

Installation Guide

EvoFlat TDv



AN428738112765en-010102

to the Product
Store

Flat station for single-family, semi-detached and terraced houses as well as flats
Flat station for direct heating and instantaneous domestic hot water. Innovative self-acting TPC-M controller for control of heating and DHW temperature. Designed for wall mounting or built in wall.

The **EvoFlat TDv F** is a compact instantaneous water heater which is specially developed for buildings that are heated with a central heat source (e.g. boilers, heat pump systems,...) for high performance and maximum ease of use for domestic hot water in residential buildings.

Especially suitable for two-pipe systems in residential buildings, to supply radiator heating systems.

EvoFlat TDv F is built up on an EPP insulated back plate as well as a front insulation cabinet, enabling the customer to have a fully insulated substation, thus ensuring reduced heat losses and excellent operating economy.

The **EvoFlat TDv W** is a compact instantaneous water heater which is specially developed for buildings that are heated with a central heat source (e.g., boilers, heat pump systems,...) for high performance and maximum ease of use for domestic hot water in residential buildings.

TheEvoFlat TDv W is built up on an EPP insulated back plate as well as a front insulation cover, enabling the customer to have a fully insulated flat station, thus ensuring reduced heat losses and excellent operating economy.

Installation must be in compliance with local standards and regulations.

Heat Source (HS) — In the following sections, HS refers to the heat source which supplies the flat stations. A variety of energy sources, such as oil, gas or solar power, could be used as the primary supply to Danfoss flat stations. For the sake of simplicity, HS can be taken to mean the primary supply.

Installation

Mounting:

- Adequate space**
Please allow adequate space around the flat station for mounting and maintenance purposes.
- Orientation**
The station must be mounted so that components, keyholes and labels are placed correctly. If you wish to mount the station differently please contact your supplier.
- Drillings**
Where flat stations are to be wall-mounted, drillings are provided in the back mounting plate.
- Labelling**
Each connection on the flat station is labelled.

Before installation:

- Clean and rinse**
Prior to installation, all flat station pipes and connections should be cleaned and rinsed.
- Tightening**
Due to vibration during transport, all flat station connections must be checked and tightened before installation. Check that all hairpins in click connections are completely pushed in.
- Unused connections**
Unused connections and shut-off valves must be sealed with a plug. Should the plugs require removal, this must only be done by an authorized service technician.

Installation:

- Strainer**
If a strainer is supplied with the station it must be fitted according to schematic diagram. Please note that the strainer may be supplied loose.
- Connections**
Connection to the household installation and district heating pipes connections must be made using threaded, flanged or welded connections.
The internal connections of the flat station is made by click-fit connections.

Start-up

Start-up, Direct heating

The shut-off valves should be opened and the unit observed as it enters service. Visual checking should confirm temperatures, pressures, acceptable thermal expansion and absence of leakage. If the heat exchanger operates in accordance with design, it can be put to regular use.

After water has been added to the system and the system has been put into operation, re-tighten **ALL** connections. Check that all hairpins in click connections are completely pushed in.

Re-tighten connections
After water has been added to the system and the system has been put into operation, re-tighten **ALL** connections. Check that all hairpins in click connections are completely pushed in.

3: Open shut-off valves


The shut-off valves should then be opened and the unit observed as it enters service. Visual checking should confirm temperatures, pressures, acceptable thermal expansion and absence of leakage. If the system operates in accordance with design, it can be put to regular use, — always taking into account the conditions in the building.

4: Vent system


Switch off the pump and vent the installation after the system has been warmed up. Please note that some pump types feature a built-in venting function. For others the installation can be vented by using a vent valve in the flat station or on the radiators, or, if appropriate, the air valve at the highest point of the system — For additional information, please refers to the enclosed pump and manual.

To see complete manual use the QR code on the front side.


Safety Notes




Authorized personnel only
Assembly, start-up and maintenance work must be performed by qualified and authorized personnel only.




Please observe instructions carefully
To avoid injury to persons and damage to the device, it is absolutely necessary to read and observe these instructions carefully.




Warning of hot surface
The flat station has got hot surfaces, which can cause skin burns. Please be extremely cautious in close proximity to the flat station. Power failure can result in the motor valves being stuck in open position. The surfaces of the flat station can get hot, which can cause skin burns. The ball valves on district heating supply and return should be closed.



Warning of high pressure and temperature
Be aware of the installation's permissible system pressure and temperature. The maximum temperature of the flow medium in the flat station is 95 °C. The maximum operating pressure of the flat station is 10 bar. The risk of persons being injured and equipment damaged increases considerably if the recommended permissible operating parameters are exceeded. The flat station installation must be equipped with safety valves, however, always in accordance with local regulations.



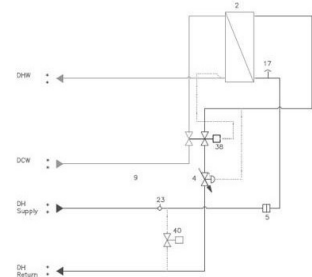
Warning of transport damage
Before flat station installation, please make sure that the flat station has not been damaged during transport.



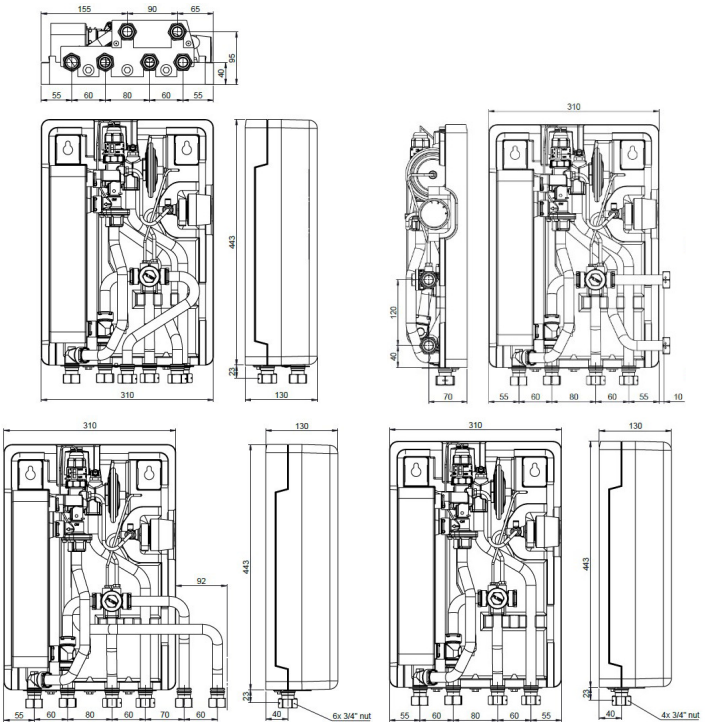
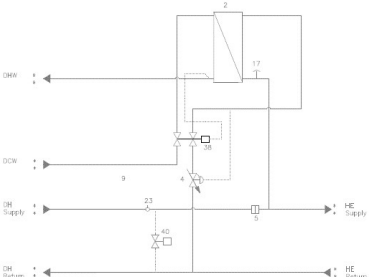
IMPORTANT — Tightening of connections
Due to vibrations during transport all flange connections, screw joints and electrical clamp and screw connections must be checked and tightened before water is added to the system. After water has been added to the system and the system has been put into operation, re-tighten **ALL** connections. Check that all hairpins in click connections are completely pushed in.

Schematic

EvoFlat TDv W



EvoFlat TDv F



Technical parameters

Nominal pressure:	PN10
Max. DH supply temperature:	95 °C
Min. DCW static pressure:	1,5 bar
Brazing material (HEX):	Cooper and stainless steel
Heat exchangers test pressure:	25 bar

Dimensions (mm)

EvoFlat TDv W	H443 x W310 x D130 (*w/EPP)
EvoFlat TDv F (front)	H443 x W310 x D130 (*w/EPP)
EvoFlat TDv F (side)	H443 x W310 x D130 (*w/EPP)
EvoFlat TDv F (aligned)	H443 x W310 x D130 (*w/EPP)

Connection size

DH, HE, DHW, DCW:	G¾" ET (int. thread)
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PWH: Capacity examples 10/50 °C

Type name HEX	PWH capacity [kW]	Supply network, flow/return [°C]	Pressure loss supply network* [kPa]	Flow, supply network [l/h]	Tapping rate [l/min]
XB06H-1 26 Cu/StS (type 1)	37	65/21	23	730	13.3
	43	65/22	40	850	15.3
XB06H-1 40 Cu/StS (type 2)	45	65/20	22	867	16.1
	49	65/21	30	950	17.5
XB06H+ 60 Cu (type 3)	55	65/16	27	950	18.3
	38	55/21	27	950	12.5
XB06H-1 56 E (type 3)	51	65/19	28	950	18,3
	34	55/24	28	950	12,5

Heating: Capacity example

Heating capacity [kW]	Heating circuit Δt [°C]	Pressure loss supply network [kPa]	Flow, supply network* [l/h]
10	20	3	430
10	30	1	287
10	40	1	215
15	20	8	645
15	30	3	430
15	40	2	323

Danfoss A/S

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Maintenance

The flat station requires little monitoring, apart from routine checks. It is recommended to read the energy meter at regular intervals, and to write down the meter readings. Regular inspections of the flat station according to this Instruction are recommended, which should include:

Strainers — Cleaning of strainers.

Meters — Checking of all operating parameters such as meter readings.

Temperatures — Checking of all temperatures, such as HS supply temperature and DHW temperature.

Connections — Checking all connections for leakages.

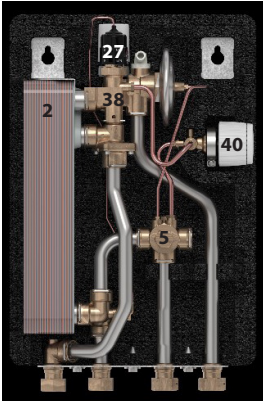
Safety valves — The operation of the safety valves should be checked by turning the valve head in the indicated direction.

Venting — Checking that the system is thoroughly vented.

Inspections should be carried out minimum every two years.

Spare parts can be ordered from Danfoss. Please ensure that any enquiry includes the flat station serial number.

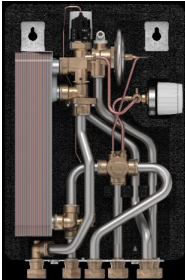
Design, standard



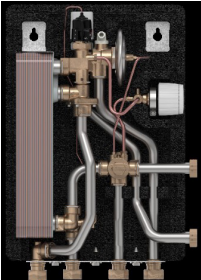
EvoFlat TDv W

Design description

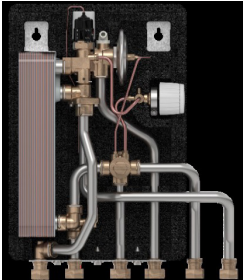
2. Plate heat exchanger
5. Strainer
27. Temperature sensor DHW
38. DHW controller type TPC-M
40. Summer by-pass



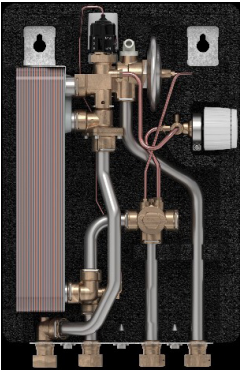
EvoFlat TDv (front)



EvoFlat TDv (side)



EvoFlat TDv (aligned)



Connections:

1. Domestic cold water (DCW) inlet.
2. Domestic hot water (DHW).
3. Primary side (HS) supply.
4. Primary side (HS) return.

Troubleshooting in general

In the event of operating disturbances, the following basic features should be checked before carrying out actual troubleshooting:

- the flat station is connected to electricity,
- the strainer on the HS supply pipe is clean,
- the supply temperature of the HS is at the normal level,
- the differential pressure is equal to or higher than the normal (local) differential pressure in the HS network — if in doubt, ask the HS plant supervisor.

Declaration

EC-DECLARATION OF CONFORMITY

Danfoss A/S
DK-6430 Nordborg
Denmark

declares on our sole responsibility that the product(s)

EvoFlat

Covered by this declaration is in conformity with the following directive(s), standard(s) or other normative document(s), provided that the product is used in accordance with our instructions.

EMC – Directive – 2004/108/EC

EN 61000-6-1 2007. Electromagnetic compatibility — General standard: Immunity for residential, commercial and light industry.
EN 61000-6-3 2007. Electromagnetic compatibility — Generic standard: Emission for residential, commercial & light industry.

Machinery Directive 2006/42/EC

EN 14121-1. Safety of machinery — Risk assessment.
EN 60204-1. Safety of machinery — Electrical equipment of machines — Part 1: General requirements.

Pressure Equipment Directive – 97/23/EC

Equipment category: 0 (article 3.3).