TACOTHERM DUAL ZEPTO

SMART CONNECT HEAT INTERFACE UNIT

Compact and connection-ready, this all-in-one heat interface unit offers indirect heat transfer to the heating and DHW systems.

ADVANTAGES

- Combined, prepared connection of radiators and underfloor heating systems
- Highly convenient domestic hot water supply
- Billing for cold water and energy costs as required
- Compact design
- WRAS approved & tested
- Market leading overall VWART figures
- Billing of energy consumption

DESCRIPTION

The compact Smart Connect Heat Interface Unit is designed as an indirect transfer unit for supplying heat and serving dual purposes: decentralised DHW heating based on the instantaneous water heating principle and decentralised indirect heat distribution in residential units. With various hydraulic components available for selection, the unit ensures on-demand DHW heating, distribution of heat energy as well as calculation of energy costs.

INSTALLATION POSITION

This electronic HIU is suitable for surface mounting and can be installed in pantries, storerooms, etc.
Ideally, it should be located close to the domestic hot water draw-off points for each apartment.
Can be installed in utility cupboards, closets, storerooms etc.

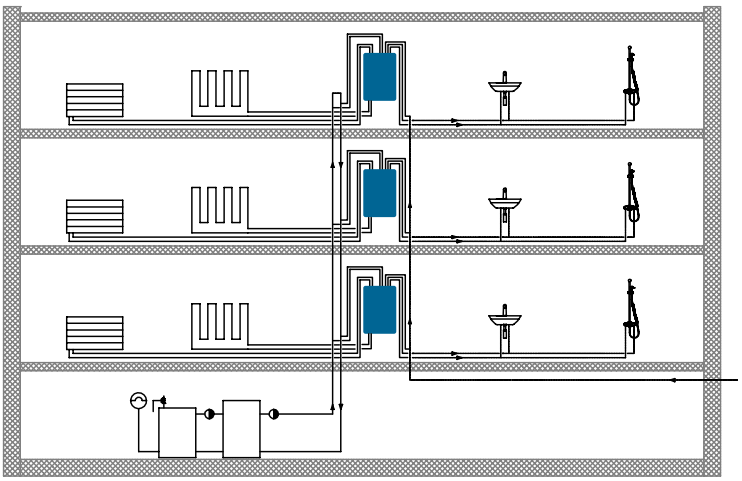
OPERATING PRINCIPLE

The HIUs in the electronic series are designed for DHW heating and indirect heat distribution in multi-storey residential buildings.
They utilise primary energy supplied via a central buffer cylinder; DHW is generated in the domestic hot water PHEX as required, according to the instantaneous water heating principle. Via the additional indirect heating circuit connection, the heating surfaces in the living space can be connected to underfloor heating circuit manifolds or radiators.
The modules come with fittings ready for the installation of heat meters.

BUILDING CATEGORIES

- Detached houses
- Apartment buildings
- Student accommodation
- Care Homes
- Extra Care facilities

SYSTEM/BASIC DIAGRAM



SPECIFICATION

General
- Overall dimensions: W 455 mm × H 767.5 (830.5) mm × D 300 mm
- Weight without water: appr. 30 kg

Primary Supply
- Operating temperature $T_{0\,max}$: 90 °C
- Operating pressure: $P_{0\,max}$: 16 bar
- Differential pressure valve:
  - DPC-Valve Caleffi HI-FLOW: Adjustment range: 250-600 mbar Max. differential pressure: 6 bar
  - DPC-Valve FlowCon LOW-FLOW: Adjustment range: 30-500 mbar Max. differential pressure: 5 bar
- Heatmeter M Bus: (Optional)

Secondary Heating
- Operating temperature $T_{0\,max}$: 85 °C
- Operating pressure $P_{0\,max}$: 2.5 bar
- Safety valve: 2.5 bar
- Highly efficient circulation pump: TacoFlow2 (EEI ≤ 0,20-Part 2)
- Expansion vessel volume: 10 l

Domestic hot / cold water
- Operating temperature $T_{0\,max}$: 60 °C
- Operating pressure $P_{0\,max}$: 9.5 bar

Material
- Heat exchanger: copper brazed
- Cover: EPP insulation
- Pipes: DN 20, stainless steel 1.4404
- Pump body: composite
- Valve body: brass
- Seals: AFM 34 (flat-sealing)

Output data
- See design diagram TacoControl

Electrical connection information
- Protection class: IP40
- Rated voltage: 230 VAC +/- 10%
- Frequency: 50/60 Hz

Power consumption
- Power consumption: max 50 W

Flow media
- Heating water (VDI 2035; SWKI BT 10201; ÖNORM H 5195-1)
- Cold water to DIN 1988200 and DIN EN 8065

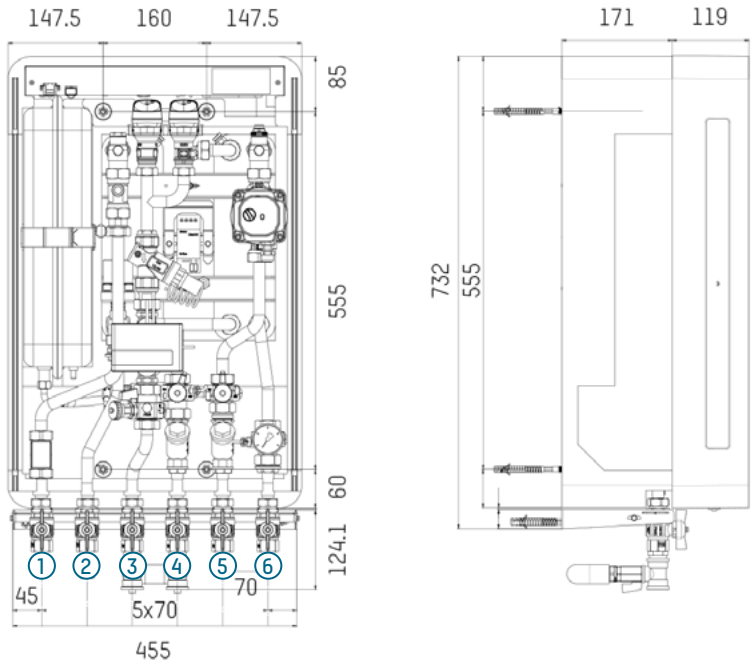
APPROVALS / CERTIFICATES
- Components in contact with drinking water comply with UBA Evaluation Criteria 26/03/2018 and Directive (EU) 2015/1535
- WRAS approved Product Number: 2010374

TYPE OVERVIEW

TacoTherm Dual Zepto | Smart Connect Heat Interface Unit

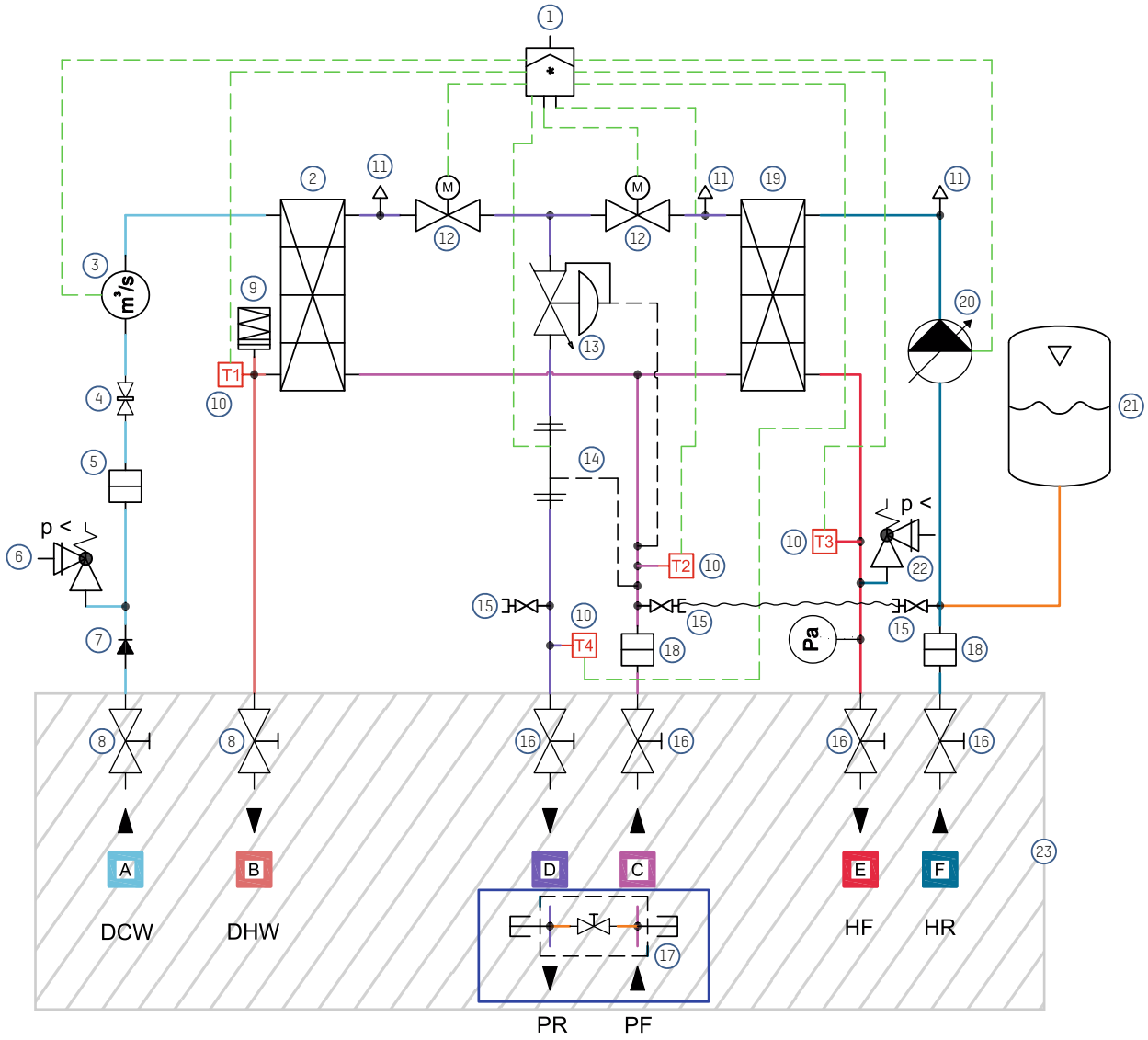
Part no.	DN	Rp	Number of plates for heating/DHW
274.2411.696	20	¾"	10 / 26
274.2611.696	20	¾"	10 / 40
274.2712.696	20	¾"	10 / 50
274.4412.696	20	¾"	16 / 26
274.4611.696	20	¾"	16 / 40
274.4711.696	20	¾"	16 / 50
274.6411.696	20	¾"	26 / 26
274.6612.696	20	¾"	26 / 40
274.6712.696	20	¾"	26 / 50
274.8411.696	20	¾"	40 / 26
274.8611.696	20	¾"	40 / 40
274.8711.696	20	¾"	40 / 50
274.2401.000C	20	¾"	10 / 26
274.2912.696C	20	¾"	10 / 70
274.4912.696C	20	¾"	16 / 70
274.6912.696C	20	¾"	26 / 70
274.8912.696C	20	¾"	40 / 70

DIMENSIONAL DRAWING



1 Main DCW supply line connection
2 DHW distribution connection
3 Primary connection for heat supply, return
4 Primary connection for heat supply, flow
5 Radiator connection, return
6 Radiator connection, flow

FLOW DIAGRAM



1 Taco Control Z1

Domestic hot / cold water circuit
- A District Cold water inlet
- B District Hot water outlet

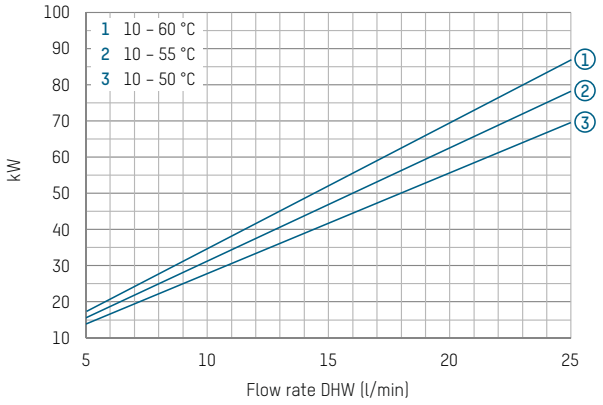
Primary circuit
- C Primary Buffer flow
- D Primary Buffer return

Heating circuit
- E Heating flow
- F Heating return

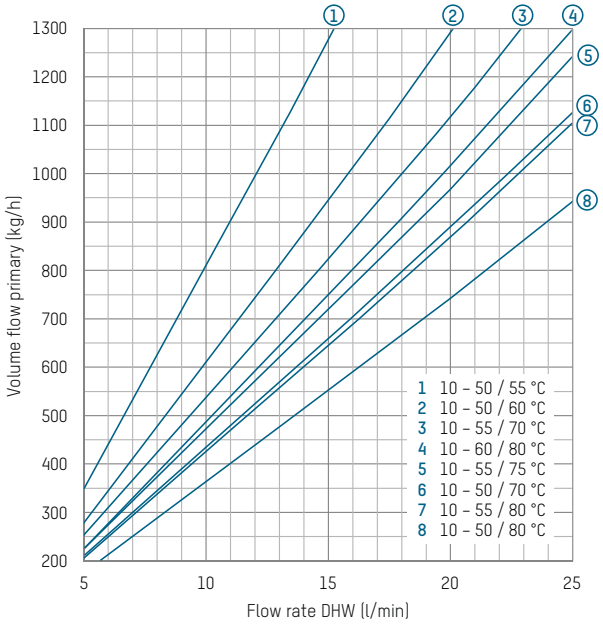
2 PHE – DW
3 Flow sensor
4 Flow limiter (optional)
5 Filter
6 Safety valve (optional)
7 Check valve
8 Stop valve (optional with Fixrail)
9 Water hammer arrester
10 Temperature sensor NTC10K
11 Vent
12 Control valve
13 Differential pressure control valve
14 Heatmeter
15 Fill- / Flush- / Drain valve (Pressure test point)
16 Stop valve (optional with Fixrail)
17 Flushing bypass (option in connection with Fixrail)
18 Strainers
19 PHE – SH
20 Circulation pump
21 Diaphragm type expansion tank
22 Safety valve
23 Fixrail (accessory - containing 8/18/19)

FLOW AND PRESSURE LOSS DIAGRAMS
PLATE HEAT EXCHANGER WITH 26 PLATES (DOMESTIC HOT WATER)

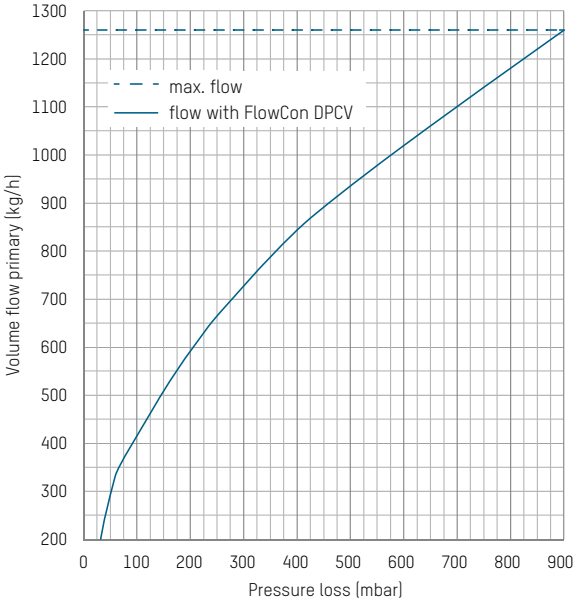
Performance



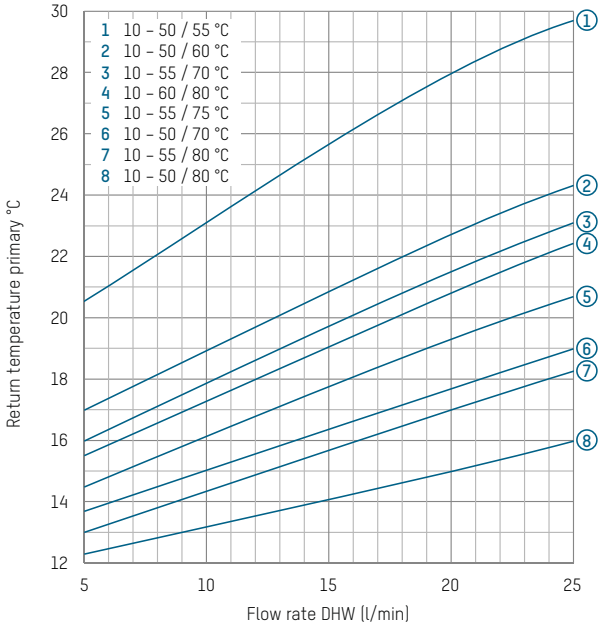
Volume flow DHM primary / performance



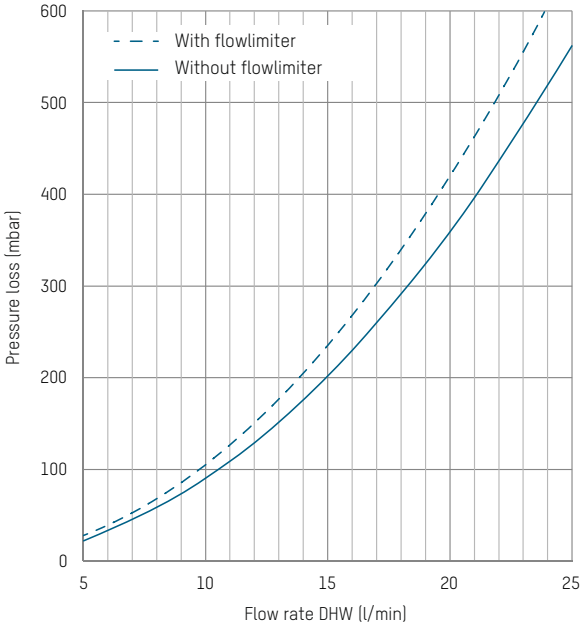
Pressure loss primary with heatmeter



Return temperature

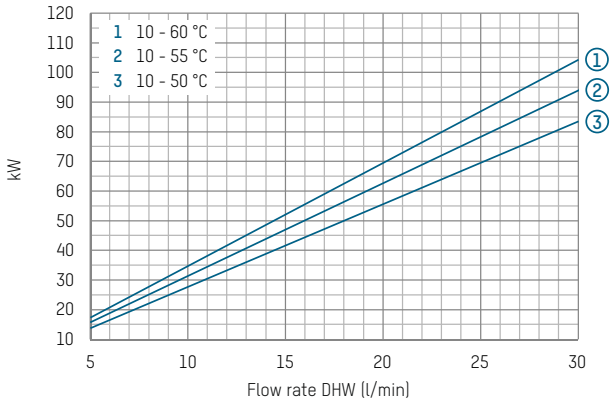


Pressure loss DHW secondary

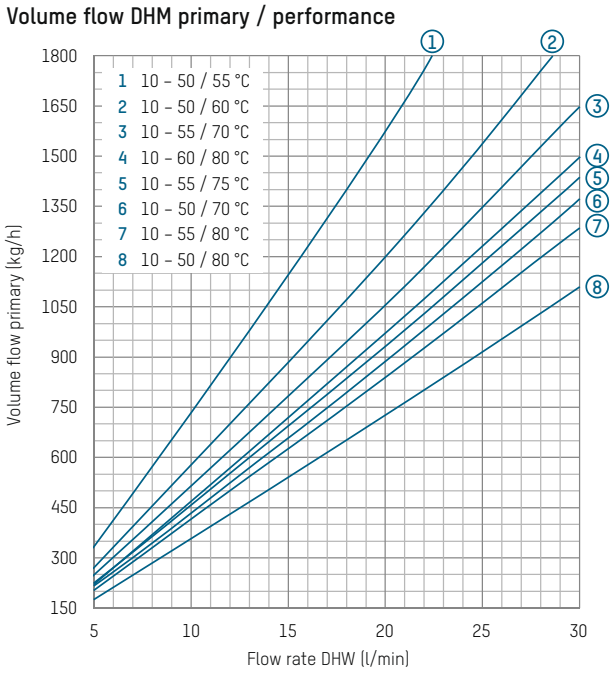


FLOW AND PRESSURE LOSS DIAGRAMS
PLATE HEAT EXCHANGER WITH 40 PLATES (DOMESTIC HOT WATER)

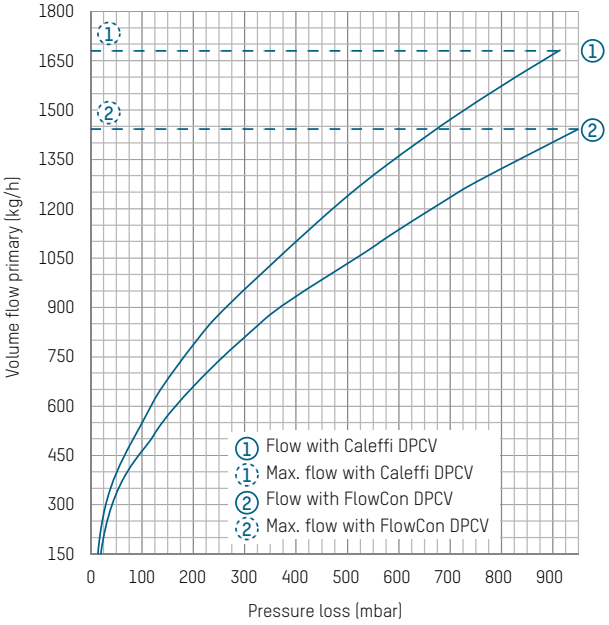
Performance



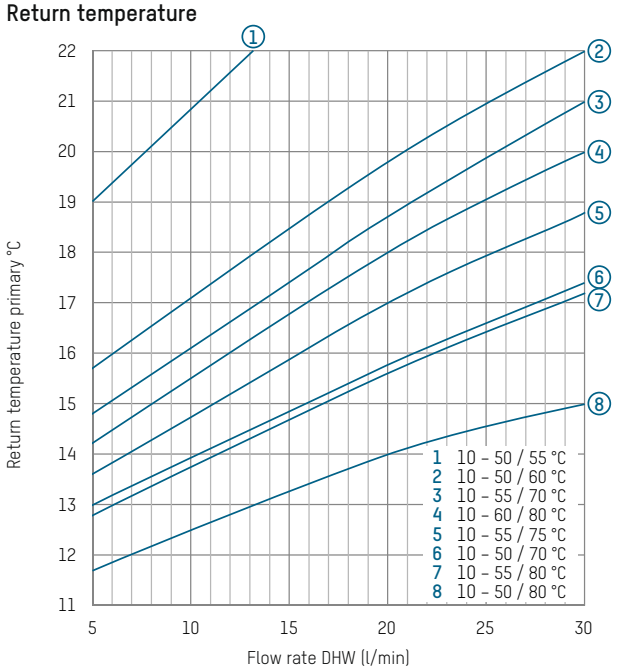
Volume flow DHM primary / performance



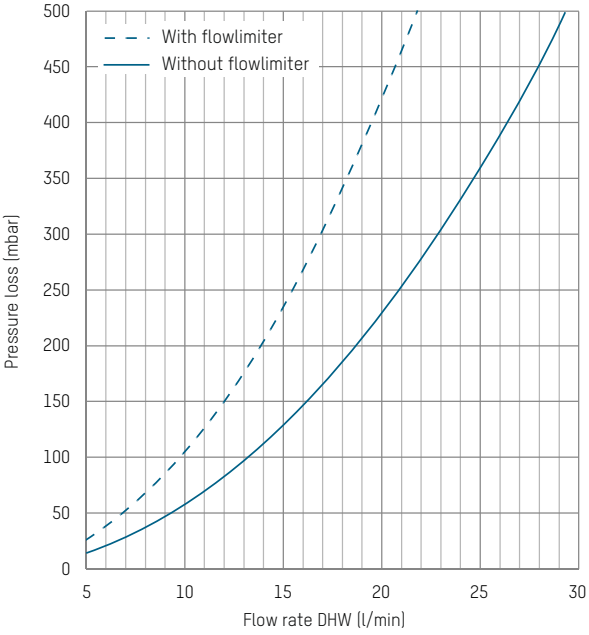
Pressure loss primary with heatmeter



Return temperature

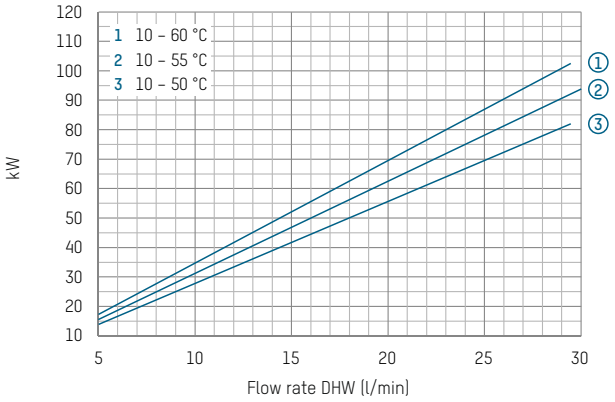


Pressure loss DHW secondary

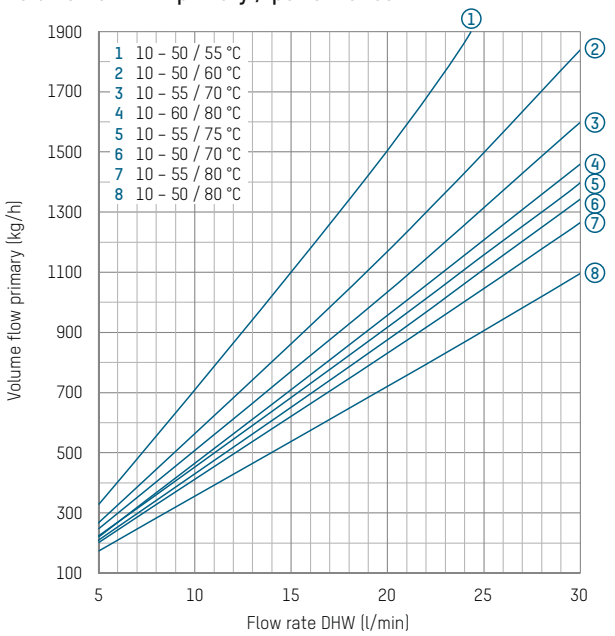


FLOW AND PRESSURE LOSS DIAGRAMS
PLATE HEAT EXCHANGER WITH 50 PLATES (DOMESTIC HOT WATER)

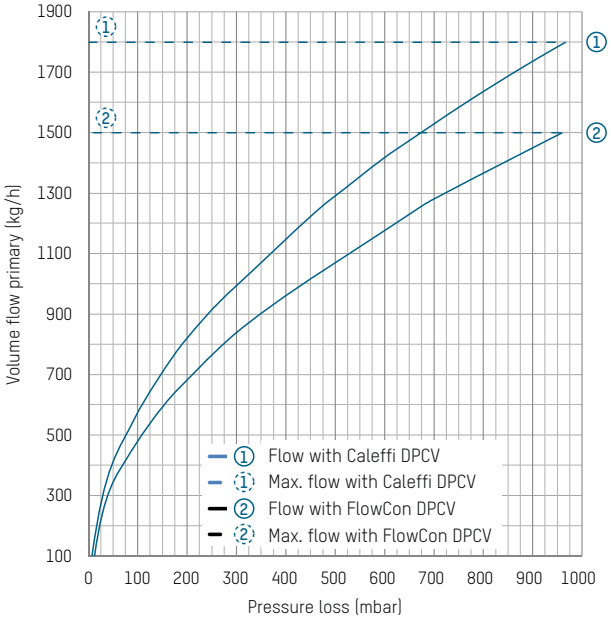
Performance



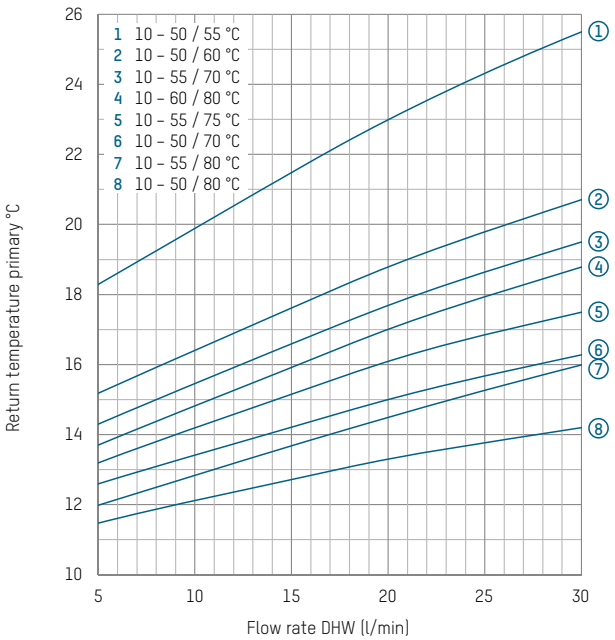
Volume flow DHM primary / performance

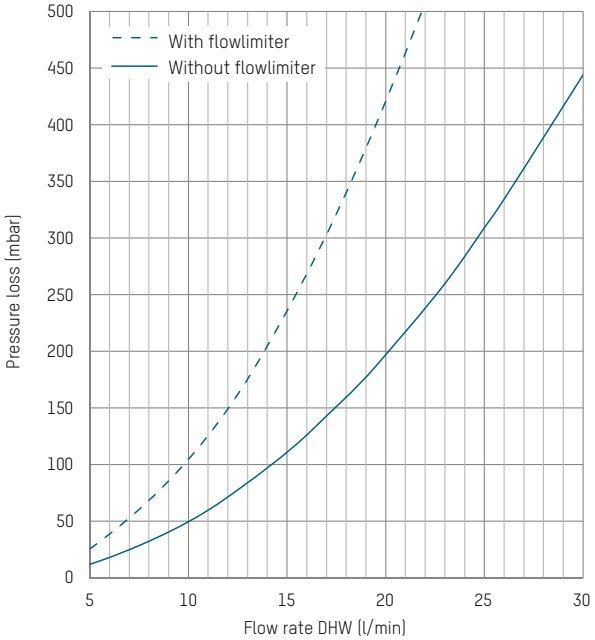


Pressure loss primary with heatmeter



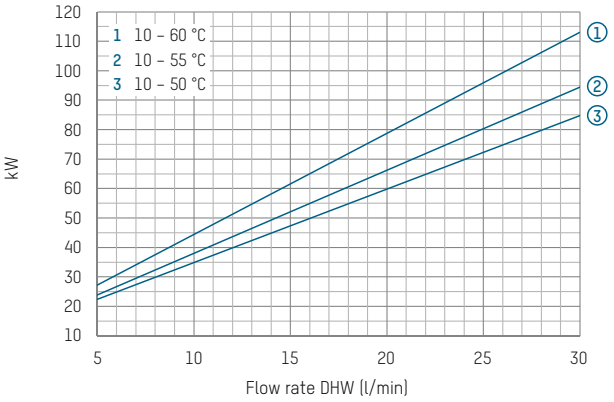
Return temperature



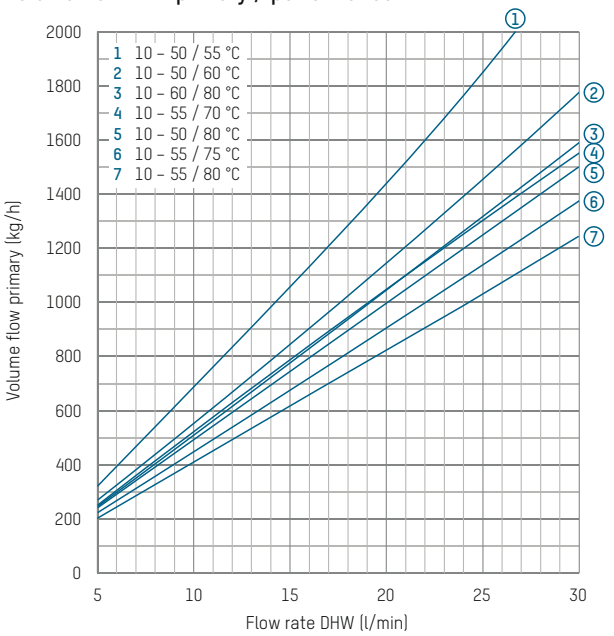


FLOW AND PRESSURE LOSS DIAGRAMS
PLATE HEAT EXCHANGER WITH 70 PLATES (DOMESTIC HOT WATER)

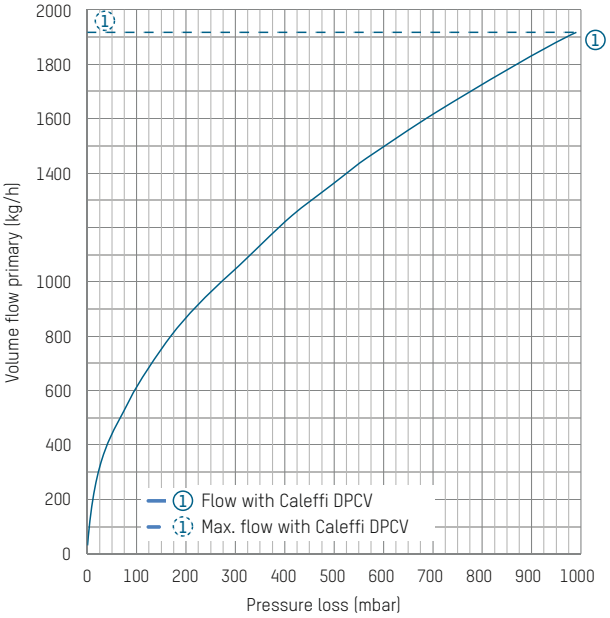
Performance



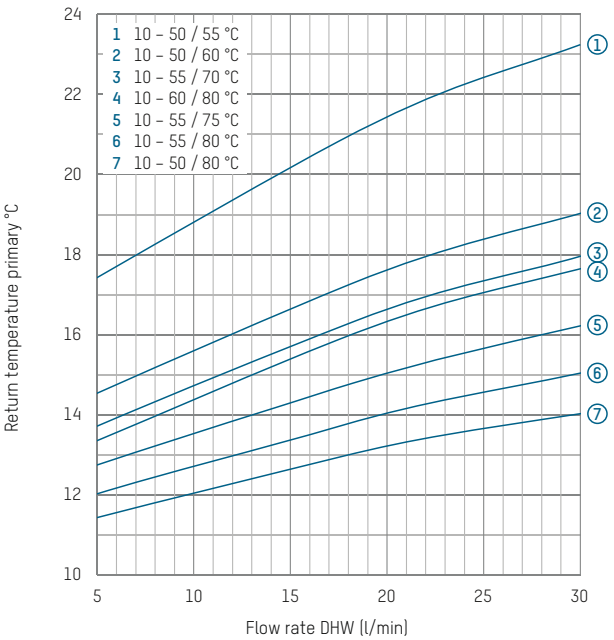
Volume flow DHM primary / performance

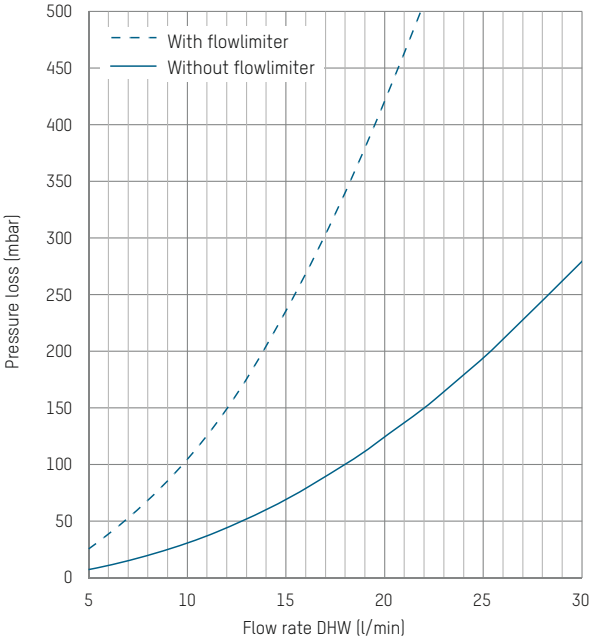


Pressure loss primary with heatmeter



Return temperature





EXAMPLE OF INTERPRETING THE FLOW RATE AND PRESSURE LOSS DIAGRAMS

Given

- Performance: 4 kW
- Temperature Building primary: 75°C
- Temperature Heating primary: 70 °C
- Temperature Heating Return:40 °C

Wanted

1 Size of the PHE
2 Specific values to match performance

Solution:

1 Table A) determines the size of the PHE. For this purpose, the desired performance value 4 kW must be smaller than the maximum performance values of the PHE at the corresponding temperatures (75°C / 70°C / 40°C).
--> The 10 plates heat exchanger fits.
2 To find the specific values matching to the desired performance of 4 kW go to the diagrams B), C) and D).

- In diagram B) the volume flow of heating secondary at the intersection point of the performance of 4 kW and the temperature difference of 30K (70°C - 40°C) is 115 kg/h.
- In diagram C) the secondary pressure loss for the secondary volume flow demand of 115 kg/h is 27 mbar. The pump head is 193 mbar, so the residual pump head is 166 mbar (Δp) (193-27=166).
- The primary volume flow must be calculated using the maximum performance (8.7 kW) and flow rate (q=278 kg/h) from Table A) and the desired performance (4 kW).

$$\frac{Performance}{max.Performance} * q_{primary.max} = q_{desired}$$

$$\frac{4\ kW}{8..7\ kW} * 278\frac{kg}{h} = 128\ \frac{kg}{h}$$

- In diagram D) the primary pressure loss at the intersection point of the calculated primary volume flow (128 kg/h) and the curve of the 10 PHE is 105 mbar.
- The specific values for 10 PHE at 4kw are:
  - a q_{prim}.: 128kg/h, dp ^{prim}.: 105mbar
  - b q_{sec}.: 115kg/h, dp ^{sec}.: 27mbar

FLOW AND PRESSURE LOSS DIAGRAMS
PLATE HEAT EXCHANGER WITH 10, 16 AND 26 PLATES (HEATING MODULE)

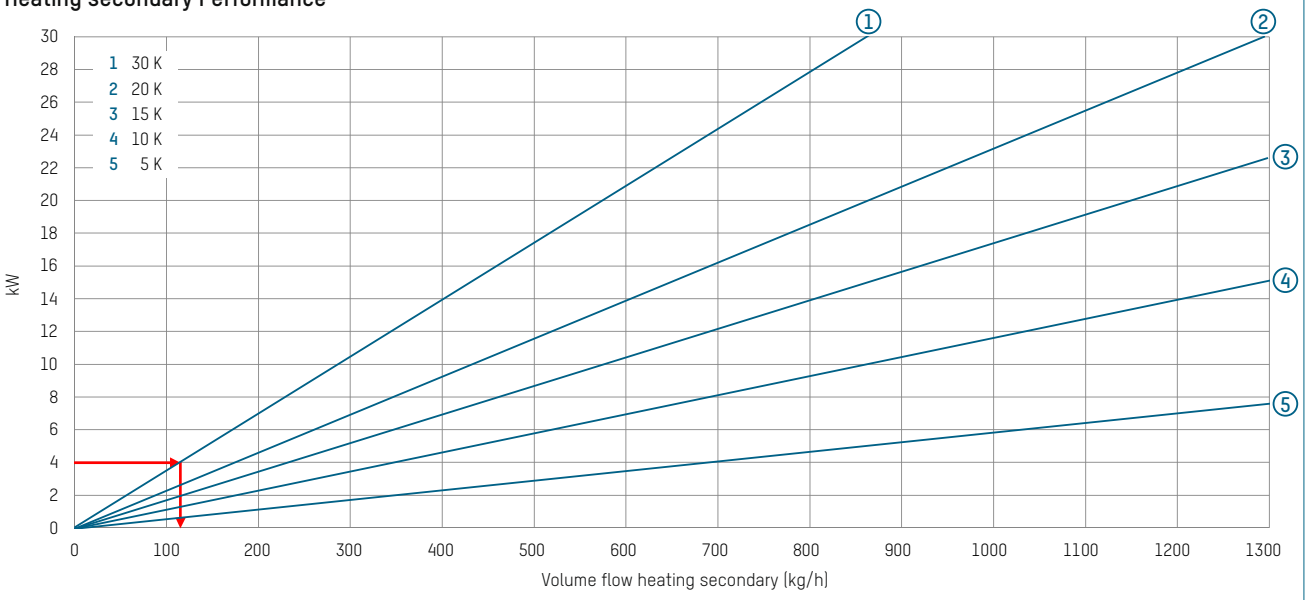
A Values of the heat exchangers at maximum performance.

			10 plates				16 plates				26 plates			
			prim				prim				prim			
Building primary	Heating Primary	Heating Return	Max. Performance	Return Temperature	Pressure loss	Flowrate q	Max. Performance	Return Temperature	Pressure loss	Flowrate q	Max. Performance	Return Temperature	Pressure loss	Flowrate q
°C	°C	°C	kW	°C	mbar	kg/h	kW	°C	mbar	kg/h	kW	°C	mbar	kg/h
75	70	40	8.7	48	229	278	12.5	47	152	386	27.8	48	447	889
	65	35	8.7	40	136	214	12.5	39	92	300	27.8	40	266	686
70	65	35	8.7	43	229	278	12.5	42	152	386	27.8	43	447	889
	60	30	8.7	33	122	203	12.5	35	97	309	27.8	36	282	706
65	60	40	5.8	44	169	238	8.4	44	120	343	18.6	44	328	762
		30	8.7	39	247	288	12.5	38	163	400	27.8	38	447	889
	55	35	5.8	38	102	185	8.4	38	73	267	18.6	38	199	593
60	55	35	5.8	40	186	250	8.4	39	120	343	18.6	39	328	762
	50	40	2.9	41	51	132	4.2	41	37	189	9.3	41	100	421
		30	5.8	32	95	179	8.4	33	73	267	18.6	33	199	593
	45	35	2.9	36	32	104	4.2	36	23	150	9.3	36	63	333
55	50	40	2.9	41	95	179	4.2	41	67	257	9.3	41	185	571
		30	5.8	35	186	250	8.4	34	120	343	18.6	35	362	800
	45	35	2.9	36	51	132	4.2	36	37	189	9.3	36	100	421

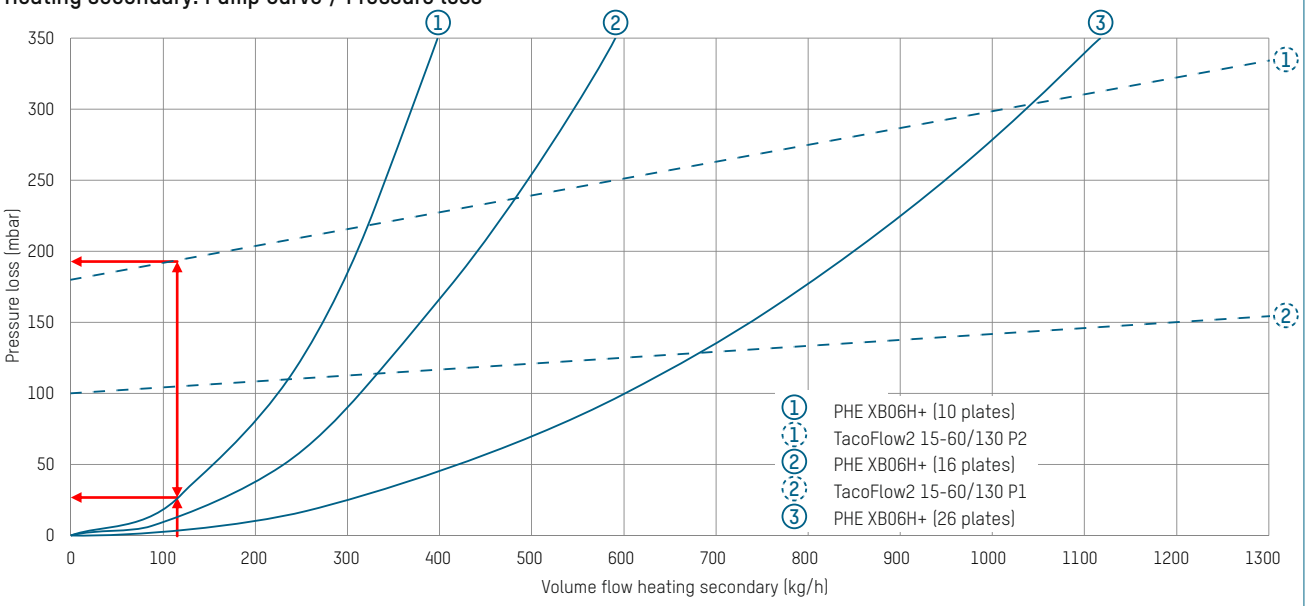
sec	dp	125 mbar	130 mbar	175 mbar
	res. Pump head	85 mbar	95 mbar	100 mbar
	q	250 kg/h	360 kg/h	800 kg/h

FLOW AND PRESSURE LOSS DIAGRAMS
PLATE HEAT EXCHANGER WITH 10, 16 AND 26 PLATES (HEATING MODULE)

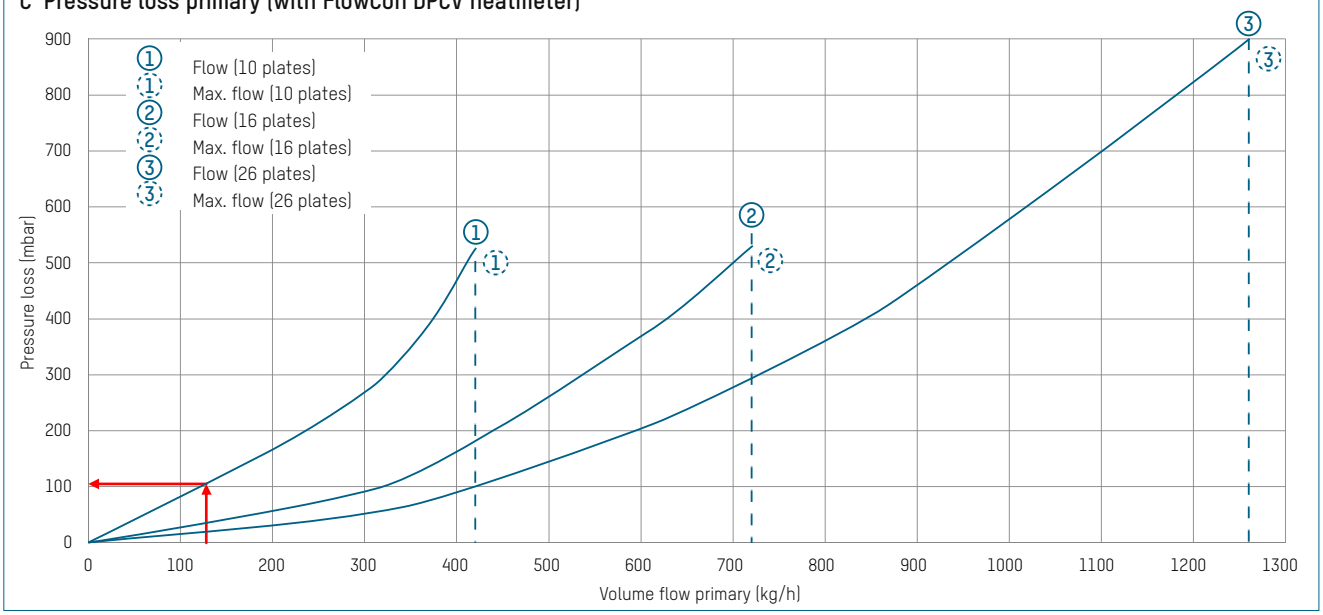
Heating secondary Performance



Heating secondary: Pump Curve / Pressure loss

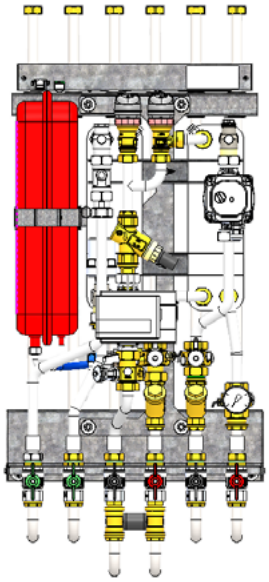


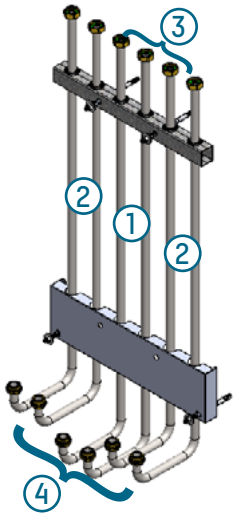
C Pressure loss primary (with FlowCon DPCV heatmeter)



ACCESSORIES

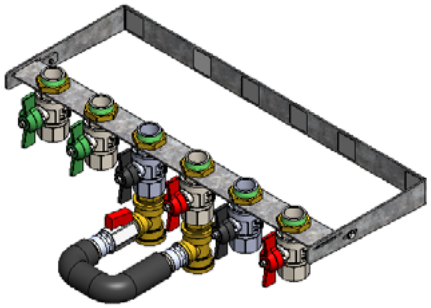
Set of pipes





1 295.0004.696 | Pipeset top 1: prim. heating
2 295.0005.696 | Pipeset top 2: sec. DHW or sec. heating
3 295.0006.696 | Pipeset top 3: prim. heating + sec DHW or sec heating
4 295.0007.696 | Pipeset top 4: all connections

Fixrail including flushing Bypass



296.0100.696 | Fixrail including flushing bypass

ACCESSORIES

Part no.	Description
296.0100.696	Fixrail including flushing bypass
295.0004.696	Pipeset top 1: prim. heating
295.0005.696	Pipeset top 2: sec. DHW or sec. heating
295.0006.696	Pipeset top 3: prim. heating + sec DHW or sec heating
295.0007.696	Pipeset top 4: all connections
296.7014.000	HMI for Taco Control Z1

OPTIONS

Part no.	Description
276.xx0x.696	No Heatmeter
276.xxx2.696	White Frontcover (on request: metal sheet cover)
xxx.xxxx.xxx C	Hi-Flow DPCV
xxx.xxxx.xxx S	Safety Valve DCW
xxx.xxxx.xxx F	Flow limiters
295.0008.696	Fixrail enclosure

CONTACT AND FURTHER INFORMATION TACONOVA.COM

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