

5100 Series 10 to 2,400 PSIG

CRACKING PRESSURE SPRING RANGES

Consult your local distributor or the factory for replacement spring part numbers.
(Please have your complete valve part number ready when calling.)

C.P. Range	C.P. Range	C.P. Range	C.P. Range
10–15	82–117	346–450	1201–1400
16–24	118–162	451–575	1401–1900
25–41	163–230	576–710	1901–2400
42–57	231–285	711–999	—
58–81	286–345	1000–1200	—

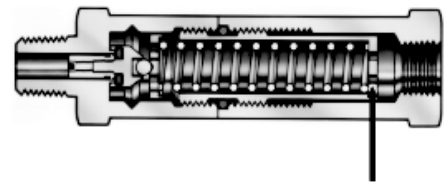
ADJUSTMENT

The 5100 Series Relief Valve is adjustable to $\pm 15\%$ of its nominal cracking pressure, as follows:

1. Remove discharge line (in-line mounted unit) or override ring & rod (ASME type).
2. "Break" body joint by wrenching hexes. DO NOT USE PIPE WRENCH.
3. Insert proper size hex wrench (see table) into the outlet end and turn clockwise to increase the cracking pressure or counter clockwise to decrease.
4. After adjustment, hold the hex wrench stationary relative to the inlet end and turn the body to tighten the joint.
5. Test adjusted unit for cracking pressure.

HEX WRENCH SIZE (see Adjustment)

Size	Nominal Cracking Pressure	
	450 & Under	451 & Over
1/8"	7/32	7/32
1/4"	5/16	1/4
3/8"	5/16	1/4
1/2"	1/2	3/8
3/4"	9/16	1/2
1"	9/16	1/2
1-1/4"	3/4	3/4



Hex Adjustment Screw

For Your Safety

It is the sole responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation and maintenance of these products. Material compatibility product ratings and application details should be considered in the selection. Improper selection or use of products described here in can cause personal injury or property damage.

Repair Kits

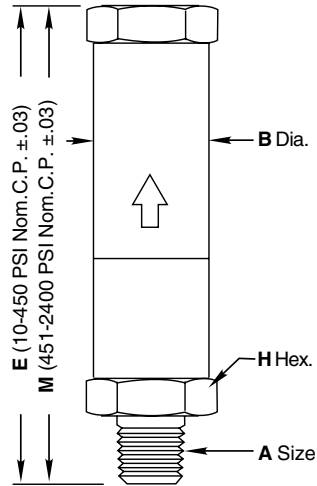
In normal service the only part(s) which may require replacement is(are) the seal(s). A repair kit may be ordered by placing a K/ in front of the complete part number, (i.e. K/ 5159B-2MP-20).

5100 Series 10 to 2,400 PSIG

Replacement Parts

Dimensions (Inches)

MP

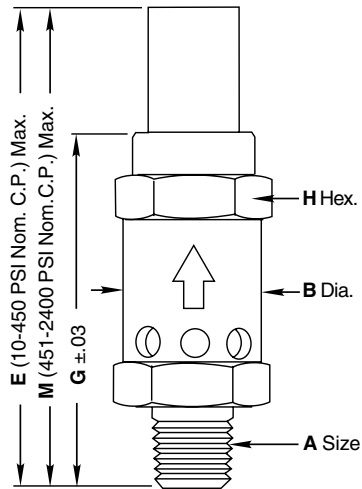


MP - 5100 SERIES INLINE

Prod. No.	A Size	E	M	B Dia. H Hex.
1MP	1/8"	2.89	3.49*	.81*
2MP	1/4"	3.34	4.24	1.00
3MP	3/8"	3.36	4.26	1.00
4MP	1/2"	4.15	5.05	1.25
6MP	3/4"	5.61	7.11	1.50
8MP	1"	5.79	7.29*	1.50
10MP	1-1/4"*	7.46	10.22	2.00

*1/8" size; for C.P. 1201-2400 PSIG, "M" is 3.95, "B" and "H" are 1.00; 1" size; for C.P. 1201-2400 PSIG, "M" is 7.32, 1-1/4" size, not available above 1200 PSIG.

M



M - 5100 SERIES POPOFF

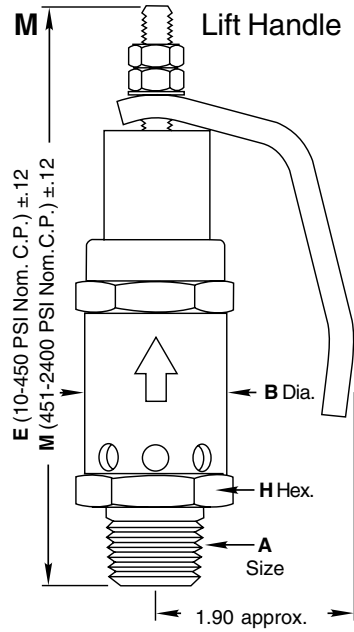
Prod. No.	A Size	E	M	G	B Dia. H Hex.
1M	1/8"	2.56	3.16*	2.39*	.81*
2M	1/4"	2.87	3.77	2.65	1.00
3M	3/8"	2.89	3.79	2.74	1.00
4M	1/2"	3.59	4.49	3.27	1.25
6M	3/4"	5.00	6.50	4.16	1.50
8M	1"	5.18	6.68	4.34	1.50
10M	1-1/4"	6.70	8.65	4.96	2.00

* Exceptions: 1/8" size; for C.P. 1201-2400 psi "M" is 3.58, "G" is 2.48. "B" is 1.00; 1-1/4", not available above 1200 PSIG.

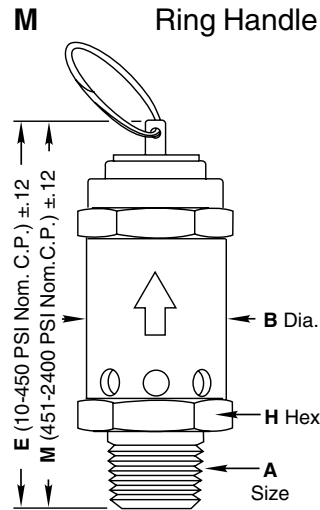
5100 Series 10 to 2,400 PSIG

Replacement Parts

Dimensions (Inches)



For 1/2" with cracking pressures of 451–2400 PSI and 3/4" through 1-1/4" with cracking pressures of 451–1200 PSI.



For 1/8" through 3/8" with cracking pressures of 10–2400 PSI and 1/2" through 1-1/4" with cracking pressures of 10–450 PSI.

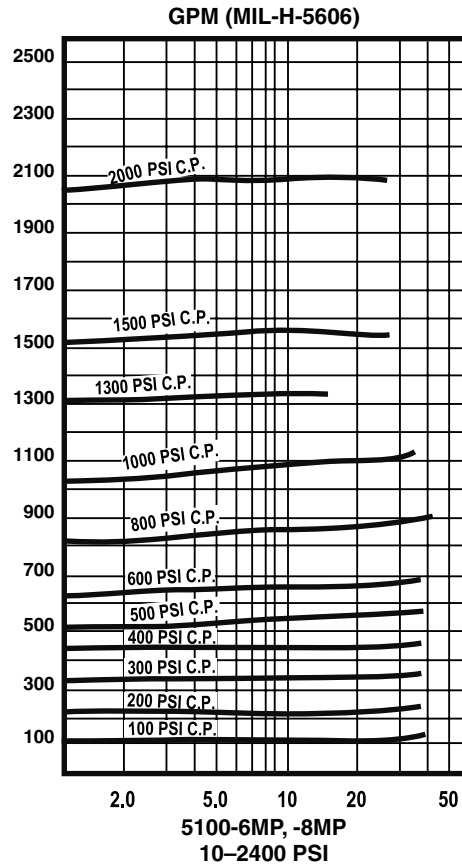
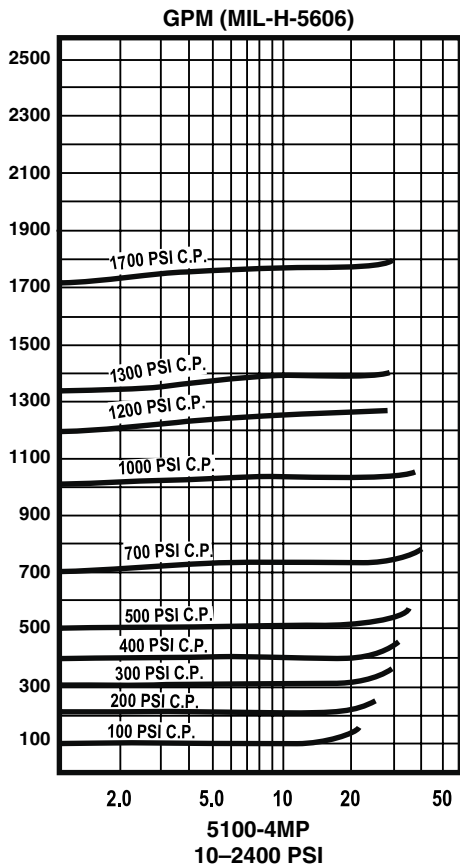
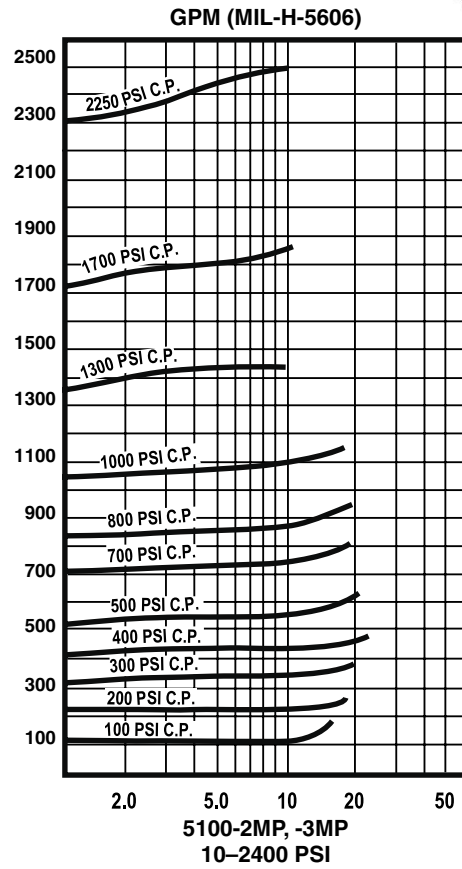
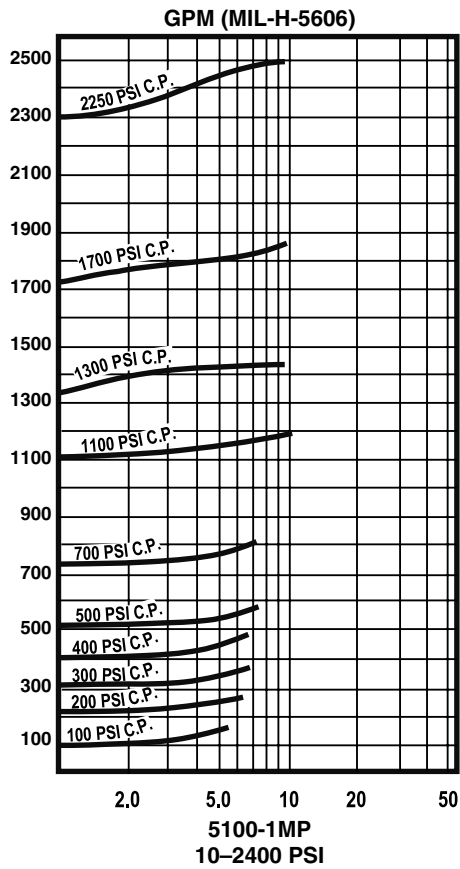
M - M5100 SERIES POPOFF WITH MANUAL OVERRIDE

Prod. No.	A Size	E	M	B Dia. H Hex.
1M	1/8"	2.84	3.45*	.81*
2M	1/4"	3.16	4.06	1.00
3M	3/8"	3.19	4.09	1.00
4M	1/2"	3.86	5.51	1.25
6M	3/4"	5.41	7.54	1.50
8M	1"	5.59	7.72	1.50
10M	1-1/4"*	6.95	10.42	2.00

* Exceptions: 1/8" size; C.P. 1201-2400 psi "M" is 3.84, "H" and "B" are 1.00; 1-1/4" size, not available above 1200 psi

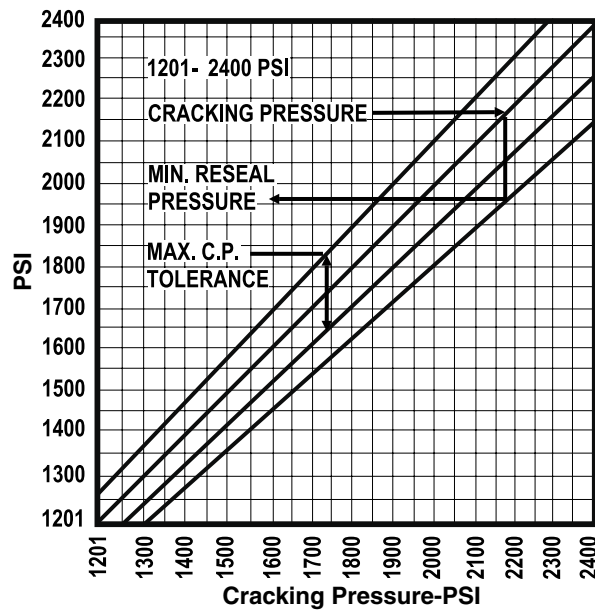
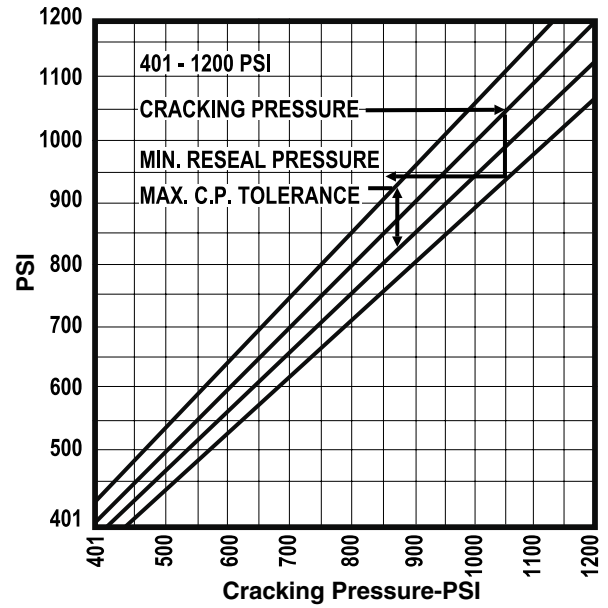
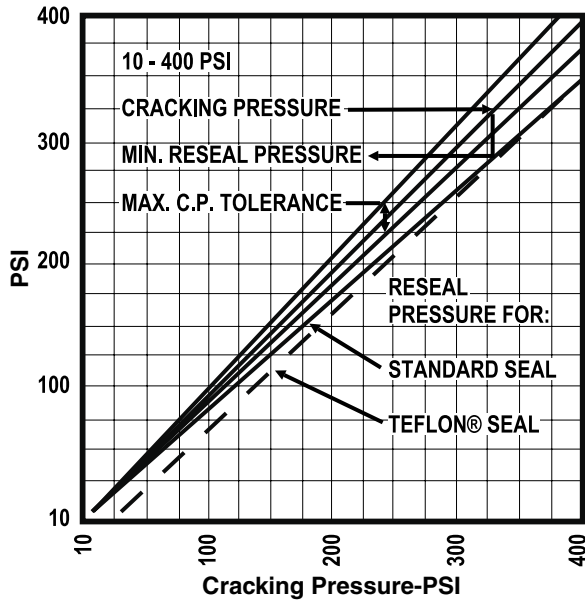
5100 Series 10 to 2,400 PSIG

Hydraulic Flow Curves



5100 Series 10 to 2,400 PSIG

Cracking & Reseal Pressure



Definitions

1. **Cracking pressure** is defined as 5cc/min. with gas (0.2 scfm for model 5120).
2. **Reseat point** is the point at which the valve closes, cutting off virtually all flow.
3. The **reseal point** is the point at which the valve seals absolutely tight so that there is no leakage detectable by normal means of measurement.

5100 Series 10 to 2,400 PSIG

Air Flow Rates – (5100-MP)

Inline valves 1/8"–1"

Crack Pressure PSIG	Percent Over Pressure Beyond Cracking (SCFM air at room temperature)							
	10%				25%			
	1MP	2MP/3MP	4MP	6MP/8MP	1MP	2MP/3MP	4MP	6MP/8MP
15	1.0	1.5	5.0	9.0	3.0	5.0	50	52
20	1.5	2.0	10	12	4.0	5.0	60	63
25	2.0	2.7	25	27	5.4	6.5	65	67
30	2.4	4.6	30	36	6.2	13	68	71
40	3.0	5.5	34	55	6.5	25	72	100
50	3.0	10.5	40	65	8.0	29	74	110
75	4.2	18	50	70	13	38	80	114
100	6.0	25	54	90	17	55	90	130
125	8.5	32	70	120	22	58	110	136
150	10	36	72	150	27	78	115	200
200	13	40	135	190	40	96	250	375
250	16	50	150	210	43	115	280	450
300	20	60	180	225	52	127	400	600
400	25	80	270	270	68	150	600	900
500	36	46	110	190	108	120	320	700
750	45	58	130	210	90	130	420	1200
1000	47	64	170	210	160	160	620	1280
1200	67	74	240	250	200	200	1000	1500
1400	84	84	450	3950	—	—	—	—
1600	110	110	720	4050	—	—	—	—
1800	160	160	810	5100	—	—	—	—
2000	190	190	850	5150	—	—	—	—
2200	220	220	900	5200	—	—	—	—
2400	240	240	990	6750	—	—	—	—

5100 Series 10 to 2,400 PSIG

How to Order

M 51 59 B - 2 MP (L) - 20

VARIATION

- K** - Cryogenic Service, special cleaning and testing (Stainless Steel valves only)
- M** - Manual override
- R** - Right angle configuration

BASIC MODEL NUMBER

5100 Series

O-RING MATERIAL, TEMPERATURE & CRACKING PRESSURE RANGE

59 - Buna N	-40° F to +250° F
62 - Ethylene Propylene	-40° F to +300° F
33 - Neoprene	-40° F to +250° F
32 - Viton®	-20° F to +400° F
20 - Teflon® (5120)	-100° F to +400° F
20* - Teflon® (K5120)	-320° F to +165° F
80* - Teflon® (5180)	-320° F to +165° F

CRACKING PRESSURE

Specify cracking pressure setting in PSIG
20 - 20 PSIG

SPECIAL CHARACTERISTICS

- L** - Lockwire
- R** - Resonance dampener (std. for 1201-2400 C.P.'s with elastomeric seals)

CONNECTIONS - Inlet/Outlet

- M** - Popoff Male pipe
- MP** - Inline Male Pipe by Female Pipe

VALVE SIZE

(Pipe sizes in 1/8" increments)

2 - 1/4"	5 - 3/4"
3 - 3/8"	6 - 1"
4 - 1/2"	8 - 1-1/4"

BODY MATERIAL

- B** - Brass
- S** - Steel
- T** - 303 Stainless Steel
- T1** - 316 Stainless Steel

Notes:

* Unit is not rated for liquid Cryogenic Service below -100° F.
O-rings of Teflon® - Minimum cracking pressure is 20 psi; not available for use above 1200 psi in 3/4" and larger sizes.

Teflon® and Viton® are registered trademarks of Dupont.

Cracking Pressure Tolerance ±5%

Cracking pressures below 20 PSIG have a tolerance of ±20%.

Flow at Cracking Pressure

Elastomeric Seals	5cc/minute
Teflon® Seals	.02 SCFM

Reseal Pressure**

Elastomeric Seals
Teflon® Seals

Crack Pressure

CP >100 PSI
CP <100 PSI
CP >450 PSI

Reseal Pressures

90% of CP
70% to 89% of CP
90% of CP
CP <450 PSI 52% to 90% of CP

Leakage

Elastomeric Seals	Ascending Pressure - zero up to 95% of CP Descending Pressure - zero at reseal and below
Teflon® Seals	Ascending Pressure - zero up to reseal pressure, then 10cc/min between reseal and CP Descending Pressure - zero @ reseal except with cracking pressure below 451 PSI then 1cc/min max

First Crack Pressure After Standing Unactuated for a Prolonged Period:

Set Pressure	5 - 19 PSI	125% of CP
	20 - 29 PSI	120% of CP
	30 - 49 PSI	115% of CP
	50 PSI & higher	110% of CP

**The reseal point is the point at which the valve seals absolutely tight so that there is no leakage detectable by normal means of measurement. The point at which the valve closes, cutting off virtually all flow, is called the reseal point. The reseal point is substantially above reseal.