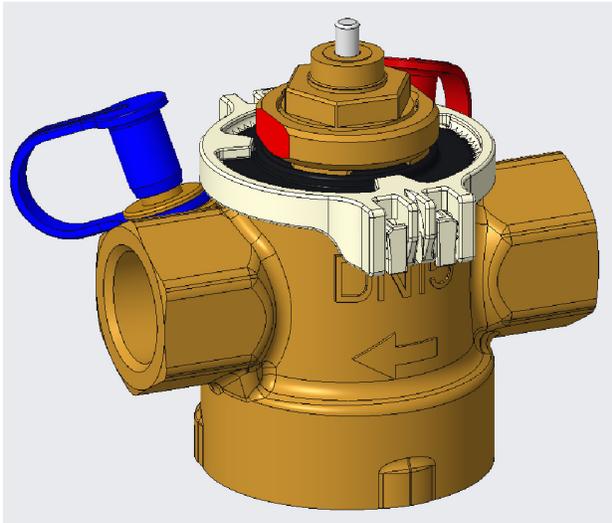


V5005

PRODUCT DATA



APPLICATION

The V5005 is a Pressure Independent Control Valve (PICV). It combines a flow controller and a full stroke, full authority temperature controller in one valve.

Equipped with an actuator provides a full stroke modulating temperature control.

It is suitable for use in variable and constant flow systems. They may be used as constant flow limiter in constant flow systems (without an actuator) or as a Pressure-Independent Control Valve in variable flow systems.

V5005 is typically used for balancing and temperature control of fan coil units, chilled ceilings and one-pipe heating systems.

FEATURES

AUTOM. PRESSURE-INDEPENDENT BALANCING +CONTROL

- Precise pressure-independent flow performance.
- Highest energy saving potential due to efficient energy transfer and minimized pump speed.
- Measuring possibility to find the optimal setpoint for the pump.
- Versions with or without measuring connections available.
- Reduced movements of actuators as pressure fluctuation do not influence the required temperature.
- No complex calculation needed for selection.
- No balancing method needed for commissioning.

WIDE RANGE OF APPLICATION

- Sizes DN15 to DN25 cover all popular sizes on FCUs.
- Various versions to support standard flow rates as well as low flow and high flow needs.
- Covers hydronic balancing and temperature control in one valve thus reducing mounting costs.

EASY COMMISSIONING

- Lockable presetter.
- Presetting with visual flow scale directly indicating the preset number of liters per hour.
- Presetting by hand without the need of tools.
- Can balance a system even if only some parts of a building are in operation.

MAINTENANCE FRIENDLY

- Emergency shut-off function with plastic cap – not for permanent use.
- Measuring possibility for problematic applications (only with versions having measuring connections).
- Dirt resistant – no dead zones in the valves. Continuous flow assures self-cleaning effects.

	LOW			HIGH
ENERGY EFFICIENCY	●	●	●	●
COMMISSIONING EFFORT	●	●	○	○
CALCULATION EFFICIENCY	●	●	●	○

Fig. 1. Valve efficiency

SPECIFICATIONS

MEDIA

Medium: Water or water-glycol mixture, quality to VDI 2035 (up to 50% glycol).

pH: 8 ... 9.5.

PRESSURE VALUES

Operating pressure: max. 16 bar (232 psi).

Diff. pressure range: Δp_{min} : See Table 3 on pg. 4;

Δp_{max} : 400 kPa (4 bar)

OPERATING TEMPERATURES

Operating temp. range: -10 ... +120 °C (-25 ... +248 °F).

CONNECTIONS / SIZES

Nominal size: DN15 – DN25

SPECIFICATIONS

Flow value: See Table 3 on pg. 4.

Leakage: According to Class IV IEC-60534-2-3 (up to 3.5 bar diff. pressure);
According to Class III IEC 605342-2-3 (up to 4 bar differential pressure).

K_{vs} (C_{vs}) value: See Table 3 on pg. 4.

CONSTRUCTION

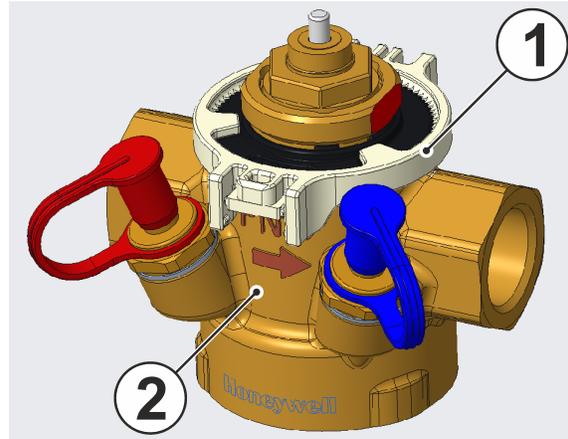


Fig. 2. V5005 (shown here with pressure test cocks)

Table 1. Overview of components and materials

	Components	Materials
1	Lockable presetter with I/h scale for presetting the valve	High-performance polymer
2	Valve housing with internal threads to DIN EN 10226-1 for threaded pipe and two G 1/4 " equipped with SafeCon™ pressure test valves or with brass blind stops.	Dezincification-resistant brass
	Not depicted	
	Valve insert with diaphragm assembly	High-resistant polymer with EPDM diaphragm and stainless steel components
	Sealings	EPDM
	Presetting parts	High-resistant polymer and brass
	Inner parts	Brass, stainless steel, high-resistant polymer, and EPDM
	Installation and Set-Up Instructions	Paper

TYPICAL OPERATION

General

The V5005 combines the functionality of a dynamic balancing valve and a control valve in one product. The dynamic balancing function maintains a constant differential pressure over the control valve.

The control valve regulates the flow by means of a variable orifice which is controlled by the actuator.

The constant differential pressure across the control valve ensures accurate control and full valve authority, independent of the pressure conditions in the system.

Adjusting the Maximum Flow Setting

The maximum flow setting can be read off from the dial at the top of the valve (see Fig. 3).

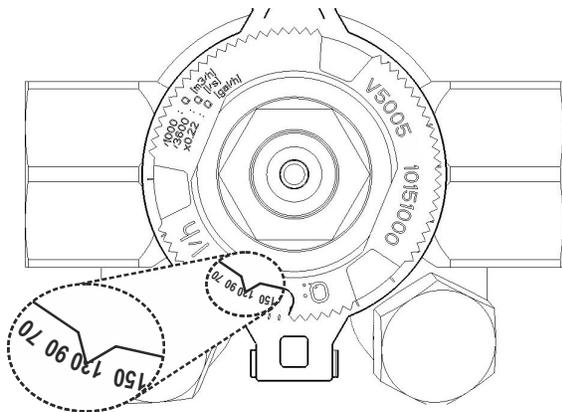


Fig. 3. Reading off the max. flow setting

To adjust the maximum flow setting, proceed as follows:

1. Disengage the actuator by removing it from the valve or by loosening the actuator nut while securing actuator.
2. Unlock the presetting ring (see also Fig. 4 below).

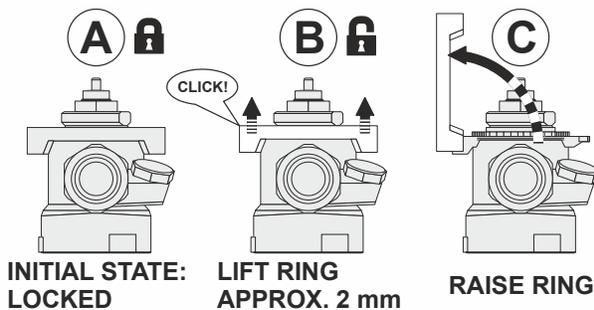


Fig. 4. Unlocking the presetting ring

3. Turn the presetting ring to the desired maximum flow setting (see also Fig. 5 below).

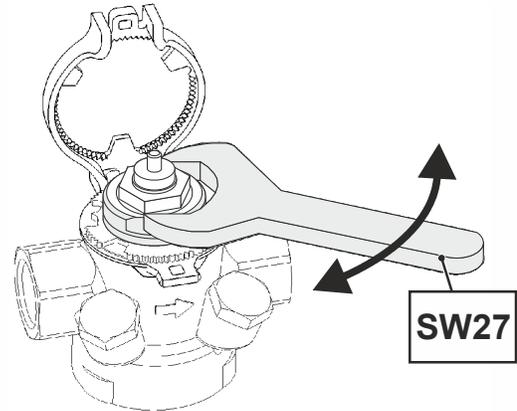


Fig. 5. Turning the presetting ring to desired setting

NOTE: Rather than using a wrench, it is also possible to detach the top of the presetting ring and use it as a tool for this purpose.

4. Re-lock the presetting ring (see also Fig. 6 below).

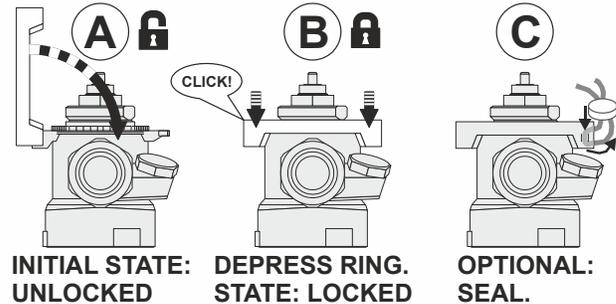


Fig. 6. Locking the presetting ring

5. Remount the actuator.

TRANSPORTATION / STORAGE

Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

Table 2. Transportation and storage

Parameter	Value
Environment	clean, dry and dust free
Min. ambient temperature	5 °C
Max. ambient temperature	60 °C
Min. ambient relative humidity	5% (non-condensing)
Max. ambient relative humidity	90% (non-condensing)

TECHNICAL CHARACTERISTICS

Flow Data

Table 3. Differential pressures required for operating the valves at different presettings

OS -No.	Flow [l/h]	Valve stroke [mm]	Startup Pressure - required min. Δp [kPa]					Pressure Δp [kPa]
			At min. flow	At 25 % flow	At 50 % flow	At 75 % flow	At 100 % flow	
V500510150350	20 - 350	2.5	14	16	17	19	20	400
V500510151000	100 - 1000	2.5	15	19	23	26	30	400
V500510201000	100 - 1000	2.5	15	19	23	26	30	400
V500510201500	200 - 1500	2.5	20	26	33	39	45	400
V500510251000	100 - 1000	2.5	15	19	23	26	30	400
V500510251500	200 - 1500	2.5	20	26	33	39	45	400
V500520150350	20 - 350	2.5	14	16	17	19	20	400
V500520151000	100 - 1000	2.5	15	19	23	26	30	400
V500520201000	100 - 1000	2.5	15	19	23	26	30	400
V500520201500	200 - 1500	2.5	20	26	33	39	45	400
V500520251000	100 - 1000	2.5	15	19	23	26	30	400
V500520251500	200 - 1500	2.5	20	26	33	39	45	400

NOTE: The valve must not be subjected to a Δp (differential pressure) exceeding the maximum rating of **4 bar**. The max. permissible Δp must be observed at all times. Exceeding the maximum differential pressure may result in damage to the valve.

Flow Rate

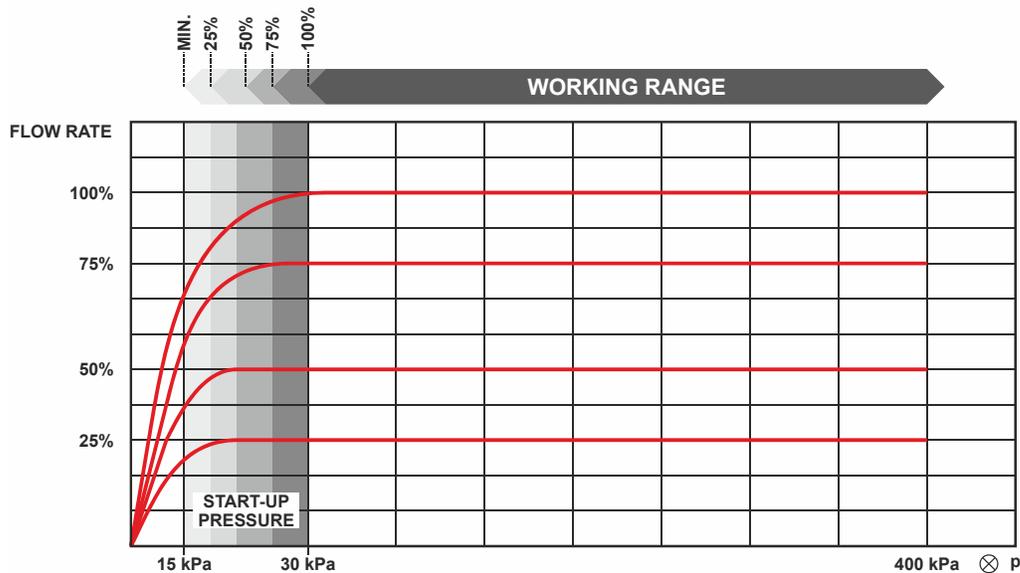


Fig. 7. Example of valve's behavior for different settings (minimum, 25%, 50%, 75% 100%)

Example for V500510201000

When the valve is set to 100% of nominal flow, the curve begins levelling off at 30 kPa. The working range at the 100% is thus 30 - 400 kPa.

When the valve is set to a minimum of nominal flow, the curve begins levelling off at 15 kPa. The working range at the 25% setting is thus 15 - 400 kPa.

DIMENSIONS

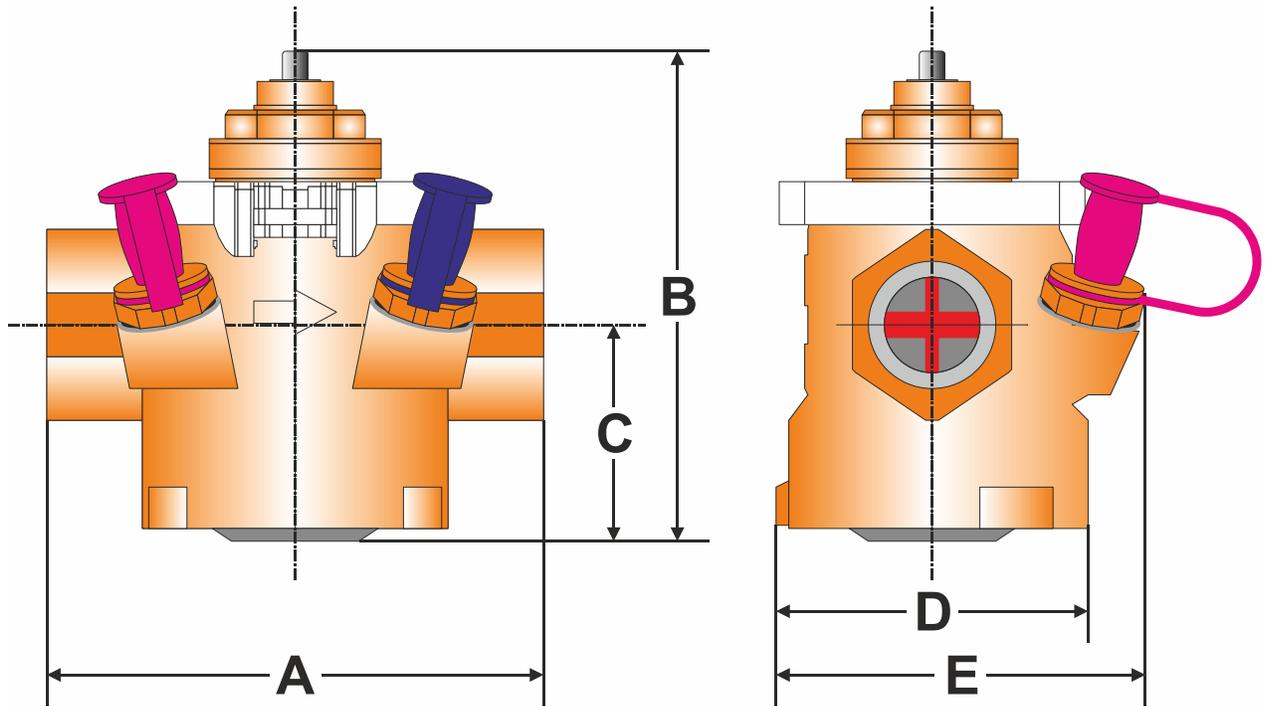


Fig. 8. Dimensions (shown here with pressure test cocks)

Table 4. Dimensions

Parameter	DN	Values		
		15	20	25
Nominal size diameter		15	20	25
Thread		Rp 1/2"	Rp 3/4 "	Rp 1"
Dimensions	A	78	79	84
	B	77	77	77
	C	34	34	34
	D	49	49	49
	E	60	60	60

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.

Options

Order text	DN	Flow range		Differential pressure range		OS number
		Min. flow (l/h)	Max. flow (l/h)	Δp^* (kPa)	Δp (kPa)	
Linear valve V5005 with internal threads to DIN EN 10226-1 (ISO7) with measuring connections	DN15	20	350	14	400	V500510150350
	DN15	100	1000	15		V500510151000
	DN20	100	1000	15		V500510201000
	DN20	200	1500	20		V500510201500
	DN25	100	1000	15		V500510251000
	DN25	200	1500	20		V500510251500
Linear valve V5005 with internal threads to DIN EN 10226-1 (ISO7) without measuring connections	DN15	20	350	14	400	V500520150350
	DN15	100	1000	15		V500520151000
	DN20	100	1000	15		V500520201000
	DN20	200	1500	20		V500520201500
	DN25	100	1000	15		V500520251000
	DN25	200	1500	20		V500520251500

NOTE: *Valve is set to minimum opening. See Table 3 on pg. 4 for other presettings.

Accessories

	Description	Part no.
	MT4 Actuator, thermoelectric. 4.0 mm effective stroke, 90 N, ON/OFF	
	Open on power failure.	MT4-024-NO
	Open on power failure.	MT4-024-NO-2.5M
	Open on power failure.	MT4-024S-NO
	Close on power failure.	MT4-024-NC
	Close on power failure.	MT4-024-NC-2.5M
	Close on power failure.	MT4-024S-NC
	Open on power failure.	MT4-230-NO
	Open on power failure.	MT4-230-NO-2.5M
	Open on power failure.	MT4-230S-NO
	Close on power failure.	MT4-230-NC
Close on power failure.	MT4-230-NC-2.5M	
Close on power failure.	MT4-230S-NC	
	M400 Actuator, thermoelectric. 4.0 mm effective stroke, 100 N, ON/OFF	
	Open on power failure.	M400-BO
	Close on power failure.	M400-BG
	Open on power failure.	M400-AO
	Close on power failure.	M400-AG

	<p>M7410A Actuator, floating. 4.0 mm effective stroke, 90 N, ON/OFF. Run-time: 80 s. 3 m, 5 m, and 10 m cable lengths available. Must be used in combination with adaption ring 0903403.</p> <p style="text-align: right;">M7410A1001</p>
	<p>M4410 Actuator, thermoelectric, 0...10 V. 4.0 mm effective stroke, 100 N, modulating. Close on power failure.</p> <p style="text-align: right;">M4410E1510 M4410K1515</p> <p>Cable for M4410 actuator, 1 m, 10 pcs M44-MOD-1M</p>
	<p>M7410E Actuator, 0/2...10 V. 2.9 mm effective stroke, 90 N, modulating. 3 m, 5 m, and 10 m cable lengths available.</p> <p style="text-align: right;">M7410E5001</p>
	<p>VM242A BasicMes-2 Handheld Measuring Computer. Computer comes with case and accessories.</p> <p style="text-align: right;">VM242A0101</p>
	<p>VA3401A Draining valve. For all sizes.</p> <p style="text-align: right;">VA3401A008</p>
	<p>V52600 Spare set of 2 pressure test cocks. G 1/4".</p> <p style="text-align: right;">VS2600C001</p>

Home and Building Technologies

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