Daikin Altherma mid temperature split Technical Data

EPRA08-12EV

EEDEN21

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EPRA08-12EV

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1 Features

1 - 1 EPRA08-12EV

› Outdoor unit extracts heat from the outdoor air, even at -28°C
› By heat pump operation only, the outdoor unit delivers a leaving water temperature of 65°C at -15°C ambient temperature
› By -15°C ambient temperature, the outdoor unit limits heating capacity loss
› Choosing for an R-32 product, reduces the environmental impact with 68% compared to R-410A, leads directly to lower energy consumption thanks to its high energy efficiency and has a 30% lower refrigerant charge
› WLAN cartridge included

Guaranteed operation down to -28°C

Daikin Residential Controller (optional)

2 Specifications

1 - 1 EPRA08-12EV

Technical specifications					ETVH12SU18E6V + EPRA08EV3	ETVH12SU23E6V + EPRA08EV3	ETVH12SU18E6V + EPRA10EV3	ETVH12SU23E6V + EPRA10EV3	ETVH12SU18E6V + EPRA12EV3	ETVH12SU23E6V + EPRA12EV3
Indoor unit					ETVH12SU18EA6V	ETVH12SU23EA6V	ETVH12SU18EA6V	ETVH12SU23EA6V	ETVH12SU18EA6V	ETVH12SU23EA6V
Outdoor unit					EPRA08EAV3		EPRA10EAV3		EPRA12EAV3	
Heating capacity	Min.			kW	3.44 (1)					
	Nom.			kW	6.17 (2)					
	Max.			kW	7.95 (1)		9.25 (1)		9.97 (1)	
Power input	Heating	Min.		kW	0.72 (3)					
		Nom.		kW	1.25 (2)					
		Max.		kW	1.69 (3)		2.04 (3)		2.28 (3)	
	Domestic hot water from 10°C to 50°C	Nom.		kWh	2.63 (4)	3.19 (4)	2.63 (4)	3.19 (4)	2.63 (4)	3.19 (4)
Heat up time from 10°C to 50°C				hr	1h51min	2h 10min	1h51min	2h 10min	1h51min	2h 10min
COP					4.92 (2)					
Pump	Type				Grundfos UPM3LK					
	Nominal ESP unit	Heating		kPa	59.8 (5)					
Water side Heat exchanger	Water flow rate	Heating	Nom.	l/min	18.3 (2)					
General	Supplier/ Manufacturer details	Name and address			Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium					
		Name or trademark			Daikin Europe N.V.					
	Product description	Air-to-water heat pump			Yes					
		Brine-to-water heat pump			No					
		Heat pump combination heater			Yes					
		Low-temperature heat pump			No					
		Supplementary heater integrated			Yes					
		Water-to-water heat pump			No					
	LW(A) Sound power level (according to EN14825)	Indoor		dB(A)	44.0					
LW(A) Sound power level (according to EN14825)	Outdoor			dB(A)	53.0					
Sound condition Ecodesign and energy label					Sound power in heating mode, measured according to the EN12102 under conditions of the EN14825					
Tank	Name				Stainless steel domestic hot water tank 180 l	Stainless steel domestic hot water tank 230 L	Stainless steel domestic hot water tank 180 l	Stainless steel domestic hot water tank 230 L	Stainless steel domestic hot water tank 180 l	Stainless steel domestic hot water tank 230 L
Space heating general	Air to water unit	Rated airflow (outdoor)		m^3/h	3,542					
	Other	Capacity control			Inverter					
		Pck (Crankcase heater mode)		kW	0.000					
		Poff (Off mode)		kW	0.021					
		Psb (Standby mode)		kW	0.021					
		Pto (Thermostat off)		kW	0.024					
Domestic hot water heating	General	Declared load profile			L					
Space heating general	Integrated supplementary heater	Psup		kW	6.0					
		Type of energy input			Electrical					
Domestic hot water heating	Average climate	AEC (Annual electricity consumption)		kWh	877	810	877	810	877	810

2 Specifications

1 - 1 EPRA08-12EV

Technical specifications					ETVH12SU18E6V + EPRA08EV3	ETVH12SU23E6V + EPRA08EV3	ETVH12SU18E6V + EPRA10EV3	ETVH12SU23E6V + EPRA10EV3	ETVH12SU18E6V + EPRA12EV3	ETVH12SU23E6V + EPRA12EV3
Domestic hot water heating	Average climate	COPdhw			2.72	2.96	2.72	2.96	2.72	2.96
		Heat up time			1h57min	2h 14min	1h57min	2h 14min	1h57min	2h 14min
		ηwh (water heating efficiency)		%	117	126	117	126	117	126
		Qelec (Daily electricity consumption)		kWh	4.280	3.940	4.280	3.940	4.280	3.940
		Reference hot water temperature		°C	53.0	52.0	53.0	52.0	53.0	52.0
		Stand-by power input		W	5.17	44.8	5.17	44.8	5.17	44.8
		Water heating energy efficiency class			A+					
	Cold climate	AEC (Annual electricity consumption)		kWh	966	891	966	891	966	891
		COPdhw			2.48	2.70	2.48	2.70	2.48	2.70
		Heat up time			1h 55min	2h 02min	1h 55min	2h 02min	1h 55min	2h 02min
		ηwh (water heating efficiency)		%	106	115	106	115	106	115
		Qelec (Daily electricity consumption)		kWh	4.700	4.320	4.700	4.320	4.700	4.320
		Reference hot water temperature		°C	53.0	52.0	53.0	52.0	53.0	52.0
		Stand-by power input		W	55.4	47.7	55.4	47.7	55.4	47.7
	Warm climate	AEC (Annual electricity consumption)		kWh	719	666	719	666	719	666
		COPdhw			3.31	3.59	3.31	3.59	3.31	3.59
		Heat up time			1h 54min	2h 06min	1h 54min	2h 06min	1h 54min	2h 06min
		ηwh (water heating efficiency)		%	142	154	142	154	142	154
		Qelec (Daily electricity consumption)		kWh	3.530	3.250	3.530	3.250	3.530	3.250
		Reference hot water temperature		°C	53.0	52.0	53.0	52.0	53.0	52.0
		Stand-by power input		W	45.4	39.7	45.4	39.7	45.4	39.7
Space heating	Average climate water outlet 55°C	General	Annual energy consumption	kWh	5,142		5,120			
			ηs (Seasonal space heating efficiency)	%	134					
			Prated at -10°C	kW	8.5					
			Qhe Annual energy consumption (GCV)	Gj	19		18			
			SCOP		3.41		3.43			
			Seasonal space heating eff. class		A++					
		A Condition (-7°CDB/-8°CWB)	Cdh (Degradation heating)		1.0					
			COPd		2.21					
			Pdh	kW	7.6					
			PERd	%	88.5					
		B Condition (2°CDB/1°CWB)	Cdh (Degradation heating)		1.0					
			COPd		3.37					
			Pdh	kW	4.6					
			PERd	%	134.8					
		C Condition (7°CDB/6°CWB)	Cdh (Degradation heating)		1.0					
			COPd		4.48					

2 Specifications

1 - 1 EPRA08-12EV

Technical specifications					ETVH12SU18E6V + EPRA08EV3	ETVH12SU23E6V + EPRA08EV3	ETVH12SU18E6V + EPRA10EV3	ETVH12SU23E6V + EPRA10EV3	ETVH12SU18E6V + EPRA12EV3	ETVH12SU23E6V + EPRA12EV3
Space heating	Average climate water outlet 55°C	C Condition (7°CDB/6°CWB)	Pdh	kW	3.0					
			PERd	%	179.2					
		D Condition (12°CDB/11°CWB)	Cdh (Degradation heating)		1.0					
			COPd		5.98					
			Pdh	kW	3.7					
			PERd	%	239.4					
		Tol (temperature operating limit)	COPd		1.93		1.97			
			Pdh	kW	7.0		8.3			
			PERd	%	77.2		78.7			
			TOL	°C	-10					
			WTOL	°C	55					
		Rated heat output supplementary capacity	Psup (at Tdesign -10°C)	kW	1.5		0.0			
		Tbiv (bivalent temperature)	COPd		2.21		1.97			
			Pdh	kW	7.6		8.3			
			PERd	%	88.5		78.7			
			Tbiv	°C	-7		-10			
	Cold climate water outlet 55°C	General	Annual energy consumption	kWh	7,303		7,173		7,146	
			ηs (Seasonal space heating efficiency)	%	118		121			
			Prated at -22°C	kW	9.0					
			Qhe Annual energy consumption (GCV)	Gj	26					
		A Condition (-7°CDB/-8°CWB)	Cdh (Degradation heating)		1.0					
			COPd		2.52					
			Pdh	kW	5.2					
			PERd	%	100.6					
		B Condition (2°CDB/1°CWB)	Cdh (Degradation heating)		1.0					
			COPd		3.77					
			Pdh	kW	3.3					
			PERd	%	151.0					
		C Condition (7°CDB/6°CWB)	Cdh (Degradation heating)		1.0					
			COPd		4.81					
			Pdh	kW	3.4					
			PERd	%	192.2					
		D Condition (12°CDB/11°CWB)	COPd		6.36					
			Pdh	kW	4.2					
			PERd	%	254.2					
		Tol (temperature operating limit)	COPd		1.43		1.49		1.54	
			Pdh	kW	4.9		6.1		7.2	

2 Specifications

1 - 1 EPRA08-12EV

Technical specifications					ETVH12SU18E6V + EPRA08EV3	ETVH12SU23E6V + EPRA08EV3	ETVH12SU18E6V + EPRA10EV3	ETVH12SU23E6V + EPRA10EV3	ETVH12SU18E6V + EPRA12EV3	ETVH12SU23E6V + EPRA12EV3
Space heating	Cold climate water outlet 55°C	Tol (temperature operating limit)	PERd	%	57.4		59.7		61.7	
			TOL	°C	-22					
			WTOL	°C	55					
		G Condition (-15°CDB/-)	COPd		1.93		1.96			
			Pdh	kW	6.0		7.2			
			PERd	%	77.2		78.4			
		Tbiv (bivalent temperature)	COPd		2.17		1.96			
			Pdh	kW	6.6		7.2			
			PERd	%	86.9		78.4			
			Tbiv	°C	-12		-15			
		Rated heat output supplementary capacity	Psup (at Tdesign -22°C)	kW	4.1		2.9		1.8	
	Warm climate water outlet 55°C	General	Annual energy consumption	kWh	3,039					
			ηs (Seasonal space heating efficiency)	%	166					
			Prated at 2°C	kW	9.6					
			Qhe Annual energy consumption (GCV)	Gj	11					
		B Condition (2°CDB/1°CWB)	Cdh (Degradation heating)		1.0					
			COPd		2.57					
			Pdh	kW	8.0					
			PERd	%	102.6					
		C Condition (7°CDB/6°CWB)	Cdh (Degradation heating)		1.0					
			COPd		3.65					
			Pdh	kW	6.7					
			PERd	%	146.2					
		D Condition (12°CDB/11°CWB)	Cdh (Degradation heating)		1.0					
			COPd		5.71					
			Pdh	kW	3.6					
			PERd	%	228.3					
		Tbiv (bivalent temperature)	COPd		3.02					
			Pdh	kW	8.4					
			PERd	%	120.9					
			Tbiv	°C	4					
	Average climate water outlet 35°C	General	Annual energy consumption	kWh	3,659		3,637			
			ηs (Seasonal space heating efficiency)	%	184		186			
			Prated at -10°C	kW	8.3					
			Qhe Annual energy consumption (GCV)	Gj	13					
			SCOP		4.69		4.71			
			Seasonal space heating eff. class		A+++					

2 Specifications

1 - 1 EPRA08-12EV

Technical specifications					ETVH12SU18E6V + EPRA08EV3	ETVH12SU23E6V + EPRA08EV3	ETVH12SU18E6V + EPRA10EV3	ETVH12SU23E6V + EPRA10EV3	ETVH12SU18E6V + EPRA12EV3	ETVH12SU23E6V + EPRA12EV3
Space heating	Average climate water outlet 35°C	A Condition (-7°CDB/-8°CWB)	COPd		3.10					
			Pdh	kW	7.5					
			PERd	%	124.1					
		B Condition (2°CDB/1°CWB)	Cdh (Degradation heating)		1.0					
			COPd		4.76					
			Pdh	kW	4.4					
			PERd	%	190.4					
		C Condition (7°CDB/6°CWB)	Cdh (Degradation heating)		1.0					
			COPd		6.14					
			Pdh	kW	4.3					
			PERd	%	245.8					
		D Condition (12°CDB/11°CWB)	Cdh (Degradation heating)		1.0					
			COPd		7.84					
			Pdh	kW	6.6					
			PERd	%	313.4					
		Tol (temperature operating limit)	COPd		2.80		2.77			
			Pdh	kW	6.9		8.1			
			PERd	%	112.2		110.8			
			TOL	°C	-10					
			WTOL	°C	35					
		Tbiv (bivalent temperature)	COPd		3.10		2.77			
			Pdh	kW	7.5		8.1			
			PERd	%	124.1		110.8			
			Tbiv	°C	-7		-10			
		Rated heat output supplementary capacity	Psup (at Tdesign -10°C)	kW	1.4		0.0			
	Cold climate water outlet 35°C	General	Annual energy consumption	kWh	5,554		5,401		5,387	
			ηs (Seasonal space heating efficiency)	%	157		161		162	
			Prated at -22°C	kW	9.0					
			Qhe Annual energy consumption (GCV)	Gj	20		19			
		A Condition (-7°CDB/-8°CWB)	COPd		3.36					
			Pdh	kW	5.4					
			PERd	%	134.5					
		B Condition (2°CDB/1°CWB)	Cdh (Degradation heating)		1.0					
			COPd		5.21					
			Pdh	kW	3.6					
			PERd	%	208.4					
		C Condition (7°CDB/6°CWB)	Cdh (Degradation heating)		1.0					

2 Specifications

1 - 1 EPRA08-12EV

Technical specifications					ETVH12SU18E6V + EPRA08EV3	ETVH12SU23E6V + EPRA08EV3	ETVH12SU18E6V + EPRA10EV3	ETVH12SU23E6V + EPRA10EV3	ETVH12SU18E6V + EPRA12EV3	ETVH12SU23E6V + EPRA12EV3
Space heating	Cold climate water outlet 35°C	C Condition (7°CDB/6°CWB)	COPd		6.29					
			Pdh	kW	5.3					
			PERd	%	251.7					
		D Condition (12°CDB/11°CWB)	Cdh (Degradation heating)		1.0					
			COPd		7.69					
			Pdh	kW	6.6					
			PERd	%	307.6					
		Tol (temperature operating limit)	COPd		2.04		2.07		2.09	
			Pdh	kW	4.9		5.9		6.4	
			PERd	%	81.6		82.9		83.6	
			TOL	°C	-22					
			WTOL	°C	35					
		G Condition (-15°CDB/-)	COPd		2.60		2.56			
			Pdh	kW	6.0		7.0			
			PERd	%	103.8		102.6			
		Tbiv (bivalent temperature)	COPd		2.86		2.56			
			Pdh	kW	6.5		7.0			
			PERd	%	114.4		102.6			
			Tbiv	°C	-12		-15			
		Rated heat output supplementary capacity	Psup (at Tdesign -22°C)	kW	4.1		3.1		2.6	
	Warm climate water outlet 35°C	General	Annual energy consumption	kWh	1,992					
			ηs (Seasonal space heating efficiency)	%	228					
			Prated at 2°C	kW	8.6					
			Qhe Annual energy consumption (GCV)	Gj	7					
		B Condition (2°CDB/1°CWB)	Cdh (Degradation heating)		1.0					
			COPd		3.95					
			Pdh	kW	7.7					
			PERd	%	157.9					
		C Condition (7°CDB/6°CWB)	Cdh (Degradation heating)		1.0					
			COPd		5.65					
			Pdh	kW	5.5					
			PERd	%	225.9					
		Tbiv (bivalent temperature)	COPd		4.80					
			Pdh	kW	6.9					
			PERd	%	192.0					
			Tbiv	°C	5					
		D Condition (12°CDB/11°CWB)	Cdh (Degradation heating)		1.0					
Space heating	Warm climate water	D Condition (12°CDB/11°CWB)	COPd		7.56					
			Pdh	kW	6.2					
			PERd	%	302.6					

(1)Capacity according to standard EN14511 and valid for heated water range dT = 3~8°C at Ta 7°C |
(2)Condition: Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C) |
(3)Power input is total input of indoor and outdoor units, including the circulation pump; according to EN14511 |
(4)Test at Ta DB/WB 7°C/6°C. According to EN 16147. |
(5)DB/WB 7°C/6°C - LWC 35°C (dT=5°C) with pump at full speed |
Cooling: EW 12°C; LW 7°C; ambient conditions: 35°CDB |
Cooling: EW 23°C; LW 18°C; ambient conditions: 35°CDB

Technical Specifications				EPRA08EV3	EPRA10EV3	EPRA12EV3
Casing	Colour			Silver / Black		
	Material			Polyester painted galvanised steel plate		
Dimensions	Unit	Height	mm	1,003		
		Width	mm	1,270		
		Depth	mm	533		
	Packed unit	Height	mm	1,340		
		Width	mm	1,440		
		Depth	mm	690		
Weight	Unit		kg	118		
	Packed unit		kg	150		

2 Specifications

1 - 1 EPRA08-12EV

Technical Specifications					EPRA08EV3	EPRA10EV3	EPRA12EV3
Packing	Material				Carton / Wood (pallet) / PE (Straps) / Metal		
	Weight			kg	28		
Heat exchanger	Length			mm	1,200		
	Rows	Quantity			2		
	Fin pitch			mm	2.00		
	Passes	Quantity			10		
	Face area			m^2	1.19		
	Stages	Quantity			44		
	Tube type				ø7 Hi-XSL		
	Fin	Type			WF fin		
		Treatment			Anti-corrosion treatment (PE)		
Fan	Type				Propeller fan		
	Quantity				1		
	Air flow rate	Heating	Nom.	m^3/min	59.0		
			High	m^3/min	80.1		
		Cooling	Nom.	m^3/min	80		
			High	m^3/min	80.1		
	Discharge direction				Horizontal		
Fan motor	Quantity				1		
	Model				Brushless DC motor		
	Output			W	183		
	Drive				Direct drive		
	Speed	Steps			6		
		Heating	Nom.	rpm	390		
		Cooling	Nom.	rpm	520		
Compressor	Quantity				1		
Compressor	Model				2Y260BPDX1P#C		
	Type				Hermetically sealed swing compressor		
	Starting method				Inverter driven		
PED	Category				Category II		
Operation range	Heating	Min.		°CDB	-28.0		
		Max.		°CDB	25		
	Cooling	Min.		°CDB	10		
		Max.		°CDB	43		
	Domestic hot water	Max.		°CDB	35		
		Min.		°CDB	-28		
PED	Most critical part	Name			Accumulator		
		Ps*V		Bar*l	109		
Piping connections	Water inlet heat exchanger diameter			inch	G1" (male)		
	Water outlet heat exchanger diameter			inch	G1" (male)		
Sound power level	Heating	Nom.		dBA	54.0 (1)		
	Cooling	Nom.		dBA	60.1 (2)	60.6 (2)	61.5 (2)
Sound pressure level	Heating	Nom.		dBA	40.6 (3)		
	Cooling	Nom.		dBA	47.0 (4)	47.4 (4)	48.5 (4)
	Night quiet mode	Heating		dBA	43.2 (3)		
		Cooling		dBA	43.7 (4)		
Refrigerant	Type				R-32		
	GWP				675.0		
	Charge			TCO2Eq	2.19		
	Charge			kg	3.25		
	Control				Expansion valve		
	Circuits	Quantity			1		
Refrigerant oil	Type				FW68DE		
	Charged volume			l	1.1		
Piping connections	Piping length	OU - IU	Max.	m	50		
	High pressure side	Design pressure		bar	46		
	Level difference	IU - OU	Max.	m	10.0		
	Water circuit	Filter ball valve			Yes		
Defrost control					Sensor for outdoor heat exchanger temperature		
Capacity control	Method				Inverter controlled		
Safety devices	Item	01			High pressure switch		
		02			High pressure switch		
		03			Thermal protector for compressor		
Safety devices	Item	04			Fuse		
Defrost method					Reversed cycle		

2 Specifications

1 - 1 EPRA08-12EV

Electrical Specifications					EPRA08EV3	EPRA10EV3	EPRA12EV3
Power supply	Name				V3		
	Phase				1~		
	Frequency			Hz	50		
	Voltage			V	230		
	Voltage range	Min.		%	-10		
		cos phi	Nom.		0.95		
			Max.		0.98		
		Max.		%	10		
Current	Minimum Ssc value			kVa	Equipment complying with EN / IEC 61000-3-12		
	Recommended fuses			A	32		
	Inverter modulation	Min.		%	44	37	35
Wiring connections	For power supply	Remark			See installation manual outdoor unit		
	For connection with indoor	Remark			See installation manual indoor unit		

(1)Cooling Ta 35°C - LWE 18°C (DT = 5°C); Heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C) |
(2)Condition 2: cooling Ta 35°C - LWE 7°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C) |
(3)Sound pressure level is a relative value, depending on the distance and acoustic environment. For more details, please refer to the sound level drawings. |
(4)The sound pressure level is measured via a microphone at a certain distance from the unit. It is a relative value depending on the distance and acoustic environment. Refer to sound spectrum drawing for more information. Condition: Ta 35°C - LWE 7°C (DT =

3 Electrical data

3 - 1 Electrical Data

EPRA08-12EV
EPRA08-12EW

* 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

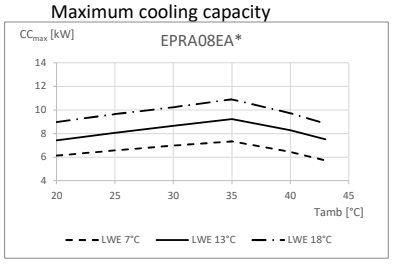
4D133788

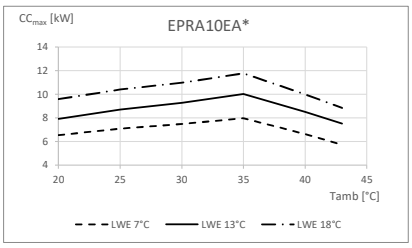
4 Capacity graphs

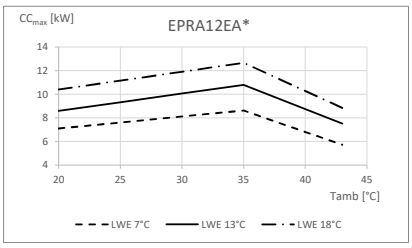
4 - 1 Cooling Capacity Graphs

EPRA08-12EV
EPRA08-12EW

Maximum cooling capacity







Symbols

CC_{max}	Cooling capacity at maximum operating frequency, measured according to EN 14511.
LWE	Leaving water evaporator temperature [°C]
Tamb	Ambient temperature [°C DB]

Conditions

Cooling capacity

Capacity according to standard EN 14511 and valid for chilled water range ΔT = 3~8°C.

Notes

The capacity and power input is valid for ·V3· models at ·230·V and for for ·W1· models at ·400·V.
The capacity and the power input are at maximum operation.

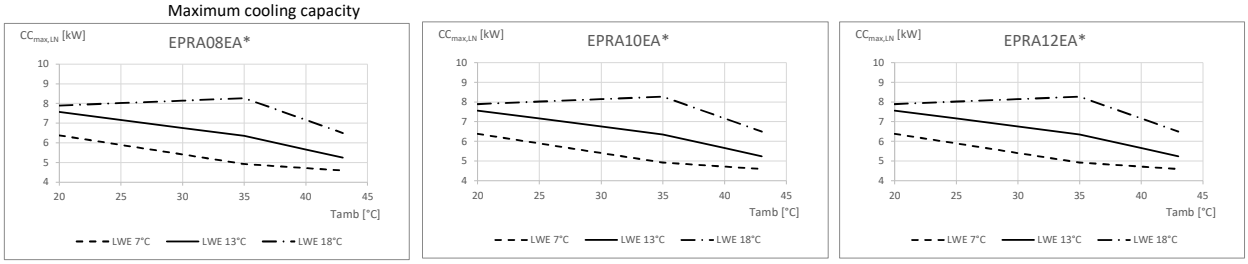
4D133539

4 Capacity graphs

4 - 2 Cooling Capacity Graphs - quiet mode

EPRA08-12EV
EPRA08-12EW

Maximum cooling capacity



Symbols

$CC_{max,LN}$	Cooling capacity at maximum operating frequency, measured according to EN 14511.
LWE	Leaving water evaporator temperature [°C]
Tamb	Ambient temperature [°C DB]

Conditions

Cooling capacity

Capacity according to standard EN 14511 and valid for chilled water range ΔT = 3~8°C.

Notes

The capacity and power input is valid for ·V3· models at ·230·V and for for ·W1· models at ·400·V.
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)
Low noise level ·1·

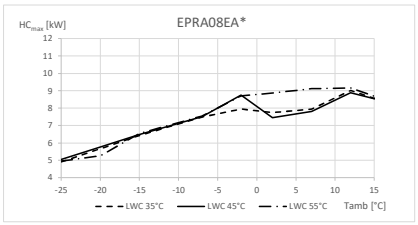
4D133540

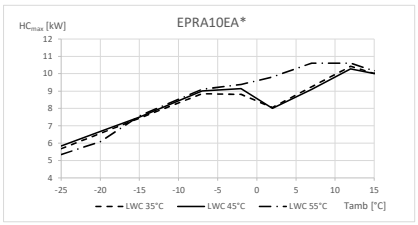
4 Capacity graphs

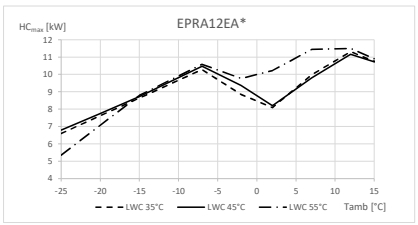
4 - 3 Heating Capacity Graphs

EPRA08-12EV
EPRA08-12EW

Maximum heating capacity - integrated value



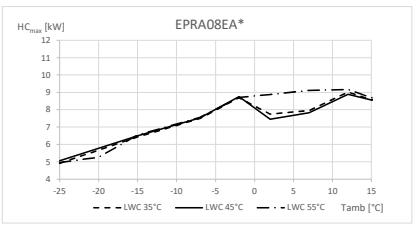


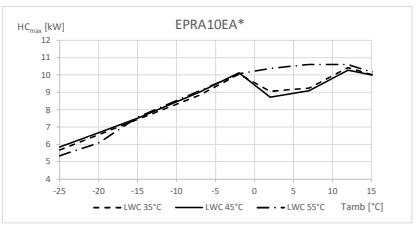


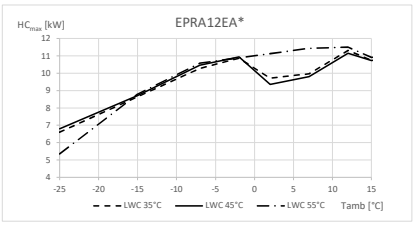
Symbols
HC_{max} Heating capacity for maximum load, measured according to EN 14511

LWC Leaving water condensor temperature [°C]
Tamb Ambient temperature [°C DB]

Maximum heating capacity - peak values







Heating capacity
Capacity according to standard EN 14511 and valid for heated water range ΔT = 3~8°C.

Notes
The capacity and power input is valid for -V3- models at -230-V and for for -W1- models at -400-V.

The capacity and the power input are at maximum operation.

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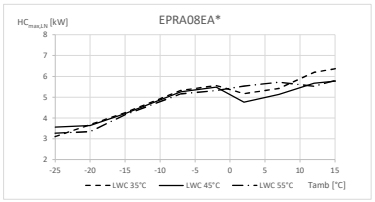
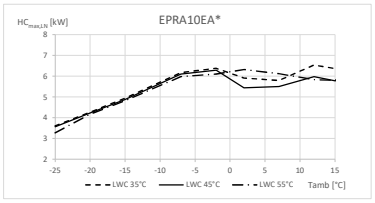
4 Capacity graphs

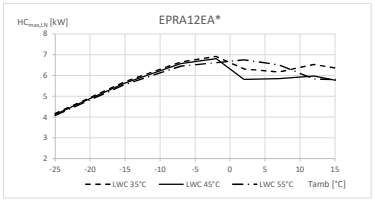
4 - 4 Heating Capacity Graphs - quiet mode

EPRA08-12EV
EPRA08-12EW

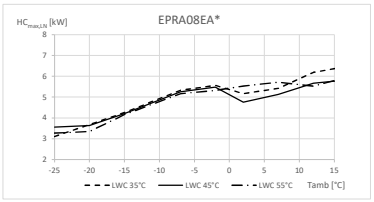
Maximum heating capacity - integrated value

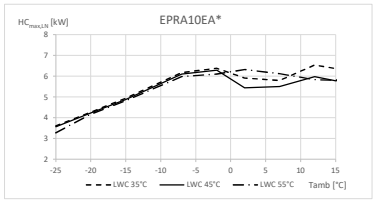


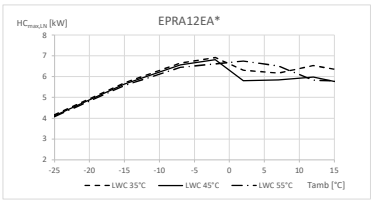




Maximum heating capacity - peak values







Symbols
HC_{max} Heating capacity for maximum load, measured according to EN 14511

LWC Leaving water condensor temperature [°C]
Tamb Ambient temperature [°C DB]

Conditions
Heating capacity
Capacity according to standard EN 14511 and valid for heated water range ΔT = 3~8°C.

Notes
The capacity and power input is valid for -V3- models at -230-V and for for -W1- models at -400-V.

Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)

Low noise level -1-

4D133538

5 Capacity tables

5 - 1 Certification Programs

EPRA08-12EV
EPRA08-12EW

5

Rated data for certification programmes - heating mode

Tamb	EWC	LWC	EPRA08EAV3 HC	EPRA08EAV3 COP	EPRA10EAV3 HC	EPRA10EAV3 COP	EPRA12EAV3 HC	EPRA12EAV3 COP	EPRA08EAW1 HC	EPRA08EAW1 COP	EPRA10EAW1 HC	EPRA10EAW1 COP	EPRA12EAW1 HC	EPRA12EAW1 COP	Used for:
[°C]	[°C]	[°C]	[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		
7/6	30	35	6,17	4,92	6,17	4,92	6,17	4,92	6,17	5,10	6,17	5,10	6,17	5,10	Keymark, EHPA
2/1	(30)	35	5,74	4,08	5,74	4,08	5,74	4,08	5,74	4,23	5,74	4,23	5,74	4,23	EHPA
-7/-8	(30)	35	7,49	3,04	7,49	3,04	7,49	3,04	7,49	3,14	7,49	3,14	7,49	3,14	General
7/6	40	45	7,73	3,57	7,73	3,57	7,73	3,57	7,73	3,70	7,73	3,70	7,73	3,70	General
-2/-3	(40)	45	8,58	2,83	8,66	2,59	9,36	2,54	8,58	2,91	8,66	2,69	9,36	2,64	MCS
7/6	47	55	7,72	2,94	7,72	2,94	7,72	2,94	7,72	3,05	7,72	3,05	7,72	3,05	Keymark, EHPA
-7/-8	47	55	7,55	2,05	9,02	2,11	9,02	2,11	7,55	2,13	9,02	2,19	9,02	2,19	GET

Rated data for certification programmes - cooling mode

Nominal cooling capacity

Tamb	EWE	LWE	EPRA08EAV3 CC	EPRA08EAV3 EER	EPRA10EAV3 CC	EPRA10EAV3 EER	EPRA12EAV3 CC	EPRA12EAV3 EER	EPRA08EAW1 CC	EPRA08EAW1 EER	EPRA10EAW1 CC	EPRA10EAW1 EER	EPRA12EAW1 CC	EPRA12EAW1 EER	Used for:
[°C]	[°C]	[°C]	[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		
35	23	18	6,47	5,56	6,47	5,56	6,47	5,56	6,47	5,75	6,47	5,75	6,47	5,75	General
35	12	7	6,81	3,17	7,97	3,00	8,62	2,91	6,81	3,28	7,97	3,10	8,62	3,01	DAPT General

Seasonal data - cooling LWE 7°C Low temperature Application

		EPRA08EAV3	EPRA10EAV3	EPRA12EAV3	EPRA08EAW1	EPRA10EAW1	EPRA12EAW1
Pdes	[kW]	6,5	7,5	8,5	6,5	7,5	8,5
SEER	[-]	5,38	5,34	5,31	5,42	5,41	5,41
ηs,c	[%]	212	211	209	214	214	213
QCE	[kWh/annum]	725	843	961	719	831	943

Rated data for certification programmes - domestic hot water performance

Indoor unit		ETV*12S(U/-)18EA*		ETV*12S(U/-)23EA*		ETS(X/H)(B/-)12P30EF		ETS(X/H)(B/-)12P50EF		Used for:
Outdoor unit		EPRA*EAV3	EPRA*EAW1	EPRA*EAV3	EPRA*EAW1	EPRA*EAV3	EPRA*EAW1	EPRA*EAV3	EPRA*EAW1	
Application		Average climate		Average climate		Average climate		Average climate		
Domestic hot water tank volume [l]		180		230		294		477		
Tapping pattern		L		L		L		XL		
Heat-up time (hh:mm:ss)		01:57:00		02:14:00		02:29:00		03:13:00		
ϑ_{wh}	[°C]	52,5		52,5		47,2		44,5		Keymark
P_{es}	[W]	51,7	50,7	44,8	43,9	38,1	37,4	32,7	32,1	
V_{40}	[l]	240		298		194,0		246,0		
η_{wh}	[%]	116,7	120,3	126,4	130	116	119	128	131	
COP_{DHW}	[]	2,72	2,8	2,96	3,05	2,75	2,83	3,1	3,17	

Symbols

HC	Heating capacity measured according to EN 14511		
CC	Cooling capacity, measured according to ·EN 14511·.		
COP/EER	Coefficient of Performance/Energy efficiency ratio according to EN 14511.		
EWC	Entering water condenser temperature [°C]		
LWC	Leaving water condensor temperature [°C]		
EWE	Entering water evaporator temperature [°C]		
LWE	Leaving water evaporator temperature [°C]		
Tamb	Ambient temperature [°C DB/WB]		
ϑ_{wh}	Reference	Domestic hot water temperature [°C]	According to EN16147.
P_{es}	Standby power input		According to EN16147.
V_{eq40}	Equivalent domestic hot water volume [l]		According to EN16147.
η_{wh}	Efficiency [%]	Domestic hot water heating mode	According to EN16147.
COP_{DHW}	Domestic hot water COP		

Rated data for certification programmes - heating mode
Measured according to ·UNI/TS 11300·

Condition · ·	Tamb	LWC	PLR	EPRA08EAV3 HC	EPRA08EAV3 COP	EPRA10EAV3 HC	EPRA10EAV3 COP	EPRA12EAV3 HC	EPRA12EAV3 COP	EPRA08EAW1 HC	EPRA08EAW1 COP	EPRA10EAW1 HC	EPRA10EAW1 COP	EPRA12EAW1 HC	EPRA12EAW1 COP
	[°C]	[°C]	[%]	[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
A	-7/-8	34	100	7,49	3,10	8,73	3,02	10,22	2,93	7,49	3,20	8,73	3,12	10,22	3,03
B	2/1	30	100	7,62	4,30	8,15	4,01	8,41	3,86	7,62	4,42	8,15	4,13	8,41	3,98
C	7/6	27	100	8,44	5,60	9,84	5,42	10,61	5,32	8,44	5,78	9,84	5,59	10,61	5,48
D	12/11	24	100	9,27	7,52	10,70	7,35	11,59	7,24	9,27	7,77	10,70	7,58	11,59	7,46
A	-7/-8	52	100	7,54	2,20	8,91	2,21	10,55	2,22	7,54	2,28	8,91	2,29	10,55	2,30
B	2/1	42	100	7,81	3,47	8,04	3,21	8,16	3,08	7,81	3,58	8,04	3,31	8,16	3,18
C	7/6	36	100	8,16	4,43	9,54	4,42	10,31	4,41	8,16	4,57	9,54	4,56	10,31	4,55
D	12/11	30	100	9,04	6,16	10,49	6,21	11,39	6,24	9,04	6,35	10,49	6,40	11,39	6,43

Rated data for certification programmes - cooling mode
Measured according to ·UNI/TS 11300·

Condition · ·	Tamb	LWE	PLR	EPRA08EAV3 CC	EPRA08EAV3 EER	EPRA10EAV3 CC	EPRA10EAV3 EER	EPRA12EAV3 CC	EPRA12EAV3 EER	EPRA08EAW1 CC	EPRA08EAW1 EER	EPRA10EAW1 CC	EPRA10EAW1 EER	EPRA12EAW1 CC	EPRA12EAW1 EER
	[°C]	[°C]	[%]	[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
A	35	18	100	10,89	4,35	11,77	4,11	12,66	3,87	10,89	4,51	11,77	4,26	12,66	4,01
B	30	18	75	7,96	6,05	8,73	5,98	9,51	5,90	7,96	6,26	8,73	6,19	9,51	6,11
C	25	18	50	5,51	8,83	5,90	8,36	6,28	7,88	5,51	9,04	5,90	8,60	6,28	8,17
D	20	18	25	3,47	12,42	3,47	12,42	3,47	12,42	3,47	12,29	3,47	12,29	3,47	12,29
A	35	7	100	7,33	3,09	7,97	3,00	8,62	2,91	7,33	3,20	7,97	3,10	8,62	3,01
B	30	7	75	5,34	4,06	5,86	4,01	6,38	3,96	5,34	4,20	5,86	4,15	6,38	4,10
C	25	7	50	3,66	5,21	3,95	5,22	4,24	5,23	3,66	5,36	3,95	5,39	4,24	5,42
D	20	7	25	2,19	6,20	2,19	6,20	2,19	6,20	2,19	6,17	2,19	6,17	2,19	6,17

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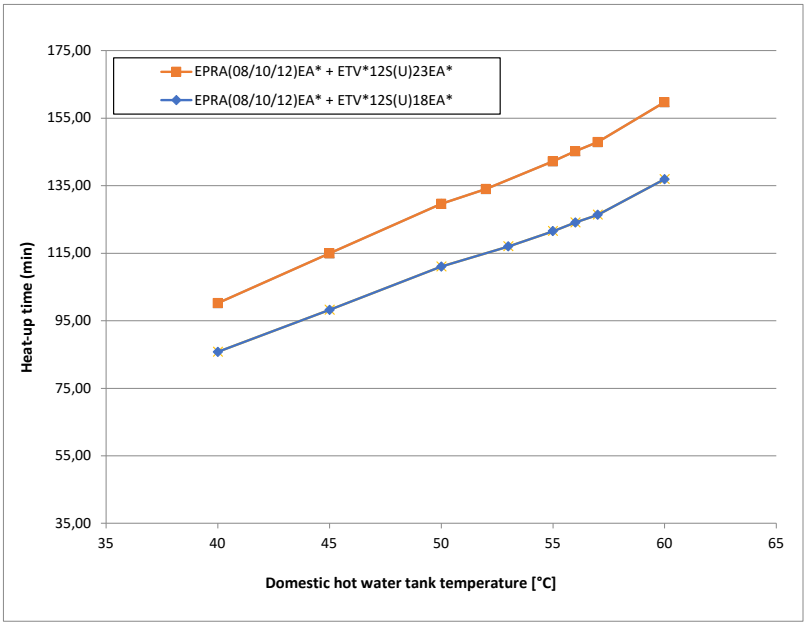
5 Capacity tables

5 - 2 Domestic Hot Water performance

EPRA08-12EV
EPRA08-12EW

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.

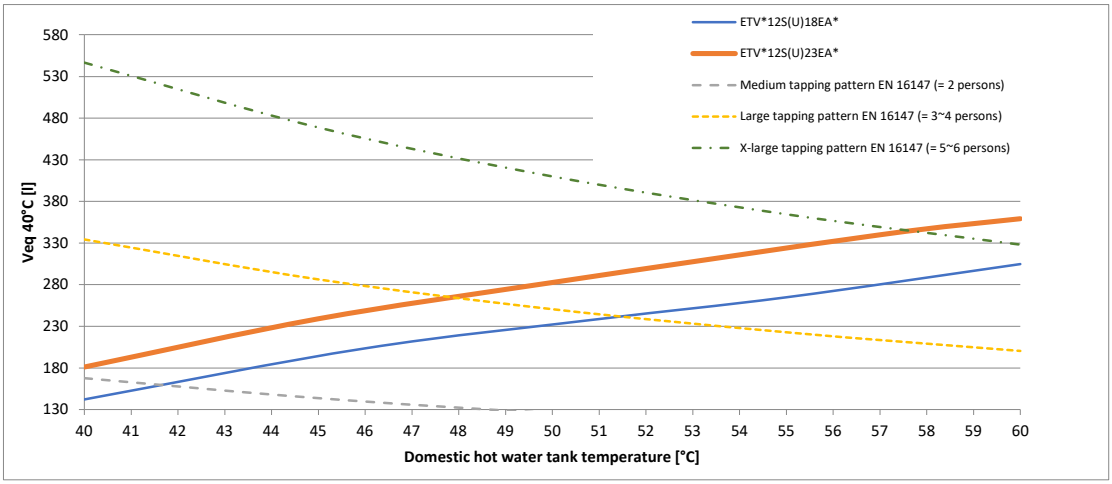
Model name	Heat-up time domestic hot water tank until 45°C
EPRA(08/10/12)EA* + ETV*12S(U)18EA*	·98· min.
EPRA(08/10/12)EA* + ETV*12S(U)23EA*	·115· min.

4D133480

EPRA08-12EV
EPRA08-12EW

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.

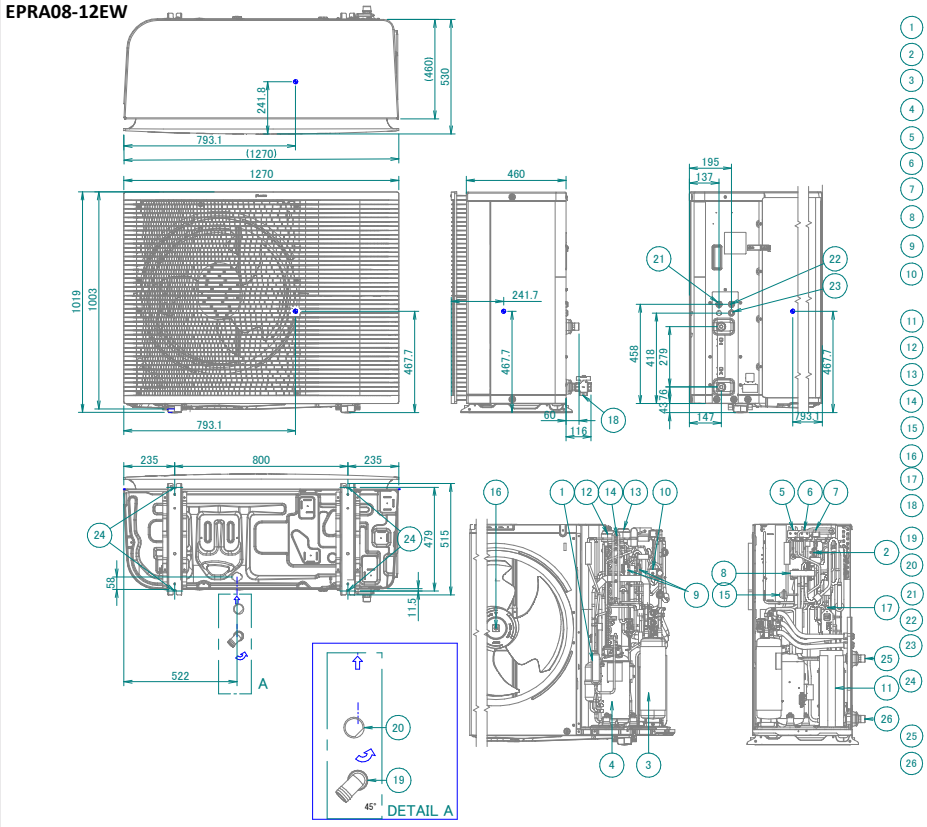
Notes
(1) According to EN16147.

4D133480

6 Dimensional drawings

6 - 1 Dimensional Drawings

EPRA08-12EV
EPRA08-12EW



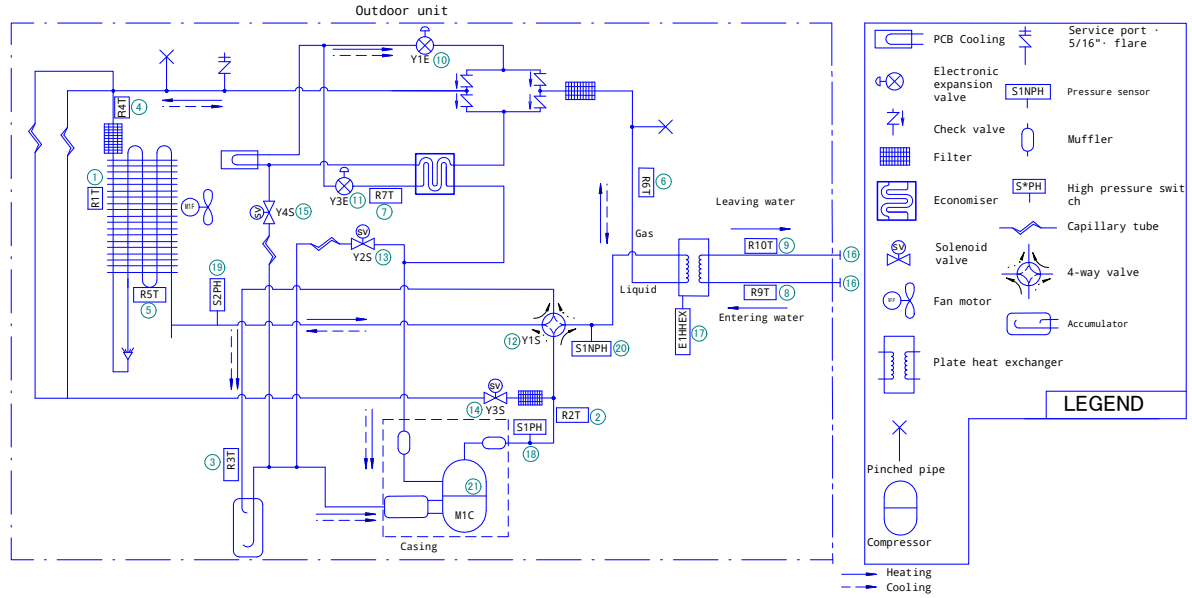
1 Muffler
2 High pressure switch ·41.7 bar·
3 Accumulator
4 Compressor
5 Solenoid valve (low pressure bypass)
6 Solenoid valve (hot gas pass)
7 Solenoid valve (liquid)
8 4-way valve
9 Capillary tube
10 4-way valve
Coil
11 Plate heat exchanger
12 Electronic expansion valve (main)
13 Electronic expansion valve (injection)
14 High pressure switch ·46 bar·
15 Pressure sensor
16 Fan
17 Service port ·5/16"· flare
18 Shut-off valve / filter (included accessory)
19 Drain elbow (included accessory)
20 Sealing (included accessory)
21 Drain tube heater cable intake
22 Interconnection cable intake
23 Power supply cable intake
24 4 holes for anchor bolts
M12
25 Outlet ·1"G·
26 Inlet ·1"G·

3D133408

7 Piping diagrams

7 - 1 Piping Diagrams

EPRA08-12EV
EPRA08-12EW



① R1T: Ambient thermistor
② R2T: Thermistor (discharge)
③ R3T: Thermistor (suction)
④ R4T: Thermistor (heat exchanger, liquid pipe)
⑤ R5T: Thermistor (heat exchanger middle)
⑥ R6T: Thermistor (liquid)
⑦ R7T: Thermistor (injection)
⑧ R9T: Inlet water thermistor
⑨ R10T: Outlet water thermistor
⑩ Y1E: Electronic expansion valve (main)
⑪ Y3E: Electronic expansion valve (injection)
⑫ Y1S: Solenoid valve (4-way valve)
⑬ Y2S: Solenoid valve (low pressure bypass)
⑭ Y3S: Solenoid valve (hot gas pass)
⑮ Y4S: Solenoid valve (liquid injection)
⑯ Screw connection ·1"M·
⑰ E1HHEX: Plate heat exchanger
⑱ S1PH: High pressure switch ·4.6MPa·
⑲ S2PH: High pressure switch ·4.17MPa·
⑳ S1NPH: High pressure sensor
㉑ Q1E Overload

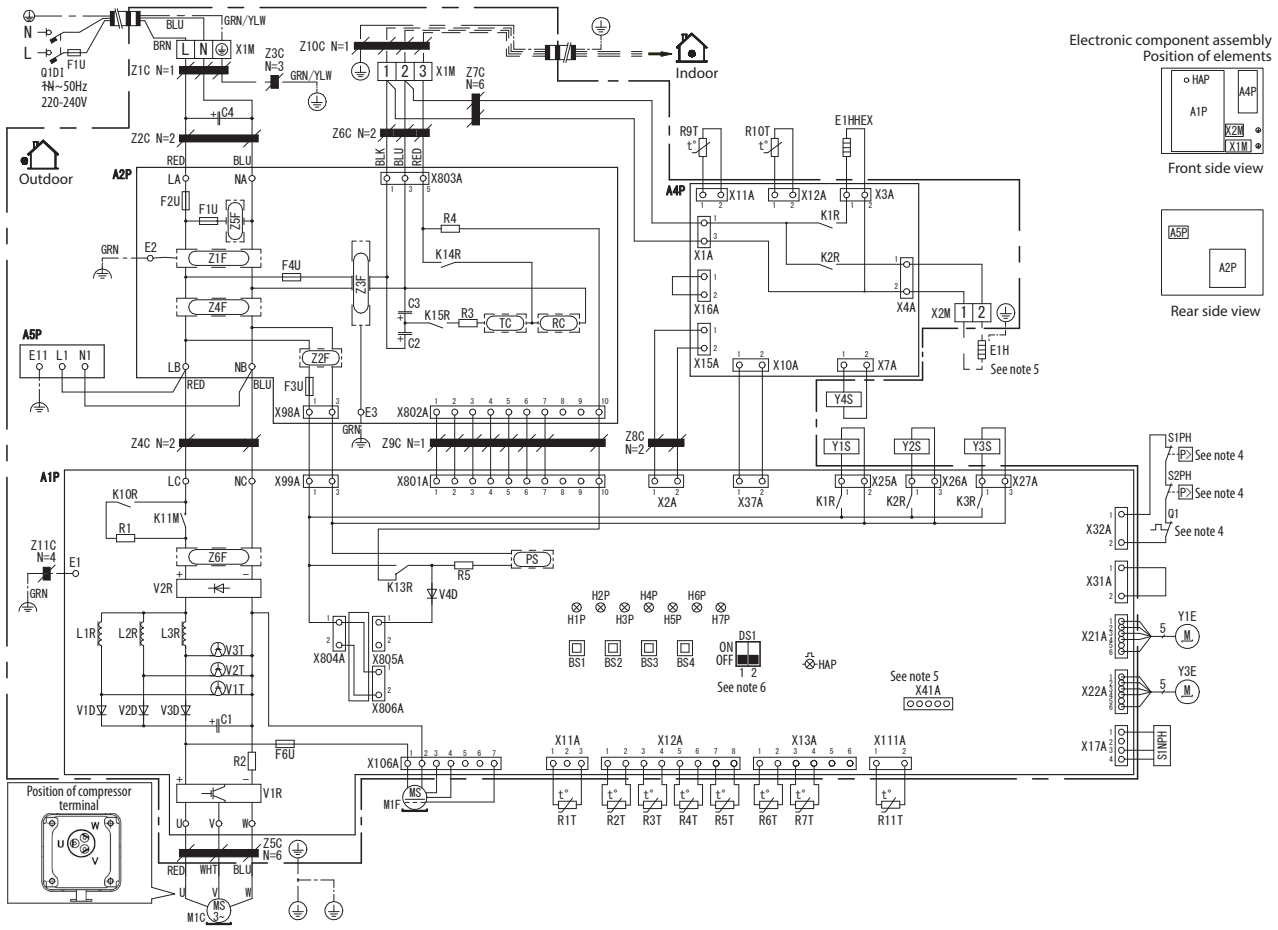
Heater

3D127127

8 Wiring diagrams

8 - 1 Wiring Diagrams - Single Phase

EPRA08-12EV



A1P	Printed circuit board (main)
A2P	Printed circuit board (noise filter)
A4P	Printed circuit board (ACS)
A5P	Printed circuit board (flash)
BS1~BS4 (A1P)	Push -button switch
C1~C4 (A1P, A2P)	Capacitor
DS1 (A1P)	DIP switch
E1H	Drain tube heater (field supply)
E1HHEX	PHE heater
F1U	Field fuse (supply supply)
F1U~F4U (A2P)	Fuse (T 6.3A / 250V)
F6U (A1P)	Fuse (T 5.0A / 250V)
H1P~H7P (A1P)	Light-emitting diode (service monitor is orange)
HAP (A1P)	Light-emitting diode (service monitor is green)
K1R (A1P)	Magnetic relay (Y1S)
K1R (A4P)	Magnetic relay (E1HHEX)
K2R (A1P)	Magnetic relay (Y2S)
K2R (A4P)	Magnetic relay (E1H)
K3R (A1P)	Magnetic relay (Y3S)
K10R (A1P)	Magnetic relay
K11M (A1P)	Magnetic contactor
K13R~K15R (A1P, A2P)	Magnetic relay
L1R~L3R (A1P)	Reactor
M1C	Motor (compressor)
M1F	Motor (fan)
PS (A1P)	Switching power supply
Q1DI	Earth leakage circuit breaker (30mA) (field supply)
Q1	Thermal overcurrent protector
R1~R5 (A1P, A2P)	Resistor
R1T	Thermistor (ambient)
R2T	Thermistor (discharge)
R3T	Thermistor (suction)
R4T	Thermistor (heat exchanger liquid pipe)
R5T	Thermistor (heat exchanger middle)
R6T	Thermistor (refrigerant liquid)
R7T	Thermistor (injection)
R9T	Thermistor (inlet water)

R10T	Thermistor (outlet water)
R11T	Thermistor (fin)
RC (A2P)	Signal receiver circuit
S1NPH	High pressure sensor
S1PH~S2PH	High pressure switch
TC (A2P)	Signal transmission circuit
V1D~V4D (A1P)	Diode
V1R (A1P)	IGBT power module
V2R (A1P)	Diode module
V1T~V3T (A1P)	Insulated Gate Bipolar Transistor (IGBT)
X1M~X2M	Terminal strip
Y1E	Electronic expansion valve (main - black)
Y3E	Electronic expansion valve (injection - blue)
Y1S	Solenoid valve (4-way valve)
Y2S	Solenoid valve (low pressure bypass)
Y3S	Solenoid valve (hot gas bypass)
Y4S	Solenoid valve (liquid injection)
Z1C~Z11C	Noise filter (ferrite core)
Z1F~Z6F (A1P, A2P)	Noise filter

NOTES

1. L : Live — N : Neutral
   : Protective earth — : Noiseless earth
   : Field wiring — : Option
   : Terminal strip — : Terminal
   : Connector — : Connection
2. Colours: BLK: black, RED: red, BLU: bleu, WHT: white, GRN: green, YLW: yellow, PNK: pink, ORG: orange, GRY: grey, BRN: brown
3. This wiring diagram applies only to the outdoor unit.
4. When operating, do not short-circuit protection device Q1, S1PH and S2PH.
5. Refer to the combination table and the option manual for how to connect the wiring to X41A and X2M.
6. The factory setting of all switches is OFF, do not change the setting of the selector switch (DS1).

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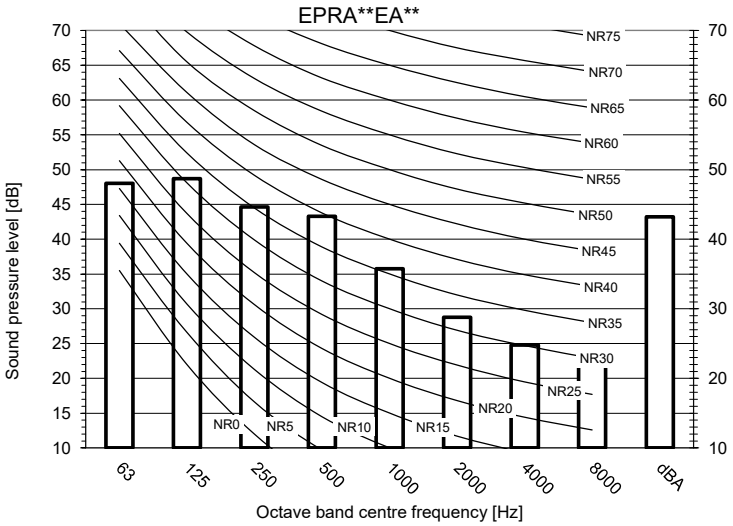
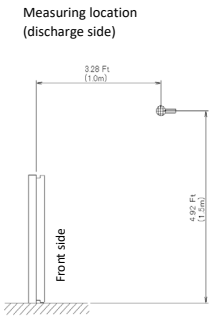
9 Sound data

9 - 1 Sound Pressure Spectrum

EPRA08-12EV
EPRA08-12EW





		Maximum sound day			Maximum sound night		
		Sound Power Level [dBA]			Sound Power Level [dBA]		
Maximum sound day	Maximum sound night	EPRA08EA*	EPRA10EA*	EPRA12EA*	EPRA08EA*	EPRA10EA*	EPRA12EA*
Default	Low noise level ·1·	62	62	62	58,5	58,5	58,5
Low noise level ·2·	Low noise level ·3·	53	53	53	49,8	49,8	49,8
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)							

Notes
- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- Conditions: Ta DB/WB ·7·/·6·°C - LWC ·55·°C
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 µPa
- If the sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.

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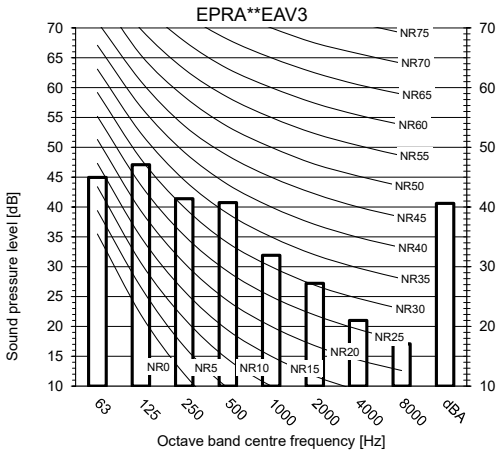
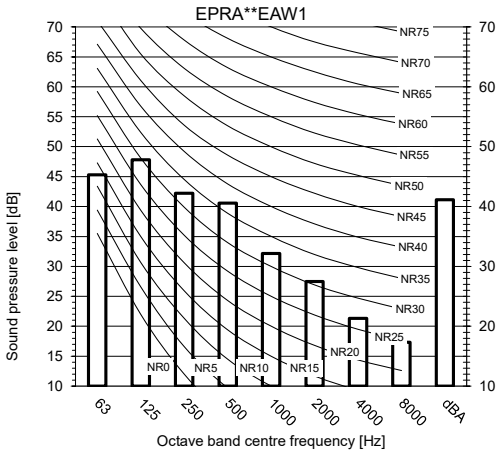
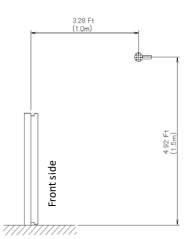
EPRA08-12EV
EPRA08-12EW





		Maximum sound day			Maximum sound night		
		Sound Power Level [dBA]			Sound Power Level [dBA]		
Maximum sound day	Maximum sound night	EPRA08EA*	EPRA10EA*	EPRA12EA*	EPRA08EA*	EPRA10EA*	EPRA12EA*
Default	Low noise level ·1·	62	62	62	58,5	58,5	58,5
Low noise level ·2·	Low noise level ·3·	53	53	53	49,8	49,8	49,8
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)							



Notes
- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- Conditions: Ta DB/WB ·7·/·6·°C - LWC ·35·°C
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 µPa
- If the sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.

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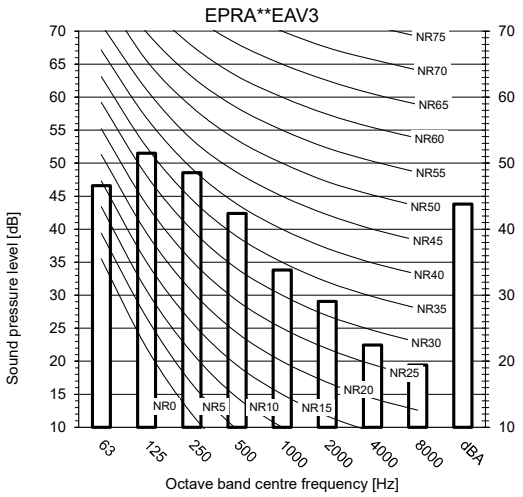
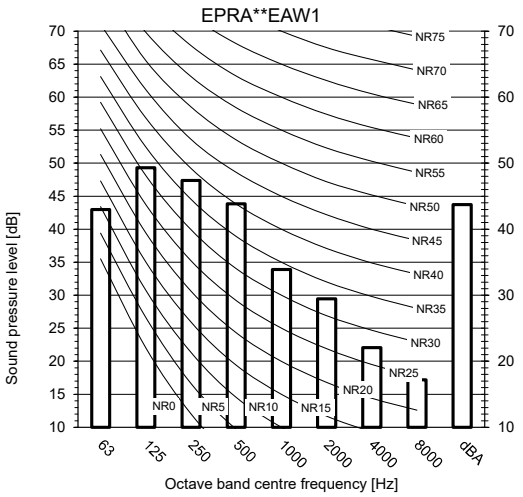
9 Sound data

9 - 1 Sound Pressure Spectrum

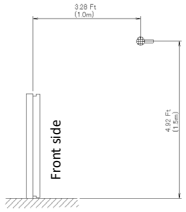
EPRA08-12EV
EPRA08-12EW





Notes
- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 µPa
- If the sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.

Measuring location (discharge side)



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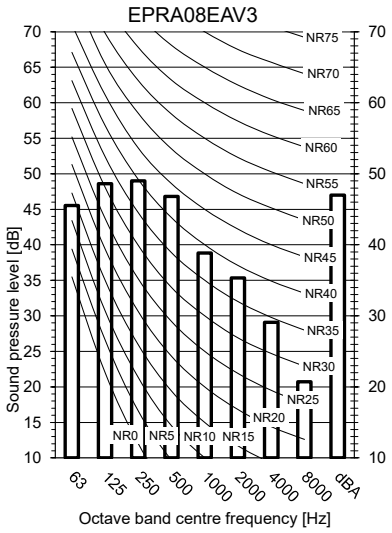
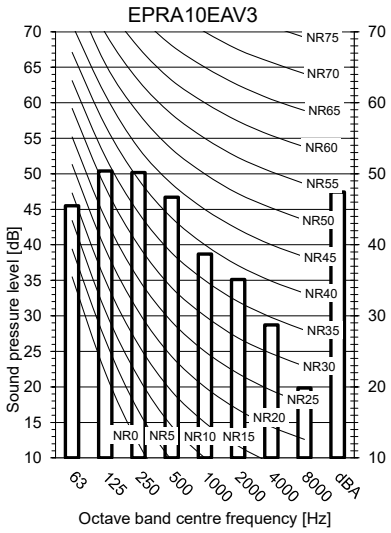
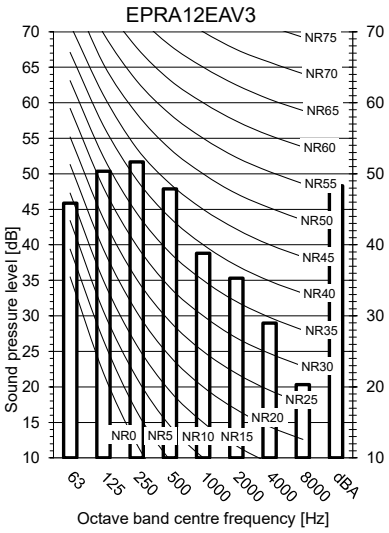
EPRA08-12EV

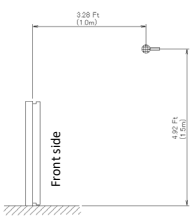






Notes
- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 µPa
- If the sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.

Measuring location (discharge side)



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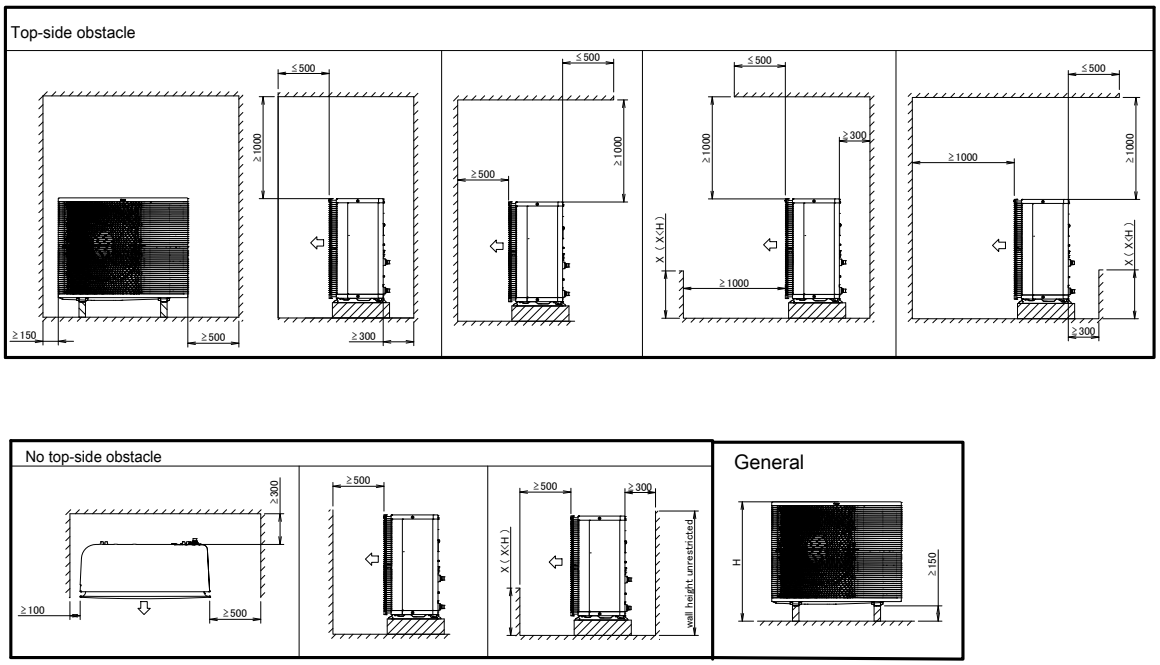
10 Installation

10 - 1 Installation Method

EPRA08-12EV
EPRA08-12EW

Minimum space for air passage



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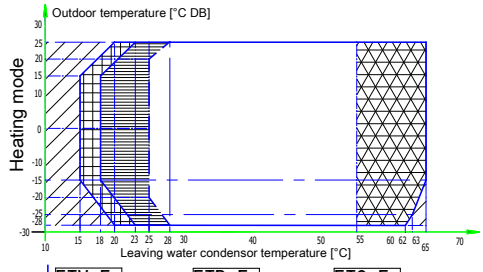
11 Operation range

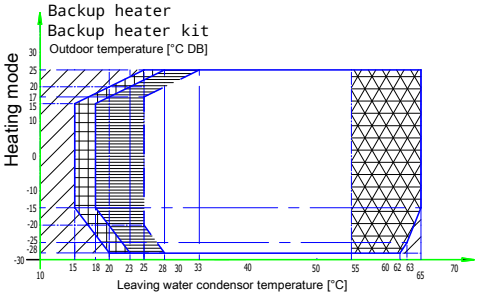
11 - 1 Operation Range

EPRA08-12EV
EPRA08-12EW ETV*E* + ETB*E*

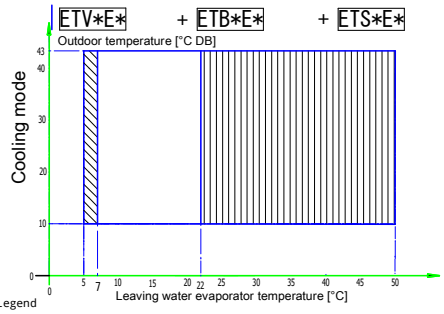


ETS*E*

Backup heater
Backup heater kit

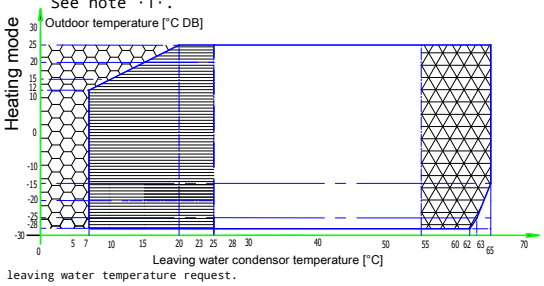


ETV*E* + ETB*E* + ETS*E*



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.

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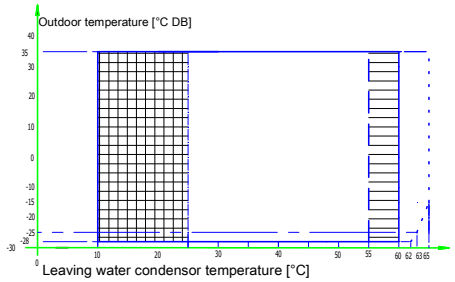
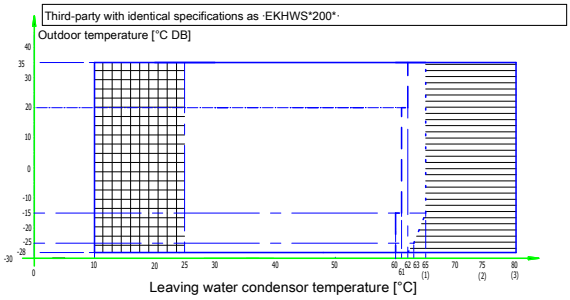
EPRA08-12EV
EPRA08-12EW

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

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