







#### **BASIC FEATURES**

Anticorrosive highly efficient heating units with a casing made from stainless steel in protection class C5. They are designed for aggressive environment in buildings such as livestock farms, car washers, swimming pools, bakeries and similar facilities.

- 3 sizes with airflows of 2300 6000  $m^3/h$
- **Epoxy coated** 2row LPHW coils
- Stainless steel casing C5
- AC fans with IP54
- Adjustable cut-out lamellas
- Easy installation and maintenance
- Air filter with a simple access (optional accessory)

The heating unit is designed for indoor installation with ambient temperatures from +5 to 35 °C and relative humidity up to 90%. It is intended for transportation of the air without coarse particles of dust and grease. Unit's resistance against coarser dust particles may be increased by filter. The shell of the unit is made from stainless steel of the resistance class C5, also the jointing material used shows the same resistance. The LPHW coil is protected by LCE epoxy coating. The IP rating of the electric system of the complete heating unit is for AC motors **IP54**.

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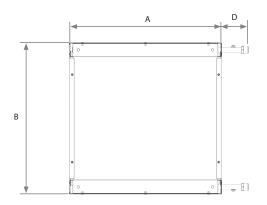




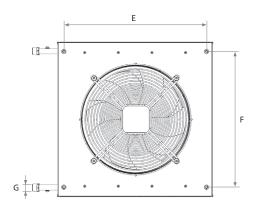
### PRIMARY PARAMETERS

The LPHW coils are designed for the maximum operating water temperature of +110 °C and maximum operating pressure of 1.6 MPa.

### Dimensions of the SAVANA unit







| Туре      | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G(") | Pressure |
|-----------|--------|--------|--------|--------|--------|--------|------|----------|
| SAV-2-x-N | 555    | 555    | 350    | 100    | 508    | 483    | 3/4  | PN16     |
| SAV-4-x-N | 755    | 755    | 350    | 100    | 708    | 683    | 3/4  | PN16     |
| SAV-6-x-N | 855    | 855    | 350    | 100    | 808    | 783    | 1    | PN16     |

### **Primary parameters**

| Туре           | Air flow<br>[m³/h] | Voltage<br>[V/Hz] | Current<br>[A] | Power<br>consumption<br>[W] | Noise*<br>[dB(A)] | Weight**<br>[kg] |
|----------------|--------------------|-------------------|----------------|-----------------------------|-------------------|------------------|
| SAV-2-2R-1AC-N | 2300               |                   | 0,95           | 200                         | 48,9              | 16               |
| SAV-4-2R-1AC-N | 4600               | 230/50            | 2,00           | 460                         | 55,1              | 22               |
| SAV-6-2R-1AC-N | 6000               |                   | 3              | 690                         | 58,9              | 34               |

 $<sup>^{</sup>st}$  sound pressure measured 5m from the heating unit outlet (Q=2)

 $<sup>\</sup>ensuremath{^{**}}$  weight including cover and without water in LPHW coil

### Basic technical parameters of LPHW coils

| Air flow [m³/h]                              |                            | SAV-2-2R-1AC-N<br>2300 |                       |                        | SAV-4-2R-1AC-N<br>4600    |                     |                       | SAV-6-2R-1AC-N<br>6000 |                           |                     |                       |                        |                           |
|--|----------------------------|------------------------|-----------------------|------------------------|---------------------------|---------------------|-----------------------|------------------------|---------------------------|---------------------|-----------------------|------------------------|---------------------------|
| Water exchanger<br>temperature gradient [°C] | Inlet air temperature [°C] | Heating output [kW]    | Output air temp. [°C] | Water flow rate [m³/h] | Water pressure loss [kPa] | Heating output [kW] | Output air temp. [°C] | Water flow rate [m³/h] | Water pressure loss [kPa] | Heating output [kW] | Output air temp. [°C] | Water flow rate [m³/h] | Water pressure loss [kPa] |
|  | 0                          | 25,5                   | 33,1                  | 1,13                   | 8                         | 52,4                | 34,0                  | 2,31                   | 26                        | 68,0                | 33,8                  | 2,99                   | 13                        |
| 90/70  | 10                         | 22,1                   | 38,7                  | 0,97                   | 6                         | 45,5                | 39,6                  | 2,01                   | 20                        | 59,0                | 39,4                  | 2,60                   | 10                        |
|  | 15                         | 20,4                   | 41,5                  | 0,90                   | 5                         | 42,1                | 42,3                  | 1,86                   | 18                        | 54,5                | 42,1                  | 2,40                   | 9                         |
|  | 0                          | 21,9                   | 28,5                  | 0,96                   | 6                         | 30,9                | 20,1                  | 1,35                   | 11                        | 58,6                | 29,2                  | 2,58                   | 10                        |
| 80/60  | 10                         | 18,5                   | 34,0                  | 0,81                   | 5                         | 24,0                | 25,6                  | 1,05                   | 7                         | 49,7                | 34,7                  | 2,18                   | 7                         |
|  | 15                         | 16,8                   | 36,8                  | 0,74                   | 4                         | 20,6                | 28,4                  | 0,90                   | 5                         | 45,2                | 37,5                  | 1,99                   | 6                         |
|  | 0                          | 18,3                   | 23,8                  | 0,80                   | 5                         | 38,1                | 24,7                  | 1,67                   | 15                        | 49,3                | 24,5                  | 2,16                   | 7                         |
| 70/50  | 10                         | 14,9                   | 29,4                  | 0,65                   | 3                         | 31,3                | 30,3                  | 1,37                   | 11                        | 40,3                | 30,1                  | 1,76                   | 5                         |
|  | 15                         | 13,2                   | 32,1                  | 0,58                   | 3                         | 27,8                | 33,1                  | 1,22                   | 8                         | 35,8                | 32,8                  | 1,57                   | 4                         |
|  | 0                          | 14,7                   | 19,1                  | 0,64                   | 3                         | 30,9                | 20,1                  | 1,35                   | 11                        | 39,8                | 19,8                  | 1,74                   | 5                         |
| 60/40  | 10                         | 11,3                   | 24,7                  | 0,49                   | 2                         | 24,0                | 25,6                  | 1,05                   | 7                         | 30,8                | 25,3                  | 1,34                   | 3                         |
|  | 15                         | 9,6                    | 27,4                  | 0,42                   | 1                         | 20,6                | 28,4                  | 0,90                   | 5                         | 26,4                | 28,1                  | 1,15                   | 2                         |
|  | 0                          | 12,3                   | 16,0                  | 1,07                   | 8                         | 25,5                | 16,5                  | 2,21                   | 27                        | 33,0                | 16,4                  | 2,86                   | 13                        |
| 45/35  | 10                         | 8,9                    | 21,6                  | 0,77                   | 5                         | 18,7                | 22,1                  | 18,70                  | 15                        | 24,1                | 22,0                  | 2,09                   | 7                         |
|  | 15                         | 7,2                    | 24,4                  | 0,63                   | 3                         | 15,2                | 24,9                  | 15,20                  | 10                        | 19,6                | 24,8                  | 1,70                   | 5                         |

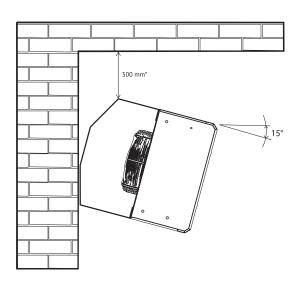


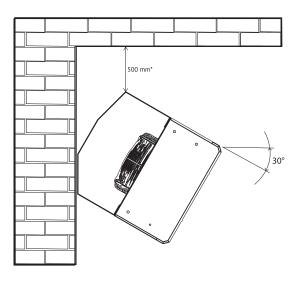
### **INSTALLATION AND ASSEMBLY**

The heating unit can be wall-mounted and ceiling-mounted.

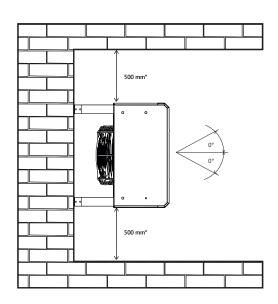
An installation bracket is possible to order as accessories. For ceiling installation can be also used threaded bars.

### Wall-mounting (side view)

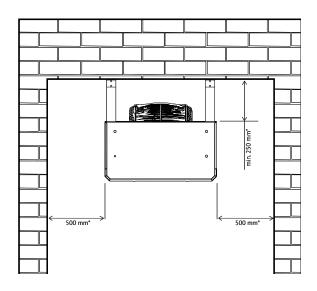




### Wall-mounting (top view)



### Ceiling- mounting (side view)



\* Recommended distance for easy access and installation.



### **CONTROL**

The SAVANA heating units are delivered without integrated control system. Below see recommended control options:

# AirGENIO SC-C-AC Control features overview:





Touch screen display



Manual/Auto control mode



Control of airflow in 5 steps



0-10V control of valve actuator for LPHW coil



Integrated antifreeze protection of LPHW coil



Day / Night mode



Possibility of connecting a RUN contact and external control switch



Integrated timer



Temperature measurement (All temperature NTC sensors included, temperature shown on display)



Chaining 1+10 (Master-Slave)



Mixing chamber control



BMS connection - Modbus RTU,TCP, BACnet

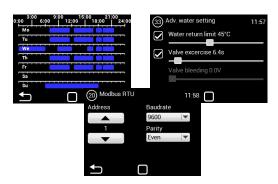


Error contact



2<sup>nd</sup> control panel ready





The maximum numbers of **SAVANA** units that can be connected to the respective individual types of the **SC-C-AC** control unit are given in the following table:

|   | Controller type | SAV-1-AC | SAV-2-AC | SAV-4-AC | SAV-6-AC |
|---|-----------------|----------|----------|----------|----------|
| Г | SC-C-AC-04      | 11       | 6        | 3        | 1        |
|   | SC-C-AC-07      | 20       | 11       | 5        | 2        |
| Г | SC-C-AC-16      | 36       | 20       | 10       | 5        |





### CONTROL

The SAVANA heating units are delivered without integrated control system. Below see recommended control options:

#### Fan speed control

The **STRA1** five-speed controller should be used for controlling the fan speed. Required speed is selected manually by a switch located on the controller housing. This controller may also be complemented with the **TER-P** room thermostat for activating the fan depending on the room temperature. Multiple heating units can be connected to a single **STRA1** controller at the same time; however, the sum of motor currents shall not exceed the maximum admissible loading of the **STRA1** controller.

The maximum numbers of **SAVANA** units that can be connected to the respective individual types of the **STRA1** control unit are given in the following table:

| Speed controller type<br>Drehzahlreglertyp | SAV-2 | SAV-4 | SAV-6 |  |
|--|-------|-------|-------|--|
| STRA1-5                                    | 8     | 4     | 1     |  |
| STRA1-7,5                                  | 12    | 6     | 2     |  |
| STRA1-16                                   | 26    | 14    | 5     |  |

#### LPHW coil output control options

#### 1) Basic by throttling

**TV-1-1/1** thermostatic valve. The valve controls smoothly the warm water supply into the heating unit depending on the temperature of air leaving the heating unit. One valve is required for each heating unit.

#### 2) Economical by splitting (open/closed)

**ZV** water valve with a servo drive and **TER-P** room thermostat. The valve switches the warm water supply into the heating unit and back towards the heat source depending on the temperature of air leaving the heating unit or depending on the room temperature. One valve is required for each heating unit.

### 3) Precise by mixing

**SMU2** mixing node. The mixing system controls smoothly the ratio of supply and return heating water flowing into the heating unit depending on the temperature of air leaving the heating unit and/or depending on the room temperature. One mixing mode may be used for multiple heating units provided that they have identical size and that they are connected in a parallel arrangement.

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### **OPTIONAL ACCESSORIES**

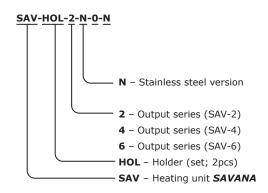
More details can be found on the relevant page in this catalog

### **Mounting Bracket**

### SAV-HOL-x-x-x

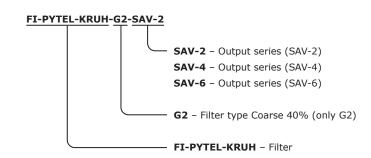
Allow to mount unit on the wall at 3 different angles: 0°, 15°, 30°





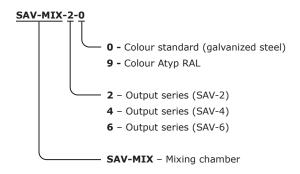
### Spare filter for SAVANA products





### Mixing chamber for SAVANA







### **OPTIONAL ACCESSORIES**

More details can be found on the relevant page in this catalog.

# Control unit AirGENIO SC-C-AC (SC-S-AC)

4A / 7A / 16A



### Speed controller

STRA1-x

5A / 7,5A / 16A



### ZV2-230-xx

2-way O/C valve with 230V actuator. (Suitable to be used with STRA1-x control), not to be used with SC-C control).



# ZV3-230-xx

3-way O/C valve with 230V actuator. (Suitable to be used with STRA1-x control, not to be used with SC-C control).



### ZV2-024-xx

2-way valve with 24DCV actuator, 0-10V DC control signal (Suitable to be used with SC-C control).



## ZV3-024-xx

3-Wege-Ventil mit 24DCV-Stellglied, 0-10V DC-Steuersignal(Suitable to be used with SC-C control).



# #

### **OPTIONAL ACCESSORIES**



RT-3-xx

3-way O/C valve with 230V actuator (Suitable to be used with STRA1-x control, not to be used with SC-C control).



Thermostatic valve

TV-1-1/1



Mixing node

SMU2-xx-xx



Flexible connection hoses

OH-xxx



Room thermostat

TER-P



### Threaded bar

The unit is suspended using four threaded bars.  $\pmb{ZTZ\text{-}M8\text{-}1,0}$  – threaded bar, M8 thread, 1 m length, suitable for all types of heating units

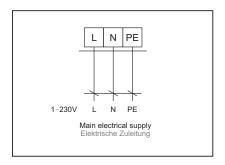




### **WIRING DIAGRAMS**

All wiring diagrams provided in the technical catalog are indicative only. When assembling the product, observe strictly the nameplate ratings as well as directions and diagrams affixed directly to the product or enclosed to the product.

**SAV-AC** 



Wiring diagrams for the control system are provided in the manual.

