

Air/water/water heat pump with independent or simultaneous production of chilled water and hot water for four-pipe hydronic air conditioning installations, equipped with axial fans and scroll compressor

37 ÷ 261 kW



OMICRON 4T

Unit prearranged for use with four-pipe hydronic air conditioning and heating installations designed to provide chilled water for summer cooling and hot water for winter heating simultaneously (with recovery logic) or independently, on independent hydraulic circuits and all year round.

Unit frame

Galvanized steel frame with baked-on polyester powder coating (colour RAL 5014).

Removable panels are internally soundproofed with a sound absorbing mat.

Compressors

Hermetic scroll compressors connected in tandem on each refrigerant circuit. Fitted with guard heater, thermal overload protection, level sight glass and oil equalisation line.

Refrigerant circuit

Each refrigerant circuit includes: suction line separator, liquid receiver, 4-way reversing valve, solenoid valves on the liquid line, solenoid valves for management of exchangers, liquid line shut-off valve, charge connection, liquid line sight glass, filter dryer, thermostatic expansion valve with external pressure equalisation, safety valve, automatic reset high and low pressure switches with limited thresholds. All models are equipped with pressure transducers that enable pressure values to be transmitted for read-out on the controller display.

Stainless steel 316 AISI brazed plate evaporator, thermally insulated with closed cell expanded material.

Evaporator

The evaporator is equipped with a low freeze protection probe and mechanical flow switch.

Condenser

Stainless steel 316 AISI brazed plate condenser, thermally insulated with closed cell expanded material

External side exchanger

Condenser / evaporator composed of a high efficiency coil made of copper tubes and aluminium fins with metal protection grille.

Fans

Axial fans, with sickle shaped blades, conveyor and safety grille, directly coupled to 6-pole three-phase motors with thermal protection. Pressure switch condensing/evaporating control by means of a speed regulator supplied as standard.

Electrical Panel

With main power switch, power and control circuits protection, compressor contactors and fan contactors.

Microprocessor controlled unit with main function display. Power supply [V/ph/Hz]: 400/3~/50 ±5%.

Testing

Units are factory-tested and supplied with refrigerant charge and oil.

HYDRAULIC MODULE OPTIONS

This option is only available for application on the cool side.

OMICRON 4T/ST 2PS

In addition to the components of OMICRON 4T, this model includes insulated storage tank, two water pumps (one in stand-by and the other with automatic changeover), expansion vessel, check valves and gate valves.

OMICRON 4T/ST 1PS

Unlike model OMICRON 4T/ST 2PS, the unit features only one pump.

OMICRON 4T/ST 2P

Unlike model OMICRON 4T/ST 2PS, the unit is not fitted with a storage tank or expansion vessel.

OMICRON 4T/ST S

Unlike model OMICRON 4T/ST 2PS, the unit is not equipped with pumps.

OMICRON 4T/ST 1P

Unlike model OMICRON 4T/ST 2PS, the unit not equipped with a storage tank or expansion vessel, and has only one pump.

ACCESSORY VERSIONS

OMICRON 4T/LN

Low noise version: soundproofed compressor compartment with sound absorbing mat (with high acoustic impedance material inserted on compartment sides).

OMICRON 4T/SLN

Extra-low noise version: in addition to the components featured on the Omicron 4T/LN, this unit features oversized condensing coil and fan speed control.

OMICRON 4T CF

Ductable unit equipped with centrifugal fans.

OMICRON (2T)

Omicron is a multifunction unit for two-pipe hydronic air conditioning installations designed to provide chilled water for summer cooling, hot water for winter heating on the same hydraulic circuit and, on an independent circuit, domestic hot water from a dedicated exchanger all year round.

MAIN ACCESSORIES

- Variable set point
- RS485 serial interface supporting Carel, Modbus, Echelon and Bacnet protocols; combinable also with Johnson and Trend supervision
- Power factor correction $\cos \varnothing \geq 0,9$
- Condensing coil treated with anti-corrosion paint
- Pressure gauges (as part of the standard equipment, 4-compressor units enable pressure reading also from the controller)
- Anti-freeze heater for evaporator (for /ST units also on the tank and pipelines)
- Remote user terminal panel (in addition to the on-board terminal)
- Non-standard "RAL" paint colours.

OMICRON 4T

| Unit size | | 3.2 | 4.2 | 5.2 | 6.2 | 7.2 | 8.2 | 9.2 | 10.2 |
|--|---------|------------|------------|------------|------------|------------|------------|------------|------------|
| Nominal cooling capacity (*) | kW | 37,1 | 44,7 | 51,4 | 60,3 | 67,5 | 77,6 | 91,6 | 102,4 |
| Nominal heating capacity (**) | kW | 36,4 | 44,8 | 51,9 | 60,0 | 68,1 | 78,7 | 92,7 | 106,6 |
| Heating rejection capacity (***) | kW | 49,2 | 59,4 | 69,1 | 79,6 | 90,2 | 91,8 | 107,5 | 123,2 |
| Compressor | | | | | | | | | |
| Quantity/Refrigerant circuits | n° | 2/1 | 2/1 | 2/1 | 2/1 | 2/1 | 2/1 | 2/1 | 2/1 |
| Cooling power input (*) | kW | 12,3 | 14,8 | 17,5 | 19,7 | 22,7 | 26,6 | 31,3 | 37,6 |
| Heating power input(**) | kW | 12,7 | 15,9 | 18,4 | 20,9 | 23,4 | 27,5 | 32,1 | 36,7 |
| Rejection power input (***) | kW | 12,5 | 14,9 | 16,9 | 20,0 | 22,5 | 26,0 | 30,6 | 34,7 |
| Capacity steps | % | 50-100 | 50-100 | 50-100 | 50-100 | 50-100 | 50-100 | 50-100 | 50-100 |
| Fans | | | | | | | | | |
| Air flow | m³/s | 4,472 | 4,472 | 4,472 | 4,528 | 4,528 | 4,389 | 6,833 | 6,833 |
| No. x installed power | n° x kW | 2 x 0,6 | 2 x 0,6 | 2 x 0,6 | 2 x 0,6 | 2 x 0,6 | 2 x 0,6 | 3 x 0,6 | 3 x 0,6 |
| Evaporator characteristics | | | | | | | | | |
| Pressure drop | kPa | 57,2 | 55,4 | 45,9 | 51,4 | 43,7 | 45,4 | 47,9 | 44,8 |
| Characteristics of user appliance side hydraulic module | | | | | | | | | |
| Water flow rate | l/s | 1,771 | 2,134 | 2,453 | 2,883 | 3,225 | 3,708 | 4,374 | 4,892 |
| Available static pressure versione ST 2PS | kPa | 129 | 106 | 94 | 146 | 141 | 118 | 121 | 100 |
| Storage tank capacity | l | 200 | 200 | 200 | 200 | 200 | 200 | 450 | 450 |
| Expansion vessel | l | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| Noise level (****) | | | | | | | | | |
| Basic unit | dB(A) | 65,7 | 66,0 | 66,1 | 66,8 | 67,0 | 67,7 | 68,7 | 68,9 |
| LN version | dB(A) | 62,9 | 63,1 | 63,3 | 63,9 | 64,0 | 65,9 | 66,3 | 66,8 |
| SLN version | dB(A) | 59,9 | 60,4 | 60,8 | 61,5 | 61,8 | 63,7 | 64,0 | 64,7 |
| Power supply | V/ph/Hz | 400/3N~/50 | 400/3N~/50 | 400/3N~/50 | 400/3N~/50 | 400/3N~/50 | 400/3N~/50 | 400/3N~/50 | 400/3N~/50 |
| Dimensions and weight | | | | | | | | | |
| Width | mm | 2233 | 2233 | 2233 | 2233 | 2233 | 2233 | 3234 | 3234 |
| Depth | mm | 1043 | 1043 | 1043 | 1043 | 1043 | 1043 | 1144 | 1144 |
| Height | mm | 1740 | 1740 | 1740 | 1740 | 1740 | 1740 | 1740 | 1740 |
| Operating weight | kg | 655 | 671 | 699 | 751 | 775 | 830 | 1095 | 1184 |

| Unit size | | 12.2 | 13.2 | 14.4 | 16.4 | 18.4 | 20.4 | 24.4 | 26.4 |
|--|---------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Nominal cooling capacity (*) | kW | 117,9 | 126,6 | 137,0 | 157,6 | 185,8 | 211,0 | 235,8 | 260,7 |
| Nominal heating capacity (**) | kW | 119,5 | 132,4 | 136,2 | 157,3 | 185,3 | 213,3 | 239,1 | 264,9 |
| Heating rejection capacity (***) | kW | 161,6 | 177,9 | 180,3 | 209,4 | 246,7 | 284,2 | 317,1 | 350,7 |
| Compressor | | | | | | | | | |
| Quantity/Refrigerant circuits | n° | 2/1 | 2/1 | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 |
| Cooling power input (*) | kW | 40,0 | 45,9 | 44,4 | 52,0 | 61,2 | 72,0 | 80,0 | 88,1 |
| Heating power input(**) | kW | 40,5 | 44,4 | 46,8 | 55,0 | 64,2 | 73,3 | 81,1 | 88,8 |
| Rejection power input (***) | kW | 38,7 | 42,0 | 45,0 | 51,9 | 61,2 | 69,4 | 77,1 | 83,8 |
| Capacity steps | % | 50-100 | 50-100 | 25-50-75-100 | 25-50-75-100 | 25-50-75-100 | 25-50-75-100 | 25-50-75-100 | 25-50-75-100 |
| Fans | | | | | | | | | |
| Air flow | m³/s | 6,600 | 6,583 | 11,267 | 11,267 | 16,375 | 16,417 | 19,389 | 18,500 |
| No. x installed power | n x kW | 3 x 0,6 | 3 x 0,6 | 2 x 2,0 | 2 x 2,0 | 3 x 2,0 | 3 x 2,0 | 4 x 2,0 | 4 x 2,0 |
| Evaporator characteristics | | | | | | | | | |
| Pressure drop | kPa | 50,7 | 43,2 | 51,8 | 55,8 | 62 | 63,8 | 71,1 | 70,6 |
| Characteristics of user appliance side hydraulic module | | | | | | | | | |
| Water flow rate | l/s | 5,634 | 6,050 | 6,546 | 7,529 | 8,879 | 10,082 | 11,268 | 12,454 |
| Available static pressure versione ST 2PS | kPa | 111 | 106 | 92 | 117 | 126 | 87 | 78 | 122 |
| Storage tank capacity | l | 450 | 450 | 340 | 340 | 700 | 700 | 700 | 700 |
| Expansion vessel | l | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| Noise level (****) | | | | | | | | | |
| Basic unit | dB(A) | 69,1 | 69,2 | 69,3 | 71,9 | 72,3 | 73,0 | 73,9 | 74,0 |
| LN version | dB(A) | 66,3 | 66,6 | 67,3 | 70,1 | 70,4 | 70,8 | 71,7 | 71,8 |
| SLN version | dB(A) | 64,3 | 64,6 | 64,9 | 67,9 | 67,8 | 68,4 | 69,4 | 69,6 |
| Power supply | V/ph/Hz | 400/3N~/50 | 400/3N~/50 | 400/3~/50 | 400/3~/50 | 400/3~/50 | 400/3~/50 | 400/3~/50 | 400/3~/50 |
| Dimensions and weight | | | | | | | | | |
| Width | mm | 3234 | 3234 | 3234 | 3234 | 4234 | 4234 | 4234 | 4234 |
| Depth | mm | 1144 | 1144 | 1119 | 1119 | 1119 | 1119 | 1119 | 1119 |
| Height | mm | 1740 | 1740 | 2380 | 2380 | 2380 | 2380 | 2380 | 2380 |
| Operating weight | kg | 1261 | 1301 | 1546 | 1622 | 2079 | 2258 | 2404 | 2559 |

(*) Ambient air temperature 35 °C; evaporator inlet/outlet water temperature 12-7°C.

(**) Ambient air temperature 8°C BS, 70% UR; condenser inlet/outlet water temperature 40-45°C.

(***) Evaporator inlet/outlet water temperature 12-7°C; condenser inlet/outlet water temperature 30-35°C.

(****) Sound pressure levels measured in free field conditions at distance of 1 m 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