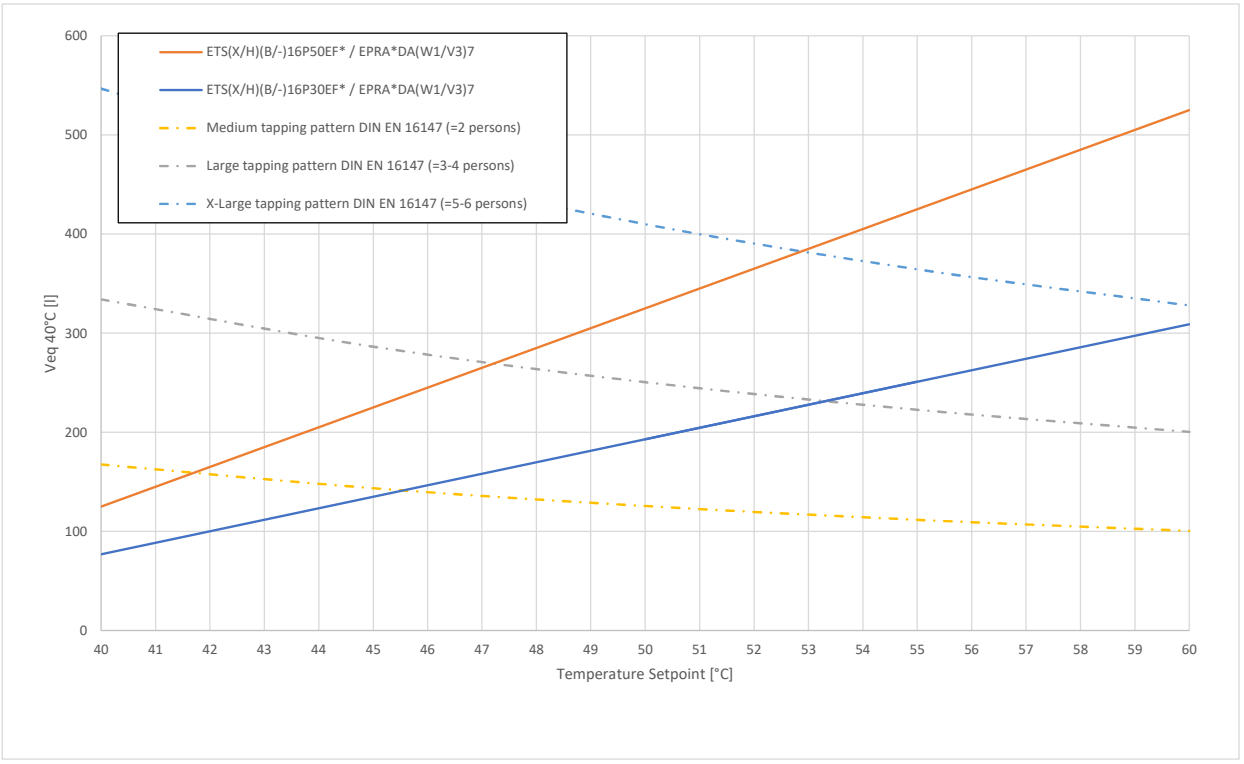
Heat-up times



	Heat-up time domestic hot water tank until 45°C
ETS(X/H)(B/-)16P30EF* / EPRA*DA(W1/V3)7	-84- min.
ETS(X/H)(B/-)16P50EF* / EPRA*DA(W1/V3)7	-112- min.

Selection guide for the domestic hot water tank volume

Veq 40°C = the amout 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, draw-off volume flow = 10 l/min



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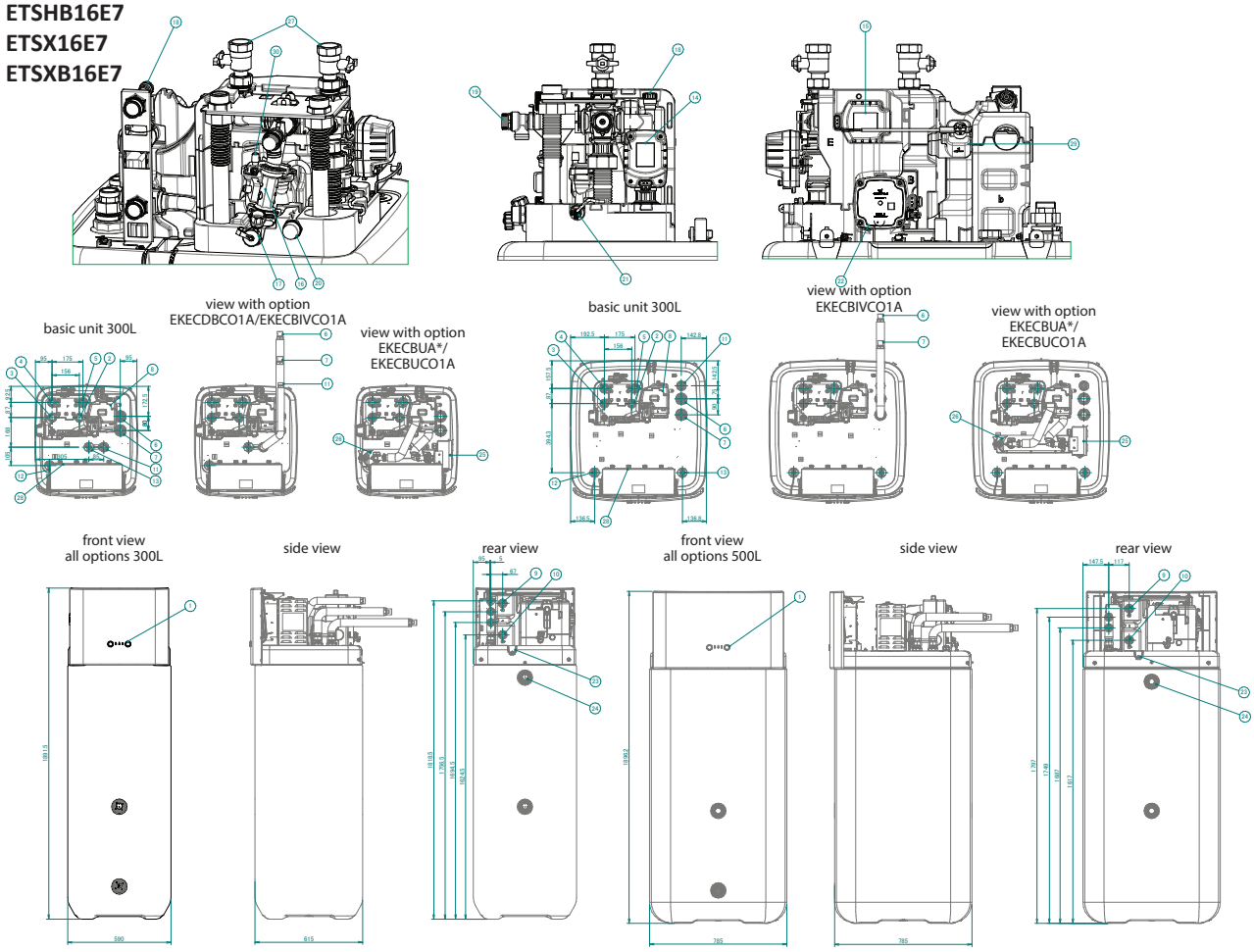
6 Dimensional drawings

6 - 1 Dimensional Drawings

ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7



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

1	User interface
2	Space heating/cooling water in (screw connection, 1″)
3	Space heating/cooling water out (screw connection, 1″)
4	Domestic hot water: cold water in (screw connection, 1″)
5	Domestic hot water: hot water out (screw connection, 1″)
6	BIV water: hot water in (screw connection, 1″)
7	BIV water: cold water out (screw connection, 1″)
8	Outdoor unit connection
9	Outdoor unit water in (screw connection, 1″)
10	Outdoor unit water out (screw connection, 1″)
11	Drain-back connection (screw connection, 1″)
12	Tank temperature sensor
13	Level indicator
14	Tank valve
15	Bypass valve

16	Flow sensor
17	Fill and drain valve water circuit
18	Manual air purge
19	Safety valve
20	Expansions vessel connection (screw connection, 3/4″)
21	Space heating water pessure sensor
22	Pump
23	Drain pan
24	Spillover connection
25	Switch box backup heater
26	Backup heater
27	Shut-off valves
28	Main switch box
29	Flow switch
30	Automatic air purge

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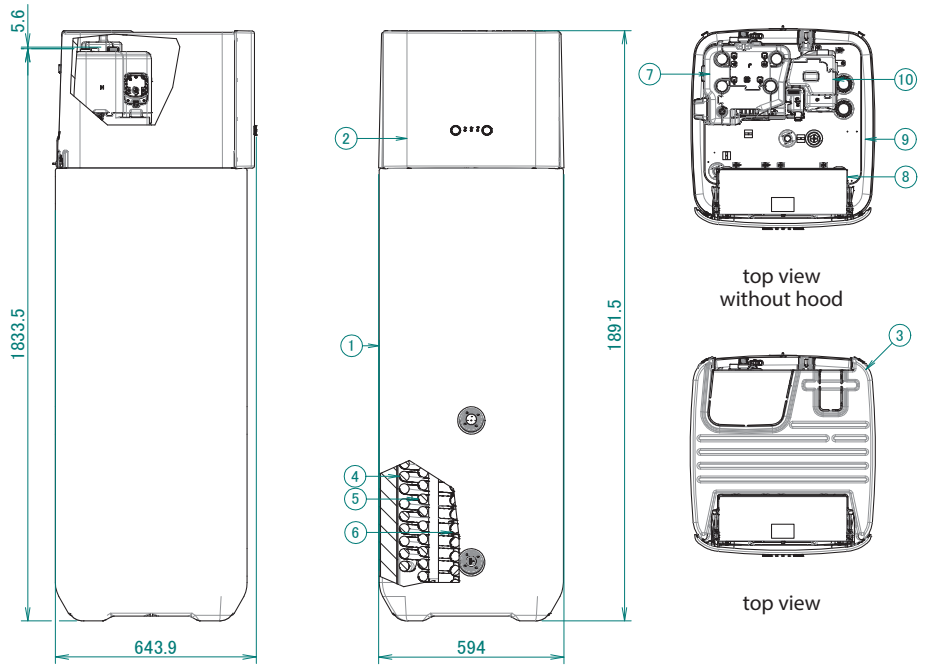
6 Dimensional drawings

6 - 1 Dimensional Drawings

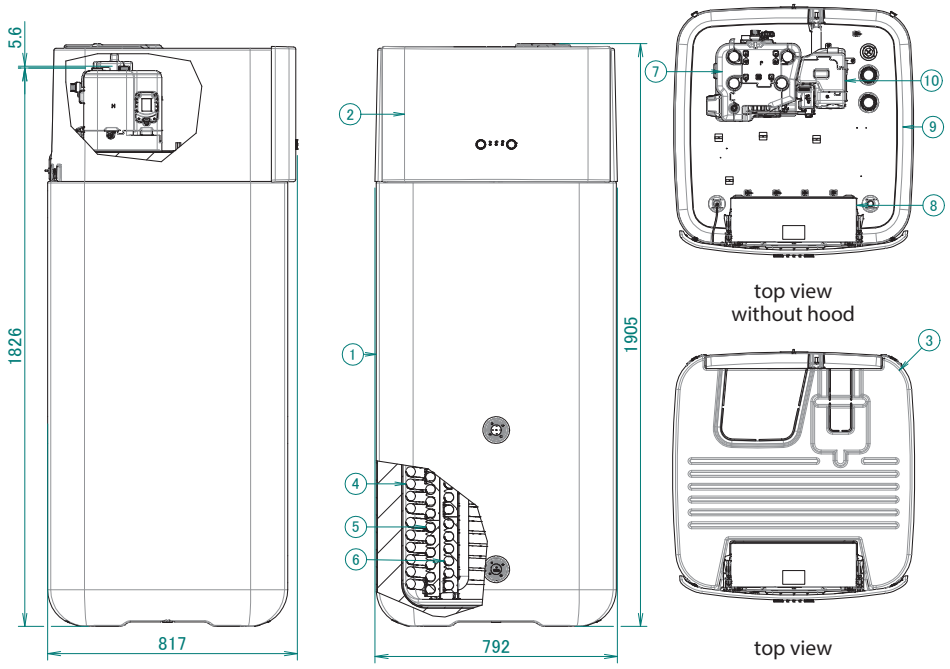
ETSH16P30EF7
ETSHB16P30EF7
ETSX16P30EF7
ETSXB16P30EF7



①	300 l water tank
②	HPSU MMI front 3xx
③	HPSU MMI hood 3xx
④	DHW exchanger
⑤	load exchanger
⑥	BIV exchanger
⑦	hydraulics
⑧	switch box
⑨	3xx tank lid
⑩	outdoor-unit connection

3D136045

ETSH16P50EF7
ETSHB16P50EF7
ETSX16P50EF7
ETSXB16P50EF7



①	500 l water tank
②	HPSU MMI front 5xx
③	HPSU MMI hood 5xx
④	DHW exchanger
⑤	load exchanger
⑥	BIV exchanger
⑦	hydraulics
⑧	switch box
⑨	5xx tank lid
⑩	outdoor-unit connection

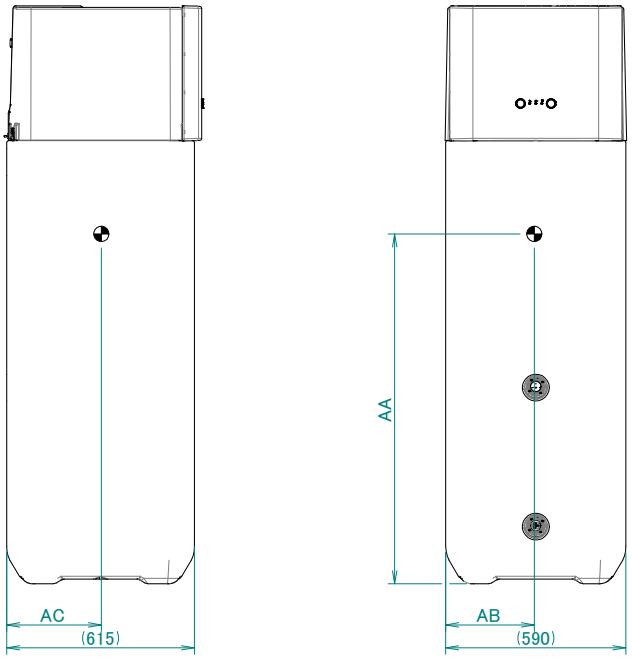
3D136046

7 Centre of gravity

7 - 1 Centre of Gravity

ETSH16P30EF7
ETSHB16P30EF7
ETSX16P30EF7
ETSXB16P30EF7

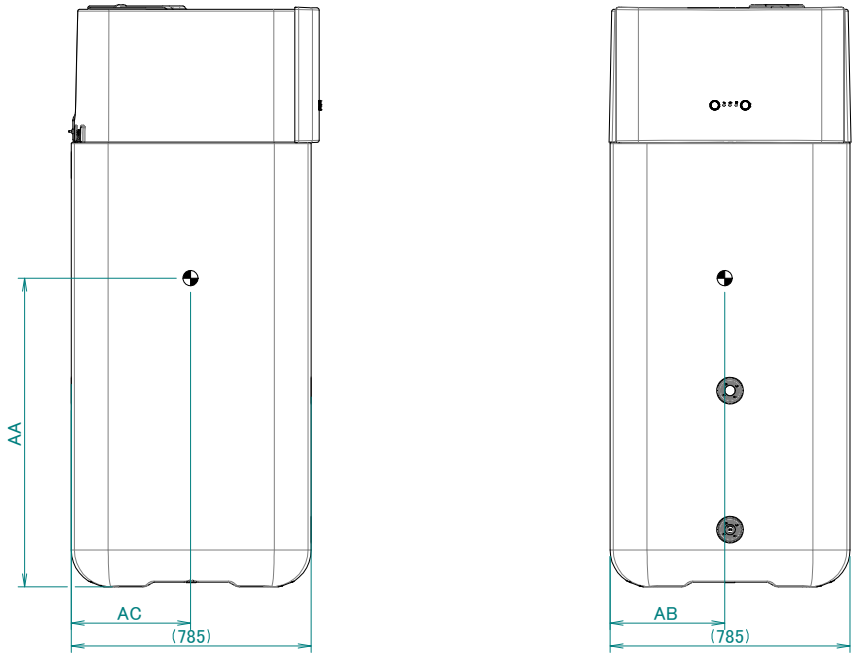
PART	REVISION	AA	AB	AC	JUDGE	CLASSIFY
1		1145	290	310	2	G1



3D136047

ETSH16P50EF7
ETSHB16P50EF7
ETSX16P50EF7
ETSXB16P50EF7

PART	REVISION	AA	AB	AC	JUDGE	CLASSIFY
1		1010	375	390	2	G1



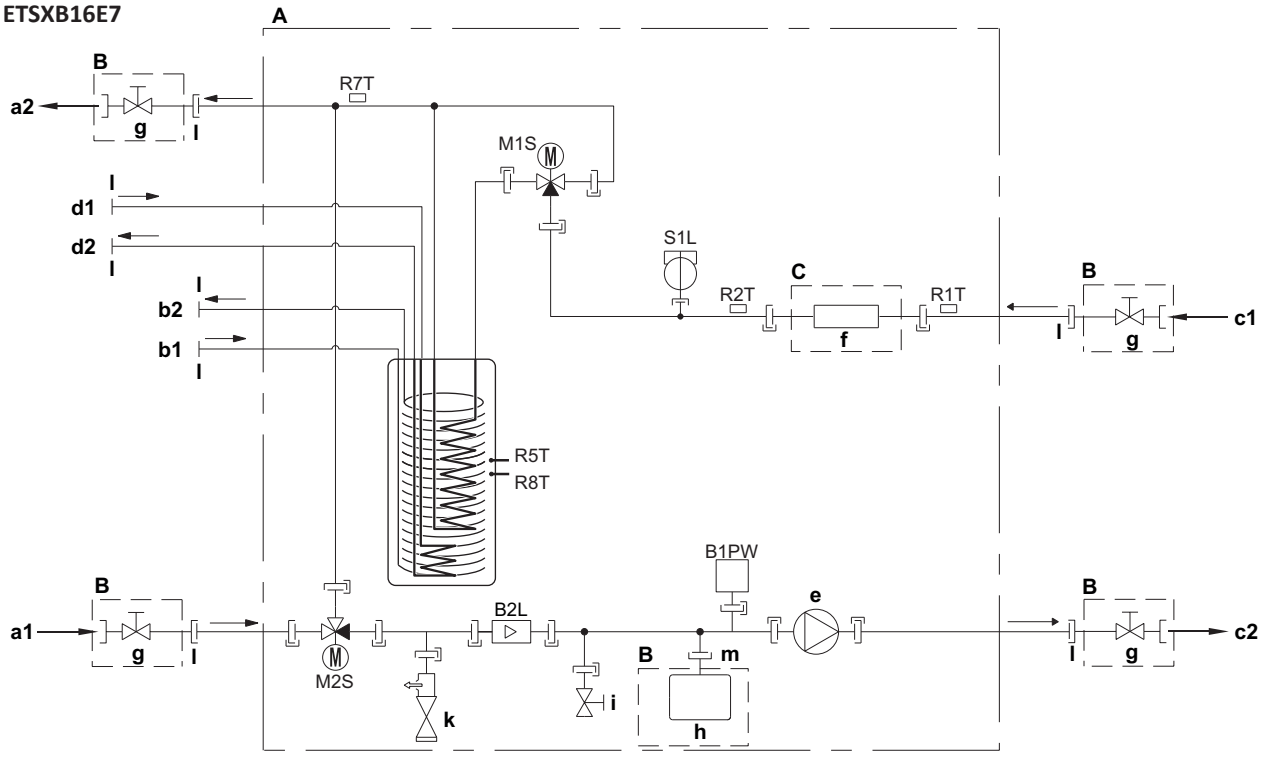
3D136048

8 Piping diagrams

8 - 1 Piping Diagrams

ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7

Piping diagram: indoor unit



A	Indoor unit
B	Field installed
C	Optional
D	Referigerant side
a1	Space heating/cooling - Water IN (screw connection, 1")
a2	Space heating/cooling - Water OUT (screw connection, 1")
b1	DHW - Cold Water IN (screw connection, 1")
b2	DHW - Hot water OUT (screw connection, 1")
c1	Water IN from outdoor unit (screw connection, 1")
c2	Water OUT to outdoor unit (screw connection, 1")
d1	Water IN from bivalent heat source (screw connection, 1")
d2	Water OUT to bivalent heat source (screw connection, 1")
e	Pump
f	Backup heater
g	Shut-off valve, female-female 1"
h	Expansion vessel
i	Drain valve
k	Safety valve
l	External thread 1"
m	External thread 3/4"
B2L	Flow sensor
B1PW	Space heating water pressure sensor
M1S	Tank valve
M2S	Bypass valve
R1T	Thermistor (water IN)
R2T	Thermistor (backup heater - water OUT)
R5T, R8T	Thermistor (tank)
R7T	Thermistor (tank - water OUT)
S1L	Flow switch
	Screw connection
	Flare connection
	Quick coupling
	Brazed connection

4D136050B

9 Wiring diagrams

9 - 1 Notes & Legend

ETSH16E7 / ETSHB16E7 / ETSX16E7 / ETSXB16E7

NOTES to go through before starting the unit

X1M	: Main terminal
X6M	: BUH Power supply terminal
X12M	: Field wiring terminal for AC
X15M	: Field wiring terminal for DC
—·—·—·—	: Earth wiring
– – – – – –	: Field supply
(1)	: Several wiring possibilities

: Option

: Wiring depending on model

: Not mounted in switch box

: PCB

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

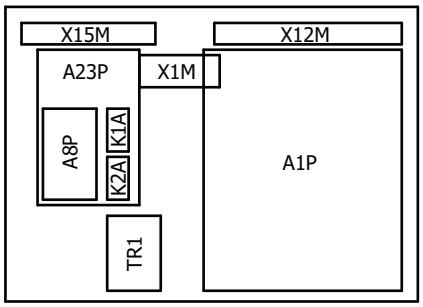
User installed options:
- ☐ Backup heater
- ☐ LAN adapter
- ☐ Remote user interface
- ☐ Ext. indoor thermistor
- ☐ Ext. outdoor thermistor
- ☐ Demand PCB
- ☐ Smartgrid kit
- ☐ WLAN adapter module
- ☐ WLAN cartridge

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

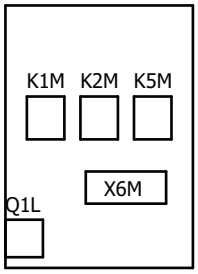
Add LWT:
- ☐ ON/OFF thermostat (wired)
- ☐ ON/OFF thermostat (wireless)
  - ☐ Ext. thermistor
- ☐ Heat pump convector

POSITION IN SWITCH BOX

SWB1



SWB2



LEGEND

Part n°		Description
A1P		main PCB
A2P	*	ON/OFF thermostat (PC=power circuit)
A3P	*	heat pump convector
A8P	*	demand PCB
A9P		status indicator
A11P		MMI PCB
A13P	*	LAN adapter
A14P	*	user interface PCB
A15P	*	receiver PCB (wireless ON/OFF thermostat)
A20P	*	WLAN module
A23P		hydro extension PCB
A30P	*	BZ mixing kit PCB
B2L		flow sensor
B1PW		water pressure sensor
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
F2B	#	overcurrent fuse main
FU1 (A1P)		fuse (T 5A 250 V for PCB)
FU1 (A23P)		fuse (3.15A 250 V for PCB)
K1A, K2A	*	high voltage smartgrid relay
K1M, K2M	*	contactor backup heater
K5M	*	safety contactor BUH
K* (A23P)		relay on PCB
K*R (A*P)		relay on PCB
M1P		main supply pump
M1S		DHW tank mixing 3 way valve
M2P	#	domestic hot water pump
M2S		bypass mixing 3 way valve

Part n°		Description
M4S	*	shut-off valve
P1M		MMI display
PC (A15P)	*	power circuit
Q1L	*	thermal protector backup heater
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	#	smart grid feed-in contact
S6S-S9S	*	digital power limitation inputs
S10S-S11S	#	low voltage smartgrid contact
S12S	#	gas meter input
S13S	#	solar input
SW1~2 (A11P)		turn buttons
SW3~5 (A11P)		push button
TR1		power supply transformer
X*, X*A, X*H*, X*Y		connector
X*M		terminal strip

* : optional #: field supply

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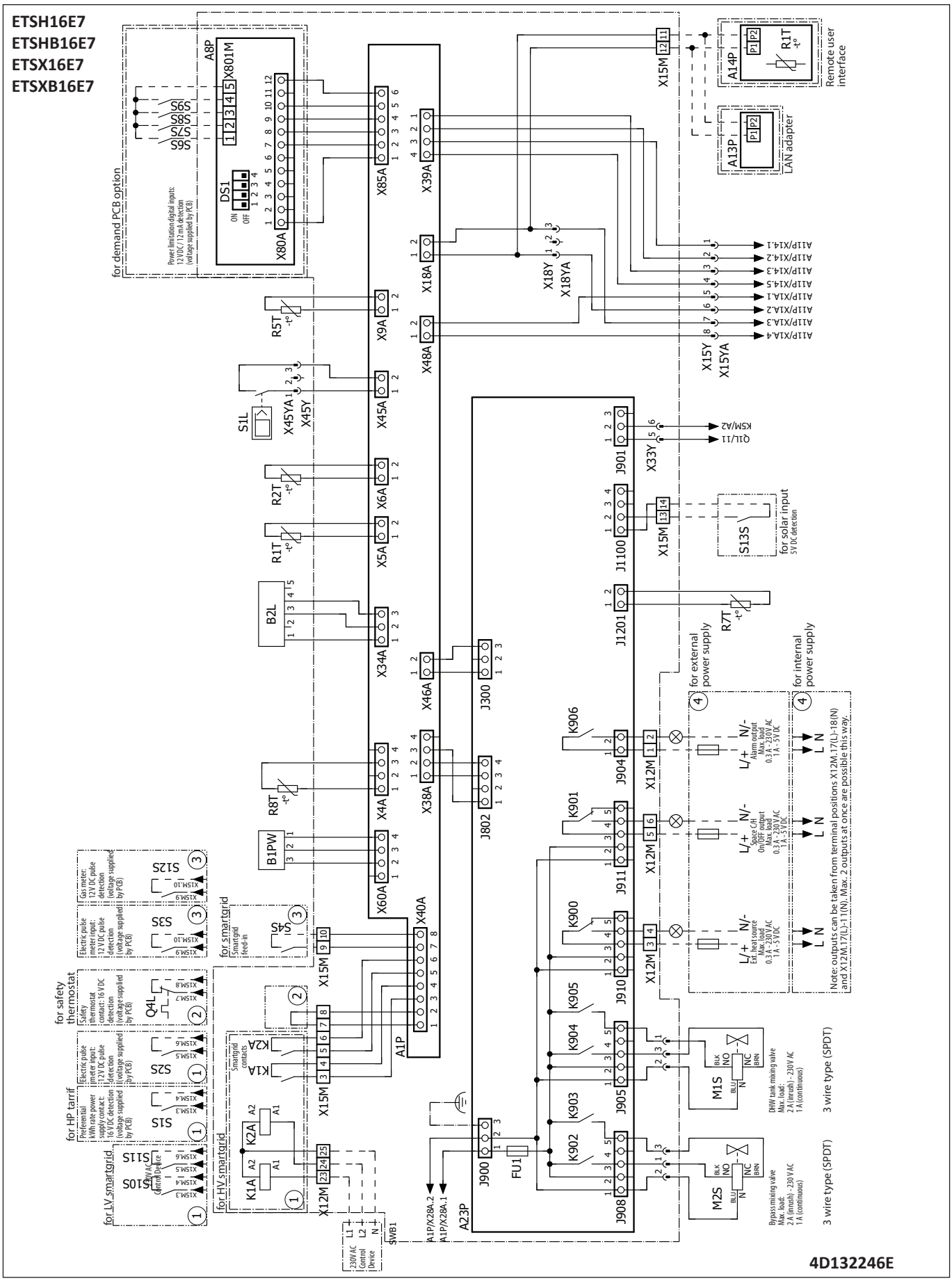
9 Wiring diagrams

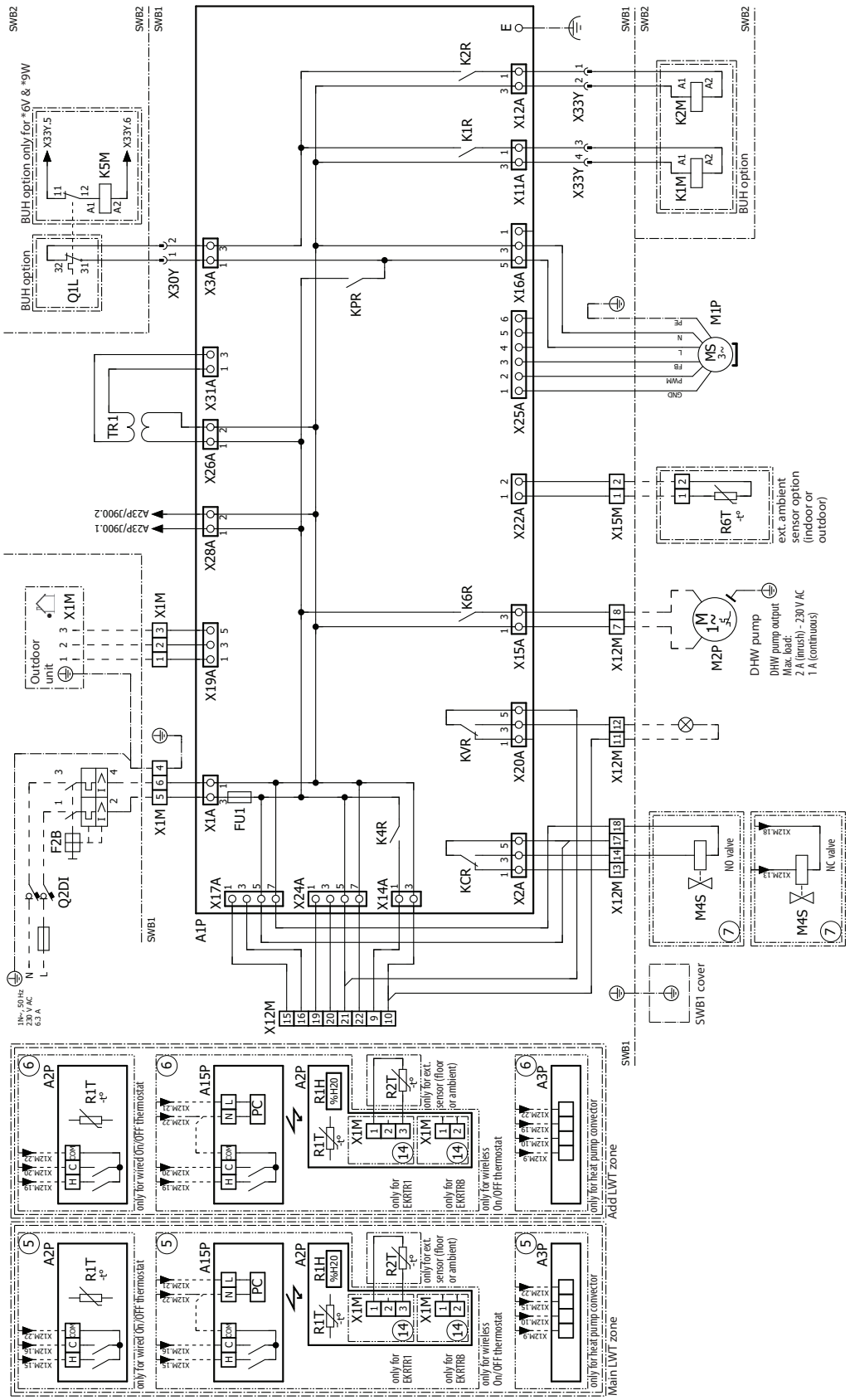
9 - 2 Control Circuit



9 Wiring diagrams

9 - 2 Control Circuit

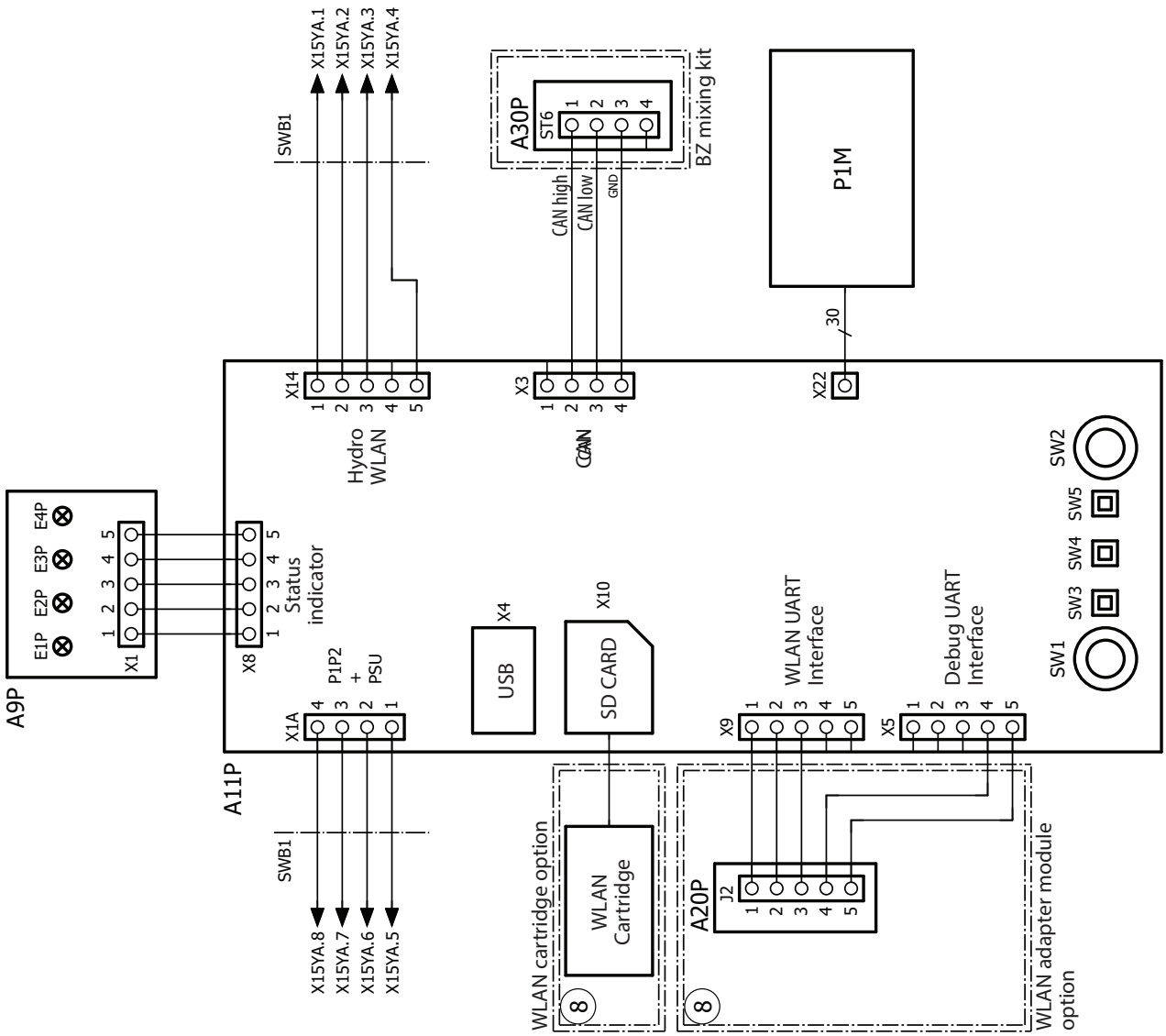
ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7



9 Wiring diagrams

9 - 2 Control Circuit

ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7



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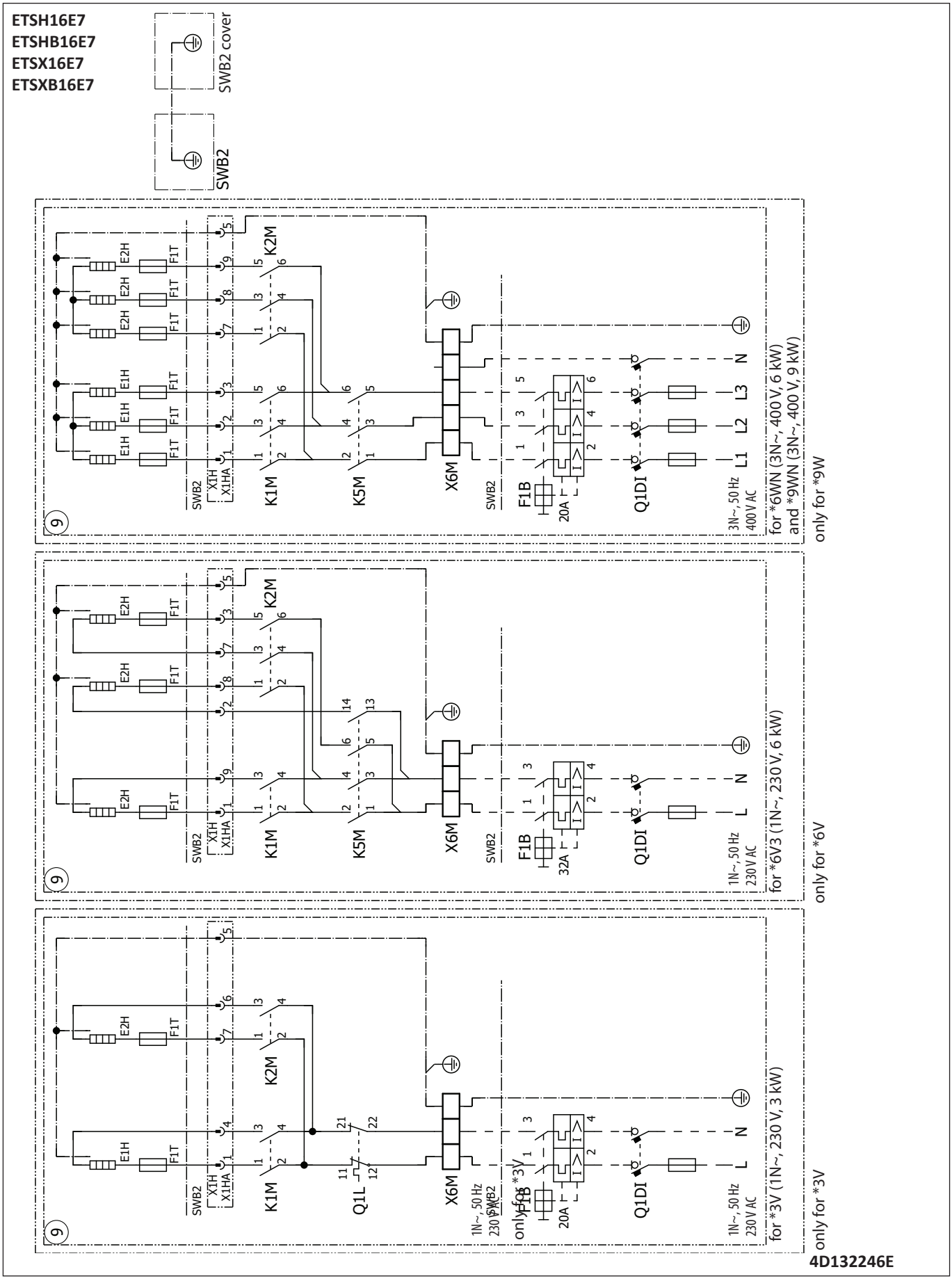
9 Wiring diagrams

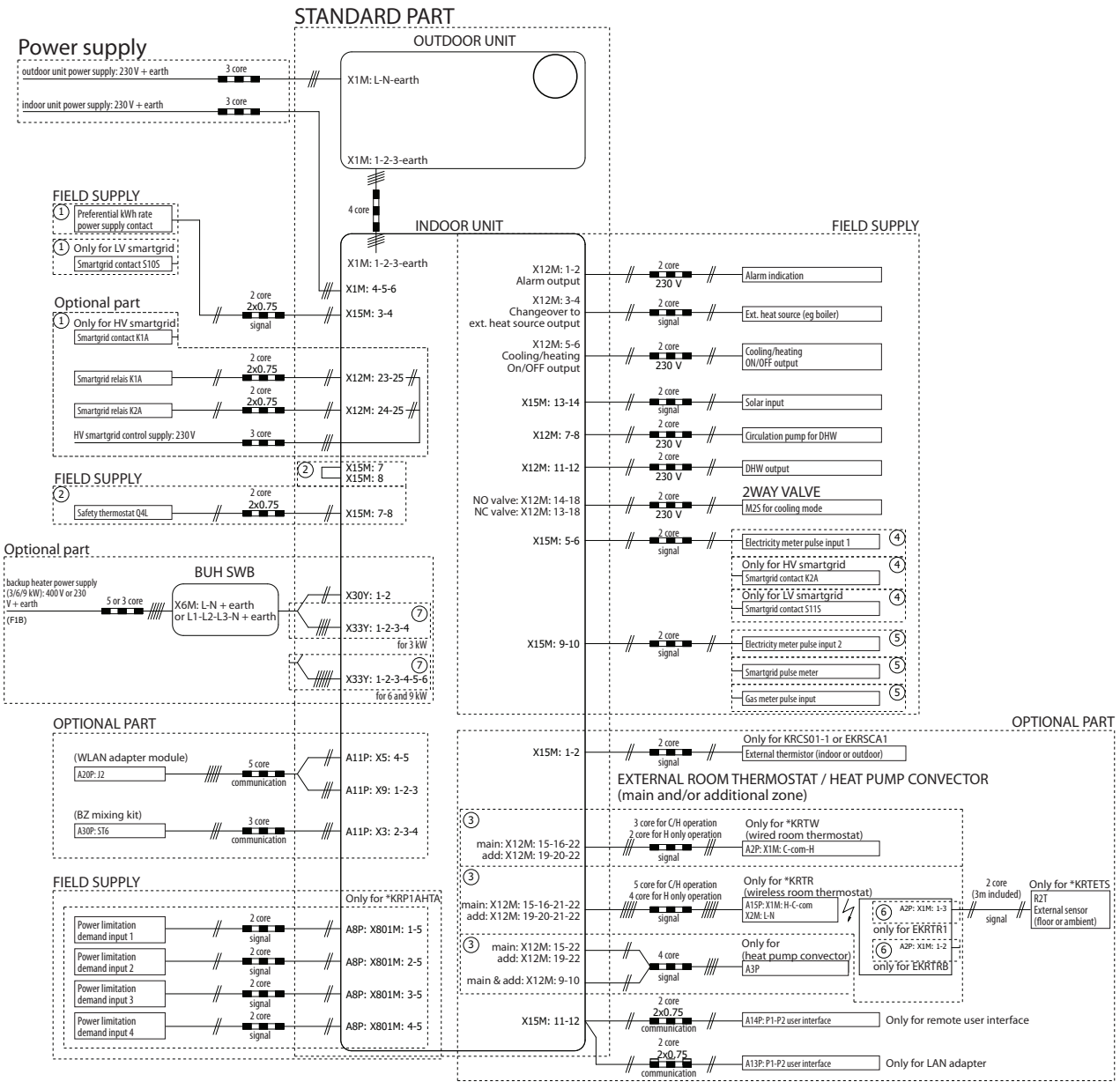
9 - 3 Power Supply, Back-up Heater



10 External connection diagrams

10 - 1 External Connection Diagrams

ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7



NOTE

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

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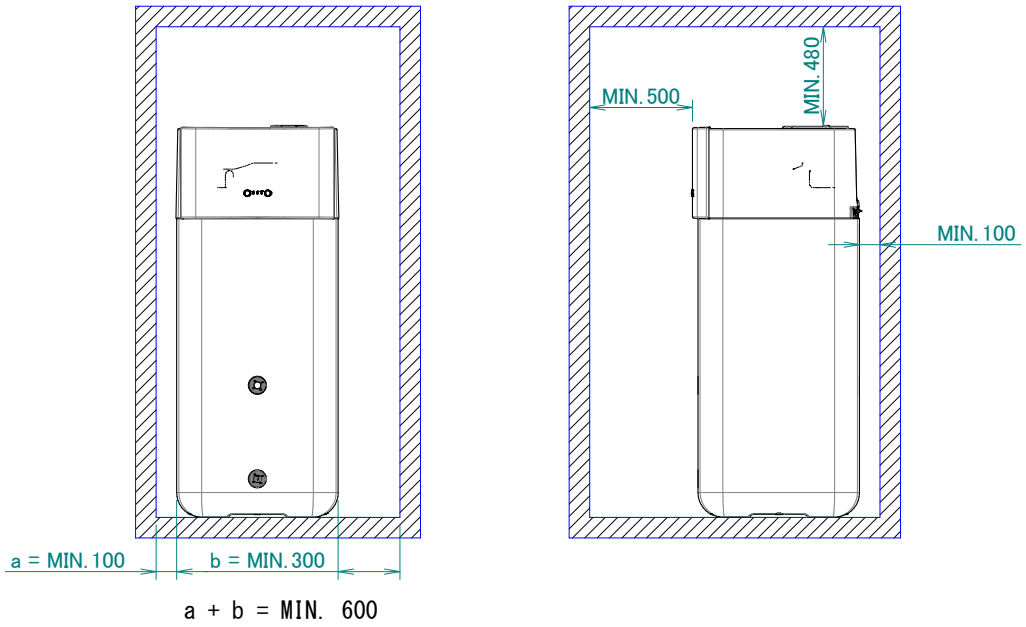
11 Installation

11 - 1 Installation Method

ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7



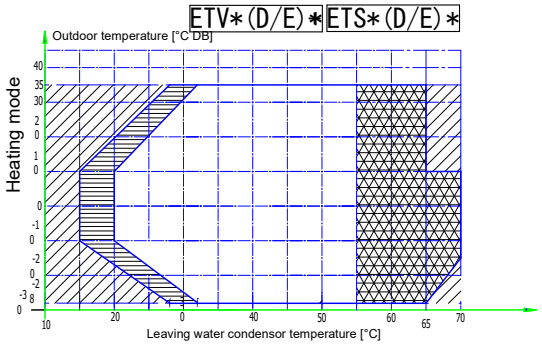
3D136049

12 Operation range

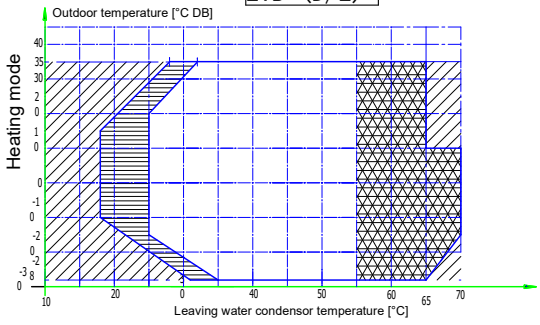
12 - 1 Operation Range

ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7

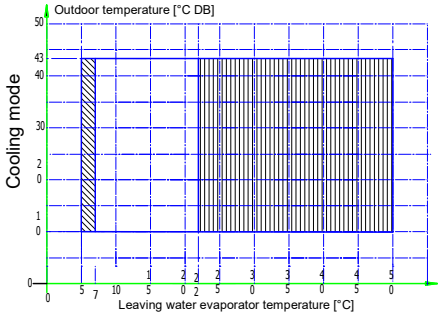
ETV*(D/E)* ETS*(D/E)*



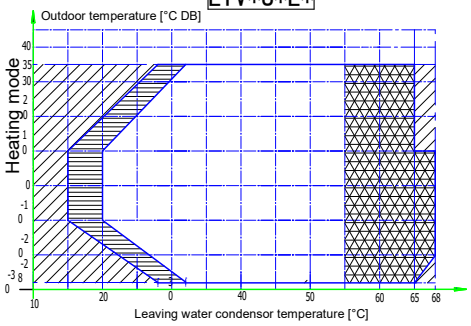
ETB*(D/E)*



ETV*(D/E)* ETB*(D/E)* ETS*(D/E)*



ETV*U*E*



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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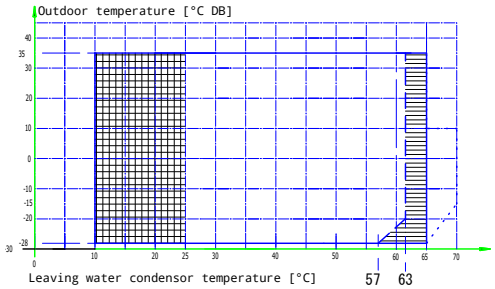
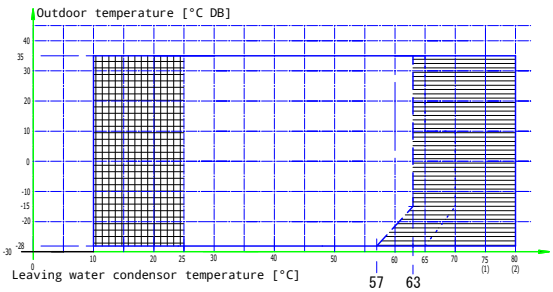
ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7

Domestic hot water heating mode

ETV*



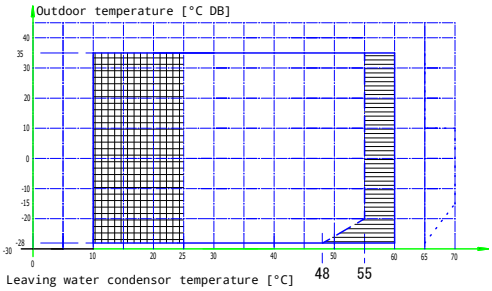
EKHWP* + ETS* + EKHWS*200* / EKHWS*250* / EKHWS*300* + Third-party with identical specifications as ·EKHWS*200*·



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) Combination of ·EKHWS· and ·ETB*16*· indoor units / ·ETS*16*· indoor units only
(2) Combination of ·EKHWP· and ·ETB*16*· indoor units



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

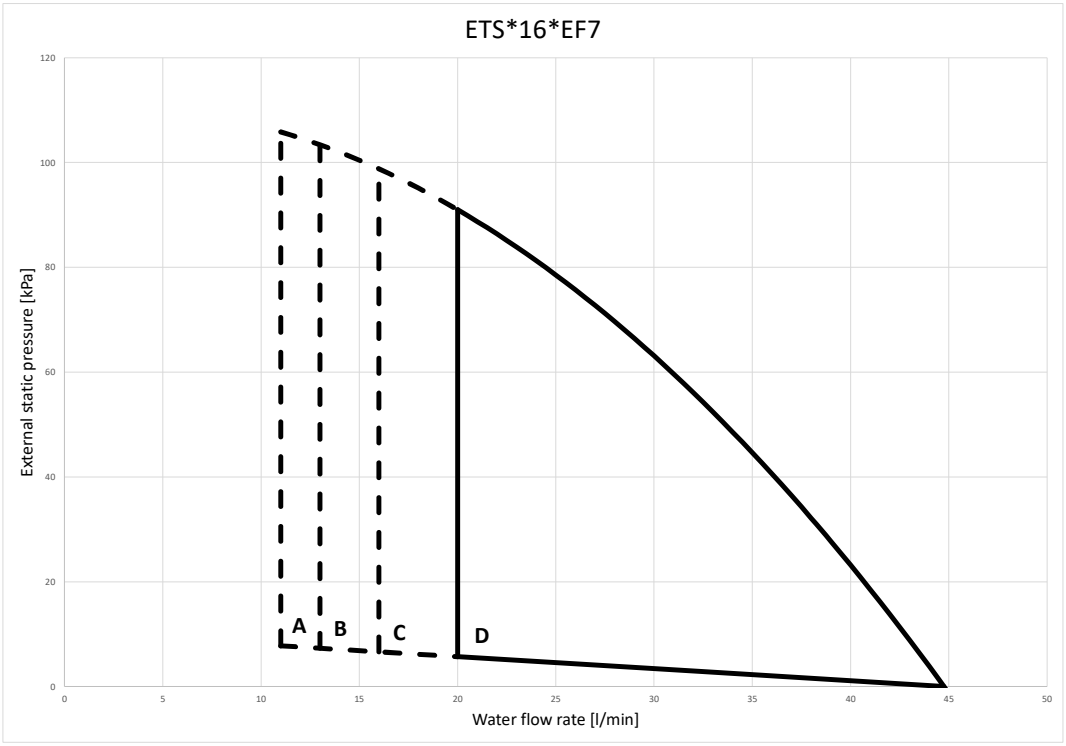
Remark
1. In restricted power supply mode (·EKHW*· only), the outdoor unit, booster heater and backup heater can only operate separately.
2. Third-party with identical specifications as ·EHKWS*150*·
   · Coil surface >·1.05·m2
   Tank thermistor: top part of heat pump coil. Small overlap.
3. Third-party with identical specifications as ·EKHWS*200*·
   · Coil surface >·1.8·m2
   Tank thermistor: top part of heat pump coil. Small overlap.

3D125789C

13 Hydraulic performance

13 - 1 Static Pressure Drop Unit

ETSH16E7
ETSHB16E7
ETSX16E7
ETSXB16E7



A = Minimum water flow rate during normal operation
B = Minimum water flow rate during backup heater operation
C = Minimum water flow rate during Cooling operation
D = Minimum water flow rate during Defrost operation

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 2020/2184

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