

# SRH

## SWIMMING POOL DEHUMIDIFIERS



# CLIMATE DESIGN

Dehumidifying capacity from 1130 l/24h to 3050 l/24h  
Air flow from 9500 m<sup>3</sup>/h to 25000 m<sup>3</sup>/h



Series SRH dehumidifier are expressly designed for use in swimming pools where humidity should be closely controlled in order to guarantee optimal comfort. These units are intended to be installed in a technical room close to the swimming pool. A centrifugal fan with high available static pressure allows unit connection to ductworks, both for air suction and discharge. This series comprises 6 basic models which cover a capacity range from 1150 to 3000 l/24h. All the units are fully assembled and wired at the factory.

## VERSIONS

**WZ Unit with heat recovery:** The unit is designed to have one refrigerant circuit condensed by air, the other one condensed both by water and air. If the unit is supplied with the advanced control panel it is possible to set operation priorities (air or water). In the SRH/WZ versions the heat recovery is designed to reject on the water about 50% of the total thermal load generated by the unit. When the heat recovery is activated, the supply air temperature of the unit is, basically, the same of the return air, so, in this case, the dehumidification is performed without air temperature increase. This operation mode is suitable during intermediate seasons when the humidity in the swimming pool has to be controlled but also the room air temperature overheating has to be avoided.

# TECHNICAL DATA

| SRH                                  |                   | 1100       | 1300       | 1500       | 1800       | 2200       | 3000       |
|--------------------------------------|-------------------|------------|------------|------------|------------|------------|------------|
| Moisture removed <sup>(1)</sup>      | l/24h             | 1137,0     | 1289,0     | 1486,0     | 1868,0     | 2314,0     | 3061,0     |
| Nominal input power <sup>(1)</sup>   | kW                | 14,1       | 16,5       | 19,3       | 23,6       | 27,6       | 37,2       |
| Maximum input power <sup>(2)</sup>   | kW                | 21,7       | 23,0       | 30,5       | 35,9       | 42,0       | 61,0       |
| Nominal input current <sup>(2)</sup> | A                 | 37,4       | 37,6       | 49,8       | 58,4       | 81,2       | 98,8       |
| Peak current                         | A                 | 116,0      | 102,0      | 132,0      | 136,0      | 220,0      | 283,0      |
| Hot water coil <sup>(2)</sup>        | kW                | 72         | 88         | 94         | 112        | 125        | 155        |
| Air flow                             | m <sup>3</sup> /h | 9500       | 10500      | 13000      | 15000      | 17000      | 25000      |
| Available static pressure            | Pa                | 250        | 250        | 250        | 250        | 250        | 250        |
| Refrigerant                          |                   | R407C      | R407C      | R407C      | R407C      | R407C      | R407C      |
| Global warming potential (GWP)       |                   | 1774       | 1774       | 1774       | 1774       | 1774       | 1774       |
| Refrigerant charge                   | kg                | 13,0       | 14,0       | 22,0       | 25,0       | 25,0       | 37,5       |
| Equivalent CO2 charge                | t                 | 23,06      | 24,836     | 39,03      | 44,35      | 44,35      | 66,52      |
| Sound power <sup>(3)</sup>           | dB(A)             | 93         | 94         | 96         | 96         | 97         | 98         |
| Sound pressure <sup>(4)</sup>        | dB(A)             | 77         | 78         | 79         | 79         | 80         | 80         |
| Power supply                         | V/Ph/Hz           | 400/3+N/50 | 400/3+N/50 | 400/3+N/50 | 400/3+N/50 | 400/3+N/50 | 400/3+N/50 |

Performances are referred to the following conditions:

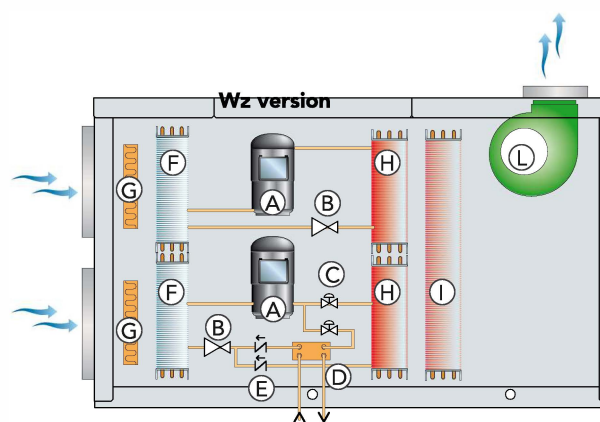
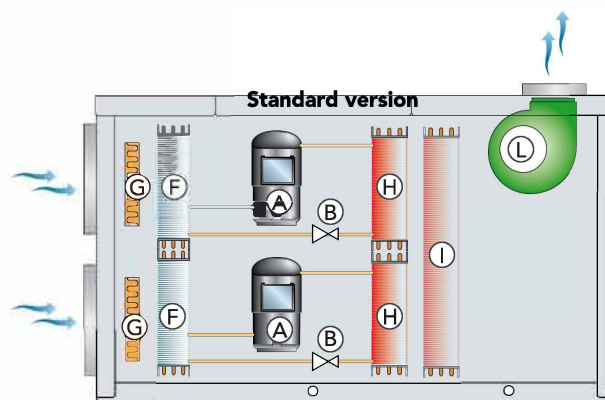
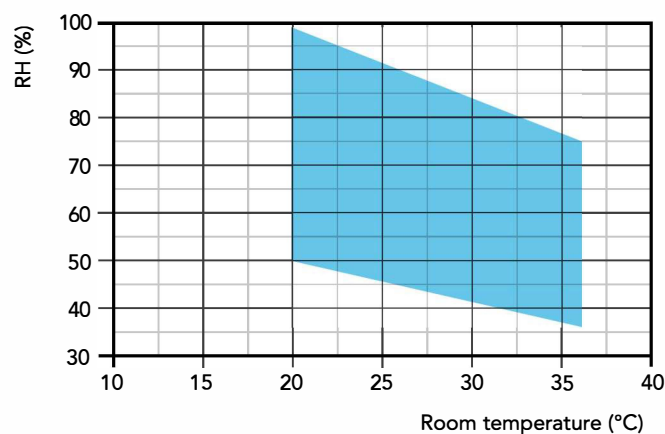
(1) Room temperature 30°C; relative humidity 80%.

(2) Standard available static pressure of the fans; without electrical heater.

(3) Sound Power level according to ISO EN 3744.

(4) Sound pressure level measured at 1 mt from the unit in free field conditions according to ISO EN 3744.

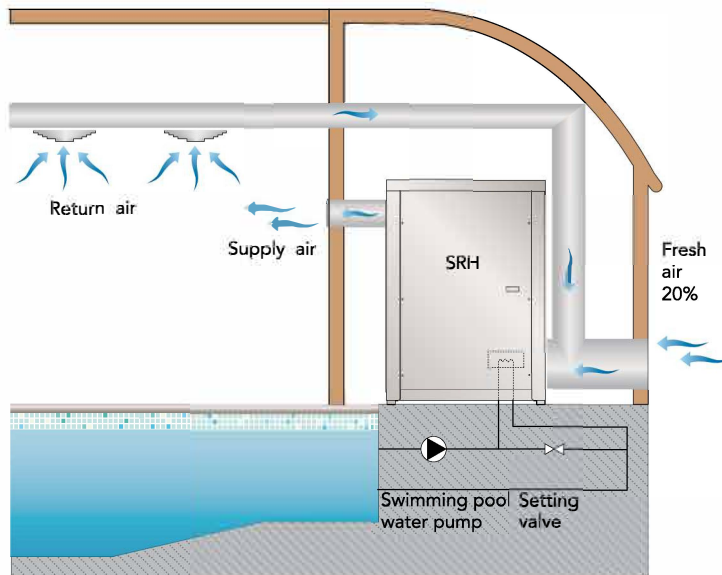
## OPERATION LIMITS



|   |                 |   |                           |
|---|-----------------|---|---------------------------|
| A | Compressor      | F | Evaporator                |
| B | Expansion valve | G | Air filter                |
| C | Solenoid valve  | H | Condenser                 |
| D | Heat recovery   | I | Hot watercoil (accessory) |
| E | One way valve   | L | Fan                       |

## Plant scheme

The picture on the right shows a typical installation of the SRH units; Normally, the unit is installed in the technical room and ducted on both sides (supply and return). In many installations it is installed a fresh air duct designed for 15-20% airflow. Clearly, in this application also an exhaust fan has to be installed in order to avoid over pressure in the swimming pool. The water valve present in the heat recovery hydraulic circuit has to be set in order to guarantee the nominal water flow in the heat recovery.



## COMPONENTS

### FRAME

All SRH units are made from hot-galvanised thick sheet metal, painted with polyurethane powder enamel at 180°C to ensure the best resistance against the atmospheric agents. The frame is self-supporting with removable panels. All screws and rivets are in stainless steel. The colour of the units is RAL 9018.

### REFRIGERANT CIRCUIT

The refrigerant gas used in these units is R407C. The refrigerant circuit is made by using international primary brands components and according to ISO 97/23 concerning welding procedures. All units are supplied with two circuits, each refrigerant circuit is totally independent from the other. Any incorrect operation of one circuit does not influence the other circuit. The refrigerant circuit includes: SRH liquid line manual shut-off valve, sight glass, filter drier, thermal expansion valve with external equalizer, Schrader valves for maintenance and control, pressure safety device (according to PED regulation). SRH/WZ.

These versions are supplied with one refrigerant circuit identical to the SRH version, the second circuit includes: one way valves, solenoid valves, liquid receiver, water heat recovery, liquid line shut-off valve, sight glass, filter drier, thermal expansion valve with external equalizer, Schrader valves for maintenance and control, pressure safety device.

### COMPRESSOR

The compressors are scroll type with crankcase heater and thermal overload protection by a klixon embedded in the motor winding. The compressors are mounted on rubber vibration dampers and they can be supplied with sound attenuation jacket to reduce the noise emission (option). The compressor crankcase heater is always powered when the unit is in stand-by. The inspection on the compressors is possible only through the unit front panel.

### CONDENSER AND EVAPORATOR

Condensers and evaporators are made of copper pipes and aluminium fins. All evaporators are painted with epoxy powders to prevent corrosion problem due to their use in aggressive environments. The diameter of the copper pipes is 3/8" and the thickness of the aluminium fins is 0,1 mm. The tubes are mechanically expanded into the aluminium fins to improve the heat exchange factor. The geometry of these heat exchangers guarantees a low air side pressure drop and then the use of low rotation (and low noise emission) fans. All units are supplied,

standard, with a Stainless steel drip tray and all evaporators are supplied with a temperature sensor used as automatic defrost probe.

### FANS

The fans are made of galvanized steel, centrifugal type, double inlet with forward curved blades. They are statically and dynamically balanced and supplied complete of the safety fan guard according to EN 294. They are mounted on the unit frame by interposition of rubber vibration dampers. The electric motors are 4 poles (about 1500 rpm), three-phase power supply. The motors are connected to the fans by pulleys and belts. The protection class of the motors is IP 54.

### AIR FILTER

Supplied as standard with the unit, it is made of synthetic fibre filtering media, class coarse 60% according to UNI EN ISO 16890:2017.

### MICROPROCESSOR

All units can be supplied with 2 kind of controls:

Basic control: it manages the following features: antifreeze protection, compressor timing, compressor automatic starting sequence, defrost cycle, alarm reset, potential free contact for remote general alarm.

Advanced control: in addition to the basic control it manages a wider range of features as: setting the priority operation mode (SRH/WZ only), managing of the main and the secondary set points, display of the alarms with historical list, time band operation, integration with hot water coil and modulating valve. Upon request the advanced control can be connected to a BMS system for the remote control and management. The technical department is available to study, together with the customer, different solutions using MODBUS.

### ELECTRONIC PROBE TEMPERATURE-HUMIDITY

This sensor is supplied standard on the SRH/WZ versions supplied with advanced control.

It can be installed either in the room or in the return duct (to be specified before order) and allow the operation of the unit in the following modes:

- Dehumidification
- Heating ( by hot water coil)
- Dehumidification + heating
- Dehumidification + heat recovery

## ELECTRIC BOX

The electric switch board is made according to electromagnetic compatibility norms CEE 2014/35 and 2014/30. The accessibility to the board is possible after removing the front panel of the unit and the OFF positioning of the main switch. In all SRH units are installed, standard, the compressors sequence relay who disables the operation of the compressor in case the power supply phase sequence is not the correct one (scroll compressors in fact, can be damaged if they rotate reverse wise).

The following components are also standard installed: main switch, magnetic-thermal switches (as a protection fans and compressors), control circuit automatic breakers, compressor contactors, fan contactors. The terminal board is supplied with voltage free contacts for remote ON-OFF and general alarm.

## CONTROL AND PROTECTION DEVICES

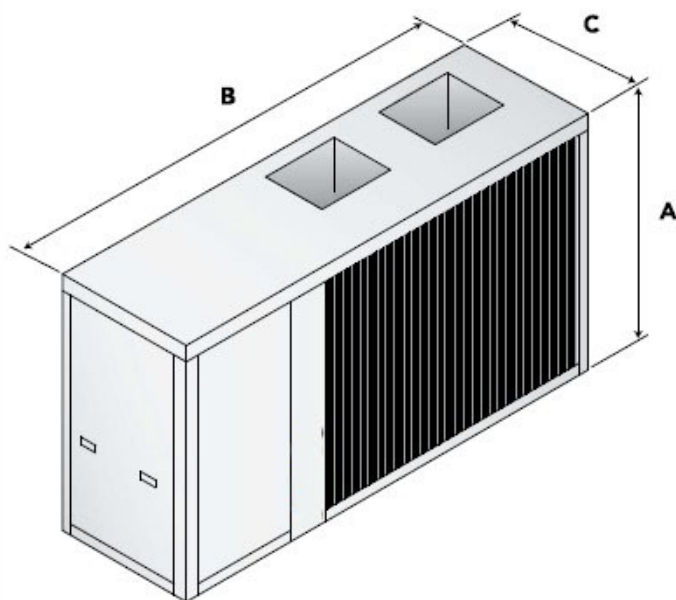
All units are supplied with the following control and protection devices: antifreeze protection sensor, high pressure switch with manual reset, low pressure switch with automatic reset, high pressure safety valve, compressor thermal overload protection, fans thermal overload protection.

SRH

## ACCESSORIES

| SRH                                                     |      | 1100 | 1300 | 1500 | 1800 | 2200 | 3000 |
|---------------------------------------------------------|------|------|------|------|------|------|------|
| Advanced control panel (Humidity + temperature control) | CONT | ●    | ●    | ●    | ●    | ●    | ●    |
| Low noise version (LS)                                  | LS00 | ○    | ○    | ○    | ○    | ○    | ○    |
| Hot water coil                                          | HOWA | ○    | ○    | ○    | ○    | ○    | ○    |
| On/Off 3 way valve kit installed                        | KIVM | ○    | ○    | ○    | ○    | ○    | ○    |
| Modulating 3 way valve kit installed                    | KIVM | ○    | ○    | ○    | ○    | ○    | ○    |
| Available static pressure 400 Pa                        | PM   | ○    | ○    | ○    | ○    | ○    | ○    |
| Horizontal air discharge ( opposite side coils )        | HORI | ○    | ○    | ○    | ○    | ○    | ○    |
| Manometers                                              | MAML | ○    | ○    | ○    | ○    | ○    | ○    |
| Air filter with frame for ducted installation           | FARC | ○    | ○    | ○    | ○    | ○    | ○    |
|                                                         | INSE | ○    | ○    | ○    | ○    | ○    | ○    |

● Standard, ○ Optional, – Not Available.



| Mod. | A (mm) | B (mm) | C (mm) | kg   |
|------|--------|--------|--------|------|
| 1100 | 1250   | 1870   | 850    | 580  |
| 1300 | 1250   | 1870   | 850    | 710  |
| 1500 | 1566   | 2608   | 1105   | 770  |
| 1800 | 1566   | 2608   | 1105   | 830  |
| 2200 | 1566   | 2608   | 1105   | 940  |
| 3000 | 1566   | 3608   | 1105   | 1290 |

