

Danfoss Climate Solutions

## Danfoss Dynamic Valves™ with innovative membrane technology

Featuring the new VHS-DV radiator valve, Danfoss offers a complete portfolio of pressure-independent Dynamic Valves™ with innovative membrane technology for best-in-market pressure management—suitable for all efficiency heating systems.

The simple, highly effective differential pressure regulators ease design, installation, and commissioning in two-pipe heating systems.



# Get best-in-market precision with **innovative membrane technology**

Efficient heating systems require innovative engineering. That's why our family of Dynamic Valves™ feature integrated membrane technology designed to give you automatic and precise pressure control

throughout the valve. Traditional thermostatic valves rely on flow limiters for pressure control, creating challenges due to variable system conditions. The simple, automatic Dynamic Valve™ solution eliminates pressure

fluctuations, combining a thermostatic valve with a built-in differential pressure controller—and is enhanced with silicone membrane technology that guarantees a constant flow regardless of a full or partial load.

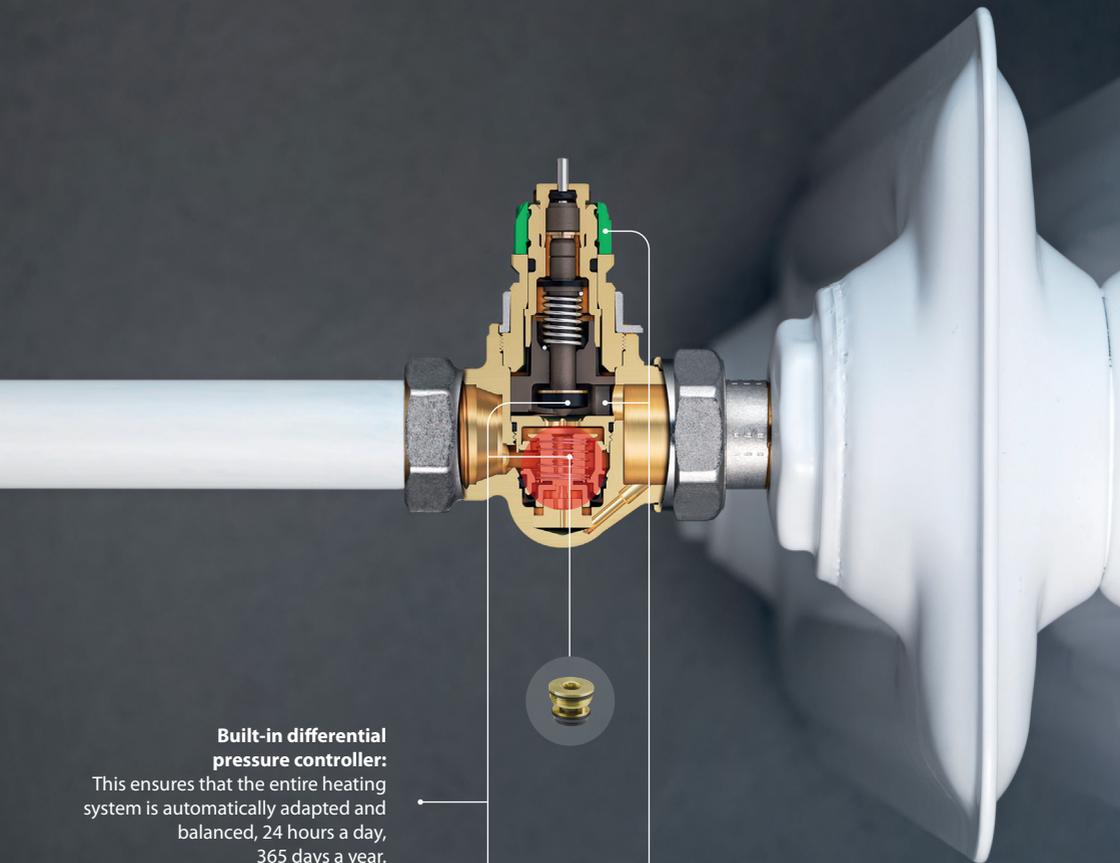
## **Self-balancing heating system** for optimization and efficiency

### **How the Dynamic Valves™ work**

The secret of Dynamic Valves™ lies deep inside. The small built-in differential pressure controller ensures constant pressure across the control valve regardless of a full or partial load. Normal pressure fluctuations no longer affect flow through the radiators.

For the RA-DV and VHS-DV, use a simple 1-7+N scale to quickly set each valve to any maximum flow between 10-135 liters per hour. By appropriately setting each valve, flow through the system is restricted to a maximum level. Additionally, the heating system is commissioned and optimized to its full energy-saving potential.

# A closer look at how the **Dynamic Valves™** work



**Built-in differential pressure controller:**

This ensures that the entire heating system is automatically adapted and balanced, 24 hours a day, 365 days a year.

**Valve cone:** Determines the flow of water through the radiator, according to the sensor's temperature control.

**Flow controller:** Ensures a maximum flow level through the radiator.

**Setting scale:** For the RA-DV and VHS-DV, the simple 1-7+N scale corresponds to a flow range from 25-135 l/h. Setting can be instantly achieved without tools.

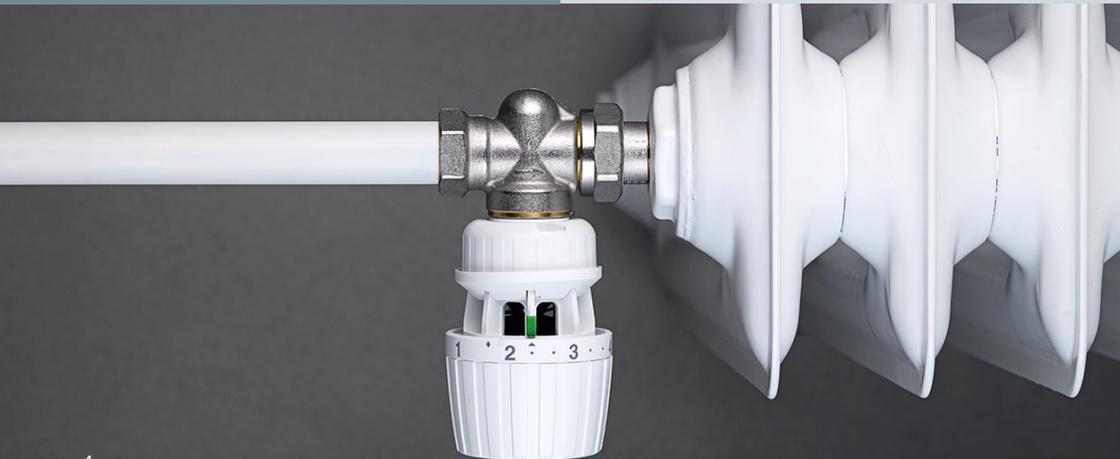
# Danfoss RA-DV

A pressure-independent, preset-ready valve housing

RA-DV is a 2-in-1 valve design consisting of a radiator thermostatic valve and differential pressure regulator for easy hydraulic balancing and precise room temperature control —all in one product.

The valve is ideal for two-pipe heating systems with a maximum pump head up to 6 meters (60 kPa).

- Low noise level without vibration for use in libraries, bedrooms, etc.
- Use the Danfoss Installer App for presetting calculations
- Simple pressure testing and pump optimization with the dP tool™ (order no.: 013G7855)
- $\Delta P$  min. 0.1 bar to obtain dynamic features
- Quality Management System IATF 16949 certified



# Danfoss RLV-KDV

A pressure-independent H-piece

RLV-KDV is a pressure-independent H-piece for valve radiators in two-pipe systems. Fitted with an integrated differential pressure regulator with membrane technology, it ensures a consistent water flow through the radiator. Plus, the H-piece is compatible with all built-in-valves.



The valve is ideal for radiator with R 1/2 internal thread and G 3/4 A external thread.

- $\Delta P$  min. 0.15 bar to obtain dynamic features
- Lockable and drainable with integrated differential pressure control using membrane technology
- Presetting only on the built-in valve
- Center-to-center distance is 50 mm
- DIN V 3838 certified



# Danfoss VHS-DV

A pressure-independent control valve

VHS-DV is a pressure-independent radiator valve designed for use in 2-pipe heating systems with a variety of thermostatic sensors that have Danfoss RA coupling.

Engineered for universal or bathroom radiators with connection distances of 50mm between flow and return, VHS-DV is quick and easy to install and is compatible with standard Danfoss snap-lock sensor elements.



**New**

- Available in Flow, Reversed versions, and Straight, Angle left and right models
- DIN V 3838 certified
- Low noise level without vibration for use in libraries, bedrooms, etc.
- $\Delta P$  min. 0.1 bar to obtain dynamic features



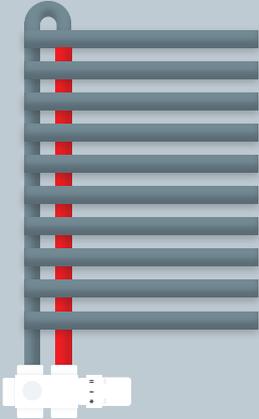
## VHS-DV

Valve covers  
available in  
white (RAL 9016)  
or chrome.

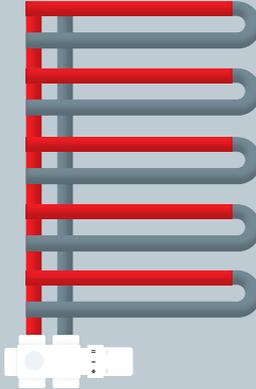
# Sensor's positioning towards VHS-DV and various bathroom radiators

**Connection is critical.** Ensure the direction of the water connection is aligned properly with the valve position.

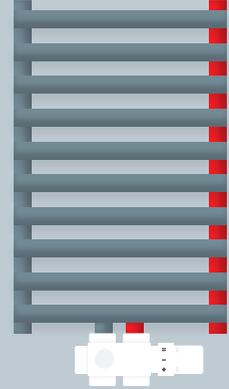
## Under radiator



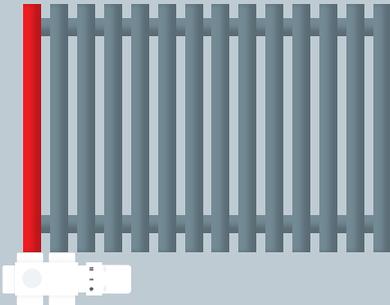
↓ ↑ Flow



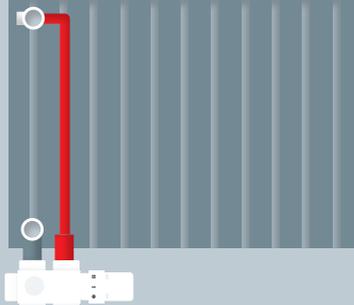
↑ ↓ Reverse



↓ ↑ Flow

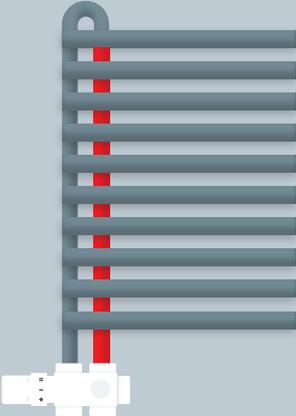


↑ ↓ Reverse  
No drainage

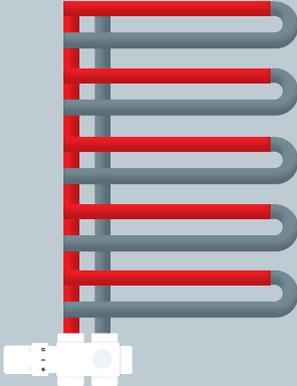


↓ ↑ Flow

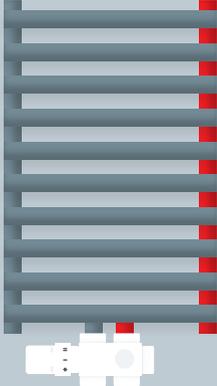
### Beside radiator



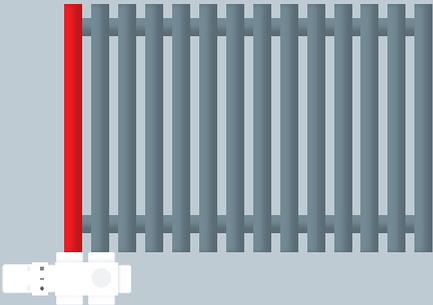
↓ ↑ Reverse



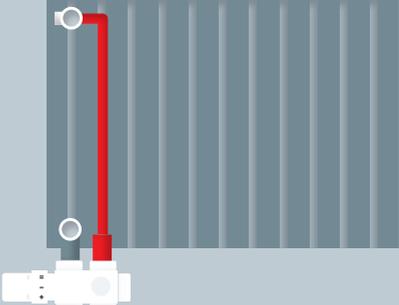
↑ ↓ Flow



↓ ↑ Reverse



↑ ↓ Flow



↓ ↑ Reverse  
No drainage



**IMPORTANT**

If the valve is incorrectly connected, the regulator will remain fully open preventing proper dP regulation.

# Choosing the correct sensor for your project

Because the Danfoss Dynamic Valve™ family uses the well-known RA sensor connection, you can choose from a wide range of sensors.



**RAW**

When price is important, liquid filled Danfoss RAW sensors offer excellent performance.



**RA 2000**

The gas-filled series has record-breaking reaction time of 10 minutes—the fastest mechanical radiator thermostat.



**RAX**

The perfect temperature – in perfect style. The most elegant radiator thermostat from Danfoss.



**Danfoss Eco®**

A standalone smart radiator thermostat that gives you easy in-home control of each individual radiator.



**Danfoss Ally®**

A smart cloud-based radiator thermostat that gives you full remote heating control from an easy-to-use app.



# Smart tool for total simplicity

The dP tool™ is an extremely useful, simple, and unique tool to streamline commissioning. It measures the available differential pressure directly through the Dynamic Valves™—as opposed to through an additional measuring orifice or manual balancing valve.

You can correctly commission the system by using the dP tool™ on the valve furthest from the pump to check if the available differential pressure is at the required 0.1 bar.

Plus, the dP tool™ can be used to determine if additional cost savings can be gained by reducing the pump head setting: a pump can often provide the required differential pressure at a lower than maximum setting.

And the demounting tool feature enables you to exchange the valve insert and built-in pressure controller without draining the system. Some building owners require the availability of such a tool to ensure that heating remains available for all residents during service.



## Installer life made easier

The Installer Life Website is the convenient go-to platform for products, tools, training sessions, and industry insights. Created to make your job easier, more convenient, and more enjoyable.

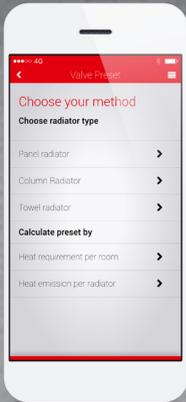
Visit [installer.danfoss.com](http://installer.danfoss.com)



# Your personal toolbox

## The Danfoss Installer App

Use the Installer app to calculate flow pressure or determine the correct presetting value in just seconds—saving time and giving you the confidence to get the job done.



**Danfoss**  
Installer App

Download the free app  
for iOS and Android



### Danfoss A/S

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