RESIDENTIAL APPLICATIONS

ORANGE INVERTER

REVERSIBLE HEAT PUMPS – AIR TO WATER
DC INVERTER COMPRESSOR

Orange Inverter introduces the **Brushless DC compressor controlled by Inverter**.

The inverter technology allows modulating the power delivered by the unit based on the system's requirements.
Using the inverter makes it possible to significantly improve the efficiency values:
COP and EER if compared to the ON/OFF unit values.
The tracking algorithm (supply of thermal or cooling power by the unit) was designed and tested by Enerblue to further maximise the efficiency values.

A CLASS

R410A

COMPRESSOR WITH INVERTER

LOW NOISE

// MAIN POINTS

- Compressor controlled by DC Inverter
- High efficiency class
- Extensively configurable Hydronic module
- "Proprietary" power control algorithm
- Ample power range and extensive operative limits

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.

// HEATING AND COOLING PERFORMANCE

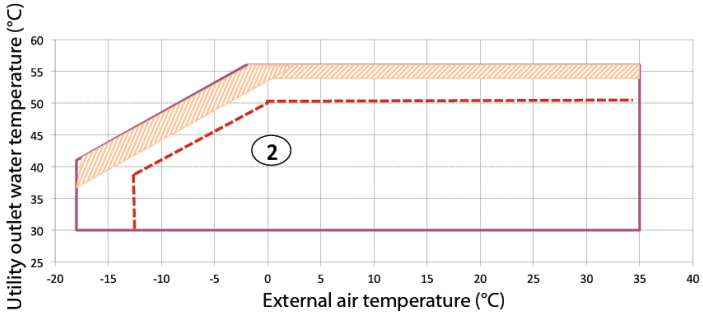
UNIT SIZE			17	22	27	34
HEATING						
Water 30°/35°; Air 7°/6°C **(EN 14511 values)**						
Heating capacity 60/90/120 rps		kW	12,4/17,4/22,9	16,4/24,1/31,2	20,0/29,0/37,0	23,7/34,1/42,7
Absorbed power 60/90/120 rps	(1)	kW	2,9/4,2/5,7	4,0/5,9/7,8	4,8/7,2/9,7	5,8/9,0/12,3
COP 60/90/120 rps			4,2/4,1/3,9	4,1/4,0/3,9	4,1/3,9/3,7	4,1/3,8/3,4
Water 40°/45°; Air 7°/6°C **(EN 14511 values)**						
Heating capacity 60/90/120 rps		kW	12,4/17,3/22,9	16,3/24,0/31,1	19,9/28,9/36,9	23,6/34,0/42,5
Absorbed power 60/90/120 rps	(1)	kW	3,2/4,8/6,6	4,5/6,9/9,1	5,5/8,4/11,3	6,7/10,4/14,4
COP 60/90/120 rps			3,7/3,5/3,4	3,6/3,5/3,4	3,6/3,4/3,2	3,5/3,2/2,9
Water 30°/35°; Air -7° C (**EN 14511 values**)						
Heating capacity 60/90/120 rps		kW	9,0/12,6/16,7	11,9/17,5/22,7	14,5/21,1/26,9	17,2/24,8/31,0
Absorbed power 60/90/120 rps	(1)	kW	2,7/4,0/5,3	3,7/5,5/7,2	4,5/6,7/8,9	5,4/8,3/11,3
COP 60/90/120 rps			3,3/3,2/3,1	3,2/3,1/3,0	3,2/3,1/3,0	3,2/3,0/2,7
COOLING						
Water 12°/7°; Air 35°C **(EN 14511 values)**						
Cooling capacity 60/90/120 rps		kW	10,8/15,3/19,9	13,9/20,0/25,4	17,6/25,0/31,7	19,8/27,3/32,7
Absorbed power 60/90/120 rps	(1)	kW	3,2/4,6/5,9	4,4/6,3/8,6	5,3/7,8/10,7	6,6/9,9/14,4
EER 60/90/120 rps			3,4/3,3/3,2	3,2 / 3,1/2,9	3,3/3,2/2,9	3,0/2,7/2,3

UNIT SIZE			17	22	27	34
Compressor						
Quantity/ circuits			1/1	1/1	1/1	1/1
Compressor crankcase heater		W	38	38	38	38
Fans						
Type			Axial	Axial	Axial	Axial
Quantity			2	2	2	2
Air flow rate		m3/h	14000	17500	17500	18500
Available static pressure		Pa	0	0	0	0
User side exchanger						
Type			Plate	Plate	Plate	Plate
Water flow rate	(4)	l/h	2976	4007	4971	5801
Pressure drop		kPa	42	47	48	47
Hydraulic module						
Mechanical Pump model			P1	P1	P2	P2
Useful mechanical pump head		kPa	142	116	121	110
Water Tank volume		l	130	130	130	130
Water connections						
Inlet water connections		"	1" 1/4	1" 1/4	1" 1/2	1" 1/2
Outlet water connections		"	1" 1/4	1" 1/4	1" 1/2	1" 1/2
Water connections 1P e 1PS versions						
Inlet water connections		"	1" 1/4	1" 1/4	1" 1/2	1" 1/2
Outlet water connections		"	1" 1/4	1" 1/4	1" 1/2	1" 1/2
Noise						
Sound power level	(2)	dBA	72	74	76	77
Noise pressure level	(3)	dBA	44	46	48	49
Sound power level LN version	(2)	dBA	69	71	74	75
Noise pressure level LN version	(3)	dBA	41	43	46	47
Dimensions and weight						
Height		mm	1585	1585	1585	1585
Length		mm	1306	1456	1456	1456
Depth		mm	739	739	739	739
Weight (standard)		kg	356	365	385	395

(1) Compressors and Fans input power
(2) Sound power level measured by ISO 3744; Compressor frequency 90 rps; Chiller working conditions (A35;W7)
(3) Sound pressure level refered to 10m free field; Compressor frequency 90 rps; Chiller working conditions (A35;W7)
(4) Water 40°/45°; Air 7°/6°C; Compressor frequency 90 rps

// OPERATING LIMITS

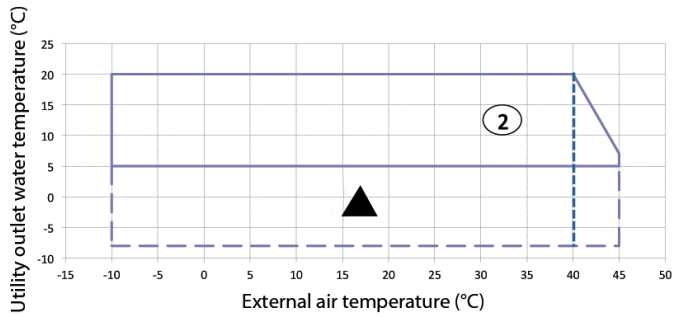
HEATING



INFORMATION

- Delta temperature Inlet and Outlet is between 3 and 5 °C
- When the unit works out of the operating limits pay attention to the allarms caused from incorrect working conditions
- Inlet water temperature cannot be lower than 25°C
- ② Operating working limits of RD version

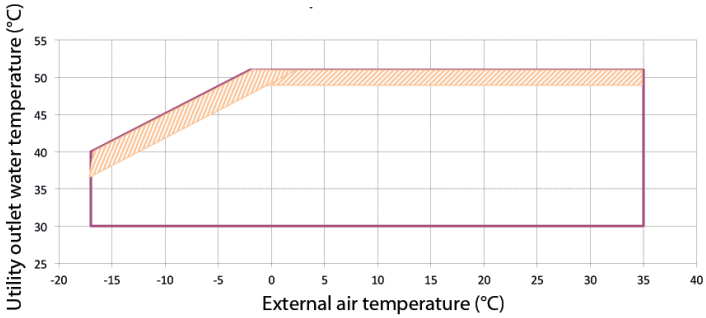
COOLING



INFORMATION

- Delta temperature Inlet and Outlet is between 3 and 5 °C
- When the unit works out of the operating limits pay attention to the allarms caused from incorrect working conditions
- In the zone ▲ Water with Glycol is mandatory
- Maximum Inlet water temperature is 25°C
- ② Operating working limits of RD version

RECOVERY



INFORMATION

- Delta temperature Inlet and Outlet is between 3 and 5 °C
- When the unit works out of the operating limits pay attention to the allarms caused from incorrect working conditions
- Inlet water temperature cannot be lower than 25°C
- ② Operating working limits of RD version. In this zone the compressor adjusts the temperature discharge of the refrigerant

NOTE

- The thermal gradient to the utility side exchanger must be between 3°C and 6°C
- ▲: the unit can only operate in this area with evaporator side glycol water

In this area the compressor modulates in order to control the maximum discharge temperature

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// ELECTRICAL DATA

UNIT SIZE			17	22	27	34
Maximum absorbed power	(1)	kW	12,0	16,0	19,0	23,0
Maximum absorbed current	(2)	A	23,0	25,0	30,0	45,0
Maximum absorbed power 1P	(1)	kW	13,0	16,0	19,0	24,0
Maximum absorbed current 1P	(2)	A	26,0	28,0	32,0	47,0
Fan nominal power		kW	2 x 0,55	2 x 0,55	2 x 0,55	2 x 0,55
Fan nominal current		A	2 x 2,5	2 x 2,5	2 x 2,5	2 x 2,5
Pump motor nominal power		kW	0,78	0,78	0,55	0,55
Pump motor nominal current		A	3,38	3,38	1,58	1,58
Electric power supply		V/ph/Hz	400/3N~/50	400/3N~/50	400/3N~/50	400/3N~/50

(1) Electric power that must be available from the electric network for the unit to work.
(2) Current at which the units' internal protections intervene. It is the maximum current absorbed by the unit. This value must never be exceeded and must be taken into account when sizing the line and the relative protection devices (see the wiring diagram supplied with the units).

// DATA FOR PLATES EXCHANGERS

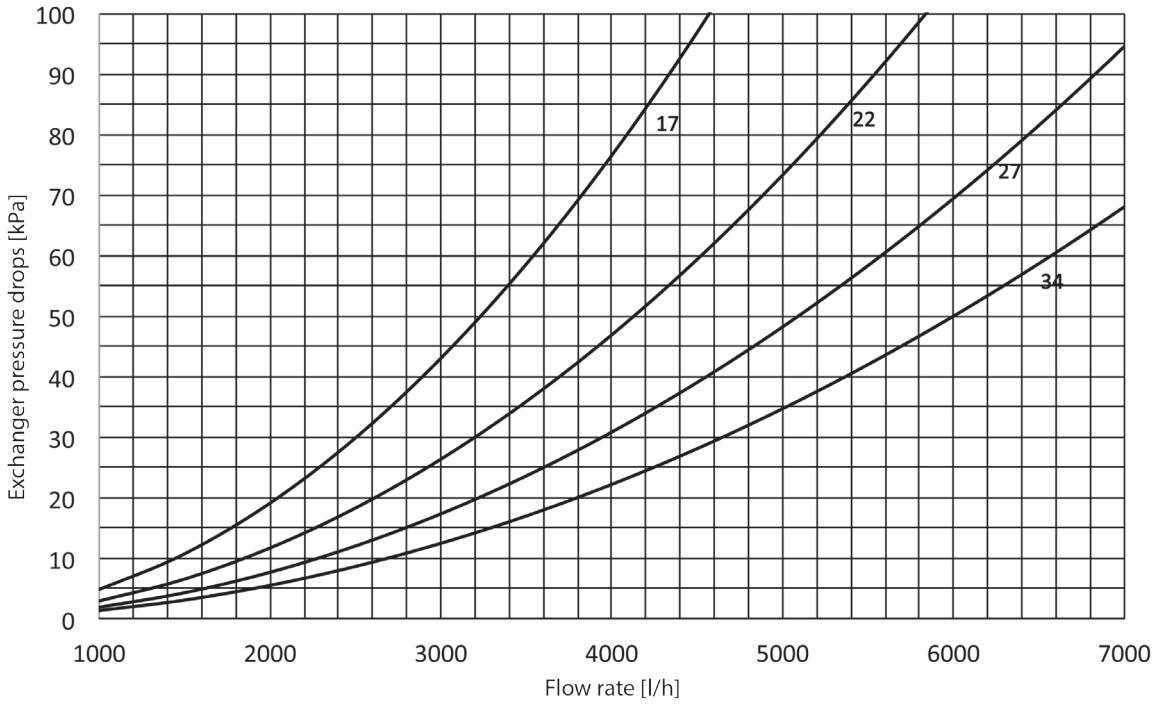
UNIT SIZE	12	17	22	27	34
Pressure drops coefficient K	70	62	38	25	18

Pressure drops calculation on Exchanger is the following:

$$\Delta p = K \times (Q/3600)^2$$

Dove:
Δp = pressure drops on exchanger (kPa)
K = pressure drops coefficient (please check the Table)
Q = water flow (l/h)

DIAGRAM OF PRESSURE DROPS



WATER FLOW ALLOWED

The water flow must always be related to the following condition: Delta temperature Inlet and Outlet is between 3 and 5 °C all the time.
In case of different values please contact the technical service.

// NOISE LEVELS ORANGE INVERTER

The noise level data are refered to the following conditions Ambient 35°C and Water IN 12°OUT 7°C

UNIT SIZE	Standard version		/LN version	
	Totale [dB(A)]		Totale [dB(A)]	
	Lw	Lp	Lw	Lp
17	72	44	69	41
22	74	46	71	43
27	76	48	74	46
34	77	49	75	47

Lw: sound power values in free field calculated in compliance with ISO 3744. Chiller working conditions (A35;W7)
Lp: sound pressure levels detected at 10 m from the fan side unit, not channelled in free field, in compliance with ISO 3744. Chiller working conditions (A35;W7)

DESCRIPTION /LN VERSION

The unit is provided with the following accessories:

> Insulated Compressor box with low sound emission

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