

BLACK

HIGH EFFICIENCY AND HIGH TEMPERATURE AIR/WATER HEAT PUMP
WITH AXIAL FANS AND SCROLL COMPRESSORS



RESIDENTIAL
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COMMERCIAL
APPLICATIONS

New series of dedicated heat pumps with Scroll compressors.

Standard version in 6 sizes

Thermal power (A7;W45) 35 ÷ 60 kW // Cooling power (A35;W7) 32 ÷ 56 kW

BLACK is a series of heat pumps that covers power from 35 to 60 kW in R134a, with the possibility of having water at 80°.



A CLASS



R134A



MULTIFUNCTIONAL



WATER
UP TO 80°



SUPER
SILENT



HORIZONTAL AIR
DISCHARGE



SUPERVISION
VIA WEB



MANAGEMENT OF
UP TO 8 UNITS
WITH MINIBOSS

// MAIN POINTS

- > High temperature of the produced water: up to 80°C
- > Extended limits of operation in heat: air up to -20°
- > Automatic management of DHW
- > DWS always available (multi-purpose)
- > Intelligent management of defrosts
- > Subcooler and increased fin pitch
- > SLN Super Silent version
- > Supervision via web
- > Management of up to 8 units with proprietary control

The technical documentation can be improved all the times. Enerblue can update, time by time, all technical data in order to improve all necessary information for the customer.

TECHNICAL DATA

UNIT SIZE			40	45	50	55	60	65
Heating (EN14511 values)								
Nominal heat power (A7;W45)	(1), (7)	kW	35.1	41.6	48.4	52.3	57.2	60.5
Total absorbed power in heating	(1), (2), (7)	kW	11.7	13.4	15.1	16.1	17.8	18.4
COP	(1), (7)		3.22	3.30	3.39	3.41	3.38	3.44
Efficiency class			A	A	A	A	A	A
Heating (EN14511 values)								
Nominal heat power (A7;W75)	(8)	kW	24.7	30.5	33.0	33.3	39.6	40.3
Total absorbed power in heating	(2), (8)	kW	12.5	15.0	16.5	16.1	19.6	19.9
COP	(8)		1.97	2.03	2.00	2.06	2.02	2.02
Cooling (EN14511 values)								
Nominal cooling power (A35;W7)	(3), (7)	kW	32.2	38.4	44.8	48.9	52.6	56.5
Total absorbed power in cooling	(3), (2), (7)	kW	11.8	13.7	15.6	16.9	18.9	19.6
EER	(3), (7)		2.73	2.81	2.87	2.90	2.79	2.89
Efficiency class			C	C	C	C	C	C
Compressor								
Type			Semi-hermetic	Semi-hermetic	Semi-hermetic	Semi-hermetic	Semi-hermetic	Semi-hermetic
Quantity/Refrigerant circuits		no./no.	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Capacity steps		no.	2	2	2	2	2	2
Total oil charge		kg	4.0	4.5	4.5	4.8	4.5	4.8
Coolant total charge		kg	11.3	13.5	15.8	17.1	18.7	19.8
Fans								
Type			Axial	Axial	Axial	Axial	Axial	Axial
Quantity		no.	1	1	1	1	1	1
Air flow rate		m3/h	21,000	21,000	21,000	20,000	20,000	20,000
Utility side exchanger								
Type			Plates	Plates	Plates	Plates	Plates	Plates
Water content		l	2.3	2.7	3.2	3.4	3.7	4.0
Water flow rate (A35;W7)	(3)	l/h	5,572	6,638	7,756	8,461	9,097	9,768
Load loss (A35;W7)	(3)	kPa	35	36	34	36	37	37
Water flow rate (A7;W45)	(1)	l/h	5,840	6,954	8,126	8,803	9,627	10,212
Load loss (A7;W45)	(1)	kPa	38	40	37	39	41	40
Hydraulic module								
Pump model			P1	P1	P1	P1	P1	P1
Pump Nominal Power		kW	1.1	1.1	1.1	1.1	1.1	1.1
Pump working head (A35;W7)	(3)	kPa	166	162	161	157	154	152
Pump working head (A7;W45)	(1)	kPa	162	158	157	153	148	147
Hydraulic connections								
Connections		"	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2
Base unit noise								
Level of sound power	(4), (6)	dB(A)	83	83	83	84	85	85
Level of sound pressure	(5), (6)	dB(A)	55	55	55	56	57	57
LN Noise								
Level of sound power	(4), (6)	dB(A)	81	81	81	82	83	83
Level of sound pressure	(5), (6)	dB(A)	53	53	53	54	55	55
SLN Noise								
Level of sound power	(4), (6)	dB(A)	78	78	78	79	-	-
Level of sound pressure	(5), (6)	dB(A)	50	50	50	51	-	-
Base unit weights and dimensions								
Length		mm	1,408	1,408	1,408	1,408	1,408	1,408
Depth		mm	1,208	1,208	1,208	1,208	1,208	1,208
Height		mm	2,390	2,390	2,390	2,390	2,390	2,390
Shipping weight		kg	585	592	602	630	635	648
Weight in operation		kg	590	597	608	637	642	656
SLN unit weights and dimensions								
Length		mm	1,408	1,408	1,408	1,408	-	-
Depth		mm	1,208	1,208	1,208	1,208	-	-
Height		mm	2,390	2,390	2,390	2,390	-	-
Weight in operation		kg	592	602	630	635	-	-



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- Outdoor air temperature 7°C BS, 6°C BU; condenser inlet-outlet water temperature 40-45°C
- The total power is the sum of power absorbed by the compressors and by the fans and of the portion relating to pumps and necessary to overcome the load losses for fluid (water) circulation inside the exchanger
- Outdoor air temperature 35°C, evaporator inlet-outlet water temperature 12-7°C
- Sound power levels calculated according to ISO 3744
- Sound pressure levels referred to 10 metres of distance from unit in free field
- Sound levels referred to conditions: chiller operation, water 12°/7°C, outside air 35°C.
- Values compliant with Standard EN 14511-3:2011
- Outdoor air temperature 7°C BS, 6°C BU; condenser inlet-outlet water temperature 70-75°C
This sheet shows the characteristic data of the basic and standard versions of the series; for details, refer to the specific documentation.

// ELECTRIC DATA

UNIT SIZE			40	45	50	55	60	65
Maximum absorbed power	(1),(3)	kW	22.6 (23.7)	26.6 (27.7)	29.6 (30.7)	31.6 (32.7)	36.6 (37.7)	37.6 (38.7)
Maximum absorbed current	(2),(3)	A	41.1 (43.8)	47.9 (50.6)	55.1 (57.8)	57.1 (59.8)	66.0 (68.7)	68.3 (71.0)
Maximum start-up current	(4)	A	199.1 (201.8)	258.9 (261.6)	288.1 (290.8)	332.1 (334.8)	299.0 (301.7)	343.3 (346.0)
Maximum start-up current with soft-starter	(4)	A	119.5 (121.1)	155.3 (157.0)	172.9 (174.5)	199.3 (200.9)	179.4 (181.0)	206.0 (207.)
Fan nominal power		no. x kW	1.6	1.6	1.6	1.6	1.6	1.6
Fan nominal current		no. x A	3.9	3.9	3.9	3.9	3.9	3.9
Pump motor nominal power		kW	1.10	1.10	1.10	1.10	1.10	1.10
Pump motor nominal current		A	2.70	2.70	2.70	2.70	2.70	2.70
Power supply		V/ph/Hz	400/3N~/50 ±5%	400/3N~/50 ±5%	400/3N~/50 ±5%	400/3N~/50 ±5%	400/3N~/50 ±5%	400/3N~/50 ±5%
Auxiliary power supply		V/ph/Hz	230/1~/50 ±5%	230/1~/50 ±5%	230/1~/50 ±5%	230/1~/50 ±5%	230/1~/50 ±5%	230/1~/50 ±5%

NOTES

- > Voltage unbalance: max 2%
- > The standard power supply voltage (see specific wiring diagram) must not vary by more than ±5%
- > Electric data refers to standard unit. Data may change based on the installed accessories



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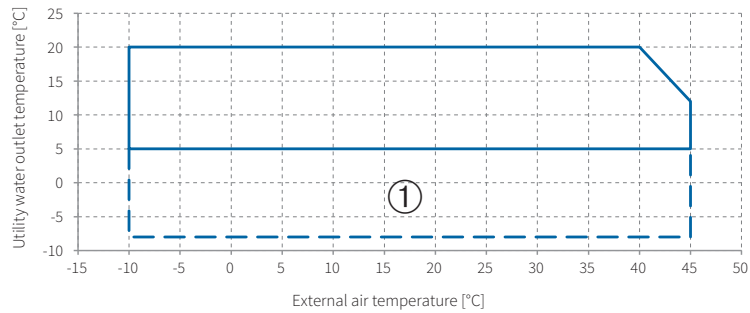
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- (1) Electric power that must be available from the mains for unit operation
- (2) Current at which the protection devices intervene within the unit. It is the maximum current absorbed by the unit. This value is never exceeded and must be used for sizing the line and relative protection devices (refer to the wiring diagram provided with the units).
- (3) The values in brackets refer to the units in version with pump.
- (4) Maximum start-up current calculated considering the start-up of the compressor with greater power and the maximum current absorbed by all the other devices

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// OPERATING LIMITS

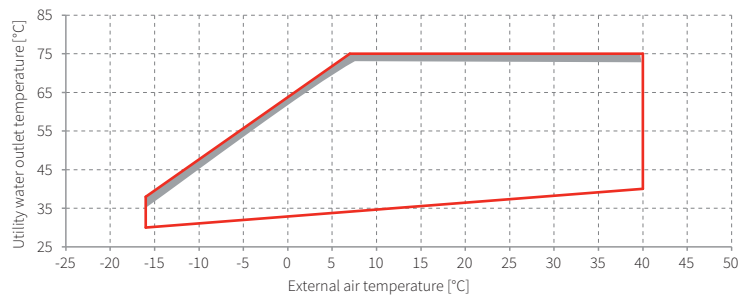
OPERATION IN COOLING



NOTES

- > The thermal head to the utility side exchange must be between 3°C and 6°C
- > ① : in this area the unit can only work with evaporator side glycoled water
- > Operating outside the operating limits may cause the safety devices to intervene or serious malfunctions
- > Within the operating limits, the fan section may be subject to modulation

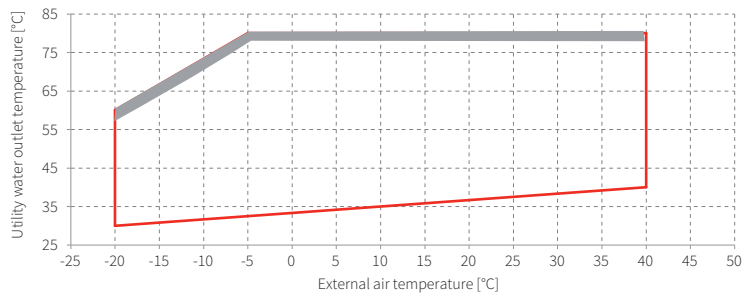
HEATING AND RECOVERY OPERATION BASIC VERSION



NOTES

- > The thermal head to the utility side exchange must be between 3°C and 6°C
- > Operating outside 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
- > ■ The unit can work within this field but NOT CONTINUOUSLY
- > 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

HEATING AND RECOVERY OPERATION HT VERSION



NOTES

- > The thermal head to the utility side exchange must be between 3°C and 6°C
- > Operating outside 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
- > ■ The unit can work within this field but NOT CONTINUOUSLY
- > 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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// SOUND LEVELS

UNIT SIZE	Standard Version		/LN Version		/SLN Version	
	Total [dB(A)]		Total [dB(A)]		Total [dB(A)]	
	Lw	Lp	Lw	Lp	Lw	Lp
40	83	55	81	53	78	50
45	83	55	81	53	78	50
50	83	55	81	53	78	50
55	84	56	82	54	79	51
60	85	57	83	55	-	-
65	85	57	83	55	-	-

- > **Lw:** sound power values in free field calculated according to ISO 3744, unit in chiller operation (A35;W7)
- > **Lp:** sound pressure values detected at 10 m from the unit in free field according to ISO 3744, unit in chiller operation (A35;W7)
- > Operating conditions other than nominal may have a different pressure level
- > The sound pressure level may increase depending on the type of installation, due to reverberation phenomena even of 16 dBA
- > Therefore, pay attention and consult a specialist in acoustics if necessary



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