

# FLAMMA

R290 HEAT PUMP SYSTEMS



NATURAL HVAC SYSTEMS SOLUTIONS  
FOR A MORE SUSTAINABLE FUTURE



**PRODUCT DESCRIPTION**

Small capacity reversible heat pumps with the heating power from 20 kW to 55 kW are designed for small commercial or industrial applications. 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 single circuit heat pumps can be used for heating purposes at ambient temperature of -15° or higher as well as for cooling purposes with the capacity of 20 kW to 50 kW. This dual solution is very efficient in terms of price, installation and space, as there is no need to install two separate systems.

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 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);
- 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;
- BPHE evaporator;
- R290 leak detector;
- Emergency EX fan;
- EC Fans;
- Muffler.

**TECHNICAL PARAMETERS**

Calculations are made for basic units without additional options

Model		FLM103	FLM104	FLM105
<b>Standard version</b>				
Heating capacity <sup>1</sup>	kW	40,8	46,6	52,9
Power consumption	kW	11,1	12,3	14,1
COP		3,7	3,8	3,7
SCOP		4,2	4,6	4,6
SSHEE	%	165	181	181
Refrigeration capacity <sup>2</sup>	kW	35,8	41,8	46,3
Power consumption	kW	11,8	13,3	15,1
EER		3,0	3,1	3,1

**System data**

Refrigerant	Type	R290		
Number of compressors	n	1	1	1
Refrigerant quantity per circuit <sup>3</sup>	kg	7,0	7,8	7,8
Inlet/Outlet connection	DN	40	40	40
Sound pressure level in 10m <sup>4</sup>	dB	42	42	42

**Fan**

Type	EC			
Number of fans	n	3	3	3
Air flow	m³/h	19919	19919	19919

**Plate heat exchanger**

Number of plate heat exchangers	n	1	1	1
Flow rate heating <sup>1</sup>	m³/h	7,6	8,7	9,9
Pressure drop heating	kPa	22,9	29,2	37,1
Flow rate cooling <sup>2</sup>	m³/h	6,8	8,0	8,8
Pressure drop cooling	kPa	24,1	30,2	35,1

**Power supply**

Voltage		3-400V / 50Hz		
Max. power consumption	A	26,8	28,9	32,8

**Dimensions and weight**

Length	mm	2620	2620	2620
Width	mm	1110	1110	1110
Height	mm	1690	1690	1690
Operating weight	kg	710	730	750

<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.

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