

Hydraulic KIT

- For the connection of the hydraulic kit with the closed circuit (collectors, tube heat exchanger which is located at the bottom part of the boiler) refer to the hydraulic diagram of the solar system on page 30.
 - The connection of the expansion pot with the safety valve of the hydraulic kit must have greatest length of 2 meters, without any corners and without any high air gathering area. The diameter is 3/4".
 - After the plumbing installation, the closed circuit must be cleaned. The cleaning of the system is achieved with water for 15 minutes by isolating the circulator from its two valves which are located before and after it and by opening the two inlets / outlets of the system. The inlets / outlets have raccords (male) for connection to a plastic pipe.
 - Before the filling of the closed circuit, we must check the watertightness of all of the connections. We can, for instance, during the cleaning, turn-off one of the emptying-filling valves and use a pressure pump or the pressure of the water supply so that we can raise the pressure to 5 bar for 15 minutes.
- Attention:** the expansion pot must be isolated so as to minimize the overload of the maximum functioning pressure.
- The mixing of the antifreeze liquid must be done before the filling and in accordance to the lowest environmental temperature (see table on page 27).
 - The filling of the system can be done either from the top part of the collector, by the gravity or with a pump from the hydraulic kit. The functioning pressure, between 1,5 and 3 bar, can be achieved with the pressure pump or the pressure of the water supply. We constantly check all of the points of degassing, while filling simultaneously with liquid.
 - All of the installations and connections of the system must be done according to the electric, plumbing, and construction etc... regulations applicable in your country.
 - It is recommended that a pail is placed under the hydraulic kit in which water or liquid will be accumulated from the dripping of the safety valve. This is really useful during the filling and degassing or the hydraulic testing since the valve opens at 6 bar.

Piping of the closed circuit

- All of the piping that leave and return from and to the collectors have to be properly insulated so that they can withstand temperatures from -30°C up to +120°C. It is also necessary to use an anti-UV (solar radiation) for the insulation.
- The insulation must have suitable thickness in accordance to the local climatic conditions.
- The distance between the collectors and the tube heat exchanger of the boiler must be the least possible so as to minimize the thermal losses.
- Air trapping areas must be avoided. If this is not possible, an automatic degasser must be installed at that point.
- The diameter of the pipes must be from $\Delta 18\text{mm}$ - 22mm for distance up to 20m and $\Delta 15\text{mm}$ for distance down to 12m.
- All of the connection raccords which will be used must withstand pressure of 6 bar and temperatures between -30°C and + 200°C.
- After the guarantee has expired, it is recommended that a yearly check is made on the installation and the connections.

Hydraulic kit

Specification text

Is a ready-to-connect solar station for circulation and venting of solar circuit medium with mounting attachments.

With integrated SETTER Inline UN regulating and check valve with direct indication of the set flow rate in l/min.

Optimized for use in solar applications.

Measured values with medium viscosity $u = 2.3 \text{ mm}^2/\text{s}$ can be read directly at the sight glass during adjustment without the need for tables, diagrams or measuring devices.

Technical data

Max. operating temperature:

- Flow circuit (venting side): TB 160°C
- Return circuit (pump side): TB 110°C

Max. operating pressure: 8 bar.

- Safety valve response pressure: 6 bar

K_{vs} value and measurement range as per table «Type Program».

Vent pipe: Painted steel

Valve housing components: Brass

Internal components: Stainless steel, brass and plastic

Sight glass: Boric silicate

O-ring seals: EPDM

Flat seals with high temperature resistance suitable for use in solar applications

Insulating material: EPP

Thread according to DIN 2999 / ISO 7 and ISO 228

Measuring accuracy $\pm 10\%$ (of the highest nominal value)

Fluids

- Water and proprietary additives used against corrosion and freezing (display scale for medium viscosity $u=2.3\text{mm}^2/\text{s}$)
- Heating water and cooling water

Includes: flow phase (venting side) and return phase (pump side)

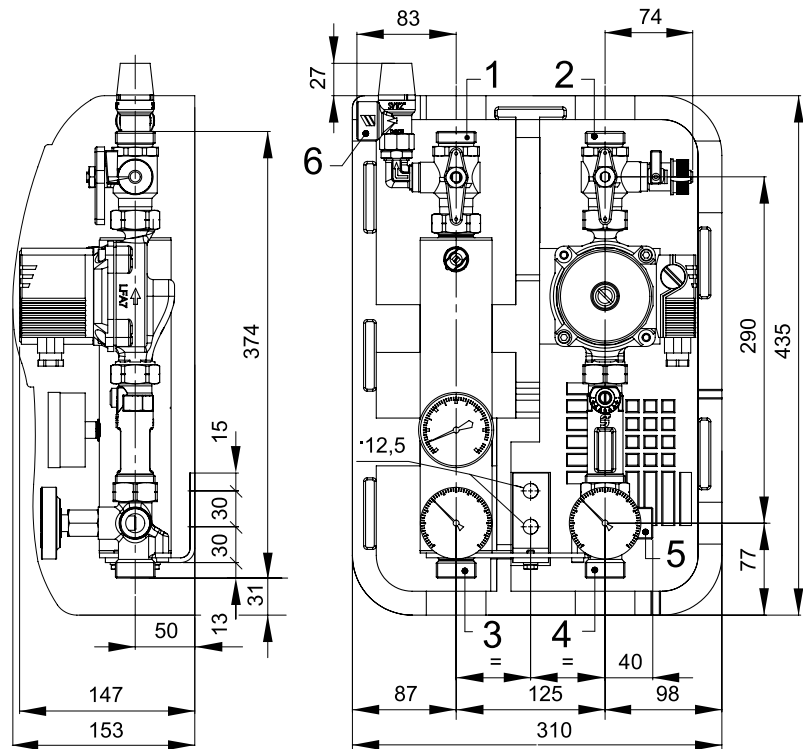
Measurement range ³⁾	kVS ¹⁾	kVS ²⁾	Circulation pump
4,0 -16,0 l/min	3,3	6,0	WILO ST 20/6-3

1) k_{vs} [m^3/h] with $U=1 \text{ mm}^2/\text{s}$ in the return phase (pump side)

2) k_{vs} [m^3/h] with $U=1 \text{ mm}^2/\text{s}$ in the flow phase (venting side)

3) Visual scale for water/glycol mix with $U= 2,3 \text{ mm}^2/\text{s}$

Dimensional drawing



1 Male thread ISO 228, G 1" (line from the collector)

2 Male thread ISO 228, G 1" (line to the collector)

3 Male thread ISO 228, G 1" (line to the reservoir)

4 Male thread ISO 228, G 1" (line from the reservoir)

5 Male thread ISO 228, G 3/4" (expansion vessel line)

6 Female thread DIN 2999 / ISO 7, Rp 3/4" (safety valve blow-off line)

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