

# IGNIS+

R290 HEAT PUMP SYSTEMS



NATURAL HVAC SYSTEMS SOLUTIONS  
FOR A MORE SUSTAINABLE FUTURE



**PRODUCT DESCRIPTION**

Medium power range reversible heat pumps with the heating power from 20 kW to 155 kW are designed for commercial and industrial buildings with medium 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. 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 25 kW to 145 kW. This dual solution is very efficient in terms of price, installation and space, as there is no need to install two separate systems.

One of the main advantages of this unit is that it has two circuits, which will provide maximum operational safety by ensuring continuous system operation in case of emergency. If one circuit is damaged, the other can still use 50% of unit's capacity to service the end user. When the unit is in the defrost stage, one circuit operates in heating mode and the other in defrost mode. This allows the system to ensure a constant required temperature in the water circuit.

Compact frame construction is assembled with high-quality EC fan motor technology, finned tube heat exchangers and reciprocating compressors. 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 50 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                               |    | IGN 209 | IGN 210 | IGN 212 | IGN 213 | IGN 216 | IGN 217 | IGN 219 | IGN 220 |
|-------------------------------------|----|---------|---------|---------|---------|---------|---------|---------|---------|
| <b>Standard version</b>             |    |         |         |         |         |         |         |         |         |
| Heating capacity <sup>1</sup>       | kW | 93,4    | 105,1   | 115,8   | 123,6   | 149,6   | 173,6   | 197,2   | 223,8   |
| Power consumption                   | kW | 26,5    | 29,7    | 32,6    | 35,1    | 43,7    | 49,9    | 56,3    | 65,5    |
| COP                                 |    | 3,5     | 3,5     | 3,6     | 3,5     | 3,4     | 3,5     | 3,5     | 3,4     |
| SCOP                                |    | 4,5     | 4,5     | 4,6     | 4,6     | 4,4     | 4,4     | 4,6     | 4,6     |
| SSHEE                               | %  | 177     | 177     | 181     | 181     | 173     | 173     | 181     | 181     |
| Refrigeration capacity <sup>2</sup> | kW | 81,4    | 93,6    | 103,6   | 108,8   | 132,2   | 155,4   | 175,1   | 195,4   |
| Power consumption                   | kW | 26,2    | 30,4    | 35,0    | 37,4    | 44,3    | 52,2    | 59,4    | 70,2    |
| EER                                 |    | 3,1     | 3,1     | 3,0     | 2,9     | 3,0     | 3,0     | 2,9     | 2,8     |

**System data**

| Refrigerant                                   | Type | R290 |     |     |     |      |      |      |      |
|---|------|------|-----|-----|-----|------|------|------|------|
| Number of compressors                         | n    | 2    | 2   | 2   | 2   | 2    | 2    | 2    | 2    |
| Refrigerant quantity per circuit <sup>3</sup> | kg   | 7,4  | 7,4 | 7,4 | 8,2 | 11,2 | 12,4 | 12,8 | 12,8 |
| Inlet/Outlet connection                       | DN   | 65   | 65  | 65  | 65  | 65   | 80   | 80   | 80   |
| Sound pressure level in 10m <sup>4</sup>      | dB   | 52   | 52  | 54  | 54  | 54   | 54   | 54   | 54   |

**Fan**

| Type           |      | EC    |       |       |       |       |       |       |       |
|----------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Number of fans | n    | 2     | 2     | 2     | 2     | 4     | 4     | 4     | 4     |
| Air flow       | m³/h | 47916 | 47916 | 47916 | 47916 | 94568 | 94568 | 94568 | 94568 |

**Plate heat exchanger**

|                                 |      |      |      |      |      |      |      |      |      |
|---------------------------------|------|------|------|------|------|------|------|------|------|
| Number of plate heat exchangers | n    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Flow rate heating <sup>1</sup>  | m³/h | 17,4 | 20,1 | 21,6 | 23,0 | 27,9 | 32,4 | 36,8 | 41,7 |
| Pressure drop heating           | kPa  | 18,5 | 24,3 | 27,6 | 21,2 | 30,3 | 25,3 | 32,2 | 40,8 |
| Flow rate cooling <sup>2</sup>  | m³/h | 15,5 | 17,8 | 20,3 | 23,6 | 25,2 | 29,8 | 33,4 | 37,2 |
| Pressure drop heating           | kPa  | 18,3 | 23,1 | 29,2 | 21,2 | 29,7 | 25,6 | 31,3 | 37,9 |

**Power supply**

|                        |   |               |      |      |      |      |      |       |       |
|------------------------|---|---------------|------|------|------|------|------|-------|-------|
| Voltage                |   | 3-400V / 50Hz |      |      |      |      |      |       |       |
| Max. power consumption | A | 51,4          | 59,2 | 66,2 | 75,2 | 82,0 | 95,8 | 110,4 | 130,4 |

**Dimensions and weight**

|                  |    |      |      |      |      |      |      |      |      |
|------------------|----|------|------|------|------|------|------|------|------|
| Length           | mm | 3715 | 3715 | 3715 | 3715 | 5385 | 5385 | 5385 | 5385 |
| Width            | mm | 1363 | 1363 | 1363 | 1363 | 1363 | 1363 | 1363 | 1363 |
| Height           | mm | 2340 | 2340 | 2340 | 2340 | 2340 | 2340 | 2340 | 2340 |
| Operating weight | kg | 1550 | 1560 | 1580 | 1620 | 2150 | 2250 | 2300 | 2420 |

<sup>1</sup> Outside air temperature 7°C, medium temperature 40/45°C, medium EG 35%.

<sup>2</sup> Outside air temperature 35°C, medium temperature 12/7°C, medium EG 35%.

<sup>3</sup> Theoretical values refer to the basic unit. The actual amount of gas charge in the unit may differ.

<sup>4</sup> 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.

**Australia Head Office**

66 Glendenning Road Glendenning, NSW 2761 Australia

ph. +612 8805 0400

w. hussmann.com.au

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