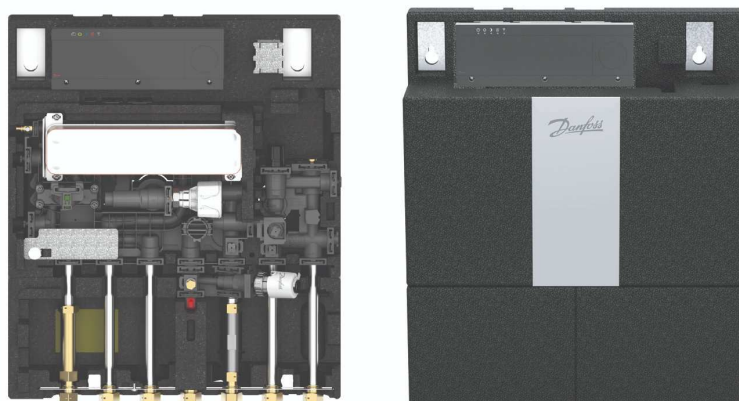




Flat Stations

EvoFlat 4.0 PRO F

Domestic hot water and direct heating.

Description

The Danfoss EvoFlat 4.0 PRO F is an electronically controlled flat station designed to regulate the temperature of domestic hot water and heating flow. It is particularly well-suited for use in multi-family residential buildings with central heating systems.

Equipped with an advanced electronic controller and specially developed actuators, the unit ensures precise temperature regulation, while all relevant operational data can be accessed online. Cold meters can be read and displayed simultaneously via the M-bus interface.

This innovative solution sets new industry standards. The functional blocks are manufactured from reinforced PPS composite material, making the station lightweight and reducing internal heat emissions. The smooth internal pipe surfaces minimise the risk of deposits and blockages.

All components are assembled using advanced Click-Fit connections. In comparison to conventional stations with pipe and screw fittings, this modern connection technology eliminates the need for retightening during installation and commissioning.

Primary side

The flat station is equipped with two differential pressure regulators and a strainer. A summer bypass function maintains the supply line temperature during idle periods, ensuring a rapid response time for domestic hot water production. The bypass can be operated continuously or according to a weekly schedule. A return temperature limitation function is included as an accessory.

Secondary side

The flat station supplies the heating surfaces with the flow temperature provided by the supply line. The standard integrated differential pressure regulator ensures optimal operating conditions for the heating system. An actuator can optionally be installed on the zone valve; this actuator can be used to switch off the heating system via an external signal or to reduce the return temperature.

Domestic hot water (DHW)

Four heat exchanger sizes are available, covering capacities from 37 kW to 70 kW. The EvoFlat 4.0 PRO F is equipped with an actuator for precise regulation of the domestic hot water temperature. This actuator adjusts the primary-side flow rate according to the hot water temperature and the draw-off volume. The station incorporates an integrated differential pressure regulator on the primary side of the domestic hot water heating system, eliminating the need for hydraulic balancing between the station and the primary side. If required, the station can be expanded with a DHW circulation set.

Features & benefits

- Electronic controller with online access
- Light weight for easy handling
- Simple installation and maintenance
- Quick setup via ECL-Go App
- EPP cover for high insulation
- Meter-ready for water and heat
- Optional M-Bus meter connection.

Applications

ECL220 Controller



ECL220 Controller – The Control Center of the EvoFlat 4.0 PRO F Station

The ECL220 controller is the central control unit of the EvoFlat 4.0 PRO F Station, ensuring precise and reliable regulation of heat supply and domestic hot water heating within an apartment.

Accessibility

Positioned on top of the station, the ECL220 can be accessed without opening the unit, simplifying commissioning and the connection of external components.

Control Principles

An optional actuator can be installed to enable automatic shutdown of the heating system or heating surfaces in response to an external control signal.

Precise Valve Control

Electronic stepper motor with over 2,000 steps provide fast and accurate valve control according to the set temperature values for domestic hot water.

Application

Designed for multi-family buildings where multiple apartments require heating simultaneously.

Time Switch Functions

Weekly schedules allow energy savings by controlling the summer bypass function, activating it only during defined periods.

Temperature Management

The optional actuator enables an individually adjustable maximum return temperature, protecting the system from unwanted shutdowns caused by district heating provider specifications or heat generator requirements.

Meter Connections

Supports connection of up to five meters via M-bus, with data accessible through the LeanHeat Monitor portal or Modbus.

Pump and Valve Control

Valves can be briefly activated during idle periods to ensure proper operation at the start of the heating season.

ECL Go-App



ECL Go App – A Practical Tool for Installers and Service Technicians

The ECL Go App is an intuitive and efficient tool designed to support installers in the commissioning and maintenance of EvoFlat 4.0 PRO stations. The app connects seamlessly to the ECL220 controller via its integrated Bluetooth interface.

Functions and Benefits

- **Easy commissioning** – The installer can quickly configure the station for the desired control mode, set the corresponding values, and save them.
- **Fast Duplication of Settings** – Following the initial successful configuration, the app can store all settings as a template. For additional stations, the installer simply loads this template and applies the existing data. This feature saves time and ensures a consistent and correct configuration.

Documentation

For added documentation, the app can generate a commissioning report in PDF format, documenting all settings. This report can be sent directly to predefined recipients via email, SMS, or other channels.

Troubleshooting and Maintenance

Provides a real-time overview of the station's operating status, including graphical displays of temperatures, valve positions, and heating or circulation pump activity.

Component Testing

Allows individual components, such as valves or temperature sensors, to be tested for proper functionality.

Conclusion

The ECL Go App is a powerful and practical solution that streamlines the work of installers and service technicians, reduces commissioning time, and enhances the quality and reliability of system setup and maintenance.

LeanHeat-Monitor



Danfoss LeanHeat Monitor – The Online Platform for Heating System Control

LeanHeat Monitoring (Danfoss Portal) enables centralised monitoring and control of flat stations and, if required, the entire heating system. As a cost-effective alternative to conventional BMS solutions, it is straightforward to install and configure.

User-Friendly Interface

The intuitive interface is optimised for use on computers, tablets, and smartphones. The system is organised into five user levels, ensuring that each user has access only to the functions relevant to their role.

Data Protection and Security

The LeanHeat Monitor complies with GDPR requirements and adheres to the highest standards for secure data transmission.

Operational Monitoring and Analysis

The platform provides a comprehensive overview of station operating status. Users can monitor live operation, review historical performance graphs, and identify deviations or faults at an early stage. Corrective actions can be implemented remotely. In the event of a component failure, precise fault information can be provided to service technicians, enabling faster repairs.

Alarm and Notification System

In case of operational disruptions, LeanHeat Monitoring automatically sends email alerts to predefined recipients, such as service providers. This ensures rapid response to prevent interruptions in domestic hot water or heating supply. Maintenance reminders can also be scheduled.

Access Settings

All station settings are accessible online. Adjustments, such as temperature changes or bypass deactivation during extended apartment vacancies, can be made remotely to optimise energy efficiency and reduce costs.

Consumption Measurement and Billing

Up to five meters can be connected via M-Bus. The system automatically records monthly consumption data and sends it in the desired format to designated email addresses. This data supports energy consumption analysis and provides valuable insights for renovation planning or new construction projects.

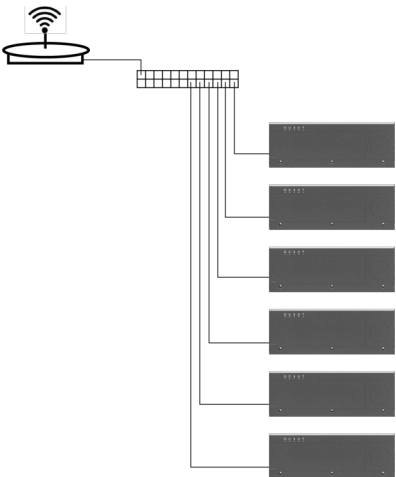
Software Updates and System Integration

New software versions for the ECL220 controller can be installed remotely via LeanHeat Monitoring. In buildings where the heat supply is managed by an ECL310 controller, both controllers can be integrated into the same LeanHeat Monitor account for centralised system management.



When planning the building installations, it is important to ensure that each ECL220 controller of the EvoFlat 4.0 PRO stations is connected to a router via a LAN cable. In many cases, the LAN cables from the controllers are routed to a network switch, which is then connected to a router with an active inter- net connection. The LeanHeat Monitor connection for the stations is configured via the ECL Go App. During setup, a code is displayed in the app, which must be entered to establish the connection to the LeanHeat Monitor.

If it is not possible to run LAN cables through the building, for example during renovation, Danfoss offers a mini-router that can be connected to each station. A SIM card from a mobile network provider must be purchased and inserted into the router, enabling data to be transmitted to and received from the cloud.

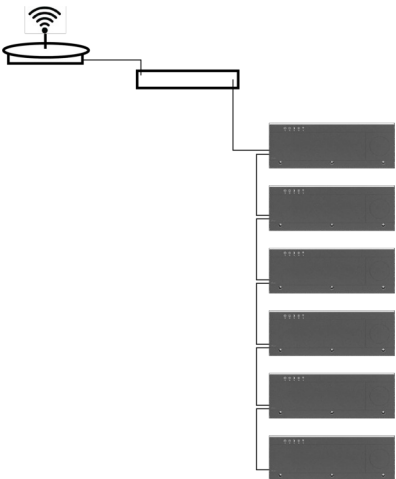


Code number	Description
187B4021	Router - TRB140 - 4G, 1xEthernet

Modbus

The ECL220 controller features open Modbus RS485 communication

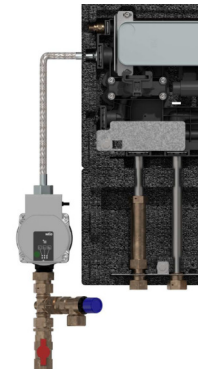
All configuration options and display values, such as temperature readings, available in the ECL Go App are assigned to Modbus registers. These registers are fully documented in the Modbus protocol for the ECL220. Through Modbus communication, the stations can be integrated into an external Building Management System (BMS) for centralised control and monitoring. Data from meters connected via M-bus can also be accessed through Modbus. The guided setup in the ECL Go App provides step-by-step support for integrating the controller into a BMS. When planning the building installations, it is important to ensure that the ECL220 controllers in the EvoFlat 4.0 PRO stations are connected to a Modbus converter using a daisy-chain configuration between the individual stations. The Modbus connection is configured via the ECL Go App, where a unique Modbus address must be assigned to each station.





Ordering

Accessories code numbers



Domestic hot water circulation

If required, a set comprising a pump and a 10 bar safety valve can be ordered for straightforward connection to the flat station. When this set is installed, the width of the recess box must be at least 690 mm.

Domestic hot water circulation

Code number	Description
183B0548	Circulation set EvoFlat 4.0 PRO with insulation shell for circulation pump



Zone valve

The zone valve insert is installed at the factory.
If the following functions are to be used, a TWA-Q NO must be installed as an accessory:

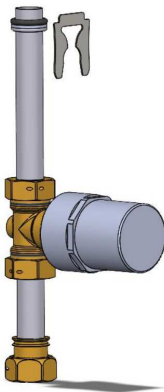
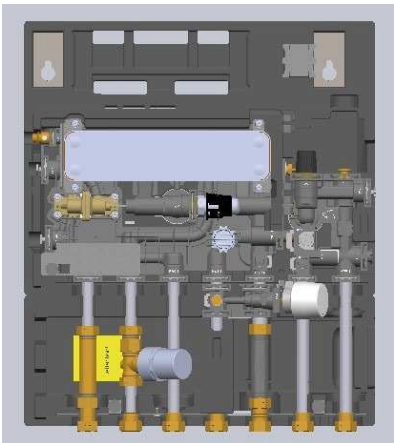
- Return temperature limiter – To ensure that the return temperature does not become too high.
- Interruption of heat supply – With an external potential-free signal, the heat supply can be stopped.

Zone valve

Code number	Description
082F1601	TWA-Q, NO 230V (valve is then normally closed)



Water hammer arrestor



Water hammer arrestor

A water hammer arrestor is installed in the flat station to prevent or reduce the effects of water hammer- a hydraulic shock that occurs when the flow of water is suddenly stopped or changed direction.

Purpose and Function

- **Absorbs pressure surges** - When a valve closes quickly or a pump stops abruptly, the sudden change in water velocity creates a pressure wave. The water hammer resistor absorbs this energy, preventing it from propagating through the system.
- **Protects components** - Reduces stress on pipes, fittings, valves, heat exchangers, and other equipment, extending their service life.
- **Prevents noise and vibration** - Minimizes the loud banging or knocking sounds associated with water hammer.
- **Improves system stability** - Helps maintain consistent pressure and flow, reducing the risk of leaks or mechanical damage.

The water hammer arrestor must be installed at the domestic hot water supply.

Water hammer arrestor

Code number	Description
183B0545	Water hammer arrestor set, incl. pipes and fittings



White steel cover

If the station is to be installed on a wall and a large recess box is not desired, Danfoss offers a steel cover to conceal the station, allowing it to blend seamlessly with a white wall. The cover is simply pressed into place over the EPP.

Code number	Description
004U8578	White steel cover for station RAL 9016



Recess box

The recess box is made of galvanised steel, with the frame and door powder-coated on both sides in RAL 9016

RAL 9016. Pre-fitted brackets for mounting the flat station and distribution unit are provided to ensure quick and straightforward installation.

The box is closed on all sides and open at the bottom, featuring adjustable mounting feet with a height adjustment range of up to 120 mm. A mounting rail is installed in the box and seven ball valves is supplied loose.

The recess box can be installed either in-wall or on-wall.

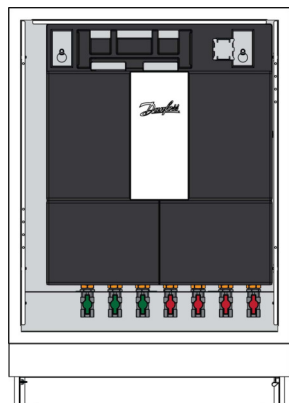
Recess boxes

Recess boxes				
Code number		Wide	Height	Depth
183U6028	Recess box w/mounting rail and loose ball valves	610	910	150
145H4901	Door + frame for Recess box 183U6028			
183U6029	Recess box w/mounting rail and loose ball valves	690	910	150
145H4903	Door + frame for Recess box 183U6029			
183U6033*	Feet set for recess box			
183L5142*	Ball valve set $\frac{3}{4}$ " 7 connections			

*Spare parts

On wall panels for recess boxes

Code number		Wide	High	Depth
183U6012	On wall panels	610	910	150
183U6014	On wall panels	690	910	150



The distribution unit fits onto the back plate of the recess box but can also be mounted directly on the wall.

Recess boxes for built-in variants are available in two sizes:

Standard station:

Recess box W610 / H910 / D150 mm

Station with DHW circulation:

Recess box W690 / H910 / D150 mm



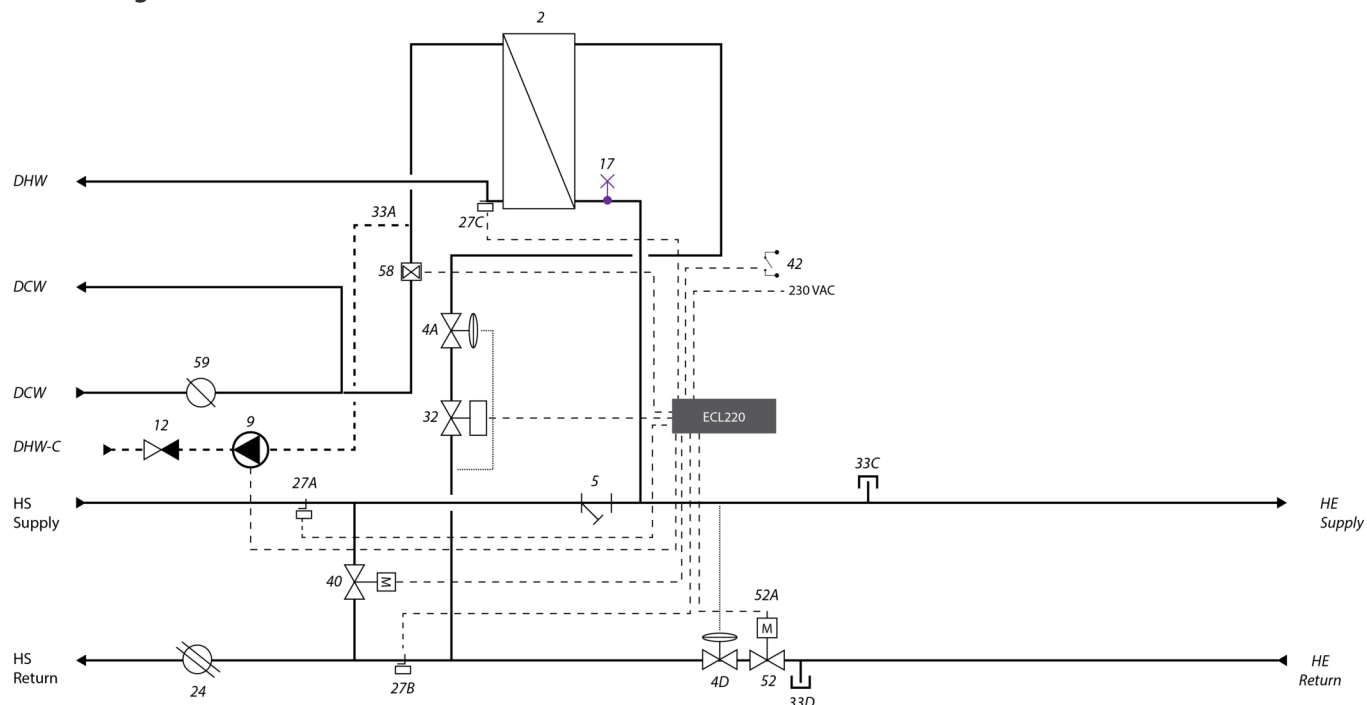
For on-wall installation, Danfoss Recess boxes can be mounted directly onto the wall and covered with suitable on-wall panels.

The on-wall panels are attached magnetically.

Product details

General data

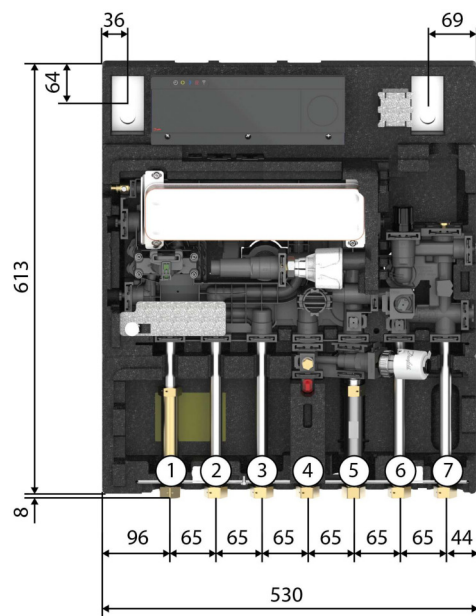
Circuit diagram



2	DHW plate heat exchanger
4	Differential pressure controller
5	Strainer
9	DHW circulation pump*
12	Safety valve*
17	Air vent
24	Fitting piece for energy meter 3/4" x 110 mm
27A	HS supply temperature sensor (S4)
27B	HS return temperature sensor (S5)
27C	DHW supply temperature sensor (S3)

32	M1 stepper motor DHW
33A	Connections DHW circulation
33C/D	Plug for heating circuit (towel dryer)*
40	Summer-Bypass
42	External signal
52	Zone valve
52A	TWA Q-NO 230V for zone valve*
58	Flow sensor
59	Fitting piece for water meter 3/4" x 110 mm
*Optional	

Connections:



1	Domestic cold water (DCW) inlet
2	Domestic hot water (DHW) supply
3	Domestic cold water (DCW) outlet
4	Heating source (DH) supply
5	Heating source (DH) return
6	Room heating (HE) supply
7	Room heating (HE) return

Technical data

Domestic hot water controller	ECL220 electronic controller
Nominal pressure	PN10
Max. supply temperature (DH)	95 °C
DCW static cold water	Pmin = 1.5 bar
Brazing (HEX)	Copper or stainless steel
Weight excl. cover	7.7 – 9.3 kg
Insulation	EPP λ 0.039
Electrical supply	230 V AC
Connection sizes	G 3/4" internal thread
Pressure nominal primary	10 bar
Pressure nominal secondary	10 bar
Weight without accessories - Type 1 HEX	9.7 kg
Weight without accessories - Type 2 HEX	10.1 kg
Weight without accessories - Type 3 HEX	10.6 kg
Weight without accessories - Type 4 HEX	11.4 kg

DHW capacity examples

Unit type HEX	DHW capacity [kW]	Temperature DHS/DHR [°C]	Flow rate primary [l/h]	Pressure loss Primary* [kPa]	Tap load 50 °C [l/min]
Type 1	37	65/15	637	25	13.3
	55	65/18	1025	47	19.8
Type 2	45	65/15	770	29	16.2
	60	65/18	1095	46	21.6
Type 3	65	65/17	1175	53	23.4
	40	53/24	1205	57	14.4
Type 4	70	65/16	1241	50	25.2
	45	53/23	1310	63	16.2

*Energy meter not included

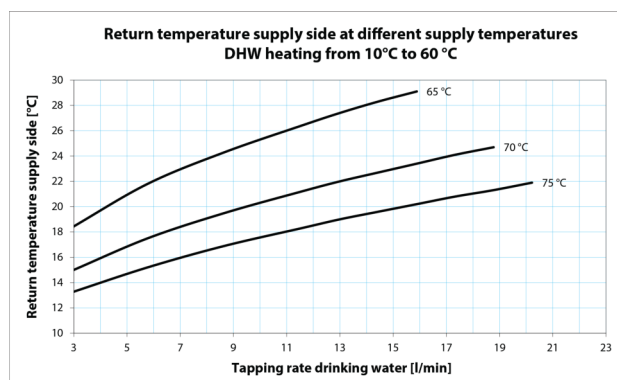
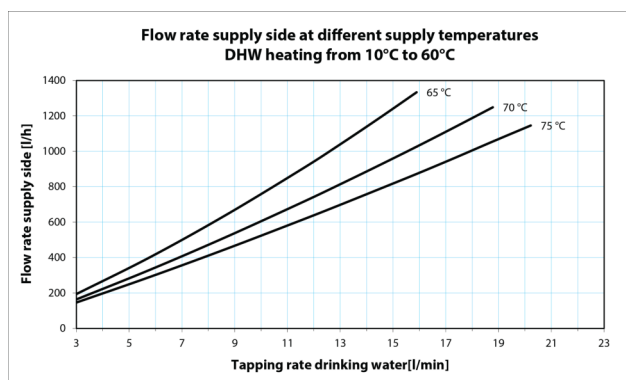
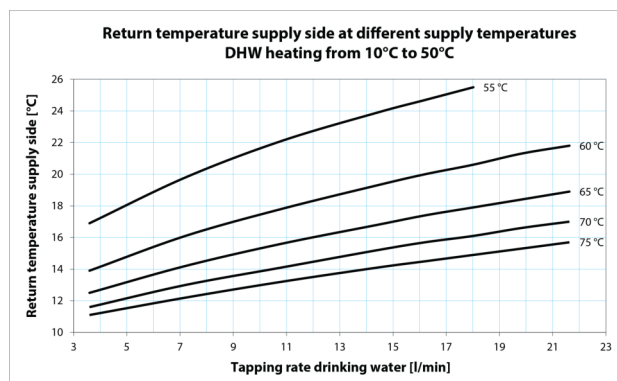
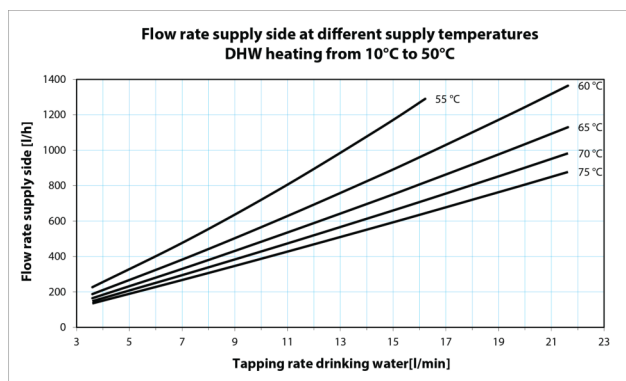
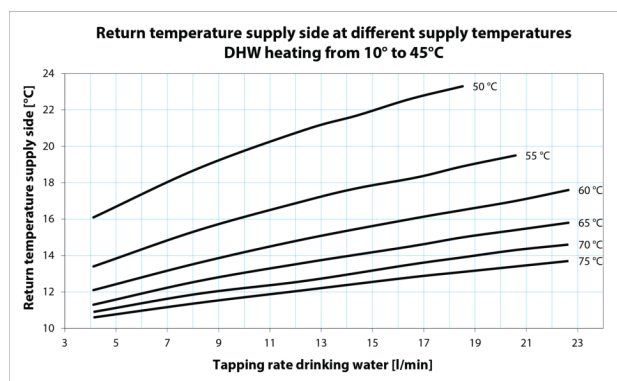
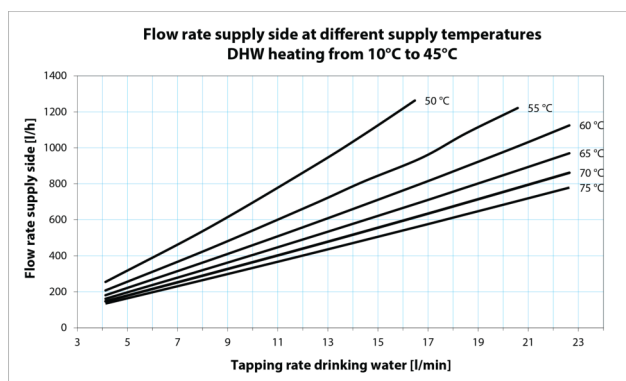
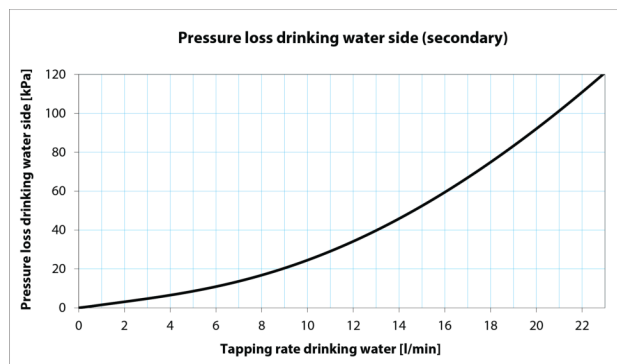
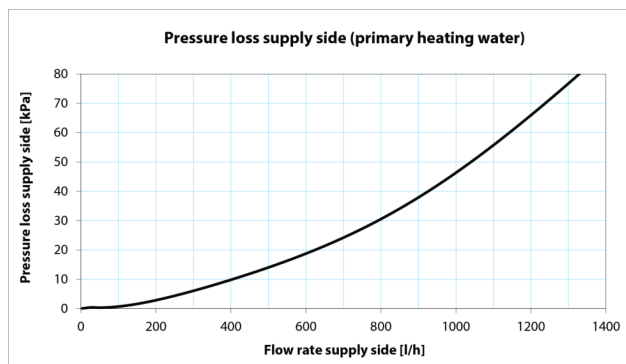
Heating capacity examples

Heating capacity [kW]	Heating circuit ΔT [°C]	Total pressure loss primary* [kPa]	Flow rate supply [l/h]
10	20	12	430
10	25	8	344
10	30	6	287
10	35	5	246
10	40	4	215
17.5	30	20	500**

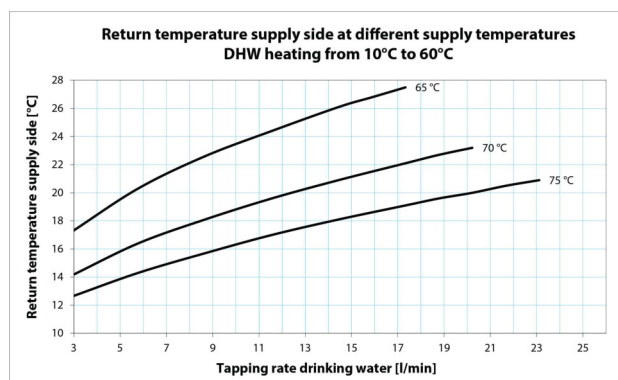
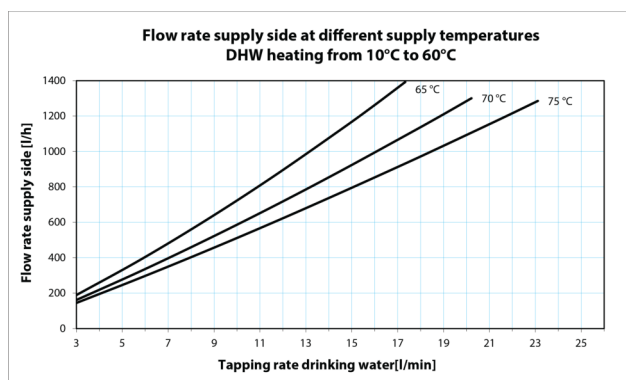
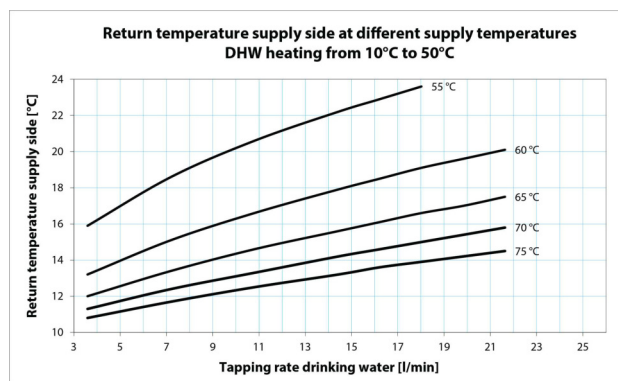
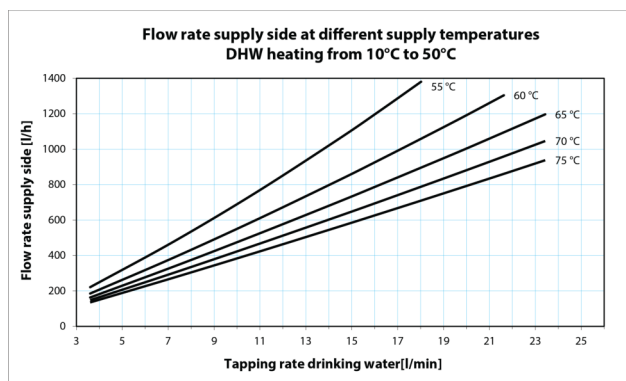
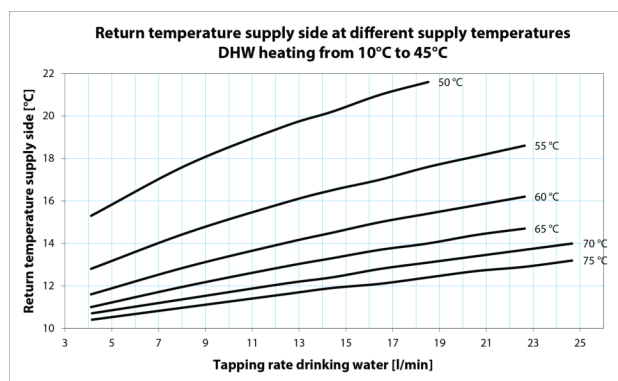
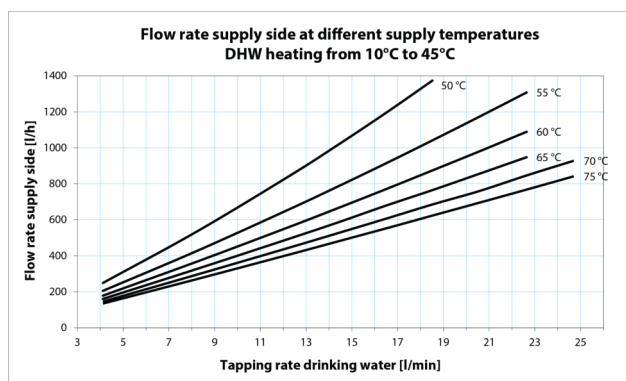
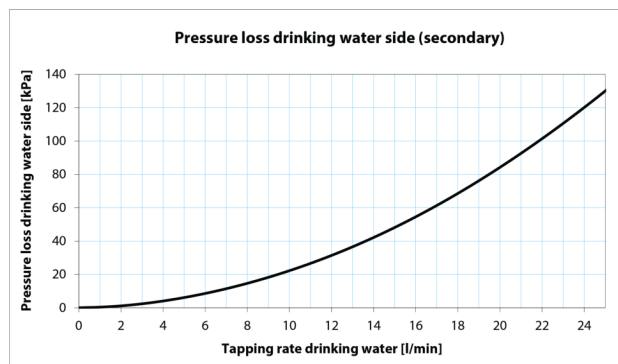
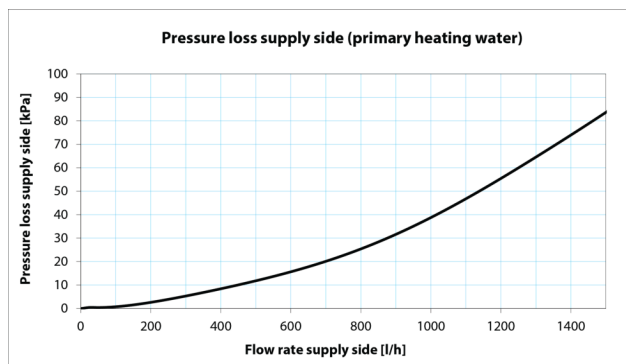
*Energy meter and DHW heating not included

**Max. flow

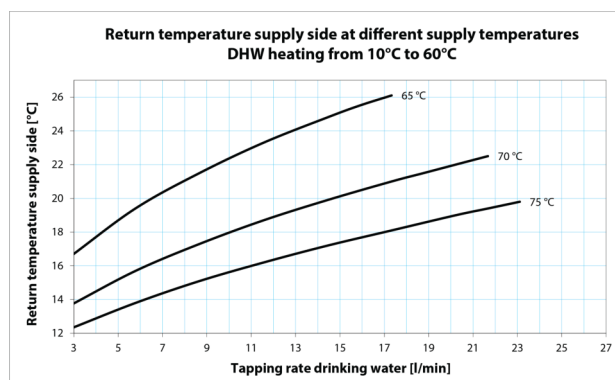
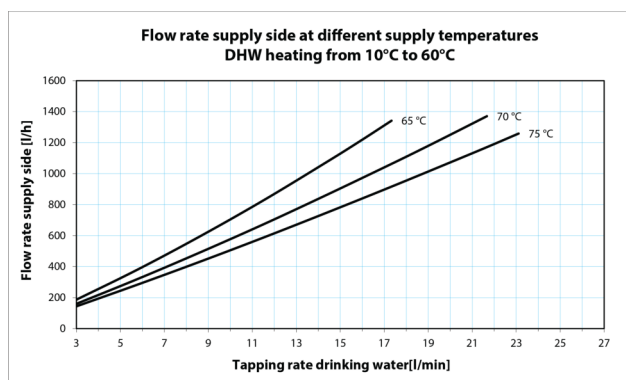
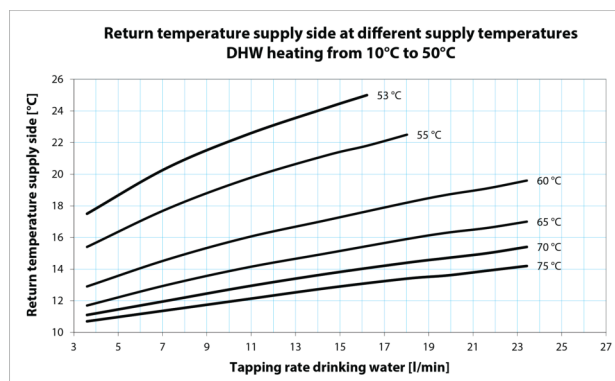
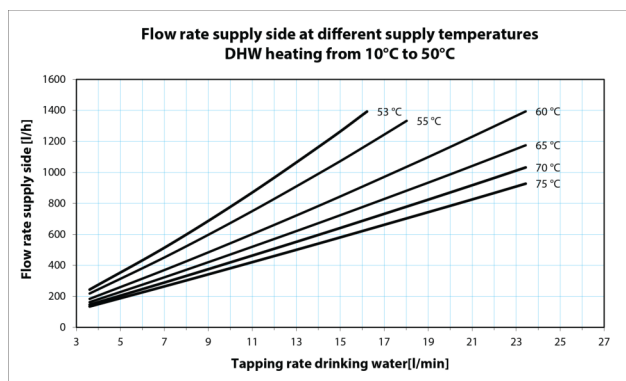
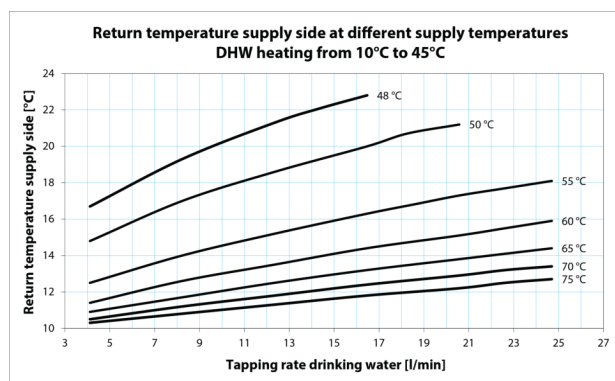
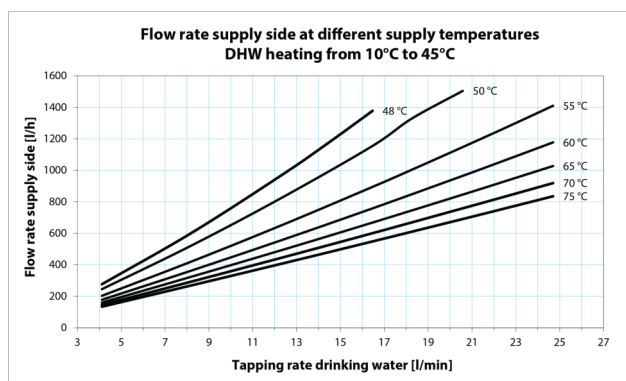
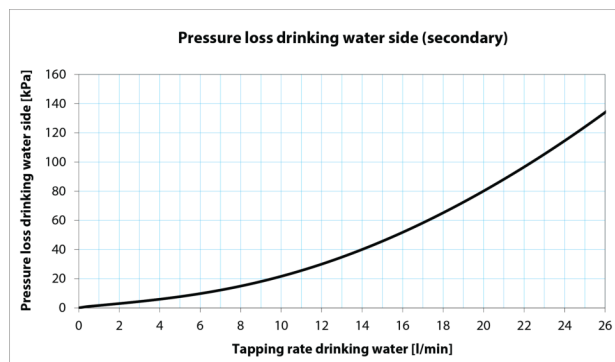
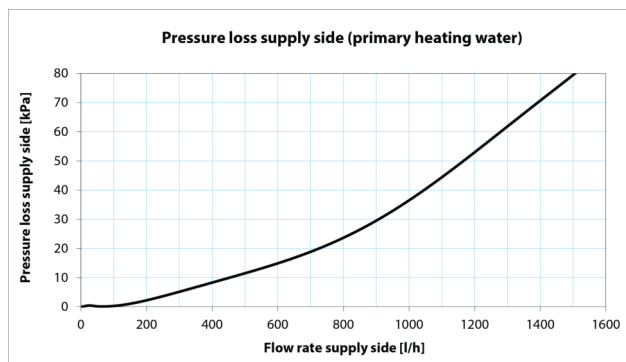
Flowrate type 1 HEX



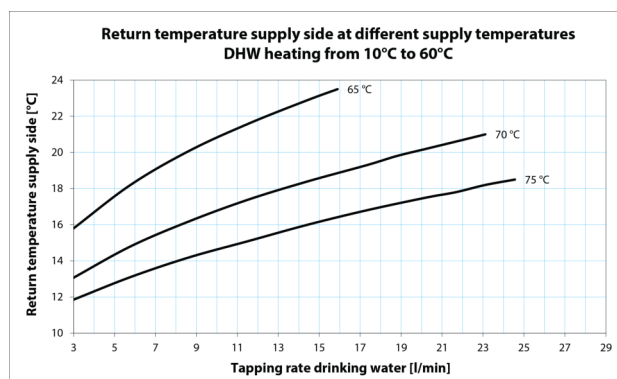
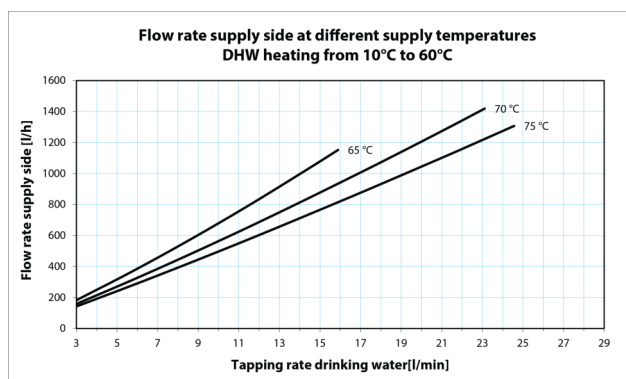
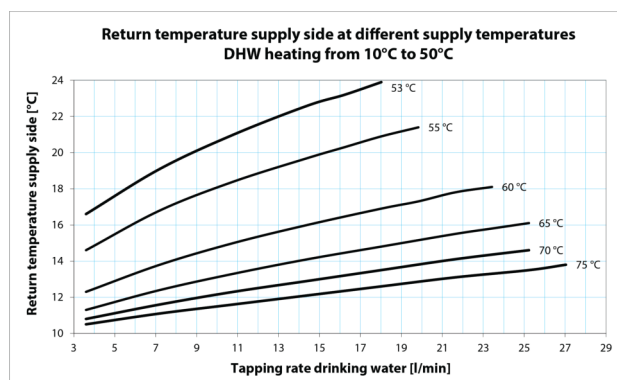
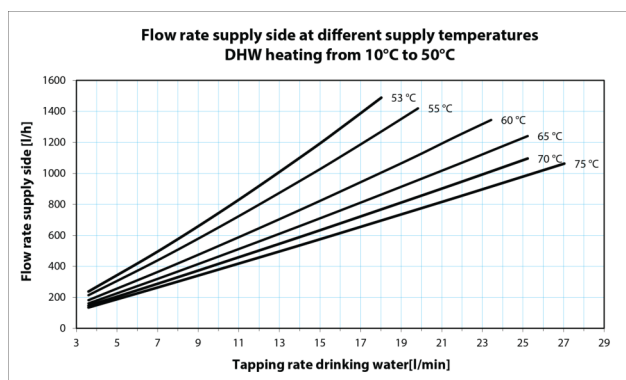
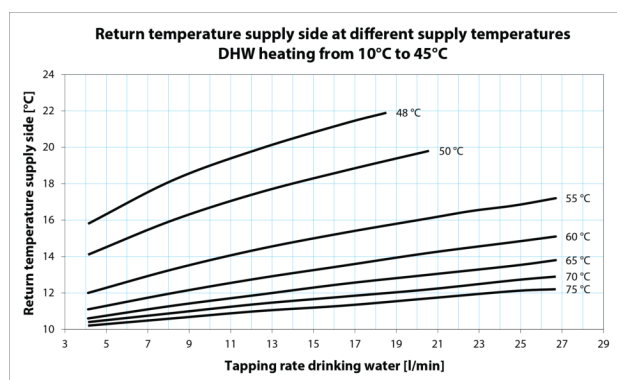
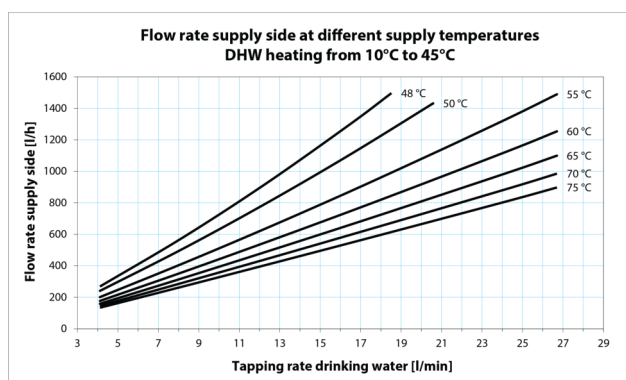
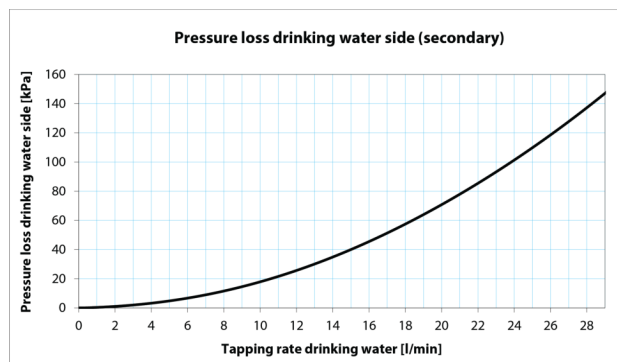
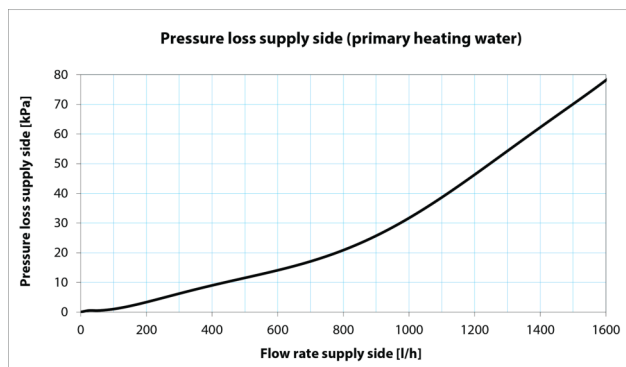
Flowrate type 2 HEX



Flowrate type 3 HEX



Flowrate type 4 HEX



Guidelines for water quality

Danfoss has prepared this guideline for the water quality requirements of tap water and district heating water used in plate heat exchangers made of stainless steel (EN 1.4404 / AISI 316L) and brazed with pure copper (Cu), CoResist (Cn), or stainless steel (StS).

It is important to note that these water quality specifications do not constitute a guarantee against corrosion. Rather, they should be regarded as a tool to help avoid the most critical water conditions and applications.

			Plate	Brazing material		
Parameter	Unit	Value or concentration	AISI 316L W. Nr. 1.4404	Cu	CoResist	StS
pH		< 0.6	o	-	-	o
		6.0 – 7.5	+	o/-	o	+
		7.5 – 10.5	+	+	+	+
		> 10.5	+	o	o	+
Conductivity	[μS/cm]	< 10	+	+	+	+
		10 – 500	+	+	+	+
		500 – 1000	+	o	+	+
		> 1000	+	-	o	+
Free Chlorine	[mg/l]	< 0.5	+	+	+	+
		0.5 – 1	0	+	+	+
		1 – 5	-	o	o	o
		> 5	-	-	-	-
Ammonia (NH ₃ , NH ₄ ⁺)	[mg/l]	< 2	+	+	+	+
		2 – 20	+	o	o	+
		> 20	+	-	-	+
Alkalinity (HCO ₃ ⁻)	[mg/l]	< 60	+	+	+	+
		60 – 300	+	+	+	+
		> 300	+	o	+	+
Sulphate (SO ₄ ²⁻)	[mg/l]	< 100	+	+	+	+
		100 – 300	+	o/-	o	+
		> 300	+	-	-	+
HCO ₃ ⁻ / SO ₄ ²⁻	[mg/l]	< 1.5	+	+	+	+
		> 1.5	+	o/-	o	+
Nitrate (NO ₃)	[mg/l]	< 100	+	+	+	+
		> 100	+	o	+	+
Manganese (Mn)	[mg/l]	< 0.1	+	+	+	+
		> 0.1	+	o	o	+
Iron (Fe)	[mg/l]	< 0.2	+	+	+	+
		> 0.2	+	o	+	+
* Hardness ratio [Ca ²⁺ , Mg ²⁺]/[HCO ₃ ⁻]		0 – 0.3	+	-	-	+
		0.3 – 0.5	+	o/-	+	+
		> 0.5	+	+	+	+

+	Good corrosion resistance
o	**Corrosion could happen when more parameters are evaluated with o
o/-	Risk of corrosion
-	Use is not recommended

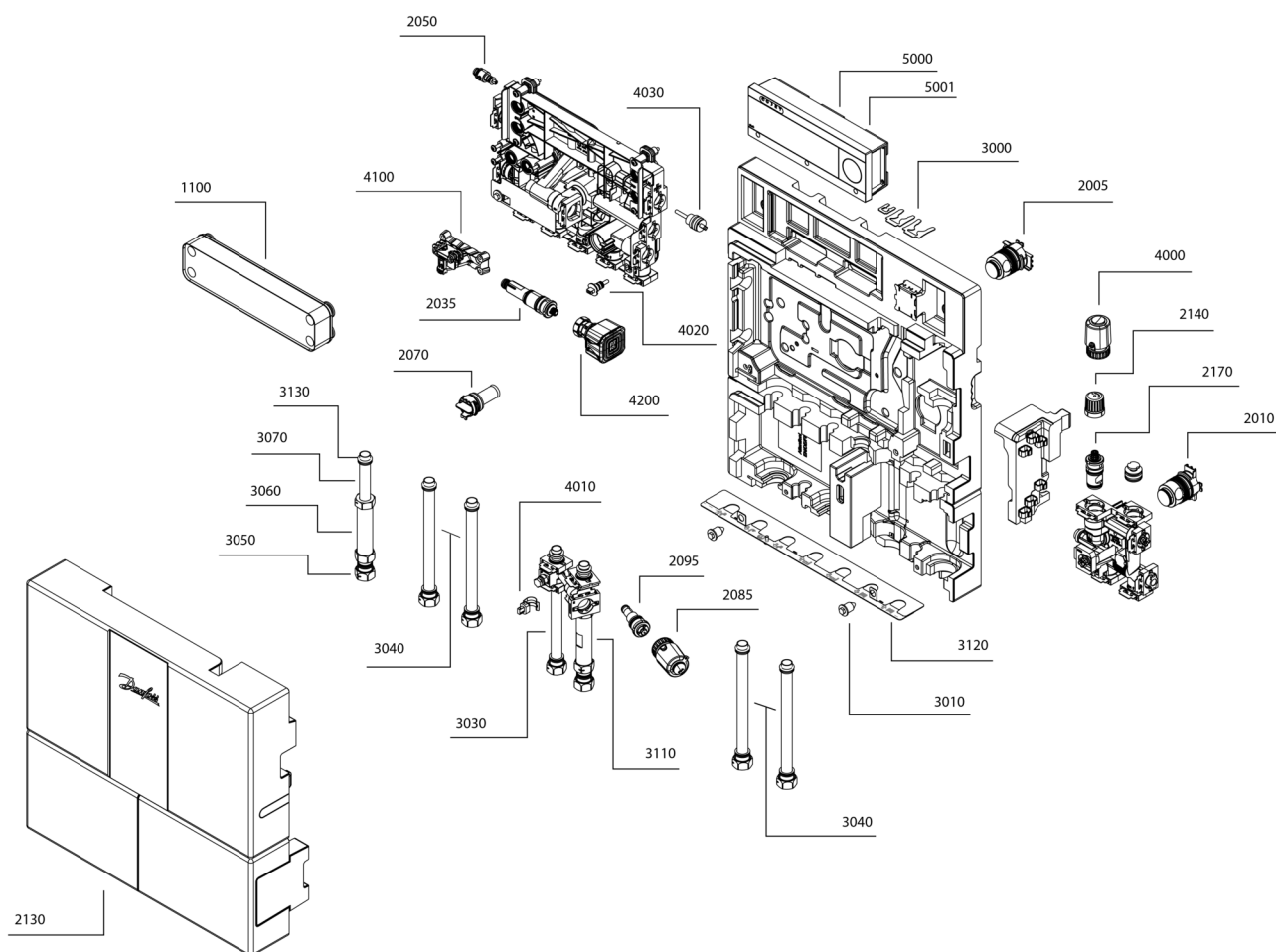
* Hardness ration limits defined per experience and internal tests in Danfoss laboratory

** In case of three or more parameters evaluated with o consultancy is needed with Consultant for Corrosion & Microbiology or BU HHE Representative

Recommended Chloride concentration to avoid Stress Corrosion Cracking (SCC) in the stainless steel plates:

Application temperature	Chloride concentration
at T ≤ 20 °C	max 1000 mg/l
at T ≤ 50 °C	max 400 mg/l
at T ≤ 80 °C	max 200 mg/l
at T ≥ 100 °C	max 100 mg/l

Spare parts code numbers



Pos.	Code number	Description
1100	183B0503	Service kit type 1 heat exchanger in copper
1100	183B0504	Service kit type 2 heat exchanger in copper
1100	183B0505	Service kit type 3 heat exchanger in copper
1100	183B0506	Service kit type 4 heat exchanger in copper
1100	183B0507	Service kit type 1 heat exchanger in stainless steel
1100	183B0508	Service kit type 2 heat exchanger in stainless steel
1100	183B0509	Service kit type 3 heat exchanger in stainless steel
1100	183B0510	Service kit type 4 heat exchanger in stainless steel
2005	183B0584	Dp regulator DHW EvoFlat 4.0 PRO
2010	183B0564	Dp regulator HE EvoFlat 4.0
2035	183B0572	DHW control valve set EvoFlat 4.0 PRO
2050	183B0513	Air vent set Danfoss EvoFlat 4.0
2070	183B0515	Strainer set EvoFlat 4.0
2085	183B0575	Bypass TWA-Q
2095	183B0516	Bypass Ventil Set EvoFlat 4.0 PRO
2130	183B0521	EPP cover set Danfoss EvoFlat 4.0
2140	183B0524	Construction protection cap and 7 seals
2170	183B5029	Zone valve set EvoFlat 4.0
3000	183B0552	Bracket kit for EvoFlat 4.0
3010	183B0553	Plast screw 15x25
3020	183B0554	Block for bypass EvoFlat 4.0
3030	183B0555	Pipe Ø18 - 171 mm
3040	183B0556	Pipe Ø18 - 223 mm
3050	183B0557	Bushing w/nuts 3/4" x 3/4" x 32 mm
3060	183B0558	Fitting piece 3/4" x 110 mm - DHW
3070	183B0559	Pipe Ø18 - 77 mm
3110	183B0565	Fitting piece 3/4" x 110 mm - HE
3120	183B0566	Mounting rail with symbols for EvoFlat 4.0
3130	183B0560	Clips, O-rings & washers for EvoFlat 4.0
4000	082F1601	Zone valve, TWA-Q-NO (accessorie)
4010	183B0579	Temperature sensor (S4)
4020	183B0578	Temperature sensor (S5)
4030	183B0577	Temperature sensor (S3)
4100	183B0573	Flow sensor DHW
4200	183B0571	Stepper motor
5000	183B0586	ECL220 controller
5001	183B0582	Cable set F/W-Station
	183B0533	Flushing Tool EvoFlat 4.0 HEX

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Hygienic Certificate	CARSO 25 ACC LY 385	CARSO - Laboratoire Santé Environnement Hygiène de Lyon	Drinking Water
EU Declaration	EU declaration 250701EN6721101.01	Danfoss	
Export Control Declaration	Export Control Declaration - Small stations	Danfoss	
Hygienic Certificate	Eurofins Certificate No 014-01	eurofin - eurofin Product Service GmbH	Drinking Water

Tender text

Copper HEX

Application

The Danfoss EvoFlat™ 4.0 PRO F flat station is equipped with an electronic controller for direct heating and hygienically safe domestic hot water preparation in an instantaneous flow system. The station is mounted on a thermally insulated base plate and includes a three-part EPP thermal insulation cover (thermal conductivity: λ 0.039). In addition, an EPP insulation element is integrated to further reduce heat loss from the primary supply line.

The flat station consists, among other components, of two composite blocks (PPS material with 30% glass fibre reinforcement) for heating and domestic hot water. This material is pressure- and temperature-resistant and significantly slows internal heat transfer compared to metallic materials.

The ECL220 controller serves as the central control unit of the EvoFlat 4.0 PRO F. It ensures precise and reliable regulation of the heat supply as well as domestic hot water heating within an apartment.

Thanks to its position above the station, the ECL220 is accessible without removing the insulation covers. This facilitates commissioning and the connection of external components.

The controller is configured via the Danfoss ECL Go App, a user-friendly tool that enables installers to commission and maintain EvoFlat 4.0 PRO F stations easily and efficiently. The app connects via the ECL220's Bluetooth interface, allowing the station to be configured for the desired control mode and the corresponding data to be stored.

Up to five meters can be connected to the ECL220 via M-Bus. The system automatically reads consumption data on a monthly basis and sends it in the desired format to predefined email addresses. Individual components, such as valves or temperature sensors, can be tested for proper functionality. The ECL Go App also displays error messages, simplifying service work.

For extended functionality, the Danfoss LeanHeat Monitoring Portal can be used. This platform enables central monitoring and control of the apartment station and, if desired, the entire heating system. As a cost effective alternative to conventional BMS systems, it is easy to install and configure.

For integration, the controller must be connected to a router via LAN cable or to a BMS system via Modbus. Software updates can be installed via the ECL Go App or through the LeanHeat Monitoring Portal. In the event of operational faults, the LeanHeat Monitoring Portal automatically sends email notifications to a designated service partner. Additionally, reminders for recurring maintenance can be scheduled.

Domestic Hot Water (DHW)

Domestic hot water is heated using a counterflow plate heat exchanger. The hot water temperature is regulated by the electronic controller in combination with a linear actuator. This configuration, incorporating a domestic hot water priority function, ensures extremely short response times while maintaining maximum user convenience.

The flow-controlled section allows primary and secondary flow through the heat exchanger only during domestic hot water heating. The flow is shut off immediately after draw-off ends to prevent unnecessary heat input into the heat exchanger. The Danfoss linear actuator regulates the hot water temperature based on the setpoint value. To maintain this high level of control accuracy, the actuator performs an automatic calibration every 24 hours, ensuring precise and long-lasting regulation performance.

The controller operates adaptively and, in combination with the differential pressure regulator, maintains a constant hot water temperature even when supply temperatures and differential pressures fluctuate.

The temperature of the primary heating connection line is regulated by the bypass valve (summer bypass) with an integrated actuator (TWA). For additional energy savings, the bypass can be operated according to individually defined daily schedules.

The apartment station is equipped with a connection for domestic hot water circulation. Circulation can be controlled based on the return temperature and a daily schedule. Individual on/off time intervals can be set for the circulation pump. All applicable regulations, standards, and guidelines must be observed.

The circulation set is available as an option. When using circulation, the recess box must have a minimum width of 690 mm, and a drain must be provided for the discharge from the safety valve ($\frac{1}{2}$ ", 10 bar).

Heating (HE)

The flat station supplies the heating surfaces with the supply temperature provided by the heat source. The standard integrated differential pressure regulator ensures optimal operating conditions for the heating system.

Optionally, an actuator can be installed on the zone valve. This actuator can be used, via an external signal, either to shut down the heating system or to reduce the return temperature.

Supply-Side Equipment

- Two temperature sensors (PT1000)
- Two differential pressure regulators (fixed setting)
- Bypass valve with TWA (electronically controlled)
- Zone valve (accessory)
- Strainer and air vent
- Thermal actuator, 230 V, normally open (optional)
 - Manufacturer: Danfoss
 - Type: TWA-Q 230 V NO
- Adapter piece for heat meter, AG $\frac{3}{4}$ " $\times$ 110 mm, in the return line
- Sensor socket for direct immersion sensor, M10 $\times$ 1 mm

Heat Exchanger

Gasket-free plate heat exchanger made of stainless steel, vacuum-brazed with copper into a compact unit.

Innovative Micro Plate™ second-generation heat exchanger with multi-pattern embossing technology for significantly improved heat transfer, reduced pressure losses, extended service life, and corrosion-resistant design.

Design and materials in accordance with AD specifications. Manufactured in compliance with DIN ISO 9001, CE-certified in accordance with the Pressure Equipment Directive 97/23/EC (PED).

- Manufacturer: Danfoss
- Type: XB05 H

Domestic Hot Water Equipment

- Temperature sensor (PT1000)
- Electronic flow sensor
- Danfoss linear actuator
- Adapter piece for cold water meter, AG $\frac{3}{4}$ " $\times$ 110 mm (cold water inlet)

Domestic Hot Water Heating

Maximum output [kW]:	43 @ VL 65 °C (Type 1 HEX)
At maximum output flow rate [l/min]:	15.4
Maximum output [kW]:	49 @ VL 65 °C (Type 2 HEX)
At maximum output flow rate [l/min]:	17.6
Maximum output [kW]	55 @ VL 65 °C (Type 3 HEX)
At maximum output flow rate [l/min]:	19.8
Maximum output [kW]:	80 @ VL 65 °C (Type 4 HEX)
At maximum output flow rate [l/min]:	28.8

Pressure Ratings	
Nominal pressure, both sides:	PN10
Primary side, maximum differential pressure [bar]:	4
PWC, minimum static pressure [bar]:	1.5
Temperature Limits	
Primary side, maximum supply temperature [°C]:	95
Connections	
Nominal connection size:	G ¾" (union nut, 7x)
Electrical connection:	230 V AC
Dimensions and Weight	
Height / Width / Depth [mm]:	613 / 530 / 150
Weight [kg]:	9.2
CW network, min. static pressure [bar]:	1.5
DH network, max. flow temperature [°C]:	95
Nominal connection size:	G¾" (union, 7x)
Electrical connection:	230 V AC
Dimensions H/W/D [mm]:	613/530/150
Weight [kg]:	7.7 (Type 1 HEX)
	8.1 (Type 2 HEX)
	8.8 (Type 3 HEX)
	9.3 (Type 4 HEX)

Stainless steel HEX

Design

The Danfoss EvoFlat™ 4.0 PRO F flat station is equipped with an electronic controller for direct heating and hygienically safe domestic hot water preparation in an instantaneous flow system. The station is mounted on a thermally insulated base plate and includes a three-part EPP thermal insulation cover (thermal conductivity: λ 0.039). In addition, an EPP insulation element is integrated to further reduce heat loss from the primary supply line.

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The controller is configured via the Danfoss ECL Go App, a user-friendly tool that enables installers to commission and maintain EvoFlat 4.0 PRO F stations easily and efficiently. The app connects via the ECL220's Bluetooth interface, allowing the station to be configured for the desired control mode and the corresponding data to be stored.

Up to five meters can be connected to the ECL220 via M-Bus. The system automatically reads consumption data on a monthly basis and sends it in the desired format to predefined email addresses. Individual components, such as valves or temperature sensors, can be tested for proper functionality. The ECL Go App also displays error messages, simplifying service work.

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The flow-controlled section allows primary and secondary flow through the heat exchanger only during domestic hot water heating. The flow is shut off immediately after draw-off ends to prevent unnecessary heat input into the heat exchanger. The Danfoss linear actuator regulates the hot water temperature based on the setpoint value. To maintain this high level of control accuracy, the actuator performs an automatic calibration every 24 hours, ensuring precise and long-lasting regulation performance.

The controller operates adaptively and, in combination with the differential pressure regulator, maintains a constant hot water temperature even when supply temperatures and differential pressures fluctuate.

The temperature of the primary heating connection line is regulated by the bypass valve (summer bypass) with an integrated actuator (TWA). For additional energy savings, the bypass can be operated according to individually defined daily schedules.

The apartment station is equipped with a connection for domestic hot water circulation. Circulation can be controlled based on the return temperature and a daily schedule. Individual on/off time intervals can be set for the circulation pump. All applicable regulations, standards, and guidelines must be observed.

The circulation set is available as an option. When using circulation, the recess box must have a minimum width of 690 mm, and a drain must be provided for the discharge from the safety valve (½", 10 bar).

Heating (HE)

The flat station supplies the heating surfaces with the supply temperature provided by the heat source. The standard integrated differential pressure regulator ensures optimal operating conditions for the heating system.

Optionally, an actuator can be installed on the zone valve. This actuator can be used, via an external signal, either to shut down the heating system or to reduce the return temperature.

Supply-Side Equipment

- Two temperature sensors (PT1000)
- Two differential pressure regulators (fixed setting)
- Bypass valve with TWA (electronically controlled)
- Zone valve (accessory) • Strainer and air vent
- Thermal actuator, 230 V, normally open (optional)
- Manufacturer: Danfoss • Type: TWA-Q 230 V NO
- Adapter piece for heat meter, AG $\frac{3}{4}$ " $\times$ 110 mm, in the return line
- Sensor socket for direct immersion sensor, M10 $\times$ 1 mm

Heat Exchanger

Gasket-free plate heat exchanger made of stainless steel, vacuum-brazed with stainless steel solder into a compact unit.

Innovative Micro Plate™ second-generation heat exchanger with multi-pattern embossing technology for significantly improved heat transfer, reduced pressure losses, extended service life, and a corrosion-resistant design.

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- Manufacturer: Danfoss
- Type: XB05 H

Domestic Hot Water Equipment

- Temperature sensor (PT1000)
- Electronic flow sensor
- Danfoss linear actuator
- Adapter piece for cold water meter, AG $\frac{3}{4}$ " $\times$ 110 mm (cold water inlet)

Technical data

Heating – Secondary side

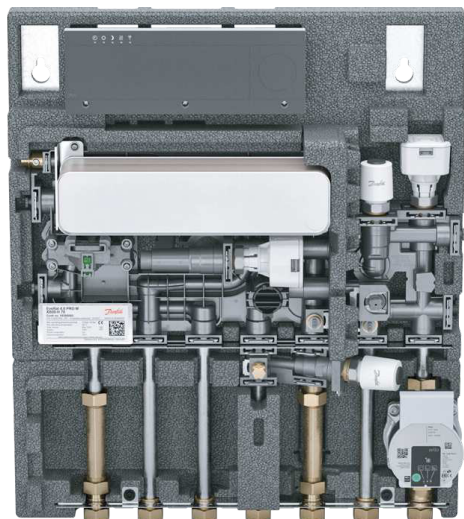
- Maximum output [kW]: 17.5
- At maximum flow rate [m³/h]: 0.5

Domestic Hot Water Heating

Maximum output [kW]:	43 @ VL 65 °C (Type 1 HEX)
At maximum output flow rate [l/min]:	15.4
Maximum output [kW]:	49 @ VL 65 °C (Type 2 HEX)
At maximum output flow rate [l/min]:	17.6
Maximum output [kW]:	55 @ VL 65 °C (Type 3 HEX)
At maximum output flow rate [l/min]:	19.8
Maximum output [kW]:	80 @ VL 65 °C (Type 4 HEX)
At maximum output flow rate [l/min]:	28.8

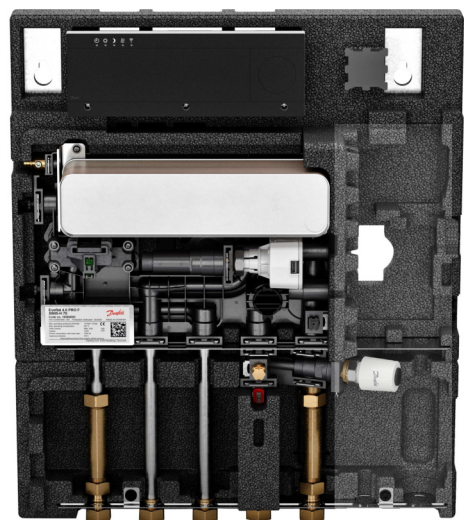
Pressure Ratings	
Nominal pressure, both sides:	PN10
Primary side, maximum differential pressure [bar]:	4
PWC, minimum static pressure [bar]:	1.5
Temperature Limits	
Primary side, maximum supply temperature [°C]:	95
Connections	
Nominal connection size:	G ¾" (union nut, 7x)
Electrical connection:	230 V AC
Dimensions and Weight	
Height / Width / Depth [mm]:	613 / 530 / 150
Weight [kg]:	9.2
CW network, min. static pressure [bar]:	1.5
DH network, max. flow temperature [°C]:	95
Nominal connection size:	G¾" (union, 7x)
Electrical connection:	230V AC
Dimensions H/W/D [mm]:	613/530/150
Weight [kg]:	7.7 (Type 1 HEX)
	8.1 (Type 2 HEX)
	8.8 (Type 3 HEX)
	9.3 (Type 4 HEX)

Other stations in this portfolio



EvoFlat 4.0 M

Flat station for domestic hot water and floor heating.



EvoFlat 4.0 W

Flat station for domestic hot water.

Contact details

Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



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