EDITION 3.0
flowenergy.co.nz

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

Flowenergy
HEATING & VENTILATION SOLUTIONS

Revere® R290 Inverter 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 compressors, axial fan with cut-off phase control, single/dual circuit plates heat exchanger and Al/Cu minichannel coils. The unit manages control of a compressor through Inverter technology.

The unit can be equipped with hydronic kit except buffer tank (except sizes 20.1-30.1).

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 ÷ 220 kW**
Cooling Capacity (A35;W7)	**22 ÷ 176 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
Heating (EN 14511 values) (A7;W45)												
Nominal heating capacity	(1), (7)	kW	26.9	30.8	35.0	39.0	43.0	50.0	59.5	62.4	74.9	86.4
Total Power input in heating mode	(1),(2),(7)	kW	8.0	9.2	10.4	11.4	12.2	14.4	17.2	17.5	22.3	25.5
COP	(1), (7)		3.33	3.34	3.55	3.59	3.66	3.63	3.64	3.67	3.36	3.39
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
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
Seasonal Efficiency class	(8)		A+	A+	A+	A+	A+	A+	A+	A+	A+	A+
Cooling (EN 14511 values) (A35;W7)												
Nominal cooling capacity	(3), (7)	kW	21.5	25.8	28.7	32.3	34.7	42.0	47.1	49.9	63.2	73.5
Total Power input in cooling mode	(3), (2),(7)	kW	7.6	9.2	10.1	11.3	11.7	14.0	17.2	17.9	21.5	25.4
EER	(3), (7)		2.81	2.81	2.84	2.86					2.94	2.89
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
Capacity steps		n°	50/100	50/100	50/100	50/100	50/100	50/100	50/100	50/100	50/100	50/100
Oil charge		kg	1.6	1.6	2.9	2.9	2.9	4.0	4.0	4.0	4	3.7
Refrigerant charge		kg	2.4	2.5	2.7	2.8	3.6	3.6	3.8	4.0	6.0	6.1
Axial Fans												
Quantity		n°	1	1	1	1	1	1	1	1	2	2
Air flow		m3/h	17.676	17.628	16.982	18.025	21.745	21.763	21.388	21.365	43.041	43.344
User Side exchanger												
Type			Plate exchanger									
Water flow rate (A7/W45)	(1)	l/h	4.659	5.337	6.058	6.754	7.450	8.653	10.310	10.810	12.980	14.980
Pressure drop (A7/W45)	(1)	kPa	26	17	23	34	28	27	27	21	24	15
Hydraulic module												
Pump model			P1	P1	P2	P2	P3	P3	P3	P3	P3	P3
Nominal Power input of pump		kW	10.9	12.2	15.4	15.3	17.3	21.2	22.2	23.4	30.6	37.7
Available pump pressure (A7/W45)	(1)	kPa	184.1	167.5	181.8	161.6	163.2	160.8	153.6	158.2	136.2	133.2
Hydraulic connection												
Connection			1"¼	1"¼	1"¼	1"¼	1"½	1"½	1"½	1"½	1"½	2"
Sound level STD version												
Sound power value	(4), (6)	dB(A)	73	73	75	75	82	82	83	83	85	85
Sound pressure value	(5), (6)	dB(A)	56	56	58	58	64	64	65	65	67	67
Basic unit size and weights												
Width		mm	1.940	1.940	1.940	1.940	1.885	1.885	1.885	1.885	2.880	2.880
Depth		mm	920	920	920	920	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
Operating weight		kg	559	576	705	706	712	729	792	811	1.032	1.077

(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			40.1	50.1	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	95.5	109.7	84.6	91.8	99.8	117.7	136.8	144.2	163.3	184.8	220.6
Total Power input in heating mode	(1),(2),(7)	kW	27.4	32.6	24.2	25.8	28.1	33.4	38.2	40.1	45.6	52.4	64.4
COP	(1), (7)		3.48	3.36	3.63	3.65	3.68	3.64	3.66	3.59	3.59	3.53	3.42
Energy Seasonal Index													
SCOP	(8)		2.84	2.84	3.08	3.20	3.22	3.20	3.21	3.01	3.07	2.99	2.98
Seasonal Energy Efficiency hs	(8)	%	111.0	110.0	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++	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	76.5	90.2	70.5	73.5	82.8	94.7	110.0	116.3	133.3	148.0	176.6
Total Power input in cooling mode	(3),(2),(7)	kW	28.2	35.1	22.6	24.4	28.1	33.4	39.9	42.2	49.6	59.4	75.8
EER	(3), (7)		2.72	2.57	3.12	3.01	2.95	2.84	2.76	2.75	2.69	2.49	2.33
Compressor													
Type			Reciprocating										
Quantity/Refrigerant circuits		n° / n°	1 / 1	1 / 1	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Capacity steps		n°	50/100	50/100	25/100	25/100	25/100	25/100	25/100	25/100	25/100	25/100	25/100
Oil charge		kg	7.2	7.2	2.9	2.9	4.0	4.0	4.0	4	3.7	7.2	7.2
Refrigerant charge		kg	8.1	7.7	3.9/3.9	3.9/3.9	4.0/4.0	4.1/4.1	4.5/4.5	5.5/5.5	5/5	7.1/7.1	7.2/7.2
Axial Fans													
Quantity		n°	2	2	2	2	2	2	2	4	4	4	4
Air flow		m3/h	42.488	42.281	43.677	43.508	43.513	42.789	42.592	43.951	43.714	43.092	42.667
User Side exchanger													
Type			Plate		Double circuit Plate exchanger								
Water flow rate (A7/W45)	(1)	l/h	16.560	19.030	14.650	15.910	17.310	20.410	23.720	25.000	28.300	32.030	38.240
Pressure drop (A7/W45)	(1)	kPa	17	18	32	23	18	25	21	21	26	26	32
Hydraulic module													
Pump model			P3		P4	P5	P5	P5	P5	P5	P6	P6	P6
Nominal Power input of pump		kW	45.4	51.0	34.6	38.0	40.6	45.1	55.4	56.3	68.6	73.5	93.2
Available pump pressure (A7/W45)	(1)	kPa	185.8	171.6	175.2	190.4	190.6	169.9	156.9	139.7	175.5	169.2	147.2
Hydraulic connection													
Connection			2"	2"	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)	85	85	86	87	86	89	89	90	90	90	90
Sound pressure value	(5), (6)	dB(A)	67	67	67	68	68	70	70	70	70	70	70
Basic unit size and weights													
Width		mm	2.880	2.880	3.330	3.330	2.890	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	1.213	1.213
Height		mm	2.388	2.388	2.388	2.388	2.388	2.388	2.388	2.388	2.388	2.388	2.388
Operating weight		kg	1.094	1.106	1.227	1.238	1.249	1.390	1.412	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

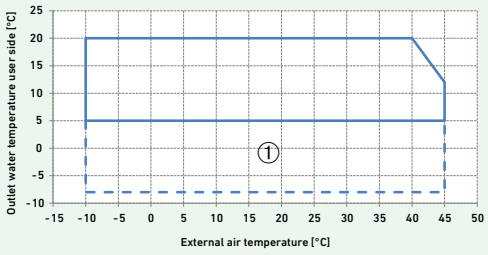
UNIT SIZE			8.1	10.1	12.1	15.1	20.1	22.1	25.1	30.1	32.1	35.1
Maximum absorbed power	(1), (3)	kW	10	12	14	14	16	20	21	22	29	36
			(10.9)	(12.2)	(15.38)	(15.26)	(17.25)	(21.24)	(22.15)	(23.35)	(30.55)	(37.65)
Full load current	(2), (3)	A	18	21	25	25	27	37	43	40	52	62
			(21.6)	(24.7)	(27.4)	(27.2)	(29.3)	(39.3)	(45.3)	(42.2)	(54.8)	(64.4)
Maximum starting current	(4)	A	18	21	25	25	27	37	43	40	52	62
			(21.6)	(24.7)	(27.4)	(27.2)	(29.3)	(39.3)	(45.3)	(42.2)	(54.8)	(64.4)
Power supply		V/ph/Hz	400/3~/50 ±5%									
Auxiliary Power supply		V/ph/Hz	230/1~/50 ±5%									

UNIT SIZE			40.1	50.1	15.2	20.2	22.2	25.2	30.2	32.2	35.2	40.2	50.2
Maximum absorbed power	(1), (3)	kW	43	49	33	36	38	43	53	54	66	71	90
			(45.35)	(50.95)	(34.59)	(38.03)	(40.61)	(45.1)	(55.35)	(56.25)	(68.6)	(73.5)	(93.2)
Full load current	(2), (3)	A	70	81	106	119	148	166	185	197	206	221	269
			(74.4)	(85.2)	(109)	(123)	(152)	(170)	(189)	(201)	(213)	(227)	(276)
Maximum starting current	(4)	A	70	81	54	67	71	84	96	95	116	123	155
			(74.4)	(85.2)	(56.8)	(71.7)	(76)	(88.6)	(101)	(99.6)	(122)	(129)	(162)
Power supply		V/ph/Hz	400/3~/50 ±5%										
Auxiliary Power supply		V/ph/Hz	230/1~/50 ±5%										

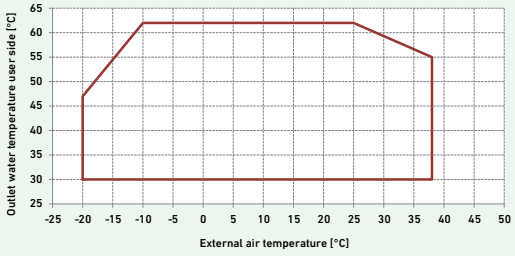
(1) Mains power supply to allow unit operation
(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit).
(3) Values in brackets refer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

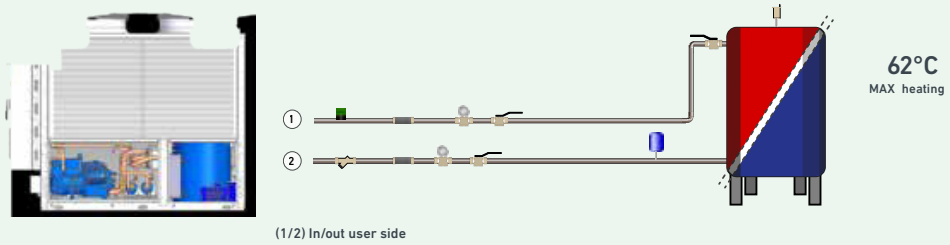


- The thermal gradient to the utility side exchanger must be between 3°C and 6°C
- (1) The unit can only operate in this area with evaporator side glycol water
- Operating outside the operating limits may cause the safety devices to intervene or serious malfunctions
- The temperature of inlet water to utility side exchanger cannot be less than 25°C
- 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 partialization

Available Versions

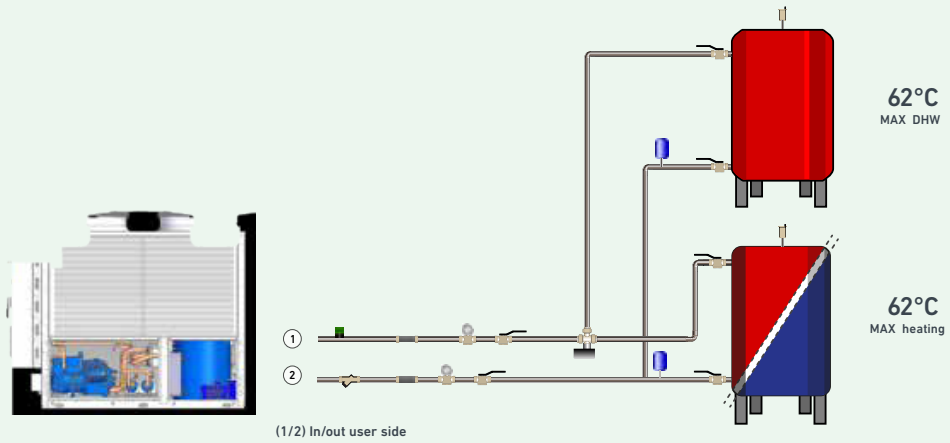
Standard

Reversible heat pump for standard 2 pipes system for conditioning and heating up to 62°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

Flow Energy
T. +646 758 3748
E. sales@flowenergy.co.nz

19 Hurlstone Drive, Waiwhakaiho New Plymouth
P.O. Box 18030, Merrilands, New Plymouth
W. flowenergy.co.nz

October 2021