resideo Balancing valves

Braukmann
V5022

Kombi-1
Manual regulating balancing valve

APPLICATION

The V5022Y0015 is a static, variable orifice balancing valve with shut-off function.

It is suitable for use in variable and constant flow systems to manually balance the flow and to set resistances to an equal level all over the system.

V5022Y0015 Kombi-1 is typically used for static balancing of underfloor heating systems, fan coil units and two-pipe heating systems. It can be installed on the supply or the return side, general installation behaviour is to install it on the return side.

SPECIAL FEATURES

- Manual balancing of flow rates
  - Precise presetting with numeric scale
- Easy commissioning
  - All functions located on one side for easier access and use
- Maintenance friendly
  - Integrated shut-off function
  - Memory ring shows the preset position to help set the valve back to original position after a shut-off

VALVE EFFICIENCY

	low				high
Energy efficiency	●	●	●	○	○
Commissioning effort	●	●	●	●	●
Calculation effort	●	●	●	●	○
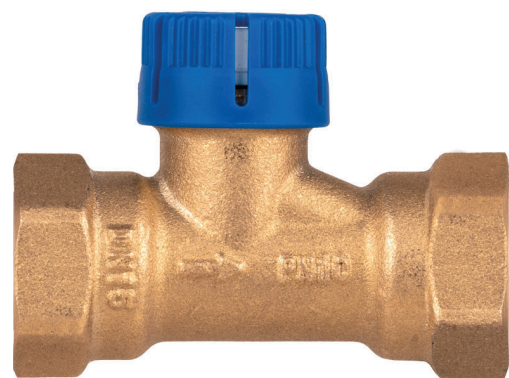
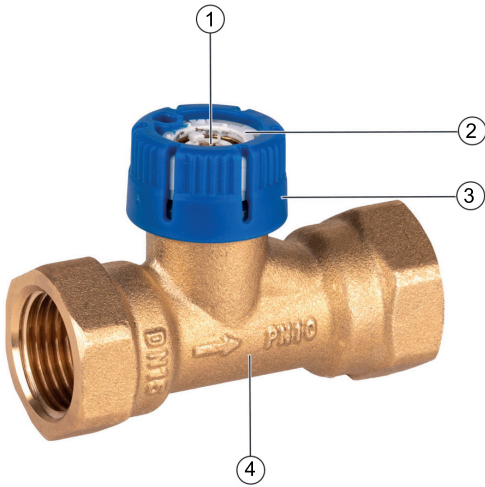## TECHNICAL DATA

Media	
Medium:	Water or water-glycol mixture, quality to VDI 2035 (up to 50 % Glycol)*
pH-value:	8...9.5
Pressure values	
Max. operating pressure:	max. 10 bar
Operating temperatures	
Max. operating temperature medium:	–20...130 °C (-4...266 °F)**
Connections/Sizes	
Nominal size:	DN15 / Rp$^1/_2$"
Specifications	
Housing:	DN15 Dezincification-resistant brass
k_{vs} (c_{vs})-value:	See the flow data charts

Note: It is necessary to prevent the medium from freezing , add suitable antifreeze and corrosion inhibitors to the medium as per manufacturer's recommendations. Please ensure that these products are compatible with the valve material as listed in this document.

Note: for water-glycol mixtures to VDI 2035 max. temperature 110 °

Note: Water with temperature above 100 °C can only be used for heating systems

CONSTRUCTION

Overview		Components	Materials
	1	Plug with inner hexagonal hole for flow adjustment and for shut-off function and white dial	Brass and plastic
	2	White presetting scale with numeric display	Plastic
	3	Blue Memory ring for information about last set-up	Plastic
	4	Valve housing with inner threads to DIN EN 10226-1 for threaded pipe	Dezincification-resistant brass
	Not depicted components:		
		Valve insert	Brass
		O-rings and soft seals	EPDM
		Installation and setup instructions	Available online from homecomfort.resideo.com

METHOD OF OPERATION

The V5022 valves are usually installed in the return pipeline.

Based on the required flow rate, the valve is preset to a certain value by turning the presetting counter-clockwise (increasing the presetting) or clockwise (decreasing the presetting). Required presetting value can be determined by using tables further below, by using a sizing tool, or from design documentation. The required flow at full load is normally calculated in advance by a consultant or specialist and must be known for system balancing.

Valve Identification

Each valve is marked as follows:

- DN size
- PN rating
- Flow arrows
- Serial number/date code

INSTALLATION GUIDELINES

Setup requirements

- To avoid stone deposit and corrosion the composition of the medium should conform with VDI-Guideline 2035
- Additives have to be suitable for EPDM sealings
- System has to be flushed thoroughly before initial operation with all valves fully open
- Any complaints or costs resulting from non-compliance with above rules will not be accepted by Resideo
- Please contact us if you should have any special requirements or needs

TECHNICAL CHARACTERISTICS

Flow Data V5022Y0015, DN15

Presetting values	1	2	3	4	5	6	7	8	9	Full open
k_v Nominal	0.12	0.20	0.29	0.55	0.88	1.20	1.41	1.52	1.60	1.69

Correction Factor f

When the density σ is expressed in t/m³ instead of kg/m³ the correction factor f is the result. The correction factor f can be used to recalculate kv-value, pressure drop and flow:

$$kv_{Medium} = kv_0 \times \frac{1}{\sqrt{f}} \qquad \Delta p_{Medium} = \Delta p_0 \times f \qquad m_{Medium} = m_0 \times \frac{1}{\sqrt{f}}$$

| Medium	Water part	Correction factor f					
		5 °C (41°F)	20 °C (68 °F)	35 °C (95 °F)	50 °C (122 °F)	65 °C (149 °F)	80 °C (176 °F)
Normal water	100 %	1.0	0.998	0.994	0.988	0.981	0.972
Ethylen glycol	70 %	1.052	1.047	1.041	1.033	1.024	1.015
e.g. Antifrogen N	50 %	1.086	1.079	1.070	1.061	1.052	1.042
Propylen glycol	70 %	1.035	1.029	1.021	1.012	1.002	0.991
e.g. Antifrogen L	50 %	1.053	1.044	1.035	1.025	1.014	1.002

Influence of Coolants on Flow Values

The flow through a valve is defined by the kv-value. The kv-value is the flow m through a valve in [m³/h] at a differential pressure of 1 bar (14.5 psi) and is only valid for fluids with a density of σ_0 = 1000 kg/m³. This condition is met by water at a temperature of 20°C (68°F). For fluids with another density the following formula can be applied:

$$kv_{Medium} = \frac{m}{\sqrt{\Delta p}} \times \frac{\sqrt{\rho_{Medium}}}{\sqrt{\rho_0}}$$

DIMENSIONS

Overview
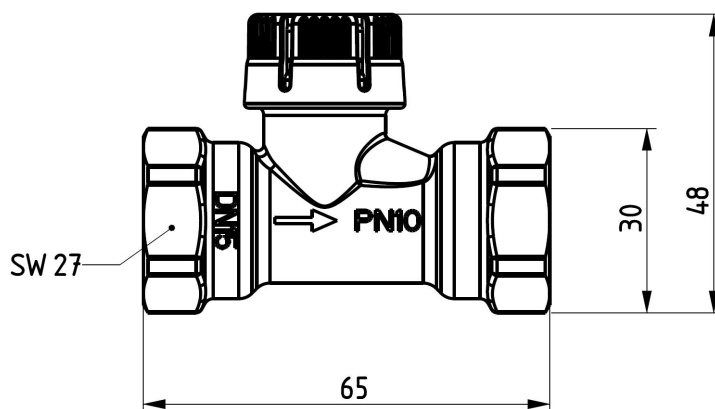
Parameter		Values
Connection sizes:	R	$^1/_2$"
Nominal sizes:	DN	15
Dimensions:	D	Rp$^1/_2$"
	H	48
	L	65
	SW	27

Note: All dimensions in mm unless stated otherwise.

Note: Dimension 'H' refers to fully open valve.

ORDERING INFORMATION

The following tables contain all the information you need to make an order of an item of your choice. When ordering, please always state the type, the ordering or the part number.

Accessories

	Description		Dimension	Part No.
	V5000Y	**Kombi-3-plus RED (V5000) measuring and shut-off valve for the supply**		
	Note:	For product information and diagrams see product data sheet 'V5000 Kombi-3-plus		
			$^1/_2$" (DN15)	V5000Y0015
	VB550Y	**Ball valve (VB550) Shut-off valve for the supply**		
			$^1/_2$" (DN15)	VB550Y0015