

Ball valve actuator units VZBA

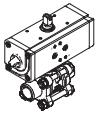
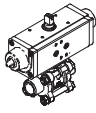
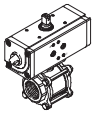
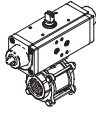
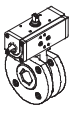
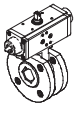
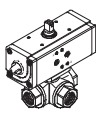
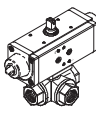


Ball valve actuator units VZBA

Key features and product range overview

General	Design	Properties
-N- Connecting thread Rp $\frac{1}{4}$... Rp4 Flow rate 7 ... 1,414 m ³ /h	<ul style="list-style-type: none"> 2-way ball valve actuator units made from stainless steel with pipe thread¹⁾ or with weld-on ends 2-way ball valve actuator units made from stainless steel in compact design 3-way ball valve actuator units made from stainless steel Port pattern to NAMUR VDI/VDE 3845 	<ul style="list-style-type: none"> Combination of a pneumatic quarter turn actuator and a ball valve Flow is fully opened or closed in both directions Limit switch attachments for end-position sensing can be mounted directly on the unit

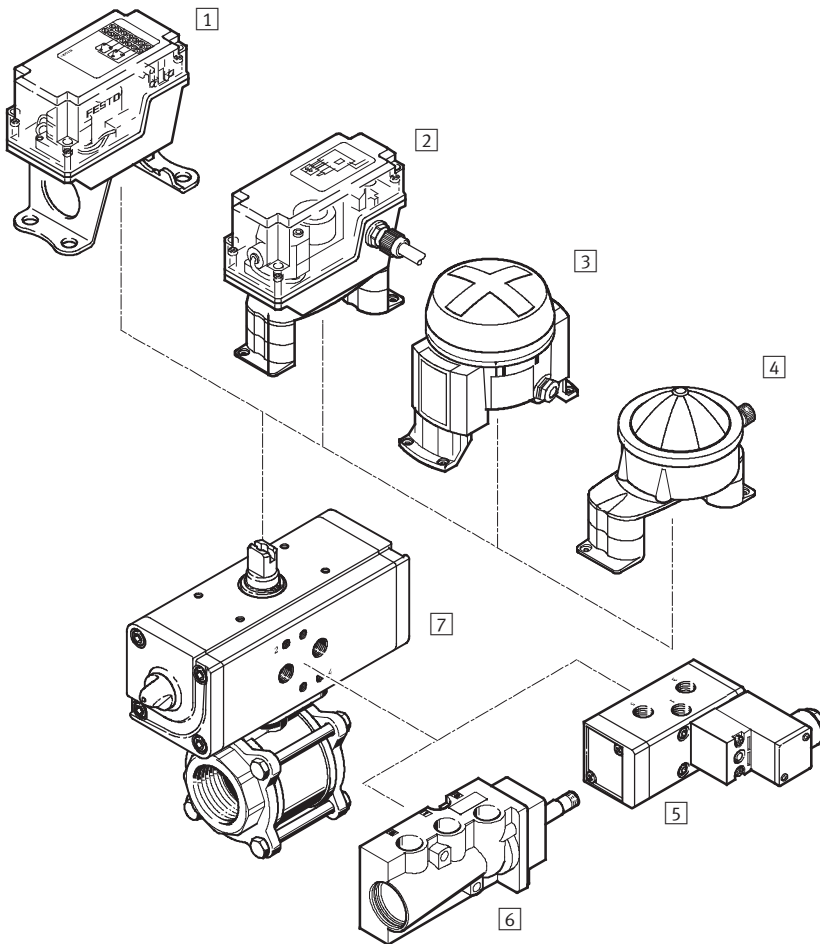
Valves with port pattern to NAMUR
 → Internet: namur
 Limit switch attachments with port pattern to NAMUR
 → Internet: dapz

Design	Type	Quarter turn actuator	Nominal size DN	Process valve nominal pressure	→ Page/Internet
2-way ball valve actuator units, stainless steel					
	VZBA...-WW (with weld-on ends)	DAPS, double-acting	8 ... 100	PN 63	6
	VZBA...-WW (with weld-on ends)	DAPS, single-acting			
	VZBA...-GG (with connecting thread ¹⁾)	DAPS, double-acting			
	VZBA...-GG (with connecting thread ¹⁾)	DAPS, single-acting			
2-way ball valve actuator units in compact design, stainless steel					
	VZBC...-FF	DAPS, double-acting	15 ... 50	PN 40	14
			65 ... 100	PN 16	
	VZBC...-FF	DAPS, single-acting	15 ... 50	PN 40	
			65 ... 100	PN 16	
3-way ball valve actuator units, with L or T-shaped hole, stainless steel					
	VZBA...-GGG	DAPS, double-acting	8 ... 50	PN 63	20
	VZBA...-GGG	DAPS, single-acting			

1) Pipe thread to DIN EN 10226-1 (previously DIN 2999)

Ball valve actuator units VZBA

Peripherals overview



Mounting attachments and accessories			
	Brief description	→ Page/Internet	
1	Limit switch attachment QH-DR-E	Square design Pneumatic, electrical or inductive sensing	24
2	Limit switch attachment DAPZ	Square design Electrical, electrical and explosion-proof or inductive sensing	24
3	Limit switch attachment DAPZ	Round design, variant AR Electrical, inductive or inductive and explosion-proof sensing	24
4	Limit switch attachment DAPZ	Round design, variant RO	24
5	Solenoid valve MFH	Basic valve with pilot control valve for F solenoid coil	25
	Solenoid valve MN1H	Basic valve with pilot control valve for N1 solenoid coil	25
	Solenoid valve MGTBH	Basic valve with pilot control valve, solenoid coil and socket	25
6	Solenoid valve NVF3	For F solenoid coil and explosion-proof F solenoid coil	25
7	Ball valve actuator unit VZBA	Combination of quarter turn actuator and ball valve	6

Ball valve actuator units VZBA

Type codes

VZBA - 1/4 - G G - 63 - T - 22 - F0304 -

Type	
VZBA	Ball valve

Size (nominal diameter DN)	
1/4	DN8
3/8	DN10
1/2	DN15
3/4	DN20
1	DN25
1 1/4	DN32
1 1/2	DN40
2	DN50
2 1/2	DN65
3	DN80
4	DN100

Connection type 1	
G	Pipe thread to DIN EN 10226-1 (previously DIN 2999)
W	Weld-on end

Connection type 2	
G	Pipe thread to DIN EN 10226-1 (previously DIN 2999)
W	Weld-on end

Process valve nominal pressure PN	
63	63 bar

Design	
T	In three pieces

Directional control function	
22	2/2-way

Flanged connection to ISO 5211	
F0304	2 pitch circle diameters of \varnothing 36 mm and \varnothing 42 mm
F0405	2 pitch circle diameters of \varnothing 42 mm and \varnothing 50 mm
F0507	2 pitch circle diameters of \varnothing 50 mm and \varnothing 70 mm
F07	1 pitch circle diameter of \varnothing 70 mm
F0710	2 pitch circle diameters of \varnothing 70 mm and \varnothing 102 mm
F10	1 pitch circle diameter of \varnothing 102 mm

Ball valve actuator units VZBA

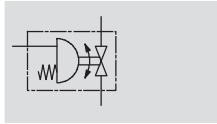
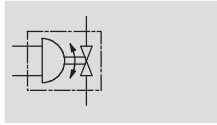
Type codes

		V4	V4	T	-	PS	15	-	R	-	90	-	4	-	C
Housing material															
V4	Stainless steel 1.4401/1.4404 (AISI 316L)/1.4408														
Shut-off element material															
V4	Stainless steel 1.4401/1.4404 (AISI 316L)/1.4408														
Sealing material															
T	Reinforced PTFE														
Actuator															
PP	DAPS, double-acting														
PS	DAPS, single-acting														
Torque															
15	15 Nm														
30	30 Nm														
53	53 Nm														
60	60 Nm														
90	90 Nm														
106	106 Nm														
120	120 Nm														
180	180 Nm														
240	240 Nm														
Swivel direction															
R	Right														
Nominal swivel angle															
90	90°														
Spring index															
-	Omitted for double-acting														
1	Spring strength for connection pressure 2.8 bar														
2	Spring strength for connection pressure 3.5 bar														
3	Spring strength for connection pressure 4.2 bar														
4	Spring strength for connection pressure 5.6 bar														
End-position adjustment															
C	Closed														

Ball valve actuator units VZBA

Technical data

Function



Swivel angle

0 ... 90°

Flow rate

7 ... 1,414 m³/h

-N- Connecting thread

Rp1/4 ... Rp4



General technical data												
Nominal size DN	8	10	15	20	25	32	40	50	65	80	100	
Quarter turn actuator												
Type of mounting	In-line installation											
Mounting position	Any											
Swivel angle	[°]	90										
Closing direction	Right-closing											
Ball valve												
Design	2-way ball valve, quarter turn actuator											
Actuation type	Pneumatic											
Switching position display	Slot direction = flow direction											
Process valve nominal pressure PN ¹⁾	63											
Flow rate Kv	[m ³ /h]	7	10	19.4	45.6	71.5	105	170	275	507	905	1,414

Operating and environmental conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Operating pressure	[bar] 6 ... 8.4
Ambient temperature	[°C] -10 ... 80
Temperature of medium ²⁾	[°C] -10 ... 200
Food industry approval	No
Medium	Compressed air to ISO 8573-1:2010 [:-:-] Inert gases Neutral fluids Water (no water vapour)
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Note on materials	Contains PWIS (paint-wetting impairment substances), RoHS-compliant
Corrosion resistance class CRC ³⁾	3

1) PN class to DIN EN 1333

2) As a function of operating pressure → 7

3) CRC3: Corrosion resistance class to Festo standard 940 070

Components with heavy corrosion exposure. Externally visible components in direct contact with normal industrial atmosphere or media such as solvents and cleaning agents, where the surface requirement is predominantly functional.

Ball valve actuator units VZBA

Technical data

ATEX	
ATEX category for gas	II 2G
ATEX category for dust	II 2D
Max. surface temperature assembly	TX
Explosion group assembly	II C
Explosion-proof temperature rating	-10 °C ≤ Ta ≤ +60 °C

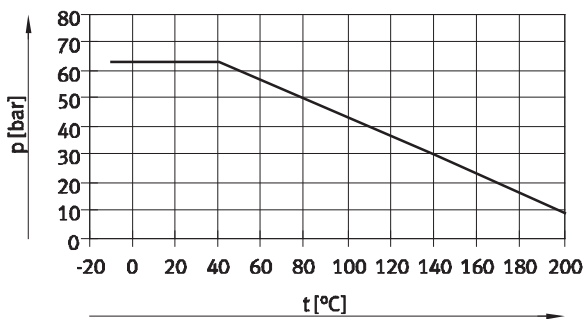
Weight [g] – Double-acting			
Nominal size DN	Process valve connection		
8	Rp1/4	Weld-on ends	1,450
10	Rp3/8		1,450
15	Rp1/2		1,450
20	Rp3/4		1,900
25	Rp1		2,300
32	Rp1 1/4		3,800

Nominal size DN	Process valve connection		
40	Rp1 1/2	Weld-on ends	4,800
50	Rp2		6,600
65	Rp2 1/2		11,700
80	Rp3		18,200
100	Rp4		27,700

Weight [g] – Single-acting			
Nominal size DN	Process valve connection		
8	Rp1/4	Weld-on ends	2,000
10	Rp3/8		2,000
15	Rp1/2		2,000
20	Rp3/4		3,100
25	Rp1		3,500
32	Rp1 1/4		5,150

Nominal size DN	Process valve connection		
40	Rp1 1/2	Weld-on ends	6,100
50	Rp2		10,000
65	Rp2 1/2		16,300
80	Rp3		22,900
100	Rp4		33,500

The permissible medium pressure sinks as a function of the temperature of the medium



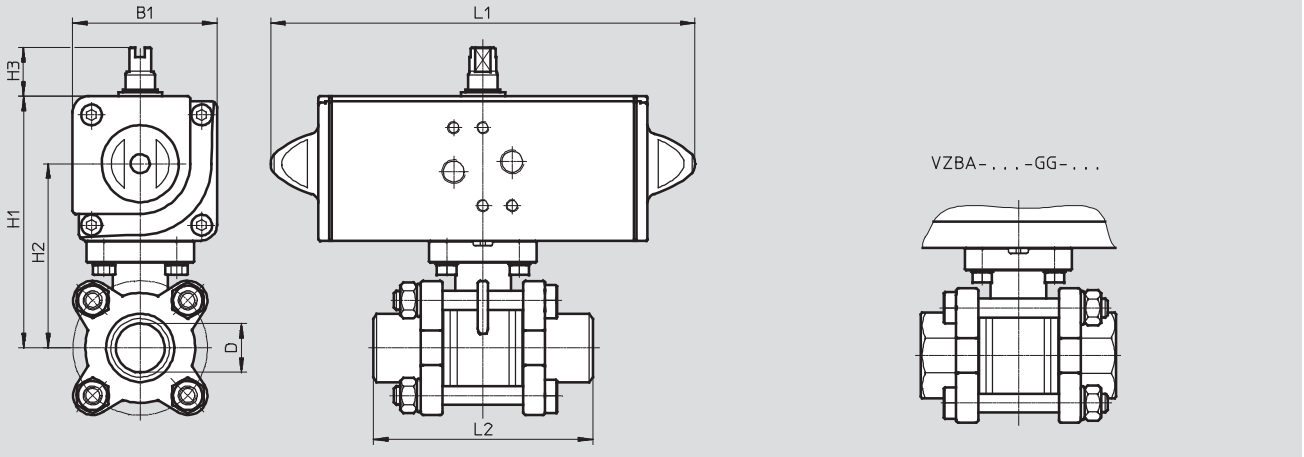
Ball valve actuator units VZBA

Technical data

Dimensions

Download CAD Data → www.festo.com/us/cad

DAPS – Double-acting



Type	B1	D Ø	H1	H2	H3	L1	L2
VZBA-1/4"-WW-63-T-22-F0304-V4V4T-PP15-R-90-C	52.2	10	92.2	68	20	159	70
VZBA-3/8"-WW-63-T-22-F0304-V4V4T-PP15-R-90-C	52.2	12	92.2	68	20	159	70
VZBA-1/2"-WW-63-T-22-F0304-V4V4T-PP15-R-90-C	52.2	16	92.2	68	20	159	75
VZBA-3/4"-WW-63-T-22-F0304-V4V4T-PP30-R-90-C	59.2	20	103.2	75.5	20	174	90
VZBA-1"-WW-63-T-22-F0405-V4V4T-PP30-R-90-C	59.2	25	111.2	83.5	20	174	100
VZBA-1 1/4"-WW-63-T-22-F0405-V4V4T-PP60-R-90-C	70.4	32	128.4	95.7	20	198	110
VZBA-1 1/2"-WW-63-T-22-F0507-V4V4T-PP60-R-90-C	70.4	38	138.4	105.7	20	198	125
VZBA-2"-WW-63-T-22-F0507-V4V4T-PP60-R-90-C	70.4	50	147.7	114.7	20	198	150
VZBA-2 1/2"-WW-63-T-22-F0710-V4V4T-PP106-R-90-C	83.3	65	181.3	142.8	20	237.1	190
VZBA-3"-WW-63-T-22-F0710-V4V4T-PP180-R-90-C	107.5	80	217.5	166.5	30	289.9	220
VZBA-4"-WW-63-T-22-F10-V4V4T-PP240-R-90-C	111.1	100	249.1	198.1	30	313.6	270

Type	B1	D Ø	H1	H2	H3	L1	L2
VZBA-1/4"-GG-63-T-22-F0304-V4V4T-PP15-R-90-C	52.2	10	99.2	68	20	159	65
VZBA-3/8"-GG-63-T-22-F0304-V4V4T-PP15-R-90-C	52.2	12	99.2	68	20	159	65
VZBA-1/2"-GG-63-T-22-F0304-V4V4T-PP15-R-90-C	52.2	16	99.2	68	20	159	75
VZBA-3/4"-GG-63-T-22-F0304-V4V4T-PP30-R-90-C	59.2	20	103.2	75.5	20	174	80
VZBA-1"-GG-63-T-22-F0405-V4V4T-PP30-R-90-C	59.2	25	111.2	83.5	20	174	90
VZBA-1 1/4"-GG-63-T-22-F0405-V4V4T-PP60-R-90-C	70.4	32	128.4	95.7	20	198	110
VZBA-1 1/2"-GG-63-T-22-F0507-V4V4T-PP60-R-90-C	70.4	38	138.4	105.7	20	198	120
VZBA-2"-GG-63-T-22-F0507-V4V4T-PP60-R-90-C	70.4	50	147.7	114.7	20	198	140
VZBA-2 1/2"-GG-63-T-22-F0710-V4V4T-PP106-R-90-C	83.3	65	181.3	142.8	20	237.1	185
VZBA-3"-GG-63-T-22-F0710-V4V4T-PP180-R-90-C	107.5	80	217.5	166.5	30	289.9	205
VZBA-4"-GG-63-T-22-F10-V4V4T-PP240-R-90-C	111.1	100	249.1	198.1	30	313.6	240

Ball valve actuator units VZBA

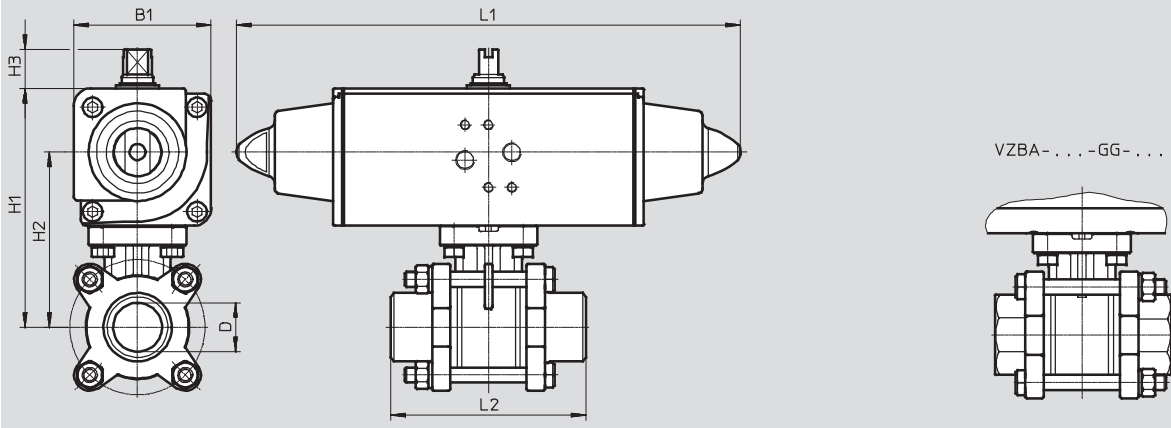
Technical data

FESTO

Dimensions

Download CAD Data → www.festo.com/us/cad

DAPS – Single-acting

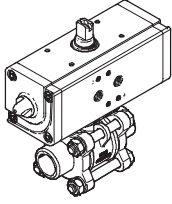
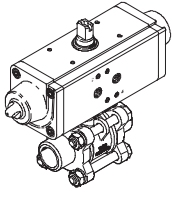


Type	B1	D ∅	H1	H2	H3	L1	L2
VZBA-1/4"-WW-63-T-22-F0304-V4V4T-PS15-R-90-4-C	59.2	10	99.2	71.5	20	233.3	70
VZBA-3/8"-WW-63-T-22-F0304-V4V4T-PS15-R-90-4-C	59.2	12	99.2	71.5	20	233.3	70
VZBA-1/2"-WW-63-T-22-F0304-V4V4T-PS15-R-90-4-C	59.2	16	99.2	71.5	20	233.3	75
VZBA-3/4"-WW-63-T-22-F0304-V4V4T-PS30-R-90-4-C	70.4	20	114.4	81.7	20	259	90
VZBA-1"-WW-63-T-22-F0405-V4V4T-PS30-R-90-4-C	70.4	25	122.4	89.7	20	259	100
VZBA-1 1/4"-WW-63-T-22-F0405-V4V4T-PS53-R-90-4-C	83.3	32	141.3	102.8	20	304.3	110
VZBA-1 1/2"-WW-63-T-22-F0507-V4V4T-PS53-R-90-4-C	83.3	38	151.3	112.8	20	304.3	125
VZBA-2"-WW-63-T-22-F0507-V4V4T-PS90-R-90-4-C	107.5	50	184.5	133.5	30	393.7	150
VZBA-2 1/2"-WW-63-T-22-F0710-V4V4T-PS120-R-90-4-C	111.1	65	209.1	158.1	30	409.6	190
VZBA-3"-WW-63-T-22-F0710-V4V4T-PS180-R-90-4-C	118	80	228	172	30	474	220
VZBA-4"-WW-63-T-22-F10-V4V4T-PS240-R-90-4-C	134.9	100	272.9	210.9	30	520.5	270

Type	B1	D ∅	H1	H2	H3	L1	L2
VZBA-1/4"-GG-63-T-22-F0304-V4V4T-PS15-R-90-4-C	59.2	10	99.2	71.5	20	233.3	65
VZBA-3/8"-GG-63-T-22-F0304-V4V4T-PS15-R-90-4-C	59.2	12	99.2	71.5	20	233.3	65
VZBA-1/2"-GG-63-T-22-F0304-V4V4T-PS15-R-90-4-C	59.2	16	99.2	71.5	20	233.3	75
VZBA-3/4"-GG-63-T-22-F0304-V4V4T-PS30-R-90-4-C	70.4	20	114.4	81.7	20	259	80
VZBA-1"-GG-63-T-22-F0405-V4V4T-PS30-R-90-4-C	70.4	25	122.4	89.7	20	259	90
VZBA-1 1/4"-GG-63-T-22-F0405-V4V4T-PS53-R-90-4-C	83.3	32	141.3	102.8	20	304.3	110
VZBA-1 1/2"-GG-63-T-22-F0507-V4V4T-PS53-R-90-4-C	83.3	38	151.3	112.8	20	304.3	120
VZBA-2"-GG-63-T-22-F0507-V4V4T-PS90-R-90-4-C	107.5	50	184.5	133.5	30	393.7	140
VZBA-2 1/2"-GG-63-T-22-F0710-V4V4T-PS120-R-90-4-C	111.1	65	209.1	158.1	30	409.6	185
VZBA-3"-GG-63-T-22-F0710-V4V4T-PS180-R-90-4-C	118	80	228	172	30	474	205
VZBA-4"-GG-63-T-22-F10-V4V4T-PS240-R-90-4-C	134.9	100	272.9	210.9	30	520.5	240

Ball valve actuator units VZBA

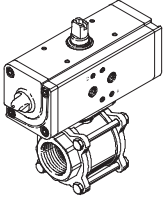
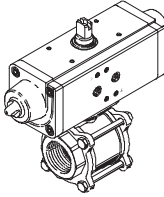
Technical data

Ordering data – Ball valve actuator units with weld-on ends			
DAPS – Double-acting	Connection	Part No.	Type
	With weld-on ends	1810730	VZBA-1/4"-WW-63-T-22-F0304-V4V4T-PP15-R-90-C
		1810731	VZBA-3/8"-WW-63-T-22-F0304-V4V4T-PP15-R-90-C
		1810732	VZBA-1/2"-WW-63-T-22-F0304-V4V4T-PP15-R-90-C
		1810733	VZBA-3/4"-WW-63-T-22-F0304-V4V4T-PP30-R-90-C
		1810734	VZBA-1"-WW-63-T-22-F0405-V4V4T-PP30-R-90-C
		1810735	VZBA-1 1/4"-WW-63-T-22-F0405-V4V4T-PP60-R-90-C
		1810736	VZBA-1 1/2"-WW-63-T-22-F0507-V4V4T-PP60-R-90-C
		1810737	VZBA-2"-WW-63-T-22-F0507-V4V4T-PP60-R-90-C
		1810738	VZBA-2 1/2"-WW-63-T-22-F0710-V4V4T-PP106-R-90-C
		1810739	VZBA-3"-WW-63-T-22-F0710-V4V4T-PP180-R-90-C
		1810740	VZBA-4"-WW-63-T-22-F10-V4V4T-PP240-R-90-C
DAPS – Single-acting			
	With weld-on ends	1774103	VZBA-1/4"-WW-63-T-22-F0304-V4V4T-PS15-R-90-4-C
		1774104	VZBA-3/8"-WW-63-T-22-F0304-V4V4T-PS15-R-90-4-C
		1774105	VZBA-1/2"-WW-63-T-22-F0304-V4V4T-PS15-R-90-4-C
		1774106	VZBA-3/4"-WW-63-T-22-F0304-V4V4T-PS30-R-90-4-C
		1774107	VZBA-1"-WW-63-T-22-F0405-V4V4T-PS30-R-90-4-C
		1774108	VZBA-1 1/4"-WW-63-T-22-F0405-V4V4T-PS60-R-90-4-C
		1774109	VZBA-1 1/2"-WW-63-T-22-F0507-V4V4T-PS60-R-90-4-C
		1774110	VZBA-2"-WW-63-T-22-F0507-V4V4T-PS60-R-90-4-C
		1774111	VZBA-2 1/2"-WW-63-T-22-F0710-V4V4T-PS106-R-90-4-C
		1774112	VZBA-3"-WW-63-T-22-F0710-V4V4T-PS180-R-90-4-C
		1774113	VZBA-4"-WW-63-T-22-F10-V4V4T-PS240-R-90-4-C

Ball valve actuator units VZBA

Technical data

FESTO

Ordering data – Ball valve actuator units with connecting thread			
DAPS – Double-acting	Connecting thread	Part No.	Type
	Rp $\frac{1}{4}$	1809651	VZBA-1/4"-GG-63-T-22-F0304-V4V4T-PP15-R-90-C
	Rp $\frac{3}{8}$	1809652	VZBA-3/8"-GG-63-T-22-F0304-V4V4T-PP15-R-90-C
	Rp $\frac{1}{2}$	1809653	VZBA-1/2"-GG-63-T-22-F0304-V4V4T-PP15-R-90-C
	Rp $\frac{3}{4}$	1809654	VZBA-3/4"-GG-63-T-22-F0304-V4V4T-PP30-R-90-C
	Rp1	1809655	VZBA-1"-GG-63-T-22-F0405-V4V4T-PP30-R-90-C
	Rp1 $\frac{1}{4}$	1809656	VZBA-1 1/4"-GG-63-T-22-F0405-V4V4T-PP60-R-90-C
	Rp1 $\frac{1}{2}$	1809657	VZBA-1 1/2"-GG-63-T-22-F0507-V4V4T-PP60-R-90-C
	Rp2	1809658	VZBA-2"-GG-63-T-22-F0507-V4V4T-PP60-R-90-C
	Rp2 $\frac{1}{2}$	1809659	VZBA-2 1/2"-GG-63-T-22-F0710-V4V4T-PP106-R-90-C
	Rp3	1809660	VZBA-3"-GG-63-T-22-F0710-V4V4T-PP180-R-90-C
	Rp4	1809661	VZBA-4"-GG-63-T-22-F10-V4V4T-PP240-R-90-C
DAPS – Single-acting			
	Rp $\frac{1}{4}$	1758069	VZBA-1/4"-GG-63-T-22-F0304-V4V4T-PS15-R-90-4-C
	Rp $\frac{3}{8}$	1758070	VZBA-3/8"-GG-63-T-22-F0304-V4V4T-PS15-R-90-4-C
	Rp $\frac{1}{2}$	1758071	VZBA-1/2"-GG-63-T-22-F0304-V4V4T-PS15-R-90-4-C
	Rp $\frac{3}{4}$	1758072	VZBA-3/4"-GG-63-T-22-F0304-V4V4T-PS30-R-90-4-C
	Rp1	1758073	VZBA-1"-GG-63-T-22-F0405-V4V4T-PS30-R-90-4-C
	Rp1 $\frac{1}{4}$	1758074	VZBA-1 1/4"-GG-63-T-22-F0405-V4V4T-PS53-R-90-4-C
	Rp1 $\frac{1}{2}$	1758075	VZBA-1 1/2"-GG-63-T-22-F0507-V4V4T-PS53-R-90-4-C
	Rp2	1758076	VZBA-2"-GG-63-T-22-F0507-V4V4T-PS90-R-90-4-C
	Rp2 $\frac{1}{2}$	1758077	VZBA-2 1/2"-GG-63-T-22-F0710-V4V4T-PS120-R-90-4-C
	Rp3	1758078	VZBA-3"-GG-63-T-22-F0710-V4V4T-PS180-R-90-4-C
	Rp4	1758079	VZBA-4"-GG-63-T-22-F10-V4V4T-PS240-R-90-4-C

Ball valve actuator units VZBC

Type codes

		VZBC	-	15	-	F	F	-	40	-	22	-	F0304	-	V4	V4	T	-
Type																		
VZBC	Ball valve																	
Size (nominal diameter DN)																		
15	DN15																	
20	DN20																	
25	DN25																	
32	DN32																	
40	DN40																	
50	DN50																	
65	DN65																	
80	DN80																	
100	DN100																	
Connection type 1																		
F	Flange to DIN EN 1092-1																	
Connection type 2																		
F	Flange to DIN EN 1092-1																	
Process valve nominal pressure PN																		
40	40 bar																	
16	16 bar																	
Directional control function																		
22	2/2-way																	
Flanged connection to ISO 5211																		
F0304	2 pitch circle diameters of \varnothing 36 mm and \varnothing 42 mm																	
F0405	2 pitch circle diameters of \varnothing 42 mm and \varnothing 50 mm																	
F0507	2 pitch circle diameters of \varnothing 50 mm and \varnothing 70 mm																	
F07	1 pitch circle diameter of \varnothing 70 mm																	
F0710	2 pitch circle diameters of \varnothing 70 mm and \varnothing 102 mm																	
Housing material																		
V4	Stainless steel 1.4401/1.4404 (AISI 316L)/1.4408																	
Shut-off element material																		
V4	Stainless steel 1.4401/1.4404 (AISI 316L)/1.4408																	
Sealing material																		
T	Reinforced PTFE																	

Ball valve actuator units VZBC

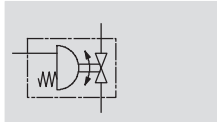
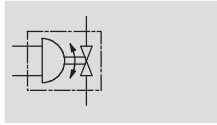
Type codes

		PS	15	-	R	-	90	-	4	-	C
Actuator											
PP	DAPS, double-acting										
PS	DAPS, single-acting										
Torque											
15	15 Nm										
30	30 Nm										
53	53 Nm										
60	60 Nm										
90	90 Nm										
106	106 Nm										
120	120 Nm										
180	180 Nm										
240	240 Nm										
Swivel direction											
R	Right										
Nominal swivel angle											
90	90°										
Spring index											
-	Omitted for double-acting										
1	Spring strength for connection pressure 2.8 bar										
2	Spring strength for connection pressure 3.5 bar										
3	Spring strength for connection pressure 4.2 bar										
4	Spring strength for connection pressure 5.6 bar										
End-position adjustment											
C	Closed										

Ball valve actuator units VZBC

Technical data

Function



Swivel angle

0 ... 90°

Flow rate

19.4 ... 1,414 m³/h

-N-

Connecting thread

Rp1/2 ... Rp4



General technical data										
Nominal size DN	15	20	25	32	40	50	65	80	100	
Quarter turn actuator										
Type of mounting	In-line installation									
Mounting position	Any									
Swivel angle [°]	90									
Closing direction	Right-closing									
Ball valve										
Design	2-way ball valve									
Actuation type	Pneumatic									
Switching position display	Slot direction = flow direction									
Type of mounting	In-line installation									
Process valve nominal pressure PN ¹⁾	40						16			
Flow rate Kv [m ³ /h]	19.4	45.6	71.5	105	170	275	507	905	1,414	

Operating and environmental conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Operating pressure [bar]	6 ... 8.4
Ambient temperature [°C]	-10 ... 80
Temperature of medium ²⁾ [°C]	-10 ... 200
Food industry approval	No
Medium	Compressed air to ISO 8573-1:2010 [-:-:-] Inert gases Neutral liquids Water (no water vapour)
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Note on materials	Contains PWIS (paint-wetting impairment substances), RoHS-compliant
Corrosion resistance class CRC ³⁾	3

1) PN class to DIN EN 1333

2) As a function of operating pressure → 15

3) CRC3: Corrosion resistance class to Festo standard 940 070

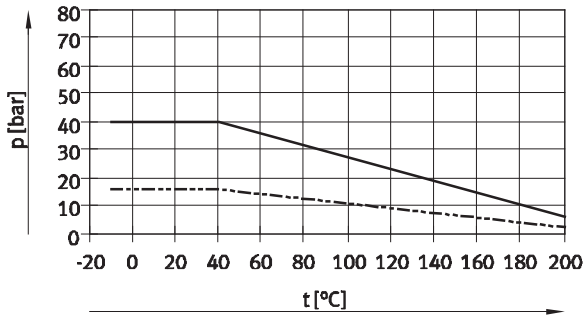
Components with heavy corrosion exposure. Externally visible components in direct contact with normal industrial atmosphere or media such as solvents and cleaning agents, where the surface requirement is predominantly functional.

ATEX	
ATEX category for gas	II 2G
ATEX category for dust	II 2D
Max. surface temperature assembly	TX
Explosion group assembly	IIC
Explosion-proof temperature rating	-10 °C ≤ Ta ≤ +60 °C

Ball valve actuator units VZBC

Technical data

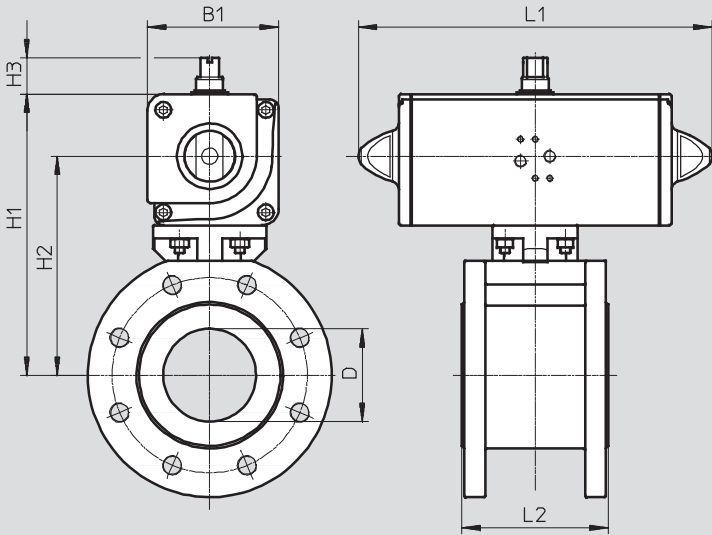
The permissible medium pressure sinks as a function of the temperature of the medium



Dimensions

Download CAD Data → www.festo.com/us/cad

DAPS – Double-acting



Type	B1	D Ø	H1	H2	H3	L1	L2
VZBC-15-FF-40-22-F0304-V4V4T-PP15-R-90-C	52.2	15	112.2	88	20	159	40
VZBC-20-FF-40-22-F0304-V4V4T-PP30-R-90-C	59.2	20	123.5	95.8	20	174	44
VZBC-25-FF-40-22-F0405-V4V4T-PP30-R-90-C	59.2	25	123.8	96.1	20	174	53
VZBC-32-FF-40-22-F0405-V4V4T-PP60-R-90-C	70.4	32	139.4	106.7	20	198	58.4
VZBC-40-FF-40-22-F0507-V4V4T-PP60-R-90-C	70.4	38	146.7	114	20	198	62
VZBC-50-FF-40-22-F0507-V4V4T-PP106-R-90-C	83.3	50	168.8	130.3	20	237.1	78
VZBC-65-FF-16-22-F07-V4V4T-PP180-R-90-C	107.5	64	212.5	161.5	30	289.9	100
VZBC-80-FF-16-22-F07-V4V4T-PP180-R-90-C	107.5	76	229.5	178.5	30	289.9	120
VZBC-100-FF-16-22-F0710-V4V4T-PP240-R-90-C	111.1	96	243.1	192.1	30	313.6	152

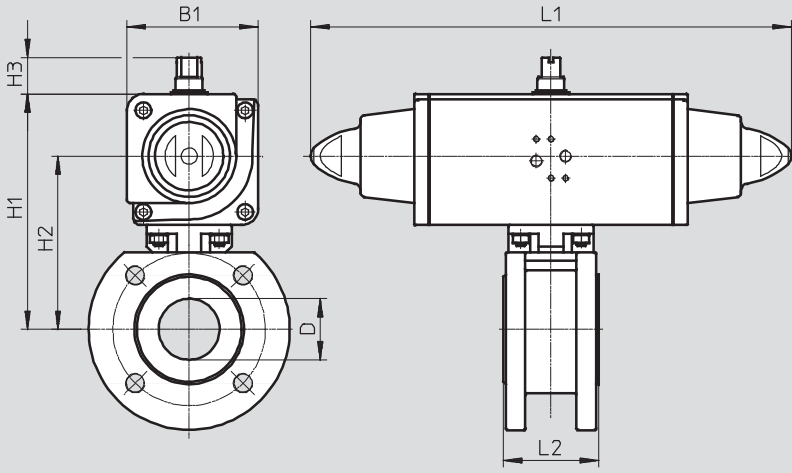
Ball valve actuator units VZBC

Technical data

Dimensions

Download CAD Data → www.festo.com/us/cad

DAPS – Single-acting

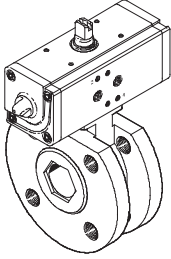
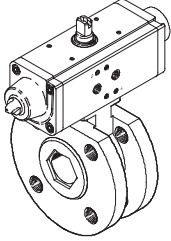


Type	B1	D Ø	H1	H2	H3	L1	L2
VZBC-15-FF-40-22-F0304-V4V4T-PS15-R-90-4-C	59.2	15	119.2	91.5	20	233.3	40
VZBC-20-FF-40-22-F0304-V4V4T-PS30-R-90-4-C	70.4	20	134.7	102	20	259	44
VZBC-25-FF-40-22-F0405-V4V4T-PS30-R-90-4-C	70.4	25	135	102.3	20	259	53
VZBC-32-FF-40-22-F0405-V4V4T-PS53-R-90-4-C	83.3	32	152.3	113.8	20	304.3	58.4
VZBC-40-FF-40-22-F0507-V4V4T-PS53-R-90-4-C	83.3	38	159.6	121.1	20	304.3	62
VZBC-50-FF-40-22-F0507-V4V4T-PS90-R-90-4-C	107.5	50	193	142	30	393.7	78
VZBC-65-FF-16-22-F07-V4V4T-PS180-R-90-4-C	118	64	223	167	30	474	100
VZBC-80-FF-16-22-F07-V4V4T-PS180-R-90-4-C	118	76	241	185	30	474	120
VZBC-100-FF-16-22-F0710-V4V4T-PS240-R-90-4-C	134.9	96	266.9	204.9	30	520.5	152

Ball valve actuator units VZBC

FESTO

Technical data

Ordering data – Ball valve actuator units in compact design made from stainless steel						
DAPS – Double-acting	Process valve connection	Weight [g]	Part No.	Type		
	Ring housing with threaded flange	2,300	1913365	VZBC-15-FF-40-22-F0304-V4V4T-PP15-R-90-C		
		3,200	1913367	VZBC-20-FF-40-22-F0304-V4V4T-PP30-R-90-C		
		3,700	1913368	VZBC-25-FF-40-22-F0405-V4V4T-PP30-R-90-C		
		5,700	1913369	VZBC-32-FF-40-22-F0405-V4V4T-PP60-R-90-C		
		6,400	1913370	VZBC-40-FF-40-22-F0507-V4V4T-PP60-R-90-C		
		8,600	1913371	VZBC-50-FF-40-22-F0507-V4V4T-PP106-R-90-C		
		14,300	1913372	VZBC-65-FF-16-22-F07-V4V4T-PP180-R-90-C		
		18,700	1913373	VZBC-80-FF-16-22-F07-V4V4T-PP180-R-90-C		
		26,000	1913374	VZBC-100-FF-16-22-F0710-V4V4T-PP240-R-90-C		
DAPS – Single-acting	Process valve connection	Weight [g]	Part No.	Type		
	Ring housing with threaded flange	2,850	1915401	VZBC-15-FF-40-22-F0304-V4V4T-PS15-R-90-4-C		
		4,350	1915402	VZBC-20-FF-40-22-F0304-V4V4T-PS30-R-90-4-C		
		4,850	1915403	VZBC-25-FF-40-22-F0405-V4V4T-PS30-R-90-4-C		
		7,000	1915404	VZBC-32-FF-40-22-F0405-V4V4T-PS53-R-90-4-C		
		7,700	1915406	VZBC-40-FF-40-22-F0507-V4V4T-PS53-R-90-4-C		
		11,800	1915407	VZBC-50-FF-40-22-F0507-V4V4T-PS90-R-90-4-C		
		18,900	1915408	VZBC-65-FF-16-22-F07-V4V4T-PS180-R-90-4-C		
		23,300	1915409	VZBC-80-FF-16-22-F07-V4V4T-PS180-R-90-4-C		
				31,900	1915410	VZBC-100-FF-16-22-F0710-V4V4T-PS240-R-90-4-C

Ball valve actuator units VZBA

Type codes

		VZBA	-	2	-	G	G	G	-	63	-	32L	-	F0507	-
Type															
VZBA	Ball valve														
Size (nominal diameter DN)															
1/4	DN8														
3/8	DN10														
1/2	DN15														
3/4	DN20														
1	DN25														
1 1/4	DN32														
1 1/2	DN40														
2	DN50														
Connection type 1															
G	Pipe thread to DIN EN 10226-1 (previously DIN 2999)														
Connection type 2															
G	Pipe thread to DIN EN 10226-1 (previously DIN 2999)														
Connection type 3															
G	Pipe thread to DIN EN 10226-1 (previously DIN 2999)														
Process valve nominal pressure PN															
63	63 bar														
Directional control function															
32T	3/2-way, T-shaped hole														
32L	3/2-way, L-shaped hole														
Flanged connection to ISO 5211															
F0304	2 pitch circle diameters of \varnothing 36 mm and \varnothing 42 mm														
F0405	2 pitch circle diameters of \varnothing 42 mm and \varnothing 50 mm														
F0507	2 pitch circle diameters of \varnothing 50 mm and \varnothing 70 mm														

Ball valve actuator units VZBA

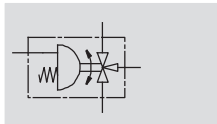
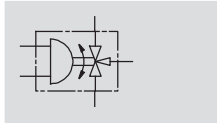
Type codes

		V4	V4	T	-	PS	80	-	90	-	5	-	C
Housing material													
V4	Stainless steel 1.4401/1.4404 (AISI 316L)/1.4408												
Shut-off element material													
V4	Stainless steel 1.4401/1.4404 (AISI 316L)/1.4408												
Sealing material													
T	Reinforced PTFE												
Actuator													
PP	DAPS, double-acting												
PS	DAPS, single-acting												
Torque													
30	30 Nm												
53	53 Nm												
60	60 Nm												
90	90 Nm												
106	106 Nm												
Nominal swivel angle													
90	90°												
Spring index													
-	Omitted for double-acting												
3	Spring strength for connection pressure 3 bar												
4	Spring strength for connection pressure 4 bar												
5	Spring strength for connection pressure 5 bar												
End-position adjustment													
C	Closed												

Ball valve actuator units VZBA

Technical data

Function



Swivel angle

0 ... 90°

Flow rate

4.5 ... 100 m³/h

-N- Connecting thread

Rp1/4 ... Rp4



General technical data								
Nominal size DN	8	10	15	20	25	32	40	50
Quarter turn actuator								
Type of mounting	In-line installation							
Mounting position	Any							
Swivel angle	[°]	90						
Closing direction	Right-closing							
Ball valve								
Design	3-way ball valve with L-shaped hole, T-shaped hole							
Actuation type	Pneumatic							
Switching position display	Slot direction = flow direction							
Type of mounting	In-line installation							
Process valve nominal pressure PN ¹⁾	63							
Flow rate Kv	[m ³ /h]	→ Page 23						

Operating and environmental conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Operating pressure [bar]	6 ... 8.4
Ambient temperature [°C]	-10 ... 80
Temperature of medium ²⁾ [°C]	-10 ... 200
Food industry approval	No
Medium	Compressed air to ISO 8573-1:2010 [:-:-] Inert gases Neutral fluids Water (no water vapour)
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Note on materials	Contains PWIS (paint-wetting impairment substances), RoHS-compliant
Corrosion resistance class CRC ³⁾	3

1) PN class to DIN EN 1333

2) As a function of operating pressure → 21

3) CRC3: Corrosion resistance class to Festo standard 940 070

Components with heavy corrosion exposure. Externally visible components in direct contact with normal industrial atmosphere or media such as solvents and cleaning agents, where the surface requirement is predominantly functional.

ATEX	
ATEX category for gas	II 2G
ATEX category for dust	II 2D
Max. surface temperature assembly	TX
Explosion group assembly	IIC
Explosion-proof temperature rating	-10 °C ≤ Ta ≤ +60 °C

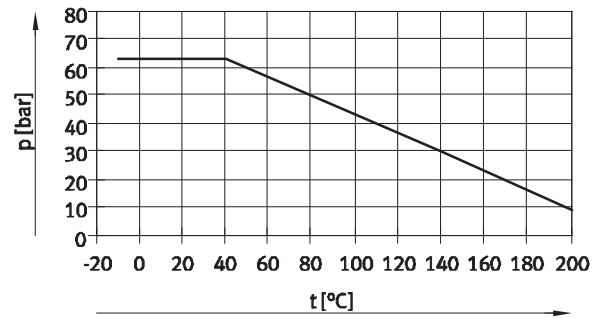
Ball valve actuator units VZBA

Technical data

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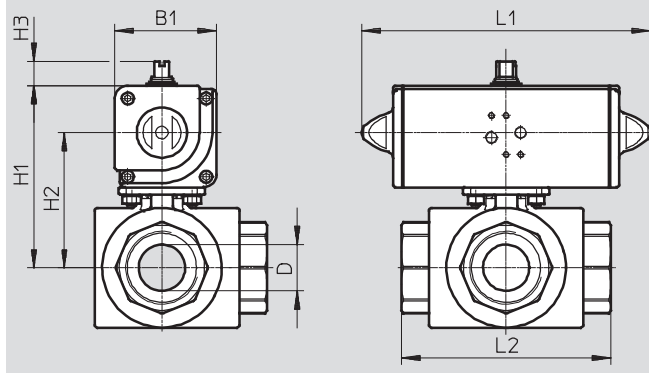
Weight [g]								
Process valve connection	Rp1/4	Rp3/8	Rp1/2	Rp3/4	Rp1	Rp1 1/4	Rp1 1/2	Rp2
Double-acting	1,750	1,750	1,750	2,050	2,650	4,750	5,750	9,800
Single-acting	2,950	2,950	2,950	3,250	3,850	6,070	10,812	12,900

The permissible medium pressure drops as a function of the temperature of the medium



Dimensions Download CAD Data → www.festo.com/us/cad

DAPS – Double-acting



Type	B1	D Ø	H1	H2	H3	L1	L2
VZBA-1/4"-GGG-63-32L-F0304-V4V4T-PP30-R-90-C	59.2	11.6	95.1	67.4	20	174	80
VZBA-1/4"-GGG-63-32T-F0304-V4V4T-PP30-R-90-C	59.2	12.7	95.1	67.4	20	174	80
VZBA-3/8"-GGG-63-32L-F0304-V4V4T-PP30-R-90-C	59.2	12.7	95.1	67.4	20	174	80
VZBA-3/8"-GGG-63-32T-F0304-V4V4T-PP30-R-90-C	59.2	12.7	95.1	67.4	20	174	80
VZBA-1/2"-GGG-63-32L-F0304-V4V4T-PP30-R-90-C	59.2	12.7	95.1	67.4	20	174	80
VZBA-1/2"-GGG-63-32T-F0304-V4V4T-PP30-R-90-C	59.2	12.7	95.1	67.4	20	174	80
VZBA-3/4"-GGG-63-32L-F0405-V4V4T-PP30-R-90-C	59.2	16	100.1	72.4	20	174	87.5
VZBA-3/4"-GGG-63-32T-F0405-V4V4T-PP30-R-90-C	59.2	16	100.1	72.4	20	174	87.5
VZBA-1"-GGG-63-32L-F0405-V4V4T-PP30-R-90-C	59.2	20	104.35	76.65	20	174	100
VZBA-1"-GGG-63-32T-F0405-V4V4T-PP30-R-90-C	59.2	20	104.35	76.65	20	174	100
VZBA-1 1/4"-GGG-63-32L-F0405-V4V4T-PP60-R-90-C	70.4	25.4	121.4	88.7	20	198	123
VZBA-1 1/4"-GGG-63-32T-F0405-V4V4T-PP60-R-90-C	70.4	25.4	121.4	88.7	20	198	123
VZBA-1 1/2"-GGG-63-32L-F0405-V4V4T-PP60-R-90-C	70.4	31.8	125.9	93.2	20	198	142.2
VZBA-1 1/2"-GGG-63-32T-F0405-V4V4T-PP60-R-90-C	70.4	31.8	125.9	93.2	20	198	142.2
VZBA-2"-GGG-63-32L-F0507-V4V4T-PP106-R-90-C	83.3	38.1	149.3	110.8	20	237.1	170.6
VZBA-2"-GGG-63-32T-F0507-V4V4T-PP106-R-90-C	83.3	38.1	149.3	110.8	20	237.1	170.6

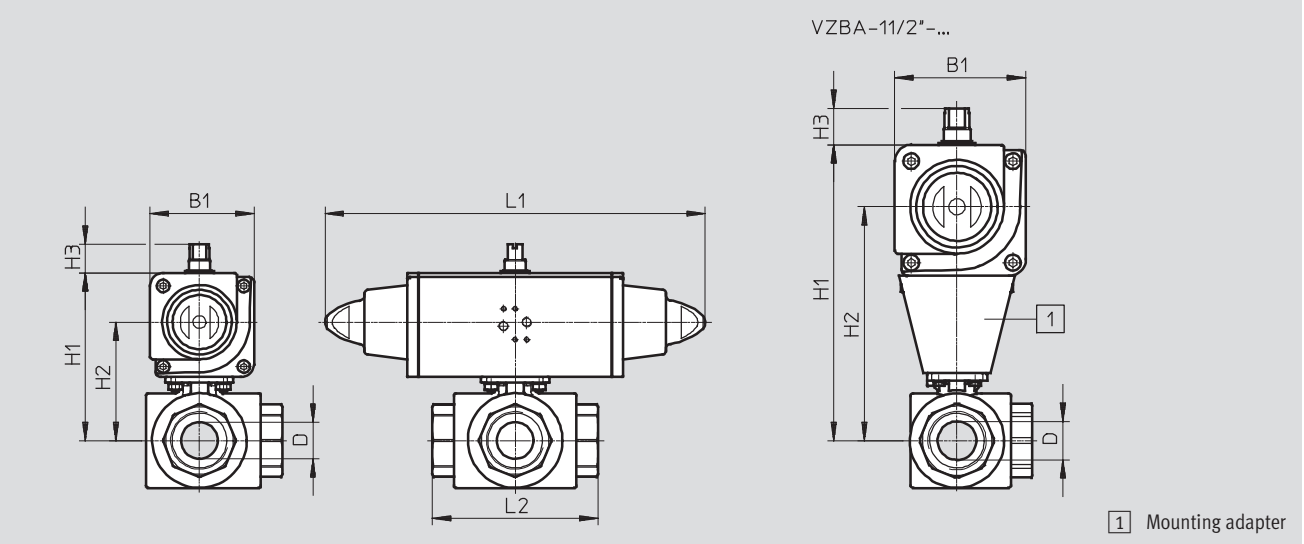
Ball valve actuator units VZBA

Technical data

Dimensions

Download CAD Data → www.festo.com/us/cad

DAPS – Single-acting

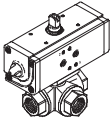
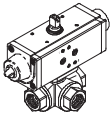


Type	B1	D Ø	H1	H2	H3	L1	L2
VZBA-1/4"-GGG-63-32L-F0304-V4V4T-PS30-R-90-4-C	70.4	11.6	106.3	73.6	20	259	80
VZBA-1/4"-GGG-63-32T-F0304-V4V4T-PS30-R-90-4-C	70.4	11.6	106.3	73.6	20	259	80
VZBA-3/8"-GGG-63-32L-F0304-V4V4T-PS30-R-90-4-C	70.4	12.7	106.3	73.6	20	259	80
VZBA-3/8"-GGG-63-32T-F0304-V4V4T-PS30-R-90-4-C	70.4	12.7	106.3	73.6	20	259	80
VZBA-1/2"-GGG-63-32L-F0304-V4V4T-PS30-R-90-4-C	70.4	12.7	106.3	73.6	20	259	80
VZBA-1/2"-GGG-63-32T-F0304-V4V4T-PS30-R-90-4-C	70.4	12.7	106.3	73.6	20	259	80
VZBA-3/4"-GGG-63-32L-F0405-V4V4T-PS30-R-90-4-C	70.4	16	111.3	78.6	20	259	87.5
VZBA-3/4"-GGG-63-32T-F0405-V4V4T-PS30-R-90-4-C	70.4	16	111.3	78.6	20	259	87.5
VZBA-1"-GGG-63-32L-F0405-V4V4T-PS30-R-90-4-C	70.4	20	115.55	82.85	20	259	100
VZBA-1"-GGG-63-32T-F0405-V4V4T-PS30-R-90-4-C	70.4	20	115.55	82.85	20	259	100
VZBA-1 1/4"-GGG-63-32L-F0405-V4V4T-PS53-R-90-4-C	83.3	25.4	134.3	95.8	20	304.3	123
VZBA-1 1/4"-GGG-63-32T-F0405-V4V4T-PS53-R-90-4-C	83.3	25.4	134.3	95.8	20	304.3	123
VZBA-1 1/2"-GGG-63-32L-F0405-V4V4T-PS90-R-90-4-C	107.5	31.8	243	192	30	393.7	142.2
VZBA-1 1/2"-GGG-63-32T-F0405-V4V4T-PS90-R-90-4-C	107.5	31.8	243	192	30	393.7	142.2
VZBA-2"-GGG-63-32L-F0507-V4V4T-PS90-R-90-4-C	107.5	38.1	173.5	122.5	30	393.7	170.6
VZBA-2"-GGG-63-32T-F0507-V4V4T-PS90-R-90-4-C	107.5	38.1	173.5	122.5	30	393.7	170.6

Ball valve actuator units VZBA

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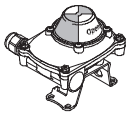
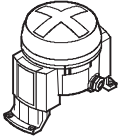
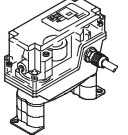
Technical data

Ordering data – Ball valve actuator units made from stainless steel								
DAPS – Double-acting	Process valve connection	Hole	Flow rate Kv [m ³ /h] Type			Part No.	Type	
			L	T right-angled	T straight			
	Rp1/4	L	4.5	–	–	1914785	VZBA-1/4"-GGG-63-32L-F0304-V4V4T-PP30-R-90-C	
	Rp3/8		4.5	–	–	1914786	VZBA-3/8"-GGG-63-32L-F0304-V4V4T-PP30-R-90-C	
	Rp1/2		4.7	–	–	1914787	VZBA-1/2"-GGG-63-32L-F0304-V4V4T-PP30-R-90-C	
	Rp3/4		5.1	–	–	1914788	VZBA-3/4"-GGG-63-32L-F0405-V4V4T-PP30-R-90-C	
	Rp1		11.8	–	–	1914789	VZBA-1"-GGG-63-32L-F0405-V4V4T-PP30-R-90-C	
	Rp1 1/4		19.6	–	–	1914790	VZBA-1 1/4"-GGG-63-32L-F0405-V4V4T-PP60-R-90-C	
	Rp1 1/2		33.2	–	–	1914791	VZBA-1 1/2"-GGG-63-32L-F0405-V4V4T-PP60-R-90-C	
	Rp2		53.7	–	–	1914792	VZBA-2"-GGG-63-32L-F0507-V4V4T-PP106-R-90-C	
	Rp1/4		T	–	4.5	8	1915072	VZBA-1/4"-GGG-63-32T-F0304-V4V4T-PP30-R-90-C
	Rp3/8	–		4.5	8	1915073	VZBA-3/8"-GGG-63-32T-F0304-V4V4T-PP30-R-90-C	
	Rp1/2	–		4.8	8.3	1915074	VZBA-1/2"-GGG-63-32T-F0304-V4V4T-PP30-R-90-C	
	Rp3/4	–		4.8	8.3	1915075	VZBA-3/4"-GGG-63-32T-F0405-V4V4T-PP30-R-90-C	
	Rp1	–		10.9	22.4	1915076	VZBA-1"-GGG-63-32T-F0405-V4V4T-PP30-R-90-C	
	Rp1 1/4	–		18	36.5	1915077	VZBA-1 1/4"-GGG-63-32T-F0405-V4V4T-PP60-R-90-C	
	Rp1 1/2	–		30	62	1915078	VZBA-1 1/2"-GGG-63-32T-F0405-V4V4T-PP60-R-90-C	
	Rp2	–		48.8	100	1915079	VZBA-2"-GGG-63-32T-F0507-V4V4T-PP106-R-90-C	
	DAPS – Single-acting	Process valve connection	Hole	Flow rate Kv [m ³ /h] Type			Part No.	Type
				L	T right-angled	T straight		
	Rp1/4	L	4.5	–	–	1915543	VZBA-1/4"-GGG-63-32L-F0304-V4V4T-PS30-R-90-4-C	
	Rp3/8		4.5	–	–	1915544	VZBA-3/8"-GGG-63-32L-F0304-V4V4T-PS30-R-90-4-C	
	Rp1/2		4.7	–	–	1915545	VZBA-1/2"-GGG-63-32L-F0304-V4V4T-PS30-R-90-4-C	
	Rp3/4		5.1	–	–	1915546	VZBA-3/4"-GGG-63-32L-F0405-V4V4T-PS30-R-90-4-C	
	Rp1		11.8	–	–	1915547	VZBA-1"-GGG-63-32L-F0405-V4V4T-PS30-R-90-4-C	
	Rp1 1/4		19.6	–	–	1915548	VZBA-1 1/4"-GGG-63-32L-F0405-V4V4T-PS53-R-90-4-C	
	Rp1 1/2		33.2	–	–	1915549	VZBA-1 1/2"-GGG-63-32L-F0405-V4V4T-PS90-R-90-4-C	
	Rp2		53.7	–	–	1915550	VZBA-2"-GGG-63-32L-F0507-V4V4T-PS90-R-90-4-C	
	Rp1/4		T	–	4.5	8	1915744	VZBA-1/4"-GGG-63-32T-F0304-V4V4T-PS30-R-90-4-C
	Rp3/8	–		4.5	8	1915745	VZBA-3/8"-GGG-63-32T-F0304-V4V4T-PS30-R-90-4-C	
	Rp1/2	–		4.8	8.3	1915746	VZBA-1/2"-GGG-63-32T-F0304-V4V4T-PS30-R-90-4-C	
	Rp3/4	–		4.8	8.3	1915747	VZBA-3/4"-GGG-63-32T-F0405-V4V4T-PS30-R-90-4-C	
	Rp1	–		10.9	22.4	1915748	VZBA-1"-GGG-63-32T-F0405-V4V4T-PS30-R-90-4-C	
	Rp1 1/4	–		18	36.5	1915749	VZBA-1 1/4"-GGG-63-32T-F0405-V4V4T-PS53-R-90-4-C	
	Rp1 1/2	–		30	62	1915750	VZBA-1 1/2"-GGG-63-32T-F0405-V4V4T-PS90-R-90-4-C	
	Rp2	–		48.8	100	1915751	VZBA-2"-GGG-63-32T-F0507-V4V4T-PS90-R-90-4-C	

Ball valve actuator units VZBA



Accessories



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

Ordering data – Limit switch attachments (NAMUR)			Technical data → limit switch attachment	
	Sensing principle	Explosion-proof	Part No.	Type
Round design				
	Electrical	–	1152495	SRBF-CA3-YR90-MW-22A-C2M20
	Electrical	–	1152496	SRBF-CA4-YR90-MW-22A-C2M20
	Electrical	–	1152497	SRBF-CA5-YR90-MW-22A-C2M20
	Electrical	–	1152498	SRBF-CA6-YR90-MW-22A-C2M20
	Electrical	–	534 469	DAPZ-SB-M-250AC-DR-RO
	Inductive	–	534 471	DAPZ-SB-I-30DC-DR-RO
	Inductive	■	534 472	DAPZ-SB-I-25DC-R-RO
	Electrical	–	534 474	DAPZ-SB-M-250AC-DR-AR
	Inductive	–	534 475	DAPZ-SB-I-30DC-DR-AR
	Inductive	■	534 476	DAPZ-SB-I-25DC-EXDR-AR
Square design				
	Electrical	–	534 468	DAPZ-SB-M-250AC-DSM-RO
	Electrical	■	534 470	DAPZ-SB-M-250AC-EXS-RO
	Inductive	–	534 473	DAPZ-SB-I-30DC-DSAM-RO
	Electrical	–	164 854	QH-DR-E-S3-E-SW-B
	Inductive	–	164 853	QH-DR-E-SIEN-M12-NB-B
	Pneumatic	–	164 855	QH-DR-E-S3-PK-3-B-B

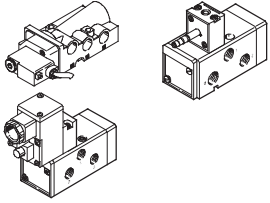
Ball valve actuator units VZBA

Accessories

Ordering data – Basic valves			
	Description	Part No.	Type
5/2-way valve, single solenoid			
	Can be changed to 3/2-way valve	547017	VSNB-FC-M52-M-G14-P2
	Cannot be changed to 3/2-way valve	547021	VSNB-F-M52-M-G14-P2
5/2-way valve, double solenoid			
	Cannot be changed to 3/2-way valve	547022	VSNB-F-B52-M-G14-P2

Ordering data – Solenoid valve			
	Description	Part No.	Type
5/2-way valve, single solenoid			
	Can be changed to 3/2-way valve	547026	VSNB-FC-M52-MH-G14-1A1
	Cannot be changed to 3/2-way valve	547028	VSNB-F-M52-MH-G14-1A1
5/2-way valve, double solenoid			
	Cannot be changed to 3/2-way valve	547029	VSNB-F-B52-H-G14-1A1

Ordering data – Solenoid valves Ex-ia			
	Description	Part No.	Type
5/2-way valve, single solenoid			
	–	547023	VSNB-F-M52-M-G14-1A1-Ex4A
		547019	VSNB-FC-M52-M-G14-1A1-Ex4A
5/2-way valve, double solenoid			
	–	547024	VSNB-F-B52-G14-1A1-Ex4A

Ordering data – Solenoid valves (NAMUR)			Technical data → solenoid valve	
	Standard nominal flow rate	For coil type	Part No.	Type
	900	F solenoid coil	535 987	NVF3-MOH-5/2-K-1/4-Ex
		V solenoid coil	535 988	NVF3-MOH-5/2-K-1/4-IA-Ex
	1,000	F solenoid coil	183 973	MFH-5/2K-FR-NA
		N1 solenoid coil	183 974	MN1H-5/2K-FR-NA

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Festo North America

Festo Regional Contact Center

5300 Explorer Drive
Mississauga, Ontario L4W 5G4
Canada

USA Customers:

For ordering assistance,

Call: 1.800.99.FESTO (1.800.993.3786)

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Canadian Customers:

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Email: festo.canada@ca.festo.com

USA Headquarters

Festo Corporation
395 Moreland Road
P.O. Box 18023
Hauppauge, NY 11788, USA
www.festo.com/us

USA Sales Offices

Appleton

North 922 Tower View Drive, Suite N
Greenville, WI 54942, USA

Boston

120 Presidential Way, Suite 330
Woburn, MA 01801, USA

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Detroit – Automotive Engineering Center

2601 Cambridge Court, Suite 320
Auburn Hills, MI 48326, USA

New York

395 Moreland Road
Hauppauge, NY 11788, USA

Silicon Valley

4935 Southfront Road, Suite F
Livermore, CA 94550, USA

United States



USA Headquarters, East: Festo Corp., 395 Moreland Road, Hauppauge, NY 11788

Phone: 1.631.435.0800; Fax: 1.631.435.8026;

Email: info@festo-usa.com

www.festo.com/us

Canada



Headquarters: Festo Inc., 5300 Explorer Drive, Mississauga, Ontario L4W 5G4

Phone: 1.905.624.9000; Fax: 1.905.624.9001;

Email: festo.canada@ca.festo.com

www.festo.ca

Mexico



Headquarters: Festo Pneumatic, S.A., Av. Ceylán 3, Col. Tequesquahuac,
54020 Tlalneantla, Edo. de México

Phone: 011 52 [55] 53 21 66 00; Fax: 011 52 [55] 53 21 66 65;

Email: festo.mexico@mx.festo.com

www.festo.com/mx

Central USA

Festo Corporation
1441 East Business
Center Drive
Mt. Prospect, IL 60056, USA
Phone: 1.847.759.2600
Fax: 1.847.768.9480



Western USA

Festo Corporation
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