

ORDERING INFORMATION

Valve style

5 Gate

6 Angle

Valve flange (larger sizes on request)

A 2 in ASA

B 3 in ASA

C 4 in ASA

D 6 in ASA

E 8 in ASA

F 10 in ASA

Flange "O" rings (Viton®)

1 "O" rings both flanges

2 No flange "O" rings

3 "O" ring open side

4 "O" ring seal side

"O" ring material

B Buna-N

V Viton®

S Silicone

K Kalrez®

wv

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Actuator

Electropneumatic 1

Pneumatic 2

Solenoid voltage

No solenoid 0

115 V a.c. 1

220 V a.c. 2

24 V d.c. 3

24 V a.c. 4

110 V a.c. 5

Position indicator

No position indicator 0

Electronic type 1

Position indicator

QSB QUARTER SWING BUTTERFLY VALVES MANUAL AND PNEUMATIC



The QSB quarter swing valves are compact, quick acting, high conductance isolation valves. The QSB valves have a polished, stainless steel, ISO flanged body with fluoroelastomer "O" ring sealed valve plate and shaft. The valve plate "O" ring groove is vented to help maintain a stable high vacuum. The valve shaft "O" rings and bearings are lubricated with Fomblin® grease to prevent gas bursts from behind the shaft seals.

The pneumatic operation valves each have microswitches to indicate when the valve is open or closed. The QSB63P, QSB100P and QSB160P valves have a double acting actuator to open and close the valve. The QSB250P valve has a single acting actuator to open the valve and a spring to close the valve. The actuator link of all pneumatic operation valves is enclosed by a safety cover. Electropneumatic control valves are available as optional accessories (see page 5-20): use 5-port control valves for the double acting actuator on the QSB63P, QSB100P and QSB160P valves and use 3-port control valves for the single acting actuator on the QSB250P valve. Use Co-Seals for flange sealing.

TECHNICAL DATA

Valve plate material	AISI 304 stainless steel
Operating pressure range	10^{-9} – 3000 mbar / 8×10^{-10} – 2250 Torr
Maximum pressure differential	1000 mbar / 750 Torr
Operating temperature range	5 – 40 °C
Maximum baking temperature	200 °C (without actuator)
Leak rate	$< 10^{-9}$ mbar l s ⁻¹ / 8×10^{-10} Torr l s ⁻¹
Pneumatic valves only:	
Reliability (MTTF)	$> 1.5 \times 10^5$ cycles
Pneumatic connectors	1/8 in BSP, for 6 mm OD tube
Number of connectors	
QSB63, QSB100, QSB160	2
QSB250	1
Microswitch rating	5 A at 48 V
Microswitch connectors	
QSB63, QSB100, QSB160	Solder tags
QSB250	Screwed connector

VALVE	QSB63 QSB63P	QSB100 QSB100P	QSB160 QSB160P	QSB250 QSB250P
Flange size	ISO63	ISO100	ISO160	ISO250
Conductance* (l s ⁻¹)	420	1250	2700	13000
Operating torque† (Nm)	4	5.4	7.5	19.5
Pneumatic pressure‡ (bar)				
Recommended		2.8 to 4.2		4 to 6
Minimum		2.4		3.8
Maximum		7		
Pneumatic pressure‡ (psi)				
Recommended		40.6 to 61		58 to 87
Minimum		34.8		55
Maximum		101.5		

* Conductance of equivalent tube length

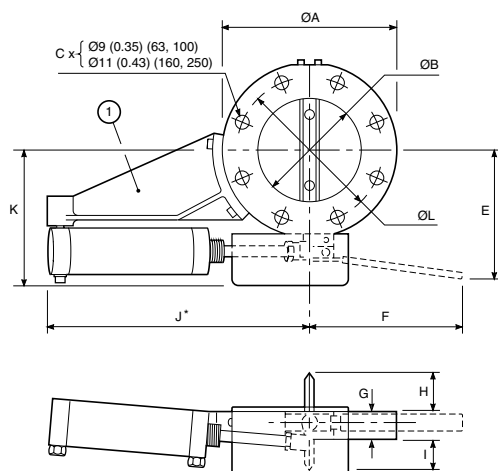
† manual operation

‡ pneumatic operation

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VALVES



1 Actuator cylinder support bracket (QSB63P, QSB100P and QSB160P only).

Dimensions in mm

VALVE	A	B	C	E	F	G	H	I	J	K	ØL
QSB63	130	63	4	111	130	23.5	24.5	19	—	—	110
QSB63P	130	63	4	105	—	23.5	24.5	19	235	108	110
QSB100	165	96	8	125	130	26	41	33	—	—	145
QSB100P	165	96	8	123	—	26	41	33	238	126	145
QSB160	225	142.5	8	170	180	43.5	55	48.5	—	—	200
QSB160P	225	142.5	8	166	—	43.5	55	48.5	263	166	200
QSB250	335	250	12	242	215	57	104.5	95.5	—	—	310
QSB250P	335	250	12	230	—	57	104.5	95.5	-337*	224	310

* QSB250P pneumatic actuator is to the right of the valve shaft

Dimensions in inches

VALVE	A	B	C	E	F	G	H	I	J	K	ØL
QSB63	5.07	2.46	0.16	4.33	5.07	0.92	0.96	0.74	—	—	4.29
QSB63P	5.07	2.46	0.16	4.10	—	0.92	0.96	0.74	9.17	4.21	4.29
QSB100	6.44	3.74	0.31	4.88	5.07	1.01	1.60	1.29	—	—	5.66
QSB100P	6.44	3.74	0.31	4.80	—	1.01	1.60	1.29	9.28	4.91	5.66
QSB160	8.78	5.56	0.31	6.63	7.02	1.70	2.15	1.89	—	—	7.80
QSB160P	8.78	5.56	0.31	6.47	—	1.70	2.15	1.89	10.26	6.47	7.80
QSB250	13.07	9.75	0.47	9.44	8.39	2.22	4.08	3.72	—	—	12.09
QSB250P	13.07	9.75	0.47	8.97	—	2.22	4.08	3.72	-14.70	8.74	12.09

* QSB250P pneumatic actuator is to the right of the valve shaft

ORDERING INFORMATION

PRODUCT DESCRIPTION	ORDERING NUMBER
QSB63 manual operation*	B42402000
QSB63P double pneumatic operation*	B42403000
QSB100 manual operation*	B42602000
QSB100P double pneumatic operation*	B42603000
QSB160 manual operation*	B42802000
QSB160P double pneumatic operation*	B42803000
QSB250 manual operation†	B43002000
QSB250P single pneumatic operation†	B43003000

* Supplied with 1 Co-Seal

† Supplied with 1 trapped "O" ring

SPARES	ORDERING NUMBER
QSB63/QSB63P valve	
Butterfly plate "O" ring (fluoroelastomer)	H02106161
Shaft seal "O" ring (5) (fluoroelastomer)	H02106010
QSB100/QSB100P valve	
Butterfly plate "O" ring (fluoroelastomer)	H02106055
Shaft seal "O" ring (5) (fluoroelastomer)	H02106010

ORDERING INFORMATION

QSB160/QSB160P valve

Butterfly plate "O" ring (fluoroelastomer)

H02106208

Shaft seal "O" ring (5) (fluoroelastomer)

H02106011

QSB250/QSB250P valve

Butterfly plate "O" ring (fluoroelastomer)

H02106095

Shaft seal "O" ring (2) (fluoroelastomer)

H02106121

Use 5-port control valves for QSB63P, QSB100P and QSB160P valves; use 3-port control valves for the QSB250P valve. For information about suitable Co-Seals, "O" rings and spacers, see section 'Vacuum system components' on page 1.

ELECTROPNEUMATIC CONTROL VALVES

Electropneumatic control valves can be used to control the operation of pneumatically activated vacuum valves. Control valves are available in 3-port and 5-port versions and with different electrical supply voltages and frequencies to suit your application.

VALVE	VALVE TYPE	RECOMMENDED CONTROL VALVE CONFIGURATION	FIGURE NUMBER
GV gate valves	Double-acting cylinder with no spring return	1 x 5-port lw	3
PVPK pipeline valves soft start QSB 250P	Single-acting cylinder with spring return	1 x 3-port	1
BRV backing/roughing valve	Double-acting cylinder with spring return to the mid-position (that is, isolated position)	2 x 5-port lw 1 x 5-port lw	2* 4†
QSB63/100/160 quarter swing butterfly valves, Diffstak isolation-valves	Double-acting cylinder with no spring return	1 x 5-port	4

* This configuration allows the use of the isolated position of the vacuum valve.

† This configuration only allows the use of the roughing and backing positions of the vacuum valve.

Key to diagrams: 1 Control valve 2 Vacuum valve

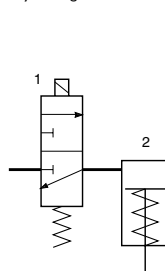


Figure 1 – Pneumatic circuit for 3-port control valve

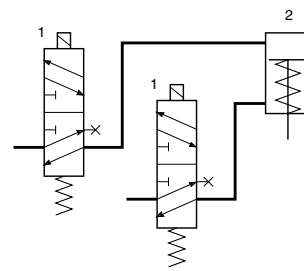


Figure 2 – Pneumatic circuit for two 5-port lightweight control valves