LITHIUM

Heating larger

High-capacity reversible air-water heat pumps
with axial fans and natural refrigerant (R290)

R290

TECHNICAL BROCHURE / **EN**

enerblue
INSPIRED BY NATURE

LITHIUM

R290

GWP=3

INSTALLATION SECTORS
COMMERCIAL / INDUSTRIAL

62°
Max water temperature

-20°
Min. outdoor air temp.

The LITHIUM series is the latest innovation from Enerblue in the hydronic heating and cooling field, using natural R290 refrigerant.

Drawing on our extensive experience with propane, we have created a range of high-power air-water heat pumps that deliver excellent performance and minimum environmental impact.

The LITHIUM series introduces capacities never before seen on the market, with semi-hermetic piston compressors available in On/Off, Inverter and Full Inverter versions.

The low noise levels and optimised design make them particularly suitable for installations where high quality, reliability and power are essential.

RANGE

Heating	(A7;W35) 200 ÷ 377 kW
Cooling	(A35;W7) 177 ÷ 303 kW

REVERSIBLE

AXIAL FANS

SEMI-HERMETIC RECIPROCATING COMPRESSORS

INVERTER

FULL INVERTER

HIGH TEMPERATURE 80°C

* Available on request.

Main characteristics

1

GAS LEAK DETECTOR

In the event of a refrigerant gas leak in the compressor box or near the circulation pumps (where installed):

- the power supply is cut off
- the extractor fan (ATEX-certified) activates to flush the atmosphere inside the compressor box.

2

ATEX

The ATEX-certified extractor fan runs at nominal speed to remove the refrigerant gas from the compressor box.

3

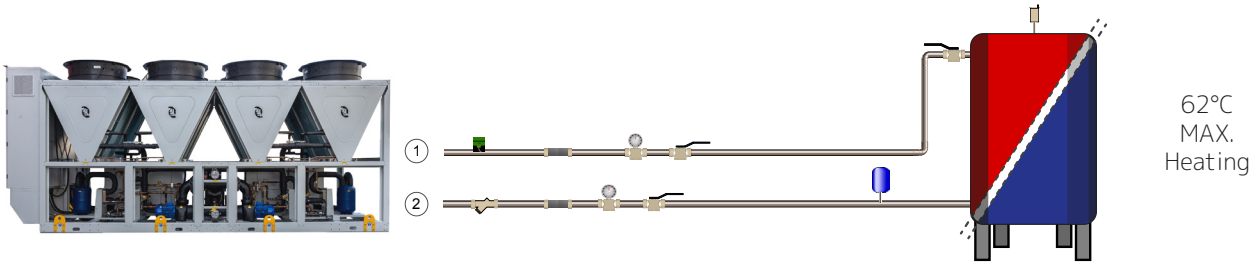
ATEX

All components in the unit's safety chain are ATEX-certified.

4 Compliant with Ecodesign Directive

Available versions

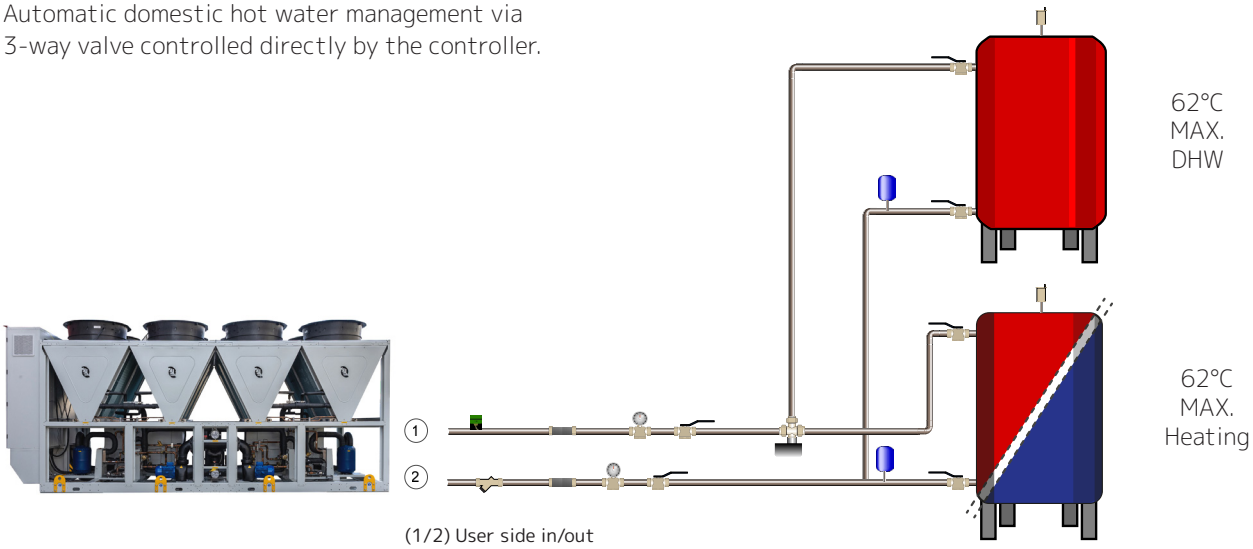
Reversible heat pump for 2-pipe systems for cooling and heating up to 62°C.



(1/2) User side in/out

AUTOMATIC DOMESTIC HOT WATER MANAGEMENT

Automatic domestic hot water management via 3-way valve controlled directly by the controller.



(1/2) User side in/out

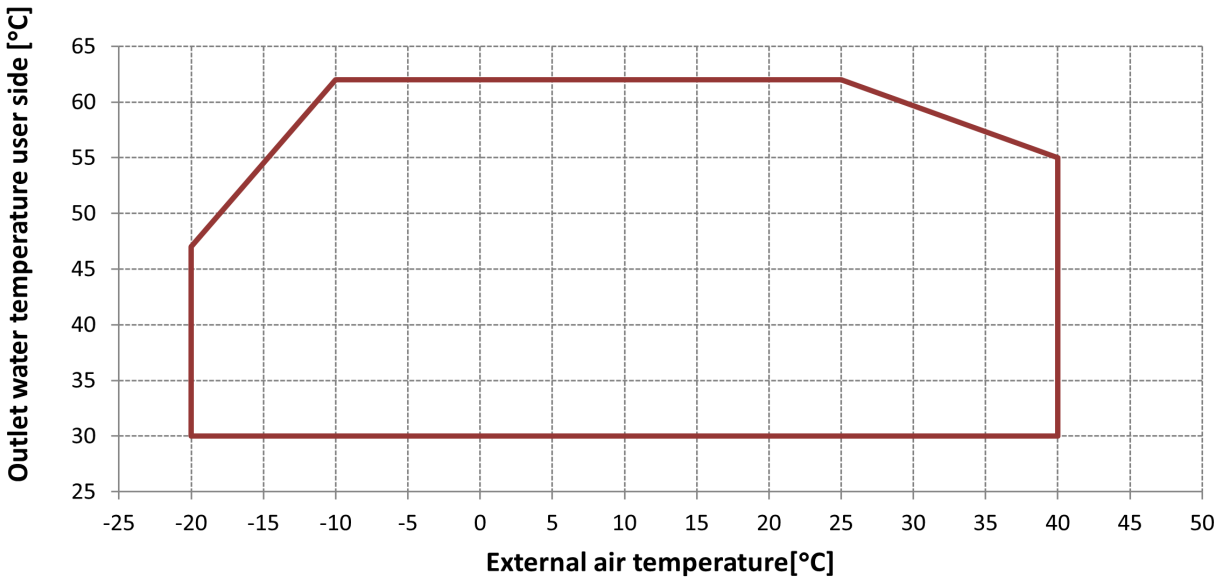
Configurations

LOW NOISE

Standard

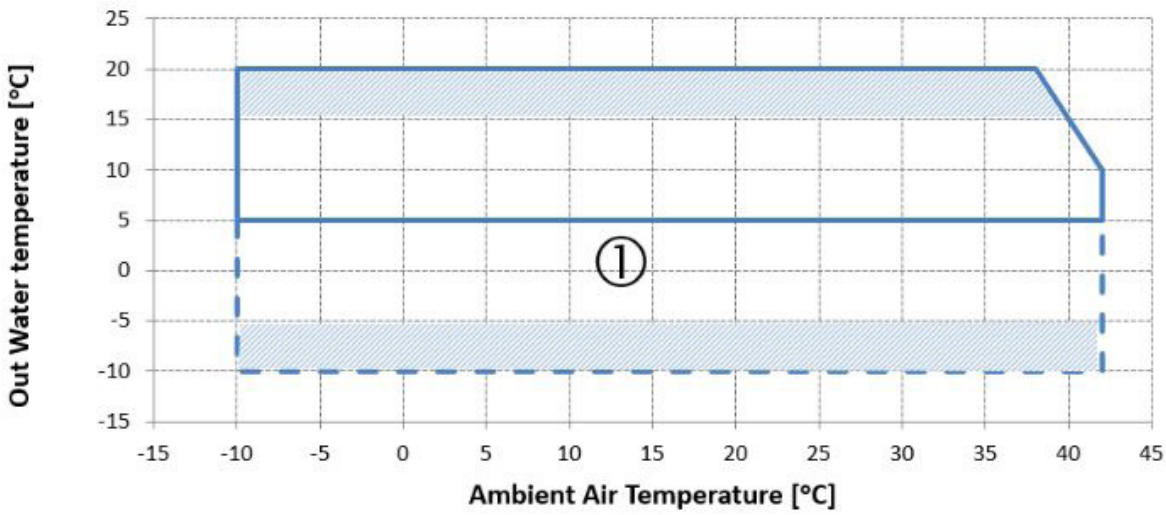
Operating limits

HEATING



Notes
- The temperature difference at the user-side exchanger must be between 3°C and 8°C
- Operating outside the operating limits may trigger the safety devices or result in serious malfunctions
- The inlet water temperature at the user-side exchanger cannot be below 25°C
- The ventilating section may be subject to modulation within the operating limits
- Within operating limits, the unit may be subject to partialization to limit the delivery temperature

COOLING



Notes
- The temperature difference at the user-side exchanger must be between 3°C and 8°C
- ①: in this zone the unit can only operate with glycol water on the evaporator side
- To operate in the area, contact the sales office
- Operating outside the operating limits may trigger the safety devices or result in serious malfunctions

Technical specifications

MODEL			220.2	260.2	290.2	320.2	370.2
HEATING (EN 14511 VALUES) (A7;W45)							
Rated heating power	(1), (7)	kW	213,0	235,0	286,0	306,0	361,0
Total absorbed power in heating	(1), (7)	kW	63,9	67,8	80,8	87,2	103,0
COP (Coefficient of performance)	(1), (7)		3,33	3,47	3,54	3,51	3,50
HEATING (AS PER EN 14511) (A7;W55)							
Rated heating capacity	(2), (7)	kW	206,0	226,0	273,0	293,0	345,0
Total absorbed power in heating	(2), (7)	kW	70,0	73,3	87,6	94,3	112,0
COP	(2), (7)		2,94	3,08	3,12	3,11	3,08
SEASONAL ENERGY INDEXES							
SEER	(10)		3,66	3,71	4,01	3,96	3,86
Seasonal Energy Efficiency η_{sc}	(10)	%	143,3	145,3	157,3	155,2	151,3
SCOP MT	(8)		3,27	3,34	3,39	3,39	3,40
Seasonal Energy Efficiency η_{sh}	(8)	%	127,6	130,7	132,5	132,5	132,9
Seasonal Efficiency class	(8), (9)		A++ (*)	A++ (*)	A++ (*)	A++ (*)	A++ (*)
COOLING (EN 14511 VALUES) (A35;W7)							
Rated cooling power	(3), (7)	kW	183,0	203,0	240,0	260,0	303,0
Total absorbed power in cooling	(3), (7)	kW	71,7	77,4	84,5	92,9	109,0
EER	(3), (7)		2,55	2,62	2,84	2,80	2,78
USER SIDE EXCHANGER HEATING MODE							
Type			Plate exchanger				
Water flow rate (A7/W45)	(1)	m3/h	37,0	40,8	49,6	53,1	62,5
Pressure loss (A7/W45)	(1)	kPa	17,4	18,8	22,7	22,0	28,3
USER SIDE EXCHANGER HEATING MODE							
Type			Plate exchanger				
Water flow rate (A7/W55)	(2)	m3/h	22,4	24,6	29,7	31,8	37,5
Pressure loss (A7/W55)	(2)	kPa	7,5	8,0	9,6	9,3	12,0
USER SIDE EXCHANGER CHILLER MODE							
Type			Plate exchanger				
Water flow rate (A35;W7)	(3)	m3/h	31,5	35,0	41,3	44,7	52,1
Pressure loss (A35;W7)	(3)	kPa	16,3	15,2	17,9	20,8	26,3
COMPRESSOR							
Type			Reciprocating				
Quantity/Refrigeration circuits		n° / n°	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Partialization stages		n°	4	4	4	4	4
Oil charge for circuit		kg	3,5	8,5	8,5	8,5	8,5
Refrigerant charge per circuit		kg	10,0	10,2	14,0	14,2	17,0

(1) Outdoor air temperature 7°C DB, 6°C WB; condenser water inlet-outlet temperature 40-45°C
(2) Outdoor air temperature 7°C DB, 6°C WB; condenser water inlet-outlet temperature 47-55°C
(3) Outdoor air temperature 35°C; evaporator water inlet-outlet temperature 12-7°C
(4) Sound power levels calculated as per ISO 3744
(5) Sound pressure levels refer to 10 metres from unit in free field
(6) Sound levels refer to conditions: chiller running, water 12°/7°C, outdoor air 35°C
(7) Values conforming to standard EN 14511-3:2022
(8) In accordance with European directive No. 813/2013 and EN 14511 - EN 14825 For Temperate Climate (Strasbourg) Average Temperature User Application (55°C) Variable Outlet Temperature
(9) Units marked (*) are not subject to EU Regulation no. 811/2013 (rated heat output > 70 kW)
(10) In accordance with European directive No. 813/2013 and EN 14511 - EN 14825 For Temperate Climate (Strasbourg) Fan Coil User Application (7°C) Variable Outlet Temperature

MODEL			220.2	260.2	290.2	320.2	370.2
AXIAL FANS							
Quantity		n°	4	4	8	8	8
Air flow rate	(1)	m3/h	82404	82427	171008	171072	164785
HYDRAULIC CONNECTIONS							
Type			Victaulic				
Connections			3"	3"	4"	4"	4"
HYDRAULIC MODULE							
Pump model		kW	P1	P1	P2	P2	P2
Pump Rated Power		kW	3,0	3,0	4,0	4,0	4,0
Pump Rated Current		A	6,4	6,4	7,8	7,8	7,8
Pump usable head (A7/W45)	(1)	kPa	162	148	145	138	109
STD UNIT NOISE LEVEL							
Sound power level	(4), (6)	dB(A)	91	91	93	93	93
Sound pressure level	(5), (6)	dB(A)	71	71	72	72	72
UNIT DIMENSIONS AND WEIGHTS							
Length		mm	3230	3230	5843	5843	5843
Depth		mm	2384	2384	2384	2384	2384
Height		mm	2619	2619	2619	2619	2619
Shipping weight		kg	-	-	-	-	-
Weight in operation		kg	-	-	-	-	-

Electrical data

MODEL			220.2	260.2	290.2	320.2	370.2
Maximum absorbed current	(1), (3)	A	150	168	199	213	243
			(156)	(174)	(207)	(221)	(251)
Maximum breakaway current	(2), (3)	A	331	408	492	527	542
			(338)	(415)	(500)	(535)	(550)
Power supply		V/ph/Hz	400/3~/50 ±5%	400/3~/50 ±5%	400/3~/50 ±5%	400/3~/50 ±5%	400/3~/50 ±5%

(1) Current at which the unit's internal safety devices are triggered. It is the maximum current absorbed by the unit. This value is never exceeded and must be used when sizing the line and the relative safety devices (see wiring diagram provided with the units).
(2) Maximum breakaway current calculated considering the compressor starting at maximum power and all other devices drawing maximum current
(3) Values in brackets refer to units fitted with a pump

Notes
- Voltage unbalance: max 2%
- "The standard supply voltage (see specific wiring diagram) must not vary by more than ±5%"
- Electrical data refer to the standard unit. Variation may occur depending on the accessories installed

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Technical specifications

MODEL			220.2	260.2	290.2	320.2	370.2
HEATING (EN 14511 VALUES) (A7;W45)							
Rated heating power	(1), (7)	kW	211,0	234,0	283,0	305,0	360,0
Total absorbed power in heating	(1), (7)	kW	63,3	67,6	80,9	87,7	104,0
COP (Coefficient of performance)	(1), (7)		3,33	3,46	3,50	3,48	3,46
HEATING (AS PER EN 14511) (A7;W55)							
Rated heating capacity	(2), (7)	kW	204,0	226,0	272,0	292,0	345,0
Total absorbed power in heating	(2), (7)	kW	69,7	73,8	88,4	95,4	113,0
COP (Coefficient of performance)	(2), (7)		2,93	3,06	3,08	3,06	3,05
SEASONAL ENERGY INDEXES							
SEER	(10)		3,50	3,46	3,80	3,74	3,63
Seasonal Energy Efficiency η_{sc}	(10)	%	136,8	135,2	148,9	146,5	142,1
SCOP MT	(8)		3,15	3,15	3,23	3,19	3,16
Seasonal Energy Efficiency η_{sh}	(8)	%	122,9	122,9	126,3	124,5	123,2
Seasonal Efficiency class	(8), (9)		A+ (*)	A+ (*)	A++ (*)	A+ (*)	A+ (*)
COOLING (EN 14511 VALUES) (A35;W7)							
Rated cooling power	(3), (7)	kW	180,0	202,0	236,0	257,0	301,0
Total absorbed power in cooling	(3), (7)	kW	70,7	77,3	84,1	93,3	110,0
EER	(3), (7)		2,55	2,61	2,81	2,75	2,74
USER SIDE EXCHANGER HEATING MODE							
Type			Plate exchanger				
Water flow rate (A7/W45)	(1)	m3/h	36,6	40,5	49,1	52,8	62,5
Pressure loss (A7/W45)	(1)	kPa	17,1	18,6	22,4	21,8	28,3
USER SIDE EXCHANGER HEATING MODE							
Type			Plate exchanger				
Water flow rate (A7/W55)	(2)	m3/h	22,2	24,6	29,5	31,8	37,5
Pressure loss (A7/W55)	(2)	kPa	7,4	8,0	9,6	9,3	12,0
USER SIDE EXCHANGER CHILLER MODE							
Type			Plate exchanger				
Water flow rate (A35;W7)	(3)	m3/h	31,0	34,7	40,6	44,2	51,8
Pressure loss (A35;W7)	(3)	kPa	15,8	15,0	17,5	20,4	26,1
COMPRESSOR							
Type			Reciprocating				
Quantity/Refrigeration circuits		n° / n°	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Partialization stages		n°	25 / 100	25 / 100	25 / 100	25 / 100	25 / 100
Oil charge for circuit		kg	3,5	8,5	8,5	8,5	8,5
Refrigerant charge per circuit		kg	10,0	10,2	14,0	14,2	17,0

(1) Outdoor air temperature 7°C DB, 6°C WB; condenser water inlet-outlet temperature 40-45°C
(2) Outdoor air temperature 7°C DB, 6°C WB; condenser water inlet-outlet temperature 47-55°C
(3) Outdoor air temperature 35°C; evaporator water inlet-outlet temperature 12-7°C
(4) Sound power levels calculated as per ISO 3744
(5) Sound pressure levels refer to 10 metres from unit in free field
(6) Sound levels refer to conditions: chiller running, water 12°/7°C, outdoor air 35°C
(7) Values conforming to standard EN 14511-3:2022
(8) In accordance with European directive No. 813/2013 and EN 14511 - EN 14825 For Temperate Climate (Strasbourg) Average Temperature User Application (55°C) Variable Outlet Temperature
(9) Units marked (*) are not subject to EU Regulation no. 811/2013 (rated heat output > 70 kW)
(10) In accordance with European directive No. 813/2013 and EN 14511 - EN 14825 For Temperate Climate (Strasbourg) Fan Coil User Application (7°C) Variable Outlet Temperature

MODEL			220.2	260.2	290.2	320.2	370.2
AXIAL FANS							
Quantity		n°	4	4	8	8	8
Air flow rate	(1)	m3/h	82391	82432	170959	170961	164712
HYDRAULIC CONNECTIONS							
Type			Victaulic				
Connections			3"	3"	4"	4"	4"
HYDRAULIC MODULE							
Pump model		kW	P1	P1	P2	P2	P2
Pump Rated Power		kW	3,0	3,0	4,0	4,0	4,0
Pump Rated Current		A	6,4	6,4	7,8	7,8	7,8
Pump usable head (A7/W45)	(1)	kPa	163	149	146	139	109
STD UNIT NOISE LEVEL							
Sound power level	(4), (6)	dB(A)	91	91	93	93	93
Sound pressure level	(5), (6)	dB(A)	71	71	72	72	72
UNIT DIMENSIONS AND WEIGHTS							
Length		mm	3230	3230	5843	5843	5843
Depth		mm	2384	2384	2384	2384	2384
Height		mm	2619	2619	2619	2619	2619
Shipping weight		kg	-	-	-	-	-
Weight in operation		kg	-	-	-	-	-

Electrical data

MODEL			220.2	260.2	290.2	320.2	370.2
Maximum absorbed current	(1), (3)	A	153	162	195	211	238
			(160)	(169)	(203)	(219)	(246)
Maximum breakaway current	(2), (3)	A	335	403	488	525	537
			(341)	(409)	(496)	(533)	(545)
Power supply		V/ph/Hz	400/3~/50 ±5%	400/3~/50 ±5%	400/3~/50 ±5%	400/3~/50 ±5%	400/3~/50 ±5%

(1) Current at which the unit's internal safety devices are triggered. It is the maximum current absorbed by the unit. This value is never exceeded and must be used when sizing the line and the relative safety devices (see wiring diagram provided with the units).
(2) Maximum breakaway current calculated considering the compressor starting at maximum power and all other devices drawing maximum current
(3) Values in brackets refer to units fitted with a pump

Notes
- Voltage unbalance: max 2%
- "The standard supply voltage (see specific wiring diagram) must not vary by more than ±5%"
- Electrical data refer to the standard unit. Variation may occur depending on the accessories installed

LITHIUMi FULL INVERTER

Technical specifications

MODEL			220.2	260.2	290.2	320.2	370.2
HEATING (EN 14511 VALUES) (A7;W45)							
Rated heating power	(1), (7)	kW	208,0	232,0	280,0	303,0	360,0
Total absorbed power in heating	(1), (7)	kW	62,7	67,3	80,9	88,2	105,0
COP (Coefficient of performance)	(1), (7)		3,32	3,45	3,46	3,44	3,43
HEATING (AS PER EN 14511) (A7;W55)							
Rated heating capacity	(2), (7)	kW	202,0	225,0	270,0	292,0	345,0
Total absorbed power in heating	(2), (7)	kW	69,3	74,4	89,2	96,6	114,0
COP (Coefficient of performance)	(2), (7)		2,91	3,02	3,03	3,02	3,03
SEASONAL ENERGY INDEXES							
SEER	(10)		3,56	3,57	3,91	3,83	3,73
Seasonal Energy Efficiency η_{sc}	(10)	%	139,3	139,7	153,2	150,1	146,1
SCOP MT	(8)		3,23	3,27	3,28	3,28	3,29
Seasonal Energy Efficiency η_{sh}	(8)	%	126,1	127,9	128,0	128,0	128,4
Seasonal Efficiency class	(8), (9)		A++ (*)	A++ (*)	A++ (*)	A++ (*)	A++ (*)
COOLING (EN 14511 VALUES) (A35;W7)							
Rated cooling power	(3), (7)	kW	177,0	200,0	232,0	254,0	299,0
Total absorbed power in cooling	(3), (7)	kW	69,8	77,4	83,7	93,7	111,0
EER	(3), (7)		2,54	2,58	2,77	2,71	2,69
USER SIDE EXCHANGER HEATING MODE							
Type			Plate exchanger				
Water flow rate (A7/W45)	(1)	m3/h	36,1	40,2	48,5	52,6	62,4
Pressure loss (A7/W45)	(1)	kPa	16,7	18,4	22,0	21,7	28,2
USER SIDE EXCHANGER HEATING MODE							
Type			Plate exchanger				
Water flow rate (A7/W55)	(2)	m3/h	22,0	24,5	29,4	31,7	37,5
Pressure loss (A7/W55)	(2)	kPa	7,3	8,0	9,5	9,3	12,0
USER SIDE EXCHANGER CHILLER MODE							
Type			Plate exchanger				
Water flow rate (A35;W7)	(3)	m3/h	30,4	34,3	39,9	43,7	51,4
Pressure loss (A35;W7)	(3)	kPa	15,4	14,8	17,0	20,1	25,8
COMPRESSOR							
Type			Reciprocating				
Quantity/Refrigeration circuits		n° / n°	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Partialization stages		n°	25 / 100	25 / 100	25 / 100	25 / 100	25 / 100
Oil charge for circuit		kg	3,5	3,5	3,5	3,5	8,5
Refrigerant charge per circuit		kg	10,0	10,2	14,0	14,2	17,0

(1) Outdoor air temperature 7°C DB, 6°C WB; condenser water inlet-outlet temperature 40-45°C
(2) Outdoor air temperature 7°C DB, 6°C WB; condenser water inlet-outlet temperature 47-55°C
(3) Outdoor air temperature 35°C; evaporator water inlet-outlet temperature 12-7°C
(4) Sound power levels calculated as per ISO 3744
(5) Sound pressure levels refer to 10 metres from unit in free field
(6) Sound levels refer to conditions: chiller running, water 12°/7°C, outdoor air 35°C
(7) Values conforming to standard EN 14511-3:2022
(8) In accordance with European directive No. 813/2013 and EN 14511 - EN 14825 For Temperate Climate (Strasbourg) Average Temperature User Application (55°C) Variable Outlet Temperature
(9) Units marked (*) are not subject to EU Regulation no. 811/2013 (rated heat output > 70 kW)
(10) In accordance with European directive No. 813/2013 and EN 14511 - EN 14825 For Temperate Climate (Strasbourg) Fan Coil User Application (7°C) Variable Outlet Temperature

MODEL			220.2	260.2	290.2	320.2	370.2
AXIAL FANS							
Quantity		n°	4	4	8	8	8
Air flow rate	(1)	m3/h	82376	82443	170945	171107	164843
HYDRAULIC CONNECTIONS							
Type			Victaulic				
Connections			3"	3"	4"	4"	4"
HYDRAULIC MODULE							
Pump model		kW	P1	P1	P2	P2	P2
Pump Rated Power		kW	3,0	3,0	4,0	4,0	4,0
Pump Rated Current		A	6,4	6,4	7,8	7,8	7,8
Pump usable head (A7/W45)	(1)	kPa	165	151	147	139	109
STD UNIT NOISE LEVEL							
Sound power level	(4), (6)	dB(A)	91	91	93	93	93
Sound pressure level	(5), (6)	dB(A)	71	71	72	72	72
UNIT DIMENSIONS AND WEIGHTS							
Length		mm	3230	3230	5843	5843	5843
Depth		mm	2384	2384	2384	2384	2384
Height		mm	2619	2619	2619	2619	2619
Shipping weight		kg	-	-	-	-	-
Weight in operation		kg	-	-	-	-	-

Electrical data

MODEL			220.2	260.2	290.2	320.2	370.2
Maximum absorbed current	(1), (3)	A	157	157	191	209	233
			(163)	(163)	(199)	(217)	(241)
Maximum breakaway current	(2), (3)	A	157	157	191	209	233
			(163)	(163)	(199)	(217)	(241)
Power supply		V/ph/Hz	400/3~/50 ±5%	400/3~/50 ±5%	400/3~/50 ±5%	400/3~/50 ±5%	400/3~/50 ±5%

(1) Current at which the unit's internal safety devices are triggered. It is the maximum current absorbed by the unit. This value is never exceeded and must be used when sizing the line and the relative safety devices (see wiring diagram provided with the units).
(2) Maximum breakaway current calculated considering the compressor starting at maximum power and all other devices drawing maximum current
(3) Values in brackets refer to units fitted with a pump

Notes
- Voltage unbalance: max 2%
- "The standard supply voltage (see specific wiring diagram) must not vary by more than ±5%"
- Electrical data refer to the standard unit. Variation may occur depending on the accessories installed

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