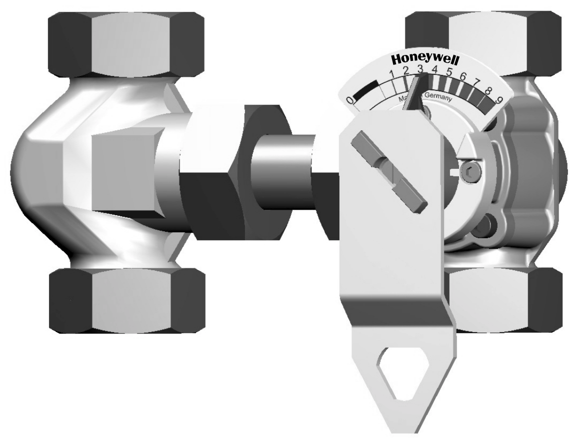
# V5434T/H

## THREE-WAY ROTARY VALVE PN10 AND H-EXTENSION

**PRODUCT DATA**




## FEATURES

- **Chrome-plated plug for long life-span**
- **Optimized characteristics for supply water temperature control**
- **All around changeable rotary plug**
- **Reliable and easy mounting of electrical actuators**
- **Wide range of flow rates in two housing sizes**
- **Compact design**
- **Use for manifolds by accessory H-Extension**
- **Thermal insulation package included**

## APPLICATION

The V5434T Three-Way Rotary Valve provides water temperature control in heating and air-conditioning applications. These valves are designed for accurate mixing control of supply water temperature and return-flow temperature.

The sturdy construction ensures long operating life and high reliability when used in combination with M6061 actuators. The special inner form of the housing and the all around changeable rotary plug allow the valve to be adapted to each possible application without having to drain the system. In combination with the distance-adjustable H-Extension, use in a wide range of pre-piped systems is possible.

## SPECIFICATIONS

| | |
|---|---|
| **Nominal static pressure** | 10 bar; 1000 kPa |
| **Maximum pressure drop** | dependent on type (see table on page 3) |
| **Leakage rate** | < 1% of $k_{VS}$ |
| **Ports** | External threads with cap nuts |
| **Angle of rotation** | 90 ° |
| **Packing** | Double O-ring lined |
| **Material body** | Cast iron (GG20) |
| **Material inner parts** | Chrome-plated cast iron |
| **Medium** | Heating water according to VDI 2035 (oxygen concentration less than 0.2 g/m$^3$, pH 8...9.5) |
| **Water temperatures in the valve** | 2...130 °C, non-condensing |
| **Weight** | dependent on type (see tables in section "Dimensions" on page 4) |
| **Flow characteristic** | equal percentage |

CE

# OPERATION

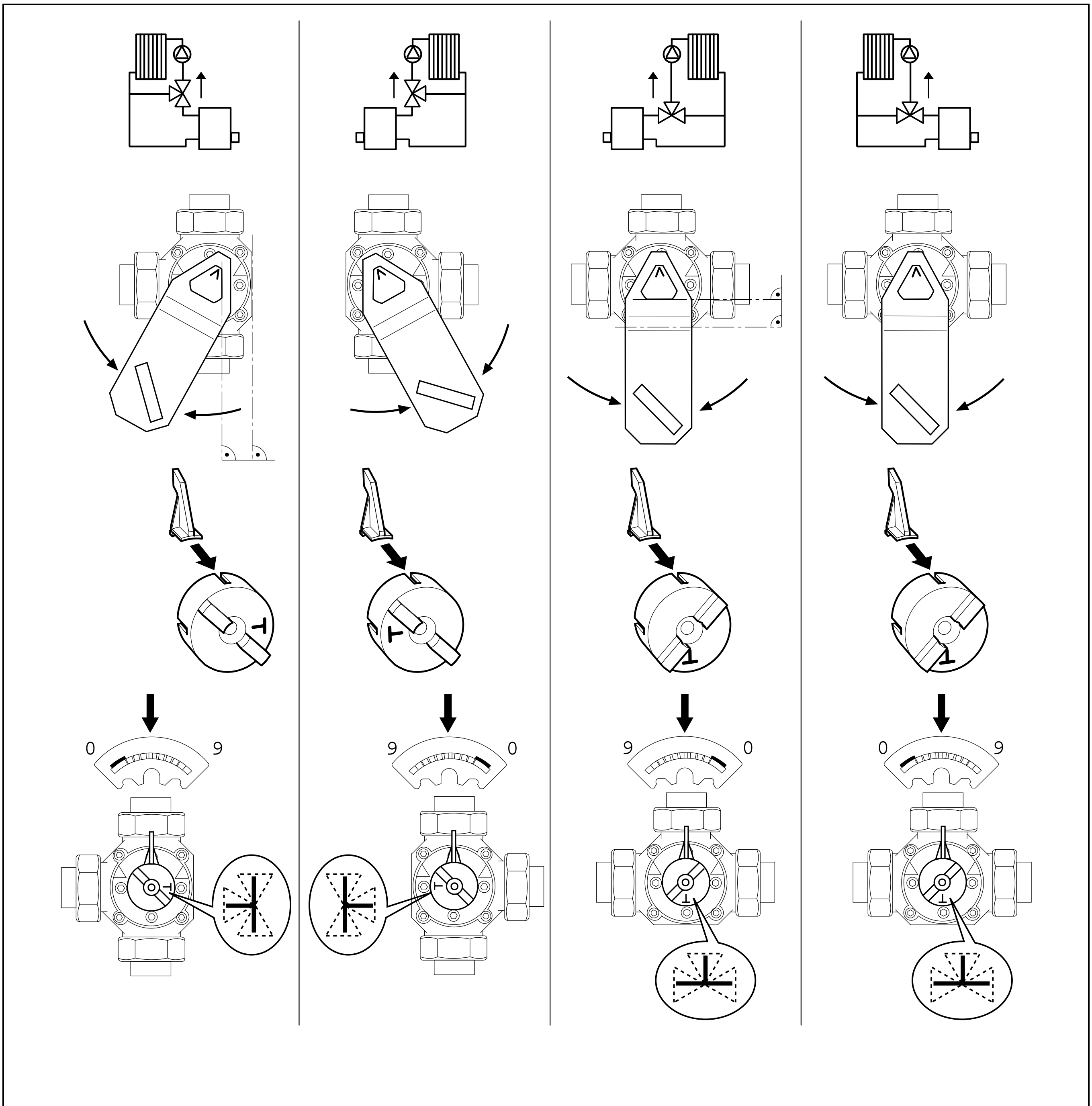
The valve controls a mixing water temperature by means of a rotating plug. The plug adjusts the water flow of two inputs with two control curves. The required flow water temperature is achieved by adding a proportion of return water to the boiler hot water. The V5434T has special control characteristics for optimal control performance.

# SUITABLE ACTUATORS

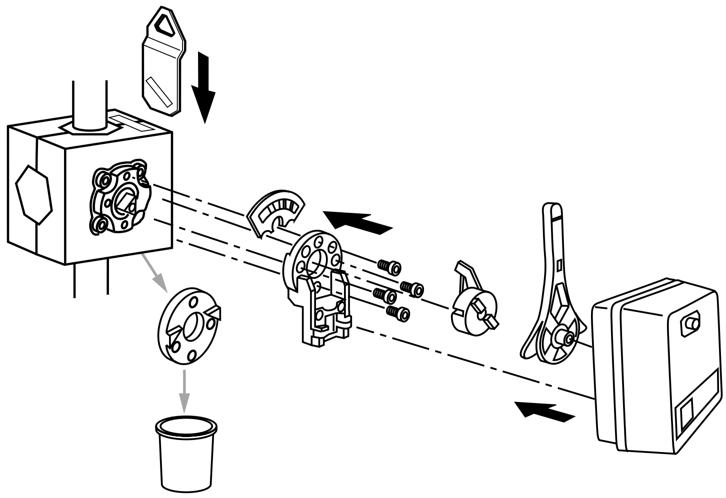
| Torque [Nm] | OS no. 24 Vac float. | OS no. 230 Vac float. | OS no. 0/2...10V |
|---|---|---|---|
| 10 | M6061A1013 | M6061L1019 | M7061E1012 |

# MOUNTING

## Adjustments for Mixing Applications



## Mounting the Actuator



# SPECIFICATION AND ORDER NUMBER PER DN

| OS No. | DN | $k_{vs}$ | Heat Flow | Δp | Nominal Torque | Actuator | |
|---|---|---|---|---|---|---|---|
| | | [m³/h] | [kW] | [kPa] | [Nm] | Floating | Modulating |
| V5434T1010 | 25 | 2.5 | 7-12 | 100 | 10 | M6061A1013<br>M6061L1019 | M7061E1012 |
| V5434T1028 | 25 | 4.0 | 12-17 | 100 | 10 | | |
| V5434T1036 | 25 | 6.3 | 17-30 | 100 | 10 | | |
| V5434T1044 | 25 | 10.0 | 30-50 | 100 | 10 | | |
| V5434T1051 | 25 | 16.0 | 50-70 | 100 | 10 | | |
| V5434T1069 | 32 | 10 | 30-50 | 100 | 20 | | |
| V5434T1077 | 32 | 16 | 50-70 | 100 | 20 | | |
| V5434T1085 | 32 | 25 | 70-100 | 100 | 20 | | |
| V5434H1001 | 25 | - | - | - | - | | |
| V5434H1019 | 32 | - | - | - | - | | |

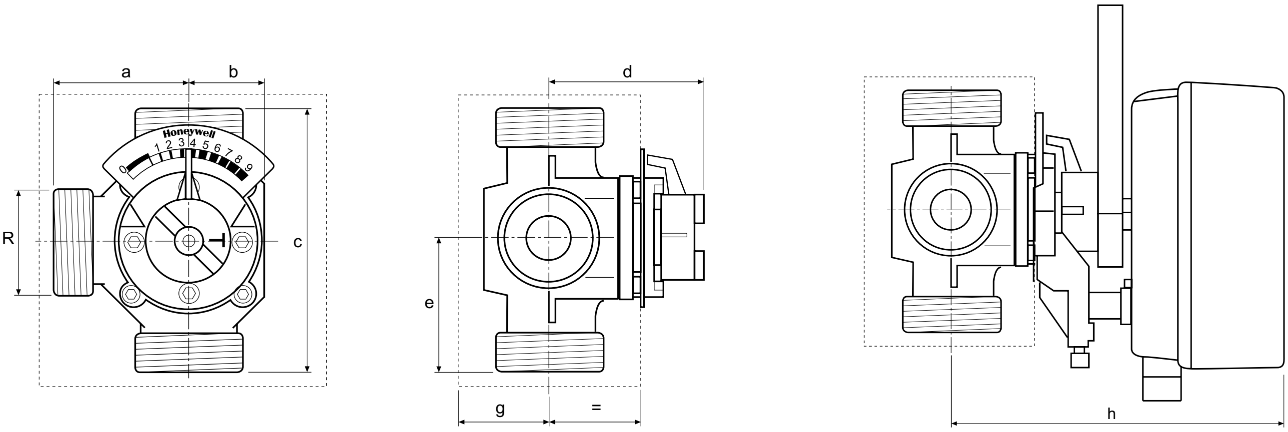
# ACCESSORIES

| Connection Set | Description | DN | Pipe Size [mm] | Weight [kg] | OS No. |
|---|---|---|---|---|---|
|  | Welding sockets with gasket and cap nut | 25<br>32 | 25<br>32 | 0.3<br>0.6 | WTU25<br>WTU32 |
|  | Soldering sockets with gasket and cap nut | 25<br>25<br>25<br>32<br>32<br>32 | 18<br>22<br>28<br>22<br>28<br>35 | 0.21<br>0.21<br>0.21<br>0.42<br>0.42<br>0.41 | LSU25-18<br>LSU25-22<br>LSU25-28<br>LSU32-22<br>LSU32-28<br>LSU32-35 |
|  | Internal threaded sockets with gasket and cap nut | 25<br>32 | 25<br>32 | 0.21<br>0.40 | STU25<br>STU32 |

# DIMENSIONS

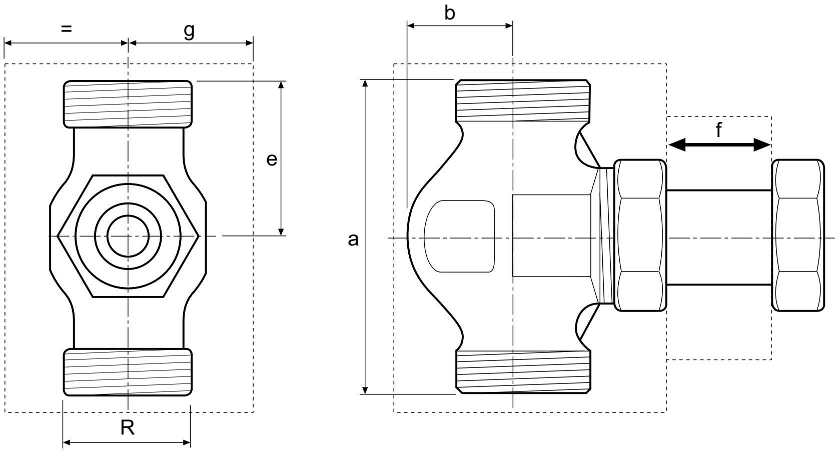
## V5434T

| Type | DN | a | b | c | d | e | g | h | R | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|
| V5434T1010 | 25 | 55 | 32 | 110 | 89 | 55 | 51 | 182 | 1 ½ | 2.2 |
| V5434T1028 | 25 | 55 | 32 | 110 | 89 | 55 | 51 | 182 | 1 ½ | 2.2 |
| V5434T1036 | 25 | 55 | 32 | 110 | 89 | 55 | 51 | 182 | 1 ½ | 2.2 |
| V5434T1044 | 25 | 55 | 32 | 110 | 89 | 55 | 51 | 182 | 1 ½ | 2.2 |
| V5434T1051 | 25 | 55 | 32 | 110 | 89 | 55 | 51 | 182 | 1 ½ | 2.2 |
| V5434T1069 | 32 | 70 | 44 | 140 | 99 | 70 | 59 | 200 | 2 | 4.1 |
| V5434T1077 | 32 | 70 | 44 | 140 | 99 | 70 | 59 | 200 | 2 | 4.1 |
| V5434T1085 | 32 | 70 | 44 | 140 | 99 | 70 | 59 | 200 | 2 | 4.1 |



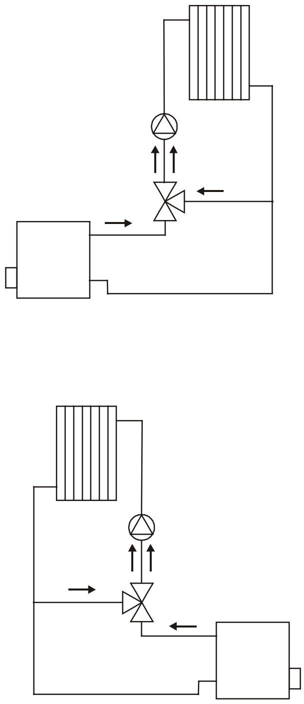

## V5434H

| Type | DN | a | b | e | f | g | R | Weight [kg] |
|---|---|---|---|---|---|---|---|---|
| V5434H1001 | 25 | 110 | 42 | 55 | 0-25 | 51 | 1 ½ | 1.7 |
| V5434H1019 | 32 | 140 | 51 | 70 | 0-50 | 59 | 2 | 2.7 |

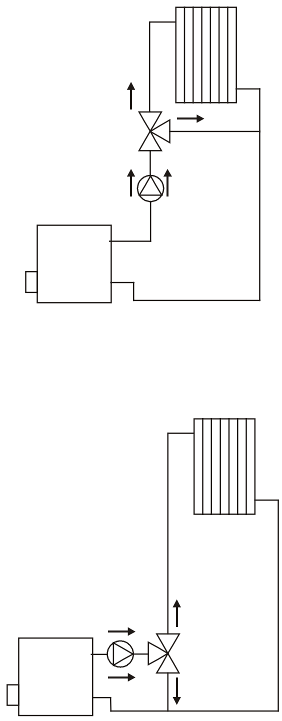


# HYDRAULIC FUNCTION

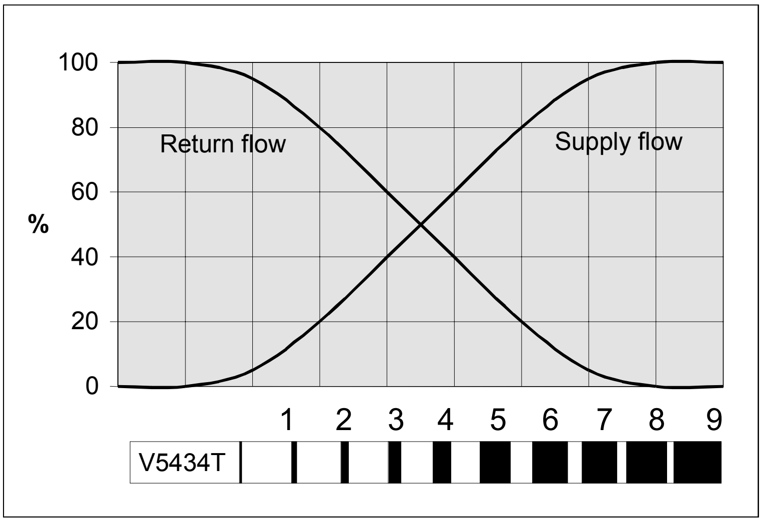
**Mixing**



**Diverting**



## Characteristics



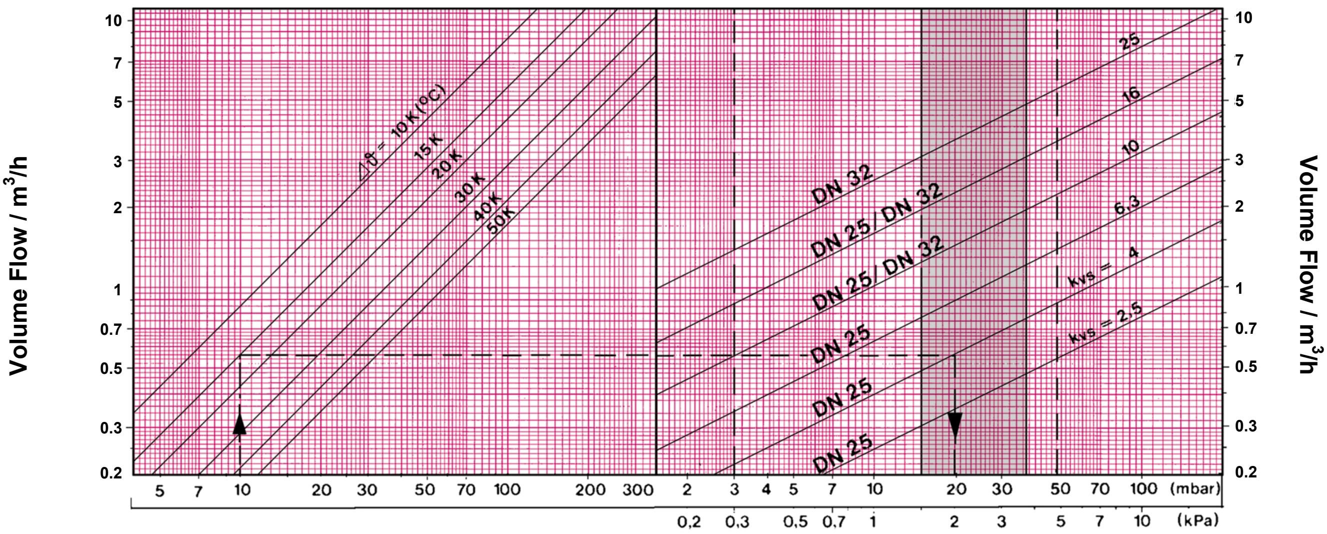

## Spare Parts

- O-ring (part no.: 07169 9535)

# VALVE DIMENSIONING

Honeywell Rotary Valves are employed mainly in hydraulic systems corresponding to the examples shown on page 2. The rotary valve can be set quite easily. In order to obtain good control characteristics, the pressure drop in the rotary valve should be about the same as the pressure drop in the "volume-variable" part of the pipe system, i.e. about 1.5...4.0 kPA or 15...40 mbar. The following dimensioning diagram is based on this interrelationship. The setting is obtained as follows:

1. Find heat flow $\dot{Q}$ in the diagram.
2. Move vertically upwards to the intersection with the corresponding $\Delta\vartheta$ line. On the vertical axis, the volume flow $\dot{V}$ can be read off on the left in liters per hour.
3. Move horizontally to the right from the intersection with the $\Delta\vartheta$ line into the shaded section (1.5-4.0 kPa). Here you will find the nominal rotary valve size to be selected.
4. From this intersection, go vertically downwards. Read off the pressure drop in the rotary valve in kPa (mbar).




**Example** Given: Heat flow $\dot{Q}$ = 10 kW, $\Delta\vartheta$ = 15 K (e.g. 70/55 °C)

Required: Nominal rotary valve size and pressure drop

Volume flow: $\dot{V} = \dfrac{\dot{Q}}{1.163 * \Delta\vartheta} = \dfrac{10}{1.163 * 15} = 0.57\ m^3/h$

Result: According to the diagram, the correct valve size is DN25, $k_{vs}$ 4.0 (V5434T1028). The pressure drop is 2 kPa or 20 mbar or 200 mm water column.

(Factor 1.163 contains the water density 1000 kg/m$^3$ and the specific heat capacity 4.19 kJ/kgK. $\Delta\vartheta$ is the temperature difference between supply and return flow in Kelvin)

**Unit Conversion**

| | | | |
|---|---|---|---|
| 1 kW = | 3600 kJ/h | 1 bar = | 100 kPa |
| = | 860 kcal/h | = | 10 m water column |
| 1000 kcal/h = | 1.163 kW | 1 mbar = | 10 mm water column |

**Honeywell**

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