



€R744

HP90 - HP90 W

NATURAL SOLUTIONS

HP90 HP90 W

NATURAL
REFRIGERANT

GWP=1

ODP=0



Unit for the production of very high temperature water with natural refrigerant gas (CO₂).

This range uses R744 (CO₂) refrigerant gas and can reach hot water temperatures up to 90°C with an external air temperature of -20°C.

HP90 RANGE

Heating capacity (A7;W80) 14,5 ÷ 124,9 kW

HP90 W RANGE

Heating capacity (W7;W80) 15,8 ÷ 133,2 kW



Heating



Semi-hermetic
reciprocating compressors



Axial fans

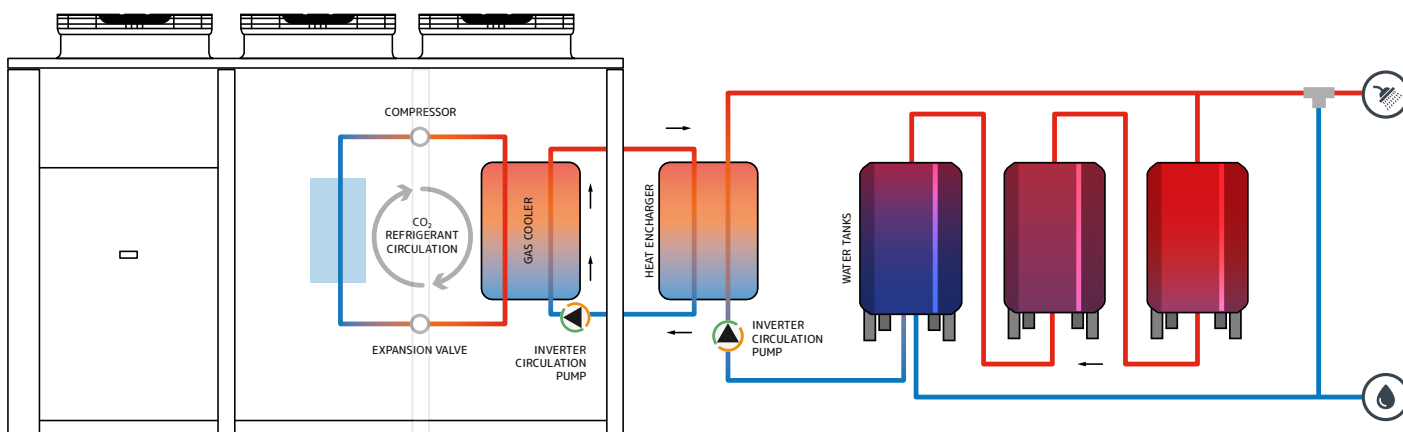


Total cool recovery
(Optional)

WORKING PRINCIPLE

The heat pump HP90 and HP90W can produce hot water at a constant temperature according to the selected set point. The inverter circulation pump on the unit is managed by the microprocessor

It will be necessary to install a stratified water tank or several water tanks in series, where the temperature probes have to be installed in order to manage the unit's on/off cycles.



DHW PRODUCTION

OPTIONAL COOL RECOVERY: it can provide chilled water to fan coils and air handling units



Sport centres

2.500 l/day



Retirement homes

5.000 l/day



Hotels

10.000 l/day



Apartment blocks

Hospitals
15.000 l/day

PROCESS

OPTIONAL COOL RECOVERY: it can provide chilled water to control the process



Dairy factories

3.000 l/day



Breweries

5.000 l/day



Cleaning and Sanification

10.000 l/day

Industrial and food production processes

15.000 l/day

HP90 AIR / WATER - TECHNICAL DATA

UNIT SIZE			18	26	48	70	100	150
USER: Heating (EN 14511 values) (A7;W80)								
Nominal heating capacity (A7;W80)	(1), (6)	kW	14,8	25,0	45,2	56,5	85,0	124,3
Total Power input	(1), (2), (6)	kW	4,7	8,1	13,1	17,5	26,6	39,4
COP	(1), (6)		3,15	3,09	3,44	3,23	3,19	3,16
Cool recovery version								
Heating + Cool recovery (EN 14511 values) (W80;W7)								
Nominal heating capacity	(7)	kW	16,0	27,8	46,7	63,2	93,4	137,9
Nominal cooling capacity	(7)	kW	11,5	20,4	34,0	46,1	67,8	100,6
Total Power input	(7)	kW	4,6	7,4	12,7	17,1	25,7	37,3
TER - Total efficiency ratio			6,02	6,51	6,37	6,40	6,28	6,40
Compressor								
Type			Reciprocating					
Quantity/Refrigerant circuits		n° / n°	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Capacity steps		n°	-	-	-	-	-	-
Circuit refrigerant charge		kg	9	11	19	20	20	25
Axial Fans								
Quantity		n°	1	1	3	3	2	2
User Side exchanger								
Type			Plate exchanger					
Water flow (A7/W80)	(1)	l/h	213	360	649	812	1222	1786
Pressure drops (A7/W80)	(1)	kPa	11	14	20	20	14	13
Source Side exchanger (Cold recovery version)								
Type			Plate exchanger					
Water flow (W7/W80)	(7)	l/h	1982	3527	5883	7952	11720	17380
Pressure drops (W7/W80)	(7)	kPa	35,0	47,5	57,4	28,0	53,2	45,1
Hydraulic module user side								
Type			EC motor circulation pump					
Nominal Power input of pump		w	72	90	90	90	90	90
Available pressure head (W7/W80)	(1)	kPa	55,3	75,3	70,9	70,6	74,8	73,7
Connection			1"	1"	1"	1"1/2"	1"1/2"	1"1/2"
Hydraulic module source side (Cold recovery version)								
Nominal Power input of pump		w	75	190	500	1.100	1.100	1.100
Available pump pressure (W7/W80)	(1)	kPa	100,7	12,3	37,9	120,4	86,3	161,3
Connection			1"	1"	1"	1"1/2"	1"1/2"	2"

(1) External air temperature, 7°C U.R. 87%, User side inlet-outlet water 20-80 °C

(2) Total power input is sum of compressors and fans power input and pump, according with EN 14511

(3) Sound power level calculated in compliance with ISO 3744

(4) Sound pressure level at 10 m calculated in compliance with ISO 3744

(5) Sound level at the follow conditions: External Air temperature 7°C, usere side water 20-80°C .

(6) Values calculate in compliance with EN 14511

(7) Source side inlet/outlet water temperatura, 12/7°C, User side inlet-outlet water 20-80 °C

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation

UNIT SIZE			18	26	48	70	100	150
Sound level STD version								
Sound power value	(3), (5)	dB(A)	77	82	86	88	94	97
Sound pressure value	(4), (5)	dB(A)	45	50	54	56	62	65
Sound level LN version								
Sound power value	(3), (5)	dB(A)	75	80	84	86	92	95
Sound pressure value	(4), (5)	dB(A)	43	48	52	54	60	63
Basic unit size and weights								
Width		mm	1600	1408	2650	1200	3510	3510
Depth		mm	850	1268	1040	1040	1210	1260
Height		mm	1780	2015	1820	1819	1916	1916
Delivery weight		kg	644	554	752	791	1185	1270
Operating weight		kg	649	557	757	796	1193	1281

HP90 - AIR / WATER ELECTRICAL DATA

UNIT SIZE			18	26	48	70	100	150
Maximum absorbed power	(1)	kW	6	10	16	19	33	47
Maximum starting current	(2)	A	13	27	37	47	66	80
Full load current	(3)	A	47	114	144	186	255	300
Fan motor nominal power		n° x kW	1 x 0,6	1 x 1,6	3 x 0,6	3 x 0,6	2 x 1,6	2 x 1,6
Fan motor nominal absorbed current		n° x A	1 x 2,62	1 x 3,9	3 x 2,62	3 x 2,62	2 x 3,9	2 x 3,9
User side pump nominal absorbed power		W	72	90	90	90	90	90
User side pump nominal absorbed current		A	0,7	0,7	0,7	0,7	0,7	0,7
Power supply		V/ph/Hz	400/3N~/50 ±5%					
Power supply		V/ph/Hz	230/1~/50 ±5%					

(1) Mains power supply to allow unit operation

(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit).

(3) Maximum starting current calculated considering the bigger size compressor starting current plus the maximum absorbed power of the other electrical devices (pumps, fans)

HP90 W WATER / WATER - TECHNICAL DATA

UNIT SIZE			18	26	48	70	100	150
USER: Heating (EN 14511 values) (W7;W80)								
Nominal heating capacity (W7;W80)	(1), (6)	kW	16,0	27,8	46,7	63,2	93,4	137,9
Total Power input	(1), (2), (6)	kW	4,6	7,4	12,7	17,1	25,7	37,3
COP	(1), (6)		3,51	3,72	3,69	3,70	3,64	3,70
SOURCE: Cooling (EN 14511 values) (W7;W80)								
Nominal cooling capacity	(1), (6)	kW	11,5	20,4	34,0	46,1	67,8	100,6
Compressor								
Type			Reciprocating					
Quantity/Refrigerant circuits		n° / n°	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Capacity steps		n°	-	-	-	-	-	-
Total oil charge		kg	1,3	2,5	2,5	2,5	2,5	2,5
Circuit refrigerant charge		kg	3,5	4,5	6,5	7,0	8,0	8,0
User Side exchanger								
Type			Plate exchanger					
Water flow rate (W7/W80)	(1)	l/h	230,6	399,8	670,9	908,1	1343,0	1982,0
Pressure drop (W7/W80)	(1)	kPa	7,9	17,3	22,0	24,5	16,4	14,5
Source Side exchanger								
Type			Plate exchanger					
Water flow rate (W7/W80)	(1)	l/h	1982	3527	5883	7952	11720	17380
Pressure drop (W7/W80)	(1)	kPa	35,0	47,5	57,4	28,0	53,2	45,1
Hydraulic module user side								
Type			EC motor circulation pump					
Nominal Power input of pump		W	72	90	90	90	90	90
Available pump pressure (W7/W80)	(1)	kPa	58,3	72,6	69,1	66,3	71,3	71,9
Connection			1"	1"	1"	1"1/2"	1"1/2"	1"1/2"
Hydraulic module source side								
Nominal Power input of pump		W	75	190	500	1.100	1.100	1.100
Available pump pressure (W7/W80)	(1)	kPa	12,3	37,9	86,3	161,3	120,4	100,7
Connection			1"	1"	1"	1"1/2"	1"1/2"	2"
Sound level LN version								
Sound power value	(3), (5)	dB(A)	68,0	70,0	71,0	73,0	78,0	81,0
Sound pressure value	(4), (5)	dB(A)	36,5	38,5	39,5	41,5	46,5	49,5
Basic unit size and weights								
Width		mm	1150	1150	1150	1400	1400	1400
Depth		mm	790	790	790	1040	1040	1040
Height		mm	1764	1764	1764	1306	1306	1306
Delivery weight		kg	349	420	446	495	521	566
Operating weight		kg	349	425	446	498	513	566

(1) Source side inlet/outlet water temperatura, 12/7°C, User side inlet-outlet water 20-80 °C
 (2) Total power input is sum of compressors and power input of pump, according with EN 14511
 (3) Sound power level calculated in compliance with ISO 3744
 (4) Sound pressure level at 1 m calculated in compliance with ISO 3744
 (5) Sound level at the follow conditions: source side water 12/7°C, user side water 20-80°C
 (6) Values calculate in compliance with EN 14511

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation

HP90 W WATER / WATER - ELECTRICAL DATA

UNIT SIZE			18	26	48	70	100	150
Maximum absorbed power	(1),(3)	kW	5,2	7,4	14,4	16,8	28,2	42,1
			(5,3)	(7,6)	(14,9)	(17,9)	(29,3)	(43,2)
Maximum starting current	(2),(3)	A	10,0	22,3	28,7	38,7	56,7	70,7
			(10,6)	(23,6)	(32,2)	(41,1)	(59,1)	(73,1)
Full load current	(4)	A	44,1	109,0	135,0	178,0	246,0	291,0
			(44,7)	(110,3)	(138,5)	(180,4)	(248,4)	(293,4)
Power supply		V/ph/Hz	3/380-430/50.0					
Power supply		V/ph/Hz	1/230/50.0					

(1) Mains power supply to allow unit operation

(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit).

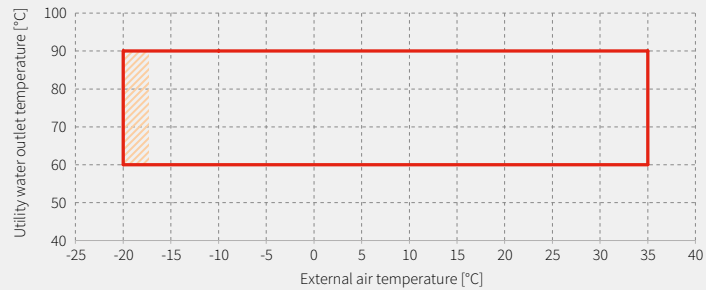
(3) Values in brackets refer to ST version units (units with pump on source side)

(4) Maximum starting current calculated considering the bigger size compressor starting current plus the maximum absorbed power of the other electrical devices (pumps)

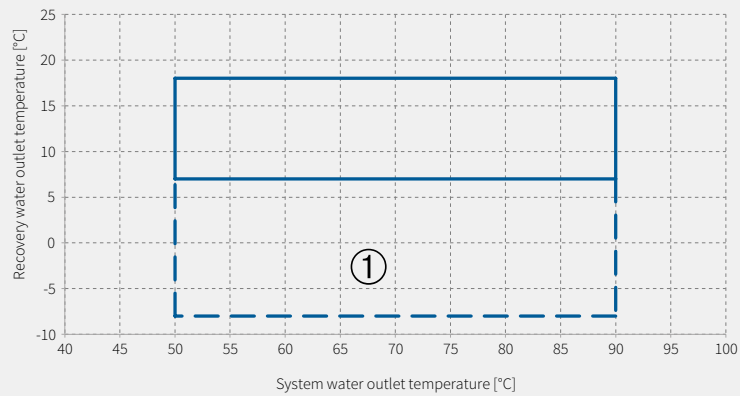
OPERATING LIMITS

HP90

HEATING



COOLING

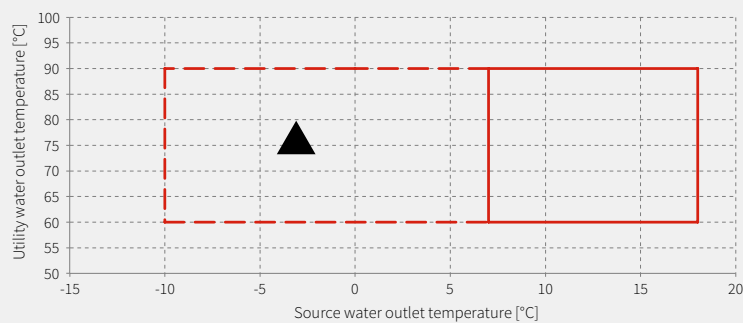


Notes

- The water inlet temperature must range between +5°C and +30°C
- Unit operation beyond the limits described above may cause malfunctioning and breakage of the unit itself
- ① Operating limits with glycoled water
- For continuous operation in this area, contact the sales department

HP90 W

HEATING & COOLING

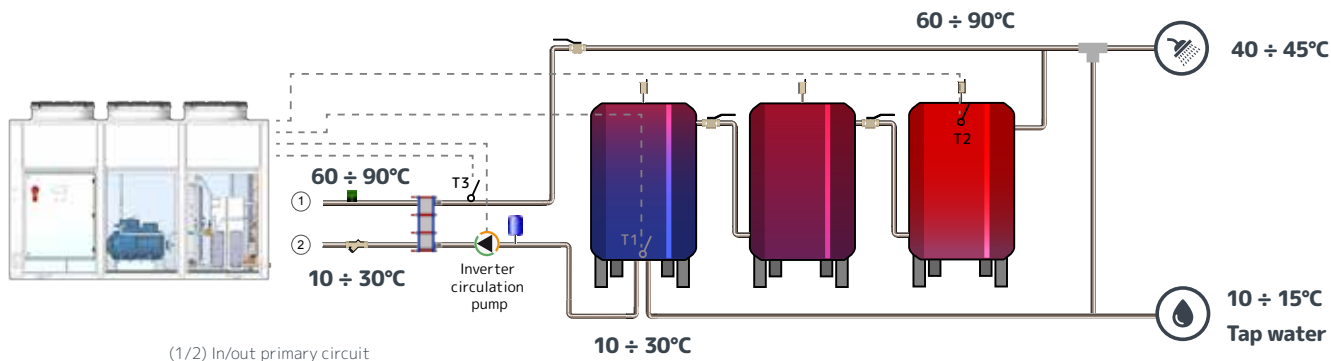


Notes

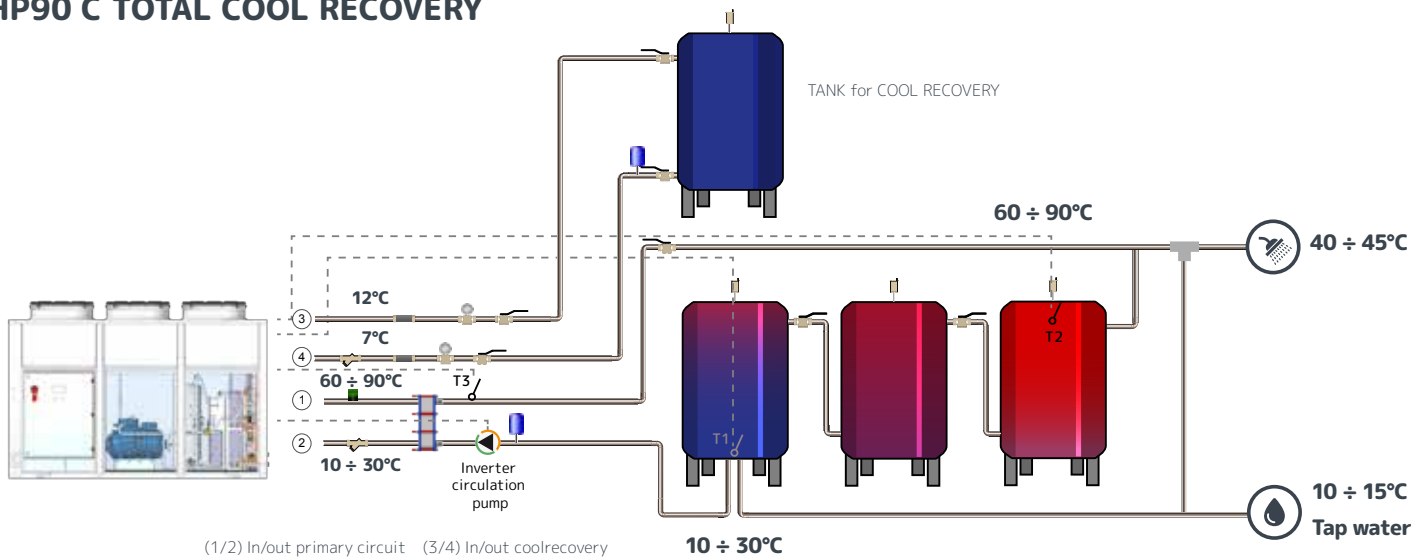
- The water inlet temperature to the unit or HOT heat exchanger must range between +5°C and +30°C
- The delta T in the cold heat exchanger must range between 3 and 6 °C
- ▲ Operating limits with glycoled water
- Unit operation beyond the limits described above may cause malfunctioning and breakage of the unit itself.

INSTALLATION DIAGRAMS

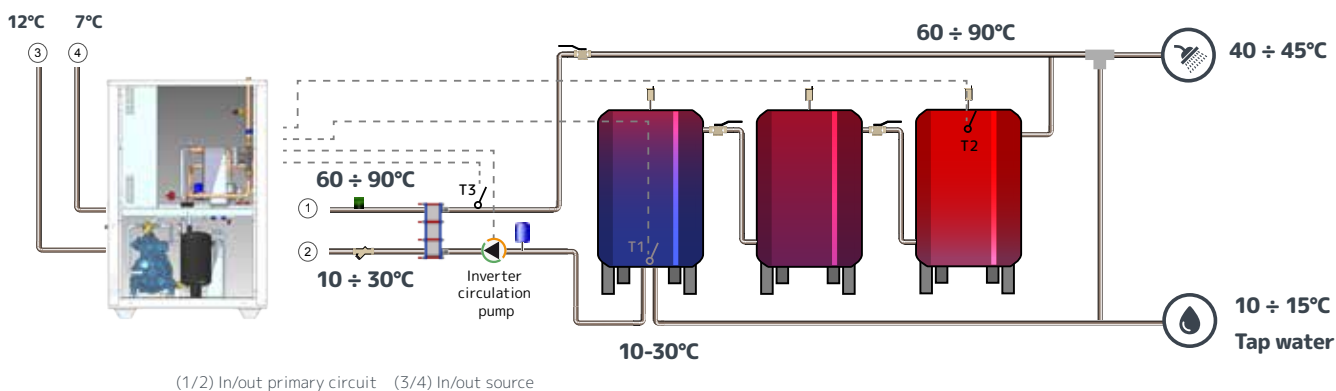
HP90 STANDARD VERSION



HP90 C TOTAL COOL RECOVERY



HP90 W



REFERENCES



RADISSON BLU ATLANTIC HOTEL Stavanger - Norway

- 1x HP90 size 100 + recovery
- 1x HP90 size 100



ATRIUM RESIDENCE Baška, Krk - Croatia

- HP90 size 48



WHITE ISLAND RESORT (Hotel) Ibiza - Spain

- 2x HP90W size 48



PROCESS REFERENCES



MAMMEN DAIRY CHEESE FACTORY BJERRINGBRO - Denmark

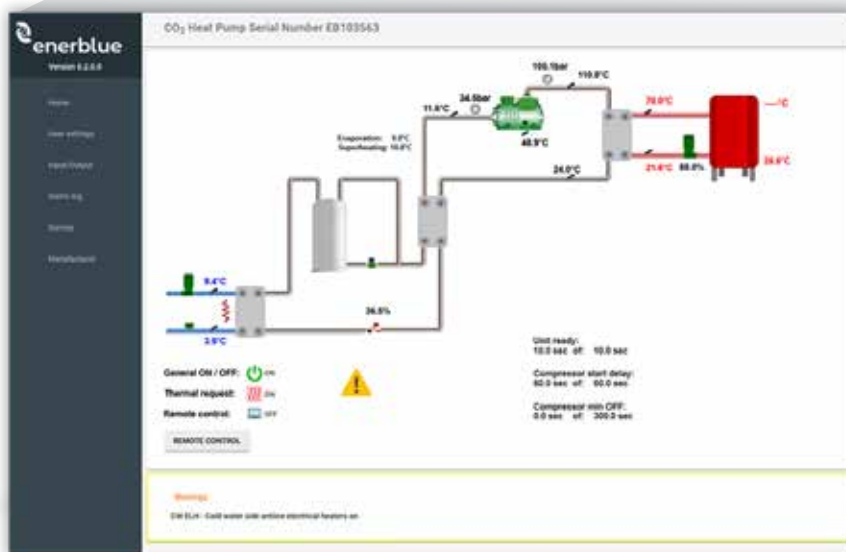
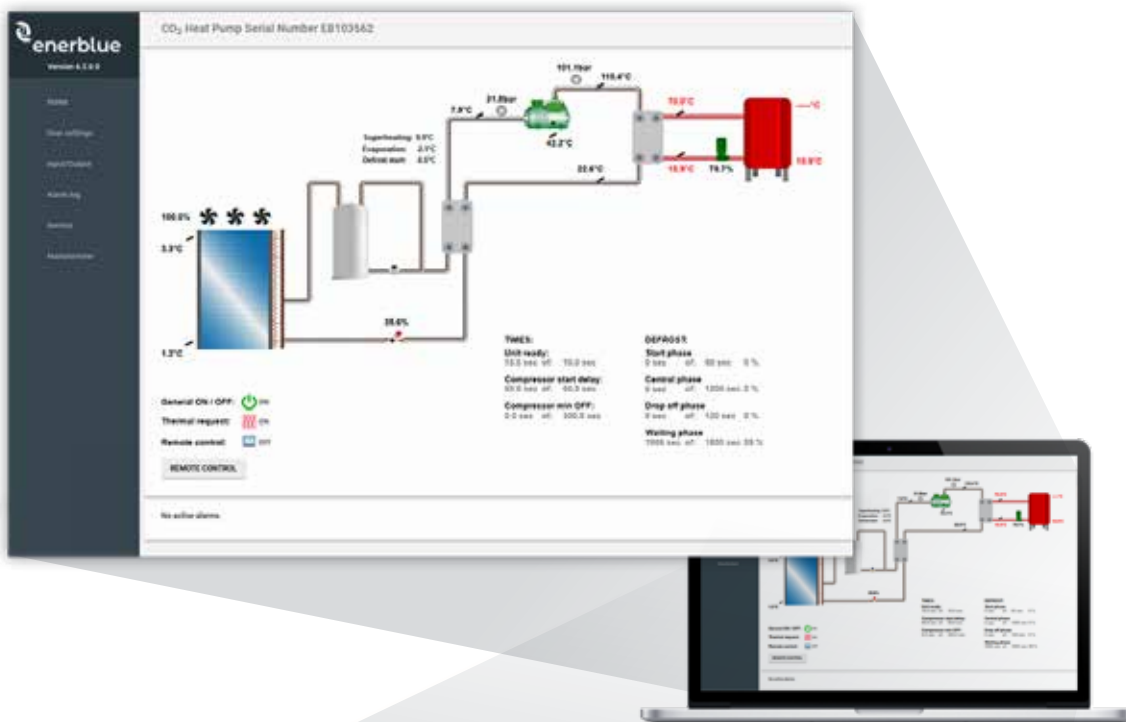
- 6x HP90W size 100
- 4x HP90W size 150



REMOTE MONITORING

This tool allows the remote connection to the units in order to check the status in real time, view or download the recorded data, or send commands to the controller (change set-point, operating mode etc.)
The graphical user interface ensures fast and easy data analysis.

All the alarms and warnings are logged, with both the alarm start and alarm reset date/time.





A member of the **ahsell Ref** Group
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