HUSSMANN®

REFRA GREEN SOLUTIONS

SOLIS+

R290 HEAT PUMP SYSTEMS

NATURAL HVAC SYSTEMS SOLUTIONS
FOR A MORE SUSTAINABLE FUTURE

NATURAL SOLUTIONS R290

PRODUCT DESCRIPTION

High power reversible heat pumps with the heating power from 55 kW to 550 kW are designed for industrial and commercial buildings with large power demand. Manufactured using R290 refrigerant only and full-inverter technology the units are a part of the extremely economical and environmentally friendly Refra product line. With high cooling capacity and many possible extra features these products are widely used in various factories, immense supermarkets and warehouses. These pumps can be used for heating purposes at ambient temperature of -15°or higher as well as for cooling purposes with the capacity of 60 kW to 480 kW. This dual solution is very efficient in terms of price, installation and space, as there is no need to install two separate systems.

Solis+ heat pumps are made with three circuits to ensure continuous system operation in case of emergency – if one circuit is damaged, the others can still use the remaining unit capacity to service the end user. When the unit is in the defrost stage, two circuits operate in heating mode and the third operates in defrost mode. This allows the system to ensure a constant required temperature in the water circuit.

Comprehensive modular frame construction is assembled with high-quality EC fan motor technology, finned tube heat exchangers and reciprocating compressors. Larger, raised coils are set to simplify the defrosting process and allow water to drain freely. Galvanized steel and powder coated frame with a reliable 20 mm non-flammable acoustical PU foam insulation material ensures proper unit protection as well as noise reduction. An additional 30 mm rock wool material can be supplemented for a super silent unit operation.

PARTS INCLUDED

- Bitzer reciprocating compressors (Ex II-3G) with oil charge and oil level monitoring/differential pressure switch;
- Polymer powder painted RAL7035 frame;
- Frequency inverters on all compressors;
- HP/LP pressure switch per circuit;
- HP/LP pressure gauges per circuit;
- Necessary pressure and temperature probes;
- Liquid receiver per circuit;
- Air cooled condenser (copper tubes - aluminium fins);
- BPHE evaporator;
- EC fans;
- 4-way valve for reversible operation;
- Double safety valves per circuit;
- Filter drier on liquid line per circuit;
- Sight glass on liquid line per circuit;
- Magnetic expansion valve per circuit;
- Control board with Siemens Climatix controller;
- Suction line accumulator per circuit;
- Vibration absorbers;
- R290 leak detector;
- Emergency EX fan.

TECHNICAL PARAMETERS

Calculations are made for basic units without additional options

Model		SOL 335	SOL 336	SOL 340	SOL 344
Standard version					
Heating capacity[1]	kW	356,1	370,5	421,5	462,6
Power consumption	kW	98,9	103,1	119,9	133,7
COP		3,6	3,6	3,5	3,5
SCOP		4,8	4,7	4,7	4,6
SSHEE	%	189	185	185	181
Refrigeration capacity[2]	kW	312,3	327,9	362,1	382,2
Power consumption	kW	105,4	109,0	125,2	134,2
EER		3,0	3,0	2,9	2,8
System data					
Refrigerant	Type	R290			
Number of compressors	n	3	3	3	3
Refrigerant quantity per circuit[3]	kg	15,6	16,4	16,4	17,2
Inlet/Outlet connection	DN	100	100	125	125
Sound pressure level in 10m[4]	dB	58	59	59	59
Fan					
Type		EC			
Number of fans	n	6	6	6	6
Air flow	m³/h	167946	167946	167946	167946
Plate heat exchanger					
Number of plate heat exchangers	n	3	3	3	3
Flow rate heating[1]	m³/h	66,4	69,1	78,6	86,3
Pressure drop heating	kPa	19,7	14,7	18,8	22,3
Flow rate cooling[2]	m³/h	59,6	62,6	69,1	72,9
Pressure drop heating	kPa	19,6	15,1	17,9	19,6
Power supply					
Voltage		3-400V / 50Hz			
Max. power consumption	A	194,4	205,5	240,6	301,5
Dimensions and weight					
Length	mm	6010	6010	6010	6010
Width	mm	2378	2378	2378	2378
Height	mm	2401	2401	2401	2401
Operating weight	kg	4200	4250	4300	4350

[1] Outside air temperature 7°C, medium temperature 40/45°C, medium EG 35%.
[2] Outside air temperature 35°C, medium temperature 12/7°C, medium EG 35%.
[3] Theoretical values refer to the basic unit. The actual amount of gas charge in the unit may differ.
[4] Sound pressure level at a distance of 10m in the free field and at the extended point, tolerance +/-2dB(A).

Additional Information
All Dimensions shown in Millimetres (mm) unless otherwise stated. Dimensions and features are subject to change. Please obtain current technical information prior to order confirmation.

NOTE: We reserve the right to change or revise specifications and product design in connection with any feature of our products. Such changes do not entitle the buyer to corresponding changes, improvements, additions or replacements for equipment previously sold or Shipped.

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