

R513A

# BLACK HT EVO

HIGH TEMPERATURE HEAT PUMPS



# enerblue

INSPIRED BY NATURE

# BLACK HT EVO



**Very high** temperature reversible heat pump with R513A refrigerant. Single or double circuits according to the compressors number, equipped with semihermetic reciprocating compressors with liquid injection to ensure hot water production up to 80°C. Axial fans with phase-cut speed control, plates heat exchanger and Al/Cu coils. Suitable for heating and cooling applications that use high temperature water such as radiators or process applications. All sizes with 2 circuits have separated aeraulic sides: the fan speed control for evaporation/condensation and the defrost cycles are managed independently on each circuit.

The unit can be equipped with hydraulic kit and integrated buffer tank (except sizes 40-65).

The management of domestic hot water through a 3-way-valve is available as an option.

## RANGE

Heating capacity (A7;W45) 32 ÷ 201 kW

Cooling capacity (A35;W7) 29 ÷ 188 kW



Reversible



Semi-hermetic  
reciprocating compressors

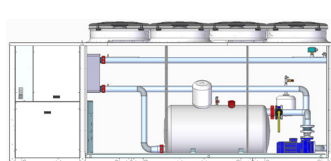


Axial fans

## AVAILABLE VERSIONS

### STANDARD

Reversible heat pump for 2-pipe-systems for cooling and heating up to 80°C.



 **WATER**  
temperature limits

**80°C**  
MAX heating

**-10°C**  
MIN cooling

### AUTOMATIC MANAGEMENT OF DOMESTIC HOT WATER

Automatic management of DHW through 3 way valve managed directly by the controller.



**80°C**  
MAX DHW

**80°C**  
MAX heating

**-10°C**  
MIN cooling

\*The buffer tank and pump showed on pictures are available as an option.

## CONFIGURATIONS

### LN Low noise

The unit, in addition to the basic version components, includes the compressor compartment acoustically insulated with sound-absorbing and soundproof material. The choice of coupling of the materials has allowed the removal of the frequencies generated by compressors and pumps.

### SLN Super Low noise

The unit is provided with the following modifications:

- oversized heat exchanger (evaporation/condensation coil)
- low rpm EC fans
- complete compressor compartment soundproofing and additional box that encloses the compressor
- low noise noise setting of the fan regulation

**NB:** in some sizes the dimensions of SLN version could be different from standard one

# TECHNICAL DATA

UNIT SIZE			30	35	44	50	60	74	95	110	120	140	170	205
<b>Heating (EN 14511 values) (A7;W55)</b>														
Nominal heating capacity (A7;W55)	(1), (7)	kW	33,1	37,7	44,5	50,5	64,6	72,9	91,7	105,0	114,0	144,0	170,0	201,0
Total Power input in heating mode	(1), (2), (7)	kW	11,9	14,3	17,0	18,9	23,9	27,7	34,0	37,5	43,8	56,3	69,4	73,6
COP	(1), (7)		2,78	2,64	2,62	2,67	2,70	2,63	2,70	2,80	2,60	2,56	2,45	2,73
<b>Heating (EN 14511 values) (A7;W65)</b>														
Nominal heating capacity	(8)	kW	29,8	33,6	39,6	45,7	58,4	65,6	81,6	94,7	105,0	133,0	154,0	182,0
Total Power input in heating mode	(2), (8)	kW	12,5	14,8	17,5	20,0	25,0	28,7	34,9	39,8	46,0	59,5	72,1	76,7
COP	(8)		2,38	2,27	2,26	2,29	2,34	2,29	2,34	2,38	2,28	2,24	2,14	2,37
<b>Energy Seasonal Index</b>														
SCOP	(9)		2,90	2,90	2,86	2,97	3	2,98	2,95	3,02	2,90	3,03	2,88	2,89
Seasonal Energy Efficiency $\eta_s$	(9)	%	113,0	113,0	111,4	115,8	117,0	116,2	115,0	117,8	113,0	118,2	112,2	112,7
Seasonal Efficiency class	(9)		A+	A+	A+	A+	A+	A+	A+ (10)	A+ (10)	A+ (10)	A+ (10)	A+ (10)	A+ (10)
<b>Cooling (EN 14511 values) (A35;W7)</b>														
Nominal cooling capacity	(3), (7)	kW	29,3	34,2	42,1	47,0	58,7	64,2	82,3	93,0	115,0	134,0	168,0	184,0
Total Power input	(3), (2), (7)	kW	11,1	13,5	17,0	18,6	19,9	26,5	33,4	37,3	44,1	57,3	71,5	78,8
EER	(3), (7)		2,64	2,53	2,48	2,53	2,95	2,42	2,46	2,49	2,61	2,34	2,35	2,34
<b>Compressor</b>														
Type			Reciprocating											
Quantity/Refrigerant circuits		n° / n°	1 / 1	1 / 1	1 / 1	1 / 1	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Capacity steps		n°	2	2	2	2	4	4	4	4	4	4	4	4
Circuit refrigerant charge		kg	15,0	15,0	19,0	20,0	15,0	15,0	20,0	20,0	18,0	18,0	33,0	38,0
<b>Axial Fans</b>														
Quantity		n°	1	1	1	1	2	2	2	2	4	4	4	4
Air flow		m <sup>3</sup> /h	16.227	21.524	21.684	21.707	34.085	34.505	34.238	35.665	79.709	83.955	76.412	80.889
<b>User Side exchanger</b>														
Type			Plate exchanger											
Water flow (A7/W45)	(1)	l/h	3.602	4.102	4.832	5.488	7.023	7.923	9.975	11.380	12.450	15.620	18.460	21.880
Pressure drops (A7/W45)	(1)	kPa	5,1	6,4	8,2	8,2	7,1	8,9	7,2	5,9	7,1	7,3	9	8,9
<b>Hydraulic module</b>														
Nominal Power input of pump		kW	1,30	1,30	1,30	1,30	1,30	1,50	1,50	2,40	2,40	3,00	3,00	3,00
Available pressure head (A7/W45)	(1)	kPa	233	225	212	187	184	229	222	215	212	208	202	200
Storage tank capacity		l	-	-	-	-	250	250	250	250	450	450	-	-
Expansion vessel		l	-	-	-	-	18	18	18	18	18	18	-	-
<b>Hydraulic connection</b>														
Connection			1" 1/2	1" 1/2	1" 1/2	1" 1/2	2"	2"	2"	2" 1/2	2" 1/2	2" 1/2	3"	3"

UNIT SIZE			30	35	44	50	60	74	95	110	120	140	170	205
<b>Sound level STD version</b>														
Sound power value	(4), (6)	dB(A)	87	87	88	89	91	91	92	92	93	93	97	97
Sound pressure value	(5), (6)	dB(A)	55	55	56	57	59	59	60	60	61	61	65	65
<b>Sound level LN version</b>														
Sound power value	(4), (6)	dB(A)	85	85	86	87	89	89	90	90	91	91	95	95
Sound pressure value	(5), (6)	dB(A)	53	53	54	55	57	57	58	58	59	59	63	63
<b>Sound level SLN version</b>														
Sound power value	(4), (6)	dB(A)	83	83	84	-	87	87	88	88	89	89	-	-
Sound pressure value	(5), (6)	dB(A)	51	51	52	-	55	55	56	56	57	57	-	-
<b>Size and weights STD unit</b>														
Width		mm	1.408	1.408	1.408	1.408	3.312	3.312	3.312	3.312	4.410	4.410	5.330	5.330
Depth		mm	1.208	1.208	1.208	1.208	1.920	1.920	1.920	1.920	1.920	1.920	1.208	1.208
Height		mm	2.390	2.390	2.390	2.390	1.958	1.958	1.958	1.958	1.958	1.958	2.390	2.390
Delivery weight		kg	633	643	699	741	1.656	1.675	1.765	1.840	2.101	2.060	2.411	2.444
Operating weight			608	618	675	718	1.584	1.603	1.694	1.777	2.050	2.013	2.330	2.364

(1) External air temperature 7°C BS, 6°C BU, Inlet-outlet water 47-55 °C.

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

(3) External air temperature 35°C, Inlet-outlet water 12-7°C.

(4) Sound power level calculated in compliance with ISO 3744.

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

(6) External air temperature 35°C, Inlet-outlet water 12-7°C.

(7) Values calculate in compliance with EN 14511-2013.

(8) External air temperature 7°C BS, 6°C BU, Inlet-outlet water 55-65 °C.

(9) According to European Regulation n° 813/2013 and EN14511 - EN14825 for Climat Average (Strasbourg), User Application: Medium temperature (55°C), Outlet temperature: Variable, Bivalente Temp.: -5°C.

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

## ELECTRICAL DATA

UNIT SIZE			30	35	44	50	60	74	95	110	120	140	170	205
Maximum absorbed power	(1),(3)	kW	16,8	21,1	24,8	28,7	33,7	42,2	49,6	57,4	72,9	85,6	130	141
			(18,1)	(22,4)	(26,1)	(30)	(35)	(43,7)	(51,1)	(59,8)	(75,3)	(88,6)	(133)	(144)
Full load current	(2),(3)	A	39,7	47,9	57,5	64,6	79,4	95,8	115	129	161	198	258	314
			(42,1)	(50,3)	(59,9)	(67,1)	(81,9)	(99)	(118)	(134)	(166)	(205)	(264)	(320)
Maximum starting current	(4)	A	111	123	149	149	151	171	206	214	249	297	682	750
			(113)	(125)	(151)	(151)	(153)	(174)	(210)	(218)	(253)	(303)	(688)	(756)
Power supply		V/ph/Hz	400/3N~/50 ±5%											

(1) Mains power supply to allow unit operation.

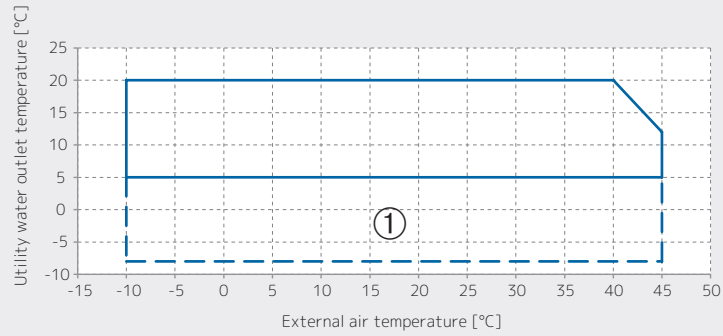
(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit).

(3) Values in brackets refer to ST version units (units with storage tank and pumps or units with exclusively pumps).

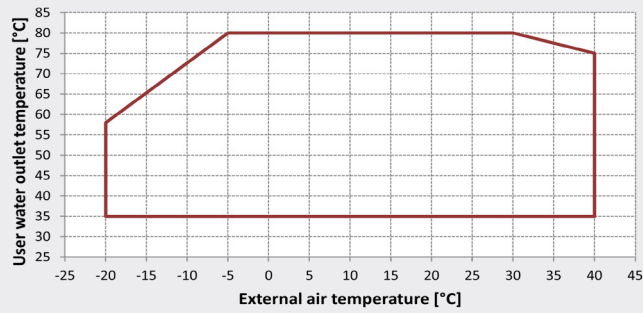
(4) Maximum starting current calculated considering the bigger size compressor starting current plus the maximum absorbed power of the other electrical devices (pumps, fans).

# OPERATING LIMITS

## COOLING



## HEATING



**Notes**

- The delta T to the utility side exchanger must be between 3°C and 6°C
- ① : the unit can only operate in this area with a water/glycol mixture
- Operating outside of the operating limits may cause the safety devices to intervene or serious malfunctions
- The temperature of inlet water to utility side exchanger, cannot be less than 25°C
- Within the operating limits, the fan section may be subject to modulation
- Within the operating limits, to limit the flow temperature the unit may be subject to choking



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