

**Water chillers
and water/water heat pumps
with scroll compressors**

6 ÷ 48 kW



MU ECHOS

Water chiller

Unit frame

Unit frame made of sheet steel with epoxy-polyester powder coating and removable panelling with internal cladding in sound insulating matting. The unit frame for sizes 6, 8, and 11 features a RAL 7032 finish and is prearranged for wall installation, while for sizes from 16 to 48 the finish is RAL 5014 and the frame is prearranged for floor-standing installation.

Compressor

Hermetic scroll compressor equipped with thermal overload protection, liquid line sight glass, electric crankcase heater and installed on rubber antivibration mounts.

Refrigerant circuit

The circuit includes: charge connection, filter dryer, thermostatic expansion valve, high and low pressure switches. Only sizes from 16 to 48 are equipped with the relief valve and liquid sight glass.

Evaporator

Braze-welded plate type with anticondensate insulation, antifreeze protection and mechanical flow switch (ready-installed on models 6, 8, 11 and supplied separately for all other models).

Condenser

Braze-welded plate type for well water (in/out 15/30 °C).

Electrical Panel

With main switch, contactors, power and control circuit protection, compressor contactor.

Microprocessor control with function display.

Electrical power supply 230V/1~/50Hz for sizes 6, 8, 11, 400V/3~/50Hz for all other sizes.

Testing

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

MU ECHOS /HP

Reversible heat pump

In addition to the components featured on MU ECHOS, this model includes: 4-way reversing valve and second thermostatic expansion valve.

Hydraulic circuit with condensing pressure control valve, bypass solenoid valve, second water flow switch (ready-installed on sizes 6, 8, 11 supplied separately assembled in kit for all other sizes).

HYDRAULIC MODULE OPTIONS

MU ECHOS /ST 1PS

In addition to the components featured on MU ECHOS, this model includes an insulated storage tank, pump, relief valve and (on the heat pump model only) an expansion vessel.

For sizes 6, 8, 11 this version is provided as standard, for the other sizes it is optional.

MU ECHOS /ST 1P

In addition to the components featured on MU ECHOS, this model includes a pump; this version is not available for sizes 6, 8, 11.

MAIN ACCESSORIES

- Prearranged for tower water (30/35 °C)
- Condensing pressure control valve for well water (supplied as standard on /HP model)
- Upward hydraulic circuit connections;
- Automatic filling unit with pressure gauge (for /ST 1PS model only)
- Self-adaptable control logic;
- Special voltages
- Remote control terminal
- Expansion vessel (for /ST 1PS model, standard on /HP model)
- Rubber antivibration mounts.

MU ECHOS - R410A TECHNICAL DATA

| Unit size | | 6 | 8 | 11 | 16 | 19 | 22 |
|---|---------|---------------|---------------|---------------|----------------|----------------|----------------|
| Nominal cooling capacity (*) | kW | 5,96 | 8,25 | 10,34 | 15,58 | 18,19 | 21,42 |
| Nominal heating capacity (**) | kW | 6,9 | 9,54 | 12,13 | 16,85 | 19,87 | 23,3 |
| Compressors | | | | | | | |
| Quantity/Refrigerant circuits | n° | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| Cooling power input (*) | kW | 1,34 | 1,73 | 2,67 | 3,12 | 3,77 | 4,39 |
| Heating power input (**) | kW | 2 | 2,66 | 3,76 | 4,5 | 5,43 | 6,36 |
| Capacity steps | % | 0-100 | 0-100 | 0-100 | 0-100 | 0-100 | 0-100 |
| Evaporator characteristics | | | | | | | |
| Water contents | l | 0,28 | 0,448 | 0,588 | 0,588 | 0,7 | 0,84 |
| Water flow rate | l/s | 0,28 | 0,39 | 0,5 | 0,73 | 0,86 | 1,01 |
| Pressure drop | kPa | 6 | 4,7 | 4,7 | 56,6 | 51,5 | 50,1 |
| Condenser characteristics | | | | | | | |
| Water contents | l | 0,14 | 0,2 | 0,28 | 0,39 | 0,39 | 0,5 |
| Water flow rate | l/s | 0,11 | 0,16 | 0,21 | 0,29 | 0,35 | 0,4 |
| Pressure drop | kPa | 22,7 | 21,6 | 22,6 | 19,4 | 26,1 | 22,2 |
| Hydraulic module characteristics | | | | | | | |
| Available pressure | kPa | 45,5 | 45,3 | 42,3 | 78,4 | 68,5 | 99,9 |
| Storage tank capacity | l | 30 | 30 | 30 | 50 | 50 | 50 |
| Expansion vessel | l | 2 | 2 | 2 | 2 | 2 | 2 |
| Noise level (***) | dB(A) | 47 | 47 | 48 | 48 | 48 | 55 |
| Power supply | V/ph/Hz | 230/1~/50 ±5% | 230/1~/50 ±5% | 230/1~/50 ±5% | 400/3N~/50 ±5% | 400/3N~/50 ±5% | 400/3N~/50 ±5% |
| Dimensions and weight | | | | | | | |
| Width | mm | 456 | 456 | 456 | 507 | 507 | 507 |
| Depth | mm | 498 | 498 | 498 | 537 | 537 | 537 |
| Height | mm | 1000 | 1000 | 1000 | 671 | 671 | 671 |
| Operating weight | kg | 168 | 173 | 180 | 102 | 106 | 112 |

| Unit size | | 24 | 28 | 32 | 35 | 42 | 48 |
|---|---------|----------------|----------------|----------------|----------------|----------------|----------------|
| Nominal cooling capacity (*) | kW | 23,53 | 27,07 | 32,55 | 35,4 | 42,63 | 47,96 |
| Nominal heating capacity (**) | kW | 26,72 | 30,76 | 36,8 | 40,09 | 46,89 | 52,91 |
| Compressors | | | | | | | |
| Quantity/Refrigerant circuits | n° | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| Cooling power input (*) | kW | 4,87 | 5,65 | 6,36 | 7,06 | 7,97 | 9,08 |
| Heating power input (**) | kW | 6,96 | 7,99 | 8,93 | 9,89 | 11,15 | 12,62 |
| Capacity steps | % | 0-100 | 0-100 | 0-100 | 0-100 | 0-100 | 0-100 |
| Evaporator characteristics | | | | | | | |
| Water contents | l | 0,952 | 1,12 | 0,728 | 0,728 | 0,896 | 1,036 |
| Water flow rate | l/s | 1,1 | 1,28 | 1,47 | 1,61 | 1,95 | 2,2 |
| Pressure drop | kPa | 47,8 | 47,7 | 38,5 | 46,5 | 45,8 | 44,8 |
| Condenser characteristics | | | | | | | |
| Water contents | l | 0,59 | 0,7 | 0,7 | 0,84 | 0,95 | 1,12 |
| Water flow rate | l/s | 0,44 | 0,52 | 0,59 | 0,65 | 0,78 | 0,88 |
| Pressure drop | kPa | 20,1 | 19,4 | 24,8 | 21,6 | 24,1 | 22,9 |
| Hydraulic module characteristics | | | | | | | |
| Available pressure | kPa | 92,2 | 82,3 | 86,5 | 118,5 | 114,2 | 85,2 |
| Storage tank capacity | l | 100 | 100 | 100 | 100 | 100 | 100 |
| Expansion vessel | l | 2 | 2 | 2 | 2 | 2 | 2 |
| Noise level (***) | dB(A) | 55 | 57 | 57 | 57 | 58 | 60 |
| Power supply | V/ph/Hz | 400/3N~/50 ±5% | 400/3N~/50 ±5% | 400/3N~/50 ±5% | 400/3N~/50 ±5% | 400/3N~/50 ±5% | 400/3N~/50 ±5% |
| Dimensions and weight | | | | | | | |
| Width | mm | 860,5 | 860,5 | 862 | 862 | 862 | 862 |
| Depth | mm | 542,5 | 542,5 | 537 | 537 | 537 | 537 |
| Height | mm | 671 | 671 | 1020 | 1020 | 1020 | 1020 |
| Operating weight | kg | 164 | 168 | 200 | 203 | 204 | 252 |

(*) Evaporator inlet/outlet water temperature 12-7 °C, condenser inlet/outlet water temperature 15-30 °C.

(**) Condenser inlet/outlet water temperature 40-45 °C, evaporator inlet/outlet water temperature 15-10 °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