HL3000 T

HEAT INTERFACE UNIT

Compact, connection-ready, all in one heat interface unit with indirect heat transfer to the heating system

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
- Versatile extension options
- Compact design

DESCRIPTION

The compact HL3000 T heat interface unit is designed as an indirect transfer unit for supplying heat and fulfils two purposes at once: decentralised DHW heating based on the instantaneous water heating principle and decentralised indirect heat distribution in residential units. Various selectable hydraulic components ensure on-demand DHW heating, distribution of heat energy as well as calculation of energy costs.

INSTALLATION POSITION

The HL3000 T is designed for surface mounting and can be installed in pantries, storerooms, etc.
The unit should ideally be positioned close to the domestic hot water draw-off points for each apartment.

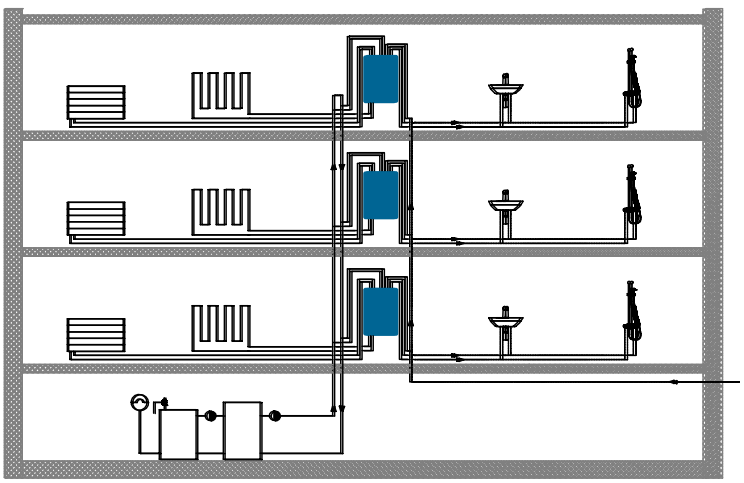
OPERATING PRINCIPLE

The heat interface units in the HL3000 T series are designed for DHW heating and indirect heat distribution in multi-storey residential buildings.
Primary energy is supplied via a central buffer cylinder; DHW is heated in the domestic hot water module 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.
Fittings are included in the modules for the installation of heat meters and cold water meters.

BUILDING CATEGORIES

- Detached houses
- Apartment buildings

SYSTEM/BASIC DIAGRAM



HL3000 T | HEAT INTERFACE UNIT

TENDER DOCUMENTATION

See heatlinkuk.com

SPECIFICATION

General

- Operating pressure $P_{0\,max}$ primary: 6 bar
- Overall dimensions: W 465 mm × H 911 (1003) mm × D 235 mm
- Weight with insulation of plate heat exchangers, cover and primary supply pipe, without water: 50 kg

Domestic hot/cold water

- Operating temperature $T_{0\,max}$: 95 °C
- Operating pressure $P_{0\,max}$: 6 bar
- Plate heat exchanger:
  - Number of plates: 26/40
  - Output: 55/60 kW at:
    - primary temperatures: 70 °C
    - secondary temperatures: 10/55°C
- For draw-off rates, see flow and pressure loss diagrams

Heating

- Operating temperature $T_{0\,max}$: 70 °C
- Operating pressure $P_{0\,max}$: 3 bar
- Safety valve: 3 bar
- Highly efficient circulation pump: Taco ES2 ADAPT (EEI ≤ 0,20 - Part 2)
- Plate heat exchanger:
  - Number of plates: 10
  - Output: 10 kW at:
    - primary temperatures: 70/45 °C
    - secondary temperatures: 40/60°C
- Zone valve for switching off heating mode
- Connections for either underfloor or radiator heating
- Expansion vessel volume: 8 l
- For draw-off rates, see flow and pressure loss diagrams (last page)

Material

- Back plate: galvanised sheet steel
- Cover: painted sheet steel
- Pipes: DN 20, stainless steel 1.4404
- Pumps: grey cast iron
- Valve body: brass
- Seals: AFM 34 (flat-sealing)

Output data

- See design diagram

Electrical connection information

- Rated voltage: 200 – 240 V
- Frequency: 50/60 Hz

Power consumption

- Power consumption: 4 – 23 W

Flow media

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

TYPE OVERVIEW

HL3000 T | Heat interface unit

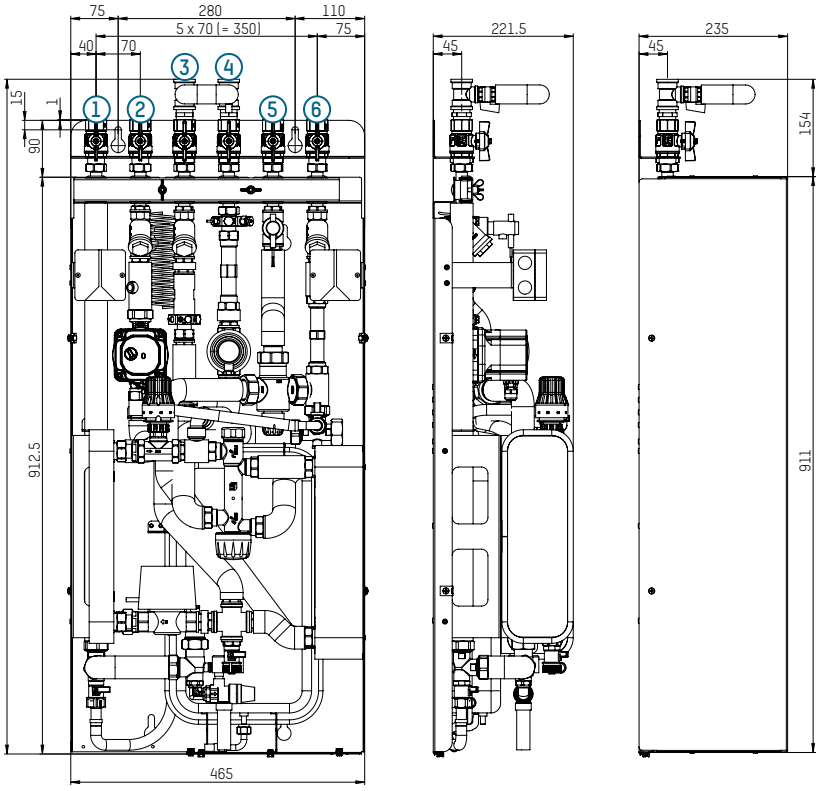
Part no.	DN	Rp	Number of plates for heating/DHW	DHW output *	Heat transfer output **
276.2136.696BI	20	¾"	10/26	55 kW	10 kW
276.2137.696BI	20	¾"	10/40	60 kW	10 kW

* Performance data at primary = flow 70 °C / secondary = DHW 55 °C; Δp ≥ 500 mbar

** Performance data at primary = flow 70 °C / secondary = DHW 60 °C

Part no.	DN	Rp	Description
295.0000.696	20	¾"	4HC Fixrail 10/40 Floorheating
295.0001.696	20	¾"	6HC Fixrail 10/40 Radiator
295.0002.696	20	¾"	4HC Fixrail 10/26 Floorheating
295.0003.696	20	¾"	6HC Fixrail 10/26 Radiator

DIMENSIONAL DRAWING



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

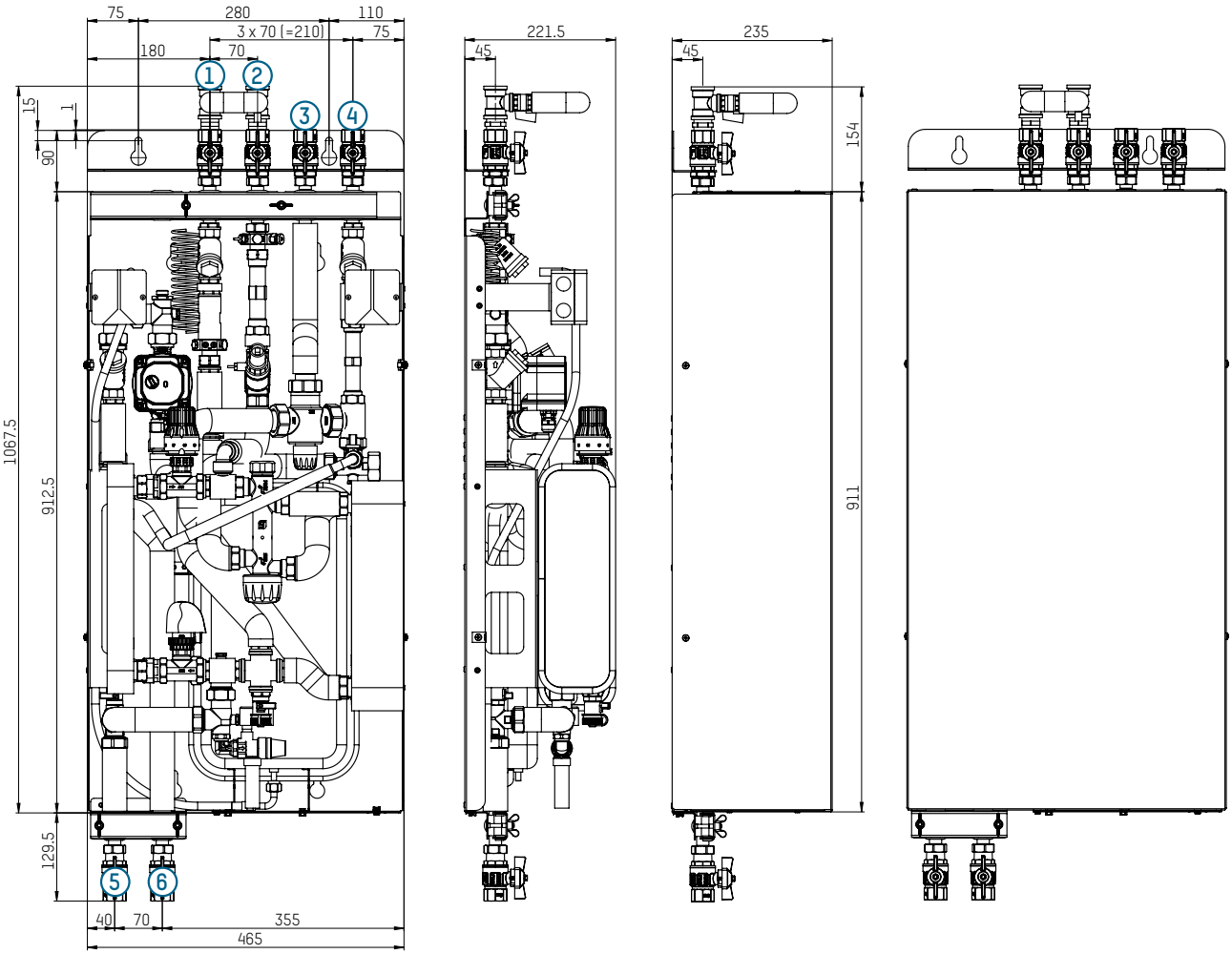
Optional

- Heat meter with and without M-BUS connection
- Plate heat exchanger heating 16 plates
- Plate heat exchanger DHW heating 16 plates
- Insulation of all pipes

APPROVALS / CERTIFICATES

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

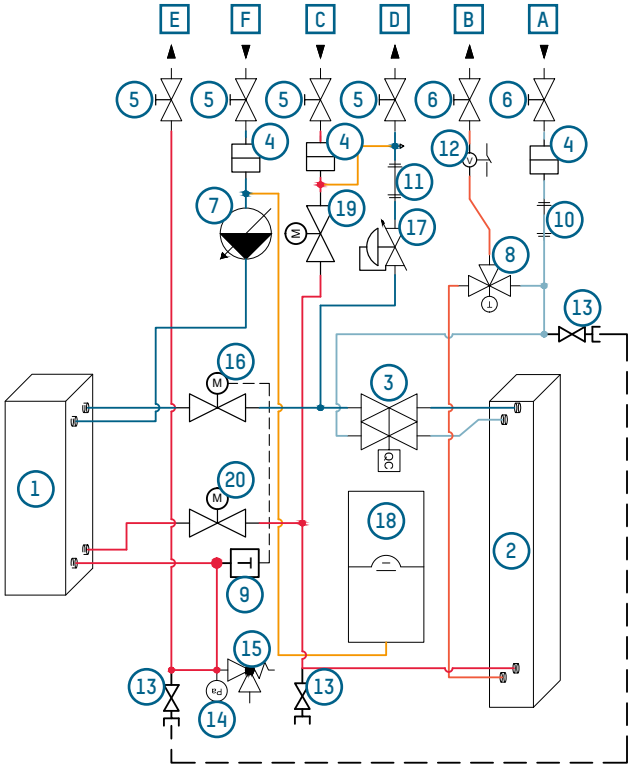
DIMENSIONAL DRAWING



1 Primary connection for heat supply, flow
2 Primary connection for heat supply, return
3 DHW distribution connection
4 DCW connection
5 Connection to UFH/space heating, flow
6 Connection to UFH/space heating, return

FLOW DIAGRAM

Heating control: Fixed value
Static hydronic balancing



Key

1 Plate heat exchanger for heating
2 Plate heat exchanger for DHW heating
3 Proportional flow controller
4 Dirt trap with strainer
5 Shut-off valve for heating
6 Shut-off valve approved for DHW
7 Heat circuit pump
8 Thermostatic mixing valve NovaMix Value
9 Temperature sensor
10 Cold water meter fitting
11 Heat meter fitting
12 Flow switch
13 Fill, flush and drain valve
14 Pressure gauge
15 Safety valve
16 2-way valve with thermal actuator
17 Optional differential pressure controller
18 Expansion vessel
19 Optional solenoid valve
20 Zone valve

Connections

A Main DCW supply line connection
B DHW distribution connection
C Primary connection for heat supply, flow
D Primary connection for heat supply, return
E Radiator connection, flow
F Radiator connection, return

EXAMPLE OF INTERPRETING THE FLOW RATE AND PRESSURE LOSS DIAGRAMS (SEE FOLLOWING PAGES)

Given

- Domestic hot water dispensing volume: 18 l/min
- Primary heating flow temperature: 70°C
- Available primary differential pressure at the module of 400 mbar
- Plate heat exchanger 26 plates

Sought

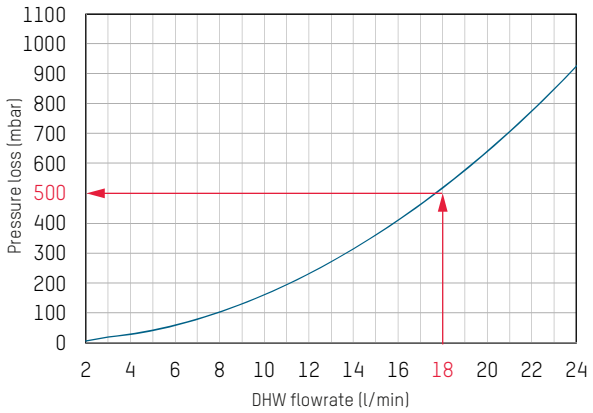
- Hot water demand in l/h
- Pressure loss on secondary side
- Dispensing temperature
- Primary heating return temperature in °C
- Secondary pressure loss in mbar

Approach

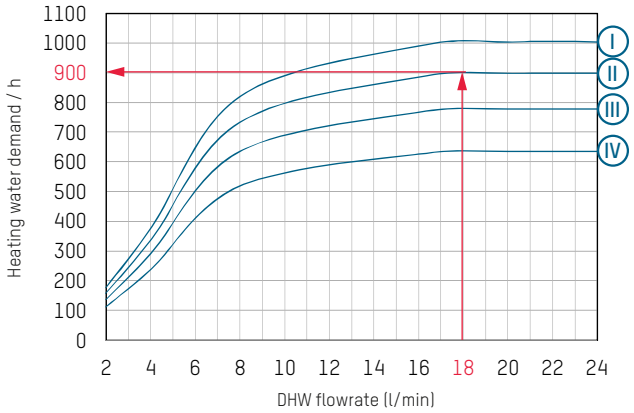
- In Diagram F) a domestic hot water dispensing temperature of 50 °C can be read for the given domestic hot water dispensing volume of 18 l/min at the intersection point with the differential pressure of 400 mbar, and the associated return temperature can be read at the intersection point with the return temperature line of 20 °C at 400 mbar.
- Diagram A) shows the pressure loss in the system on the secondary side and Diagram B) shows a DHW demand of 900 l/h at the intersection point between the dispensing volume and the 400 mbar differential pressure.

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

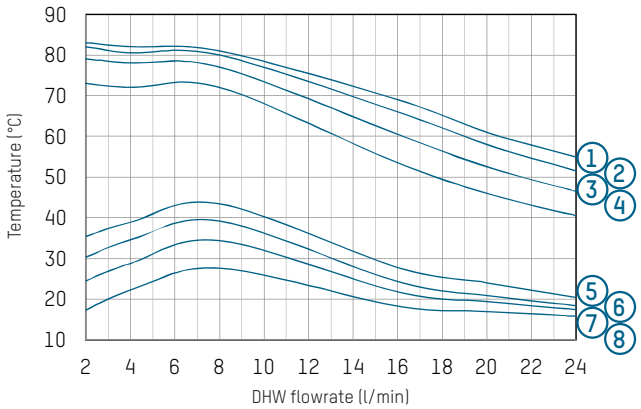
A) Pressure loss on secondary side



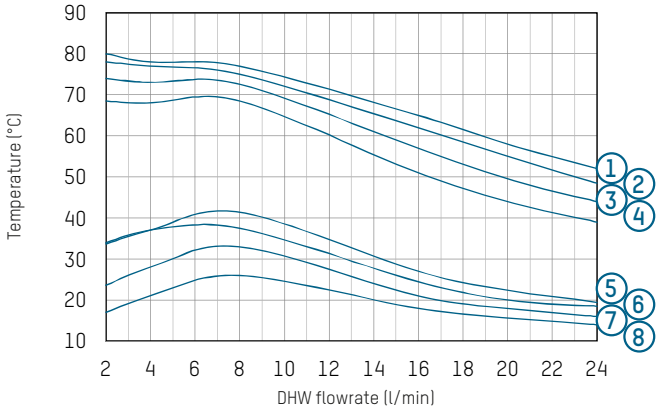
B) Domestic hot water demand / Dispensing volume*



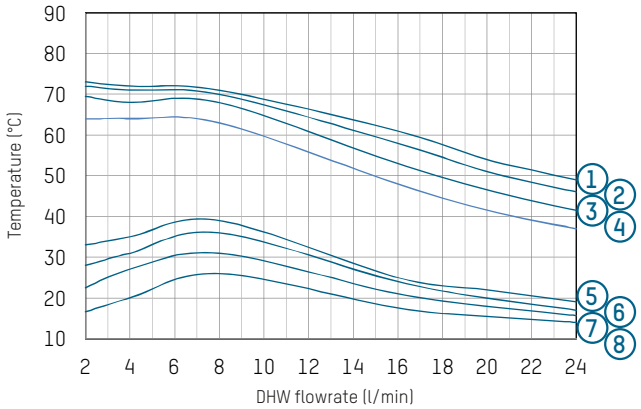
C) Primary supply temperature = 85 °C



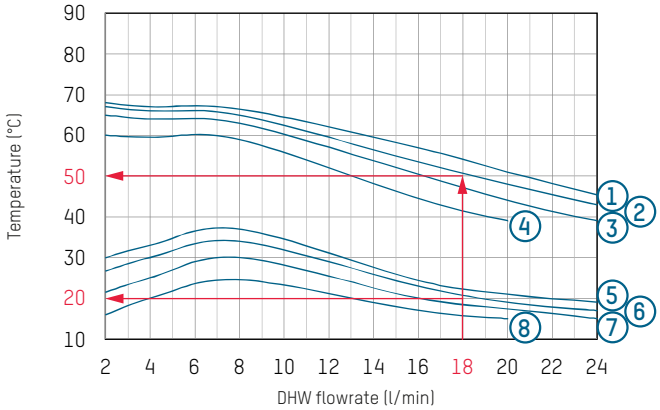
D) Primary supply temperature = 80 °C



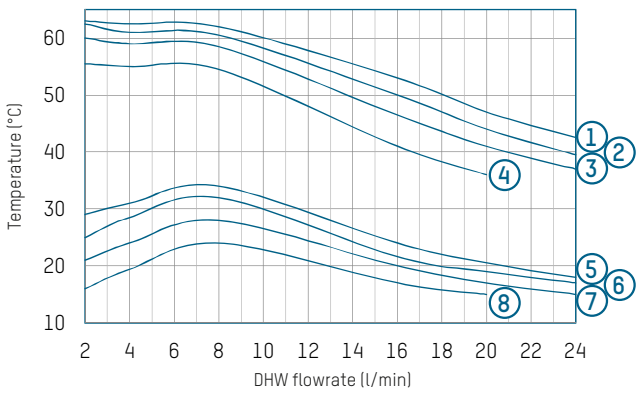
E) Primary supply temperature = 75 °C



F) Primary supply temperature = 70 °C



G) Primary supply temperature = 65 °C



Key

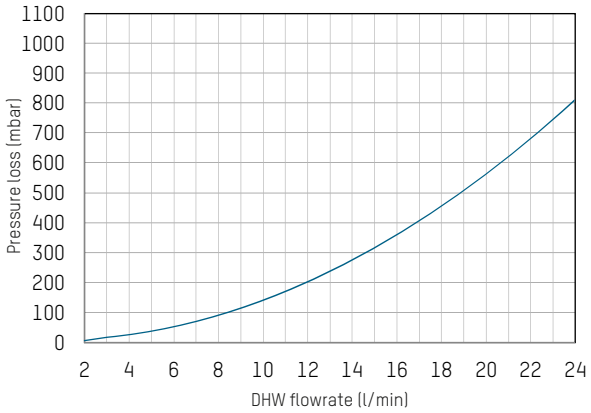
I Δp 500 mbar
II Δp 400 mbar
III Δp 300 mbar
IV Δp 200 mbar

1 DHW temperature (°C) for Δ p 500 mbar
2 DHW temperature (°C) for Δ p 400 mbar
3 DHW temperature (°C) for Δ p 300 mbar
4 DHW temperature (°C) for Δ p 200 mbar
5 Return temperature (°C) for Δp 500 mbar
6 Return temperature (°C) for Δp 400 mbar
7 Return temperature (°C) for Δp 300 mbar
8 Return temperature (°C) for Δp 200 mbar

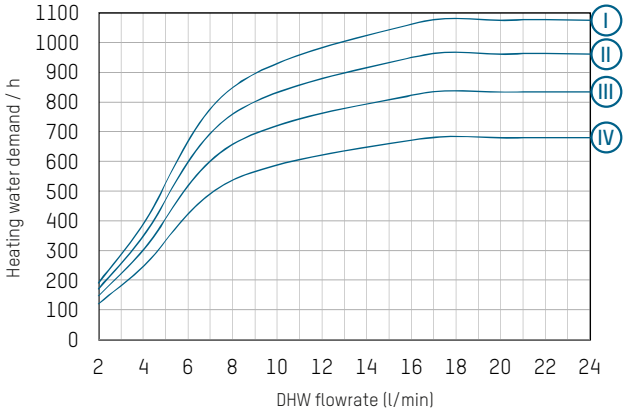
* Disclosures with heat meter k_{VS} 4.2

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

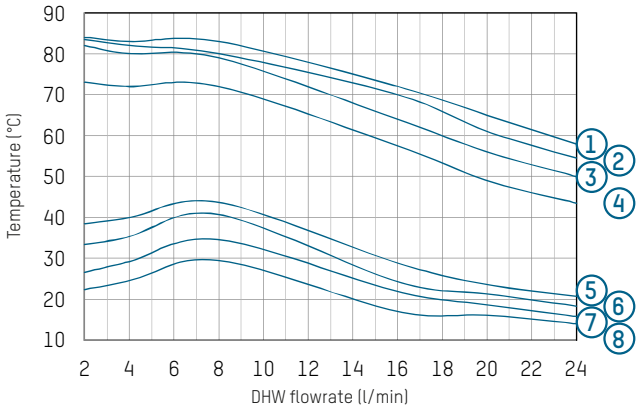
A) Pressure loss on secondary side



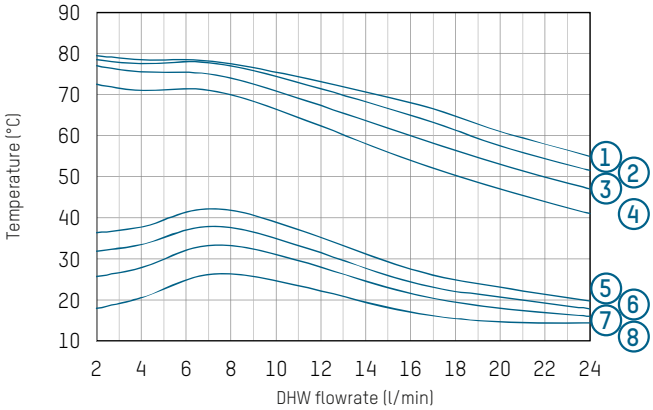
B) Domestic hot water demand / Dispensing volume*



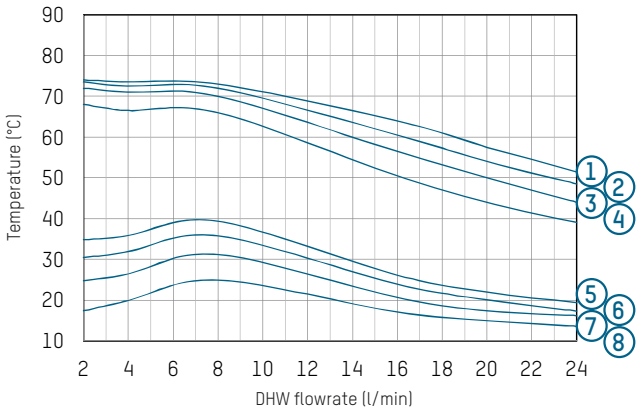
C) Primary supply temperature = 85 °C



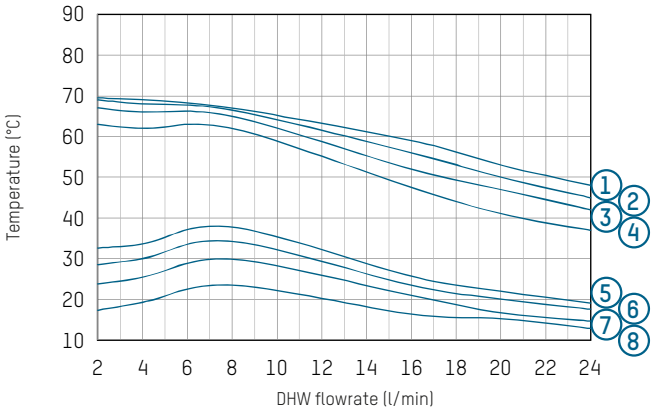
D) Primary supply temperature = 80 °C



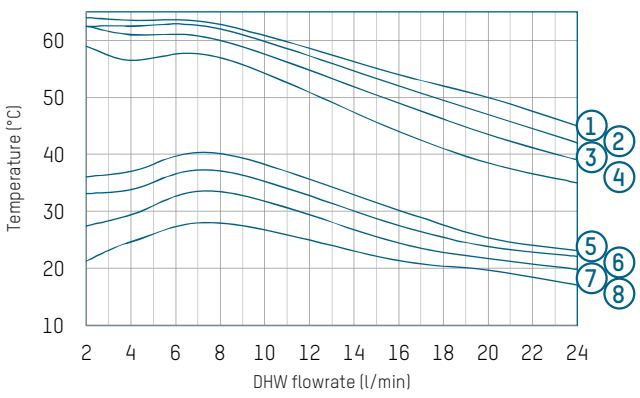
E) Primary supply temperature = 75 °C



F) Primary supply temperature = 70 °C



G) Primary supply temperature = 65 °C



Key

I Δp 500 mbar
II Δp 400 mbar
III Δp 300 mbar
IV Δp 200 mbar

1 Dispensing temperature (°C) for Δ p 500 mbar
2 Dispensing temperature (°C) for Δ p 400 mbar
3 Dispensing temperature (°C) for Δ p 300 mbar
4 Dispensing temperature (°C) for Δ p 200 mbar
5 Heating return temperature (°C) for Δp 500 mbar
6 Heating return temperature (°C) for Δp 400 mbar
7 Heating return temperature (°C) for Δp 300 mbar
8 Heating return temperature (°C) for Δp 200 mbar

A k_{vs} Secondary with mixing valve
B k_{vs} Secondary without mixing valve

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

Diagram 1: Unit pressure loss pimary (district) / secondary

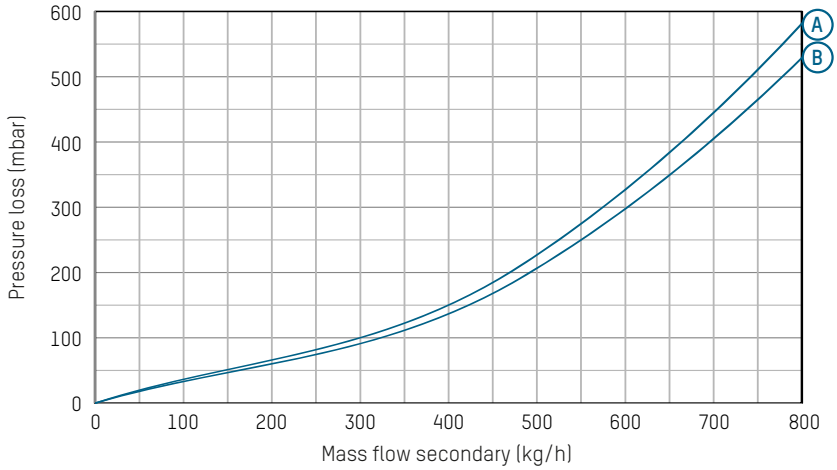


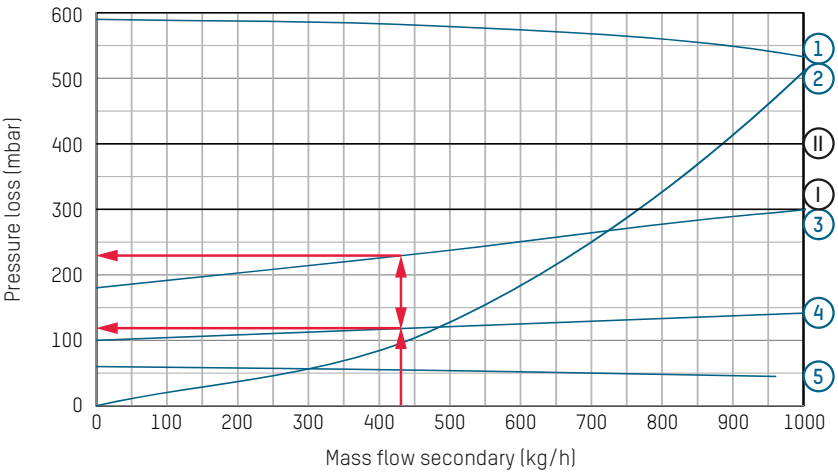
Table 1: Heating performance with district heating temperature 60°C

Secondary flow - return	45/35°C			
Pressure loss primary (mbar)	200	300	400	500
Max. possible primary flow (kg/h)	480	600	700	770
Performance (kW)	5	6	7	8
Flow secondary (kg/h)	431	517	603	690
Primary return	35.9	36.5	36.2	36
Required flow primary (kg/h)	179	220	254	287

Table 2: Heating performance with district heating temperature 70°C

Secondary flow - return	60/40°C			
Pressure loss primary (mbar)	200	300	400	500
Max. possible primary flow (kg/h)	480	600	700	770
Performance (kW)	12.5	14.5	16.5	18
Flow secondary (kg/h)	539	625	711	776
Primary return	45.4	46.4	47	47.6
Required flow primary (kg/h)	438	530	618	693

Diagram 2: Heating module pressure loss secondary



EXAMPLE

Example for calculating the possible heating output subject to the primary flow temperature

Given
- Heating output 5 kW
- Secondary flow temperature: 45 °C
- Secondary return temperature: 35 °C
- Primary flow temperature: 60 °C

Sought
- Primary pressure drop
- Secondary pressure drop
- Primary flow rate
- Residual pump head, secondary

Solution
- The following values can be read from Table 1:
  - Primary pressure drop: 200 mbar
  - Maximum possible flow rate: 480 kg/h
  - Required flow rate: 179 kg/h = usage possible
  - Secondary flow rate: 431 kg/h
- The following values can be read from Graph 2 with a secondary flow rate of 431 kg/h:
  - Secondary pressure drop: 125 mbar
  - Residual pump head at setting P2: 220 – 120 mbar = 100 mbar

Key

A k_{VS} secondary with heatmeter KVS4.2 and FlowCon EDP, with shutoff valve
B k_{VS} primary with heatmeter KVS4.2 and FlowCon EDP, without shutoff valve

1 max. speed
2 k_{VS} secondary
3 P2
4 P1
5 min. speed

I Pump characteristic C 1
II Pump characteristic C 2