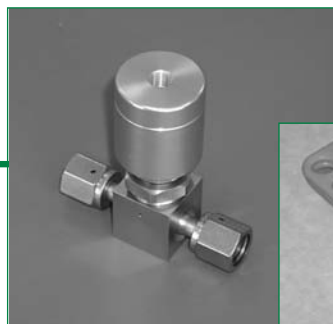


# SERIES AP 45 & 46

## 3/8 INCH DIAPHRAGM VALVE

Springless – manual and pneumatic (NC & NO)



- Stainless steel 316L VAR secondary remelt or Hastelloy® C-22® construction
- Replaceable seat
- Operating pressure from 125 psig (9 bar) to 250 psig (17 bar)
- LOTO and indicating switch options
- Surface finish 15 Ra max/10 Ra avg (10, 7 & 5 Ra max options)
- Flow capacity 0.5 C<sub>v</sub>
- Manual valves 1/4 turn to multi-turn
- Designed for UHP specialty and bulk gas applications
- Multi-port options available (refer to page 4)
- Installation and operating instructions available at [www.aptech-online.com](http://www.aptech-online.com) in the Tech Briefs section

### Manual valves

	PSIG / BAR 250 / 17
<b>AP 4600</b>	●
– Round knob, multi-turn	
<b>AP 4625</b>	●
– Lever valve, 1/4 turn	
– LOTO, PL 225 optional	
– Lever position indicates valve status	
<b>AP 4650</b>	●
– Round knob, 1/4 turn	
– Open/closed status indication window	
– Switch option for remote monitoring	
<b>AP 4652</b>	●
– Round knob, 1/4 turn	
– Open/closed status indication window	
– Unique design combines scalloped round knob with raised rectangular section	
<b>AP 4657</b>	●
– 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)

	PSIG / BAR 125 / 9	PSIG / BAR 250 / 17
<b>AP 4540</b>	●	
<b>AP 4542</b>	●	
<b>AP 4550</b>		●
– Switch option for remote monitoring		

### Pneumatic valve, normally open (NO)

	PSIG / BAR 250 / 17
<b>AP 4580</b>	●
– Switch option for remote monitoring	

All specifications subject to change without notice.  
Hastelloy® C-22® Haynes Corporation

# ULTRA HIGH PURITY BY DESIGN AND MANUFACTURING

## Engineering Data — Manual valves

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

## Engineering Data — Pneumatic valves

Operating pressure	AP 4540, 4542 AP 4550, 4580	Vacuum to 125 psig (9 bar) Vacuum to 250 psig (17 bar)
Flow coefficient ( $C_V$ )	AP 4540, 4542, 4550, 4580	0.5 ( $X_T = 0.6$ )
Status	AP 4540, 4542, 4550 AP 4580	Normally closed (NC) Normally open (NO)
Actuation pressure	AP 4540, 4550, 4580 AP 4542	70 to 110 psig (5 to 8 bar) 60 to 110 psig (4 to 8 bar)
Actuation port	AP 4540, 4580 AP 4542 AP 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, 3/8 and 1/2 inch face seal or tube weld
Internal volume	0.12 in <sup>3</sup> (1.94 cm <sup>3</sup> )
Operating temperature	-40° to +160° F (-40° to 71° C)
Surface finish	15 $\mu$ in. Ra max / 10 $\mu$ in. Ra avg. (0.4/0.25 $\mu$ m) standard; 10 $\mu$ in (0.25 $\mu$ m); 7 $\mu$ in (0.18 $\mu$ m); and 5 $\mu$ in (0.13 $\mu$ m) Ra max optional
Proof pressure	1.5 times operating pressure
Burst pressure	3 times operating pressure
Inboard leakage	2 x 10 <sup>-10</sup> sccs
Outboard leakage	2 x 10 <sup>-9</sup> sccs He
Leakage across seat	4 x 10 <sup>-8</sup> sccs He

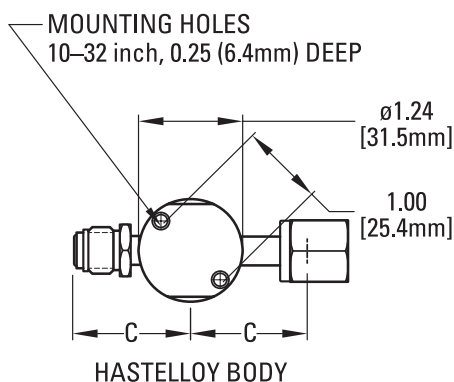
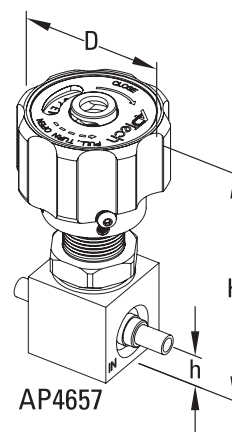
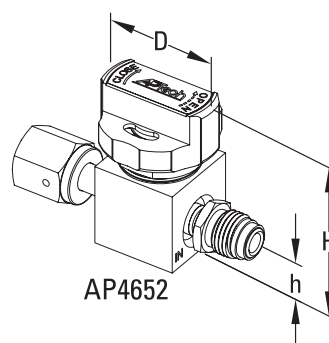
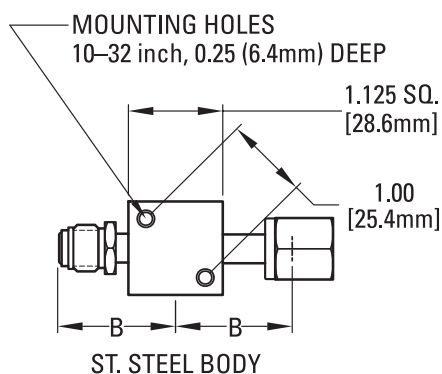
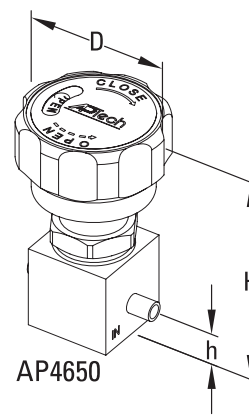
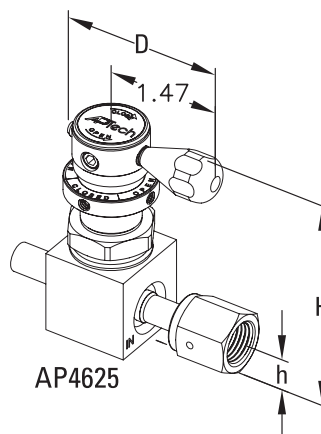
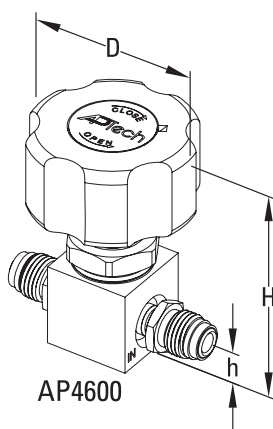
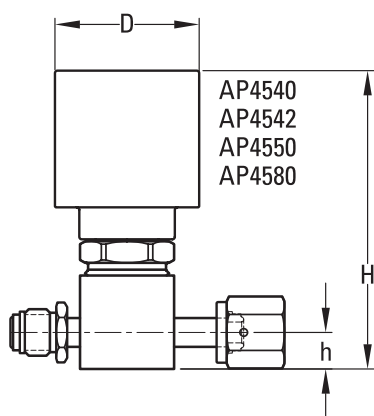
## Engineering Data — Wetted materials all valves

	S	H
Body	SS 316L secondary remelt	Hastelloy® C-22®
Finish	Electropolished and passivated	Electropolished
Diaphragm	Elgiloy®	Elgiloy
Seat	PCTFE (Vespel® optional)	PCTFE

All specifications subject to change without notice.

Vespel® DuPont

Elgiloy® Elgiloy Corporation  
Hastelloy® C-22® Haynes Corporation



- Metric dimensions are for reference only.
- Height of the valve (H) is an approximate value.
- All specifications subject to change without notice.
- All manual valves are shown in open position.

VALVE	D		H	
	inch	mm	inch	mm
AP4540	ø1.46	37.1	3.49	89
AP4542	ø1.57	40.0	2.24	57
AP4550	ø1.37	34.8	3.28	83
AP4580	ø1.46	37.1	3.17	81
AP4600	ø2.12	53.8	3.00	76
AP4625	2.04	51.8	2.94	75
AP4650	ø1.87	47.5	3.02	77
AP4652	ø1.50	38.0	2.17	55
AP4657	ø1.87	47.5	3.60	91

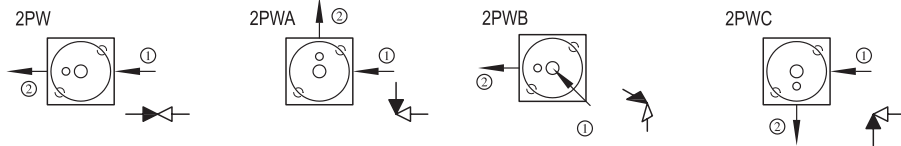
STAINLESS STEEL BODY				
CONNECTION	B		h	
	inch	mm	inch	mm
FV4, MV4	1.390 ±.010	35.3	0.44	11.2
TW4	1.060 ±.010	26.9	0.44	11.2
FV6, MV6	1.930 ±.010	49.0	0.44	11.2
TW6	1.325 ±.010	33.7	0.44	11.2

HASTELLOY C-22 BODY				
CONNECTION	C		h	
	inch	mm	inch	mm
FV4, MV4	1.450 ±.010	36.8	0.44	11.2
TW4	1.080 ±.010	27.4	0.44	11.2
FV6, MV6	1.930 ±.010	49.0	0.44	11.2
TW6	1.325 ±.010	33.7	0.44	11.2

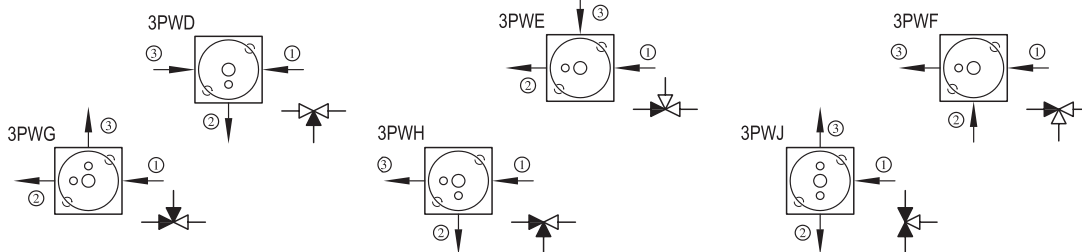
# ULTRACLEAN TECHNOLOGY BACKED BY SERVICE AND SUPPORT



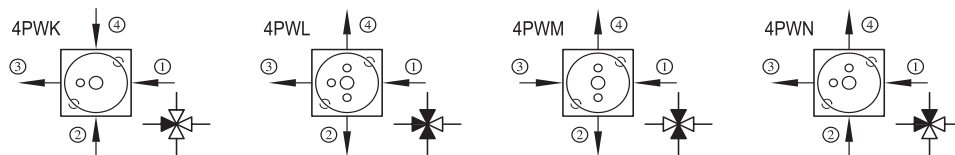
Top View (Mounting holes on bottom)



2 PORTS



3 PORTS



4 PORTS

- 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.

**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.

PORTING CONFIGURATIONS

ORDERING INFORMATION

Sample Order Number **AP 4652S 2PW MV6 MV6**

**AP 4652 | Series**  
AP 4540, 4542, 4550  
AP 4580  
AP 4600, 4625  
AP 4650, 4652, 4657

**S | Material**  
S = Stainless steel (SS)  
H = Hastelloy C-22

**Surface Finish Option**  
M = 10 µin. Ra max  
V = 7 µin. Ra max  
X = 5 µin. Ra max

**2PW | 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

**Options**

FV4 = 1/4 inch face seal female  
MV4 = 1/4 inch face seal male  
TW4 = 1/4 inch tube stub weld  
FV6 = 3/8 inch face seal female  
MV6 = 3/8 inch face seal male  
TW6 = 3/8 inch tube stub weld

1.75 = 1.75" face to face TW4, TW6  
VS = Vespel Seat  
ISC = Indicating switch, NC\*  
(AP 4550 and 4580 only)  
ISO = Indicating switch, NO\*  
(AP 4550 and 4580 only)  
ISH = Indicating switch\* (AP 4650 only)

\*Refer to manual for installation information.