FV 70 TACOSOL EU 21

Solar station

Pump, regulator and air venting unit in solar heating systems

Description

The FV 70 TACOSOL EU 21 is a global-radiation-driven solar station.

The high-efficiency D.C. pump is supplied and controlled directly by the current from a PV panel. As such, the standard supply connection, solar regulator, collector and accumulator sensor are no longer required.

The unit is controlled by a built-in temperature sensor in the pump, which regulates and interrupts the flow rate according to the return temperature. The excess flow is taken up by the MAG.

Once the collector cools down, the unit automatically starts up again. These components allow independent and efficient operation of the unit.

Hydraulic balancing, flow measurement and venting can be performed directly in the station.

Using the scale, which is pre-calibrated for frost protection, the technician can set and check the exact flow-rate values on-site.

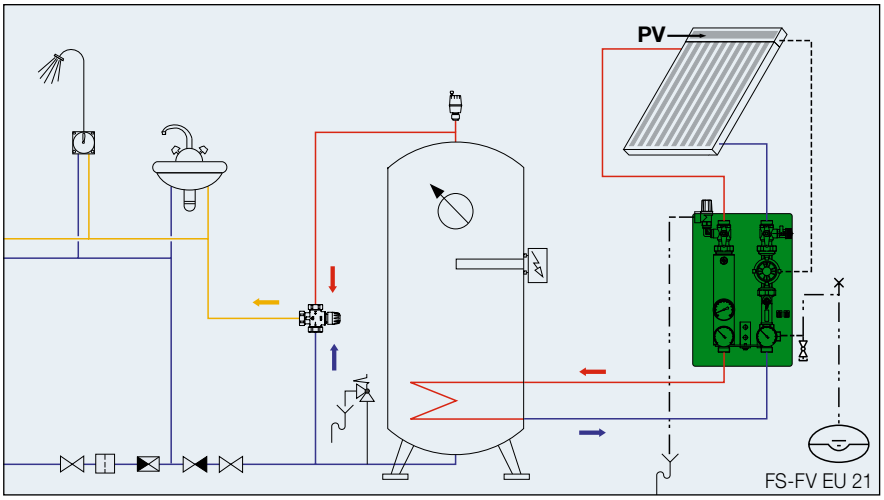
Installation and venting can be carried out by one person working unassisted. Utility model protection has been granted.

Installation position

The solar station must be installed vertically to ensure problem-free functioning of the venting unit.

Advantages

- Designed for self-sustaining solar operation
- No additional costs. Solar controller and its electrical installation are not required
- High-efficiency D.C. pump
- Cost-effective one-man installation and filling of the system
- Multifunction ball valve strongly facilitates the filling and draining of the system
- Collector and reservoir sections can be separated for installation work
- Easy pump replacement (suction and pressure side can be shut off)
- Precise and rapid adjustment, without use of diagrams, charts or expensive measuring tools
- Function control via direct flow rate indicator of the SETTER Inline UN
- Visual scale in l/min, pre-calibrated for glycol blends υ = 2,3 mm²/s
- Constant air separation during line operation



Operation

In the collector, the intensity of global radiation directly regulates the speed (power) of the pump through the voltage generated.

The flow-rate measurement is based on the proven principle of a baffle float.

The basis for the air venting are special flow technology measures which accumulate the air in the top of the venting space, from where it can be released from time to time.

There are no mechanical parts, so the design ensures a long service life.

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Specification text

TACOSOL EU 21 is a ready-to-connect solar station for circulation and venting of solar circuit medium incl. mounting attachments (with utility model protection). Fitted with high-efficiency D.C. pump.

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

Metallic non-return valves integrated in both ball valves.

Optimized for use in solar applications. Measured values with medium viscosity υ = 2.3 mm²/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): 160 °C
- Return circuit (pump side): 95 °C

Max. operating pressure:
- 6 bar (up to PB 8 bar possible)
- Response pressure of built-in safety valve: 6 bar

k_{VS} value and measurement range as per table «Type Program».

Material:
- Vent pipe: painted steel
- Valve housing: 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: EPP

Thread according to DIN 2999 / ISO 7 and ISO 228

Measuring accuracy ±10 %
(of the highest nominal value)

Fluids

- Water and proprietary additives used against corrosion and freezing (display scale for medium viscosity υ = 2,3 mm²/s)
- Heating- and cooling water

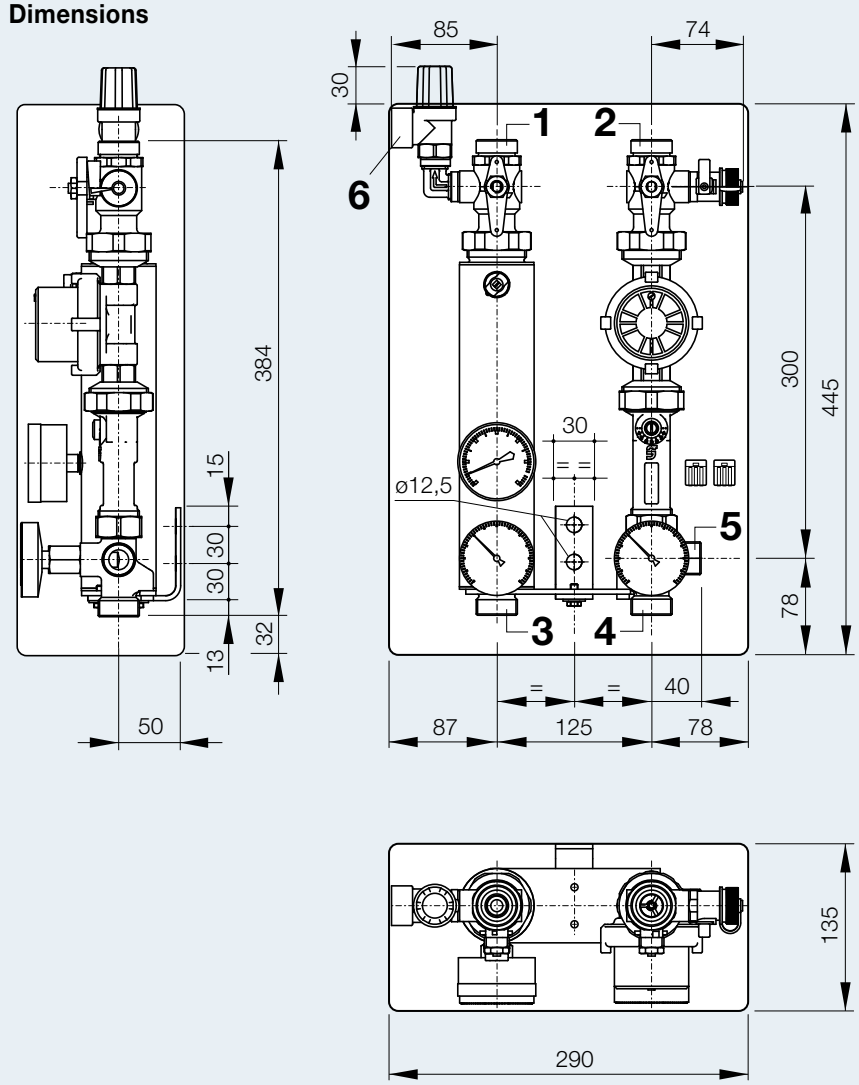
Type program

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

Code-No.	Measuring range [3]	k_{VS} [1]	k_{VS} [2]	Circulation pump
270.7506.000	1,5 – 6,0 l/min	1,5	6,1	Laing D5 Solar

[1] k_{VS} [m³/h] with υ = 1 mm²/s in the return phase (pump side)
[2] k_{VS} [m³/h] with υ = 1 mm²/s in the flow phase (venting side)
[3] Visual scale for water/glycol mix with υ = 2,3 mm²/s

Dimensions



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 ¾" (expansion vessel line)
6 Female thread DIN 2999 / ISO 7, Rp ¾" (safety valve blow-off line)

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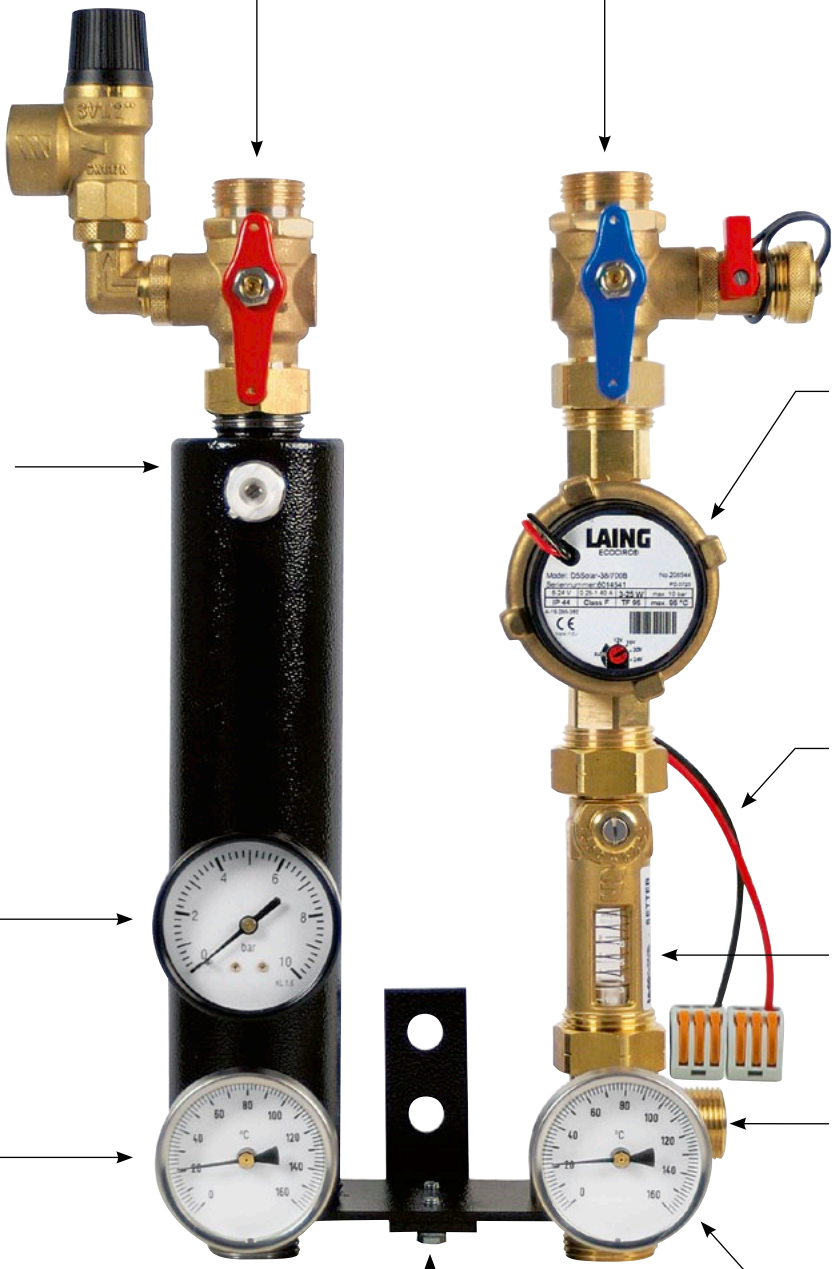
Flow circuit

Return circuit

Stop ball valve with safety valve and integrated non-return valve
Free flow between collector and safety valve is guaranteed in every position

Stop ball valve with fill and drain cock and integrated check valve (KFE)



Venting tank with air valve

Circulation pump Laing D5, solar version
8 – 24 V D.C.
Rotor mounted on ultra-hard ceramic bearing
Head: 3.5 m.

Connection Wago
Electrical connection to PV panel

Manometer
Range 0 – 10 bar

Balancing valve SETTER Inline UN

Thermometer
Display range
0–160 °C

Connection EV

Thermometer
Display range
0 – 160 °C

Wall mounting

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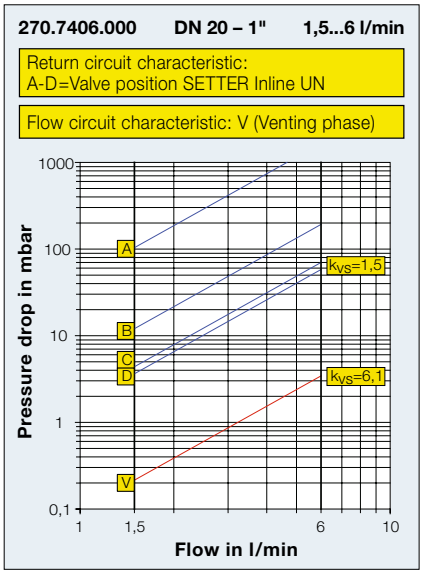
Recommended technical connection data
(not part of TACONOVA's scope of supply):

- PV panel power 25 – 30 W (peak)
- Connecting cable to PV panel, cross section 2,5 mm²

Note:

Safety shut-off of pump at 95 °C

Pressure loss diagram



Accessories

VF 10 soldered fittings

Fitting consisting of soldered connector fitting, union nut and flat seal suitable for use in solar applications, 2 pieces per set.

Code no.	G x mm	suitable for
210.5331.019	1" x 18 mm	Copper pipe 18 mm
210.5332.019	1" x 22 mm	Copper pipe 22 mm

FX 96 KFE 3-way connector

For connection to EV connector fittings.

Consisting of T-piece with KFE (fill and drain cock), union nut, G ¾" female thread with flat seal suitable for solar applications, G ¾" male threaded connection.

Code no.	DN	G
296.7001.354	20	¾"

FX 96 MAG mounting bracket with quick coupling

For wall mounting of the EV with quick connection coupling with shut-off.
1 x female thread, 1 x male thread G ¾".

Code no.	DN	G
296.7002.000	20	¾"

FX 96 stainless steel tube

For connection with the expansion vessel (EV).
Includes ¾" union nut and flat seals suitable for solar applications..

Code no.	DN	G	Length
296.7003.000	20	¾"	0,5 m

FX 96 PV-Panel

Including fixing material

Code no.	Output voltage	Size
298.5030.000	16 W (peak)	1210 x 155 mm

Developed in cooperation with EU 21 Energie & Umwelt Service Agentur www.EU21.org

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