

TACOSOL CIRC ZR HE

TWO-LINE SOLAR STATION



Two-line pump assembly with high-efficiency pumps, balancing valve, ventilation unit and safety subassembly for solar heating energy systems

DESCRIPTION

Hydraulic balancing, flow measurement and ventilation can be carried out directly on the station in the case of the TacoSol Circ ZR HE solar station. The integrated TacoSetter Inline 130 allows the volume flow in the primary circuit to be precisely and conveniently adjusted and checked. Permanent air separation in the integrated ventilating flask allows energy-efficient operation of the system. Systems that are correctly balanced hydraulically and air-free guarantee optimal energy extraction and are thus more cost-effective in the sense of the energy-saving directives laid down by law.

Using scales that are pre-calibrated for inhibitors, specialists locally can adjust and check the flow values. Training and costly measuring devices are no longer needed.

INSTALLATION POSITION

The solar station must be installed vertically to ensure that the ventilation unit functions correctly. Installation and ventilation can be performed by a single installer.

ADVANTAGES

- **Compact:** Equipped with all the necessary valves and components
- **Secure:** Intrinsic safety of the system thanks to an integrated safety subassembly
- **Simple:** Hydraulic balancing and functional checking of the system with TacoSetter Inline 130. Pump can be changed with ease as it lockable on the intake and output sides
- **Efficient:** Highly efficient system operation owing to permanent air separation and use of high-efficiency pumps
- **Flexible:** Flexibility thanks to the option of integrating control systems

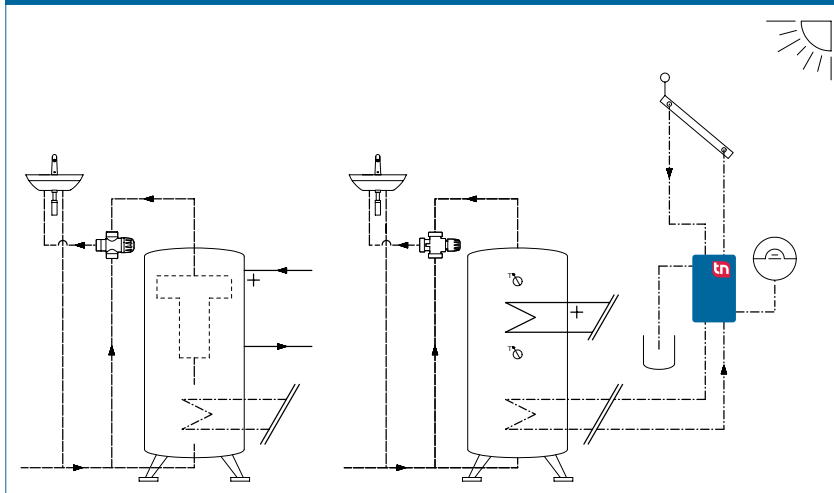
OPERATION

In combination with a solar controller, the solar liquid heated in the collector is transported to the hot water/drinking water storage tank via a heat exchanger with the help of the solar station. The integrated TacoSetter Inline 130 balancing valve enables the volume flow to be adjusted to the performance of the collector or heat exchanger and checked. The flow measurement of this balancing valve is based on the principle of a float. The regulating screw on the flow meter is used to adjust the flow. The reading position is the lower edge of the float element. The integrated ventilating flask with innovative flow technology design ensures permanent air separation and thereby increases the efficiency of the system.

BUILDING CATEGORIES

- Apartments, apartment blocks
- Single family homes, housing estates
- Multiple dwelling units

SYSTEM/BASIC DIAGRAM



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SPECIFICATION TEXT

See www.taconova.com

TECHNICAL DATA

General

- Maximal operating temperatures:
 - Flow line (ventilator side) $T_{0\ max}$: 160 °C
 - Return line (pump side) $T_{0\ max}$: 110 °C
- Max. operating pressure $P_{0\ max}$: 8 bar
- Actuating pressure of the integrated safety valve: 6 bar
- k_{vs} value and measurement range according to „Type overview“ table
- Thread according to DIN 2999/ISO 7 and ISO 228
- Measuring accuracy $\pm 10\ %$ of the final value

Material

- Vent pipe: Painted steel
- Valve housing parts: Brass
- Internal parts: Stainless steel, brass and plastic, borosilicate (sight glass)
- O-ring seals: EPDM
- Flat seals: AFM34
- Insulation: EPP

Electric connection data

- Grundfos PM2 15-105/130
 - Mains voltage: 230 VAC $\pm 10\ %$
 - Mains frequency: 50...60 Hz
 - Power consumption:
 - Speed P1 [W] min. 3.8 // max. 70
 - I1/1 [A] min 0.05 max. 70 0.58
 - Protection class: IPX4D
 - EEL ≤ 0.23

Fluids

- Water mixtures with typical additives used against corrosion and freezing (display scale for medium viscosity $\nu = 2,3\ \text{mm}^2/\text{s}$)
- Heating water (VDI 2035; SWKI BT 102-01; ÖNORM H 5195-1)
- Cold water

TYPE OVERVIEW

TacoSol Circ ZR HE | Two-line design with high-efficiency pump

Version with carrier for controller

Order no.	$k_{vs}^{1)}$	$k_{vs}^{2)}$	Measuring range ³⁾	High-efficiency pump
270.8506.356	1,5	6,0	1,5 – 6,0 l/min	Grundfos PM2 15-105/130
270.8516.356	3,3	6,0	4,0 – 16,0 l/min	Grundfos PM2 15-105/130
270.8528.356	3,5	6,0	8,0 – 28,0 l/min	Grundfos PM2 15-105/130

TacoSol Circ ZR HE | Two-line design with high-efficiency pump

Version with cover plate

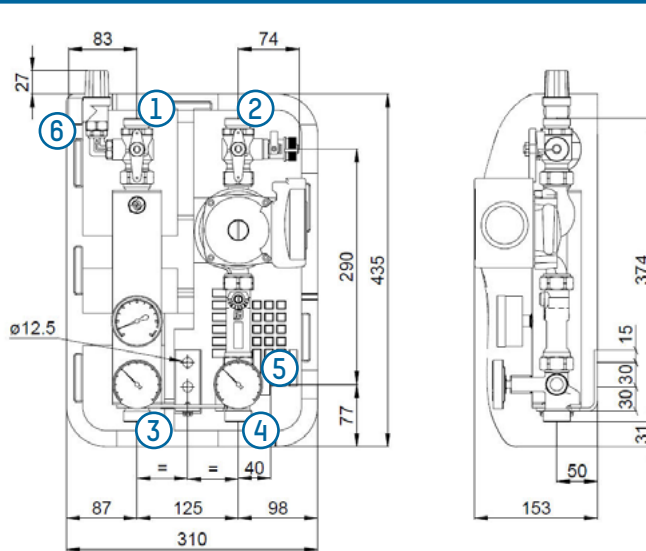
Order no.	$k_{vs}^{1)}$	$k_{vs}^{2)}$	Measuring range ³⁾	High-efficiency pump
270.8506.000	1,5	6,0	1,5 – 6,0 l/min	Grundfos PM2 15-105/130
270.8516.000	3,3	6,0	4,0 – 16,0 l/min	Grundfos PM2 15-105/130
270.8528.000	3,5	6,0	8,0 – 28,0 l/min	Grundfos PM2 15-105/130

¹⁾ k_{vs} [m³/h] at $\nu = 1\ \text{mm}^2/\text{s}$ in the return line (pump side)

²⁾ k_{vs} [m³/h] at $\nu = 1\ \text{mm}^2/\text{s}$ in the flow line (ventilator side)

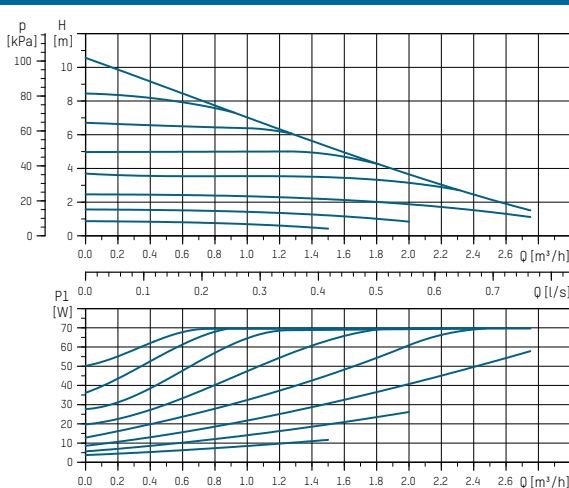
³⁾ Reading scale for water-glycol mix with $\nu = 2,3\ \text{mm}^2/\text{s}$

DIMENSIONAL DRAWING



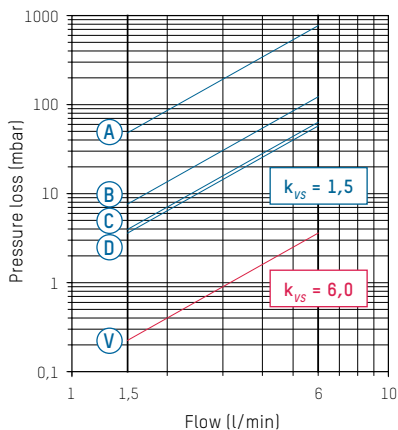
- 1 Connection of collector flow (AG ISO 228, G 1" flat sealing and cutting ring)
- 2 Connection of collector return (AG ISO 228, G 1" flat sealing and cutting ring)
- 3 Connection of storage flow (AG ISO 228, G 1" flat sealing and cutting ring)
- 4 Connection of storage return (AG ISO 228, G 1" flat sealing and cutting ring)
- 5 Connection of expansion vessel (AG ISO 228, G 3/4" flat sealing and cutting ring)
- 6 Connection of safety valve drainage line (IG DIN 2999 / ISO 7, Rp 3/4")

PUMPENDIAGRAMM



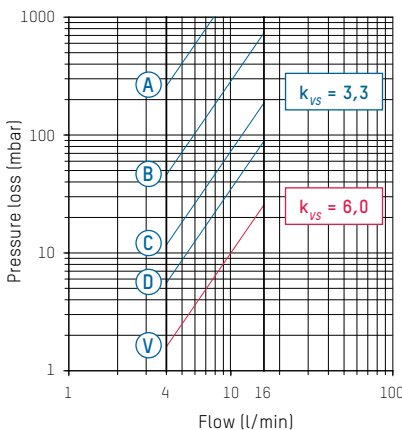
PRESSURE LOSS DIAGRAMS

270.X506.XXX (DN 20 | 1" | 1,5...6 l/min)

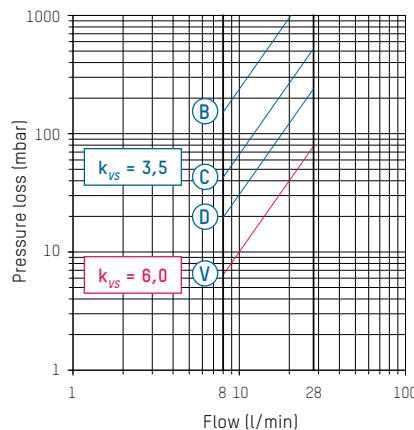


A - D Return characteristics of valve position for TacoSetter Inline 130
V Flow characteristic (vent line)

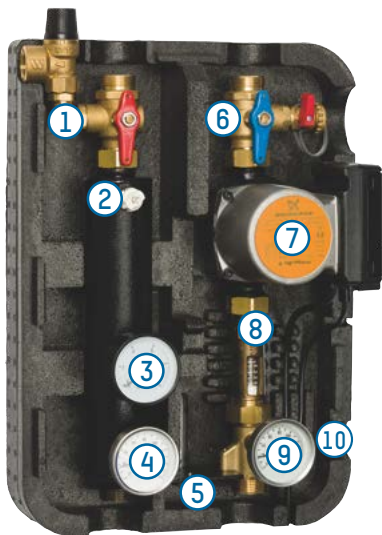
270.X516.XXX (DN 20 | 1" | 4...16 l/min)



270.X528.XXX (DN 20 | 1" | 8...28 l/min)



COMPONENTS



1 Shutoff ball valve with safety valve and integrated backflow preventer

- Integrated backflow preventer and check valve
- Option of lead sealing to protect against incorrect operation by the handle
- Safety valve function in each ball valve position guaranteed in accordance with safety standards

2 Ventilating flask with ventilating valve

- Permanent air separation
- Air collection volume 2.5 dl
- Integrated manual air vent for ventilating and checking the leak tightness

3 Manometer

- Display range 0-10 bar

4 Thermometer

- Display range 0-160 °C
- Dipping sensors installed in the safety pipe

5 Wall mounting

6 Shutoff ball valve with integrated backflow preventer as well as filling and draining valve

- Multifunctional valve for filling, draining and shutting off the collector circuit
- Hose connection outer thread G 3/4"
- Option of lead sealing to protect against incorrect operation by the handle

7 Circulation pump solar version

- Grundfos PM 2 15-105/130

8 TacoSetter Inline 130 balancing valve

- Sight glass with scale for medium viscosity of = 2.3 mm²/s
- Setting ranges in accordance with design
- 1.5-6 l/min | 4-16 l/min | 8-28 l/min
- Integrated shut-off function
- Hydraulic balancing of pump group without correction curves and measuring devices
- Functional checking of system at sight glass

9 Thermometer

- Display range 0-160 °C
- Dipping sensors installed in the safety pipe

10 Expansion vessel connection

- G 3/4"

Insulation and mounting accessories

- 2 hexagon wood screws 8 x 50 mm
- 2 washers
- 2 mounting pins 10 x 50 mm
- Installation instructions
- Operating and safety instructions

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ACCESSORIES



SOLDER JOINT PRESSURE FITTING

Flat sealing connector joint, consisting of a soldered connecting nipple, lock nut and flat seal suitable for solar technology.

Order no.	G x mm	Version for
210.5331.019	1" x 18 mm	Copper pipe 18 mm
210.5332.019	1" x 22 mm	Copper pipe 22 mm



FILL AND DRAIN COCK 3WAY CONNECTOR

For connection to the expansion vessel connector piece, consisting of a T-joint with fill and drain cock, lock nut with G 3/4" inner thread with flat seal suitable for solar technology and G 3/4" outer thread connector.

Order no.	DN	G
296.7001.354	20	3/4"



EXPANSION VESSEL MOUNTING BRACKET WITH QUICK ACTION COUPLING

For mounting the expansion vessel on the wall with quick-action shut-off coupling. 1 x inner thread, 1 x outer thread G 3/4".

Order no.	DN	G
296.7002.000	20	3/4"



STAINLESS STEEL TUBE

For connecting the expansion vessel, incl. 3/4" lock nut and flat seals suitable for solar technology.

Order no.	DN	G	Length
296.7003.000	20	3/4"	0,5 m



SOLAR CONTROLLER SOREL

Order no.	Type	Application
296.7016.000	TDC 4	Version with high-efficiency pumps



CARRIER FOR CONTROLLER

Order no.	Application
296.7020.000	TacoSol Circ ZR HE



COVER PLATE

Order no.	Application
296.7021.000	TacoSol Circ ZR HE