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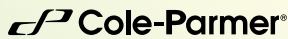


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Tech Insights

Selecting Your Valve

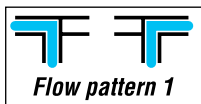
- 1 Choose a valve type depending on your application. Our manual valve selection includes ball, check, gate, globe, diaphragm, elliptical, metering, needle, pinch, plug, pressure relief, and stopcock valves. Our actuated valve selection includes actuated ball, pinch, proportioning, and general-purpose solenoid valves.
- 2 Consider your fluid type (liquid or gas) and its characteristics to determine compatible valve materials. PTFE and PFA withstand many harsh or corrosive chemicals. For safety reasons, always use metal valves for pressurized gases.
- 3 Determine the temperature, pressure, and flow rate under which your valve will be operating. In general, metal valves withstand higher temperatures and pressures than plastic valves.
- 4 For solenoid valves, consider response time and length of time valve will be energized. Continuous (100%) duty solenoid valves are best for frequent on/off cycling. Choose normally closed or normally open depending on the state the valve will be in most often.
- 5 Consider your maintenance requirements. Ball valves resist plugging and are easiest to service.

Valve Terms

- Breaking Pressure:** The minimum pressure required to produce flow through a valve.
- Duty Cycle:** 100% duty cycle is defined as continuous operation without any damage occurring. For intermittent duty cycle (<100%), alternate energized and de-energized state at regular intervals to allow the valve to completely cool down to room temperature.
- Flow Patterns:** a diagram showing how flow can be directed using a particular valve. See the "Flow Patterns" box at left for further explanation.
- Normally Closed:** valve stays closed in de-energized state; opens when energized.
- Normally Open:** valve stays open in de-energized state; closes when energized.
- Pressure Differential or Pressure Drop:** the difference between the inlet and the outlet pressure through a valve. The outlet pressure is lower than the inlet pressure due to the restriction caused by the valve.
- Three-Way Valve:** has three ports. Depending on the particular valve, all three ports may be open, two ports may be open, or all ports may be closed.
- Two-Way Valve:** has a single inlet port and a single outlet port.

MORE info!

Look for our flow patterns when selecting a three- or four-way valve. Flow patterns make it easy to determine how flow is directed by a particular valve. An example of a flow pattern is shown above.



MORE online!

For our full selection of moisture products, go to ...  
[ColeParmer.com/Valves](http://ColeParmer.com/Valves)

Maximum Flow

Calculate the maximum flow for liquids using the  $C_v$  factor:

$$GPM = C_v \left( \sqrt{\frac{\Delta P}{G_t}} \right)$$

where  $C_v$  is a constant,  
 $\Delta P$  = pressure drop (in psi), and  
 $G_t$  = liquid's specific gravity.

**$C_v$  Factor:** relates maximum flow through a valve at a specific pressure differential; use the  $C_v$  factor to size your valve. Use the equation above to calculate the maximum flow (in GPM) your valve can handle per given  $\Delta P$ .

**Ball Valves:** designed primarily for on/off service. These valves contain a ball with a hole through it. A handle or electric actuator rotates the ball 90°, turning the flow on or off. Use plastic ball valves for liquids only; metal valves for liquids or gases..... 1914-1918

**Check Valves:** self-actuated valves designed to prevent fluid from flowing backward into your system. Flow forces a ball or disk in one direction to open the valve; when flow stops, the ball or disk seats to close the valve..... 1919-1920

**Diaphragm Valves:** use a flexible diaphragm to shut off flow—center of the diaphragm is pushed down into a seat. Use these valves for fluids that are dirty or have a high particulate content..... 1921

**Elliptical Valves:** similar to ball valves except elliptical valves use an elliptical O-ring to seal the cylinder during rotation. The seal design makes these valves ideal for vacuum applications..... 1922

**Metering Valves:** multi-turn valves designed to regulate the flow of fluid. These valves generally have low flow rates and high pressure differentials..... 1924

**Needle Valves:** feature the most accurate flow control among the valves we offer. They are an excellent choice for precise metering of liquids or gases..... 1922-1923

**Pinch Valves:** squeeze shut a piece of tubing. Fluid contacts only the tubing—ideal for your high-purity fluid applications..... 1926

**Plug Valves:** used primarily for on/off service. Controls flow using a plug with a hole through it. Plugs can be made of rigid materials such as PTFE, making them ideal for high-purity applications..... 1925

**Pressure Vacuum Valves:** designed to control or limit pressure—not flow—in a system. These self-actuating valves will either open a relief port or bypass the fluid when a preset limit is reached..... 1934

**Proportioning Valves:** designed to produce variable flow rates. Valves open and close in proportion to the signal from your controller..... 1928-1929

**Sanitary Valves:** commonly feature Tri-Clamp® connections and 316 stainless steel body construction for sanitary and high-purity applications..... 1921

**Solenoid Valves (Direct Lift):** use a plunger that is actuated to open or close the fluid path. They generally have quicker response time than pilot-operated valves..... 1927-1933

**Stopcocks:** similar to ball valves except stopcocks are much smaller in size. Primarily used in the laboratory for on/off control of flow or as a crude regulation of flow rate..... 1925-1926

KEY INFORMATION



**Valves**  
**Ball**

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EPDM  
Valves only

**Plastic Ball Valves**

- Maximum pressure: 125 psi (8.6 bar)
- Maximum temperature: 140°F (60°C)

Key	Connections	Wetted parts (body, seals)	C <sub>v</sub>	Orifice size	Dimensions (L x H)		Catalog number	Price
					in.	mm		
<b>Two-way valves (straight)</b>								
<b>A</b>	1/8" NPT(F)	PVC, EPDM	2	0.312" (7.9 mm)	1 7/8" x 1 1/2"	48 x 38	<a href="#">TW-01377-01</a>	
	1/8" NPT(F)	PVC, Viton®	2	0.312" (7.9 mm)	1 7/8" x 1 1/2"	48 x 38	<a href="#">TW-01377-03</a>	
	1/8" NPT(F)	PP, EPDM	2	0.312" (7.9 mm)	1 7/8" x 1 1/2"	48 x 38	<a href="#">TW-01377-04</a>	
	1/8" NPT(F)	PP, Viton	2	0.312" (7.9 mm)	1 7/8" x 1 1/2"	48 x 38	<a href="#">TW-01377-06</a>	
<b>B</b>	1/8" NPT(F) x 1/8" NPT(M)	PVC, EPDM	2	0.312" (7.9 mm)	2 3/16" x 1 1/2"	56 x 38	<a href="#">TW-01377-08</a>	
	1/8" NPT(F) x 1/8" NPT(M)	PVC, Viton	2	0.312" (7.9 mm)	2 3/16" x 1 1/2"	56 x 38	<a href="#">TW-01377-10</a>	
	1/8" NPT(F) x 1/8" NPT(M)	PP, EPDM	2	0.312" (7.9 mm)	2 3/16" x 1 1/2"	56 x 38	<a href="#">TW-01377-12</a>	
	1/8" NPT(F) x 1/8" NPT(M)	PP, Viton	2	0.312" (7.9 mm)	2 3/16" x 1 1/2"	56 x 38	<a href="#">TW-01377-14</a>	
<b>A</b>	1/4" NPT(F)	PVC, EPDM	2	0.312" (7.9 mm)	1 7/8" x 1 1/2"	48 x 38	<a href="#">TW-01377-16</a>	
	1/4" NPT(F)	PVC, Viton	2	0.312" (7.9 mm)	1 7/8" x 1 1/2"	48 x 38	<a href="#">TW-01377-18</a>	
	1/4" NPT(F)	PP, EPDM	2	0.312" (7.9 mm)	1 7/8" x 1 1/2"	48 x 38	<a href="#">TW-01377-20</a>	
	1/4" NPT(F)	PP, Viton	2	0.312" (7.9 mm)	1 7/8" x 1 1/2"	48 x 38	<a href="#">TW-01377-22</a>	
<b>B</b>	1/4" NPT(F)	PVC, EPDM	7	0.437" (11.1 mm)	2 1/2" x 1 1/2"	64 x 38	<a href="#">TW-01377-80</a>	
	1/4" NPT(F) x 1/4" NPT(M)	PVC, EPDM	2	0.312" (7.9 mm)	2 3/16" x 1 1/2"	56 x 38	<a href="#">TW-01377-24</a>	
	1/4" NPT(F) x 1/4" NPT(M)	PVC, Viton	2	0.312" (7.9 mm)	2 3/16" x 1 1/2"	56 x 38	<a href="#">TW-01377-26</a>	
	1/4" NPT(F) x 1/4" NPT(M)	PP, Viton	2	0.312" (7.9 mm)	2 3/16" x 1 1/2"	56 x 38	<a href="#">TW-01377-28</a>	
<b>C</b>	1/4" NPT(F) x 1/4" NPT(M)	PVC, EPDM	7	0.437" (11.1 mm)	2 3/16" x 1 1/2"	56 x 38	<a href="#">TW-01377-82</a>	
	1/4" barb	PVC, EPDM	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-30</a>	
	1/4" barb	PVC, Viton	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-32</a>	
	1/4" barb	PP, EPDM	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-34</a>	
<b>D</b>	1/4" barb	PP, Viton	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-36</a>	
	1/4" barb	PVC, EPDM	7	0.437" (11.1 mm)	3" x 1 1/2"	76 x 38	<a href="#">TW-01377-84</a>	
	1/4" NPT(F) x tapered barb	PVC, Buna N	7	0.437" (11.1 mm)	3" x 1 1/2"	76 x 38	<a href="#">TW-01377-86</a>	
	1/4" NPT(F) x tapered barb	PVC, EPDM	7	0.437" (11.1 mm)	3" x 1 1/2"	76 x 38	<a href="#">TW-01377-88</a>	
<b>E</b>	1/4" NPT(M) x tapered barb	PVC, Buna N	7	0.437" (11.1 mm)	3" x 1 1/2"	76 x 38	<a href="#">TW-01377-90</a>	
	1/4" NPT(M) x tapered barb	PVC, EPDM	7	0.437" (11.1 mm)	3" x 1 1/2"	76 x 38	<a href="#">TW-01377-92</a>	
<b>F</b>	1/4" compression	PVC, Buna N	7	0.437" (11.1 mm)	3 1/4" x 1 1/2"	83 x 38	<a href="#">TW-01377-94</a>	
	1/4" compression	PVC, EPDM	7	0.437" (11.1 mm)	3 1/4" x 1 1/2"	83 x 38	<a href="#">TW-01377-96</a>	
<b>G</b>	1/4" NPT(F) x 1/4" compression	PVC, Buna N	7	0.437" (11.1 mm)	2 1/8" x 1 1/2"	73 x 38	<a href="#">TW-01377-98</a>	
	1/4" NPT(F) x 1/4" compression	PVC, EPDM	7	0.437" (11.1 mm)	2 1/8" x 1 1/2"	73 x 38	<a href="#">TW-01378-01</a>	
<b>H</b>	1/4" NPT(F) x 1/4" JG	PVC, Buna N	7	0.437" (11.1 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01378-08</a>	
	1/4" NPT(F) x 1/4" JG	PVC, EPDM	7	0.437" (11.1 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01378-10</a>	
<b>I</b>	1/4" NPT(M) x 1/4" compression	PVC, Buna N	7	0.437" (11.1 mm)	2 1/8" x 1 1/2"	73 x 38	<a href="#">TW-01378-03</a>	
	1/4" NPT(M) x 1/4" compression	PVC, EPDM	7	0.437" (11.1 mm)	2 1/8" x 1 1/2"	73 x 38	<a href="#">TW-01378-04</a>	
<b>J</b>	1/4" NPT(M) x 1/4" JG†	PVC, Buna N	7	0.437" (11.1 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01378-12</a>	
	1/4" NPT(M) x 1/4" JG†	PVC, EPDM	7	0.437" (11.1 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01378-14</a>	
<b>K</b>	1/4" JG†	PVC, EPDM	2	0.312" (7.9 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01377-38</a>	
	1/4" JG†	PVC, Viton	2	0.312" (7.9 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01377-40</a>	
	1/4" JG†	PVC, EPDM	7	0.437" (11.1 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01378-06</a>	
<b>A</b>	3/8" NPT(F)	PVC, Buna N	7	0.437" (11.1 mm)	2 1/2" x 1 1/2"	64 x 38	<a href="#">TW-01378-16</a>	
	3/8" NPT(F)	PVC, EPDM	7	0.437" (11.1 mm)	2 1/2" x 1 1/2"	64 x 38	<a href="#">TW-01378-18</a>	
<b>B</b>	3/8" NPT(F) x 3/8" NPT(M)	PVC, Buna N	7	0.437" (11.1 mm)	3" x 1 1/2"	76 x 38	<a href="#">TW-01378-20</a>	
	3/8" NPT(F) x 3/8" NPT(M)	PVC, EPDM	7	0.437" (11.1 mm)	3" x 1 1/2"	76 x 38	<a href="#">TW-01378-22</a>	
<b>H</b>	3/8" NPT(F) x 3/8" JG†	PVC, Buna N	7	0.437" (11.1 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01378-38</a>	
	3/8" NPT(F) x 3/8" JG†	PVC, EPDM	7	0.437" (11.1 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01378-40</a>	
<b>J</b>	3/8" NPT(M) x 3/8" JG†	PVC, Buna N	7	0.437" (11.1 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01378-42</a>	
	3/8" NPT(M) x 3/8" JG†	PVC, EPDM	7	0.437" (11.1 mm)	2 5/8" x 1 1/2"	67 x 38	<a href="#">TW-01378-44</a>	
<b>C</b>	3/8" barb	PVC, EPDM	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-42</a>	
	3/8" barb	PVC, Viton	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-44</a>	
	3/8" barb	PP, EPDM	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-46</a>	
	3/8" barb	PP, Viton	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-48</a>	
	3/8" barb	PVC, EPDM	7	0.437" (11.1 mm)	3 1/2" x 1 1/2"	89 x 38	<a href="#">TW-01378-24</a>	
<b>D</b>	3/8" NPT(F) x tapered barb	PVC, Buna N	7	0.437" (11.1 mm)	3 1/2" x 1 1/2"	89 x 38	<a href="#">TW-01378-26</a>	
	3/8" NPT(F) x tapered barb	PVC, EPDM	7	0.437" (11.1 mm)	3 1/2" x 1 1/2"	89 x 38	<a href="#">TW-01378-28</a>	
<b>E</b>	3/8" NPT(M) x tapered barb	PVC, Buna N	7	0.437" (11.1 mm)	3 1/2" x 1 1/2"	89 x 38	<a href="#">TW-01378-30</a>	
	3/8" NPT(M) x tapered barb	PVC, EPDM	7	0.437" (11.1 mm)	3 1/2" x 1 1/2"	89 x 38	<a href="#">TW-01378-32</a>	
<b>F</b>	3/8" compression	PVC, Buna N	7	0.437" (11.1 mm)	3 1/2" x 1 1/2"	89 x 38	<a href="#">TW-01378-34</a>	
	3/8" compression	PVC, EPDM	7	0.437" (11.1 mm)	3 1/2" x 1 1/2"	89 x 38	<a href="#">TW-01378-36</a>	
<b>C</b>	1/2" barb	PVC, EPDM	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-50</a>	
	1/2" barb	PVC, Viton	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-52</a>	
	1/2" barb	PP, EPDM	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-54</a>	
	1/2" barb	PP, Viton	2	0.312" (7.9 mm)	3 3/16" x 1 1/2"	81 x 38	<a href="#">TW-01377-56</a>	

†JG = John Guest®



**A**



**B**



**C**



**D**



**E**



**F**



**G**



**H**



**I**



**J**

























**K**



**Plastic Ball Valves** (continued)

- Maximum pressure: 125 psi (8.6 bar)
- Maximum temperature: 140°F (60°C)

NSF  
EPDM  
Valves only

Key	Connections	Wetted parts (body, seals)	C <sub>v</sub>	Orifice size	Dimensions (L x H)		Catalog number	Price
					in.	mm		
<b>Two-way valves (right angled)</b>								
<b>L</b>	1/4" NPT(F)	PVC, Buna N	7	0.437" (11.1 mm)	1 13/16" x 2 5/16"	46 x 59	<a href="#">TW-01378-46</a>	
	1/4" NPT(F)	PVC, EPDM	7	0.437" (11.1 mm)	1 13/16" x 2 5/16"	46 x 59	<a href="#">TW-01378-48</a>	
<b>M</b>	1/4" NPT(F) x 1/4" NPT(M)	PVC, Buna N	7	0.437" (11.1 mm)	1 13/16" x 2 3/4"	46 x 70	<a href="#">TW-01378-50</a>	
	1/4" NPT(F) x 1/4" NPT(M)	PVC, EPDM	7	0.437" (11.1 mm)	1 13/16" x 2 3/4"	46 x 70	<a href="#">TW-01378-52</a>	
<b>N</b>	1/4" NPT(F) x 1/4" barb	PVC, Buna N	7	0.437" (11.1 mm)	2 5/16" x 2 5/16"	59 x 59	<a href="#">TW-01378-54</a>	
	1/4" NPT(F) x 1/4" barb	PVC, EPDM	7	0.437" (11.1 mm)	2 5/16" x 2 5/16"	59 x 59	<a href="#">TW-01378-56</a>	
<b>O</b>	1/4" NPT(M) x 1/4" barb	PVC, Buna N	7	0.437" (11.1 mm)	2 5/16" x 2 3/4"	59 x 70	<a href="#">TW-01378-58</a>	
	1/4" NPT(M) x 1/4" barb	PVC, EPDM	7	0.437" (11.1 mm)	2 5/16" x 2 3/4"	59 x 70	<a href="#">TW-01378-60</a>	
<b>P</b>	1/4" NPT(F) x 1/4" compression	PVC, Buna N	7	0.437" (11.1 mm)	2 3/16" x 2 5/16"	56 x 59	<a href="#">TW-01378-62</a>	
	1/4" NPT(F) x 1/4" compression	PVC, EPDM	7	0.437" (11.1 mm)	2 3/16" x 2 5/16"	56 x 59	<a href="#">TW-01378-64</a>	
<b>Q</b>	1/4" NPT(M) x 1/4" compression	PVC, Buna N	7	0.437" (11.1 mm)	2 3/16" x 2 3/4"	56 x 70	<a href="#">TW-01379-15</a>	
	1/4" NPT(M) x 1/4" compression	PVC, EPDM	7	0.437" (11.1 mm)	2 3/16" x 2 3/4"	56 x 70	<a href="#">TW-01379-16</a>	
<b>R</b>	1/4" NPT(F) x 1/4" JG†	PVC, Buna N	7	0.437" (11.1 mm)	2" x 2 5/16"	51 x 59	<a href="#">TW-01379-17</a>	
	1/4" NPT(F) x 1/4" JG†	PVC, EPDM	7	0.437" (11.1 mm)	2" x 2 5/16"	51 x 59	<a href="#">TW-01379-18</a>	
<b>S</b>	1/4" NPT(M) x 1/4" JG†	PVC, Buna N	7	0.437" (11.1 mm)	2" x 2 3/4"	51 x 59	<a href="#">TW-01379-19</a>	
	1/4" NPT(M) x 1/4" JGv	PVC, EPDM	7	0.437" (11.1 mm)	2" x 2 3/4"	51 x 59	<a href="#">TW-01379-20</a>	
<b>L</b>	3/8" NPT(F)	PVC, Buna N	7	0.437" (11.1 mm)	1 3/4" x 2 5/16"	44 x 59	<a href="#">TW-01379-21</a>	
	3/8" NPT(F)	PVC, EPDM	7	0.437" (11.1 mm)	1 3/4" x 2 5/16"	44 x 59	<a href="#">TW-01379-22</a>	
<b>M</b>	3/8" NPT(F) x 3/8" NPT(M)	PVC, Buna N	7	0.437" (11.1 mm)	1 3/4" x 2 3/4"	44 x 70	<a href="#">TW-01379-23</a>	
	3/8" NPT(F) x 3/8" NPT(M)	PVC, EPDM	7	0.437" (11.1 mm)	1 3/4" x 2 3/4"	44 x 70	<a href="#">TW-01379-24</a>	
<b>N</b>	3/8" NPT(F) x 3/8" barb	PVC, Buna N	7	0.437" (11.1 mm)	2 1/4" x 2 5/16"	57 x 59	<a href="#">TW-01379-25</a>	
	3/8" NPT(F) x 3/8" barb	PVC, EPDM	7	0.437" (11.1 mm)	2 1/4" x 2 5/16"	57 x 59	<a href="#">TW-01379-26</a>	
<b>O</b>	3/8" NPT(M) x 3/8" barb	PVC, Buna N	7	0.437" (11.1 mm)	2 1/4" x 2 3/4"	57 x 70	<a href="#">TW-01379-27</a>	
	3/8" NPT(M) x 3/8" barb	PVC, EPDM	7	0.437" (11.1 mm)	2 1/4" x 2 3/4"	57 x 70	<a href="#">TW-01379-28</a>	
<b>P</b>	3/8" NPT(F) x 3/8" compression	PVC, Buna N	7	0.437" (11.1 mm)	2 3/8" x 2 5/16"	60 x 59	<a href="#">TW-01379-29</a>	
	3/8" NPT(F) x 3/8" compression	PVC, EPDM	7	0.437" (11.1 mm)	2 3/8" x 2 5/16"	60 x 59	<a href="#">TW-01379-30</a>	
<b>Q</b>	3/8" NPT(M) x 3/8" compression	PVC, Buna N	7	0.437" (11.1 mm)	2 3/8" x 2 3/4"	60 x 70	<a href="#">TW-01378-66</a>	
	3/8" NPT(M) x 3/8" compression	PVC, EPDM	7	0.437" (11.1 mm)	2 3/8" x 2 3/4"	60 x 70	<a href="#">TW-01378-68</a>	
<b>R</b>	3/8" NPT(F) x 3/8" JG†	PVC, Buna N	7	0.437" (11.1 mm)	2" x 2 5/16"	51 x 59	<a href="#">TW-01378-70</a>	
	3/8" NPT(F) x 3/8" JG†	PVC, EPDM	7	0.437" (11.1 mm)	2" x 2 5/16"	51 x 59	<a href="#">TW-01378-72</a>	
<b>S</b>	3/8" NPT(M) x 3/8" JG†	PVC, Buna N	7	0.437" (11.1 mm)	2" x 2 3/4"	51 x 70	<a href="#">TW-01378-74</a>	
	3/8" NPT(M) x 3/8" JG†	PVC, EPDM	7	0.437" (11.1 mm)	2" x 2 3/4"	51 x 70	<a href="#">TW-01378-76</a>	
<b>Three-way valves</b>								
<b>T</b>	1/8" NPT(F)	PVC, Buna N	2	0.281" (7.1 mm)	1 1/8" x 2 1/4"	48 x 57	<a href="#">TW-01378-97</a>	
	1/8" NPT(F)	PVC, EPDM	2	0.281" (7.1 mm)	1 1/8" x 2 1/4"	48 x 57	<a href="#">TW-01377-58</a>	
	1/8" NPT(F)	PVC, Viton	2	0.281" (7.1 mm)	1 1/8" x 2 1/4"	48 x 57	<a href="#">TW-01377-60</a>	
	1/4" NPT(F)	PVC, Buna N	2	0.281" (7.1 mm)	1 1/8" x 2 1/4"	48 x 57	<a href="#">TW-01378-98</a>	
	1/4" NPT(F)	PVC, EPDM	2	0.281" (7.1 mm)	1 1/8" x 2 1/4"	48 x 57	<a href="#">TW-01378-99</a>	
	1/4" NPT(F)	PVC, Viton	2	0.281" (7.1 mm)	1 1/8" x 2 1/4"	48 x 57	<a href="#">TW-01377-62</a>	
<b>U</b>	1/4" barb	PVC, Buna N	2	0.281" (7.1 mm)	3 3/16" x 3"	81 x 76	<a href="#">TW-01379-01</a>	
	1/4" barb	PVC, EPDM	2	0.281" (7.1 mm)	3 3/16" x 3"	81 x 76	<a href="#">TW-01377-64</a>	
	1/4" barb	PVC, Viton	2	0.281" (7.1 mm)	3 3/16" x 3"	81 x 76	<a href="#">TW-01377-66</a>	
<b>V</b>	1/4" JG	PVC, Buna N	2	0.281" (7.1 mm)	2 5/8" x 2 1 1/16"	67 x 68	<a href="#">TW-01379-02</a>	
	1/4" JG	PVC, EPDM	2	0.281" (7.1 mm)	2 5/8" x 2 1 1/16"	67 x 68	<a href="#">TW-01377-68</a>	
	1/4" JG	PVC, Viton	2	0.281" (7.1 mm)	2 5/8" x 2 1 1/16"	67 x 68	<a href="#">TW-01377-70</a>	
<b>U</b>	3/8" barb	PVC, Buna N	2	0.281" (7.1 mm)	3 3/16" x 3"	81 x 76	<a href="#">TW-01379-03</a>	
	3/8" barb	PVC, EPDM	2	0.281" (7.1 mm)	3 3/16" x 3"	81 x 76	<a href="#">TW-01377-72</a>	
	3/8" barb	PVC, Viton	2	0.281" (7.1 mm)	3 3/16" x 3"	81 x 76	<a href="#">TW-01377-74</a>	
<b>V</b>	3/8" JG	PVC, Buna N	2	0.281" (7.1 mm)	2 1 1/16" x 2 1 1/16"	68 x 68	<a href="#">TW-01379-04</a>	
	3/8" JG	PVC, EPDM	2	0.281" (7.1 mm)	2 1 1/16" x 2 1 1/16"	68 x 68	<a href="#">TW-01377-76</a>	
	3/8" JG	PVC, Viton	2	0.281" (7.1 mm)	2 1 1/16" x 2 1 1/16"	68 x 68	<a href="#">TW-01377-78</a>	
<b>U</b>	1/2" barb	PVC, Buna N	2	0.281" (7.1 mm)	3 3/16" x 3"	81 x 76	<a href="#">TW-01379-05</a>	
	1/2" barb	PVC, EPDM	2	0.281" (7.1 mm)	3 3/16" x 3"	81 x 76	<a href="#">TW-01379-06</a>	
	1/2" barb	PVC, Viton	2	0.281" (7.1 mm)	3 3/16" x 3"	81 x 76	<a href="#">TW-01379-07</a>	

†JG = John Guest®

**MORE online!**

For our full selection of valves, go to... [ColeParmer.com/valves](http://ColeParmer.com/valves)



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**Two-Way PVC Ball Valves**

Control flow with the 90° rotating handle. Valves have seals made of Viton® fluoroelastomer and seats made of PTFE. Maximum pressure is 150 psi at 32°F (10.3 bar at 0°C); maximum temperature is 140°F (60°C at 1.7 bar).



07387-22

Catalog number	NPT(F)	C <sub>v</sub>	Price
<a href="#">TW-07387-22</a>	1/2"	8.0	
<a href="#">TW-07387-42</a>	3/4"	15.0	
<a href="#">TW-07387-62</a>	1"	29.0	
<a href="#">TW-07387-64</a>	1 1/4"	75.0	

**Chemically Inert Two-Way Ball Valves**

All wetted materials are PFA—ideal for use with corrosive chemicals. Simply make a 1/4-turn to start or stop the flow. Maximum pressure is 150 psi; (10.3 bar) fluid temperature range is 70 to 400°F (21 to 204°C); operating temperature range is 0 to 150°F (-18 to 66°C).



98402-09

Catalog number	NPT(F)	Orifice size	Price
<a href="#">TW-98402-09</a>	1/4"	1/4"	
<a href="#">TW-98402-10</a>	1/2"	3/8"	

**Speedfit Ball Valves**

Food-grade polypropylene housing is specifically made for use with potable water. Quickly disconnect and reconnect your water lines with these Speedfit valves.



07391-04

**Specifications**

**Maximum pressure:** 150 psi (10.3 bar)

**Working temperature:** 33 to 150°F (1 to 65°C)

**Wetted parts:** food-grade polypropylene, EPDM, and stainless steel

Catalog number	Valve type	Connection size/type	Price
<a href="#">TW-07391-00</a>	Straight	1/4" OD Speedfit to 1/4" NPT(M)	
<a href="#">TW-07391-02</a>		3/8" OD Speedfit to 3/8" NPT(M)	
<a href="#">TW-07391-04</a>	Straight	1/4" OD Speedfit to 1/4" OD Speedfit	
<a href="#">TW-07391-06</a>		3/8" OD Speedfit to 3/8" OD Speedfit	
<a href="#">TW-07391-08</a>	Elbow	1/4" OD Speedfit to 1/4" NPT(F)	
<a href="#">TW-07391-10</a>		3/8" OD Speedfit to 1/4" NPT(F)	

**Metering Ball Valves**

Ball valves give you precise control over the entire 180° range. True union design lets you remove wetted parts. Valves have Viton® body seals and seats. Less than 5" overall length. Calibrated in 5° increments.



01360-40

Catalog number	NPT(F)	Material	Price
<a href="#">TW-01360-40</a>	3/8"	PVC	
<a href="#">TW-01360-41</a>	1/2"	PVC	
<a href="#">TW-01360-45</a>	1/2"	PP	

**Cole-Parmer® PTFE Ball Valves**

**PTFE wetted parts allow for maximum chemical resistance**

- Ideal for use in semiconductor or pharmaceutical manufacturing and chemical processing
- Bidirectional 1/4-turn from OFF to ON
- PTFE and polypropylene body construction
- Perfect for use in harsh environments



98514-01

**Specifications**

**Maximum temperature:** 158°F (70°C)

**Wetted parts:** PTFE

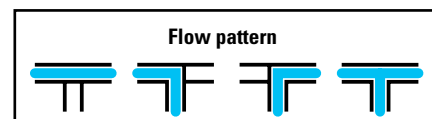
Catalog number	NPT(F)	C <sub>v</sub>	Maximum pressure	Price
<a href="#">TW-98514-01</a>	1/2"	6.0	80 psi (5.5 bar)	
<a href="#">TW-98514-05</a>	3/4"	15.1	60 psi (4.1 bar)	
<a href="#">TW-98514-09</a>	1"	29.5		

**True Union Three-Way Four-Position Ball Valves**

These PVC valves have EPDM O-rings and seats made of PTFE. Connections are true union NPT(F) pipe thread. True union design allows you to separate the valve body without removing pipe connectors—simplifies cleaning and maintenance. Maximum pressure is 150 psi (10.3 bar); maximum temperature is 140°F (60°C). Rotate handle 360° to change flow channel. Valves include both socket and NPT fittings.



98710-00



Catalog number	NPT(F)	C <sub>v</sub>	Price
<a href="#">TW-98710-00</a>	1/2"	8	
<a href="#">TW-98710-01</a>	3/4"	14	
<a href="#">TW-98710-04</a>	1 1/2"	56	
<a href="#">TW-98710-05</a>	2"	100	



**High-Pressure Metal Ball Valves**

Connections	Material (body, seals)	C <sub>v</sub>	Orifice	Max pressure <sup>†</sup>	Max temperature	Dimensions (L x H)	Catalog number	Price
<b>A Two-way valves (straight)</b>								
1/8" compression	SS, PFA	0.2	0.093"		300°F (149°C)	2" x 1 1/2" (51 x 41 mm)	<a href="#">TW-30527-30</a>	
1/8" compression	Brass, PFA	0.2	0.093"	2500 psi (172 bar)	300°F (149°C)	2" x 1 1/2" (51 x 41 mm)	<a href="#">TW-30527-64</a>	
1/8" NPT(F)	SS, PFA	0.44	0.125"		300°F (149°C)	1 7/8" x 1 1/2" (48 x 41 mm)	<a href="#">TW-30527-32</a>	
1/8" NPT(F)	Brass, PFA	0.44	0.125"		300°F (149°C)	1 7/8" x 1 1/2" (48 x 41 mm)	<a href="#">TW-30527-66</a>	
1/4" compression	SS, PFA	0.44	0.125"	2500 psi (172 bar)	300°F (149°C)	2 1/4" x 1 1/2" (57 x 41 mm)	<a href="#">TW-30527-34</a>	
1/4" compression	Brass, PFA	0.44	0.125"		300°F (149°C)	2 1/4" x 1 1/2" (57 x 41 mm)	<a href="#">TW-30527-68</a>	
1/4" NPT(F)	SS, PFA	1.02	0.187"	3000 psi (207 bar)	300°F (149°C)	2" x 2" (51 x 51 mm)	<a href="#">TW-30527-36</a>	
1/4" NPT(F)	Brass, PFA	1.02	0.187"		300°F (149°C)	2" x 2" (51 x 51 mm)	<a href="#">TW-30527-70</a>	
1/4" NPT(M)	SS, PFA	1.02	0.187"		300°F (149°C)	2" x 2" (51 x 51 mm)	<a href="#">TW-30527-38</a>	
3/8" compression	SS, PFA	1.02	0.187"	3000 psi (207 bar)	300°F (149°C)	2 5/8" x 2" (67 x 51 mm)	<a href="#">TW-30527-40</a>	
3/8" compression	Brass, PFA	1.02	0.187"		300°F (149°C)	2 5/8" x 2" (67 x 51 mm)	<a href="#">TW-30527-74</a>	
1/2" compression	SS, PFA	10.7	0.41"	2500 psi (172 bar)	300°F (149°C)	4" x 3" (102 x 76 mm)	<a href="#">TW-30527-42</a>	
1/2" NPT(F)	SS, PFA	6.1	0.41"		300°F (149°C)	3 1/8" x 3" (79 x 76 mm)	<a href="#">TW-30527-44</a>	
<b>B Two-way valves (right angled)</b>								
1/4" compression	SS, PFA	0.34	0.125"	2500 psi (172 bar)	300°F (149°C)	1 1/8" x 3" (29 x 76 mm)	<a href="#">TW-30527-48</a>	
1/4" NPT(F)	SS, PFA	0.7	0.187"	3000 psi (207 bar)	300°F (149°C)	1" x 2 1/2" (25 x 64 mm)	<a href="#">TW-30527-50</a>	
1/4" NPT(F)	Brass, PFA	0.7	0.187"		300°F (149°C)	1" x 2 1/2" (25 x 64 mm)	<a href="#">TW-30527-76</a>	
3/8" compression	SS, PFA	0.7	0.187"		300°F (149°C)	1 3/8" x 2 3/4" (35 x 70 mm)	<a href="#">TW-30527-52</a>	
<b>C Three-way valves</b>								
1/8" compression	SS, PFA	0.18	0.093"		300°F (149°C)	2" x 2 1/4" (51 x 57 mm)	<a href="#">TW-30527-54</a>	
1/8" compression	Brass, PFA	0.18	0.093"	2500 psi (172 bar)	300°F (149°C)	2" x 2 1/4" (51 x 57 mm)	<a href="#">TW-30527-80</a>	
1/8" NPT(F)	SS, PFA	0.34	0.125"		300°F (149°C)	1 5/8" x 2 1/4" (41 x 57 mm)	<a href="#">TW-30527-56</a>	
1/8" NPT(F)	Brass, PFA	0.34	0.125"		300°F (149°C)	1 5/8" x 2 1/4" (41 x 57 mm)	<a href="#">TW-30527-82</a>	
1/4" compression	SS, PFA	0.34	0.125"	2500 psi (172 bar)	300°F (149°C)	2 1/4" x 2 1/2" (57 x 64 mm)	<a href="#">TW-30527-58</a>	
1/4" compression	Brass, PFA	0.34	0.125"		300°F (149°C)	2 1/4" x 2 1/2" (57 x 64 mm)	<a href="#">TW-30527-84</a>	
1/4" NPT(F)	SS, PFA	0.7	0.187"	3000 psi (207 bar)	300°F (149°C)	2" x 2 1/2" (51 x 64 mm)	<a href="#">TW-30527-60</a>	
1/4" NPT(F)	Brass, PFA	0.7	0.187"		300°F (149°C)	2" x 2 1/2" (51 x 64 mm)	<a href="#">TW-30527-86</a>	
3/8" compression	SS, PFA	0.7	0.187"	3000 psi (207 bar)	300°F (149°C)	2 5/8" x 2 3/4" (67 x 70 mm)	<a href="#">TW-30527-62</a>	
3/8" compression	Brass, PFA	0.7	0.187"		300°F (149°C)	2 5/8" x 2 3/4" (67 x 70 mm)	<a href="#">TW-30527-88</a>	

<sup>†</sup>Preset from factory to 1000 psig. Packing nut must be tightened to achieve higher pressures.



**Polypropylene Ball Valves**

- Glass-reinforced polypropylene (PP) body with a polysulfone ball and EPDM seals
- NSF 51 listed
- Meet FDA requirements for contact with food
- All-plastic design is leak free and corrosion resistant



Connections	Wetted parts (body, seals)	Orifice	Max pressure	Max temperature	Dimensions (L x H)	Catalog number	Price
<b>A Male elbow x push-to-connect</b>							
1/4" NPT(M) x 1/4" tube OD	PP, EPDM	3/16"	150 psi (10 bar)	225°F (107°C)	1 3/4" x 2 3/16" (44 x 55 mm)	<a href="#">TW-01379-41</a>	
3/8" NPT(M) x 1/4" tube OD	PP, EPDM	3/16"		225°F (107°C)	1 3/4" x 2 3/16" (44 x 55 mm)	<a href="#">TW-01379-43</a>	
1/2" NPT(M) x 1/4" tube OD	PP, EPDM	3/16"		225°F (107°C)	1 3/4" x 2 3/16" (44 x 60 mm)	<a href="#">TW-01379-45</a>	
1/4" NPT(M) x 3/8" tube OD	PP, EPDM	1/4"	150 psi (10 bar)	225°F (107°C)	1 7/8" x 2 3/16" (47 x 55 mm)	<a href="#">TW-01379-47</a>	
3/8" NPT(M) x 3/8" tube OD	PP, EPDM	1/4"		225°F (107°C)	1 7/8" x 2 3/16" (47 x 55 mm)	<a href="#">TW-01379-49</a>	
1/2" NPT(M) x 3/8" tube OD	PP, EPDM	1/4"		225°F (107°C)	1 7/8" x 2 3/16" (47 x 55 mm)	<a href="#">TW-01379-51</a>	
<b>B Female elbow x push-to-connect</b>							
1/4" NPT(F) x 1/4" tube OD	PP, EPDM	3/16"	150 psi (10 bar)	225°F (107°C)	1 3/4" x 2 1/16" (44 x 52 mm)	<a href="#">TW-01379-53</a>	
3/8" NPT(F) x 1/4" tube OD	PP, EPDM	3/16"		225°F (107°C)	1 3/4" x 2 1/16" (44 x 52 mm)	<a href="#">TW-01379-55</a>	
1/4" NPT(F) x 3/8" tube OD	PP, EPDM	1/4"	150 psi (10 bar)	225°F (107°C)	1 7/8" x 2 1/16" (47 x 52 mm)	<a href="#">TW-01379-57</a>	
3/8" NPT(F) x 3/8" tube OD	PP, EPDM	1/4"		225°F (107°C)	1 7/8" x 2 1/16" (47 x 52 mm)	<a href="#">TW-01379-59</a>	
<b>C Push-to-connect x push-to-connect</b>							
1/4" tube OD x 1/4" tube OD	PP, EPDM	3/16"	150 psi (10 bar)	225°F (107°C)	2 9/16" x 1" (65 x 26 mm)	<a href="#">TW-01379-61</a>	
3/8" tube OD x 1/4" tube OD	PP, EPDM	3/16"		225°F (107°C)	2 9/16" x 1" (65 x 26 mm)	<a href="#">TW-01379-63</a>	
1/4" tube OD x 3/8" tube OD	PP, EPDM	1/4"	150 psi (10 bar)	225°F (107°C)	2 9/16" x 1" (65 x 26 mm)	<a href="#">TW-01379-65</a>	
3/8" tube OD x 3/8" tube OD	PP, EPDM	1/4"		225°F (107°C)	2 9/16" x 1" (70 x 36 mm)	<a href="#">TW-01379-67</a>	
<b>D Male x push-to-connect</b>							
1/4" NPT(M) x 1/4" tube OD	PP, EPDM	3/16"	150 psi (10 bar)	225°F (107°C)	2 1/16" x 1 1/16" (62 x 36 mm)	<a href="#">TW-01379-69</a>	
3/8" NPT(M) x 1/4" tube OD	PP, EPDM	3/16"		225°F (107°C)	2 1/16" x 1 1/16" (62 x 36 mm)	<a href="#">TW-01379-71</a>	
1/4" NPT(M) x 3/8" tube OD	PP, EPDM	1/4"	150 psi (10 bar)	225°F (107°C)	2 1/2" x 1 1/16" (64 x 36 mm)	<a href="#">TW-01379-73</a>	
3/8" NPT(M) x 3/8" tube OD	PP, EPDM	1/4"		225°F (107°C)	2 1/2" x 1 1/16" (64 x 36 mm)	<a href="#">TW-01379-75</a>	
<b>E Female x push-to-connect</b>							
1/8" NPT(F) x 1/4" tube OD	PP, EPDM	3/16"	150 psi (10 bar)	225°F (107°C)	2 1/16" x 1 1/16" (52 x 36 mm)	<a href="#">TW-01379-77</a>	
1/4" NPT(F) x 1/4" tube OD	PP, EPDM	3/16"		225°F (107°C)	2 1/4" x 1 1/16" (58 x 36 mm)	<a href="#">TW-01379-79</a>	
3/8" NPT(F) x 1/4" tube OD	PP, EPDM	3/16"		225°F (107°C)	2 1/16" x 1 1/16" (62 x 36 mm)	<a href="#">TW-01379-81</a>	
1/8" NPT(F) x 3/8" tube OD	PP, EPDM	1/4"	150 psi (10 bar)	225°F (107°C)	2 3/16" x 1 1/16" (55 x 36 mm)	<a href="#">TW-01379-83</a>	
1/4" NPT(F) x 3/8" tube OD	PP, EPDM	1/4"		225°F (107°C)	2 3/8" x 1 1/16" (62 x 36 mm)	<a href="#">TW-01379-85</a>	
3/8" NPT(F) x 3/8" tube OD	PP, EPDM	1/4"		225°F (107°C)	2 1/2" x 1 1/16" (64 x 36 mm)	<a href="#">TW-01379-87</a>	
<b>F Tube elbow x push-to-connect</b>							
3/8" stem x 1/4" tube OD	PP, EPDM	1/4"	150 psi (10 bar)	225°F (107°C)	1 3/4" x 2 1/16" (45 x 62 mm)	<a href="#">TW-01379-95</a>	
3/8" stem x 3/8" tube OD	PP, EPDM	3/8"		225°F (107°C)	1 1/8" x 2 1/16" (47 x 62 mm)	<a href="#">TW-01379-97</a>	



**Thermoplastic True Union Ball Valves**

True union design permits easy removal and replacement

- Socket and NPT(F) connections included
- Dual-stem O-rings
- External seat adjustment



98710-16



98710-74

Catalog number	Connections	C <sub>v</sub>	Maximum temperature	Max working pressure at 73°F	Price
<b>PVC valves with EPDM seat and seals</b>					
TW-98710-12	1/2"	22	140°F (60°C)	235 psi (16.2 bar)	
TW-98710-14	3/4"	55			
TW-98710-16	1"	112			
<b>CPVC valves with Viton® seals, PTFE seats</b>					
TW-98710-36	1/2"	22	200°F (93°C)	235 psi (16.2 bar)	
TW-98710-38	3/4"	55			
TW-98710-40	1"	112			
<b>PP valves with Viton® seals, PTFE seats</b>					
TW-98710-58	1/2"	22	180°F (82°C)	150 psi (10.3 bar)	
TW-98710-60	3/4"	55			
TW-98710-62	1"	112			
<b>PVDF valves with Viton® seals, PTFE seats (include socket connectors only)</b>					
TW-98710-72	3/4"	55	280°F (138°C)	150 psi (10.3 bar)	
TW-98710-74	1"	112			

**Electrically Actuated Ball Valves**

NEMA 4X polypropylene housing for harsh operating conditions

- Thermal overload circuit protects the motor from burnout and overheating



01347-02

**Specifications**

**Maximum temperature**  
PVC valves: 140°F (60°C), CPVC valves: 195°F (90.5°C)  
**Maximum pressure:** 150 psi at 70°F (10.3 bar at 31°C)  
**Working pressure:** (for true union valve only) 225 psi at 70°F (15.5 bar at 31°C)  
**Wetted parts:** PVC or CPVC valve, double Viton® O-rings  
**Actuator housing:** NEMA 4X, polypropylene  
**Actuator motor:** 115 VAC

Connections	C <sub>v</sub>	Power	PVC valves		CPVC valves	
			Cat. no.	Price	Cat. no.	Price
<b>True union ball valves with NPT(F) connections</b>						
1/2"	8	115 VAC	TW-01347-00		TW-01347-20	
3/4"	15		TW-01347-02		TW-01347-22	
1"	29		TW-01347-04		TW-01347-24	
1 1/2"	90		TW-01347-08		TW-01347-28	
2"	140		TW-01347-10		TW-01347-30	



**George Fischer Type 546 Ball Valves**

True union ball valve with added safety and functionality for a diverse range of applications

- PTFE ball seat with high abrasion resistance
- Built-in tool for easy adjustment of ball torque
- Threaded mounting inserts for fixed-point attachment
- PVC and CPVC valves include both NPT(F) and socket connectors



01357-03

**Specifications**

**Wetted parts:** selected body and seal materials; PTFE seats

Catalog number	Size	C <sub>v</sub>	Max temperature	Max working pressure at 70°F†	Price
<b>PVC valves with EPDM seals</b>					
TW-01357-01	3/8"	5	140°F (60°C)	Socket: 232 psi Thread: 145 psi	
TW-01357-03	1/2"	13			
TW-01357-05	3/4"	24.5			
TW-01357-07	1"	49			
<b>CPVC valves with FPM seals</b>					
TW-01371-08	3/8"	5	140°F (60°C)	Socket: 232 psi Thread: 145 psi	
TW-01371-09	1/2"	13			
TW-01371-10	3/4"	24.5			
<b>PVDF valves with FPM seals (threaded connection<sup>1</sup>)</b>					
TW-01374-91	3/8"	5	284°F (140°C)	145 psi	
TW-01374-92	1/2"	13			
TW-01374-93	3/4"	24.5			
TW-01374-94	1"	49			



<sup>1</sup>Valve may be ordered with fusion socket connections; contact our Applications Specialist.

†Pressure rating declines toward maximum temperature.

**Electrically Actuated Reversing Ball Valves**

Quarter-turn valves offer numerous standard features

- Four limit switches provide electrical control of actuator
- NEMA 4X electrical enclosure
- Position indicators show yellow for open and red for closed
- Clutchless manual override allows you to close valve in case of power loss
- Thermal overload protection provides auto shutdown in case of power surges



07390-63

**Specifications**

**Maximum temperature**  
PVC valves: 140°F (60°C)  
CPVC valves: 195°F (90.6°C)  
**Maximum valve pressure:** 225 psi (15.5 bar)  
**Wetted parts:** PVC body/PTFE seats around FPM ball/O-rings  
**Actuator cycle time:** 8 seconds  
**Motor voltage:** 120 VAC

Connections	C <sub>v</sub>	PVC valves		CPVC valves	
		Catalog number	Price	Catalog number	Price
1/2"	3.5	TW-07390-59		TW-07390-69	
3/4"	7.5	TW-07390-61		TW-07390-71	
1"	12.5	TW-07390-63		TW-07390-73	
1 1/2"	32.5	TW-07390-65		TW-07390-75	
2"	47.5	TW-07390-67		TW-07390-79	

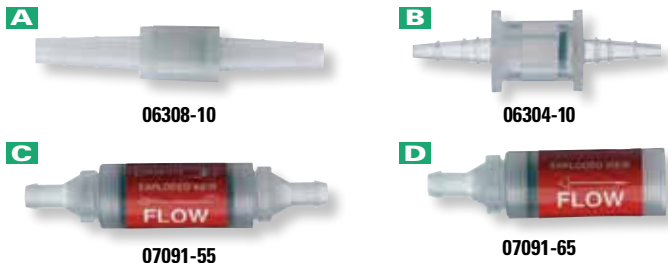


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## Check and Foot Valves with Hose Barb Connections

Ideal for low-pressure applications. Choose from economical LDPE with neoprene disc; autoclavable PP with neoprene disc; or autoclavable PP with Hastelloy C® springs, O-rings made of Viton®, and built-in 149-µm screen—available in check valves or foot valves.



Catalog number	Tubing ID	Breaking pressure	Max pressure	Price
<b>A LDPE valves; -14 to 76°F (-26 to 24°C)</b>				
TW-06308-10	5/16" to 1/4"	1 psi	10 psi (0.69 bar)	/ea
<b>B PP valves; -14 to 250°F (-26 to 121°C)</b>				
TW-06304-10	1/8" to 1/4"	1/2 psi	20 psi (1.4 bar)	/bg of 6
TW-06304-20	1/4" to 3/8"			/bg of 6
TW-06304-30	3/8" to 1/2"			/bg of 6
<b>C PP check valves with built-in screen; 32 to 140°F (0 to 60°C)</b>				
TW-07091-55	3/8"	1 psi	50 psi (3.4 bar)	/ea
TW-07091-60	1/2"			/ea
<b>D PP foot valves with built-in screen; 32 to 140°F (0 to 60°C)</b>				
TW-07091-65	3/8"	1 psi	50 psi (3.4 bar)	/ea
TW-07091-70	1/2"			/ea

## Luer Check Valves

- Manufacturing meets USP Class VI and ISO 10993 standards
- All products are suitable for EtO or gamma sterilization
- Operate in any spatial orientation



Catalog number	Valve type	Termination	Crack pressure	Max flow rate	Material	Price
LZ-30505-91	One way	Female x male luer lock	<0.174 psi	≥ 90 mL/min	SAN/LDPE with silicone diaphragm	
LZ-30505-92					Clean SAN with silicone diaphragm	
LZ-30505-93	Anti-siphon		1.45 to 4.351 psi	200 mL/min	Clear and blue SAN with silicone diaphragm	
LZ-30505-94						

### Find MORE!

Find our entire line of luer fittings on pages 509-575.

## Miniature Check Valves

Use with liquids and gases for pressure or vacuum applications. Breaking pressure is 0.18 psi, closing pressure is 0.014 psi. Maximum temperature (at maximum psi) is 250°F (121°C) for "A" and "C"; 200°F (93°C) for "B." Install in any position.  
**Note:** Valves require 1 psi back pressure for a tight seal.



Catalog number	Tubing ID	C <sub>v</sub>	Working pressure	Price
<b>A Nylon body and fluorosilicone diaphragm</b>				
TW-98553-00	1/8"	0.12	3 to 5 psi (0.2 to 0.3 bar)	
TW-98553-01	3/16"	0.13		
TW-98553-02	1/4"	0.13		
<b>B PP body and Viton® diaphragm</b>				
TW-98553-10	1/8"	0.11	3 to 5 psi (0.2 to 0.3 bar)	
TW-98553-11	3/16"	0.12		
TW-98553-12	1/4"	0.12		
TW-98553-13	5/16"	0.13		
<b>C PVDF body and Viton diaphragm</b>				
TW-98553-20	1/8"	0.11	3 to 5 psi (0.2 to 0.3 bar)	
TW-98553-21	3/16"	0.12		
TW-98553-22	1/4"	0.12		
TW-98553-34	3/8"	0.12		

## Check Valves with Pipe Thread Connections

All valves have diaphragms made of Viton®.



Catalog number	Material	C <sub>v</sub>	Breaking pressure	Max pressure	Max temperature	Price
<b>1/4" NPT(F) valves; mount vertically</b>						
TW-01350-20	PVC	0.5	1/2 psi	140 psi (9.6 bar)	140°F (60°C)	
TW-01350-26	PP			125 psi (8.6 bar)	180°F (82°C)	
TW-01350-32	PTFE			100 psi (6.9 bar)	300°F (149°C)	
<b>1/2" NPT(F) valves; mount in any position</b>						
TW-01350-24	PVC	8.0	1 1/2 psi	150 psi (10.3 bar)	140°F (60°C)	
TW-01350-30	PP			100 psi (6.9 bar)	180°F (82°C)	
TW-01350-36	PVDF			50 psi (3.4 bar)	300°F (149°C)	

## Acetal Check Valves

Constructed of NSF acetal body, NBR rubber diaphragm, and 303 stainless steel. Maximum temperature is 150°F (66°C). Install in any position.



Catalog number	Connections		C <sub>v</sub>	Breaking pressure	Max pressure	Price
	Inlet	Outlet				
TW-98675-00	1/4" NPT(F)	1/4" NPT(F)	1.45	1/2 psi	235 psi (16.2 bar)	
TW-98675-01	1/4" NPT(F)	1/4" NPT(M)				
TW-98675-02	1/4" NPT(M)	1/4" NPT(M)				



### Plastic Check Valves

Use these push-to-connect check valves for rigid and semirigid plastic tubing. Acetal body with EPDM O-rings. Max temperature of 255°F (124°C).



Catalog number	Tubing ID	Breaking pressure	Working pressure	Price
<a href="#">TW-01379-89</a>	1/4"	0.333 psi	150 psi (10.3 bar)	
<a href="#">TW-01379-91</a>	3/16"	0.333 psi		
<a href="#">TW-01379-93</a>	3/8"	0.333 psi		

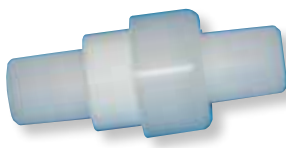
### PTFE Check Valves

Designed for use with corrosive fluids of varying viscosities in chemical, microelectronics, and petroleum industries.

**NEW**

#### Specifications

Maximum pressure: 50 psi (3.46 bar)  
Maximum temperature: 212°F (100°C)



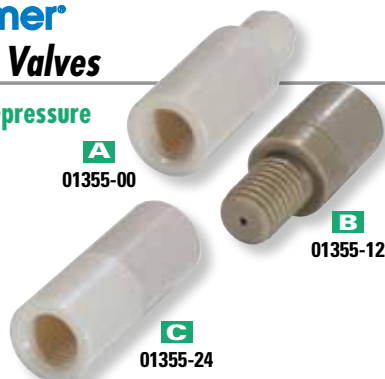
98515-12

Cat. no.	Connections	Orifice	Price
<a href="#">TW-98515-12</a>	1/8" NPT(F)	1/8"	
<a href="#">TW-98515-14</a>	1/4" NPT(F)	1/4"	
<a href="#">TW-98515-16</a>	3/8" NPT(F)	3/8"	
<a href="#">TW-98515-18</a>	1/2" NPT(F)	1/2"	

### Cole-Parmer® Inert In-Line Check Valves

Ideal for high-purity, low-pressure applications

- Zero maintenance
- No metal components— inert flow path
- No back flow leakage with back pressure of 0 to 100 psi



#### Specifications

Connection: 1/4-28 UNF      Max back pressure: 100 psi

Catalog number	C <sub>v</sub>	Housing	Check element material	Breaking pressure	Price
<b>A Outlet valve;</b> flow enters at male connection					
<a href="#">TW-01355-00</a>	0.0074	PEEK	EPDM	0.99 psi	
<a href="#">TW-01355-02</a>	0.0079		FKM	0.71 psi	
<a href="#">TW-01355-04</a>	0.0061		FFKM	0.23 psi	
<b>B Inlet valve;</b> flow enters at female connection					
<a href="#">TW-01355-12</a>	0.0074	PEEK	EPDM	0.99 psi	
<a href="#">TW-01355-14</a>	0.0079		FKM	0.71 psi	
<a href="#">TW-01355-16</a>	0.0061		FFKM	0.23 psi	
<b>C Female valve;</b> female connection on each end					
<a href="#">TW-01355-24</a>	0.0074	PEEK	EPDM	0.99 psi	
<a href="#">TW-01355-26</a>	0.0079		FKM	0.71 psi	
<a href="#">TW-01355-28</a>	0.0061		FFKM	0.23 psi	

### True Union Ball Check Valves

Unique square-cut elastomer seat provides seal at very low back pressures

- Install either vertically or horizontally
- Assembled with water soluble, silicone-free lubricant
- One-piece PVC body construction



01341-00

Optional screen helps prevent unwanted material from entering system.



#### Specifications

Wetted parts: PVC body and EPDM seals

Catalog number	Connections	C <sub>v</sub>	Maximum temperature	Working pressure	Price
<b>Valves with socket and NPT(F) threaded connectors</b>					
<a href="#">TW-01368-10</a>	3/8"	4.8	140°F (60°C)	150 psi at 70°F (10.3 bar at 21°C)	
<a href="#">TW-01341-00</a>	1/2"	4.6			
<a href="#">TW-01341-02</a>	3/4"	10			
<a href="#">TW-01341-04</a>	1"	28	140°F (60°C)	150 psi at 70°F (10.3 bar at 21°C)	
<a href="#">TW-01341-08</a>	1 1/2"	55			
<a href="#">TW-01341-10</a>	2"	90			
<b>Foot valve screens</b> (use with ball check valves above)					
<a href="#">TW-01341-50</a>	1/2"	4.6	140°F (60°C)	150 psi at 70°F (10.3 bar at 21°C)	
<a href="#">TW-01341-52</a>	3/4"	10			
<a href="#">TW-01341-58</a>	1 1/2"	55			

### Poppet Check Valves

Valves have body made of PFA and O-ring seals made of Viton®. Max pressure is 100 psi (6.9 bar); temperature range is 0 to 300°F (-18 to 149°C). Install in any position.



06373-57

**Note:** Valves require 5 psi back pressure to achieve a proper seal.

Catalog number	NPT(F)	C <sub>v</sub>	Breaking pressure	Price
<a href="#">TW-06373-57</a>	1/4"	0.75	1.0 psi	
<a href="#">TW-06373-59</a>	1/2"	4.0	1.75 psi	

### Metallic Check Valves

Use with liquids up to 200 psi (13.8 bar). Breaking pressure is 3" H<sub>2</sub>O (0.11 psi) for all valves. Brass valves have a Buna N gasket and seat. Select a bronze swing valve if you are using a slurry—brass check valves will fail prematurely or not seat positively when used in a slurry application. Brass valves can be installed in any position. Install bronze valves horizontally only.

Cat. no.	NPT(F)	Orifice	C <sub>v</sub>	Price
<b>Brass check valves; 180°F (82°C)</b>				
<a href="#">TW-98676-00</a>	1/4"	0.370"	5.9	
<a href="#">TW-98676-02</a>	3/8"	0.370"	5.9	
<a href="#">TW-98676-04</a>	1/2"	0.370"	5.9	
<a href="#">TW-98676-06</a>	3/4"	0.500"	11.5	
<a href="#">TW-98676-08</a>	1"	0.615"	17.2	
<b>Bronze swing check valves; 325°F (163°C)</b>				
<a href="#">TW-98676-22</a>	3/8"	0.512"	6.3	
<a href="#">TW-98676-28</a>	1"	0.992"	33.5	



98676-00



98676-22

## Type 3233 316L Stainless Steel Diaphragm Valves

Fluids are hermetically sealed from operating system

- Zero dead volume
- Autoclavable

Choose from EPDM or PTFE wetted materials and sanitary or weld end connections. These compact, manually operated diaphragm valves consist of a flow-optimized stainless steel body, diaphragm, and a manual actuator. The diaphragm is both a switch element and a sealing element and can be easily replaced. The valves have no dead volume and can be mounted to be self-draining—this enables high flow capacities and a variety of applications to be realized. The flow can be continually adjusted with the handwheel, making these valves extremely useful in applications in the food industry, biotechnology, and pharmaceutical markets.

**NEW**



98516-44

98516-66

### Specifications

**Temperature range:** 14 to 266°F (-14 to 130°C)

**Body material:** forged 316L SS, ASME BPE specification

**Internal finish:** 0.6 µL in Ra

**External finish:** 0.4 µL in Ra (as forged)

**Connection:** Tri-Clamp or weld end

**Actuator/bonnet:** PPS/316L SS

**Diaphragm material:** EPDM or PTFE/EPDM



Connections	Orifice mm	Cv	Maximum pressure	EPDM wetted material				PTFE wetted material			
				Sanitary connection		Weld end connection		Sanitary connection		Weld end connection	
				Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
¼"	8	1.2	145 psi (9.9 bar)	<a href="#">TW-98516-24</a>		<a href="#">TW-98516-40</a>		<a href="#">TW-98516-56</a>		<a href="#">TW-98516-72</a>	
	10	1.2		<a href="#">TW-98516-26</a>		<a href="#">TW-98516-42</a>		<a href="#">TW-98516-58</a>		<a href="#">TW-98516-74</a>	
	½"	1.2		<a href="#">TW-98516-28</a>		<a href="#">TW-98516-44</a>		<a href="#">TW-98516-60</a>		<a href="#">TW-98516-76</a>	
½"	15	6.9	150 psi (10.3 bar)	<a href="#">TW-98516-30</a>		<a href="#">TW-98516-46</a>		<a href="#">TW-98516-62</a>		<a href="#">TW-98516-78</a>	
	20	13.9		<a href="#">TW-98516-32</a>		<a href="#">TW-98516-48</a>		<a href="#">TW-98516-64</a>		<a href="#">TW-98516-80</a>	
	¾"	18.5		<a href="#">TW-98516-34</a>		<a href="#">TW-98516-50</a>		<a href="#">TW-98516-66</a>		<a href="#">TW-98516-82</a>	
1½"	36	33.5	101 psi (6.9 bar)	<a href="#">TW-98516-36</a>		<a href="#">TW-98516-52</a>		<a href="#">TW-98516-68</a>		<a href="#">TW-98516-84</a>	
	40	33.5		<a href="#">TW-98516-38</a>		<a href="#">TW-98516-54</a>		<a href="#">TW-98516-70</a>		<a href="#">TW-98516-86</a>	
2"	50	62.4									

## Type 3234 Stainless Steel Diaphragm Valves

Valve is machined from a single piece of 316L stainless steel

- Three-way sanitary Tri-Clamp process connections
- Zero dead volume
- Compliant with FDA CFR 21.177.1550
- USP Class VI certification

Valves are designed for use with neutral gases or ultra pure, sterile, aggressive, or abrasive fluids. Three-way valve allows you to sample, drain, or divert process fluids. Since valve is machined from a single block of 316L stainless steel, there are no weld seams to cause small particles to get stuck within the valves. The diaphragm material is pressure molded PTFE/EPDM ensuring durable use and long life.

**NEW**



98517-06

### Specifications

**Maximum pressure:** 145 psi (10 bar)

**Temperature range:** 14 to 266°F (-10 to 130°C)

**Body material:** 316L stainless steel

**Internal finish:** Ra < 0.5 µm

**Connection:** sanitary Tri-Clamp

**Actuator/bonnet:** PPS/stainless steel

**Diaphragm material:** pressure molded PTFE/ EPDM



Catalog number	Orifice mm	Cv	Sanitary connections		Price
			Sides	Bottom	
<a href="#">TW-98517-00</a>	10	1	½" x ½"	¾"	
<a href="#">TW-98517-02</a>	15	6	½" x ½"	½"	
<a href="#">TW-98517-04</a>	15	6	¾" x ¾"	¾"	
<a href="#">TW-98517-06</a>	20	11	¾" x ¾"	¾"	
<a href="#">TW-98517-08</a>	20	11	1" x 1"	¾"	
<a href="#">TW-98517-10</a>	25	16	1" x 1"	1"	
<a href="#">TW-98517-12</a>	25	16	1½" x 1½"	1"	
<a href="#">TW-98517-14</a>	40	29	1½" x 1½"	1½"	

## Cole-Parmer PTFE Gaskets for Sanitary Fittings

These gaskets are for Tri-Clamp® style fittings. All gaskets meet FDA CFR Title 21 CFR 177.2600, USDA, 3A, and cGMP criteria. Gaskets are free of animal-derived ingredients and meet USP Class IV, EP 3.1.9, and cytotoxicity criteria. Contact your local dealer for other sizes or materials.

PTFE offers excellent chemical compatibility. Highly resistant to stress cracking and corrosion. Usable from -450 to 550°F (-268 to 288°C).



Catalog number	Size	Qty/pk	Price/pk
<a href="#">LZ-30548-82</a>	1"	10	
<a href="#">LZ-30548-84</a>	1½"		
<a href="#">LZ-30548-86</a>	2"		



30548-84



# Valves

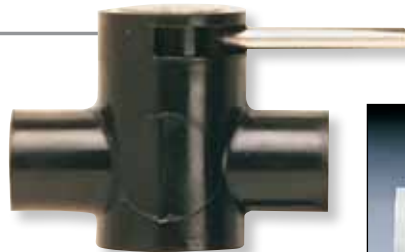
## Elliptical / Needle

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### Elliptical Valves

Use elliptical valves for liquid, gas, and vacuum applications. Valves are easy to disassemble. Simply pull out the handle and push your stem through the bottom—allowing you to clean and maintain valves in-line.

Choose from FDA-grade PP or PVDF bodies. All valves have O-rings made of Viton®, 316 SS handles, threaded connections, and non-restrictive orifices.



PP elliptical valve  
06470-35



PVDF elliptical valve  
98150-02

### Specifications

**Maximum pressure:** 150 psi (10.3 bar) at 77°F (25°C)

**Maximum temperature:** 230°F (110°C) at 50 psi in liquids

NPT(F)	Orifice	PP valves		PVDF valves	
		Cat. no.	Price	Cat. no.	Price
<b>Two-way elliptical valves</b>					
1/8"	1/4"	<a href="#">TW-06470-15</a>		<a href="#">TW-06470-17</a>	
1/4"	1/4"	<a href="#">TW-06470-25</a>		<a href="#">TW-06470-27</a>	
3/8"	1/2"	<a href="#">TW-06470-35</a>		<a href="#">TW-06470-37</a>	
1/2"	1/2"	<a href="#">TW-06470-45</a>		<a href="#">TW-06470-47</a>	
3/4"	1 1/16"	<a href="#">TW-06470-55</a>		<a href="#">TW-06470-57</a>	
<b>Three-way, two-position elliptical valves; 90° rotation; flow pattern 1</b>					
1/8"	1/4"	<a href="#">TW-98150-00</a>		<a href="#">TW-98151-00</a>	
1/4"	1/4"	<a href="#">TW-98150-01</a>		<a href="#">TW-98151-01</a>	
3/8"	1/2"	<a href="#">TW-98150-02</a>		<a href="#">TW-98151-02</a>	
1/2"	1/2"	<a href="#">TW-98150-03</a>		<a href="#">TW-98151-03</a>	
3/4"	1 1/16"	<a href="#">TW-98150-04</a>		<a href="#">TW-98151-04</a>	
<b>Three-way, four-position elliptical valves; 360° rotation; flow pattern 2</b>					
1/8"	1/4"	<a href="#">TW-06472-15</a>		<a href="#">TW-06472-17</a>	
1/4"	1/4"	<a href="#">TW-06472-25</a>		<a href="#">TW-06472-27</a>	
3/8"	1/2"	<a href="#">TW-06472-35</a>		<a href="#">TW-06472-37</a>	
1/2"	1/2"	<a href="#">TW-06472-45</a>		<a href="#">TW-06472-47</a>	
3/4"	1 1/16"	<a href="#">TW-06472-55</a>		<a href="#">TW-06472-57</a>	



### Accessories

**TW-98150-50 Mounting brackets**  
for 1/8" and 1/4" NPT(F) elliptical valves. Set of two

**TW-98150-51 Mounting brackets**  
for 3/8" and 1/2" NPT(F) elliptical valves. Set of two

**TW-98150-52 Mounting brackets**  
for 3/4" NPT(F) elliptical valves. Set of two

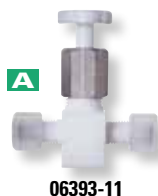
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For our fittings, see  
pages 509-575

### Plastic Needle Valves

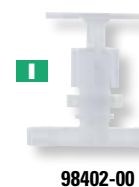
#### A-C Valves with Compression Fittings

Key	Catalog number	Material	Tube OD	Max pressure	Max temp	Price
<b>Needle valves</b>						
<b>A</b>	<a href="#">TW-06393-11</a> <a href="#">TW-06393-21</a>	Elast-O-Floor® seals/PCTFE nuts	1/4" 3/8"	80 psi (5.5 bar) 64 psi (4.4 bar)	450°F (232°C)	
<b>B</b>	<a href="#">TW-06373-21</a> <a href="#">TW-06373-23</a>	PFA	3/8" 1/2"	40 psi (2.7 bar)	300°F (149°C)	
<b>Panel-mount needle valves</b>						
<b>C</b>	<a href="#">TW-06373-29</a> <a href="#">TW-06373-31</a>	PFA	1/8" 1/4"	40 psi (2.7 bar)	300°F (149°C)	



#### D-I Valves with Pipe Thread Adapters

Key	Catalog number	Material	Connections	Max pressure	Max temp	Price
<b>Needle valves</b>						
<b>D</b>	<a href="#">TW-06469-84</a> <a href="#">TW-06469-86</a>	Chemfluor® PTFE	1/8" NPT(F) 1/4" NPT(F)	220 psi (15.2 bar) 210 psi (14.4 bar)	450°F (232°C)	
<b>E</b>	<a href="#">TW-98402-02</a> <a href="#">TW-98402-03</a>	PFA	3/8" NPT(M) 1/2" NPT(M)	40 psi (2.7 bar)	300°F (149°C)	
<b>F</b>	<a href="#">TW-03245-60<sup>†</sup></a> <a href="#">TW-03245-62<sup>†</sup></a> <a href="#">TW-03245-64<sup>†</sup></a>	PVC	1/4" NPT(F) 3/8" NPT(F) 1/2" NPT(F)	150 psi (10.3 bar)	140°F (60°C)	
<b>G</b>	<a href="#">TW-03245-66<sup>†‡</sup></a> <a href="#">TW-03245-68<sup>†‡</sup></a> <a href="#">TW-03245-70<sup>†‡</sup></a>	PP	1/4" NPT(F) 3/8" NPT(F) 1/2" NPT(F)	150 psi (10.3 bar)	250°F (121°C)	
<b>H</b>	<a href="#">TW-01369-20<sup>‡</sup></a> <a href="#">TW-01369-21<sup>‡</sup></a> <a href="#">TW-01369-22<sup>‡</sup></a>	PVDF	1/4" NPT(F) 3/8" NPT(F) 1/2" NPT(F)	200 psi (13.8 bar)	302°F (150°C)	
<b>Panel-mount needle valves</b>						
<b>I</b>	<a href="#">TW-98402-00</a> <a href="#">TW-98402-01</a>	PFA	1/8" NPT(M) 1/4" NPT(M)	40 psi (2.7 bar)	300°F (149°C)	



<sup>†</sup>Seats are made of PTFE and O-rings made of Viton®.

<sup>‡</sup>Autoclavable



Valves  
Needle

Cole-Parmer PTFE Multi-Turn Needle Valves

Maximum pressure is 75 psi (15.2 bar); maximum temperature is 200°F (93°C). Wetted parts are body and O-ring made of PTFE and CTFE valve spindle. Choose aluminum (Al) or 316 stainless steel (SS) body. Orifice is 0.125".

Catalog number	Max flow rate (mL/min)		Body type	Price
	Air	H <sub>2</sub> O		
<b>Multi-turn needle valves; 1/8" NPT(F) connectors</b>				
TW-06393-70	2400	130	Aluminum	
TW-06393-60	55,000	2800		
TW-06393-80	2400	130	316 SS	
TW-06393-82	55,000	2800		
<b>Multi-turn needle valves; 3/8" nipple connectors</b>				
TW-06393-61	2400	130	Aluminum	
TW-06393-71	55,000	2800		
TW-06393-90	2400	130	316 SS	
TW-06393-92	55,000	2800		
<b>Multi-turn needle valves; connectors for 1/4" OD</b>				
TW-06393-66	2400	130	Aluminum	
TW-06393-68	55,000	2800		
TW-06393-94	2400	130	316 SS	
TW-06393-96	55,000	2800		



Needle Valves

Designed for positive leaktight shutoff and regulation of fluids in process, power, and instrumentation applications

- All metal tapered needle stem tip
- Differential hardness between the strain hardened stem and cold formed body threads provides improved cycle life
- Panel mountable—order panel-mounting nuts separately

Specifications

Wetted parts: body, PTFE packing, stainless steel stem and packing nut

Catalog number	Material	Connections (tube OD)	Orifice size	C <sub>v</sub>	Max flow rate (L/min)		Maximum pressure	Temperature range	Price
					Air	H <sub>2</sub> O			
TW-06394-05	316 SS	1/8"	0.078"	0.12	10,000	25	5000 psig (345 bar)	450°F (232°C)	
TW-06394-07	316 SS	1/4"	0.176"	0.43	36,000	100	5000 psig (345 bar)	450°F (232°C)	
TW-06394-09	316 SS	3/8"	0.228"	0.55	60,000	180	5000 psig (345 bar)	450°F (232°C)	
TW-06394-11	316 SS	1/2"	0.312"	1.05	10,000	300	5000 psig (345 bar)	450°F (232°C)	
TW-06394-13	Brass	1/4"	0.176"	0.43	12,500	50	3000 psig (207 bar)	450°F (232°C)	
TW-06394-15	Brass	3/8"	0.228"	0.55	35,000	140	3000 psig (207 bar)	450°F (232°C)	
TW-06394-17	Brass	1/2"	0.312"	1.05	62,000	240	3000 psig (207 bar)	450°F (232°C)	

TW-06394-08 Panel nut; for 1/4" needle valves

TW-06394-12 Panel nut; for 3/8" needle valves

TW-06394-14 Panel nut; for 1/2" needle valves



Precision Needle Valves

Hard-seat designed for 10,000 psi (689 bar) rating at 200°F (93°C)

- Angled stem for precise flow metering
- 316 stainless steel body
- Viton® O-ring

3 year warranty

Catalog number	Connections NPT(F)	Orifice	C <sub>v</sub>	Price
<b>Male-female connections</b>				
TW-06292-07	1/4"	0.187"	0.44	
TW-06292-16	1/2"	0.187"	0.44	
TW-06292-20	3/4"	0.438"	2.70	
TW-06292-24	1"	0.438"	0.44	
TW-06292-28	1 1/4"	0.438"	0.44	
TW-06292-32	1 1/2"	0.438"	0.44	
<b>Female-female connections</b>				
TW-06292-03	1/4"	0.187"	0.44	
TW-06292-09	3/8"	0.187"	0.44	
TW-06292-12	1/2"	0.187"	0.44	
TW-06292-18	3/4"	0.438"	2.70	
TW-06292-22	1"	0.438"	2.70	
TW-06292-26	1 1/4"	0.438"	2.70	
TW-06292-30	1 1/2"	0.438"	2.70	





**Valves**  
**Metering**



**98450-21**  
316 SS valve with compression connections

**98450-35**  
316 SS valve with NPT(F) connections



**06394-00**

**06394-16**

**Metering Valves**

These valves feature an analog knob for repeatable flow settings. Brass valves have Buna N O-rings and operate at a maximum temperature of 250°F (121°C); 316 SS valves have Viton® O-rings and operate at a maximum temperature of 400°F (204°C). Valves 98450-01 to -11 have a maximum pressure of 2000 psi (138 bar); all other valves have a maximum pressure of 1000 psi (70 bar).

Max flow rate (L/min)		Connections	Orifice	Brass		316 SS	
Air	H <sub>2</sub> O			Cat. no.	Price	Cat. no.	Price
<b>Metal metering valves with compression connections</b>							
88	0.76	1/16" 1/8" 1/4"	0.031"	<a href="#">TW-98450-01</a> <a href="#">TW-98450-03</a> <a href="#">TW-98450-05</a>		<a href="#">TW-98450-07</a> <a href="#">TW-98450-09</a> <a href="#">TW-98450-11</a>	
450	3.2	1/8"	0.055"	<a href="#">TW-98450-13</a>		<a href="#">TW-98450-21</a>	
450	3.2	1/4"	0.055"	<a href="#">TW-98450-17</a>		<a href="#">TW-98450-25</a>	
1600	16	1/4"	0.125"	<a href="#">TW-98450-31</a>		<a href="#">TW-98450-37</a>	
<b>Metal metering valves with NPT(F) connections</b>							
450	3.2	1/8"	0.055"	<a href="#">TW-98450-15</a>		<a href="#">TW-98450-23</a>	
1600	16	1/8"	0.125"	<a href="#">TW-98450-29</a>		<a href="#">TW-98450-35</a>	
<b>Metal metering valves with NPT(M) connections</b>							
450	3.2	1/4"	0.055"	<a href="#">TW-98450-19</a>		<a href="#">TW-98450-27</a>	
1600	16	1/4"	0.125"	<a href="#">TW-98450-33</a>		<a href="#">TW-98450-39</a>	

**Cole-Parmer® Chemically Inert Metering Valves**

Excellent for metering corrosive fluids and gases—all wetted parts are PCTFE and PTFE. Eight turns will fully open or close valves. Maximum pressure is 75 psi (5.2 bar) and maximum temperature is 200°F (93°C).

Catalog number	Max flow rate (L/min)		Connections	Orifice	Max temp	Shell	Price
	Air	H <sub>2</sub> O					
<a href="#">TW-06394-00</a>	0.6	0.036	1/8" NPT(F)	1/8"	200	Aluminum	
<a href="#">TW-06394-02</a>	3.0	0.18					
<a href="#">TW-06394-04</a>	30	1.8					
<a href="#">TW-06394-16</a>	300	9	3/8" NPT(F)		150	PTFE	

**Cole-Parmer® Metal Valves**

Maximum pressure is 500 psi (34.4 bar). Maximum temperature for brass valves is 180°F (82°C) and for 316 SS valves is 250°F (121°C). Ports are 1/8" NPT(F). See the "Fittings" section, pages 509-575, for metal fittings.

Max flow rate (mL/min)		Orifice	Flow pattern	Brass		316 SS	
Air	H <sub>2</sub> O			Catalog number	Price	Catalog number	Price
<b>Standard 6-turn metering valves</b>							
5000	350	0.052"	Straight	<a href="#">TW-03218-76</a>		<a href="#">TW-03218-77</a>	
20,000	1200	0.082"		<a href="#">TW-03218-80</a>		<a href="#">TW-03218-81</a>	
60,000	3500	0.120"		<a href="#">TW-03218-84</a>		<a href="#">TW-03218-85</a>	
5000	350	0.052"	90°	<a href="#">TW-03218-78</a>		<a href="#">TW-03218-79</a>	
20,000	1200	0.082"		<a href="#">TW-03218-82</a>		<a href="#">TW-03218-83</a>	
60,000	3500	0.120"		<a href="#">TW-03218-86</a>		<a href="#">TW-03218-87</a>	
<b>High-resolution 16-turn metering valves</b>							
200	6	0.042"	Straight	<a href="#">TW-03214-81</a>		<a href="#">TW-03214-91</a>	
400	12			<a href="#">TW-03214-82</a>		<a href="#">TW-03214-92</a>	
1000	30			<a href="#">TW-03214-83</a>		<a href="#">TW-03214-93</a>	
2500	70	0.093"	Straight	<a href="#">TW-03214-84</a>		<a href="#">TW-03214-94</a>	
6200	200			<a href="#">TW-03214-85</a>		<a href="#">TW-03214-95</a>	
21,500	650			<a href="#">TW-03214-86</a>		<a href="#">TW-03214-96</a>	

## Universal Stopcock Kit

### Ideal for laboratory and process sampling

- Rated to 150 psi (10.3 bar) at 70°F (21°C)
- PVC body, EPDM seats and seals

For on and off, restricted flow, or sampling applications, this all-plastic stopcock kit is adaptable to any piping conditions. Kit includes a ¼" NPT(F) pipe thread, a ¼" NPT(M) pipe thread, hose end connections for ¼" through 7/16" ID tubing, and hex wrench. These combinations allow for six different connection combinations.



06225-60

Catalog number	Description	Price
<a href="#">TW-06225-60</a>	Universal stopcock kit	

## PTFE Stopcocks with Tube Compression and NPT Connections

### Use with caustic and high-purity liquids in many applications

- All-PTFE valve is precision machined

PTFE stopcocks function in a manner similar to ball valves but have a tighter seal when closed, making them ideal for applications where vacuum and pressure will be used. Valve is fully open when handle is in the direction of the flow, and fully closed when it is perpendicular to the valve. At a 45° position, the valve is half open, and can thereby be used in metering applications.

**NEW**



98515-74

### Specifications

**Pressure range:** vacuum to 60 psi (4.1 bar)     **Sealing:** bubble tight  
**Maximum media temperature:** 212°F (100°C)     **Shutoff:** positive  
**Wetted materials:** PTFE

Catalog number	Connections	Orifice	Price
<b>Stopcocks with tube compression connections</b>			
<a href="#">TW-98515-68</a>	1/16"	1/16"	
<a href="#">TW-98515-70</a>	1/8"	1/8"	
<a href="#">TW-98515-72</a>	1/4"	1/4"	
<a href="#">TW-98515-74</a>	1/4"	1/4"	
<a href="#">TW-98515-76</a>	3/8"	3/8"	
<a href="#">TW-98515-78</a>	1/2"	1/2"	
<b>Stopcocks with NPT(F) connections</b>			
<a href="#">TW-98515-80</a>	1/8"	1/8"	
<a href="#">TW-98515-82</a>	1/4"	1/4"	
<a href="#">TW-98515-84</a>	1/4"	1/4"	
<a href="#">TW-98515-86</a>	3/8"	3/8"	
<a href="#">TW-98515-88</a>	1/2"	1/2"	

## Plug Valves

Plug valves are FDA-approved. Valves with pipe thread connections have Elast-O-Fluor® seals and PCTFE nuts.



Catalog number	Size	Orifice	Temperature	Pressure	Price
<b>Plug valves; Elast-O-Fluor® seals and PCTFE nuts</b>					
<a href="#">TW-06392-11</a>	1/8" tube OD	1 mm		105 psi (7.2 bar)	
<a href="#">TW-06392-21</a>	1/4" tube OD	3 mm	-450 to 300°F (-268 to 149°C)	100 psi (6.9 bar)	
<a href="#">TW-06392-31</a>	3/8" tube OD	5 mm		64 psi (4.4 bar)	
<a href="#">TW-06392-41</a>	1/2" tube OD	5 mm		51 psi (3.5 bar)	
<b>Plug valves; PFA seals and nuts</b>					
<a href="#">TW-98402-05</a>	1/8" tube OD	5/64"	0 to 275°F	40 psi 2.6 (bar)	
<a href="#">TW-98402-06</a>	1/4" tube OD	5/32"	(-18 to 135°C)		
<b>Plug valves; Elast-O-Fluor seals and PCTFE nuts; pipe thread connections</b>					
<a href="#">TW-06469-80</a>	1/8" NPT(F)	1/8"	-450 to 347°F	100 psi (6.9 bar)	
<a href="#">TW-06469-82</a>	1/4" NPT(F)	3/16"	(-268 to 175°C)	80 psi (5.5 bar)	



### Stopcocks with Flow Indication

PVC bodies, EPDM seals and seats. Flow indicator on handle. Maximum pressure is 150 psi (10.3 bar) at the maximum temperature of 120°F (49°C); maximum vacuum is 29.9" Hg.

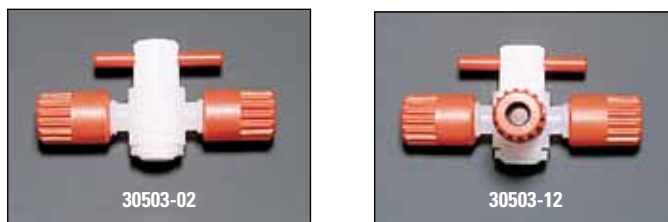


Catalog number	Connections	Orifice	Price
<a href="#">TW-06225-50</a>	NPT(F) x NPT(F)	1/4"	
<a href="#">TW-06225-52</a>	NPT(M) x NPT(M)	1/4"	
<a href="#">TW-06225-54</a>	NPT(M) x hose	1/4"	
<a href="#">TW-06225-56</a>	Hose x hose	1/4" to 1/2"	
<a href="#">TW-06225-58</a>	NPT(M) x NPT(F)	1/4"	

### Stopcocks for Glass and Rigid Tubing

Stopcocks have wetted parts constructed of PFA. An O-ring made of Viton® protects the glass tube when you tighten the compression nut. Stopcocks also accept rigid tubing such as PTFE.

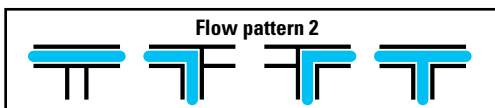
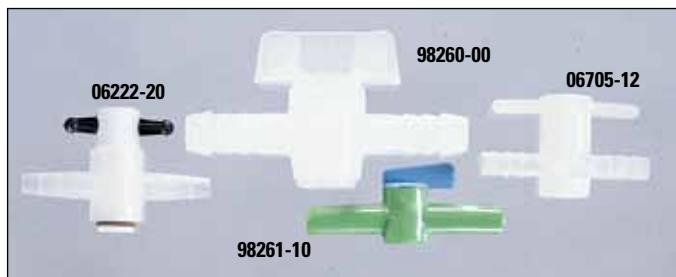
Available in two-way and three-way styles. The three-way stopcocks follow flow pattern 2 (see below left).



Tube OD	Two-way stopcocks		Three-way stopcocks	
	Cat. no.	Price	Cat. no.	Price
6 mm	<a href="#">TW-30503-00</a>		<a href="#">TW-30503-10</a>	
8 mm	<a href="#">TW-30503-02</a>		<a href="#">TW-30503-12</a>	
10 mm	<a href="#">TW-30503-04</a>		<a href="#">TW-30503-14</a>	

### Two- and Three-Way Stopcocks with Hose Barb Connections

PP stopcocks have plugs made of PTFE and are autoclavable. Maximum temperature is 275°F (135°C); maximum pressure is 2 psi. PVDF stopcocks are rated for 464°F (240°C); maximum pressure is 5 psi. LDPE stopcocks are rated for 167°F (75°C); maximum pressure is 7 psi. HDPE stopcocks are rated for 203°F (95°C); maximum pressure is 7 psi.



Cat. no.	Tube ID	Orifice	Material	Price
<b>Two-way stopcocks</b>				
<a href="#">TW-06222-20</a>	1/4" to 5/16"	2 mm	PP	
<a href="#">TW-06222-40</a>	1/4" to 3/16"	4 mm	PP	
<a href="#">TW-98260-00</a>	3/8"	1/4"	LDPE	
<a href="#">TW-98260-10</a>	1/2"	3/8"	LDPE	
<a href="#">TW-98261-10</a>	10 mm	6.8 mm	HDPE	
<a href="#">TW-98261-20</a>	14 mm	10.7 mm	HDPE	
<a href="#">TW-98261-30</a>	16 mm	12.7 mm	HDPE	
<b>Three-way stopcocks; follow flow pattern 2</b>				
<a href="#">TW-06225-20</a>	1/4" to 5/16"	2 mm	PP	
<a href="#">TW-06225-40</a>	1/4" to 3/16"	4 mm	PP	
<a href="#">TW-06705-10</a>	6 mm	4 mm	PVDF	
<a href="#">TW-06705-12</a>	8 mm	6 mm	PVDF	
<a href="#">TW-06705-14</a>	10 mm	8 mm	PVDF	

### Stopcocks with Compression Fittings

Stopcock bodies are made of PFA. Plug is made of PTFE. Maximum pressure is 50 psi (3.4 bar).



Catalog number	Tube OD	Orifice	C <sub>v</sub>	Price
<a href="#">TW-06373-85</a>	1/8"	1/8"	0.38	
<a href="#">TW-06373-86</a>	1/4"	1/8"	0.44	

### Manual Pinch Valves

Fluid contacts only the tubing—for use where preventing contamination is critical. Obtain precise and repeatable flow rates using easy-to-read metered scale on valve body. Valves are made of Delrin® acetal. Tubing is not included—order flexible tubing with durometer (Shore A) of 60 or less from our "Tubing" section on pages 1823-1859.



Catalog number	Tube OD	Price
<a href="#">TW-98002-00</a>	5/32" to 1/4"	
<a href="#">TW-98002-10</a>	5/16" to 3/8"	
<a href="#">TW-98002-20</a>	7/16" to 1/2"	



**Cole-Parmer®**

Distributed by:  
Fiedler Scientific Instruments, s.r.o.  
info@lab-eu.com info@pistroje.cz

**Valves**  
Solenoid, Pinch

**Cole-Parmer Solenoid-Operated 2- and 3-Way Pinch Valves**

Control flow in your tubing without direct contact between the fluid and the valve

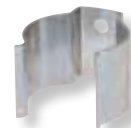
- Fast response time
- Low-power consumption and high-cycle life
- Excellent for sanitary and pharmaceutical applications

**What's included:** 15" 26-gauge PTFE-coated lead wires. Two-way valves include a 12" length of silicone tubing; three-way valves include two 6" (15.2 cm) lengths of tubing with a "Y" connector. See pages 1823-1859 for additional tubing.

Tubing size (ID x OD)	Max pressure	Watts	12 VDC		24 VDC	
			Catalog number	Price	Catalog number	Price
<b>Two-way pinch valves; normally closed</b>						
1/32" x 3/32"	15 psi (1 bar)	2.6	<a href="#">TW-98302-00</a>		<a href="#">TW-98302-10</a>	
1/16" x 1/8"	15 psi (1 bar)	2.6	<a href="#">TW-98302-02</a>		<a href="#">TW-98302-12</a>	
1/8" x 1/4"	20 psi (1.4 bar)	4.0	<a href="#">TW-98302-06</a>		<a href="#">TW-98302-16</a>	
<b>Two-way pinch valves; normally open</b>						
1/32" x 3/32"	15 psi (1 bar)	2.6	<a href="#">TW-98302-20</a>		<a href="#">TW-98302-30</a>	
1/16" x 1/8"	15 psi (1 bar)	2.6	<a href="#">TW-98302-22</a>		<a href="#">TW-98302-32</a>	
1/8" x 1/4"	20 psi (1.4 bar)	4.0	<a href="#">TW-98302-26</a>		<a href="#">TW-98302-36</a>	
<b>Three-way pinch valves; one normally open, one normally closed</b>						
1/32" x 3/32"	15 psi (1 bar)	2.6			<a href="#">TW-98302-48</a>	
1/16" x 1/8"	15 psi (1 bar)	2.6	<a href="#">TW-98302-42</a>		<a href="#">TW-98302-50</a>	
1/8" x 1/4"	20 psi (1.4 bar)	4.0	<a href="#">TW-98302-46</a>		<a href="#">TW-98302-54</a>	



98302-40



Mounting clip  
01540-50



Mounting flange  
01540-55

**Accessories**

- [TW-01540-50](#) Mounting clip for 2- and 3-way valves
- [TW-01540-55](#) Mounting flange for 2- and 3-way valves

**Solenoid-Operated 2- and 3-Way Pinch Valves**

Built-in manual operator allows for easy tubing replacement

- Excellent for isolation-type applications—the only wetted component is the tubing
- Removable coils with DIN-style electrical connectors
- Panel mount bracket included



01340-63



Tubing size (ID x OD)	Max pressure (psi)	Response time (msec)	Watts	12 VDC		24 VDC	
				Catalog number	Price	Catalog number	Price
<b>Two-way pinch valves; normally closed</b>							
1/16" x 1/8"	15 (1 bar)	20	4.0	<a href="#">TW-01340-52</a>		<a href="#">TW-01340-53</a>	
1/8" x 3/16"	15 (1 bar)	20	9.0	<a href="#">TW-01340-54</a>		<a href="#">TW-01340-55</a>	
1/4" x 3/8"	15 (1 bar)	20	13	<a href="#">TW-01340-56</a>		<a href="#">TW-01340-57</a>	
<b>Two-way pinch valves; normally open</b>							
1/16" x 1/8"	15 (1 bar)	20	4.0	<a href="#">TW-01340-58</a>		<a href="#">TW-01340-59</a>	
1/8" x 3/16"	15 (1 bar)	20	9.0	<a href="#">TW-01340-60</a>		<a href="#">TW-01340-61</a>	
1/4" x 3/8"	15 (1 bar)	20	13	<a href="#">TW-01340-62</a>		<a href="#">TW-01340-63</a>	
<b>Three-way pinch valves; one normally open, one normally closed</b>							
1/16" x 1/8"	15 (1 bar)	20	8.0	<a href="#">TW-01340-64</a>		<a href="#">TW-01340-65</a>	
1/8" x 3/16"	15 (1 bar)	20	9.0	<a href="#">TW-01340-66</a>		<a href="#">TW-01340-67</a>	

- [TW-95802-02](#) Cole-Parmer platinum silicone tubing; 1/16" ID x 1/8" OD. Pack of 25 ft (7.6 m)
- [TW-95802-04](#) Cole-Parmer platinum silicone tubing; 1/8" ID x 3/16" OD. Pack of 25 ft (7.6 m)
- [TW-95802-12](#) Cole-Parmer platinum silicone tubing; 1/4" ID x 3/8" OD. Pack of 25 ft (7.6 m)

**Solenoid-Operated 2- and 3-Way Pinch Valves**

Excellent choice for viscous fluids

- Use pinch valves with fluids that are difficult for traditional solenoid valves to handle, such as viscous fluids
- Ideal for on/off flow control applications and where frequent changes of wetted parts are necessary
- Compatible with silicone, C-FLEX®, and PharMed® BPT tubing—see pages 2250-2296 to order
- Two-way valves are available in both normally closed and normally open configurations
- Three-way valves accept two tubes; bottom tube is normally open, top is normally closed



Two-way valve  
98305-02

Tubing size (OD)	Watts	12 VDC		24 VDC	
		Cat. no.	Price	Cat. no.	Price
<b>Two-way pinch valves; normally closed</b>					
10 mm	13	<a href="#">TW-98305-10</a>		<a href="#">TW-98305-11</a>	
13 mm	60	<a href="#">TW-98305-12</a>		<a href="#">TW-98305-13</a>	
19 mm	60	<a href="#">TW-98305-14</a>		<a href="#">TW-98305-15</a>	
<b>Two-way pinch valves; normally open</b>					
10 mm	13	<a href="#">TW-98305-02</a>		<a href="#">TW-98305-03</a>	
13 mm	60	<a href="#">TW-98305-04</a>		<a href="#">TW-98305-05</a>	
19 mm	60	<a href="#">TW-98305-06</a>		<a href="#">TW-98305-07</a>	
<b>Three-way pinch valves; one normally open, one normally closed</b>					
2.4 mm	4.4	<a href="#">TW-98305-00</a>		<a href="#">TW-98305-01</a>	



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**Cole-Parmer® Low-Flow-Direct Lift  
Proportioning Solenoid Valves**

**Use for continuous control of liquid or gas flow**

■ Valves withstand pressures to 500 psi (34.5 bar)

Apply a 0 to 30 VDC input signal—these normally closed valves open to give you flow rates that are proportional to the input voltage. Stainless steel valve construction withstands pressures to 500 psi (34.5 bar). Maximum fluid temperature is 174°F (78°C). Maximum ambient temperature with intermittent use is 130°F (54°C). Actuation time is 300 milliseconds. Wetted parts are 316 and 416 stainless steel and Viton®. Ports are 1/4" compression fittings.

What's included: 6" lead wires.



Catalog number	Maximum flow† (mL/min)		Orifice	Cv	Dimensions	Price
	Air	Water				
TW-98650-02	3500	125	0.020"	0.009	3 1/2"W x 3 1/2"H x 1"D (8.9 x 8.9 x 2.5 cm)	
TW-98650-12	13,000	400	0.040"	0.033		
TW-98650-22	21,500	700	0.055"	0.055		
TW-98650-32	25,000	850	0.063"	0.068		
TW-98650-34	100,000	2873	0.125"	0.240		

†Based on 10 psi inlet pressure and atmospheric exhaust.



98650-02

**Optional Control Module** allows valves to accept 0 to 5 VDC or 4 to 20 mA input signal—ideal for use with transmitters or controllers. Control module has a DB9 female connector (cord sold separately) for input/output signals and requires a 12 to 30 VDC power supply.

TW-98650-60 Control module

TW-98650-40 DB9 connection cord, 6-ft L



Control module  
98650-60

**Find MORE!**

Syringe pumps.....	1393-1400
Gear pumps.....	1379-1391
Piston pumps.....	1401-1406
Diaphragm pumps.....	1412-1423
Tubing.....	1823-1859
Fittings.....	509-575
Filtration.....	465-508

**Stepping Motor Proportioning Valves**

**Unparalleled precision and resolution in controlling flow rates (0.0005" per step resolution)**

- High precision, two-way metering valves in aluminum or 316 SS for air/water
- Operate continuously without coil overheating problems found in traditional solenoid designs

These electronic two-way metering needle valves offer a high-precision stepping motor to control the valve position. Applying a TTL compatible level signal (1.5 VDC = valve closed, 10 VDC = valve open) sets the open/close direction of the valve while applying a 0 to 5 V analog signal sets the rate of speed the valve opens and closes (max response time = 100 ms). The valve can be positioned anywhere between fully open and fully closed by simply de-energizing the analog input signal. LED indicators indicate a fully closed (green) or a fully open valve condition (red).

**Aluminum models:** aluminum housings and valve blocks, Viton® O-rings, and PFA closing pins. **Steel models:** 316 SS valve blocks, PTFE-lined aluminum housing blocks, Viton O-rings, and PFA closing pins.

**What's included:** 9-pin "D" electrical connector. Order optional connection cable 98651-50 for easy input/output wiring. Power input is 12 VDC at 800 mA, protected by a resettable fuse. Maximum differential pressure to the valve is 40 psig and the maximum operating pressure is 500 psig.

Catalog number	Maximum flow†				Connections	Cv	Material	Dimensions (W x H x D)	Price
	Air		H2O						
	sL/min	scfh	L/min	GPM					
TW-98651-00 TW-98651-02	200	424	5.6	1.48	3/8" compression	0.336	Aluminum Stainless steel	3" x 4 1/2" x 2" (7.6 x 11.4 x 5.1 cm)	
TW-98651-04 TW-98651-06	500	1060	14.2	3.75	1/2" compression	0.855	Aluminum Stainless steel	3" x 4 7/8" x 2" (7.6 x 12.4 x 5.1 cm)	
TW-98651-08 TW-98651-10	1000	2119	28	7.4	3/4" NPT(F)	1.735	Aluminum Stainless steel	3" x 4 1/2" x 2" (7.6 x 11.4 x 5.1 cm) 3 1/8" x 4 1/2" x 2" (7.9 x 11.4 x 5.1 cm)	

†Based on 20 psi differential pressure and 70°F fluid temperature

TW-98651-50 Connection cable, "D" connector to stripped ends, 3 ft (0.9 m)

TW-32662-50 Power supply, 110 VAC to 12 VAC for powering valve



98651-02



## High-Pressure Multimedia Solenoid Valves

### Offer outstanding potential for precision control in liquid and gas analysis

- High speed—typical response time is <5 msec
- Maximum pressure up to 1250 psi
- Constructed of noncorroding, passivated stainless steel
- Leak-tight to 1 x 10<sup>-7</sup> cc/sec/atm Helium

These rugged valves operate with high repeatability, combining high speed and high flow in a small size. Coils are rated continuous duty and are potted for protection from dust and dirt.

### Specifications

**Wetted materials:** 316L stainless steel, PTFE, and seals (see table)

**Media compatibility:** gases and liquids compatible with wetted materials

**Operating temperature range:** 40 to 221°F (4 to 105°C)

**Response time:** <5 msec



01870-01

Catalog number	Port	Orifice	Valve type	Seal material	Air flow (LPM)	Max pressure	Power	Price
<a href="#">TW-01870-00</a>	1/16" A-Lok <sup>†</sup>	0.030"	2-way NC	Vespel®, FKM	110 at 1000 psi	1250 psi (86 bar)	12 VDC	
<a href="#">TW-01870-01</a>	1/16" A-Lok <sup>†</sup>	0.030"	2-way NC	Vespel, FKM	110 at 1000 psi	1250 psi (86 bar)	24 VDC	
<a href="#">TW-01870-02</a>	1/4-28 UNF	0.030"	2-way NC	Vespel, FKM	110 at 1000 psi	1250 psi (86 bar)	24 VDC	
<a href="#">TW-01870-03</a>	1/8" A-Lok <sup>†</sup>	0.060"	2-way NC	FKM	45 at 100 psi	250 psi (17.2 bar)	24 VDC	
<a href="#">TW-01870-04</a>	1/8" NPT(F)	0.060"	2-way NC	FKM	45 at 100 psi	250 psi (17.2 bar)	24 VDC	
<a href="#">TW-01870-05</a>	1/8" A-Lok <sup>†</sup>	0.060"	3-way	FKM	45 at 100 psi	100 psi (6.9 bar)	24 VDC	
<a href="#">TW-01870-06</a>	1/8" NPT(F)	0.060"	3-way	FKM	45 at 100 psi	100 psi (6.9 bar)	12 VDC	
<a href="#">TW-01870-07</a>	1/8" NPT(F)	0.060"	3-way	FKM	45 at 100 psi	100 psi (6.9 bar)	24 VDC	
<a href="#">TW-01870-08</a>	1/8" NPT(F)	0.116"	2-way NC	FKM	100 at 100 psi	100 psi (6.9 bar)	24 VDC	
<a href="#">TW-01870-09</a>	1/8" NPT(F)	0.116"	3-way	FKM	100 at 100 psi	100 psi (6.9 bar)	12 VDC	
<a href="#">TW-01870-10</a>	1/8" NPT(F)	0.116"	3-way	FKM	100 at 100 psi	100 psi (6.9 bar)	24 VDC	

<sup>†</sup>Compression-style fitting: accepts 1/16" OD tubing.

## Posiflow® Proportional Solenoid Valves

### Flow rate adjustable between 0 and 100% of rating

- Control by applying 0 to 24 VDC via potentiometer or other variable power supply
- Regulate flow rate by a range of electrical inputs (sensors, transmitters, PLC, etc.)
- Suitable for use in air/gas or low vacuum service, as well as to precisely control flow of liquid
- Ports are 1/8" NPT(F)

Orifice	C <sub>v</sub>	Max operating pressure differential		Brass body		316 stainless steel body	
		Air/gas/low vacuum	Liquid	Cat. no.	Price	Cat. no.	Price
3/64"	0.04	115 psi (8 bar)	75 psi (5.2 bar)	<a href="#">TW-98167-00</a>		<a href="#">TW-98167-08</a>	
1/16"	0.06	90 psi (6.2 bar)	60 psi (4.1 bar)	<a href="#">TW-98167-02</a>		<a href="#">TW-98167-10</a>	
3/32"	0.14	60 psi (4.1 bar)	45 psi (3.1 bar)	<a href="#">TW-98167-04</a>		<a href="#">TW-98167-12</a>	
1/8"	0.2	35 psi (2.4 bar)	35 psi (2.4 bar)	<a href="#">TW-98167-06</a>		<a href="#">TW-98167-14</a>	



98167-00

## Two- and Three-Way Miniature Solenoid Valves

### Corrosion-resistant materials of construction

- Low power consumption
- Manifold mount construction allows easy assembly
- Ports are #10-32 UNF

Universal-operation, three-way valves allow you to introduce pressure at any port for gas or chemical mixing into the third port.

### Specifications

**Ports:** #10-32 UNF

**Body material:** PBT

**Wetted material:** Viton

**Electrical connection:** 2-wire 18" 24 AWG

**Temperature range:** 32 to 140°F (0 to 60°C)

Ports	Orifice	C <sub>v</sub>	Operating pressure range	Watts	12 VDC		24 VDC	
					Cat. no.	Price	Cat. no.	Price
<b>Two-way normally closed solenoid valves</b>								
#10-32 UNF	0.025"	0.013	29" Hg to 100 psi (-1 to 6.9 bar)	0.65	<a href="#">TW-98515-22</a>		<a href="#">TW-98515-28</a>	
	0.055"	0.038	29" Hg to 100 psi (-1 to 6.9 bar)	2	<a href="#">TW-98515-24</a>		<a href="#">TW-98515-30</a>	
	0.080"	0.070	29" Hg to 30 psi (-1 to 2 bar)	2	<a href="#">TW-98515-26</a>		<a href="#">TW-98515-32</a>	
<b>Three-way universal operation (two position) solenoid valves</b>								
#10-32 UNF	0.025"/0.025"	0.013/0.008	29" Hg to 100 psi (-1 to 6.9 bar)	0.65	<a href="#">TW-98515-34</a>		<a href="#">TW-98515-40</a>	
	0.055"/0.050"	0.038/0.033	29" Hg to 50 psi (-1 to 3.4 bar)	2	<a href="#">TW-98515-36</a>		<a href="#">TW-98515-42</a>	
	0.080"/0.050"	0.070/0.033	29" Hg to 30 psi (-1 to 2 bar)	2	<a href="#">TW-98515-38</a>		<a href="#">TW-98515-44</a>	

**NEW**



98515-22

**Cole-Parmer 2- and 3-Way Direct Lift Solenoid Valves**

**Ideal for use with high-purity or corrosive fluids**

- All wetted parts made of inert PTFE
- Minimal dead volume reduces problems with trapped liquids

Rated for 26" Hg vacuum. Maximum fluid temperature is 158°F (70°C). All valves have 15" lead wires. Valves are compact and lightweight—mount them almost anywhere. Valves with a 1/16" orifice have mounting holes at the bottom only and valves with a 3/32" and 5/32" orifice have mounting holes at the top and bottom. Optional mounting clip 01540-50 can be used to mount valves with a 1/16" orifice in any position. Models with 1/8" orifice available. Call for more information.

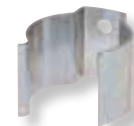


Ports NPT(F)	Orifice	Max pressure	Response time	Watts	12 VDC		24 VDC	
					Catalog number	Price	Catalog number	Price
<b>2-way solenoid valves; normally closed</b>								
1/4-28	1/16"	30 psi (2 bar)	20 ms	4.0	<a href="#">TW-01540-01</a>		<a href="#">TW-01540-02</a>	
1/4-28	1/16"	60 psi (4.1 bar)	25 ms	8.0	<a href="#">TW-01540-03</a>		<a href="#">TW-01540-04</a>	
1/4-28	3/32"	20 psi (1.4 bar)	20 ms	5.1	<a href="#">TW-01540-05</a>		<a href="#">TW-01540-06</a>	
1/8	5/32"	18 psi (1.2 bar)	30 ms	8.0	<a href="#">TW-01540-07</a>		<a href="#">TW-01540-08</a>	
<b>2-way solenoid valves; normally open</b>								
1/4-28	1/16"	30 psi (2 bar)	20 ms	4.0	<a href="#">TW-01540-09</a>		<a href="#">TW-01540-10</a>	
<b>3-way solenoid valves</b>								
1/4-28	1/16"	30 psi (2 bar)	20 ms	4.0	<a href="#">TW-01540-11</a>		<a href="#">TW-01540-12</a>	
1/4-28	1/16"	60 psi (4.1 bar)	25 ms	8.0	<a href="#">TW-01540-13</a>		<a href="#">TW-01540-14</a>	
1/8	5/32"	18 psi (1.2 bar)	30 ms	8.0	<a href="#">TW-01540-17</a>		<a href="#">TW-01540-18</a>	



01540-06

01540-13



Mounting clip  
01540-50



Mounting flange  
01540-55

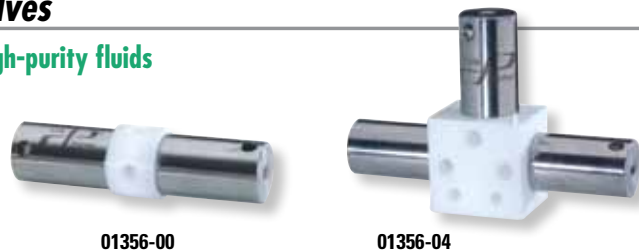
[TW-01540-50](#) Mounting clip for 2- and 3-way valves  
[TW-01540-55](#) Mounting flange for 2- and 3-way valves

**Cole-Parmer Manifold Mixing Solenoid Valves**

**Excellent for multiple liquid or gas control systems with aggressive or high-purity fluids**

- PTFE body valves have an all-PTFE flow path; PEEK body valves offer increased structural strength
- Continuous duty and high cycle life
- Suitable for pressure or vacuum service

These normally closed solenoid mixing valves feature low power consumption, minimal dead volume, and fast response time for all your mixing needs. All valves come with 15" (26 gauge) PTFE-coated lead wires. Special orders are available for valves with different diaphragm and body materials, or larger flow values—call for more information.



01356-00

01356-04

**Specifications**

**Max temperature:** 158°F (70°C)    **Max flow:** 14 LPM at 20 psi    **Pressure**  
**Orifice:** 1/16"    **Ports:** 1/4-28 flat bottom    Inlet port: 28" Hg to 20 psi (1 to 1.4 bar)  
**Watts/solenoid:** 2.6    Outlet port: 28" Hg to 35 psi (1 to 2.4 bar)



Description	12 VDC		24 VDC	
	Catalog number	Price	Catalog number	Price
<b>PTFE body valves with PTFE diaphragm</b>				
2 solenoid, 2 inlet, 1 outlet	<a href="#">TW-01356-00</a>		<a href="#">TW-01356-02</a>	
3 solenoid, 3 inlet, 1 outlet	<a href="#">TW-01356-04</a>		<a href="#">TW-01356-06</a>	
4 solenoid, 4 inlet, 1 outlet	<a href="#">TW-01356-08</a>		<a href="#">TW-01356-10</a>	
5 solenoid, 5 inlet, 1 outlet	<a href="#">TW-01356-12</a>		<a href="#">TW-01356-14</a>	
6 solenoid, 6 inlet, 1 outlet	<a href="#">TW-01356-16</a>		<a href="#">TW-01356-18</a>	
8 solenoid, 8 inlet, 1 outlet	<a href="#">TW-01356-20</a>		<a href="#">TW-01356-22</a>	
<b>PEEK body valves with PTFE diaphragm</b>				
2 solenoid, 2 inlet, 1 outlet	<a href="#">TW-01356-01</a>		<a href="#">TW-01356-03</a>	
3 solenoid, 3 inlet, 1 outlet	<a href="#">TW-01356-05</a>		<a href="#">TW-01356-07</a>	
4 solenoid, 4 inlet, 1 outlet	<a href="#">TW-01356-09</a>		<a href="#">TW-01356-11</a>	
5 solenoid, 5 inlet, 1 outlet	<a href="#">TW-01356-13</a>		<a href="#">TW-01356-15</a>	
6 solenoid, 6 inlet, 1 outlet	<a href="#">TW-01356-17</a>		<a href="#">TW-01356-19</a>	
8 solenoid, 8 inlet, 1 outlet	<a href="#">TW-01356-21</a>		<a href="#">TW-01356-23</a>	



01356-16



01356-09

[TW-01356-50](#) Mounting clip for two-solenoid valve



## Two- and Three-Way Micro Solenoid Valves

Proven in thousands of applications throughout the world, valves offer the highest life cycle available

Choose the rocker or flipper two-or three-way solenoid valve with different connection options to better suit your application needs. Rocker and flipper design are available in two-way direct-acting, NC; and three-way direct-acting, universal functions with any flow direction.

The valve design features an isolation diaphragm that separates liquid from the actuator. This unique quality promotes heat transfer elimination as coil is not directly in contact with diaphragm. Valves have minimal internal volume that is easily purged.

Use solenoid valves for chemical and laboratory applications. All valves are ideal for manifold mounting. Order manifolds at right.

### Specifications for Rocker and Flipper Valves

**Max pressure range**

Rocker valve: 28 psi (1.9 bar)  
Flipper valve: 43.5 psi (3 bar)

**Max ambient temperature:** 131°F (55°C)

**Media temperature:**

32 to 104°F (0 to 40°C)

**Wetted parts:** PVDF body, FFKM seals

**Connection:** 1/4"-28 UNF

**Rating**

Rocker valve: IP65 with cable plug  
Flipper valve: IP65 with leads  
IP40 with rectangular plug

**Response time**

Rocker valve: 30 msec  
Flipper valve: 20 msec

**Duty cycle:** 100%

**Watts:** 3.4

**Power**

Rocker valve: 24 VDC  
Flipper valve: 12/24 VDC

**Pressure range:** 43.5 psi



### A Rocker Valves

Rocker valves have a miniature rocker that operates the isolated diaphragm to separate actuator from the media. Valve is only 16 mm wide. Each valve is equipped with an LED display, and push-on tube connections. Valves include two 19" electrical leads.



Catalog number	Ports	Orifice	C <sub>v</sub>	Price
<b>A Two-way rocker valves</b>				
<a href="#">TW-98622-00</a>	1/4"-28 UNF	1/16"	0.046	
<a href="#">TW-98622-02</a>	1/8" NPT (F)	1/16"	0.071	
<a href="#">TW-98622-04</a>	3/32" hose barb	1/16"	0.046	
<a href="#">TW-98622-06</a>	Manifold mount	1/16"	0.046	
<b>A Three-way rocker valves</b>				
<a href="#">TW-98622-10</a>	1/4"-28 UNF	1/16"	0.029	
<a href="#">TW-98622-12</a>	1/8" NPT (F)	1/16"	0.055	
<a href="#">TW-98622-14</a>	3/32" hose barb	1/16"	0.029	
<a href="#">TW-98622-16</a>	Manifold mount	1/16"	0.038	

### B Flipper Valves

Flipper valves offer high reliability and long service life. The flipper design enables the diaphragm to separate the actuator and the coil from process fluids. Valve is only 16 mm wide. Valve has two 18" electrical leads.



Catalog number	Ports	Orifice	C <sub>v</sub>	Price
<b>E Two-way flipper valve</b>				
<a href="#">TW-98622-30</a>	Manifold mount	1/16"	0.006	
<b>E Three-way flipper valve</b>				
<a href="#">TW-98622-32</a>	Manifold mount	1/16"	0.006	

### C Three-Way Manifolds

Select valve manifold mounts and blanking plates for your analytical applications. Manifolds are made of PEEK material and are three-way with two common holes and single inlet/outlet connected to common outlet in valve.

**Note:** Valves for manifolds must be ordered separately at left. Order valves 98622-06, -16, -30, or -32 to use with these manifolds.

Use blanking plate to block ports when valves are not being used in manifold.



Catalog number	Valve station	Valve type required	Price
<b>C Manifold for rocker valve</b> (valves not included; order at left)			
<a href="#">TW-98622-20</a>	Three	Two-way valve	
<a href="#">TW-98622-22</a>	Three	Three-way valve	
<a href="#">TW-98622-24</a>	Six	Two-way valve	
<a href="#">TW-98622-26</a>	Six	Three-way valve	
<b>C Manifold for flipper valve</b> (valves not included; order from table below left)			
<a href="#">TW-98622-40</a>	Three	Two-way valve	
<a href="#">TW-98622-42</a>	Six	Two-way valve	
<a href="#">TW-98622-44</a>	Three	Three-way valve	
<a href="#">TW-98622-46</a>	Six	Three-way valve	

[TW-98622-48](#) Blanking plate for rocker valve

[TW-98622-28](#) Blanking plate for flipper valve

### CoolCube™ Circuit

- Preserve the life of your solenoid valves with this "hit and hold" circuit
- Steps down DC voltage to 1/3 of input voltage
- Minimizes heat generation



The CoolCube delivers a power step-down function to a solenoid valve. Using AMP or Molex connectors, it accepts either a 12 or 24 VDC input and passes the input on to energize the solenoid valve with full power for 110 msec. After 110 msec, the CoolCube drops the voltage and current to a level sufficient to hold the solenoid in the energized position, thereby minimizing power consumption and heat generation. The CoolCube can remain under power indefinitely without being damaged. When the power is cut, the valve is turned off immediately, as though the CoolCube were not in the system.

The CoolCube permits placing an overdrive voltage on a solenoid valve. This means that a solenoid valve rated for 12 VDC can be energized with a voltage of 24 VDC. Since it automatically drops the voltage after 110 msec, the solenoid will not be impaired in any way. Accepts 36 VDC maximum.

Catalog number	Dimensions	Price
<a href="#">TW-01356-52</a>	3/4" (19 mm) diameter	

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**Particle Tolerant Solenoid Valves**

**Special Perflur™ soft elastomer diaphragm and seals are forgiving of particulate matter that would typically damage a plastic valve seat**

- Inert materials—excellent chemical resistance
- Molded PEEK valve bodies
- Excellent choice for demanding low-flow applications where minimum size and internal volume are important

**Specifications**

**Wetted parts:** PEEK body, PTFE diaphragm, Perflur seat/seal; ceramic stem  
**Ambient temperature range:** 32 to 122°F (0 to 50°C)  
**Fluid temperature range:** 32 to 140°F (0 to 60°C)  
**Duty cycle:** continuous



Ports	Orifice	Max flow at max pressure	Maximum pressure psi (bar)	Response time	Watts	12 VDC		24 VDC	
						Catalog number	Price	Catalog number	Price
<b>Two-way solenoid valves; normally closed</b>									
¼–28 UNF	1.2 mm	0.67 L/min	Inlet 29 (2); outlet 7 (0.5)	15 msec	2.5	TW-98305-20	Price	TW-98305-22	Price
	2.0 mm	1.79 L/min	Inlet 29; (2) outlet 14 (0.9)						
<b>Two-way solenoid valves; normally open</b>									
¼–28 UNF	1.2 mm	0.67 L/min	Inlet 29 (2); outlet 7 (0.5)	15 msec	2.5	TW-98305-28	Price	TW-98305-30	Price
	2.0 mm	1.79 L/min	Inlet 29; (2) outlet 14 (0.9)						
<b>Three-way solenoid valves</b>									
¼–28 UNF	1.2 mm	0.67 L/min	Common 29; (2) NC/NO 7 (0.5)	15 msec	2.5	TW-98305-36	Price	TW-98305-34	Price
	2.0 mm	1.79 L/min	Common 29; (2) NC/NO 14 (0.9)						

**NSF-Certified Two-Way Solenoid Valves**

**Wetted materials fully compliant with NSF standards to ensure water and food safety**

- Valves create zero differential pressure
- Integrated mounting holes for ease of installation or replacement
- Low actuation wattage required, resulting in low energy consumption and operating cost

These two-way, normally closed solenoid valves are used in sterilization, process, and vending of liquids, beverages, and food where NSF certification is required. High-quality virgin materials provide extended service life, and high pressure and temperature resistance. The orifice food-grade sealing materials ensure compatibility with media and sealing for precise flow management.



**Specifications**

**Operating temperature:** 14 to 284°F (–10 to 140°C)  
**Seal:** FKM  
**Seat:** brass or PPS  
**Power:** 24 VDC  
**Power consumption:** 5 watts  
**Electrical connection:** 3-pin L connector (DIN 40 050)

Catalog number	Ports	Orifice	Cv	Body material	Max psi (water) (bar)	Price
TW-08617-92	¼" NPT(F)	¾ <sup>32</sup> " (2.3 mm)	0.61	Nickel-plated brass	261 (18)	
TW-08617-94	¼" NPT(F)	¾ <sup>32</sup> " (2.3 mm)	0.55	PPS	215 (14.8)	
TW-08617-96	¼" NPT(M)	¾ <sup>32</sup> " (2.3 mm)	0.55	PPS	215 (14.8)	

**Compact, Direct-Operated 2- and 3-Port Solenoid Valves for Chemicals**

**Superior chemical resistance with PEEK body and choice of EPDM, FKM or Kalrez® wetted materials**

- Long service life of 10 million cycles or more
- Manual override provides shut-off in case of electrical loss
- Low power consumption of 1.5 watts
- IP40 enclosure rating

**Specifications**

**Operating temperature:** 32 to 122°F (0 to 50°C)  
**Body/plate:** PEEK  
**C<sub>v</sub> value:** 0.03  
**Orifice:** ¼<sup>16</sup>"  
**Max pressure:** 45 psi (3.1 bar)  
**Electrical connection:** 12" two-wire lead  
**Process connection:** ¼" ID straight tube

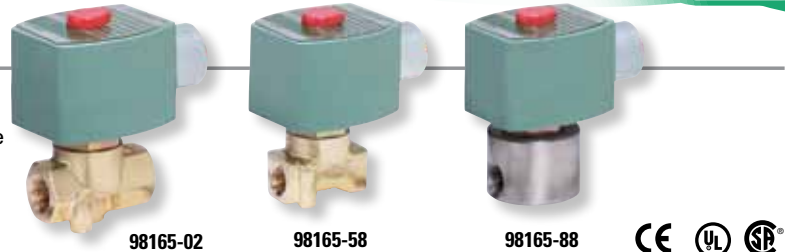


Diaphragm material	Two-way normally closed				Two-way normally open				Three-way universal			
	12 VDC		24 VDC		12 VDC		24 VDC		12 VDC		24 VDC	
	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
EPDM	TW-08618-01		TW-08618-07		TW-08618-13		TW-08618-19		TW-08618-25		TW-08618-31	
FKM	TW-08618-03		TW-08618-09		TW-08618-15		TW-08618-21		TW-08618-27		TW-08618-33	
Kalrez®	TW-08618-05		TW-08618-11		TW-08618-17		TW-08618-23		TW-08618-29		TW-08618-35	

### Brass and Stainless Steel Solenoid Valves

#### Brass, Two-Way Pilot-Operated Valves (Normally Closed)

- High-flow valves for liquid, corrosive, and air/inert gas service
- 1/2" conduit with 18" lead electrical connections



Ports NPT(F)	Orifice	C <sub>v</sub>	Pressure range†				Max fluid temperature		110/120 VAC, 50/60 Hz		24 VDC	
			Air/inert gas		Water		AC	DC	Catalog number	Price	Catalog number	Price
			AC	DC	AC	DC						
3/8"	5/8" (16 mm)	3	5 to 200 psi	125 psi	5 to 150 psi	100 psi	180°F (81°C)	150°F (65°C)	TW-98165-00		TW-98165-20	
1/2"	5/8" (16 mm)	4	5 to 200 psi	125 psi	5 to 150 psi	100 psi	180°F (81°C)	150°F (65°C)	TW-98165-02		TW-98165-22	
3/4"	3/4" (19 mm)	6.5	5 to 250 psi			125 psi			TW-98165-04		TW-98165-24	
1"	1" (25 mm)	13							TW-98165-06		TW-98165-26	
1 1/4"	1 1/8" (29 mm)	15	5 to 150 psi	125 psi	5 to 150 psi	125 psi	180°F (81°C)	150°F (65°C)	TW-98165-08		TW-98165-28	
1 1/2"	1 1/4" (32 mm)	22.5							TW-98165-10		TW-98165-30	

†Minimum pressure differential = 5 psi

#### Direct-Acting, Two-Way Valves (Normally Closed)

- Reliable, proven design with high flows
- Mount in any position
- No minimum operating pressure differential!

Ports NPT(F)	Orifice	C <sub>v</sub>	Pressure range				Max fluid temperature		110/120 VAC, 50/60 Hz		24 VDC	
			Air/inert gas		Water		AC	DC	Catalog number	Price	Catalog number	Price
			AC	DC	AC	DC						
<b>Brass valves</b>												
1/8"	3/64" (1.2 mm)	0.06	0 to 750 psi	0 to 750 psi	0 to 750 psi	0 to 640 psi	180°F (81°C)	180°F (81°C)	TW-98165-50		TW-98165-70	
1/8"	1/8" (3.2 mm)	0.34	0 to 185 psi	0 to 130 psi	0 to 180 psi	0 to 110 psi			TW-98165-52		TW-98165-72	
1/4"	1/8" (3.2 mm)	0.35	0 to 185 psi	0 to 130 psi	0 to 180 psi	0 to 110 psi			TW-98165-54		TW-98165-74	
1/4"	5/32" (4 mm)	0.5	0 to 210 psi	0 to 65 psi	0 to 200 psi	0 to 63 psi			TW-98165-56		TW-98165-76	
1/4"	7/32" (5.6 mm)	0.72	0 to 100 psi	0 to 35 psi	0 to 100 psi	0 to 35 psi	180°F (81°C)	180°F (81°C)	TW-98165-58		TW-98165-78	
1/4"	9/32" (7.1 mm)	0.96	0 to 36 psi	0 to 27 psi	0 to 36 psi	0 to 23 psi			TW-98165-60		TW-98165-80	
3/8"	7/32" (5.6 mm)	0.72	0 to 125 psi	0 to 70 psi	0 to 100 psi	0 to 70 psi			TW-98165-62		TW-98165-82	
<b>Stainless steel valves</b>												
1/8"	3/64" (1.2 mm)	0.06	0 to 750 psi		0 to 750 psi		180°F (81°C)	180°F (81°C)	TW-98165-84			
1/8"	1/8" (3.2 mm)	0.34	0 to 185 psi		0 to 180 psi				TW-98165-86			
1/4"	5/32" (4 mm)	0.5	0 to 210 psi		0 to 200 psi				TW-98165-88			
1/4"	7/32" (5.6 mm)	0.72	0 to 100 psi		0 to 100 psi				TW-98165-90			

### Plastic Solenoid Valves

Chemical-resistant valves are ideal for use with aggressive fluids. Voltage tolerance is ±10%; duty cycle is 100%. Valves are rated for full vacuum.

**Two-Way Direct Lift Valves** are normally closed; bellows made of PTFE; seals made of Viton®.

Ports NPT(F)	Orifice	C <sub>v</sub>	Pressure range	Response time	Watts	120 VAC, 60 Hz		240 VAC, 50/60 Hz	
						Cat. no.	Price	Cat. no.	Price
<b>PVC body;</b> operating temperature range is from 32 to 140°F (0 to 60°C)									
1/4"	1/4"	1.1	30" Hg to 140 psi	40 msec	20	TW-98554-42		TW-98554-52	
1/2"	3/8"	1.1	30" Hg to 140 psi			TW-98554-44		TW-98554-54	
3/4"	1/2"	3.1	30" Hg to 58 psi			TW-98554-46		TW-98554-56	
<b>PP valves;</b> operating temperature range is from 32 to 220°F (0 to 105°C)									
1/4"	1/4"	1.1	30" Hg to 140 psi	40 msec	20	TW-98554-62		TW-98554-72	
1/2"	3/8"	1.1	30" Hg to 140 psi			TW-98554-64		TW-98554-74	
3/4"	1/2"	3.1	30" Hg to 58 psi			TW-98554-66		TW-98554-76	
<b>PVDF valves;</b> operating temperature range is from 32 to 284°F (0 to 140°C)									
1/4"	1/4"	1.1	30" Hg to 140 psi	40 msec	20	TW-98554-82		TW-98554-92	
1/2"	3/8"	1.1	30" Hg to 140 psi			TW-98554-84		TW-98554-94	
3/4"	1/2"	3.1	30" Hg to 58 psi			TW-98554-86		TW-98554-96	

**Two-Way Pilot-Operated Valves** with manual override are normally closed; require 7 psi differential pressure. Requires a 32-mm DIN plug sold separately below.

Ports NPT(F)	Orifice size	C <sub>v</sub>	Pressure range	Response time	Watts	120 VAC, 50/60 Hz		230 VAC, 50/60 Hz	
						Cat. no.	Price	Cat. no.	Price
<b>PVC body, EPDM diaphragm;</b> operating temperature range is from 32 to 122°F (0 to 50°C)									
1/2"	9/16"	5.8	7 to 85 psi	100 to	5	TW-98604-00		TW-98604-05	
3/4"	3/4"	7.0		800 msec		TW-98604-10		TW-98604-15	
1"	1"	10.3				TW-98604-20		TW-98604-25	
1 1/2"	1 1/2"	35.0	7 to 85 psi	100 to	5	TW-98604-40		TW-98604-45	
2"	2"	41.9		800 msec		TW-98604-50		TW-98604-55	

**TW-98605-50** DIN plug, 32-mm. With strain relief for cable

**TW-98605-52** DIN plug, 32-mm. For 1/2" conduit



Two-way valve 98554-44



Two-way valve with manual override 98604-10

**Solenoid Vacuum Isolation Valves**

Specifically designed to maintain vacuum levels in your systems. Compact and lightweight valves with a pressure range from  $8 \times 10^{-10}$  to 1500 Torr.



**Find MORE!**

For vacuum fittings, adapters, and tubing, see pages 1910-1912.

Catalog number	Connections	Time to open/close (msec)	Power (VAC, Hz)	Dimensions (W x H)	Price
<b>In-line valves</b>					
<a href="#">TW-79302-88</a>	NW 16	40/100	115, 50/60	3 1/8" x 5 1/2"	
<a href="#">TW-79302-90</a>	NW 25	60/100		4" x 6 3/4"	
<b>Right-angle valves</b>					
<a href="#">TW-79302-73</a>	NW 16	40/100	115, 50/60	1 1/2" x 6 1/4"	
<a href="#">TW-79302-77</a>	NW 25	60/100		2" x 7 1/8"	

**Vacuum Ball Valves**

Excellent in applications where fast action and full bore pumping are needed

- Rugged design for dirty system use
- Corrosion resistant—316L stainless steel with PTFE seats
- Leak rate better than  $1 \times 10^{-6}$  mbar/sec ( $8 \times 10^{-7}$  torr/sec)



79602-63

Catalog number	Connections	Operating range	Ambient operating temperature range	Price
<a href="#">TW-79302-63</a>	NW16	10 <sup>-6</sup> to 7 bar (8 x 10 <sup>-7</sup> to 5250 torr)	41 to 149°F (5 to 65°C)	
<a href="#">TW-79302-65</a>	NW25			
<a href="#">TW-79302-67</a>	NW40			

**Cole-Parmer PTFE Spray Guns**

Made from PTFE—great for use in hostile environments and ultrapure applications

- Special tip on dispensing gun eliminates splashing
- Recirculating gun has a contamination free fluid path to eliminate bacterial growth
- Highly resistant to corrosive substances and fumes
- Spray guns have a 1 GPM flow rate; max operating pressure of 75 psi



98515-03



Catalog number	Connection	Price
<b>Deionized water spray guns</b>		
<a href="#">TW-98515-01</a>	3/8" NPT(F)	
<a href="#">TW-98515-03</a>	1/2" NPT(F)	
<b>Dispenser guns</b>		
<a href="#">TW-98515-05</a>	3/8" NPT(F)	
<a href="#">TW-98515-07</a>	1/2" NPT(F)	
<b>Recirculation spray gun</b>		
<a href="#">TW-98515-09</a>	3/8" NPT(F)	
<b>Recirculation spray gun assembly†</b>		
<a href="#">TW-98515-11</a>	3/8" NPT(F)	

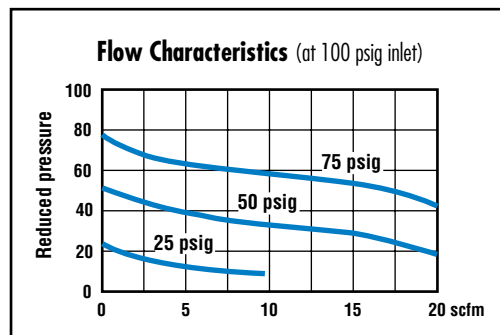
† Assembly includes spray gun, interconnecting fitting, source hose, source fitting, and recirculating tube.

**Mini Filter/Regulator for Gases**

Combines filter and regulator in one compact unit. Precision diaphragm gives you high accuracy regulation from 2 to 125 psig (0.1 to 8.6 bar); 150 psig max (10.3 bar). Rated for 20 scfm; operates from 40 to 125°F (4 to 52°C). Detachable, 20 µm porous bronze filter provides 98% moisture removal. Overnight drain requires minimal maintenance—automatically releases accumulated condensate when pressure falls below 3 psig. Filter/regulator has 1/4" NPT(F) ports and 1/8" NPT(F) gauge connections. Use with air.



98252-00



Catalog number	Description	Price
<a href="#">LZ-98252-00</a>	Mini filter/regulator	