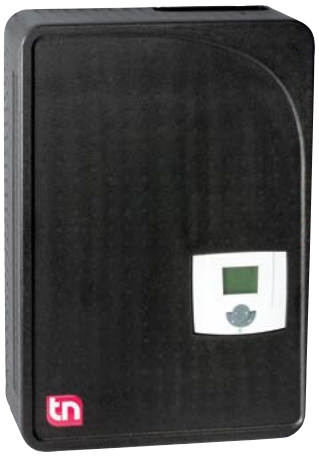
TACOTHERM CIRC MEGA / PETA

CIRCULATION MODULE WITH HIGH EFFICIENCY PUMPS



Circulation modules for combination with centralised heat interface units for hygienic DHW heating following the instantaneous water heating principle

BENEFITS

Energy efficiency and convenience
- No mixing in the cylinder during circulation
- Required draw-off temperature is guaranteed – even at more distant draw-off points

Safe
- Integration into the building management system via optionally available eLink ModBus RTU interface
- Integrated safety assembly

Simple
- Valves, accessories and components are fully pre-assembled and wired

Efficient
- Quick and straightforward commissioning

DESCRIPTION

The TacoTherm Circ Mega and Peta circulation modules are used in combination with centralised heat interface units for on-demand DHW heating following the instantaneous water heating principle.
They obtain heat from the buffer cylinder of an existing or new heating system whose heat source can be a solid fuel boiler, heat pump, solar thermal system, etc.
The units ensure that DHW is quickly available and provide a high level of protection against legionella bacteria as water stagnation is avoided.

INSTALLATION POSITION

Vertically on a wall, close to the buffer cylinder and the centrally installed centralised heat interface units.

OPERATING PRINCIPLE

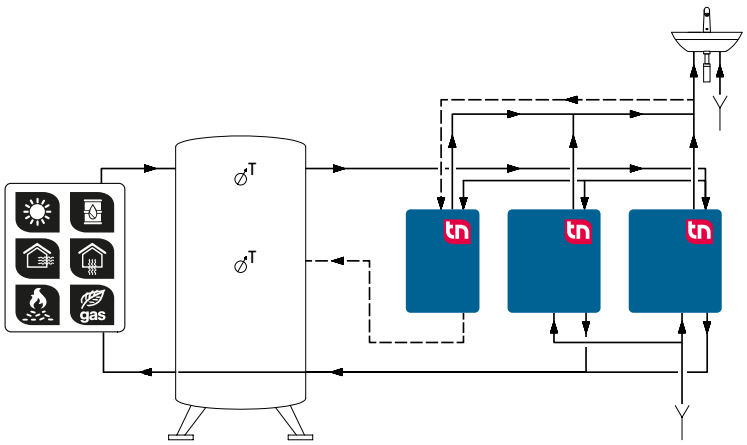
In the TacoTherm Circ circulation modules, the DHW is heated to the specified circulation temperature following the instantaneous water heating principle.
Only as much heating water is fed from the buffer cylinder to the integral heat exchanger as is required to maintain a constant circulation temperature.

The latest pump and control technology is used. At the same time, the electronic controller monitors the temperature difference to calculate and store the amount of heat consumed.
The primary pump and the circulation pump are actuated by the integral controller according to requirements.
Stratification of the primary side return occurs in the upper section of the buffer cylinder, thus preventing excessive mixing and associated reduction in buffer cylinder temperature.

BUILDING CATEGORIES

- Apartment buildings
- Estates of single-family houses
- Multi-family houses
- Smaller public buildings
- Facilities not in constant use, such as barracks, campsites

SYSTEM/SCHEMATIC DIAGRAM



TENDER DOCUMENTATION

See www.taconova.com

SPECIFICATION

General

- TacoTherm Circ Mega / Peta controller
- Weight, emwpty:
  17.5 – 20 kg
- Overall dimensions (incl. cover):
  W 470 mm × H 690 mm × D 195 mm

Material

- Base plate: galvanised sheet steel
- Back panel and cover: stylish EPP insulation
- Pumps:
  - Primary: cast steel
  - Secondary: PPS (plastic, approved for drinking water)
- Valve housing: brass
- Pipes: DN 20, ¾" fem., stainless steel 1.4404
- Plate heat exchanger:
  - Plates and connectors: stainless steel 1.4401
  - Heat exchanger solder: 99.99 % copper
    (on request: stainless steel brazed)
- Gaskets: AFM, flat packing

Primary side

- Max. operating temperature $T_{B\,max}$: 95 °C
- Max. static pressure $P_{B\,max}$:
  6 or 10 bar (see datasheets for TacoTherm Fresh Mega and Peta at taconova.com)
- Primary pump:
  TacoFlow3 GenS 15-85/130 C6 DS P

Secondary side

- Max. operating temperature $T_{B\,max}$: 95 °C
- Max. static pressure $P_{B\,max}$: 10 bar
- Safety valve (intrinsic safety): 10 bar
- Circulation pump:
  WILO Yonos PARA Z 15/7.0

Electrical connection information

- Mains voltage: 230 VAC ± 10 %
- Mains frequency: 50 to 60 Hz
- Power consumption: max. 250 W
- Fuse protection, controller: 3.5 A slow
- eBus interface
- Protection rating: IP 40

Flow media

- Heating water
  (VDI 2035; SWKI BT 102-01; ÖNORM H 5195-1)
- Cold water

APPROVALS / CERTIFICATES

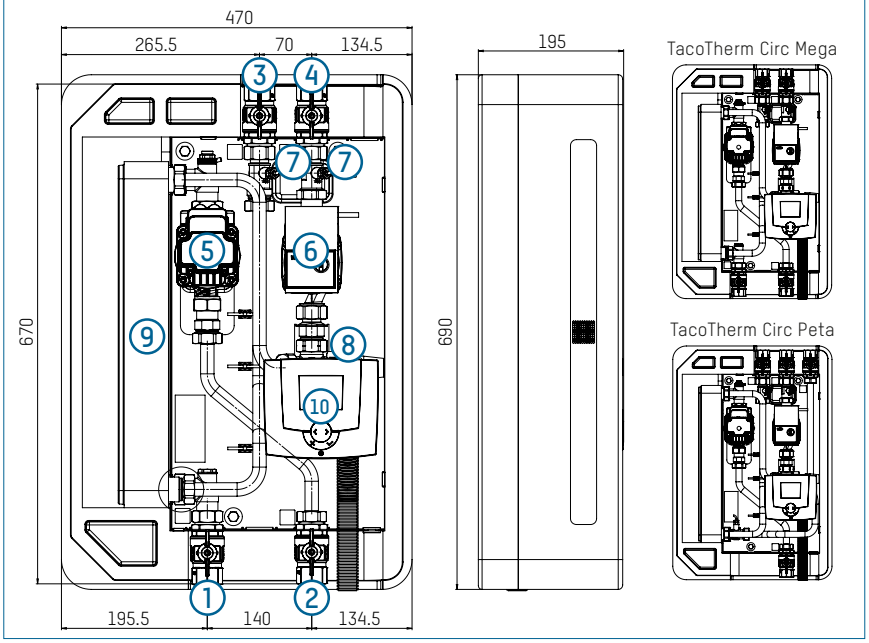
- Components in contact with drinking water comply with UBA Evaluation Criteria 26/03/2018 and Directive (EU) 2015/1535
- SVGW: xxxxxxxxx

TYPE OVERVIEW

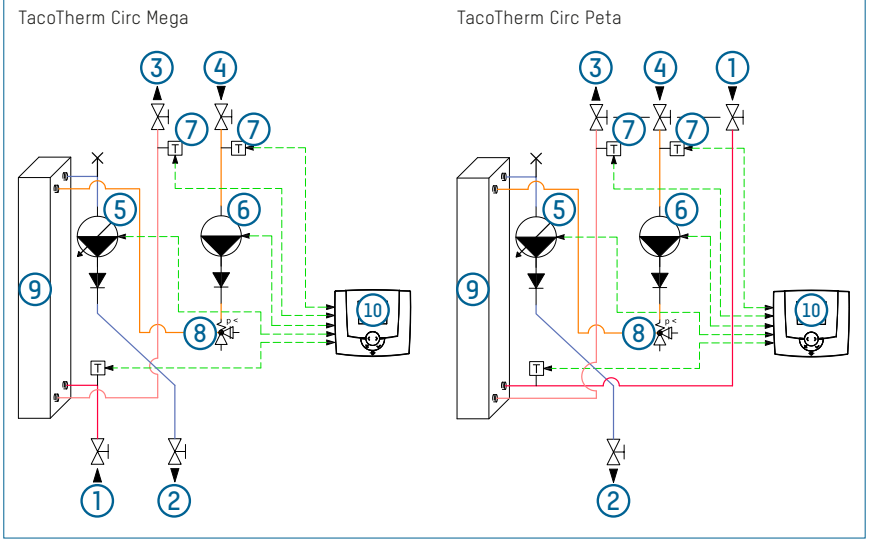
TacoTherm Circ Mega / Peta | Circulation module with high efficiency pumps

Part no.	Rp 1"	Version	Plate heat exchanger
272.0216.000	① ② ③ ④	TacoTherm Circ Mega	Copper brazed
272.0216.125	① ② ③ ④	TacoTherm Circ Mega	Stainless steel brazed
272.0217.000	① ② ③ ④	TacoTherm Circ Peta	Copper brazed
272.0217.125	① ② ③ ④	TacoTherm Circ Peta	Stainless steel brazed

DIMENSIONAL DRAWING



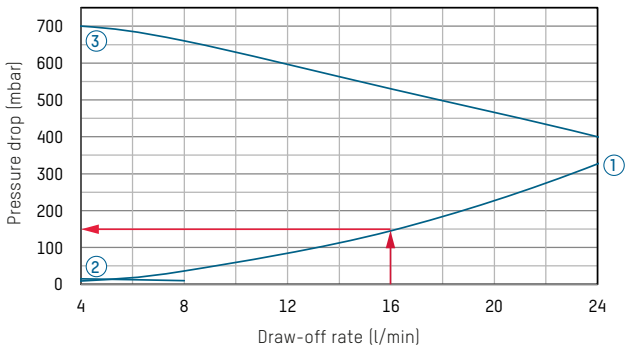
HYDRAULIC SYSTEM DIAGRAM



1 Primary DHW flow
2 Primary DHW return 1
3 Circulation connection, flow
4 Circulation connection, return
5 Primary pump
6 Circulation pump
7 Temperature sensor
8 Safety valve
9 Heat exchanger
10 Controller

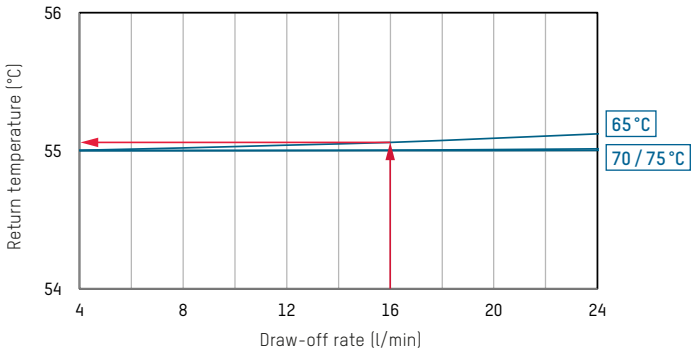
FLOW AND PRESSURE DROP DIAGRAMS DHW HEATING BY 5 K (55 TO 60 °C)

D) Secondary pressure drop

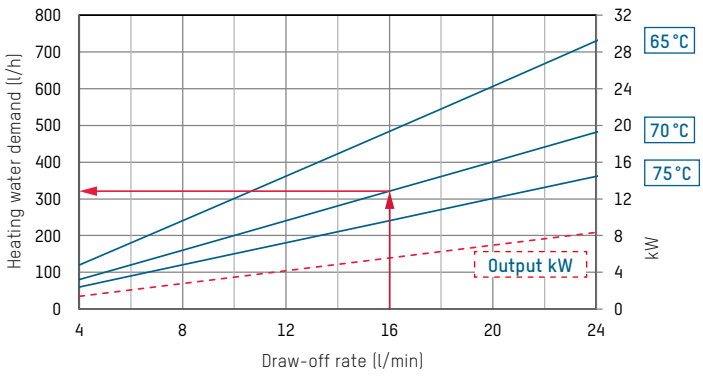


1 Pressure drop, cold water and circulation (secondary)
2 Circulation pump, min.
3 Circulation pump, max.
4 Primary pressure drop
5 Pump curve – system curve, primary side

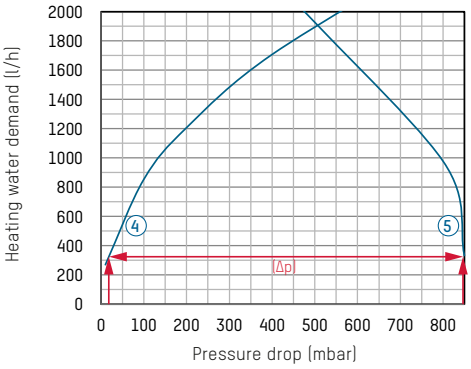
C) Return temperatures



A) Cold water heating by 5K



B) Residual head | Primary pressure drop



EXAMPLE OF INTERPRETING THE FLOW AND PRESSURE DROP DIAGRAMS

Given

- Circulation flow rate: 16 l/min
- Heating flow temperature, primary: 70 °C

Sought

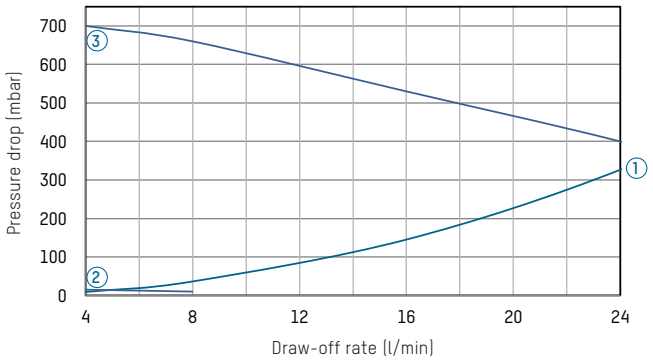
- Heating water demand in l/h
- Heating return temperature, primary in °C
- Pressure drop, secondary in mbar
- Pressure drop, primary in mbar

Solution

- In diagram A), a heating water demand of 320 l/h can be read off at the intersection of the circulation flow rate of 16 l/min and the primary flow of 70 °C.
- In diagram B), a primary pressure drop of 15 mbar is to be expected with a heating water demand of 320 l/h.
- The pump head is 845 mbar; when the pressure drop is deducted, therefore, this produces a pump residual head of 830 mbar (Δp).
- In diagram C), a primary return temperature of 55 °C is obtained for a given draw-off rate of 16 l/min and the selected flow temperature of 70 °C.
- In diagram D), the secondary pressure drop for the given data is 150 mbar

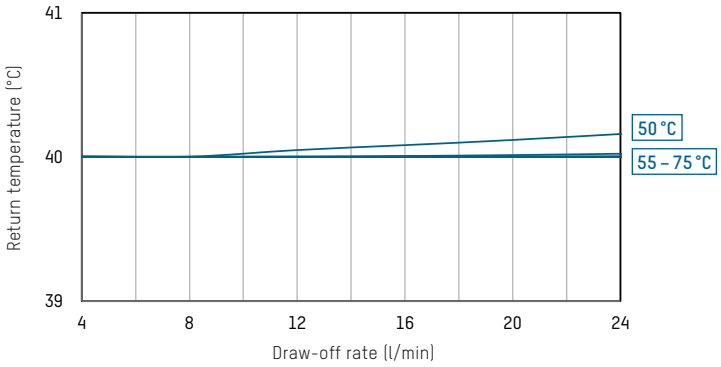
FLOW AND PRESSURE DROP DIAGRAMS
COLD WATER HEATING BY 5 K (40 TO 45 °C)

D) Secondary pressure drop

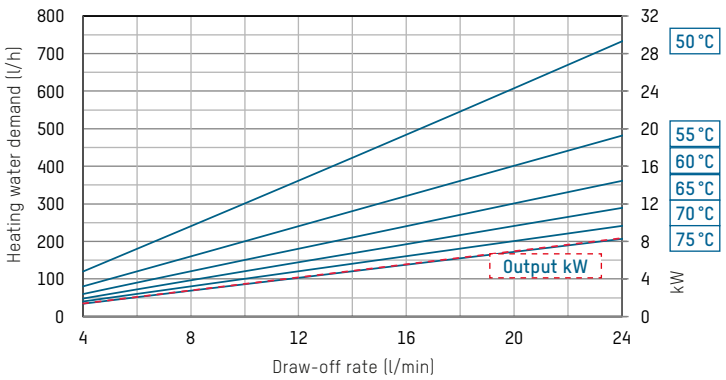


1 Pressure drop, cold water and circulation (secondary)
2 Circulation pump, min.
3 Circulation pump, max.
4 Primary pressure drop
5 Pump curve – system curve, primary side

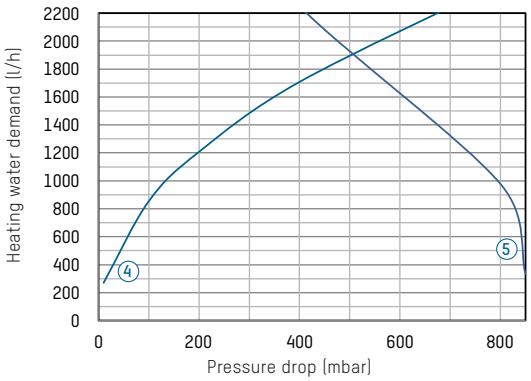
C) Return temperatures



A) Cold water heating by 5K



B) Residual head | Primary pressure drop



PLEASE NOTE

REQUIREMENTS FOR FLOW MEDIA

A copper brazed stainless steel plate heat exchanger is used in these units as standard. Before use, it is important to check at the system planning stage whether issues of corrosion protection and scale formation have been given sufficient consideration in accordance with DIN 1988-200 and the current drinking water analyses as set out in DIN EN 806-5.
See information sheet "Specifications for plate heat exchanger – limit values for drinking water quality".

ACCESSORIES

COMPONENTS FOR REMOTE ACCESS

Part no.	Designation
296.7027.000	eLink ModBus RTU interface
296.7028.000	eLink RC7020 interface

CASCADE CIRCUIT

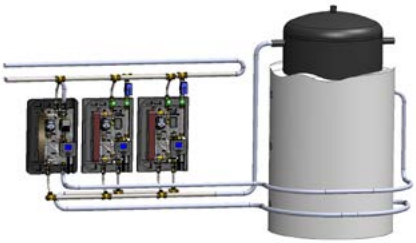
TacoTherm Fresh Mega3 with circulation station

	Nominal width Collector pipe		Nominal width Station connection		
Part no.	DN	Rp	DN	Rp	Designation
295.0500.000	42	1 ½"	22	1"	Basic kit for TacoTherm Fresh Mega3 cascade
295.0501.000	42	1 ½"	22	1"	Extension kit for TacoTherm Fresh Mega3 cascade
295.0502.000	42	1 ½"	22	1"	Extension kit for TacoTherm Circ Mega
272.0216.000	18	1"	18	1"	TacoTherm Circ circulation station Mega3 (heat exchanger: copper brazed)
272.0216.125	18	1"	18	1"	TacoTherm Circ circulation station Mega3 (heat exchanger: stainless steel brazed)

TacoTherm Fresh Peta2 with circulation station

	Nominal width Collector pipe		Nominal width Station connection		
Part no.	DN	Rp	DN	Rp	Designation
295.0400.000	54	2"	35	1 ¼"	Basic kit for TacoTherm Fresh Peta2 cascade
295.0401.000	54	2"	35	1 ¼"	Extension kit for TacoTherm Fresh Peta2 cascade
295.0402.000	54	2"	22	1"	Extension kit for Taco Them Circ Peta
272.0217.000	18	1"	18	1"	TacoTherm Circ circulation station Peta2 (heat exchanger: copper brazed)
272.0217.125	18	1"	18	1"	TacoTherm Circ circulation station Peta2 (heat exchanger: stainless steel brazed)

EXAMPLE ORDER



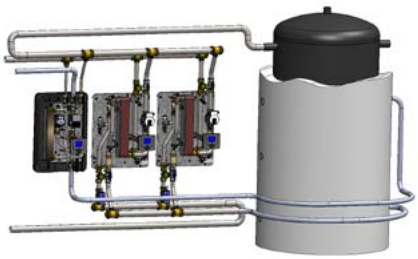
CASCADE MODULE WITH SEQUENCE CHANGEOVER

Cascade circuit with TacoTherm Fresh Mega3

Part no.	2HC cascade	3HC cascade	4HC cascade	5HC cascade
272.2026.000	2	3	4	5
272.0216.000	1	1	1	1
295.0500.000	1	1	1	1
295.0502.000	1	1	1	1
295.0501.000	0	1	2	3

Cascade circuit with TacoTherm Fresh Mega3 X

Part no.	2HC cascade	3HC cascade	4HC cascade	5HC cascade
272.5076.000	2	3	4	5
272.0216.000	1	1	1	1
295.0500.000	1	1	1	1
295.0502.000	1	1	1	1
295.0501.000	0	1	2	3



Cascade circuit with TacoTherm Fresh Peta2

Part no.	2HC cascade	3HC cascade	4HC cascade	5HC cascade
272.5066.000	2	3	4	5
272.0217.000	1	1	1	1
295.0400.000	1	1	1	1
295.0402.000	1	1	1	1
295.0401.000	0	1	2	3

Cascade circuit with TacoTherm Fresh Peta2 X

Part no.	2HC cascade	3HC cascade	4HC cascade	5HC cascade
272.2056.000	2	3	4	5
272.0217.000	1	1	1	1
295.0400.000	1	1	1	1
295.0402.000	1	1	1	1
295.0401.000	0	1	2	3

CONTACT AND FURTHER INFORMATION TACONOVA.COM

Taconova Group AG | Neunbrunnenstrasse 40 | CH-8050 Zürich | T +41 44 735 55 55 | F +41 44 735 55 02 | group@taconova.com
Taconova UK Ltd | 2a Baxter Road | Sheffield S6 1JF | England | T +44 (0) 114 231 3700 | adminuk@taconova.com | taconova.uk