

Condensing units and heat pumps with hermetic scroll compressors

53 ÷ 364 kW



SIGMA 2002/LE

Condensing unit

Unit frame

Self supporting frame, made of galvanized sheet steel with RAL 7032 powder coating baked at 180°C to provide a durable weatherproof finish. Models 3.2 to 7.2 and model 14.4 are completely enclosed by painted steel panels fully lined with sound absorbing material, including the separator between the compressor compartment and the lower part of the unit. Models 16.4 to 26.4 do not have panels.

Compressors

Hermetic scroll type with orbital motion, connected in tandem and equipped with oil level sight glass, oil equalisation line and Klixon internal thermal protection.

Condensers

Brazed plate type in 316 AISI stainless steel.

Refrigerant circuit

Comprising: liquid line shut-off valve, charge connection, liquid sight-glass, filter dryer. High and low pressure switches, relief valve, solenoid valve on the liquid line.

Electrical panel

The electrical panel includes:

- main switch
- fuses for fuses for protecting power and control circuits
- compressor contactors
- µchiller microprocessor for 2-compressor units
- 4-compressor units are supplied with on/off contacts on terminal board for each compressor (no microprocessor control)

Controls and safety devices

- high pressure switch with manual reset

- low pressure switch with automatic reset
- high pressure relief valve -compressor thermal overload protection

Testing

Oil charging and dry run test are carried out in the factory. The units are delivered with the refrigerant circuit charged with nitrogena.

SIGMA 2002/LE/HP

Reversible condensing unit (heat pump)

The unit reverses the refrigerant flow. In addition to the components of version SIGMA 2002, this unit includes:

Refrigerant circuit

4-way reversing valve, thermostatic expansion valve, liquid receiver, flow switch.

ACCESSORY VERSIONS

SIGMA 2002/LE/DC

Unit with heat recovery condenser.

SIGMA 2002/LE/DS

Unit with desuperheaters

SIGMA 2002/LE/LN

Low noise unit

The units are completely enclosed by painted steel panels lined with sound absorbing material having an intermediate layer of high acoustic impedance material.

MAIN ACCESSORIES

- Pressure control valve (with solenoid valve on heat pump)
- Condenser for well water
- Power factor correction $\cos \varnothing \geq 0.9$ at nominal operating conditions
- Serial interface
- Remote user terminal panel (in addition to the standard terminal) on 2-compressor units only)
- Rubber antivibration mountings
- Timber crate packing.

SIGMA 2002/LE - R407C TECHNICAL DATA

Unit size		3.2	4.2	5.2	6.2	7.2
Nominal cooling capacity (*)	kW	52,6	63,2	73,8	85	96,3
Nominal heating capacity (**)	kW	54,9	66,1	77	88,9	100,9
Compressor						
Quantity/Refrigerant circuits	n°	2/1	2/1	2/1	2/1	2/1
Cooling power input(*)	kW	9,5	11,7	13,4	15,7	18
Heating power input(**)	kW	9,8	11,7	13,5	15,8	18
Capacity steps	%	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Water contents condenser						
Water flow rate	l/s	2,970	3,580	4,170	4,810	5,460
Pressure drop	kPa	52,7	53,3	54,9	37,7	36,7
Noise level (***)						
Basic unit	dB(A)	55,0	55,2	55,3	55,8	56,2
LN version	dB(A)	53,6	53,8	53,7	54,3	54,7
Power supply	V/ph/Hz	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50
Dimensions and weight						
Width	mm	1334	1334	1334	1334	1334
Depth	mm	867	867	867	867	867
Height	mm	962	962	962	962	962
Operating weight	kg	363	383	389	418	437

Unit size		8.2	9.2	10.2	12.2	13.2	14.4
Nominal cooling capacity (*)	kW	110,7	130,6	150,5	166,4	182,2	192,6
Nominal heating capacity (**)	kW	116,3	137,1	158	175	192,1	201,7
Compressor							
Quantity/Refrigerant circuits	n°	2/1	2/1	2/1	2/1	2/1	4/2
Cooling power input(*)	kW	20,8	24,9	28,9	32,1	35,2	36,1
Heating power input(**)	kW	20,8	24,7	28,6	31,6	34,7	36
Capacity steps	%	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-25-50-75-100
Water contents condenser							
Water flow rate	l/s	6,290	7,430	8,570	9,48	10,39	10,92
Pressure drop	kPa	38,2	38,6	42,2	44,6	39,6	36,7
Noise level (***)							
Basic unit	dB(A)	59,5	60,0	60,6	60,9	61,3	59,5
LN version	dB(A)	56,1	56,2	56,3	56,6	57,0	57,3
Power supply	V/ph/Hz	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50
Dimensions and weight							
Width	mm	1356	1356	1356	1356	1356	1426
Depth	mm	768	768	768	768	768	871
Height	mm	1700	1700	1700	1700	1700	1787
Operating weight	kg	456	530	611	648	693	780

Unit size		16.4	18.4	20.4	24.4	26.4
Nominal cooling capacity (*)	kW	221,5	261,2	301	332,7	364,4
Nominal heating capacity (**)	kW	232,5	274,2	315,9	350	384,2
Compressor						
Quantity/Refrigerant circuits	n°	4/2	4/2	4/2	4/2	4/2
Cooling power input(*)	kW	41,7	49,8	57,8	64,1	70,4
Heating power input(**)	kW	41,7	49,4	57,2	63,3	69,4
Capacity steps	%	0-25-50-75-100	0-25-50-75-100	0-25-50-75-100	0-25-50-75-100	0-25-50-75-100
Water contents condenser						
Water flow rate	l/s	12,57	14,86	17,14	18,96	20,77
Pressure drop	kPa	38,3	38,6	42,2	44,7	39,6
Noise level (***)						
Basic unit	dB(A)	77,0	78,0	78,5	59,2	79,5
LN version	dB(A)	59,5	61,0	61,8	62,1	62,5
Power supply	V/ph/Hz	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50
Dimensions and weight						
Width	mm	2726	2726	2726	2726	2726
Depth	mm	945	945	945	945	945
Height	mm	1700	1700	1700	1700	1700
Operating weight	kg	876	998	1136	1148	1176

(*) Condenser inlet/outlet water temperature 30-35 °C; evaporator inlet/outlet water temperature 7.5 °C.

(**) Condensation temperature 40 °C; evaporator inlet/outlet water temperature 15-10 °C.

(***) Sound pressure levels measured in free field conditions at 1m from the unit, according to ISO 3746.

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation