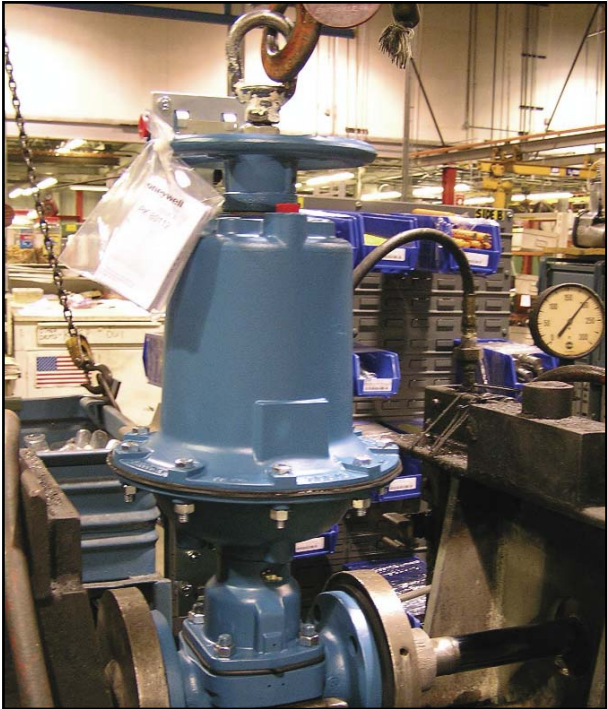




ITT

Dia-Flo[®]
Diaphragm Valves

Diaphragm Valve Technical Data



Contained in this section:

- Pressure/Temperature Charts
- Valve and Actuator Weights
- Materials Specifications and Industry Standards
- Valve Drawings/Dimensions
- Bill of materials
- Flow Coefficients and Computations
- Service Guide

5. TECHNICAL DATA

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Pressure/Temperature Recommendations

Operating Pressures for Handwheel Operated Valves

Weir Valves

Size (in)	Max. Pressure (psig) @120° F	Max. Pressure (kpag)
¹ / ₂ , ³ / ₄ , 1	200	1379
1 ¹ / ₄ , 1 ¹ / ₂ , 2	175	1207
2 ¹ / ₂	150	1034
3	150	1034
4	150	1034
6	125	862
8	100	689
10, 12	65	448

Handwheel Operated Valves

The handwheel operated valves are designed to withstand the maximum differential pressure, as represented by the straight line in the P/T curve and decays linearly with increasing temperature above 120°F. Actual temperature limitations could be dictated by the service media being handled.

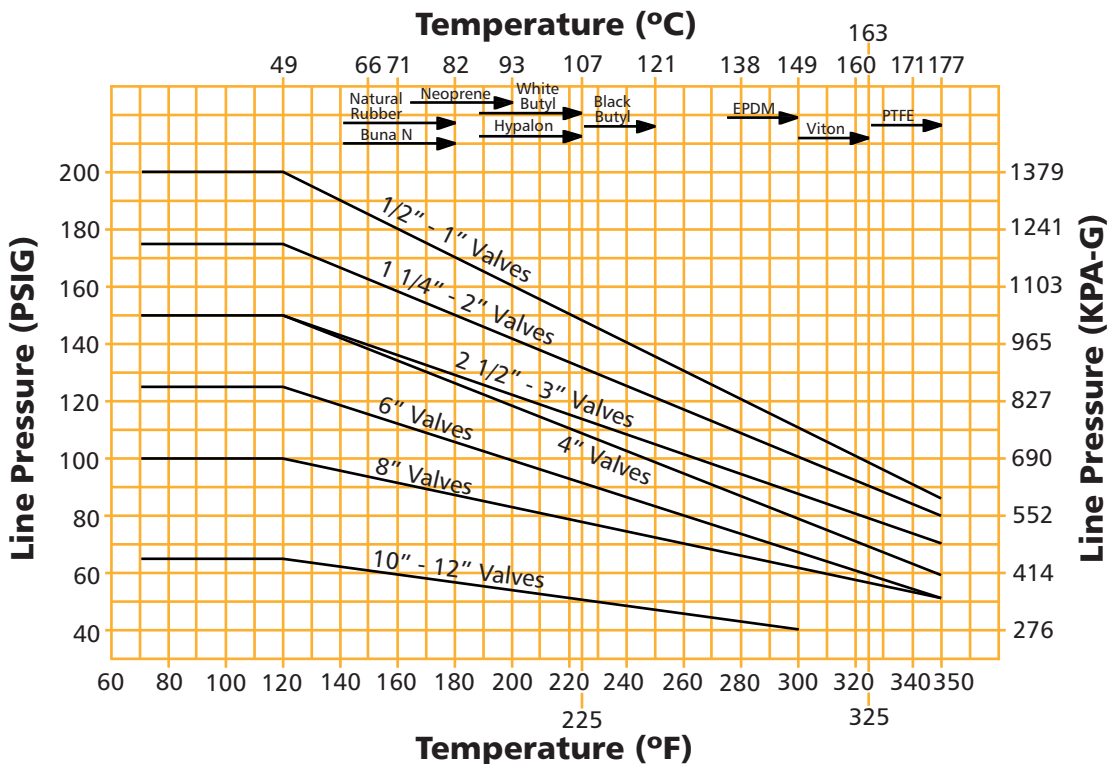
Automated Valves

Industry practice is to size the valve actuator to close against the maximum shut-off pressure that the valve will encounter while in service. Therefore, the maximum pressure differential will be dictated by the size of the actuator selected. Also, the seat test pressure to be performed during production testing will correspond to the actuator's maximum differential pressure. The maximum differential pressure can be found in the manufacturers product catalog.

Straightway and Weir Valve Pressure/Temperature Recommendations

- 1 - To determine the maximum recommended operating pressure, enter the graph at the point corresponding to the maximum operating temperature of the process.
- 2 - The intersection of this temperature line with the respective valve size curve determines the maximum recommended operating pressure, read at the left side of the graph.
- 3 - The maximum recommended operating temperature can be determined by knowing the maximum operating pressure and reversing the above procedure.
- 4 - Operating pressure and temperature combinations above the respective valve size curves should be avoided to maximize diaphragm service life.
- 5 - Maximum temperature limitations of various diaphragm materials are also indicated by arrows under each diaphragm material.

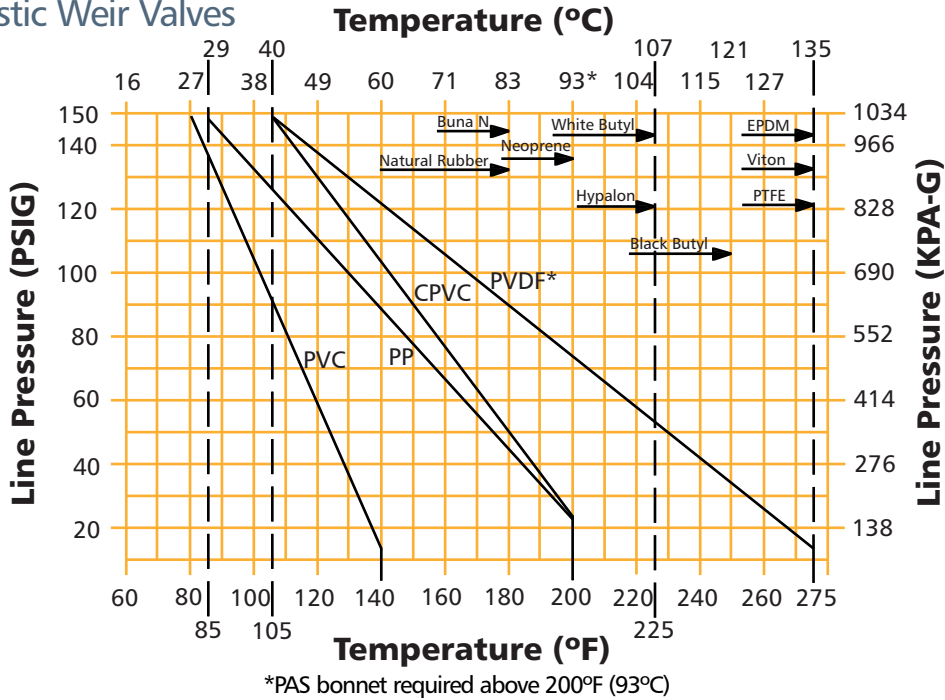
All Weir Valves Except Solid Plastic



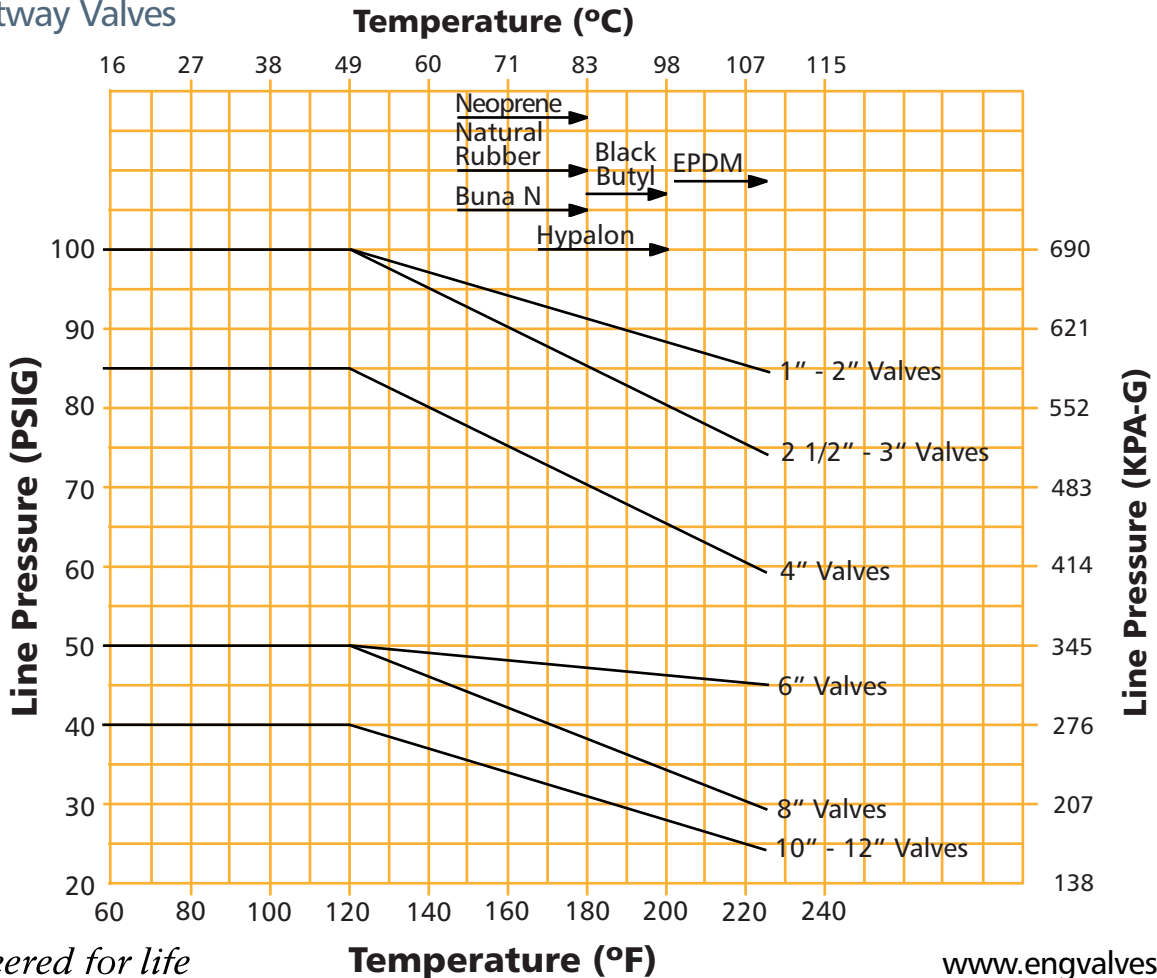
Note: Maximum pressure rating for valves equipped with Dualrange bonnets is 100 psi.

Pressure/Temperature Recommendations

Solid Plastic Weir Valves



Straightway Valves



Weir-type Valves for Vacuum Service

Vacuum Service

The standard Dia-Flo diaphragm weir valve is ideally suited for vacuum service when shipped from the factory. Dependable performance and good service life from atmospheric pressure down to 0.1 microns make this an excellent valve for industrial processing. The diaphragm presents a smooth face with no hidden voids on either side of the valve, whether open, closed or throttling, and is bidirectional. **(Be sure to specify when vacuum is involved.)**

Note: Straightway valves are not recommended for vacuum service.

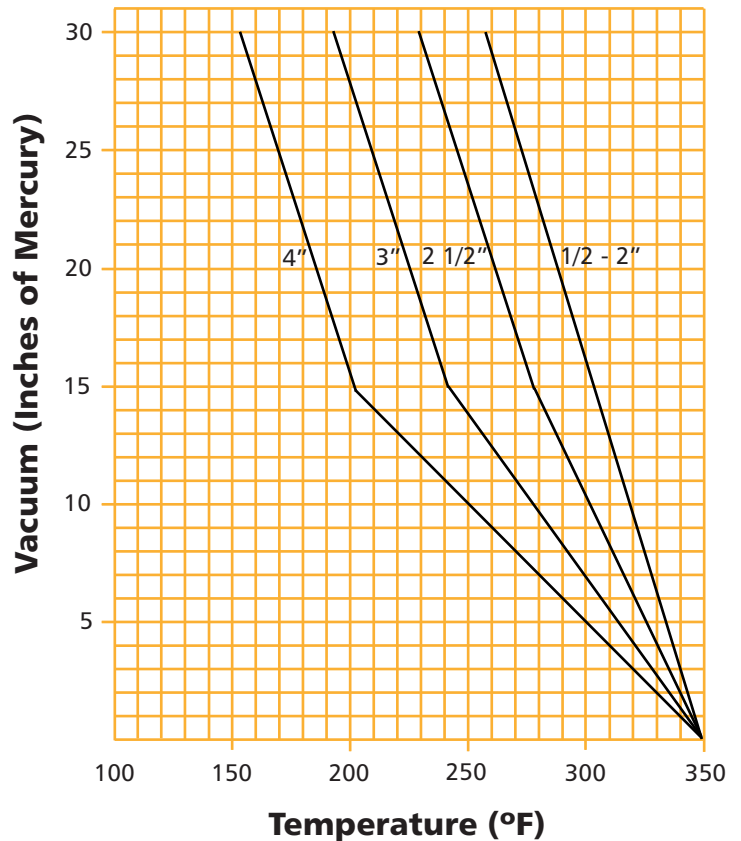
Elastomer diaphragms for Vacuum Service

The non-porous diaphragm has a low vapor pressure high resistance to outgassing. The design inherently eliminates any possibility of stem leakage.

The standard weir valve design with elastomer diaphragm is capable of in-leakage of less than 1×10^{-6} atm-cc/sec, and on special order it can be furnished with a substantially lower in-leak rate.

The standard temperature recommendations shown on the Standard Pressure/Temperature Chart for Weir Type Valves should be followed when an elastomer diaphragm is used.

PTFE diaphragms for Vacuum Service



NOTES:

1 – Service conditions falling to the right of these lines will require bonnet evacuation.

2 – PTFE diaphragms 6" size & larger will not withstand full vacuum at any temperature unless bonnets are evacuated.

3 – With evacuated bonnets any size PTFE diaphragms can be used up to 350°F.

Stem Travel (Valve Stroke) and Turns

Stem travel (stroke) and turns, for conventional **weir** type valves

Valve size (in)	1/2	3/4**	1	1 1/4	1 1/2	2	2 1/2	3	4	6	8	10	12
(DN)	15	20	25	32	40	50	65	80	100	150	200	250	300
Stem travel (in)*	1/4	3/8	1/2	13/16	13/16	1 1/8	1 3/8	1 5/8	2 1/8	3 1/8	4 5/8	5 5/8	6 1/2
(mm)	6.4	9.5	12.7	20.6	20.6	28.6	34.9	41.3	54.0	79.4	117.5	142.9	165.1
Turns*	2	3	4	4 7/8	4 7/8	6 3/4	6 7/8	8 1/8	10 5/8	15 5/8	15 3/8	19 11/16	22 3/4
Threads (per inch on stem)	8	8	8	6	6	6	5	5	5	5	3 1/2	3 1/2	3 1/2
(per mm on stem)	.31	.31	.31	.24	.24	.24	.20	.20	.20	.20	.14	.14	.14

* Between open and closed positions

** Stroke for 3/4 flanged weir valve is 1/2" except solid plastic.

Stem travel (stroke) and turns, for conventional **straightway** type valves

Valve Size (inches)	1	1 1/2	2	2 1/2	3	4	6	8	10	12
(DN)	25	40	50	65	80	100	150	200	250	300
Stem Travel (Inches)*	15/16	1 1/4	1 7/8	2	2 5/16	2 13/16	4 1/4	6 1/4	7 1/2	7 1/2
(mm)	23.8	31.8	47.6	50.1	58.7	71.4	108.0	158.8	190.5	190.5
Turns*	5 3/4	7 3/4	11 1/2	10 1/4	11 3/4	14 1/4	21 1/2	22 1/4	26 1/2	26 1/2

*between open and closed positions

Dia-Flo Actuator Stroke

Actuator Size	12	25	50	75	101	130	250
Stroke (in)	5/8	2	3	3	3 1/8	3 1/2	4 5/8
Stroke (mm)	15.9	50.8	76.2	76.2	79.4	88.9	117.5

Advantage Actuator Stroke

Actuator Size	5	8	16	33	47
Stroke (in)	1/4	1/2	1 1/8	1 5/8	1 5/8
Stroke (mm)	6.4	12.7	28.6	41.3	41.3

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