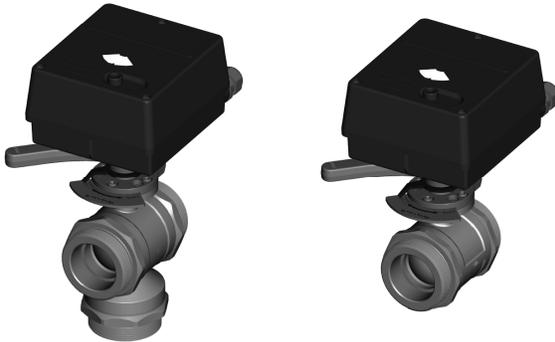


## VBGx-xx-xx Externally Threaded Control Ball Valves

PN25 (DN40 TO DN50)

### 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 DN40 to DN50 with external (male) BSPP (G) connections 2-1/4" to 2-3/4".
- Equal percentage flow characteristic.
- Compatible M6061/M7061 Rotary Valve Actuators, 10 Nm: floating, modulating, non-spring return.
- 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 25 to 63.
- 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 rating</b>	PN25
<b>Media temperature range</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 rating</b>	
<b>VBG2</b>	Leakage rate A, air bubble-tight according to EN 12266-1
<b>VBG3</b>	Leakage rate A, air bubble-tight according to EN 12266-1 for A-AB port, Rate I according to EN 1349 and EN 60534-4 for B-AB port (0.1% of $kV$ )
<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®
<b>Body Style:</b>	
2-way ball valve	Straight-through flow, full or reduced port using patented flow control insert
3-way ball valve	A-B-AB flow, full or reduced port using patented flow control insert
<b>Body pressure rating</b>	PN25
<b>Flow Characteristics:</b>	
2-way	Equal percentage with flow control insert
3-way	Port A to AB: Equal percentage; Port B to AB: Linear
<b>Approvals/Standards</b>	CE

Table 1. VBG2 Two-way control ball valves

DN	Kvs A-B	Order number	Close-off Pressure with M6061/M7061 10Nm actuators (kPa)	External Thread interface size
40	25	VBG2-40-25	680	2 1/4"
	40	VBG2-40-40		
50	40	VBG2-50-40		2 3/4"
	63	VBG2-50-63		

Table 2. VBG3 Three-way control ball valves

DN	Kvs A-AB	Kvs B-AB	Order number	Close-off Pressure with M6061/M7061 10Nm actuators (kPa)	External Thread interface size
40	25	20	VBG3-40-25	270	2 1/4"
	40	32	VBG3-40-40		
50	40	32	VBG3-50-40		2 3/4"
	63	50	VBG3-50-63		

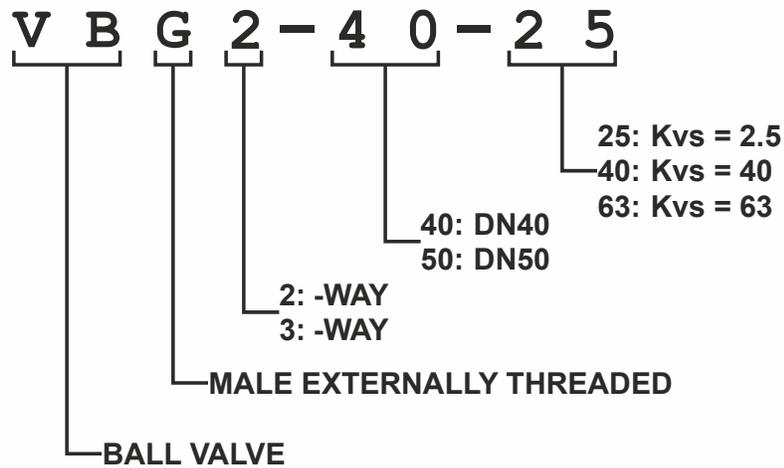
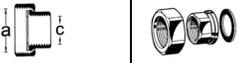


Fig. 1. VBG product key

**Table 3. Valve accessories and replacement parts**

Part no.	Description
5112-21	Replacement stem assembly for VBG, DN40-50
AC-40TF	Fittings accessories DN40 VBG valves
AC-50TF	Fittings accessories DN50 VBG valves
5112-51	LINKAGE SET FOR VBG DN40-50

**Table 4. Connection sets**

Connection	Pipe size	DN	O.S. no.	Connection set	Description
Internal thread	R 1-1/2"	40	AC-40TF		Consisting of 1 union nut, 1 tailpiece, and 1 gasket
	R 2"	50	AC-50TF		

**Table 5. Connection set dimensions**

Connection sets	a	c	O.S. no
	G 2-1/4"	G 1-1/2"	AC-40TF
	G 2-3/4"	G 2"	AC-50TF

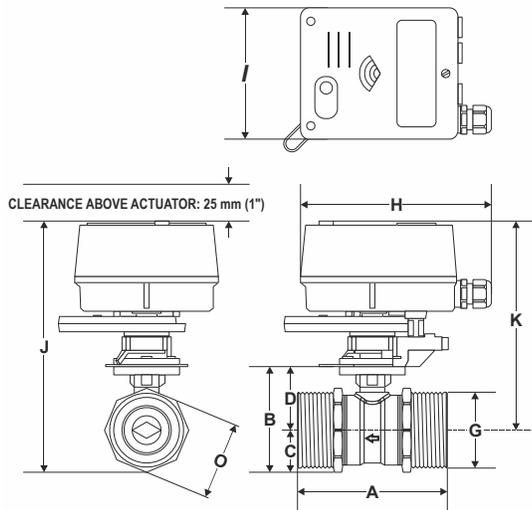


Fig. 2. M6061/M7061 + 2-way ball valve (see also Table 6)

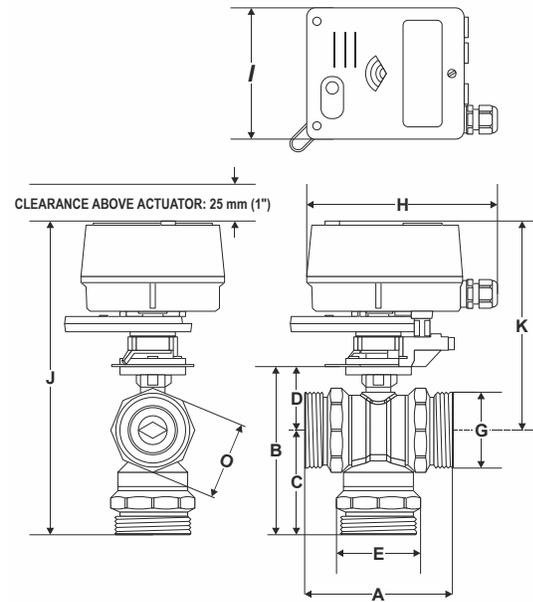


Fig. 3. M6061/M7061 + 3-way ball valve (see also Table 7)

Table 6. VBG2 dimensions (in mm)

DN	A	B	C	D	G	H	I	J	K	O
40	103.5	97.1	39.5	64	G2-1/4"	178	132	237.5	198	75
50	115.5	102.1	44.5	64	G2-3/4"	178	132	242.5	198	85

Table 7. VBG3 dimensions (in mm)

DN	A	B	C	D	G	H	I	J	K	O
40	114.5	143.5	86	64	G2-1/4"	178	132	284	198	75
50	131.5	166.1	101	71.5	G2-3/4"	178	132	306.5	205.5	90

## 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

## 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

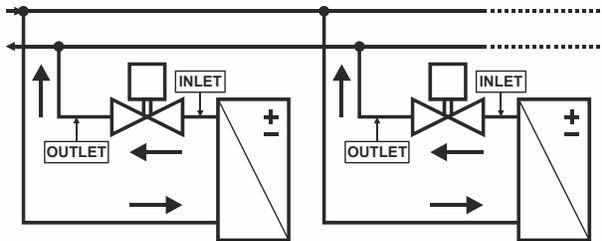


Fig. 4. Two-way valve operation

### 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

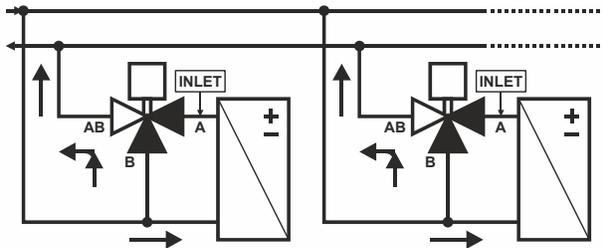


Fig. 5. Three-way mixing valve operation

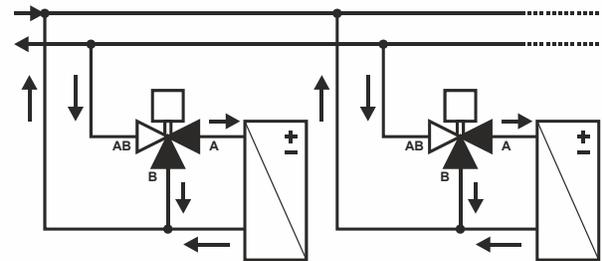


Fig. 6. Three-way diverting valve operation

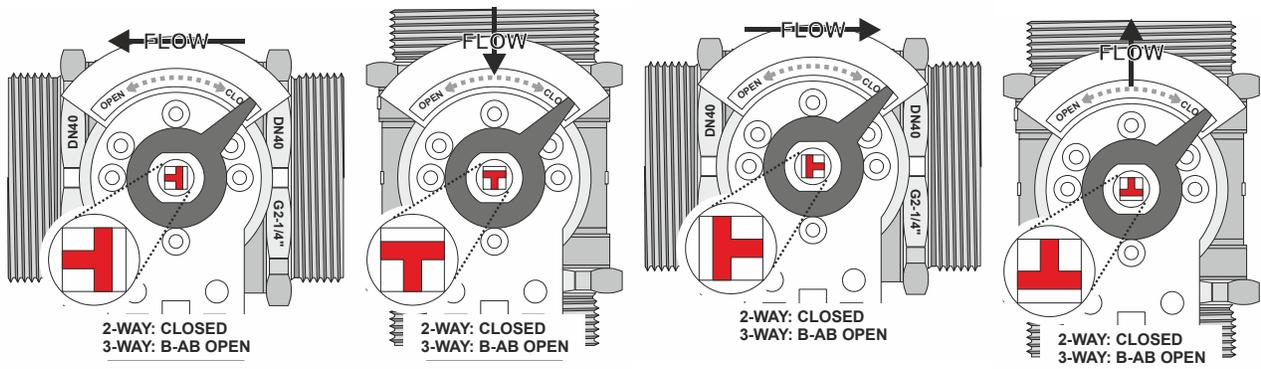


Fig. 7. Orientation of ball in valve / Linkage Positions for M6061/M7061

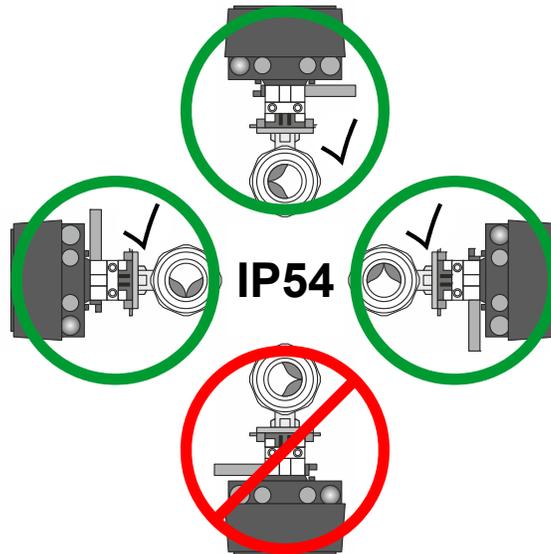


Fig. 8. Acceptable valve orientation

## 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
- Stainless steel screws
- Aluminum DN 40/50 plate and adapter
- PA6.6 + 30% GF Plastic DN 40/50 scale
- PE Plastic bag for DN40/50 linkage parts

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