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Diaphragm Valves

Selection Guide for Multi-Port, Angle and Elbow Diaphragm Valves

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Safe Valve Selection

When selecting a valve, the total system design must be considered to ensure safe, trouble-free performance. Valve function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibility of the system designer and end-user.

Selection Guide

Customize a valve to meet your system requirements. Your choice of Valve Actuation, End Connections and Flow Path are described in this section. The model designation options start with selection of the actuator in Figure 1.

Contact Information:

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Valve Actuation - Figure 1

Actuator Style	Pressure Range Vacuum to...	Description of Actuator	Actuator Designator
Manual 930, 955, 945, 830, 855, 845	125 psig (8.6 barg) 250 psig (17 barg) 300 psig (20.7 barg) 3000 psig (207 barg)[1] 3500 psig (240 barg)[1]	Round Handwheel 1/4 Turn Lever Indicating Handwheel Mini 1/4 Turn Lever Toggle	S L I M G
Pneumatic *(low pressure)* 930, 830, 855, 945, 955	125 psig (8.6 barg) 250 psig (17 barg)	Normally Closed[2] Normally Open[2]	AOPLP1NC[3] AOPLPNC AOPLP1NO[3] AOPLPNO
Pneumatic *(medium pressure)* 930, 830	300 psig (20.7 barg)	Normally Closed[2]	AOPMPNC
Pneumatic *(high pressure)* 945, 845	3500 psig (240 barg)[1]	Normally Closed[2]	AOPHPNC

1. For oxygen: 2200 psig (150 bar) 2. Actuation pressure - 75 psig nominal (60-120 psig) 3. "1" Designates Integral Cartridge Fitting for 1/8" O.D. Plastic Tube.
Note: *Use 930 or 945 to replace 944 valves.*

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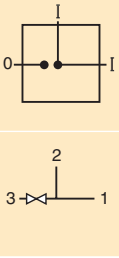
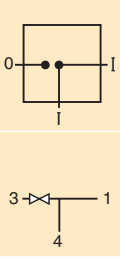
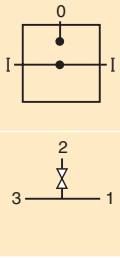
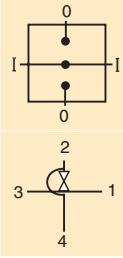
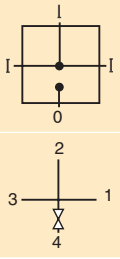
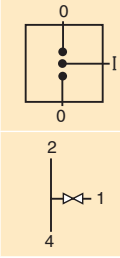
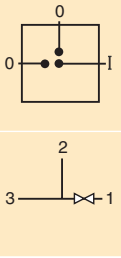
Diaphragm Valve Selection Guide

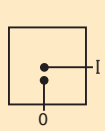
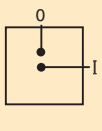
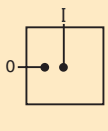
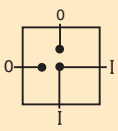
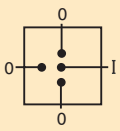
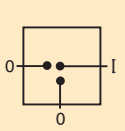
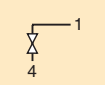
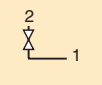
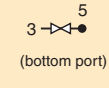
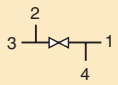
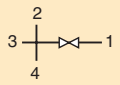
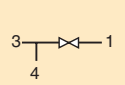
Flow Path

Select a body configuration with the desired internal flow path in Figure 2. The flow path is shown as viewed from the top of the body.

Although high purity valves will operate in either flow direction, the “O” port is generally used as the outlet or downstream port and the “I” port is normally used as the inlet or upstream port. The Flow Path Designator letter will be used in the Valve Ordering Information.

Flow Path Designator – Figure 2

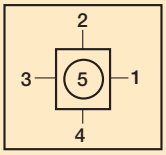
A (3 Port)	B (3 Port)	C (3 Port)	D (4 Port)	E (4 Port)	F (3 Port)	G (3 Port)
						

H (2 Port Elbow)	I (2 Port Elbow)	J (2 Port Angle)	K (4 Port Angle)	L (4 Port)	M (3 Port)
					
					

Port numbering / End Connections

Starting with Port 1 and continuing in numerical sequence with Ports 2, 3, 4, and 5 as shown in Figure 3, select a designator for each port that will be used, i.e. two designators for a two port body, three designators for a three port body, and so on, even if the connections are identical. Select the desired End Connection using the End Connection Style Chart (Figure 4) for each port on the body.

Figure 3

Port Numbering Sequence
Top View of Body 

** 5 = bottom port*

Figure 4

End Connection Size/Style	Designator
1/4” Tube Stub (.250 x .035)	1
1/4” Face Seal Male Swivel	2
1/4” Face Seal Female Swivel	3
3/8” Tube Stub (.375 x .035)	4
1/2” Face Seal Male Swivel	5
1/2” Face Seal Female Swivel	6
1/2” Tube Stub (.500 x .049)	7

Safety Guide and Installation and Operating Instructions available at
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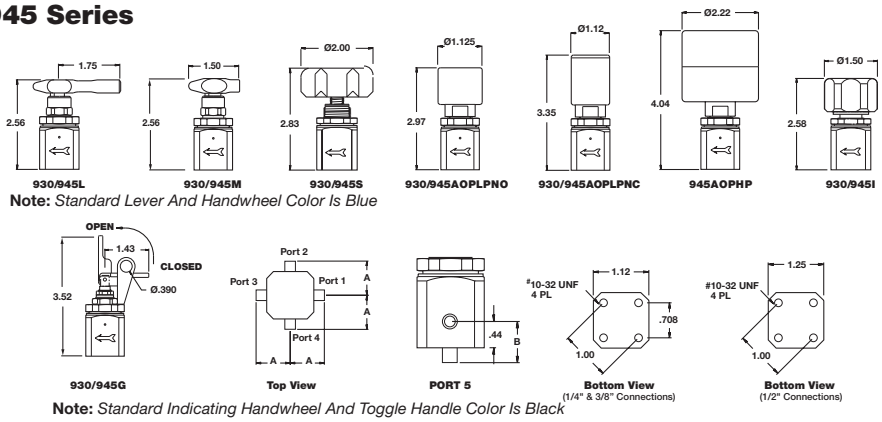
Diaphragm Valve Selection Guide

930/945 Dimensions

Overall height and actuator dimensions are shown in Figure 7. Centerline to port dimensions are shown in Figure 8. Port to port dimensions are determined by adding the “A” dimensions together.
Note: All dimensions are in inches. For reference only.

Figure 7 - 930/945 Series



Note: *Standard Lever And Handwheel Color Is Blue*

Note: *Standard Indicating Handwheel And Toggle Handle Color Is Black*

Figure 8

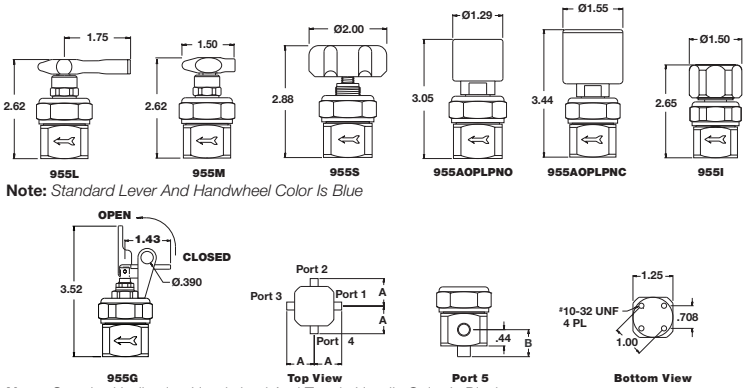
Standard Dimensions (inches)				Dimension Tolerance +/- 0.03			
End Connection	***A***	***B***	***Designator***		***A***	***B***	***Designator***
1/4” Tube Stub (.250 x .035)	0.875	0.69	1	3/8” Tube Stub (.375 x .035)	1.12	0.94	4
1/4” Face Seal Male Swivel (.347 O.D. Gland)	1.39	1.26	2	1/2” Face Seal Male Swivel[1]	2.07	1.89	5
1/4” Face Seal Female Swivel (.347 O.D. Gland)	1.39	1.26	3	1/2” Face Seal Female Swivel[1]	2.07	1.89	6
				1/2” Tube Stub (.500 x .049)[1]	1.12	0.94	7

1. 1/2” connections use 1.25” square body

955 Dimensions

Overall height and actuator dimensions are shown in Figure 9. Centerline to port dimensions are shown in Figure 10. Port to port dimensions are determined by adding the “A” dimensions together.
Note: All dimensions are in inches. For reference only.

Figure 9 - 955 Series



Note: *Standard Lever And Handwheel Color Is Blue*

Note: *Standard Indicating Handwheel And Toggle Handle Color Is Black*

Figure 10

Standard Dimensions (inches)				Dimension Tolerance +/- 0.03			
End Connection	***A***	***B***	***Designator***		***A***	***B***	***Designator***
1/4” Tube Stub (.250 x .035)	1.12	0.94	1	3/8” Tube Stub (.375 x .035)	1.12	0.94	4
1/4” Face Seal Male Swivel (.347 O.D. Gland)	1.48	1.26	2	1/2” Face Seal Male Swivel	2.10	1.89	5
1/4” Face Seal Female Swivel (.347 O.D. Gland)	1.48	1.26	3	1/2” Face Seal Female Swivel	2.10	1.89	6
				1/2” Tube Stub (.500 x .049)	1.12	0.94	7

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Diaphragm Valve Selection Guide

Ordering Information

Build a valve by replacing the numbered symbols with an option from the corresponding tables below.

	1	2	3	4	5	6
Sample:	**955**	**L**	**S**	**C**	**323**	**VESP**
Finished Order:	**955LSC323VESP**					

1 Basic Series
930, 945, 955, 830, 845, 855

2 Type
AOPHPNC = Air Operated, High Pressure, Normally Closed *945 & 845 Series Only.*
AOPMPNC = Air Operated, Medium Pressure, Normally Closed *930 & 830 Series Only.*
AOPLPNC = Air Operated, Low Pressure, Normally Closed *830, 855, 930, 945 & 955 Series Only.*
AOPLP1NC = Air Operated, Low Pressure, Normally Closed with Cartridge Fitting *930 & 955 Series Only.*
AOPLPNO = Air Operated, Low Pressure, Normally Open *830, 855, 930, 945 & 955 Series Only.*
AOPLP1NO = Air Operated, Low Pressure, Normally Open with Cartridge Fitting *930 Series Only.*
G = Toggle
I = Indicating Hand wheel
L = Lever
LL = Locking Lever
M = Mini-Lever
S = Spin Handwheel
"1" designates Integral Cartridge Fitting for 1/8" O.D. Plastic Tube

3 Body Material
S = 316L Stainless Steel
H = Hastelloy C-22®

4 Flow Path
A, B, C, D, E, F, G, H, I, J, K, L, M
Refer to Figure 2

5 End Connections
Port 1
Port 2 *Refer to Figures 3 and 4*
Port 3
Port 4
Port 5

6 Optional Features
This section can have multiple options

BL008 = Bleed Valve .008 Orifice
BL015 = Bleed Valve .015 Orifice
LK = LockOut-TagOut *LK includes LockOut-TagOut bracket for G-type valves; LOTO clamp for M-type valves*
PM = Panel Mount *Not available with Indicating Handwheel (I), or AOP types*
VESP = Vespel® Seat *Recommended for Nitrous Oxide (N2O) Service*
PEEK = PEEK™ Seat
2.3 = 2.3" End-To-End *Fixed Male Face Seal*
2.78 = 2.78" End-To-End *955 Only. 1/4" FS*

Note: *Consult Factory for additional Handle Colors*

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Hastelloy C-22® is a registered trademark of Haynes International, Inc.
PEEK™ is a trademark of Victrex plc.

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