ADVANCED PRESSURE TECHNOLOGY

SERIES AZ 45 & 46

3/8 INCH DIAPHRAGM VALVE

Springless – manual and pneumatic (NC & NO)

- Replaceable seat
- 316L SS construction
- Operating pressure from 125 psig (9 bar) to 250 psig (17 bar)
- 10 µin. (0.25 µm) Ra avg. standard surface finish
- LOTO options
- Flow capacity 0.5 C_V
- Manual valves 1/4 turn to multi-turn
- Forged body construction for integral fittings and tube stub (P porting)
- Bar stock body for welded fitting and multi-port options (PW porting)
- Multi-port options available (refer to page 4)
- Installation and operating instructions available at www.aptech-online.com in the Tech Briefs section

Manual valves

	PSIG / BAR 250 / 17
AZ 4600	●
– Round knob, multi-turn	
AZ 4625	●
– Lever valve, 1/4 turn	
– LOTO, PL 225 optional	
– Lever position indicates valve status	
AZ 4650	●
– Round knob, 1/4 turn	
– Open/closed status indication window	
AZ 4652	●
– Round knob, 1/4 turn	
– Open/closed status indication window	
– Unique design combines scalloped round knob with raised rectangular section	
AZ 4657	●
– Round knob, 1/4 turn	
– Pull, then turn to open – operational safety feature	
– Open/closed status indication window	
– LOTO – integral standard feature	

Pneumatic valves, normally closed (NC)

	125 / 9	250 / 17
AZ 4540	●	
AZ 4542	●	
AZ 4550		●

Pneumatic valve, normally open (NO)

	250 / 17
AZ 4580	●

All specifications subject to change without notice.

ENGINEERING DATA — SERIES AZ 45 & 46 3/8 INCH VALVE ARRAY

Engineering Data — Manual valves

Operating pressure	AZ 4600, 4625, 4650, 4652 AZ 4657	Vacuum to 250 psig (17 bar)
Flow coefficient (C_V)	AZ 4600, 4625, 4650, 4652 AZ 4657	0.5 (X_T = 0.6)

Engineering Data — Pneumatic valves

Operating pressure	AZ 4540, 4542 AZ 4550, 4580	Vacuum to 125 psig (9 bar) Vacuum to 250 psig (17 bar)
Flow coefficient (C_V)	AZ 4540, 4550, 4580	0.5 (X_T = 0.6)
Status	AZ 4540, 4550, 4552 AZ 4580	Normally closed (NC) Normally open (NO)
Actuation pressure	AZ 4540, 4550, 4580 AZ 4542	70 to 110 psig (5 to 8 bar) 60 to 110 psig (4 to 8 bar)
Actuation port	AZ 4540, 4580 AZ 4542 AZ 4550	1/8 NPT, top port M5, top port 10–32 inch, side port

Engineering Data — Other parameters all valves

Inlet and outlet connectors	1/4, 1/2 and 3/8 inch face seal or tube weld
Internal volume	0.12 in^3 (2.14 cm^3)
Operating temperature	-40° to +160° F (-40° to 71° C)
Surface finish	10 µin Ra
Proof pressure	1.5 times operating pressure
Burst pressure	3 times operating pressure
Inboard leakage	2 x 10^{-10} sccs
Outboard leakage	2 x 10^{-9} sccs He
Leakage across seat	4 x 10^{-8} sccs He

Engineering Data — Wetted materials all valves

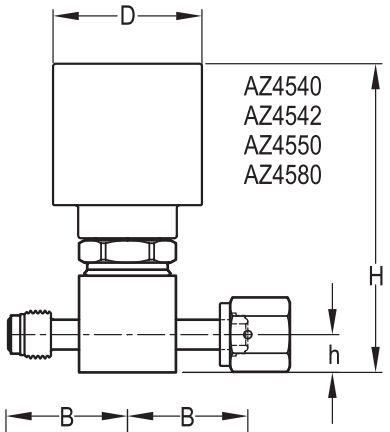
Body	SS 316L*
Finish	Electropolished and passivated
Diaphragm	Elgiloy®
Seat	PCTFE (Vespel® optional)

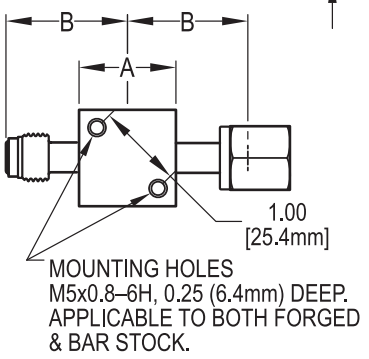
*Sulfur content varies from forged to bar stock body.
Refer to product note PN414 for use of single melt SS.

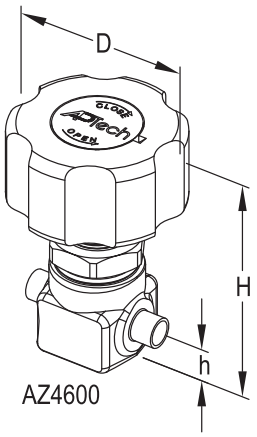
Vespel® DuPont

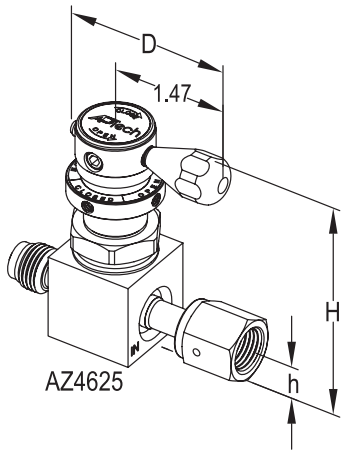
Elgiloy® Elgiloy Corporation

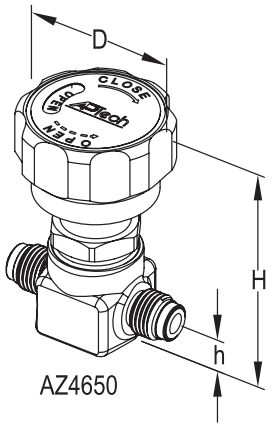
All specifications subject to change without notice.

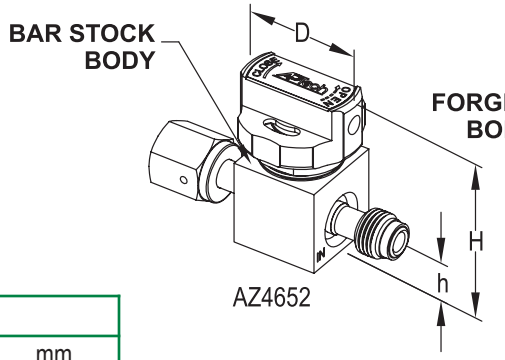


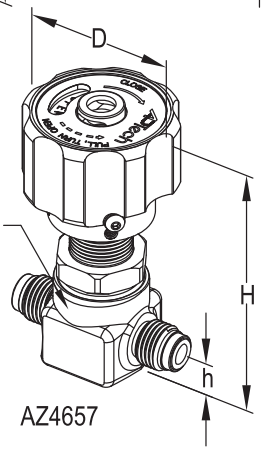












VALVE	D		H	
	inch	mm	inch	mm
AZ4540	ø1.46	37.1	3.49	89
AZ4542	ø1.57	40.0	2.24	57
AZ4550	ø1.37	34.8	3.28	83
AZ4580	ø1.46	37.1	3.17	81
AZ4600	ø2.12	53.8	3.00	76
AZ4625	2.04	51.8	2.94	75
AZ4650	ø1.87	47.5	3.02	77
AZ4652	ø1.50	38.0	2.17	55
AZ4657	ø1.87	47.5	3.60	91

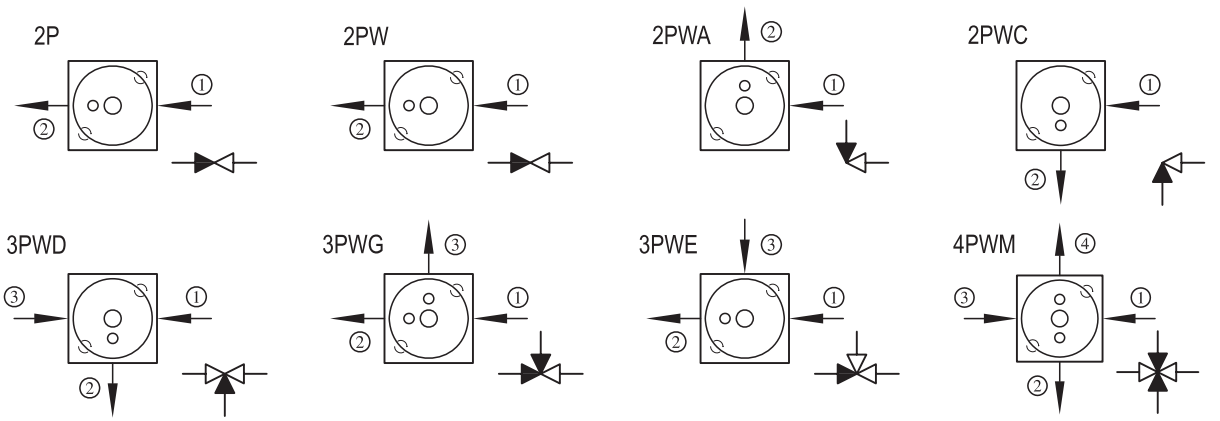
- Forged body only available in 2P porting with same type fittings inlet and outlet.
- Bar stock body, PW porting, has welded fittings in any combination of available type and size.
- P porting denotes forged body or bar stock body with integrally machined fittings. PW porting denotes welded fittings.
- Height of the valve (H) is an approximate value.

BODY TYPE	PORTING	CONNECTION	A		B		h	
			inch	mm	inch	mm	inch	mm
FORGED	P	MV4xMV4 (Fixed)	N/A	N/A	1.140	29.0	0.44	11.2
	P	TW6	N/A	N/A	0.875	22.2	0.44	11.2
	P	TW8	N/A	N/A	1.125	28.6	0.44	11.2
BAR STOCK	PW	FV4, MV4 (Fixed)	1.12 SQ	28.4	1.390	35.3	0.44	11.2
	P	MV6xMV6 (Fixed)	N/A	N/A	1.500	38.1	0.44	11.2
	PW	FV6, MV6	1.12 SQ	28.4	1.930	49.0	0.44	11.2
	PW	TW6	1.12 SQ	28.4	1.325	33.7	0.44	11.2

All dimensions in inches (mm). Metric dimensions are for reference only.
All specifications subject to change without notice.
All manual valves are shown in open position.

PORTING CONFIGURATIONS

Porting Options Available



- Valves are illustrated top view looking down through the valve. Mounting holes on the valve bottom are shown for reference.
- INLET (Upstream) is defined as a port connected to the region below the valve seat. It is illustrated with an arrow pointing towards the valve body or an "empty" triangle on the schematic. OUTLET (Downstream) is defined as a port connected to the region above the seat and below the diaphragm. It is illustrated with an arrow pointing away from the valve body or a "filled" triangle on the schematic.
- The traditional flow direction is INLET to OUTLET, but AP Tech valves may be employed in either flow direction.
- End connections are specified in numerical order per the diagram's numbered arrows.
- Multi-port only available with bar stock body.

CAUTION: Product selection is the sole responsibility of the user, regardless of any recommendations or suggestions made by the factory. The user shall make selections based upon their own analysis and testing with regard to function, material compatibility and product ratings. Proper installation, operation and maintenance are also required to assure safe, trouble free performance.

ORDERING INFORMATION

Sample Order Number — **AZ 4652S 2P MV6 MV6**

AZ 4652 | **Series**	AZ 4540, 4550 AZ 4580 AZ 4600, 4625 AZ 4650, 4652, 4657	
S | **Material**	S = Stainless steel (SS)	
2P | **Ports**	2P = 2 ports 2PW = 2 ports welded 3PW = 3 ports welded 4PW = 4 ports welded.	
| **Porting Designation Option**	X = Letter code for available porting option Refer to porting options above.	
MV6 MV6 | **Connections Inlet / Outlet or ① ② ③ ④**	FV4 = 1/4 inch face seal female MV4 = 1/4 inch face seal male* FV6 = 3/8 inch face seal female MV6 = 3/8 inch face seal male TW6 = 3/8 inch tube stub weld** TW8 = 1/2 inch tube stub weld Refer to chart on page 3 for available connections. *MV4 is fixed, no hex nut. **TW6 P and PW have different dimensions. ● Only available with the same type fitting inlet and outlet ○ Available with any combination of welded fitting.	Porting P PW ○ ● ○ ○ ● ○ ● ○ ●
| **Options**	VS = Vespel Seat	