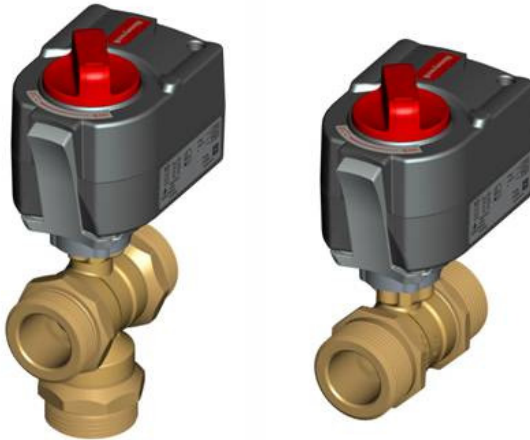


# VBGx-xx-xx Externally Threaded Control Ball Valves

## PN25 (DN15 TO DN32)

### SPECIFICATION DATA



## APPLICATION

The VBG2 2-Way and VBG3 3-Way Control Ball Valves control hot and chilled water with glycol solutions up to 50% according to VDI2035 in heating, ventilating, and air conditioning (HVAC) systems to provide two-position or modulating functions.

## Features

- Sizes from DN15 to DN32 with external (male) BSPP (G) connections 1" to 2".
- Equal percentage flow characteristic.
- Suitable actuators: N05xx and S03xx (requiring 5112-11/U Linkage Kit ordered separately); MVN (no kit necessary)
- Removable manual operating handle to control valve during installation or in the event of power failure.
- Actuator can be mounted on the valve in any of four orientations.
- Wide range of  $k_{vs}$  choices from 0.25 to 25.
- Nickel-chrome plated brass ball.
- Valve installs in a globe valve "T" pattern, no extra elbows or piping required.
- Mixing or diverting control for 3-way valves.
- Leakage rate A, air bubble-tight (according to EN 12266-1).

## Specifications

<b>Valve type</b>	Control Ball Valve
<b>Body pattern</b>	2-way (VBG2-xx-xx), 3-way (VBG3-xx-xx)
<b>Nominal pressure</b>	PN25
<b>Media temperature</b>	+5 ... +120 °C (+41 ... +248 °F)
<b>Connection type</b>	Male BSPP, threaded connections, flat sealing
<b>Controlled fluid</b>	Chilled or hot water according to VDI2035 with up to 50% Glycol. Not for use with steam or fuels.
<b>Leakage rate</b>	Air bubble-tight according to EN 12266-1 for port A to B and for port A to AB; all other flow directions: 0.1% of $k_{vs}$
<b>Capacity index (<math>k_{vs}</math>)</b>	see Table 1 and Table 2
<b>Close-off pressures</b>	see Table 1 and Table 2
<b>Materials:</b>	
Body	DZR Brass
Stem	Brass
Ball	Chrome-plated brass
Seat	Teflon® seals with EPDM O-rings
Flow control insert	Noryl®

## Flow Characteristics:

2-way	Equal percentage
3-way	
Straight-through flow	A to AB, Equal percentage
Angled flow	B to AB, Linear

**Approvals/Standards** CE

## SUITABLE ACTUATORS

- MVNxxxA1500
- N05xx (requires 5112-11/U Linkage Kit ordered separately)
- S03xx (requires 5112-11/U Linkage Kit ordered separately)

## MODELS

**Table 1. VBG2 Two-way control ball valves**

DN	K <sub>vs</sub> A-B	O.S. no.	Close-off pressure (kPa) with actuators (listed in section "Suitable Actuators")	External thread size
15	0.25	VBG2-15-0.25	890	1"
	0.4	VBG2-15-0.4		
	0.63	VBG2-15-0.63		
	1	VBG2-15-1		
	1.6	VBG2-15-1.6		
	2.5	VBG2-15-2.5		
	4	VBG2-15-4		
20	4	VBG2-20-4	890	1 ¼"
	6.3	VBG2-20-6.3		
	8.6	VBG2-20-8.6		
25	6.3	VBG2-25-6.3	680	1 ½"
	10	VBG2-25-10		
	16	VBG2-25-16		
	25	VBG2-25-25		
32	16	VBG2-32-16	680	2"
	25	VBG2-32-25		

**Table 2. VBG3 Three-way control ball valves**

DN	k <sub>vs</sub> A-AB	k <sub>vs</sub> B-AB	O.S. no.	Close-off pressure (kPa) with actuators (listed in section "Suitable Actuators")	External thread size
15	0.63	0.5	VBG3-15-0.63	340	1"
	1	0.8	VBG3-15-1		
	1.6	1.28	VBG3-15-1.6		
	2.5	2	VBG3-15-2.5		
	4	3.2	VBG3-15-4		
	6.3	5.04	VBG3-15-6.3		
20	4	3.2	VBG3-20-4	340	1 ¼"
	6.3	5.04	VBG3-20-6.3		
	8.6	6.88	VBG3-20-8.6		
25	6.3	5.04	VBG3-25-6.3	340	1 ½"
	10	8	VBG3-25-10		
	16	12.8	VBG3-25-16		
32	16	12.8	VBG3-32-16	270	2"
	25	20	VBG3-32-25		

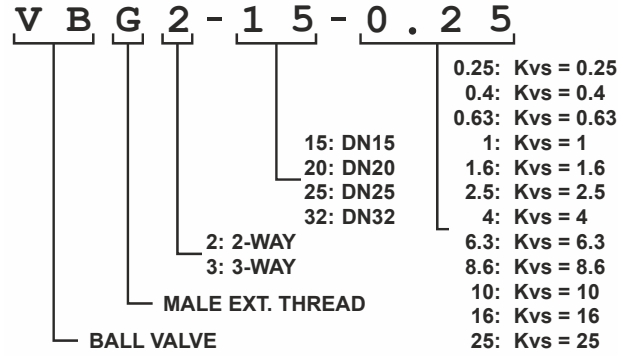


Fig. 1. VBG product key

Table 3. Valve accessories and replacement parts

Part no.	Description
5112-19/U	Replacement stem assembly for VBG, DN15-20
5112-20/U	Replacement stem assembly for VBG, DN25-32
MVNAAA/U	Replacement MVN adaptor, standard profile, pre-assembled on the VBG DN15-25 valves
5112-11/U	Linkage Kit, for attachment to actuators N05xx and S03xx
AC-15TF-1	Fittings accessories DN15 VBG valves
AC-20TF	Fittings accessories DN20 VBG valves
AC-25TF	Fittings accessories DN25 VBG valves
AC-32TF	Fittings accessories DN32 VBG valves

Table 4. Connection sets



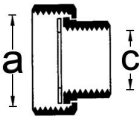
Connection	Pipe size	DN	O.S. no.	Connection set	Description
Internal thread	R ½"	15	AC-15TF-1		
	R ¾"	20	AC-20TF		
	R 1"	25	AC-25TF		
	R 1-¼"	32	AC-32TF		

Table 5. Connection set dimensions

Connection set	a	c	O.S. no.
	G 1"	G 1/2"	AC-15TF-1
	G 1-1/4"	G 3/4"	AC-20TF
	G 1-1/2"	G 1"	AC-25TF
	G 2"	G 1-1/4"	AC-32TF

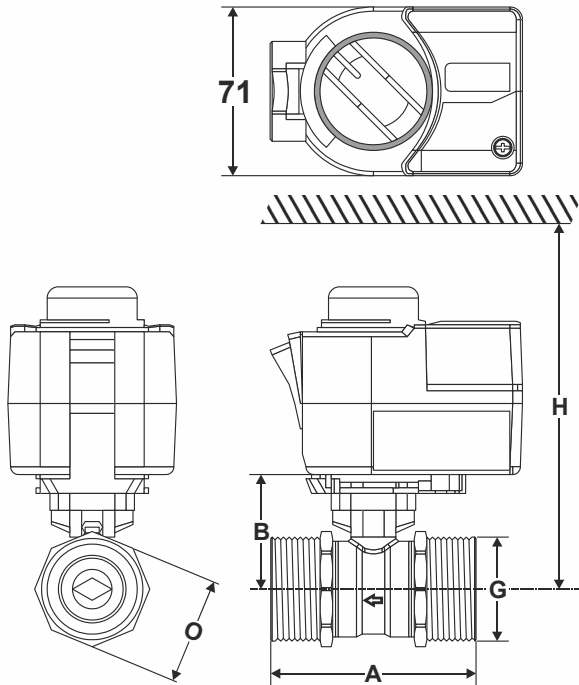


Fig. 2. MVN with 2-way ball valve (see Table 6)

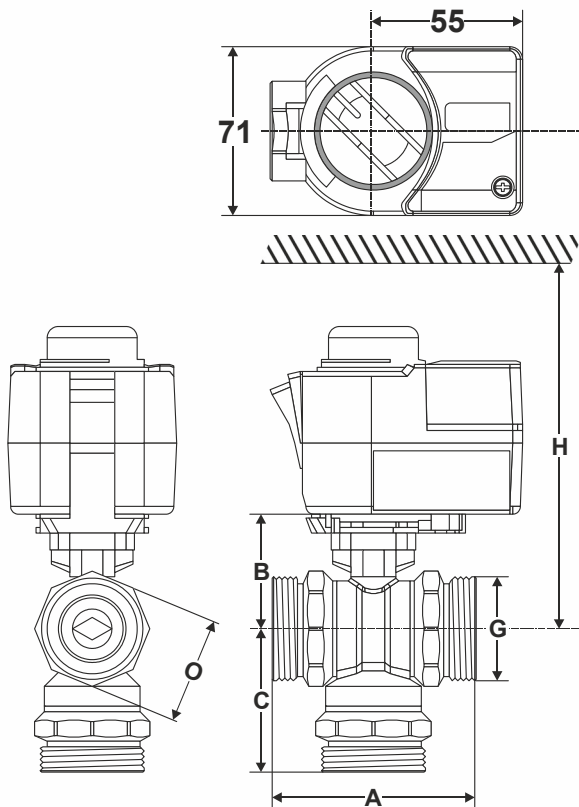


Fig. 3. MVN with 3-way ball valve (see Table 7)

Table 6. VBG2 dimensions (in mm)

DN	A	B	G	H	O
15	74	49	G1"	150	36
20	86	53	G1¼"	150	46
25	85	58	G1½"	155	50
32	102	63	G2"	160	65

Table 7. VBG3 dimensions (in mm)

DN	A	B	C	G	H	O
15	74	53	55	G1"	150	41
20	86	53	60	G1¼"	150	46
25	85	58	65	G1½"	155	50
32	108	63	80	G2"	160	65

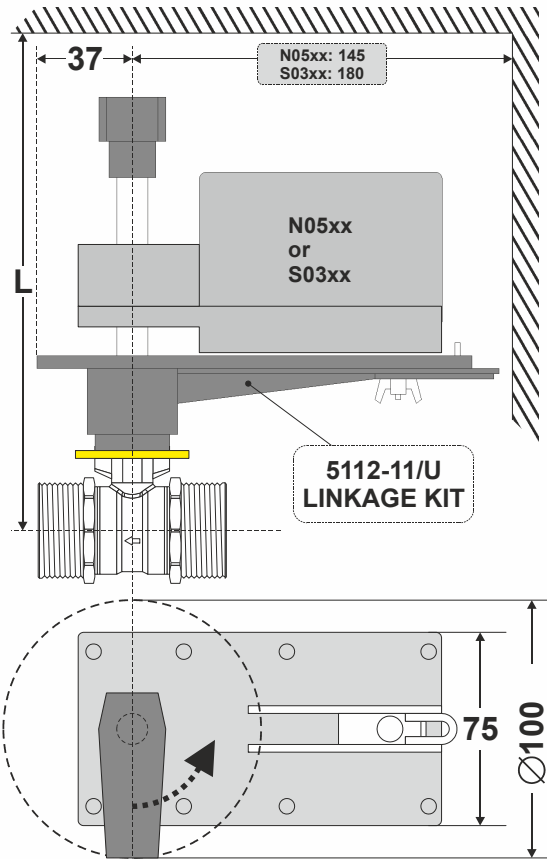


Fig. 4. N05xx / S03xx with 5112-11/U (see Table 8)  
Table 8. 5112-11/U with N05xx, S03xx, dimensions (in mm)

DN	L
15	195
20	195
25	200
32	205

## Mounting

When installing the valve, care must be taken that the flow direction is correct (see section "Typical Operation" below). The valve must not be mounted with the stem pointing downward.

The valve is supplied complete with mounting instructions. The water quality must meet VDI 2035 requirements.

**NOTE:** Mount the actuator by hand, only. Do not use a tool, as this could result in damage

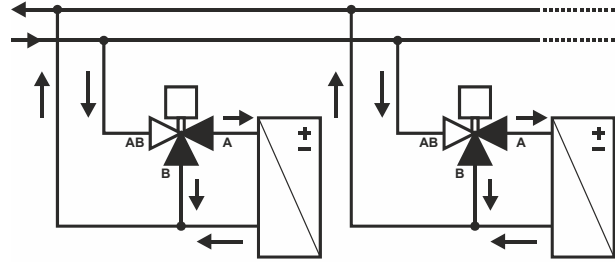


Fig. 7. Three-way diverting valve operation

## Typical Operation

All types of valves should be mounted in the return flow. If the  $D_p$ -values exceed 300 kPa, attention should be paid to the development of noise.

### Two-Way Valves

Direction of flow always from port A to port B

Port B: Outlet

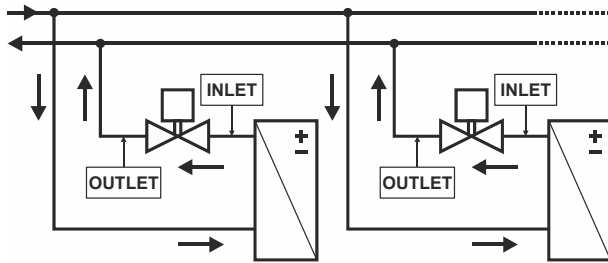


Fig. 5. Two-way valve operation

### Three-Way Valves

These valves are used preferably as mixing valves. This means:

Port AB: Total flow outlet

Port A: Controlled flow inlet

Port B: Bypass inlet

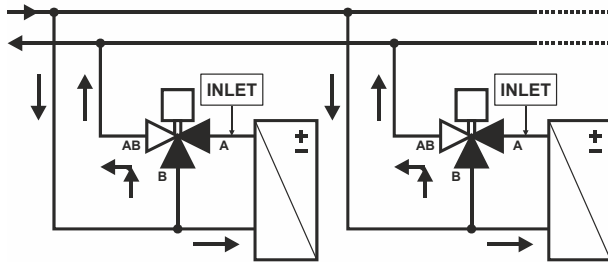


Fig. 6. Three-way mixing valve operation

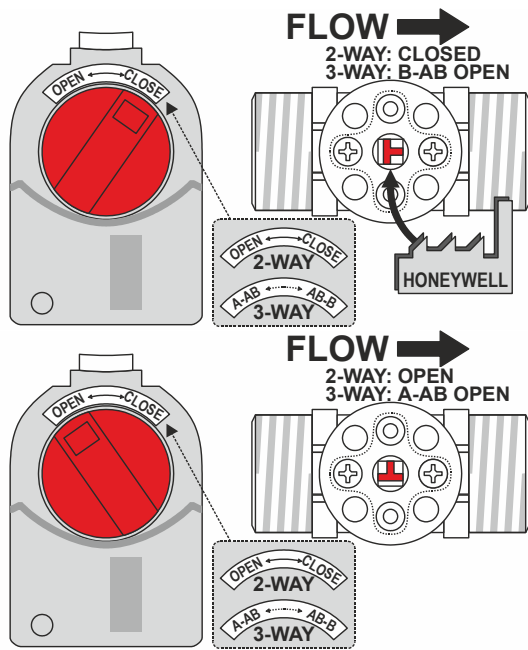


Fig. 8. Orientation of ball in valve

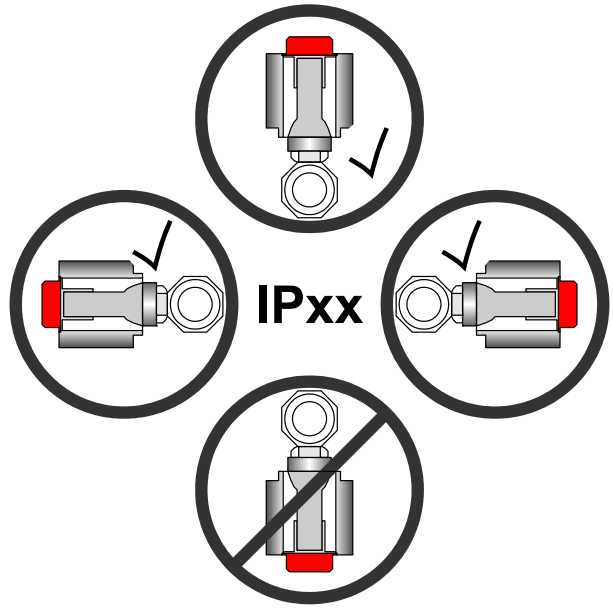


Fig. 9. Acceptable valve orientation for listed actuators

## DISPOSAL OF VBG CONTROL BALL VALVES

OBSERVE LOCAL REQUIREMENTS ON PROPER WASTE RECYCLING / DISPOSAL!

- Dezincification-resistant brass body
- Chrome-plated brass ball
- Teflon® seals with EPDM O-rings
- Noryl® flow control insert

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### Home and Building Technologies

Honeywell GmbH  
Böblinger Strasse 17  
71101 Schönaich, Germany  
Phone +49 (0) 7031 637 01  
Fax +49 (0) 7031 637 740  
<http://ecc.emea.honeywell.com>

**AutomatikCentret**

Strandvejen 42 • Saksild • 8300 Odder  
86 62 63 64 • [www.automatikcentret.dk](http://www.automatikcentret.dk)  
[info@automatikcentret.dk](mailto:info@automatikcentret.dk)