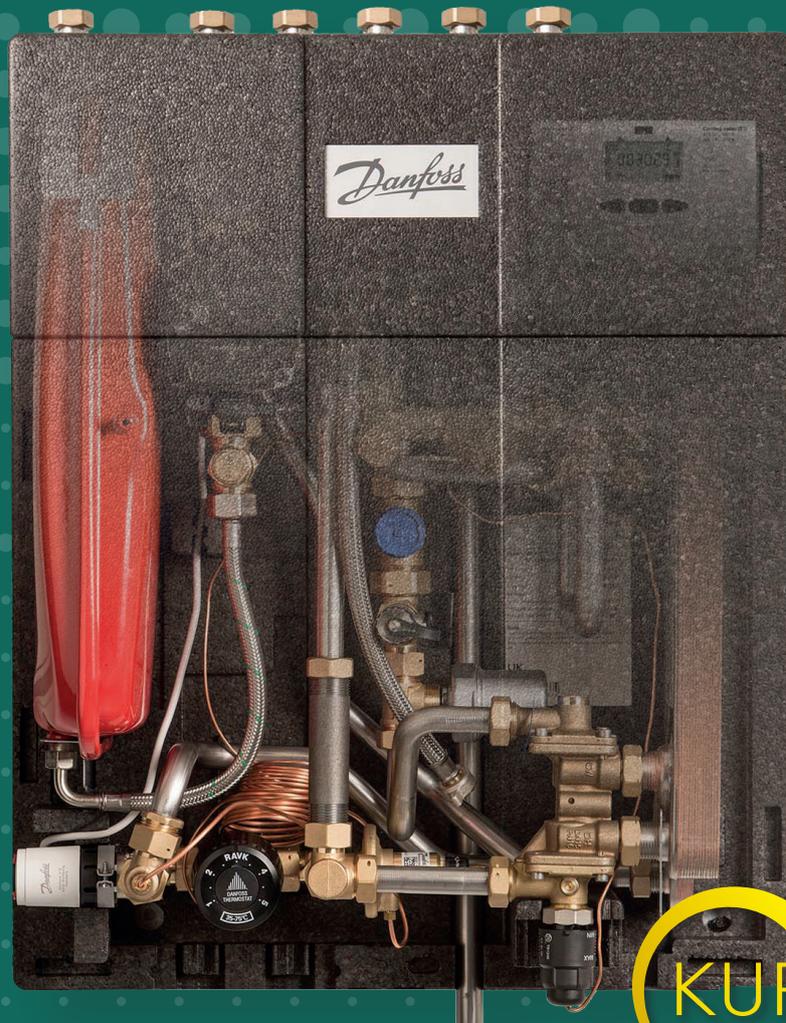


Danfoss FlatStation 7 Series DS



Features & Benefits

Fully insulated first fix rail & lockable flushing bypass

Fixed Pressure Gauge

SAV/Grundfos UPM3: Designed with pressure independent space heating controls in mind

Option of additional flow meter (UMS-54) for commissioning and verification of space heating

IHPT self-acting & pressure independent DHW control valve with keep warm function

Dedicated DPCV and load sized SH control valve for maximum valve authority

Dedicated wiring centre

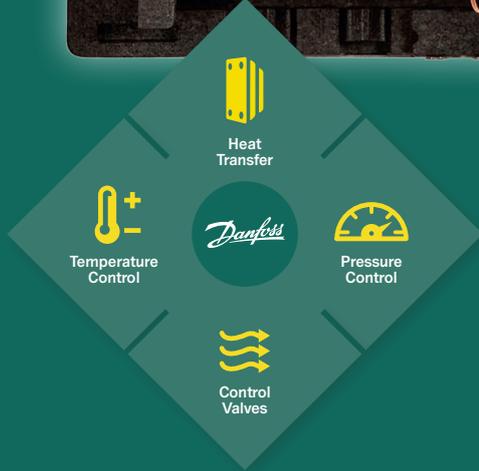
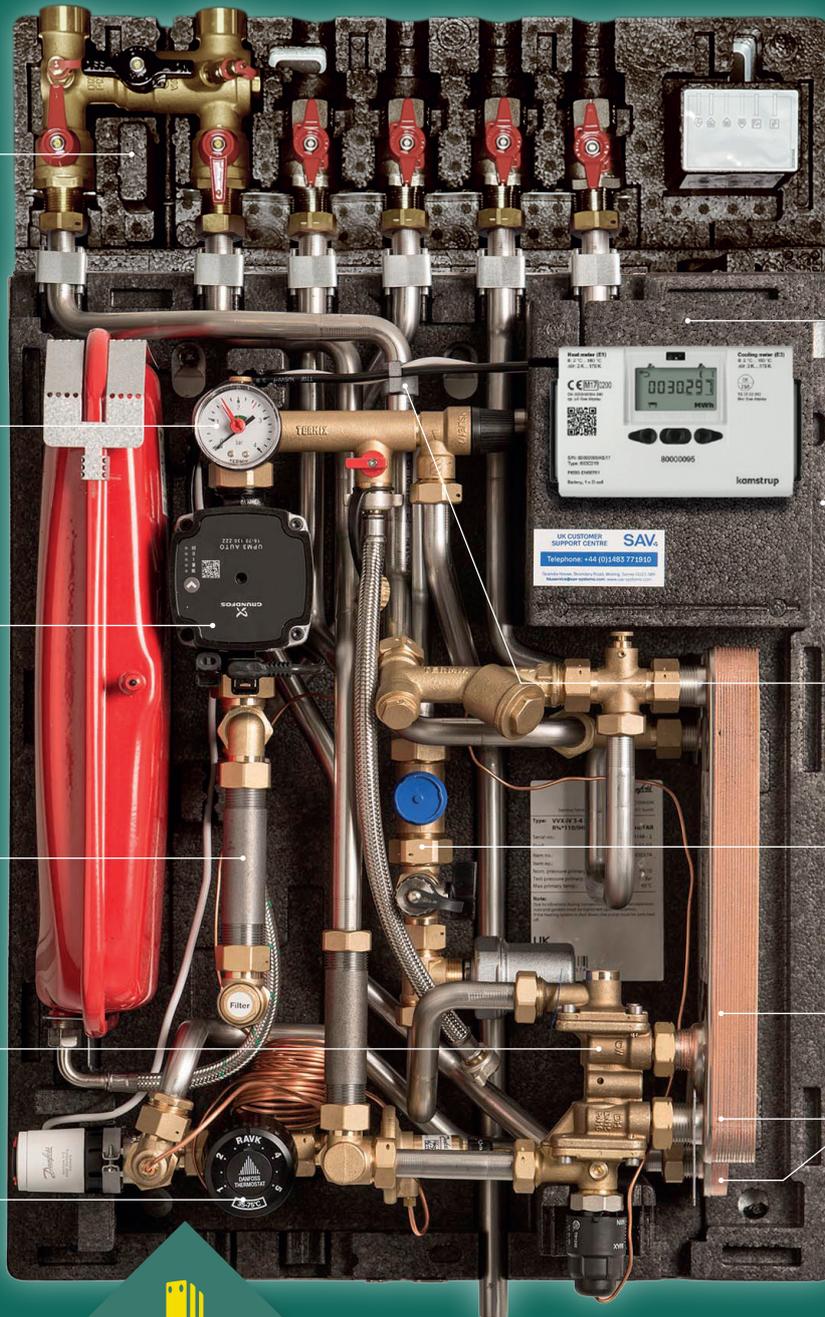
Low heat loss - Fully insulated including backplate

Wire fixing clips and trunking to keep cables neat and isolated from heated pipes

Pre-payment ready - Supplied with pre-payment valve

Super efficient 4G Micro Plate™ Heat Exchanger for lower temperatures and higher loads

Bespoke plate heat exchangers



(Flying leads) Supplied pre-wired for fast installation when used with KURVE PAYG option

Designed specifically for:

Occupants

Removing the **inspection hatch** allows the occupant to monitor the following:

- Heat consumption
- Status of the pump
- System pressure

Visit www.sav-systems.com/occupants for our residents guide.



Service engineers

Removing the **service hatch** allows access to the following:

- Key heat meter data
- DHW control valve
- HTG control valve
- Pump
- Strainers
- Filling/drain points
- DPCV
- Plate heat exchangers
- 2 port zone valve



Installers

- Easily accessible compartment for wiring
- Wiring stays out of the way during inspection and service
- First fix rail
- Mounting studs
- Installation requires minimal surrounding free space



Danfoss FlatStation Core Technology

Micro Plate™ Heat Exchanger

The Micro Plate™ heat exchangers include a patented “dimple” design (as opposed to the traditional “fishbone” pattern). By reducing the laminar flow and increasing turbulence across the plate, a higher level and more even heat transfer is achieved.

- Micro Plates™ make optimal use of their surface area by allowing water to flow more evenly. This distributes and mixes the media better for maximum heat transfer.
- Individually tailored heat exchangers, by varying the number, size and placement of dimples, Micro Plates™ can be adapted for optimal heat transfer and minimal pressure drop.
- 4G Micro Plate™ Heat Exchanger for low temperature heat networks.
- High efficiency and a longer lifespan help to reduce waste, all of which result in significant savings and a lower carbon footprint.



Traditional fish-bone pattern plate design

Optimised Micro Plate™ heat exchangers

Self-acting thermostatic control

Self-acting thermostatic controllers with gas-filled bellows guarantee a fast and accurate response despite variations in supply temperature and differential pressure to achieve consistent set temperatures and better comfort.

- Long life-expectancy and self-acting.
- Accurate Space Heating (SH) and Domestic Hot Water (DHW) temperature control.
- Fast-acting IHPT Domestic Hot Water Controller reduces scaling of the plate heat exchanger.



IHPT Controller



Correctly sized control valves

Each control valve has been sized to suit the design loads of the SH and DHW respectively to achieve better control authority.

- Rapid response for improved comfort.
- Less overflow, reduces system return temperatures and lessens stress on main system pump.
- Stable temperature control.



VMT Valve



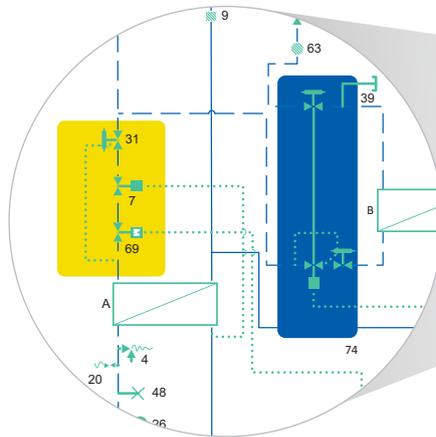
RAVK Controller

Dedicated differential pressure control

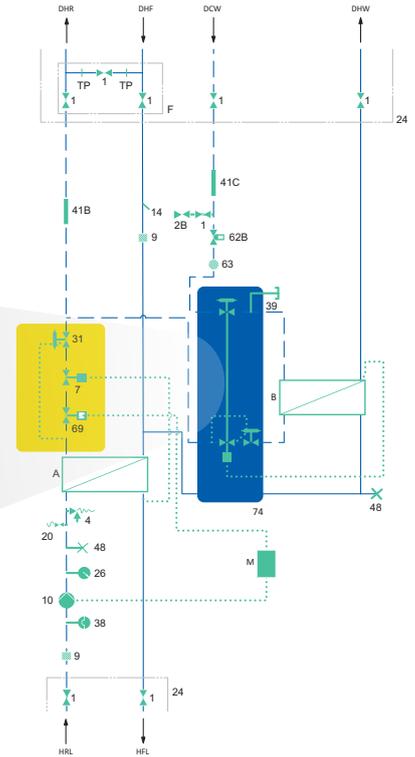
To maximise valve authority, each thermostatic controller has a dedicated Differential Pressure Control Valve (DPCV) as standard (highlighted in the schematic below), leaving performance unaffected by fluctuations in system pressure.



Differential Pressure Control Valve



■ DHW Controller
■ Space Heating Controller



Space Heating

www.sav-systems.com/space

Pt40

Pressure Independent
Thermostatic Radiator
Valve (PITRV)



Ft40

Pressure Independent
Underfloor Heating
Balancing Cartridge
(PIUFH)



Rt40

Pressure Independent
Return Temperature
Limiting (Towel Rail)
Valve (PIRTLTV)



UMS-54

Commissioning and
verification metering
station



Technical Datasheet

Danfoss FlatStation 7 Series DS IV



Instantaneous DHW / Indirect Heating 4th Generation Heat Network Ready

Key Features

Plate Heat Exchanger

- Danfoss Micro Plate™ Heat Exchanger*
- 35% reduced pressure drop
- 10% improved efficiency
- Bespoke PHEX selection
- 4G Micro Plate™ Heat Exchanger for low temperature heat networks

Domestic Hot Water (DHW) control

- Danfoss IHPT Self-Acting controller*
- Primed DHW control with 8°C set back
- Integral differential pressure controller (DPCV)
- Pressure Absorber

Space Heating (SH) control

- Danfoss AVPL differential pressure control valve (DPCV)*
- SAV/Grundfos UMP3 pump
- Operating differential pressure up to 4.5 bar
- Safety stat on UFH units

*Separate datasheet available

Long operating life and low replacement cost

- Self-acting mechanical and thermostatic controls
- Stainless steel PHEX and pipes
- Reduced scaling of PHEX
- Strainers on Heat Network supply, SH return and cold-water pipes

Insulation & Dimensions

- Full EPP insulation (including backplate)
- Compartmentalised wiring centre
- Fully insulated First Fix Valve Set* available
- High resilience and durability

Installation & Commissioning

- Integrated filling loop
- Open bypass protection feature available
- Pre-wired for fast installation
- Easy access to all serviceable components

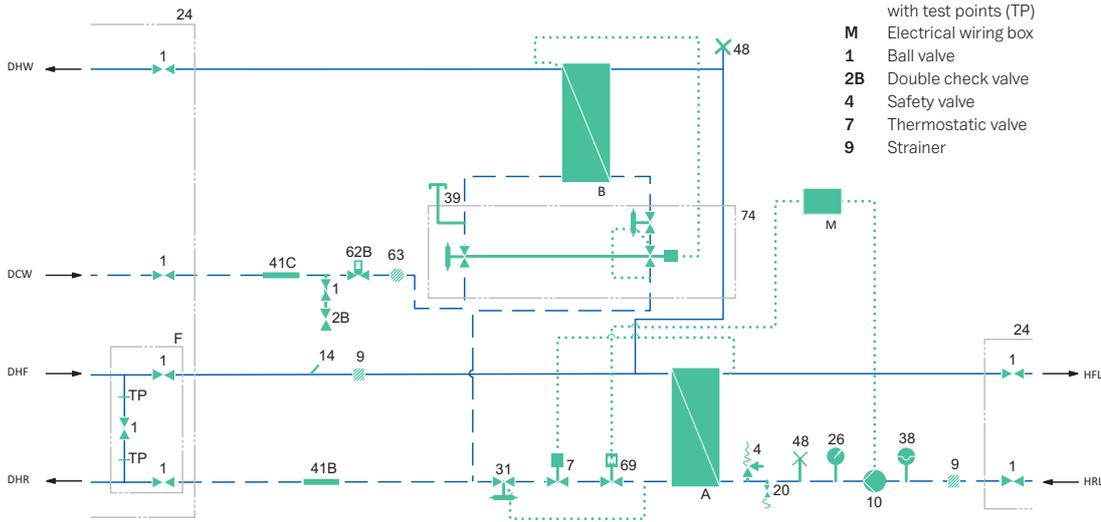
DHW - IHPT Self-Acting mechanical controller

- Instantaneous response to DHW demand
- Kvs sized for design DHW load
- Suitable for low supply temperatures.

IHPT closing time after DHW tapping



FlatStation Circuit Diagram



- A** Plate heat exchanger, HE
- B** Plate heat exchanger, DHW
- F** Flushing bypass with test points (TP)
- M** Electrical wiring box
- 1** Ball valve
- 2B** Double check valve
- 4** Safety valve
- 7** Thermostatic valve
- 9** Strainer
- 10** Circulator pump
- 14** Sensor pocket, energy meter
- 20** Filling/drain valve
- 24** Delivered loose with unit
- 26** Pressure gauge
- 31** Differential pressure controller
- 38** Expansion tank
- 39** Connection closed
- 41B** Fitting piece, energy meter
- 41C** Fitting piece, shut-off-valve
- 48** Air vent, manual
- 62B** Pressure absorber w/non-return valve
- 63** Sieve
- 69** On/off valve
- 74** IHPT

Technical Parameters

DHW valve authority	1
Nominal pressure	PN 10 standard PN 16 available
Min DCW static pressure	$p_{min} = 1 \text{ bar}$
Max differential pressure	$\Delta p_{max} = 4.5 \text{ bar}$
HN supply temperature	$T_{max} = 99 \text{ }^\circ\text{C}$
Connection sizes (all connections)	G 3/4" (int. thread)
Pipe dimensions (all connections)	Ø18 mm
Electrical supply	230 V AC
Brazing material (PHEX)	Copper
Insulation enclosure	Anthracite grey EPP
Thermal conductivity EPP	0.038 - 0.040 W/(m ² *K)
Dimensions with insulation (mm)*	With insulation: H 710 x W 530 x D 270
Weight incl. enclosure	29 kg Including packaging

* Please allow 100 mm on either side of the HIU and 300 mm in front of the HIU to remove cover and allow space for servicing and maintenance.

FlatStation Capacity Examples

DHW PHEX Size	Heat Network Supply [°C]	CW/DHW [°C]	DHW Capacity [kW]	DHW Flow Rate [l/h]	Heat Network Return [°C]	Pressure Loss [kPa]
1 - x	60	10/50	40	864	20.60	40
2 - x	60	10/50	47	1015	19.10	35
3 - x	60	10/50	48	1036	17.60	30
2 - x	55	10/45	41	1012	15.40	45
3 - x	55	10/45	46	1012	14.50	40

HTG PHEX Size	Heat Network Supply [°C]	HTG Circuit [°C]	HTG Capacity [kW]	Space HTG Flow Rate [l/h]	Heat Network Return [°C]	Residual Pump Head [kPa]
x - 2 RAD	60	50/30	5	217	33.0	35
x - 3 RAD	60	50/30	8	347	33.3	30
x - 4 RAD	60	50/30	13	564	32.9	35
x - 5 RAD	60	50/30	20	868	32.6	40
x - 1 UFH	55	45/35	3	260	35.1	30
x - 2 UFH	55	45/35	5	434	35.1	30

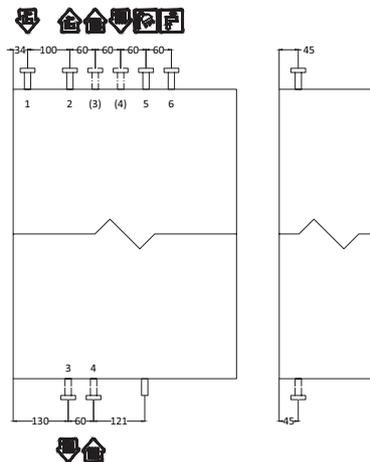
Please Note: Capacity examples are for guidance only, and vary dependent on several variables i.e. Heat Network Supply temperature, Secondary operating temperatures, Available differential pressure.

Please contact us for project specific sizing.

Options

- White lacquered steel cover
- PN16
- First fix rail with fully insulated enclosure for First Fix Valve Set
- DHW recirculation pump incl. 10 bar safety valve, necessary pipes and fittings (Hot water circulation pump is to be mounted below the unit)
- Prepayment valve and pre-wiring
- Heat meter
- Programmable room thermostat
- Pt40 pre-settable pressure independent TRV sets
- Rt40 pre-settable pressure independent towel rail sets
- Ft40 pressure Independent underfloor heating balancing cartridge (PIUFH)
- UMS-54 Commissioning and verification metering station
- KURVE metering and billing for heat networks

Schematic: Pipe Configuration Options



Schematic: Pipe Connections

- 1 Heat Network (HN) Supply
- 2 Heat Network (HN) Return
- 3 Standard Heating (HE) Flow
- 4 Standard Heating (HE) Return
- (3) Alternative Heating (HE) Flow
- (4) Alternative Heating (HE) Return
- 5 Domestic Hot Water (DHW)
- 6 Domestic Cold Water (DCW)

Distances from edge of metal back-plate, with cover tolerances are ±6mm



KURVE

This Danfoss FlatStation is designed with KURVE in mind, the flexible metering and billing solution utilising Kamstrup's wired Smart M-Bus technology.

www.kurve-tech.com

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