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BVA300 Series Pneumatic Actuators for use with Spirax Sarco Ball Valves

Description

The BVA300 series are pneumatic rotary actuators which automate Spirax Sarco ball valves in a wide range of industrial applications. BVA300 actuators are provided with bi-directional travel stops that allow a rotation of 90°±5°. Linkage is made with the new BVL_X kits with extended stem (not available for M10MVi and M10MSi models. For more details, see page 7).

Pneumatic actuated ball valve range:

			Page
Actuators combined with:	Three-piece ball valves:	M10Vi; M10Si; M10Ti; M10ECFi4; M10Hi; M10HTi	5
		M10HPi; M10Pi	6
		M10MVi; M10MSi	7
		M70i; M80i	8
	Two-piece ball valves:	M31V ISO; M31S ISO; M33V ISO; M33S ISO; M33F ISO; M33T ISO	9
		M33H ISO; M33HT ISO	10
	One-piece ball valves:	M21Hi; M21HTi; M40Hi; M40HTi	11
		M45i	12
		M21Ti; M21Vi; M21Si; M21Fi; M40Ti; M40Vi; M40Si; M40Fi	13
		M21ViJ; M21SiJ; M40ViJ; M40SiJ	14
		M21ECFi4; M40ECFi4	15

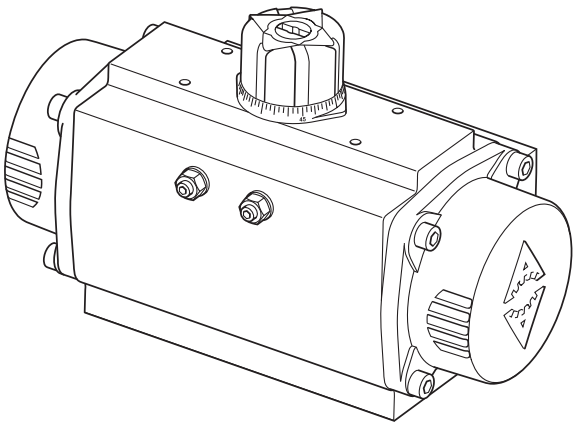
BVA300 pnematic actuator range:

For optimum actuator performance use the selection tables on pages 5 to 15.

Double acting:	310D, 315D, 320D, 325D, 330D, 335D, 340D, 345D, 350D, 355D, 357D, 360D, 365D.
Single acting (spring return):	310S, 315S, 320S, 325S, 330S, 335S, 340S, 345S, 350S, 355S, 357S, 360S, 365S.

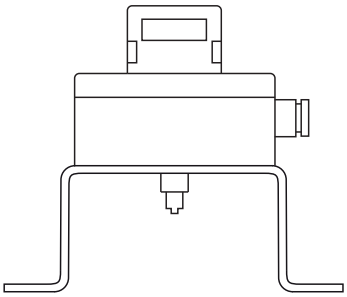
Technical data

Maximum pressure	8 bar g
Minimal pressure	3 bar g
Operating temperature range	-30 °C to 100 °C (-22 °F to 212 °F)
Note: Other operating temperature ranges available on request.	
Operating media	Compressed air (clean and dry)
	Non corrosive gas
	Light hydraulic oil (must be compatible with 'O' rings)
Rotation 90 ±5°	Anticlockwise with port 'A' pressurised
Air pressure for standard selection tables	3,4,5 and 6 bar g (44, 58, 73 and 87 psi g)



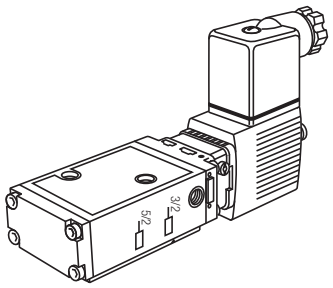
Optional extras:

Limit switch box:
For more details, see TI-P372-26



Solenoid valve: a range of Namur electrical valves with an encapsulation rating to IP65 is available for use with BVA actuators. These can be used to drive actuators with compressed air or non-corrosive gas.

Note: Explosion proof solenoid valves are available on request.

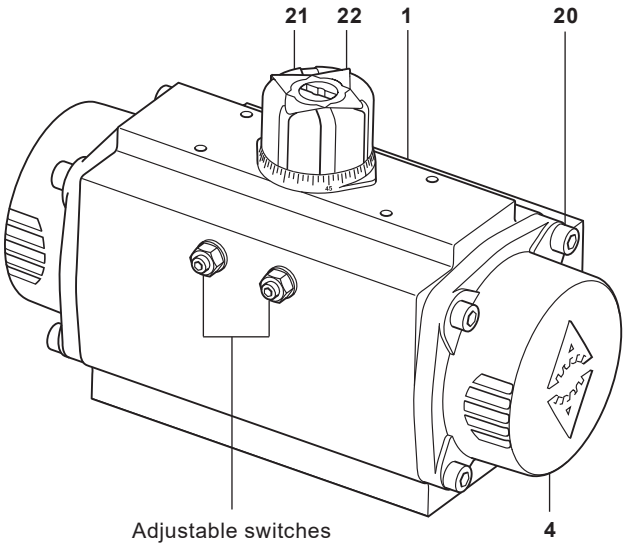


Solenoid	Coil voltage
3/2 NAMUR for BVAS	220 Vac
	110 Vac
	24 Vac/dc
5/2 NAMUR for BVAD	220 Vac
	110 Vac
	24 Vac/dc

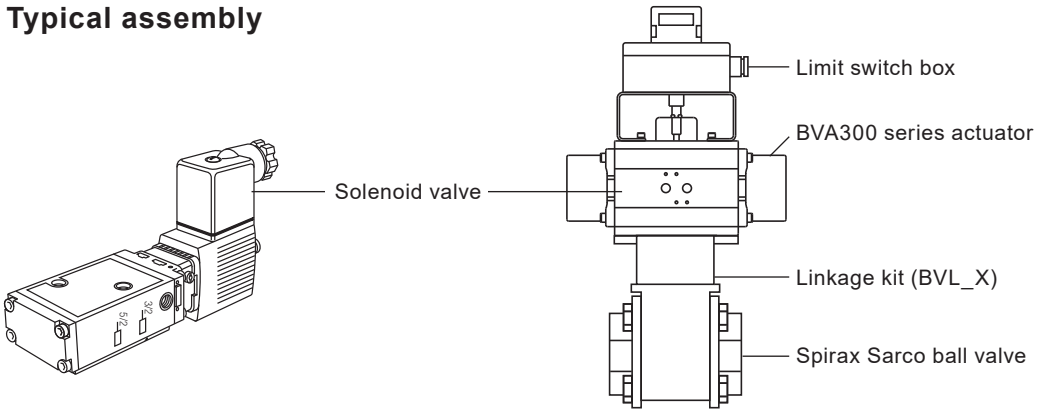
Materials

No	Part	Material
1	Body	Aluminium hard anodized
3	Pinion*	Nickel plated carbon steel
4	End caps	Aluminium epoxy coated
20	Bolt	Stainless steel
21	Indicator cap	Polyamide
22	Coloured indicator	Polyamide

*shown clearly in the spares drawing on page 4



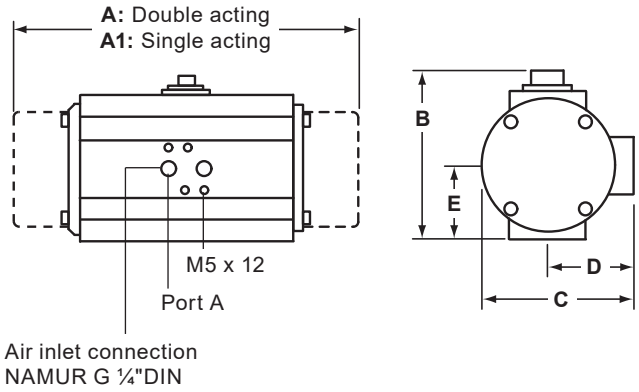
Typical assembly



BVL_X linkage kit components and materials

Frame Stem adapter	Stainless steel AISI 304/Carbon steel CF8M and Stainless steel WCB (only for M10MVi and M10MSi)
Frame-to-actuator screws	Stainless steel
Washers	Stainless steel
Frame-to-valve screws	Stainless steel
Stem nut	Stainless steel

Dimensions/weights
(approximate) in mm (inches) and kg (lbs)



Type	A1	A	B	C	D	E	Weights	
							Single	Double
BVA310	163 (6.4)	145 (5.7)	96 (3.8)	76 (3.0)	48 (1.9)	34 (1.3)	1.6 (4)	1.4 (3)
BVA315	195 (7.7)	158 (6.2)	115 (4.5)	91 (3.6)	56 (2.2)	45 (1.8)	2.3 (5)	2.1 (5)
BVA320	217 (8.5)	177 (7.0)	137 (5.4)	111 (4.4)	66 (2.6)	55 (2.2)	3.7 (8)	3.0 (7)
BVA325	258 (10.2)	196 (7.7)	147 (5.8)	122 (4.8)	71 (2.8)	60 (2.4)	4.8 (11)	3.8 (8)
BVA330	299 (11.8)	225 (8.9)	165 (6.5)	136 (5.4)	78 (3.1)	70 (2.8)	7.3 (16)	5.6 (12)
BVA335	349 (13.7)	273 (10.7)	182 (7.2)	153 (6.0)	86 (3.4)	80 (3.1)	10.8 (24)	8.5 (19)
BVA340	397 (15.6)	304 (12.0)	199 (7.8)	173 (6.8)	96 (3.8)	85 (3.3)	15.4 (34)	11.2 (25)
BVA345	473 (18.6)	372 (14.6)	221 (8.7)	192 (7.6)	106 (4.2)	98 (3.9)	22.2 (49)	16.9 (37)
BVA350	560 (22.0)	439 (17.3)	249 (9.8)	213 (8.4)	116 (4.6)	114 (4.5)	34.3 (76)	25.8 (57)
BVA355	601 (23.7)	461 (18.1)	280 (11.0)	243 (9.6)	131 (5.2)	130 (5.1)	46.0 (101)	32.5 (72)
BVA357	698 (27.5)	504 (19.8)	313 (12.3)	276 (10.9)	148 (5.8)	147 (5.8)	66.0 (146)	49.1 (110)
BVA360	738 (29.1)	518 (20.4)	383 (15.1)	356 (14.0)	178 (7.0)	177 (7.0)	99.9 (220)	69.6 (153)
BVA365	940 (37.0)	630 (24.8)	434 (17.1)	415 (16.3)	213 (8.4)	201 (7.9)	183 (403)	129.4 (285)

How to order
Note: You will need to refer to the selection tables (pages 5 to 14) before placing an order.

How to order example:
1 - Spirax Sarco BVA320S/8 actuator
1 - 3/2 NAMUR solenoid 24 Vac
1 - 303X linkage kit
1 - LSB72 limit switch box

Note: Actuated ball valves may be supplied completely assembled to suit the application.

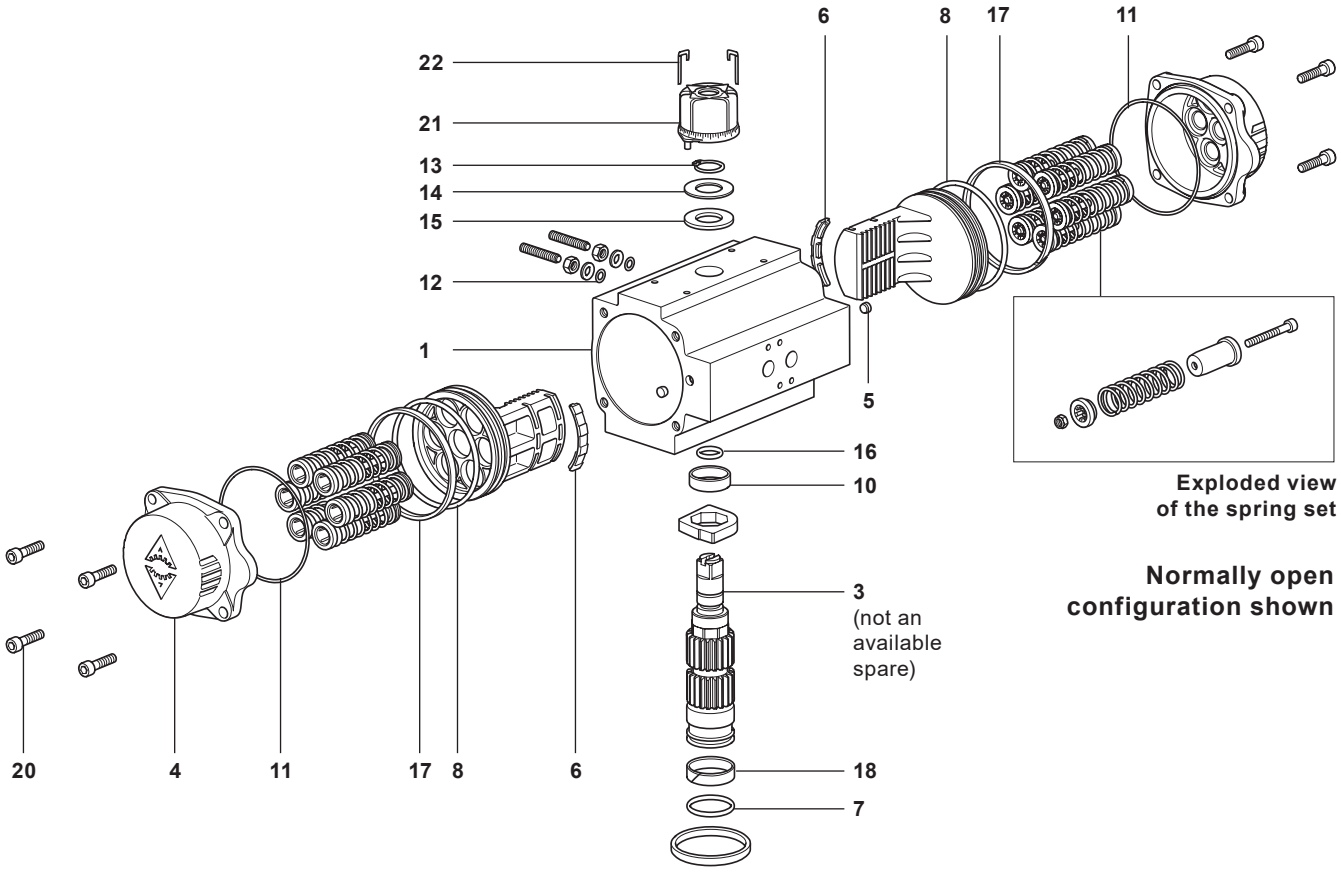
Spare parts The spare parts available are detailed below. No other parts are supplied as spares.

Available spares

BVA300 series maintenance kit	'O' rings set (available either in NBR, Viton or Silicon)	**7, 8, 11, 12, 16**
	Pinion washers	**13, 14, 15**
	Others	**5, 6, 10, 17, 18**

How to order spares
Always order spares by using the description given in the column headed 'Available spares' and state the nomenclature of the pneumatic actuator that they are intended for.
Note: all the spares mentioned above are sold together in one spare part kit.

Example: 1 - BVA300 series maintenance kit with 'O' rings in NBR for a Spirax Sarco BVA320S/08 pneumatic actuator.



Spring quantity selection
According to the available air pressure, the BVA has different spring configurations.
For more details, see the Installation and Maintenance Instructions IM-P372-24.

	Springs					
BVA	S/4	S/6	S/8	S/10	S/12	S/14
310	•	•	•			
315 - 365			•	•	•	•

Example: BVA325S/10 has 10 springs.

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

Pneumatic actuator selection tables for three-piece ball valves

M10Vi; M10Si; M10Ti and M10ECFi4 ball valves

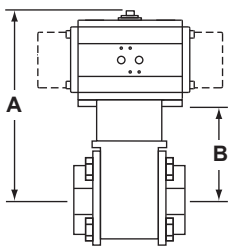
DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
¼" RB - ⅜" RB	310D	300X	310S/4	300X
½" RB - ⅜" FB	310D	300X	310S/4	300X
¾" RB - ½" FB	310D	300X	315S/8	300X
1" RB - ¾" FB	315D	302X	320S/8	303X
1¼" RB - 1" FB	320D	311X	325S/8	311X
1½" RB - 1¼" FB	330D	305X	340S/8	316X
2" RB - 1½" FB	330D	306X	340S/8	307X
2½" RB - 2" FB	335D	309X	340S/8	309X
Actuator operating pressure 4 bar g (58 psi g)				
¼" RB - ⅜" RB	310D	300X	310S/6	300X
½" RB - ⅜" FB	310D	300X	310S/6	300X
¾" RB - ½" FB	310D	300X	315S/10	300X
1" RB - ¾" FB	315D	302X	320S/10	303X
1¼" RB - 1" FB	315D	310X	320S/10	311X
1½" RB - 1¼" FB	325D	305X	335S/10	316X
2" RB - 1½" FB	325D	306X	335S/10	307X
2½" RB - 2" FB	330D	308X	340S/10	309X
Actuator operating pressure 5 bar g (73 psi g)				
¼" RB - ⅜" RB	310D	300X	310S/6	300X
½" RB - ⅜" FB	310D	300X	310S/6	300X
¾" RB - ½" FB	310D	300X	310S/6	300X
1" RB - ¾" FB	315D	302X	320S/12	303X
1¼" RB - 1" FB	315D	310X	320S/12	311X
1½" RB - 1¼" FB	320D	305X	330S/12	305X
2" RB - 1½" FB	325D	306X	335S/12	307X
2½" RB - 2" FB	325D	308X	335S/12	309X
Actuator operating pressure 6 bar g (87 psi g)				
¼" RB - ⅜" RB	310D	300X	310S/8	300X
½" RB - ⅜" FB	310D	300X	310S/8	300X
¾" RB - ½" FB	310D	300X	310S/8	300X
1" RB - ¾" FB	310D	302X	315S/14	302X
1¼" RB - 1" FB	315D	310X	320S/14	311X
1½" RB - 1¼" FB	320D	305X	330S/14	305X
2" RB - 1½" FB	320D	306X	330S/14	306X
2½" RB - 2" FB	325D	308X	335S/14	309X

M10Hi and M10HTi ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
¼" RB - ⅜" RB	315D	490X	320S/8	491X
½" RB - ⅜" FB	315D	490X	320S/8	491X
¾" RB - ½" FB	315D	490X	325S/8	491X
1" RB - ¾" FB	320D	493X	330S/8	493X
1¼" RB - 1" FB	325D	494X	340S/8	495X
1½" RB - 1¼" FB	330D	496X	340S/8	497X
2" RB - 1½" FB	330D	498X	340S/8	499X
2½" RB - 2" FB	335D	502X	345S/8	503X
Actuator operating pressure 4 bar g (58 psi g)				
¼" RB - ⅜" RB	310D	490X	320S/10	491X
½" RB - ⅜" FB	310D	490X	320S/10	491X
¾" RB - ½" FB	315D	490X	320S/10	491X
1" RB - ¾" FB	320D	493X	325S/10	493X
1¼" RB - 1" FB	325D	494X	335S/10	495X
1½" RB - 1¼" FB	325D	496X	335S/10	497X
2" RB - 1½" FB	330D	498X	340S/10	499X
2½" RB - 2" FB	335D	502X	340S/10	502X
Actuator operating pressure 5 bar g (73 psi g)				
¼" RB - ⅜" RB	310D	490X	315S/12	490X
½" RB - ⅜" FB	310D	490X	315S/12	490X
¾" RB - ½" FB	315D	490X	320S/12	491X
1" RB - ¾" FB	315D	492X	325S/12	493X
1¼" RB - 1" FB	320D	494X	330S/12	494X
1½" RB - 1¼" FB	325D	496X	335S/12	497X
2" RB - 1½" FB	325D	498X	335S/12	499X
2½" RB - 2" FB	330D	505X	335S/12	502X
Actuator operating pressure 6 bar g (87 psi g)				
¼" RB - ⅜" RB	310D	490X	315S/14	490X
½" RB - ⅜" FB	310D	490X	315S/14	490X
¾" RB - ½" FB	310D	490X	320S/14	491X
1" RB - ¾" FB	315D	492X	320S/14	493X
1¼" RB - 1" FB	320D	494X	330S/14	494X
1½" RB - 1¼" FB	320D	496X	330S/14	496X
2" RB - 1½" FB	325D	498X	335S/14	499X
2½" RB - 2" FB	325D	505X	335S/14	502X

DN	A	B
¼"	218 (8.6)	122 (4.8)
⅜"	218 (8.6)	122 (4.8)
½"	218 (8.6)	122 (4.8)
¾"	239 (9.4)	124 (4.9)
1"	266 (10.5)	129 (5.1)
1¼"	281 (11.1)	134 (5.3)
1½"	336 (13.2)	137 (5.4)
2"	342 (13.5)	143 (5.6)
2½"	356 (14.0)	157 (6.2)

Dimensions *
mm (inches)



DN	A	B
¼"	259 (10.2)	122 (4.8)
⅜"	259 (10.2)	122 (4.8)
½"	259 (10.2)	122 (4.8)
¾"	271 (10.7)	124 (4.9)
1"	294 (11.6)	129 (5.1)
1¼"	347 (13.7)	134 (5.3)
1½"	336 (13.2)	137 (5.4)
2"	342 (13.4)	143 (5.6)
2½"	378 (14.9)	157 (6.2)

* **Note:** The dimensions **A** and **B** represent the maximum size (mm) for the biggest recommended actuator according to each valve.

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

Pneumatic actuator selection tables for three-piece ball valves

M10HPi ball valves

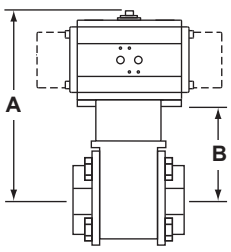
DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
¼" RB - ⅜" RB	315D	490X	320S/8	491X
½" RB - ⅜" FB	315D	490X	320S/8	491X
¾" RB - ½" FB	315D	490X	325S/8	491X
1" RB - ¾" FB	320D	493X	330S/8	493X
1¼" RB - 1" FB	325D	494X	340S/8	495X
1½" RB - 1¼" FB	330D	496X	340S/8	497X
2" RB - 1½" FB	335D	499X	345S/8	500X
Actuator operating pressure 4 bar g (58 psi g)				
¼" RB - ⅜" RB	310D	490X	320S/10	491X
½" RB - ⅜" FB	310D	490X	320S/10	491X
¾" RB - ½" FB	315D	490X	320S/10	491X
1" RB - ¾" FB	320D	493X	325S/10	493X
1¼" RB - 1" FB	325D	494X	335S/10	495X
1½" RB - 1¼" FB	325D	496X	335S/10	497X
2" RB - 1½" FB	335D	499X	340S/10	499X
Actuator operating pressure 5 bar g (73 psi g)				
¼" RB - ⅜" RB	310D	490X	315S/12	490X
½" RB - ⅜" FB	310D	490X	315S/12	490X
¾" RB - ½" FB	315D	490X	320S/12	491X
1" RB - ¾" FB	315D	492X	325S/12	493X
1¼" RB - 1" FB	320D	494X	330S/12	494X
1½" RB - 1¼" FB	325D	496X	335S/12	497X
2" RB - 1½" FB	330D	498X	340S/12	499X
Actuator operating pressure 6 bar g (87 psi g)				
¼" RB - ⅜" RB	310D	490X	315S/14	490X
½" RB - ⅜" FB	310D	490X	315S/14	490X
¾" RB - ½" FB	310D	490X	320S/14	491X
1" RB - ¾" FB	315D	492X	320S/14	493X
1¼" RB - 1" FB	320D	494X	330S/14	494X
1½" RB - 1¼" FB	320D	496X	330S/14	496X
2" RB - 1½" FB	330D	498X	340S/14	499X

M10Pi ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
¼" RB - ⅜" RB	310D	490X	310S/4	490X
½" RB - ⅜" FB	310D	490X	310S/4	490X
¾" RB - ½" FB	310D	490X	315S/8	490X
1" RB - ¾" FB	315D	492X	320S/8	493X
1¼" RB - 1" FB	320D	494X	325S/8	494X
1½" RB - 1¼" FB	330D	496X	340S/8	497X
2" RB - 1½" FB	330D	498X	340S/8	499X
2½" RB - 2" FB	330D	505X	340S/8	502X
Actuator operating pressure 4 bar g (58 psi g)				
¼" RB - ⅜" RB	310D	490X	310S/6	490X
½" RB - ⅜" FB	310D	490X	310S/6	490X
¾" RB - ½" FB	310D	490X	315S/10	490X
1" RB - ¾" FB	315D	492X	320S/10	493X
1¼" RB - 1" FB	315D	504X	320S/10	494X
1½" RB - 1¼" FB	325D	496X	335S/10	497X
2" RB - 1½" FB	325D	498X	335S/10	499X
2½" RB - 2" FB	330D	505X	340S/10	502X
Actuator operating pressure 5 bar g (73 psi g)				
¼" RB - ⅜" RB	310D	490X	310S/6	490X
½" RB - ⅜" FB	310D	490X	310S/6	490X
¾" RB - ½" FB	310D	490X	310S/6	490X
1" RB - ¾" FB	315D	492X	320S/12	493X
1¼" RB - 1" FB	315D	504X	320S/12	494X
1½" RB - 1¼" FB	320D	496X	330S/12	496X
2" RB - 1½" FB	325D	498X	335S/12	499X
2½" RB - 2" FB	325D	505X	335S/12	502X
Actuator operating pressure 6 bar g (87 psi g)				
¼" RB - ⅜" RB	310D	490X	310S/8	490X
½" RB - ⅜" FB	310D	490X	310S/8	490X
¾" RB - ½" FB	310D	490X	310S/8	490X
1" RB - ¾" FB	310D	492X	315S/14	492X
1¼" RB - 1" FB	315D	504X	320S/14	494X
1½" RB - 1¼" FB	320D	496X	330S/14	496X
2" RB - 1½" FB	320D	498X	330S/14	498X
2½" RB - 2" FB	325D	505X	335S/14	502X

DN	A	B
¼"	259 (10.2)	122 (4.8)
⅜"	259 (10.2)	122 (4.8)
½"	259 (10.2)	122 (4.8)
¾"	259 (10.2)	124 (4.9)
1"	294 (11.6)	129 (5.1)
1¼"	347 (13.7)	134 (5.3)
1½"	336 (13.2)	137 (5.4)
2"	381 (15.0)	143 (5.6)

Dimensions ∗ mm (inches)



DN	A	B
¼"	218 (8.8)	122 (4.8)
⅜"	218 (8.8)	122 (4.8)
½"	218 (8.8)	122 (4.8)
¾"	239 (9.4)	124 (4.9)
1"	266 (10.5)	129 (5.1)
1¼"	281 (11.1)	134 (5.3)
1½"	336 (13.2)	137 (5.4)
2"	342 (13.5)	143 (5.6)
2½"	356 (14.0)	157 (6.2)

∗ **Note:** The dimensions **A** and **B** represent the maximum size for the biggest recommended actuator according to each valve.

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

Pneumatic actuator selection tables for three-piece ball valves

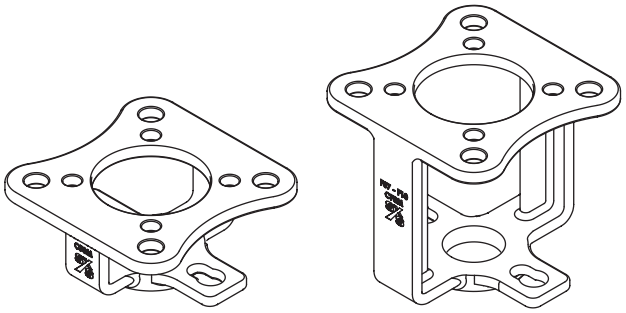
M10MVi and M10MSi ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
¼" RB - ⅜" RB	310D	560	310S/4	560
½" RB - ⅜" FB	310D	560	310S/4	560
¾" RB - ½" FB	310D	560	315S/8	560
1" RB - ¾" FB	315D	562	320S/8	563
1¼" RB - 1" FB	320D	564	325S/8	564
1½" RB - 1¼" FB	330D	564	340S/8	565
2" RB - 1½" FB	330D	566	340S/8	567
Actuator operating pressure 4 bar g (58 psi g)				
¼" RB - ⅜" RB	310D	560	310S/6	560
½" RB - ⅜" FB	310D	560	310S/6	560
¾" RB - ½" FB	310D	560	315S/10	560
1" RB - ¾" FB	315D	562	320S/10	563
1¼" RB - 1" FB	320D	564	320S/10	564
1½" RB - 1¼" FB	325D	564	335S/10	565
2" RB - 1½" FB	325D	566	335S/10	567

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 5 bar g (73 psi g)				
¼" RB - ⅜" RB	310D	560	310S/6	560
½" RB - ⅜" FB	310D	560	310S/6	560
¾" RB - ½" FB	310D	560	310S/6	560
1" RB - ¾" FB	315D	562	320S/12	563
1¼" RB - 1" FB	320D	564	320S/12	564
1½" RB - 1¼" FB	320D	564	330S/12	564
2" RB - 1½" FB	325D	566	335S/12	567
Actuator operating pressure 6 bar g (87 psi g)				
¼" RB - ⅜" RB	310D	560	310S/8	560
½" RB - ⅜" FB	310D	560	310S/8	560
¾" RB - ½" FB	310D	560	310S/8	560
1" RB - ¾" FB	310D	562	315S/14	562
1¼" RB - 1" FB	320D	564	320S/14	564
1½" RB - 1¼" FB	320D	564	330S/14	564
2" RB - 1½" FB	320D	566	330S/14	566

Automation

Spirax Sarco offers two height options, on the one hand low bracket (40 mm) for applications below 100 °C (212 °F). For higher temperature applications the use of high temperature bracket of about 90 mm height is recommended.



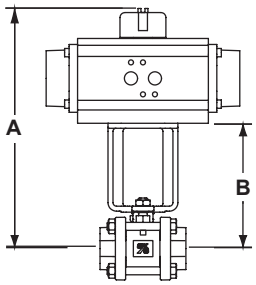
Kit BVA for M10M selection guide:

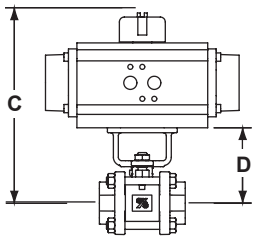
Bracket height	Blank	= Short bracket (40mm)	X
	X	= Tall bracket (90mm)	
Kit material	Blank	Stainless steel	C
	C	Carbon steel	

Example: 1 off Spirax Sarco Kit BVL 560 - CX.

Dimensions in mm (inches)

DN	A	B	C	D
¼"	214 (8.4)	118 (4.6)	164 (6.5)	68 (2.7)
⅜"				
½"				
¾"	235 (9.3)	120 (4.7)	185 (7.3)	70 (2.8)
1"	265.5 (10.5)	125.5 (4.9)	212.5 (8.4)	75.5 (3.0)
1¼"	278 (11.0)	131 (5.3)	228 (9.0)	81 (3.2)
1½"	333.5 (13.1)	134.5 (5.3)	283.5 (11.2)	84.5 (3.3)
2"	341 (13.4)	142 (5.6)	291 (11.5)	92 (3.6)





* **Note:** The dimensions **A, B, C** and **D** represent the maximum size for the biggest recommended actuator according to each valve.

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

Pneumatic actuator selection tables for three-piece ball valves

M70i ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
½"	315D	300X	320S/8	301X
¾"	315D	300X	325S/8	301X
1"	320D	303X	325S/8	303X
1½"	330D	306X	340S/8	307X
2"	335D	309X	345S/8	318X
Actuator operating pressure 4 bar g (58 psi g)				
½"	315D	300X	320S/10	301X
¾"	315D	300X	320S/10	301X
1"	315D	302X	325S/10	303X
1½"	330D	306X	340S/10	307X
2"	335D	309X	340S/10	309X
Actuator operating pressure 5 bar g (73 psi g)				
½"	310D	300X	320S/12	301X
¾"	315D	300X	320S/12	301X
1"	315D	302X	320S/12	303X
1½"	325D	306X	335S/12	307X
2"	330D	308X	340S/12	309X
Actuator operating pressure 6 bar g (87 psi g)				
½"	310D	300X	315S/14	300X
¾"	310D	300X	320S/14	301X
1"	315D	302X	320S/14	303X
1½"	325D	306X	335S/14	307X
2"	330D	308X	335S/14	309X

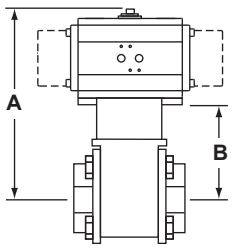
DN	A	B
½"	259 (10.2)	122 (4.8)
¾"	271 (10.7)	124 (4.9)
1"	276 (10.9)	129 (5.1)
1½"	342 (13.5)	143 (5.6)
2"	378 (14.9)	157 (6.2)

M80i ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
2½"	335D	481X	345S/8	482X
3"	340D	481X	345S/8	482X
4"	340D	484X	350S/8	486X
Actuator operating pressure 4 bar g (58 psi g)				
2½"	335D	481X	340S/10	481X
3"	335D	481X	345S/10	482X
4"	335D	484X	345S/10	485X
Actuator operating pressure 5 bar g (73 psi g)				
2½"	330D	480X	340S/12	481X
3"	335D	481X	340S/12	481X
4"	335D	484X	345S/12	485X
Actuator operating pressure 6 bar g (87 psi g)				
2½"	330D	480X	340S/14	481X
3"	330D	480X	340S/14	481X
4"	335D	484X	340S/14	484X

DN	A	B
2½"	407 (16.0)	186 (7.3)
3"	434 (17.1)	213 (8.4)
4"	499 (19.6)	250 (9.8)

Dimensions * mm (inches)



* **Note:** The dimensions **A** and **B** represent the maximum size for the biggest recommended actuator according to each valve.

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

Pneumatic actuator selection tables for two-piece ball valves

M31V ISO and M31S ISO ball valves

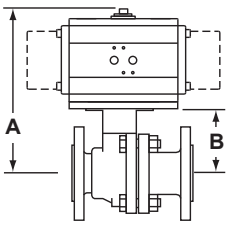
DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
2"	325D	400X	335S/8	401X
2½"	330D	402X	340S/8	403X
3"	330D	402X	345S/8	404X
4"	345D	406X	355S/8	407X
6"	355D	409X	365S/8	414X
8"	360D	413X	-	-
Actuator operating pressure 4 bar g (58 psi g)				
2"	320D	400X	330S/10	400X
2½"	325D	402X	335S/10	403X
3"	330D	402X	340S/10	403X
4"	340D	405X	350S/10	407X
6"	355D	409X	360S/10	410X
8"	355D	412X	360S/12	413X
Actuator operating pressure 5 bar g (73 psi g)				
2"	320D	400X	330S/12	400X
2½"	320D	402X	330S/12	402X
3"	325D	402X	335S/12	403X
4"	335D	405X	350S/12	407X
6"	350D	409X	360S/12	410X
8"	355D	412X	360S/12	413X
Actuator operating pressure 6 bar g (87 psi g)				
2"	320D	400X	330S/14	400X
2½"	320D	402X	330S/14	402X
3"	325D	402X	335S/14	403X
4"	335D	405X	345S/14	406X
6"	350D	409X	360S/14	410X
8"	350D	412X	360S/14	413X

M33V ISO, M33S ISO, M33F and M33T ISO ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
2"	330D	510X	340S/8	511X
2½"	335D	513X	345S/8	514X
3"	340D	513X	350S/8	526X
4"	350D	517X	360S/8	527X
6"	360D	520X	365S/8	521X
8"	365D	525X	-	-
Actuator operating pressure 4 bar g (58 psi g)				
2"	330D	510X	335S/10	511X
2½"	335D	513X	340S/10	513X
3"	335D	513X	345S/10	514X
4"	345D	516X	355S/10	517X
6"	355D	519X	360S/10	520X
8"	360D	524X	365S/10	525X
Actuator operating pressure 5 bar g (73 psi g)				
2"	325D	510X	335S/12	511X
2½"	330D	512X	340S/12	513X
3"	335D	513X	340S/12	513X
4"	345D	516X	355S/12	517X
6"	350D	519X	360S/12	520X
8"	360D	524X	365S/12	525X
Actuator operating pressure 6 bar g (87 psi g)				
2"	325D	510X	335S/14	511X
2½"	330D	512X	335S/14	513X
3"	335D	513X	340S/14	513X
4"	345D	516X	350S/14	517X
6"	350D	519X	360S/14	520X
8"	360D	524X	365S/14	525X

DN	A	B
2"	340 (13.4)	158 (6.2)
2½"	371 (14.6)	172 (6.8)
3"	400 (15.7)	179 (7.0)
4"	488 (19.2)	208 (8.2)
6"	747 (29.4)	313 (12.3)
8"	731(28.8)	348 (13.7)

Dimensions * mm (inches)



DN	A	B
2"	356 (14.0)	157 (6.2)
2½"	390 (15.4)	169 (6.7)
3"	426 (16.8)	177 (7.0)
4"	647 (25.4)	264 (10.4)
6"	750 (29.5)	316 (12.4)
8"	785 (31.0)	351 (13.8)

* **Note:** The dimensions **A** and **B** represent the maximum size for the biggest recommended actuator according to each valve.

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

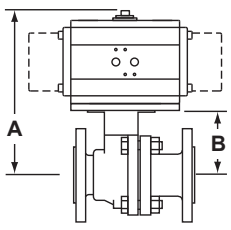
Pneumatic actuator selection tables for two-piece ball valves

M33H ISO and M33HT ISO ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
2"	335D	511X	345S/8	528X
2½"	335D	513X	345S/8	514X
3"	340D	513X	350S/8	526X
4"	350D	517X	360S/8	527X
6"	360D	520X	365S/8	521X
8"	365D	525X	-	-
Actuator operating pressure 4 bar g (58 psi g)				
2"	330D	510X	340S/10	511X
2½"	335D	513X	340S/10	513X
3"	335D	513X	345S/10	514X
4"	345D	516X	355S/10	517X
6"	357D	520X	360S/10	520X
8"	360D	524X	365S/10	525X
Actuator operating pressure 5 bar g (73 psi g)				
2"	330D	510X	340S/12	511X
2½"	330D	512X	340S/12	513X
3"	335D	513X	345S/12	514X
4"	345D	516X	355S/12	517X
6"	355D	519X	360S/12	520X
8"	360D	524X	365S/12	525X
Actuator operating pressure 6 bar g (87 psi g)				
2"	325D	510X	335S/14	511X
2½"	325D	512X	340S/14	513X
3"	335D	513X	340S/14	513X
4"	345D	516X	350S/14	517X
6"	350D	519X	360S/14	520X
8"	360D	524X	365S/14	525X

DN	A	B
2"	395 (15.6)	174 (6.9)
2½"	390 (15.4)	169 (6.7)
3"	426 (16.8)	177 (7.0)
4"	647 (25.5)	264 (10.4)
6"	750 (29.5)	316 (12.4)
8"	785 (31.0)	351 (13.8)

Dimensions *
mm (inches)



* **Note:** The dimensions **A** and **B** represent the maximum size for the biggest recommended actuator according to each valve.

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

Pneumatic actuator selection tables for one-piece ball valves

M21Hi and M21HTi ball valves

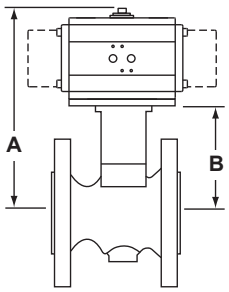
M40Hi and M40HTi ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
½" **	315D	300X	325S/8	301X
¾" **	315D	300X	325S/8	301X
1"	320D	303X	325S/8	303X
1¼"	320D	494X	330S/8	494X
1½"	325D	306X	340S/8	307X
2"	330D	306X	340S/8	307X
2½"	335D	511X	345S/8	528X
3"	335D	513X	345S/8	514X
4"	340D	513X	350S/8	526X
6"	350D	517X	360S/8	527X
Actuator operating pressure 4 bar g (58 psi g)				
½" **	315D	300X	320S/10	301X
¾" **	315D	300X	320S/10	301X
1"	315D	302X	325S/10	303X
1¼"	320D	494X	325S/10	494X
1½"	325D	306X	335S/10	307X
2"	325D	306X	335S/10	307X
2½"	335D	511X	345S/10	528X
3"	335D	513X	345S/10	514X
4"	340D	513X	350S/10	526X
6"	350D	517X	357S/10	527X

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 5 bar g (73 psi g)				
½" **	315D	300X	320S/12	301X
¾" **	315D	300X	320S/12	301X
1"	315D	302X	320S/12	303X
1¼"	315D	504X	325S/12	494X
1½"	320D	306X	330S/12	306X
2"	325D	306X	335S/12	307X
2½"	330D	510X	340S/12	511X
3"	330D	512X	345S/12	514X
4"	335D	513X	345S/12	514X
6"	345D	516X	357S/12	527X
Actuator operating pressure 6 bar g (87 psi g)				
½" **	310D	300X	320S/14	301X
¾" **	310D	300X	320S/14	301X
1"	315D	302X	320S/14	303X
1¼"	315D	504X	325S/14	494X
1½"	320D	306X	330S/14	306X
2"	320D	306X	330S/14	306X
2½"	330D	510X	340S/14	511X
3"	330D	512X	340S/14	513X
4"	335D	513X	345S/14	514X
6"	345D	516X	355S/14	517X

DN	A	B
½" **	271 (10.7)	124 (4.9)
¾" **	271 (10.7)	124 (4.9)
1"	276 (10.9)	129 (4.9)
1¼"	299 (11.8)	134 (5.3)
1½"	337 (13.3)	138 (5.4)
2"	342 (13.5)	143 (5.6)
2½"	395 (15.6)	174 (6.9)
3"	383 (15.1)	162 (6.4)
4"	426 (16.8)	177 (7.0)
6"	647 (25.5)	264 (10.4)

Dimensions * mm (inches)



*** Note:** The dimensions A and B represent the maximum size for the biggest recommended actuator according to each valve.

**** Note:** ½" and ¾" just for M21i

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

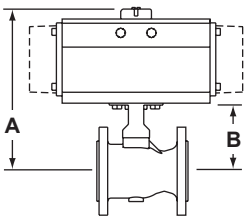
Pneumatic actuator selection tables for one-piece ball valves

M45i ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
1"	320D	303X	325S/8	303X
1¼"	320D	494X	330S/8	494X
1½"	325D	306X	340S/8	307X
2"	330D	306X	340S/8	307X
2½"	335D	511X	345S/8	528X
3"	340D	513X	345S/8	514X
4"	345D	514X	355S/8	526X
6"	345D	516X	360S/8	527X
Actuator operating pressure 4 bar g (58 psi g)				
1"	315D	302X	325S/10	303X
1¼"	320D	494X	330S/10	494X
1½"	325D	306X	330S/10	306X
2"	325D	306X	335S/10	307X
2½"	330D	510X	340S/10	511X
3"	335D	513X	345S/10	514X
4"	340D	513X	350S/10	526X
6"	345D	516X	355S/10	517X
Actuator operating pressure 5 bar g (73 psi g)				
1"	315D	302X	320S/12	303X
1¼"	320D	494X	325S/12	494X
1½"	320D	306X	330S/12	306X
2"	325D	306X	335S/12	307X
2½"	330D	510X	340S/12	511X
3"	335D	513X	340S/12	513X
4"	335D	513X	345S/12	514X
6"	340D	515X	355S/12	517X
Actuator operating pressure 6 bar g (87 psi g)				
1"	315D	302X	320S/14	303X
1¼"	315D	504X	325S/14	494X
1½"	320D	306X	330S/14	306X
2"	320D	306X	330S/14	306X
2½"	325D	510X	335S/14	511X
3"	330D	512X	340S/14	513X
4"	335D	513X	345S/14	514X
6"	340D	515X	350S/14	517X

DN	A	B
1"	276 (10.9)	129 (5.1)
1¼"	299 (11.8)	134 (5.3)
1½"	337 (13.3)	138 (5.4)
2"	342 (13.5)	143 (5.6)
2½"	378 (14.9)	157 (6.2)
3"	383 (15.1)	162 (6.4)
4"	457 (18.0)	177 (7.0)
6"	650 (25.6)	264 (10.4)

Dimensions *
mm (inches)



* **Note:** The dimensions **A** and **B** represent the maximum size for the biggest recommended actuator according to each valve.

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

Pneumatic actuator selection tables for one-piece ball valves

M21Ti, M21Vi, M21Si and M21Fi ball valves

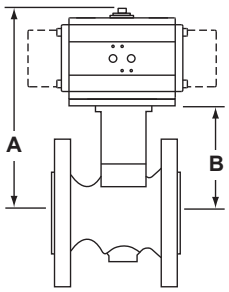
M40Ti, M40Vi, M40Si and M40Fi ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
½" **	310D	300X	320S/8	301X
¾"**	310D	300X	320S/8	301X
1"	315D	302X	320S/8	303X
1¼"	320D	494X	325S/8	494X
1½"	320D	306X	330S/8	306X
2"	320D	306X	330S/8	306X
2½"	330D	510X	340S/8	511X
3"	335D	513X	345S/8	514X
4"	340D	513X	350S/8	526X
6"	340D	515X	350S/8	517X
8" ***	360D	520X	365S/8	521X
Actuator operating pressure 4 bar g (58 psi g)				
½" **	310D	300X	315S/10	300X
¾"**	310D	300X	315S/10	300X
1"	315D	302X	320S/10	303X
1¼"	315D	504X	320S/10	494X
1½"	320D	306X	325S/10	306X
2"	320D	306X	330S/10	306X
2½"	325D	510X	335S/10	511X
3"	335D	513X	340S/10	513X
4"	335D	513X	345S/10	514X
6"	335D	515X	345S/10	516X
8" ***	355D	519X	360S/10	520X

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 5 bar g (73 psi g)				
½" **	310D	300X	315S/12	300X
¾"**	310D	300X	315S/12	300X
1"	315D	302X	320S/12	303X
1¼"	315D	504X	320S/12	494X
1½"	315D	506X	325S/12	306X
2"	320D	306X	325S/12	306X
2½"	325D	510X	335S/12	511X
3"	330D	512X	340S/12	513X
4"	335D	513X	340S/12	513X
6"	335D	515X	345S/12	516X
8" ***	350D	519X	360S/12	520X
Actuator operating pressure 6 bar g (87 psi g)				
½" **	310D	300X	315S/14	300X
¾"**	310D	300X	315S/14	300X
1"	310D	302X	315S/14	302X
1¼"	315D	504X	320S/14	494X
1½"	315D	506X	325S/14	306X
2"	315D	506X	325S/14	306X
2½"	320D	510X	330S/14	510X
3"	330D	512X	335S/14	513X
4"	330D	512X	340S/14	513X
6"	335D	515X	345S/14	516X
8" ***	350D	519X	360S/14	520 X

DN	A	B
½"	271 (10.7)	124 (4.9)
¾"	271 (10.7)	124 (4.9)
1"	276 (10.9)	129 (5.1)
1¼"	299 (11.8)	134 (5.3)
1½"	337 (13.3)	138 (5.4)
2"	342 (13.5)	143 (5.6)
2½"	356 (14.0)	157 (6.2)
3"	383 (15.1)	162 (6.4)
4"	398 (15.7)	177 (7.0)
6"	513 (20.2)	264 (10.4)
8"	750 (29.5)	316 (12.4)

Dimensions * mm (inches)



*** Note:** The dimensions A and B represent the maximum size for the biggest recommended actuator according to each valve.

**** Note:** ½" and ¾" just for M21i

***** Note:** 8" just for M40i

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

Pneumatic actuator selection tables for one-piece ball valves

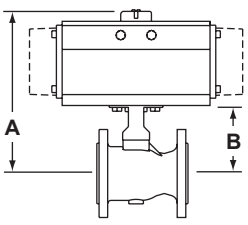
M21ViJ and M21SiJ ball valves

M40ViJ and M40SiJ ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 psi g)				
1½"	320D	306X	330S/8	306X
2"	325D	306X	330S/8	306X
2½"	330D	510X	340S/8	511X
3"	335D	513X	345S/8	514X
4"	340D	513X	350S/8	526X
Actuator operating pressure 4 bar g (58 psi g)				
1½"	320D	306X	325S/10	306X
2"	320D	306X	330S/10	306X
2½"	330D	510X	335S/10	511X
3"	335D	513X	345S/10	514X
4"	340D	513X	345S/10	514X
Actuator operating pressure 5 bar g (73 psi g)				
1½"	320D	306X	325S/12	306X
2"	320D	306X	325S/12	306X
2½"	325D	510X	335S/12	511X
3"	335D	513X	340S/12	513X
4"	335D	513X	345S/12	514X
Actuator operating pressure 6 bar g (87 psi g)				
1½"	320D	306X	325S/14	306X
2"	320D	306X	325S/14	306X
2½"	325D	510X	335S/14	511X
3"	330D	512X	340S/14	513X
4"	335D	513X	340S/14	513X

DN	A	B
1½"	303 (12.0)	138 (5.4)
2"	308 (12.1)	143 (5.6)
2½"	373 (14.7)	174 (6.9)
3"	383 (15.1)	162 (6.4)
4"	426 (16.8)	177 (7.0)

Dimensions * mm (inches)



* **Note:** The dimensions **A** and **B** represent the maximum size for the biggest recommended actuator according to each valve.

Selection tables

Pages 5 to 15 contain all necessary information to select the correct actuator for relevant Spirax Sarco ball valves. For valves not appearing in these tables please contact Spirax Sarco for advice.

Pneumatic actuator selection tables for one-piece ball valves

M21ECFi4 ball valves

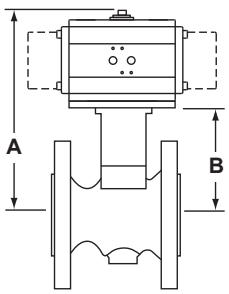
M40ECFi4 ball valves

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 3 bar g (44 bar g)				
½" **	315D	300X	320S/8	301X
¾"**	315D	300X	320S/8	301X
1"	315D	302X	320S/8	303X
1¼"	320D	494X	325S/8	494X
1½"	320D	306X	330S/8	306X
2"	325D	306X	330S/8	306X
2½"	330D	510X	335S/8	511X
3"	335D	513X	340S/8	513X
4"	340D	513X	345S/8	514X
Actuator operating pressure 4 bar g (58 psi g)				
½" **	310D	300X	315S/10	300X
¾"**	310D	300X	315S/10	300X
1"	315D	302X	320S/10	303X
1¼"	315D	504X	320S/10	494X
1½"	320D	306X	325S/10	306X
2"	320D	306X	330S/10	306X
2½"	325D	510X	330S/10	510X
3"	330D	512X	340S/10	513X
4"	335D	513X	340S/10	513X

DN	Double acting		Single acting	
	BVA	BVL	BVA	BVL
Actuator operating pressure 5 bar g (73 psi g)				
½" **	310D	300X	315S/10	300X
¾"**	310D	300X	315S/10	300X
1"	315D	302X	320S/12	303X
1¼"	315D	504X	320S/12	494X
1½"	320D	306X	325S/12	306X
2"	320D	306X	325S/12	306X
2½"	320D	510X	330S/12	510X
3"	330D	512X	335S/12	513X
4"	335D	513X	340S/12	513X
Actuator operating pressure 6 bar g (87 psi g)				
½" **	310D	300X	315S/14	300X
¾"**	310D	300X	315S/14	300X
1"	310D	302X	315S/14	302X
1¼"	315D	504X	320S/14	494X
1½"	315D	506X	320S/14	306X
2"	320D	506X	325S/14	306X
2½"	320D	510X	330S/14	510X
3"	325D	512X	335S/14	513X
4"	330D	512X	340S/14	513X

DN	A	B
½"	255 (10.0)	118 (4.6)
¾"	255 (10.0)	118 (4.6)
1"	266 (10.5)	129 (5.1)
1¼"	281 (11.1)	134 (5.3)
1½"	307 (12.0)	138 (5.4)
2"	308 (12.1)	143 (5.6)
2½"	339 (13.3)	157 (6.2)
3"	365 (14.3)	162 (6.4)
4"	403 (15.9)	177 (7.0)

Dimensions * mm (inches)



*** Note:** The dimensions A and B represent the maximum size for the biggest recommended actuator according to each valve.

**** Note:** ½" and ¾" just for M21ECFi4