EDITION 3.0
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Revere® R290
High Efficiency Air-to-Water Reversible Heat Pumps

Flowenergy
HEATING & VENTILATION SOLUTIONS

Revere® R290 High Efficiency Air-to-Water Reversible Heat Pumps

NATURAL REFRIGERANT

GWP = 3

ODP = 0

Air to water heat pump with natural refrigerant gas R290. Extended working conditions and very high performances.

Equipped with semihermetic reciprocating compressor/s, axial fan with cut-off phase control, single/dual circuit plates heat exchanger and Al/Cu minichannel coils.

The unit can be equipped with hydronic kit except buffer tank (except sizes 30.1-35.1).

Low noise configuration is standard for all the series.

Brief Overview

Max Water Temp.	**62°C**
Min. External Air Temp.	**-20°C**
Heating Capacity (A7;W45)	**26 ÷ 132 kW**
Cooling Capacity (A35;W7)	**22 ÷ 113 kW**
Heat Pumps	**Reversible**
Compressors	**Semi-hermetic reciprocating**
Fans	**Axial**

Features

1 

Gas Leak Detector

In case of refrigerant leak inside the compressor box:

- the power supply is disconnected
- the extraction fan (ATEX certified) is switched on to clean the compressor box.

2 

ATEX

The ATEX certified extraction fan runs at nominal speed for all the time required to clean the compressor box.

3 

All the components inside the compressor box are ATEX certified: compressors, solenoid valves, EEV. The box is always insulated as standard.

4 Compliant with Ecodesign

Technical Data

UNIT SIZE			8.1	10.1	12.1	15.1	20.1	22.1	25.1	30.1	32.1	35.1	40.1	50.1
Heating (EN 14511 values) (A7;W45)														
Nominal heating capacity	(1), (7)	kW	26.8	30.2	34.2	39.8	46.9	49.7	59.7	66.1	75.0	82.6	97.4	110.9
Total Power input in heating mode	(1),(2),(7)	kW	8.0	9.1	9.7	11.1	12.8	13.7	16.4	18.0	21.9	23.8	28.1	32.6
COP	(1), (7)		3.33	3.34	3.55	3.59	3.66	3.63	3.64	3.67	3.42	3.46	3.46	3.40
Energy Seasonal Index														
SCOP	(8)		2.85	2.85	2.88	2.90	2.95	2.94	2.93	3.02	2.84	2.84	2.84	2.84
Seasonal Energy Efficiency hs	(8)	%	111.0	111.0	112.2	113.0	115.0	114.6	114.2	117.8	110.0	110.5	110.0	110.0
Seasonal Efficiency class	(8)		A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+
Cooling (EN 14511 values) (A35;W7)														
Nominal cooling capacity	(3), (7)	kW	22.0	25.9	29.3	33.1	38.7	31.6	49.9	55.5	58.2	66.2	76.4	88.0
Total Power input in cooling mode	(3), (2),(7)	kW	7.4	8.8	9.8	11.2	12.5	12.1	16.4	18.8	20.9	23.0	29.0	34.3
EER	(3), (7)		2.96	2.95	3.00	2.96	3.10	2.61	3.04	2.95	2.79	2.88	2.63	2.56
Compressor														
Type			Reciprocating											
Quantity/Refrigerant circuits		n°/n°	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Capacity steps		n°	2	2	2	2	2	2	2	2	2	2	2	2
Oil charge		kg	1.6	1.6	2.9	2.9	2.9	4.0	4.0	4.0	4	3.7	7.2	7.2
Refrigerant charge		kg	2.4	2.5	2.6	2.8	3.6	3.6	4.4	4.6	5.9	5.6	7.6	7.7
Axial Fans														
Quantity		n°	1	1	1	1	1	1	1	1	2	2	2	2
Air flow		m3/h	17.991	17.991	17.419	18.508	22.383	22.383	22.142	22.142	43.633	43.476	42.716	42.628
User Side exchanger														
Type			Plate exchanger											
Water flow rate (A7/W45)	(1)	l/h	4.643	5.239	5.927	6.898	8.126	8.611	10.340	11.460	13.030	14.640	17.080	19.590
Pressure drop (A7/W45)	(1)	kPa	27	17	22	19	25	26	26	23	24	15	18	18
Hydraulic module														
Pump model			P1	P1	P2	P2	P3	P3	P3	P3	P3	P3	P3	
Nominal Power input of pump		kW	0.5	0.5	0.9	0.9	1.1	1.1	1.1	1.1	1.4	1.4	2.5	2.5
Available pump pressure (A7/W45)	(1)	kPa	177	171	184	170	164	161	155	154	158	158	200	198
Hydraulic connection														
Connection			1"¼	1"¼	1"¼	1"¼	1"½	1"½	1"½	1"½	1"½	2"	2"	2"
Sound level STD version														
Sound power value	(4), (6)	dB(A)	73	73	75	75	82	82	83	83	85	85	85	85
Sound pressure value	(5), (6)	dB(A)	56	56	58	58	64	64	65	65	67	67	67	67
Basic unit size and weights														
Width		mm	1.940	1.940	1.940	1.940	1.791	1.791	1.791	1.791	2.880	2.880	2.880	2.880
Depth		mm	920	920	920	920	1.213	1.213	1.213	1.213	1.213	1.213	1.213	1.213
Height		mm	2.000	2.000	2.000	2.000	2.388	2.388	2.388	2.388	2.388	2.388	2.388	2.388
Delivery weight		kg	555	571	604	613	728	771	829	838	1.021	1.065	1.082	1.093
Operating weight		kg	559	576	610	620	733	776	835	846	1.032	1.077	1.094	1.106

(1) External air temperature 7°C BS, 6°C BU, Inlet-outlet water 40-45 °C
(2) Total power input is sum of compressors and funs power input and pump, according with EN 14511
(3) External air temperature 35°C, Inlet-outlet water 12-7°C .
(4) Sound power level calculate in compliance with ISO 3744
(5) Sound pressure level at 1m from the unit calculate 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
(8) According to European Regulation n° 813/2013 and EN14511 - EN14825 for Climate Average(Strasburg) User Application Medium temperature (55°C) Outlet temperature Variable
(9) Not subject to Regulation EU No. 811/2013, rated heat output > 70 kW
This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation

UNIT SIZE			15.2	20.2	22.2	25.2	30.2	32.2	35.2	40.2	50.2
Heating (EN 14511 values) (A7;W45)											
Nominal heating capacity	(1), (7)	kW	83.8	93.8	100.6	119.5	131.9	149.8	166.9	194.9	221.7
Total Power input in heating mode	(1),(2),(7)	kW	23.1	25.7	27.3	32.8	36.0	43.1	47.5	56.5	65.7
COP	(1), (7)		3.63	3.65	3.68	3.64	3.66	3.47	3.52	3.45	3.38
Energy Seasonal Index											
SCOP	(8)		3.08	3.20	3.22	3.20	3.21	3.01	3.07	2.99	2.98
Seasonal Energy Efficiency hs	(8)	%	120.2	125.0	125.8	125.0	125.4	117.4	120.0	116.6	116.0
Seasonal Efficiency class	(8)		A+	A++	A++	A++ (9)	A++ (9)	A+ (9)	A+ (9)	A+ (9)	A+ (9)
Cooling (EN 14511 values) (A35;W7)											
Nominal cooling capacity	(3), (7)	kW	70.7	79.1	84.1	98.2	111.8	118.1	137.0	120.8	181.6
Total Power input in cooling mode	(3),(2),(7)	kW	22.2	25.3	27.5	33.2	37.6	42.0	45.6	52.0	69.7
EER	(3), (7)		3.18	3.13	3.05	2.96	2.97	2.82	3.01	2.32	2.60
Compressor											
Type			Reciprocating								
Quantity/Refrigerant circuits		n° / n°	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Capacity steps		n°	4	4	4	4	4	4	4	4	4
Oil charge		kg	2.9	2.9	4.0	4.0	4.0	4	3.7	7.2	7.2
Refrigerant charge		kg	3.9	3.9	4.0	4.3	4.5	5.9	5.1	7.1	7.2
Axial Fans											
Quantity		n°	2	2	2	2	2	4	4	4	4
Air flow		m3/h	44.766	44.766	44.765	44.285	44.284	87.456	85.989	85.444	85.254
User Side exchanger											
Type			Double circuit Plate exchanger								
Water flow rate (A7/W45)	(1)	l/h	14.520	16.260	17.440	20.710	22.870	26.000	28.970	34.360	39.150
Pressure drop (A7/W45)	(1)	kPa	33	25	18	25	20	22	27	30	34
Hydraulic module											
Pump model			P4	P5	P5	P5	P5	P5	P6	P6	P6
Nominal Power input of pump		kW	1.7	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0
Available pump pressure (A7/W45)	(1)	kPa	174	186	191	171	163	177	193	184	171
Hydraulic connection											
Connection			2"	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	3"	3"
Sound level STD version											
Sound power value	(4), (6)	dB(A)	86	87	87	89	89	90	90	90	90
Sound pressure value	(5), (6)	dB(A)	67	68	68	70	70	70	70	70	70
Basic unit size and weights											
Width		mm	3.330	3.330	3.330	3.330	3.330	5.320	5.320	5.320	5.320
Depth		mm	1.213	1.213	1.213	1.213	1.213	1.213	1.213	1.213	1.213
Height		mm	2.388	2.388	2.388	2.388	2.388	2.388	2.388	2.388	2.388
Delivery weight		kg	1.150	1.162	1.180	1.438	1.476	1.758	1.826	1.863	1.908
Operating weight		kg	1.162	1.180	1.200	1.458	1.498	1.770	1.838	1.878	1.924

(1) External air temperature 7°C BS, 6°C BU, Inlet-outlet water 40-45 °C
(2) Total power input is sum of compressors and funs power input and pump, according with EN 14511
(3) External air temperature 35°C, Inlet-outlet water 12-7°C .
(4) Sound power level calculate in compliance with ISO 3744
(5) Sound pressure level at 1m from the unit calculate 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
(8) According to European Regulation n° 813/2013 and EN14511 - EN14825 for Climate Average(Strasburg) User Application Medium temperature (55°C) Outlet temperature Variable
(9) Not subject to Regulation EU No. 811/2013, rated heat output > 70 kW
This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation

Electrical Data

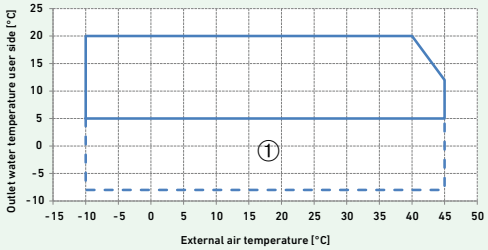
UNIT SIZE			8.1	10.1	12.1	15.1	20.1	22.1	25.1	30.1	32.1	35.1	40.1	50.1
Maximum absorbed power	(1), (3)	kW	13.7	13.5	14.6	17.2	19.7	18.3	21.9	26.0	29.2	33.9	38.8	46.3
			(14.23)	(14)	(15.87)	(18.47)	(21.03)	(19.62)	(23.2)	(27.35)	(30.55)	(35.25)	(41.25)	(48.75)
Full load current	(2), (3)	A	91.7	91.7	63.5	79.2	91.9	111.0	122.7	137.0	153.0	153.0	168.0	197.0
			(95.17)	(95.17)	(65.88)	(81.58)	(94.36)	(113.5)	(125.2)	(139.5)	(156)	(156)	(173)	(202)
Maximum starting current	(4)	A	24.8	24.8	26.0	26.8	40.3	34.6	41.3	48.4	51.6	62.7	69.8	83.4
			(28.27)	(28.27)	(28.38)	(29.18)	(42.76)	(37.06)	(43.76)	(50.86)	(54.1)	(65.2)	(74.4)	(87.9)
Power supply		V/ph/Hz	400/3~/50 ±5%											
Auxiliary Power supply		V/ph/Hz	230/1~/50 ±5%											

UNIT SIZE			15.2	20.2	22.2	25.2	30.2	32.2	35.2	40.2	50.2
Maximum absorbed power	(1), (3)	kW	34.4	39.4	36.6	43.7	52.0	58.4	67.8	77.6	92.6
			(35.88)	(41.81)	(39)	(46.15)	(54.45)	(60.85)	(70.8)	(80.6)	(95.6)
Full load current	(2), (3)	A	104.8	123.1	138.6	155.2	171.5	205.0	216.0	238.0	281.0
			(111.4)	(127.6)	(143.1)	(159.8)	(176)	(209)	(222)	(244)	(287)
Maximum starting current	(4)	A	53.6	80.6	69.2	82.6	96.8	103.0	125.0	140.0	167.0
			(60.22)	(85.15)	(73.75)	(87.15)	(101.4)	(108)	(132)	(146)	(173)
Power supply		V/ph/Hz	400/3~/50 ±5%								
Auxiliary Power supply		V/ph/Hz	230/1~/50 ±5%								

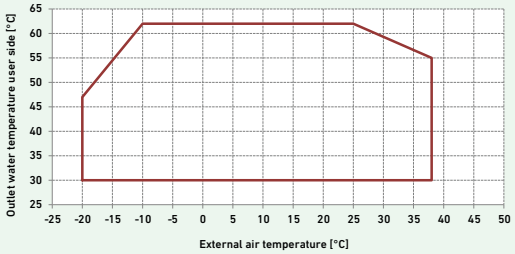
(1) Mains power supply to allow unit operation
(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit).
(3) Values in brackets refer 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

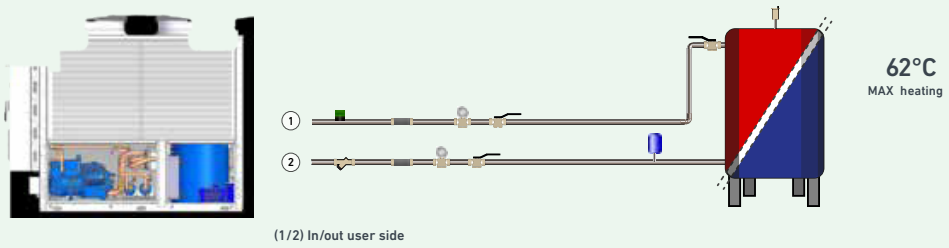


- The thermal gradient to the utility side exchanger must be between 3°C and 6°C
- (1) The unit can only operate in this area with evaporator side glycol water
- Operating outside the operating limits may cause the safety devices to intervene or serious malfunctions
- The temperature of inlet water to 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

Available Versions

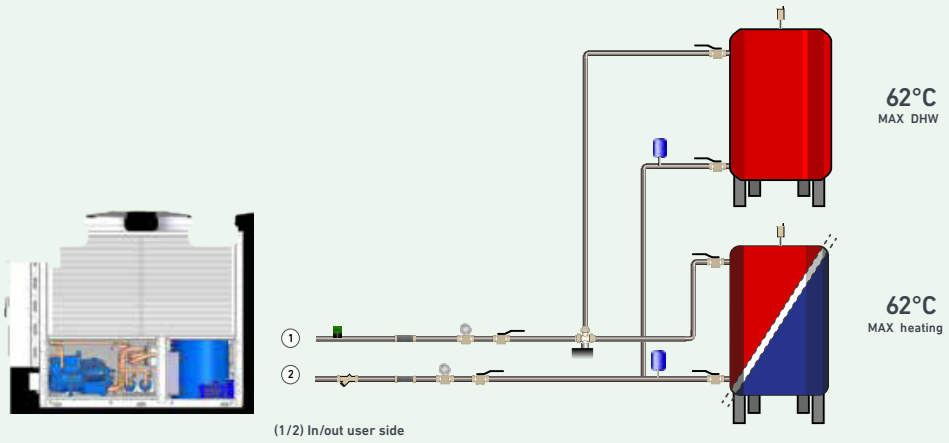
Standard

Reversible heat pump for standard 2 pipes system for conditioning and heating up to 60°C.



Automatic Management of Sanitary Water

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



*The buffer tank and pump shown are available as option.

Configurations

LN Low Noise

Standard

SLN Super Low Noise

The unit is provided with the following modifications:

- oversized external 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

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