

TACOSOL LOAD MEGA

STORAGE LOADING STATION



Connection-ready storage loading station with high-efficiency pumps for efficient thermal transfer of solar energy to one or two storage tanks

DESCRIPTION

The TacoSol Load Mega storage loading station performs the zone-based loading of one storage tank or loading of two storage tanks via a thermal solar installation according to the available flow temperature.

INSTALLATION

The station is fully preassembled, connection-ready and can be fitted directly to the storage tank or to the wall. Only the storage and collector sensors as well as the ventilating safety unit have to be assembled.

OPERATION

The TacoSol Load Mega is a compact loading station equipped with EPP design insulation for loading one or two storage tanks by means of a solar system. The solar energy recovered is transferred via a high-efficiency stainless steel plate heat exchanger to the storage tank(s). By controlling the speed of the primary and also the secondary pump, the integrated controller ensures the optimal conditions are in place for achieving the best possible solar yield.

ADVANTAGES

- Maximum solar yield from the roof to the storage tanks owing to high-quality stainless steel plate heat exchanger
- Zone-based loading of one storage tank or loading of two storage tanks
- Speed control of the primary and also secondary pump for optimal temperature differentiation
- Stable stratified loading in the storage tank
- TacoControl Tronic for recording the primary return temperature and the primary flow rate
- Maximum energy efficiency, for example for generating fresh hot water with the TacoTherm Fresh fresh water stations

The parameters required for this purpose for the TacoSol Load Mega L with switching valve are determined, for example, by means of TacoControl Tronic. The controller regulates the three-way switching valve to operate either storage inflow 1 or 2. This ensure optimal loading of one or more storage tanks.

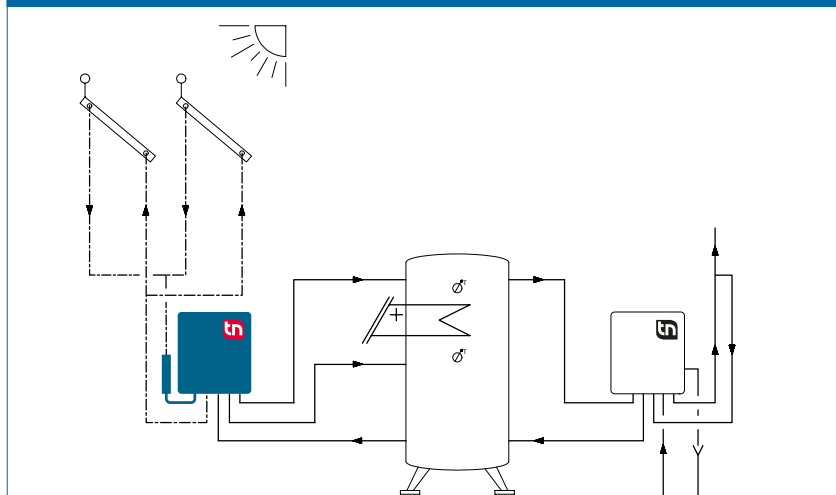
BUILDING CATEGORIES

- Single family homes, multiple dwelling units
- Hotels and restaurants
- School buildings and sports facilities
- Industrial buildings and systems

EXPANSION OPTION

The TacoTherm Fresh fresh water stations ideally complement the innovative TacoSol Load Mega zone-based storage loading system. They are used for hygienic fresh water preparation.

SYSTEM/BASIC DIAGRAM



TACOSOL LOAD MEGA | STORAGE LOADING STATION

SPECIFICATION TEXT

See www.taconova.com

TECHNICAL DATA

General

- Controller with display
- Weight (empty): approx. 12 kg
- Overall dimensions (incl. hood):
W 698.5 mm × H 636 mm × D 181 mm

Material

- Designer hood made from EPP
- Pumps: Cast iron
- Valve housing: Brass
- Pipes: Stainless steel 1.4404
- Plate heat exchanger:
Stainless steel
- Plates and connector pieces:
Stainless steel 1.4401
- Solder: 99.99 % copper
- Seals: AFM34 (flat sealing)

Primary side

- Operating temperature $T_{0\text{ max}}$:
 - Flow: 110 °C, briefly (2h): 140 °C
 - Return: 95 °C
- Max. operating pressure $P_{0\text{ max}}$: 6 bar
- Primary pump:
WILO Yonos Para ST 15/7.5
- Ventilator group with integrated shutoff, filling, purging and drainage facility
- Safety valve 6 bar
- TacoControl Tronic measurement range: 2 – 40 l/min

Secondary side

- Operating temperature $T_{0\text{ max}}$: 110 °C
- Max. operating pressure $P_{0\text{ max}}$: 3 bar
- Secondary pump: WIL0 Yonos Para ST 15/7.5
- Zone switching valve

Performance data

- See design diagram

Electrical connection data

- Mains voltage: 230 VAC ± 10 %
- Mains frequency: 50...60 Hz
- Power consumption of station:
max. 130 W
- Power consumption of pump:
solpump: 4-75 W
- Power consumption of pump in standby mode: 0.8 W
- Fuse 2 AT
- Protection type: IP 40

Flow media

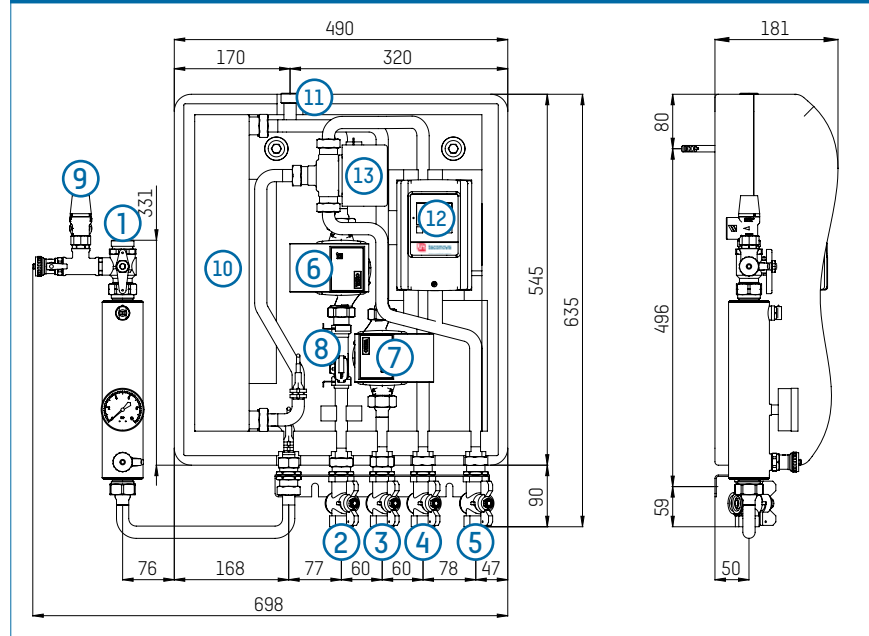
- Heating water
(VDI 2035; SWKI BT 102-01;
ÖNORM H 5195-1)
- Typical glycol mixtures up to 40%

TYPE OVERVIEW

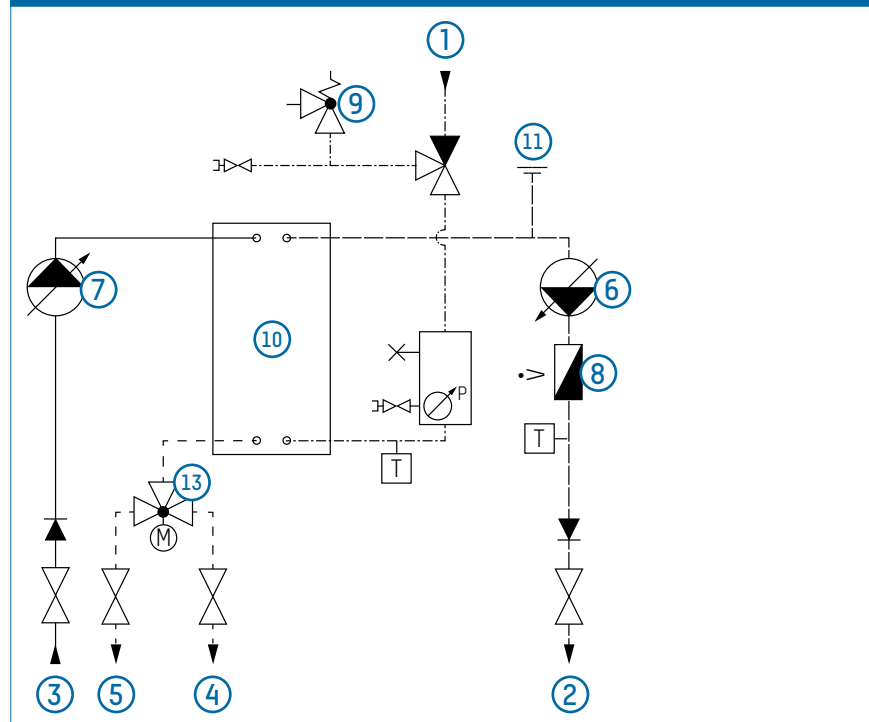
TacoSol Load Mega | Storage loading station

Order no.	Rp	Version	Version
271.5512.000B	¾" IG	L	with switching valve
271.5511.000	¾" IG		without switching valve

DIMENSIONAL DRAWING

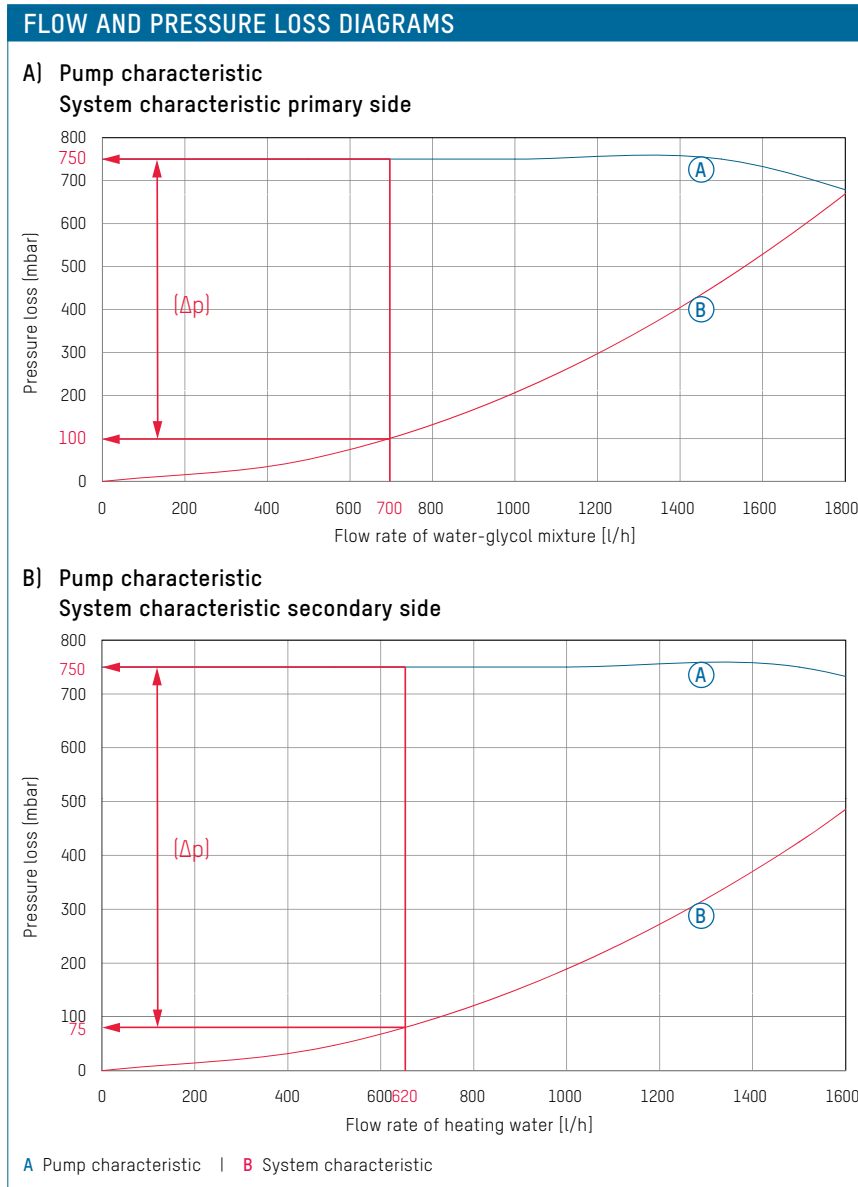


HYDRAULIC DIAGRAM



- | | |
|--|--|
| 1 Primary – solar flow | 7 Secondary storage loading pump |
| 2 Primary – solar return | 8 Flow rate sensor |
| 3 Secondary – storage return | 9 Solar safety valve |
| 4 Secondary – storage flow 1 | 10 Heat exchanger |
| 5 Secondary – storage flow 2
[optional zu Umschaltventil] | 11 Connection of expansion vessel |
| 6 Primary solar pump | 12 Regulator |
| | 13 Switching valve (TacoSol Load Mega L) |

CHARACTERISTIC OF PLATE HEAT EXCHANGER						
BASICS		AVERAGE LOG TEMP DIFFERENCE [LOG DELTA T]				
Calculation values 500 [W/m ²]		Spec. flow rate [l/(h*m ²)]	Collector surface (m ²)			
			5	10	15	20
LEGEND / EXPLANATION		10	7.6	8.4	8.5	9.5
$\Delta T < 5K$	Efficient operation	25	3.6	4.3	5.5	6.0
$\Delta T 5-7K$	Reduced yield	35	2.8	4.2	4.5	5.0
$\Delta T > 7K$	Considerably reduced yield	50	2.2	3.4	3.7	4.0



EXAMPLE OF INTERPRETING THE DIAGRAMS

- Given**
- Collector surface: 20 m²
 - Output: 12.5 kW
 - Average log temp difference: 5.0
 - Spec. flow rate 35 l/h × m²
- Sought**
- Residual pump head primary circuit
 - Residual pump head secondary circuit
- Approach**
- The primary flow rate of 700 l/h is calculated based on: Collector surface × Specific flow rate
 - In Diagram A) the primary pressure loss at the intersection point of the system characteristic is 100 mbar.
 - The residual pump head is 750 mbar. Discounting the pressure loss this gives rise to a residual pump head of 650 mbar (Δp).
 - In Diagram B) the primary flow rate is 620 l/h. The difference between the flow rates is based on the different thermal capacities of the heating water on the secondary side and the ethylene-glycol mixture on the primary side.
 - The secondary pressure loss at the intersection of the system characteristic is 75 mbar.
 - The residual pump head is 750 mbar. Discounting the pressure loss this gives rise to a residual pump head of 670 mbar (Δp).