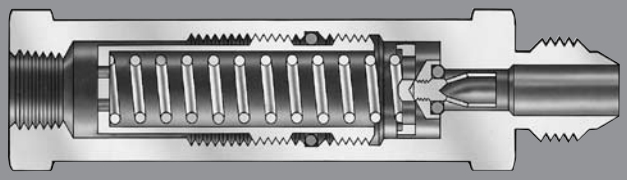
5100 SERIES

10 to 2,400 PSI



RELIEF VALVES

Features

- Zero Leakage to 95-98% of Cracking Pressure
- Positive Reseal at a High Percentage of Cracking Pressure
- Accurate Set Pressure
- Wide Range of Cracking Pressures
- Tamper Proof Adjustment

Technical Data

Materials of Construction

Body – 2024-T351 Aluminim, 303 or 316 Stainless Steel

O-Rings – Buna N, EPR, Neoprene, Teflon® and Viton®

Pressure Ratings

Operating Pressure – 0 to 2,400 PSIG (166 BAR)

Proof Pressure – 3,700 PSIG (255 BAR)

Burst Pressure – Over 5,000 PSIG (345 BAR)

Temperature Range

−320° F to +400° F

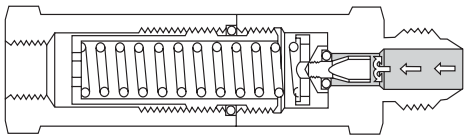
−220.6° C to +204° C

Based On O-Ring Material, See Page 2

Valve Sizes

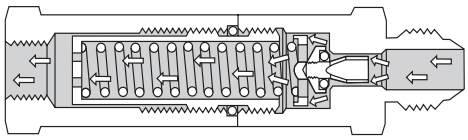
1/8″ to 1-1/4″

How It Works



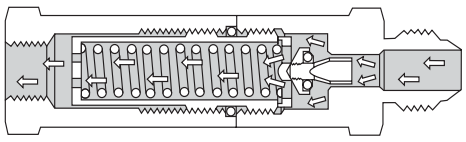
CLOSED

The spring load is carried by a metal-to-metal seat. The O-ring provides a dead tight seal. Sealing efficiency increases as the pressure increases up to the cracking pressure.



CRACKING

The ports in the poppet open fully and eliminate rapid increase in the pressure. Flow is throttled between the poppet shoulder and the seat, which provides regularly increasing flow area with increasing flow rates.



OPEN

The inline construction and full flow ports permit maximum flow with minimum increase in the system pressure.

CIRCLE SEAL CONTROLS, INC.

A CIRCOR International company

Certified to ISO 9001

2301 WARDLOW CIRCLE • CORONA, CALIFORNIA • 92880 • TEL: (951) 270-6200 • FAX: (951) 270-6201

5100 SERIES
10 to 2,400 PSIG

How To Order

K 51 59 A - 4 TB (L) - 20

VARIATION
- K* - Cryogenic Service (Stainless Steel Valves Only)

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
20	Teflon®	−100° F	to +400° F
20	Teflon® (K5120T)	−320° F	to +165° F
32	Viton®	−20° F	to +400° F

BODY MATERIAL
- A - 2024-T351 Aluminum
- T - 303 Stainless Steel
- T1 - 316 Stainless Steel

VALVE SIZE
(Tube Sizes in 1/16″ Increments)
- 4 - 1/4″

CONNECTIONS - Inlet/Outlet
- B - Female Tube, AND10050
- J - Female Tube, MS33649
- T - Male Tube, AS4395 (MS33656)

SPECIAL CHARACTERISTICS
- (L) - Lockwire

CRACKING PRESSURE
Specify cracking pressure setting in PSIG.
- 20 - 20 PSIG

Notes:

*Precede part number with K if temperatures are below −100°F and cryogenic testing is required.

When C.P. is 451-1200 psi a dynamic seal of Teflon® is furnished; from 1201-2400 psi, seal of Vespel® SP-21 is used. 5120 has a minimum cracking pressure of 20 psi.

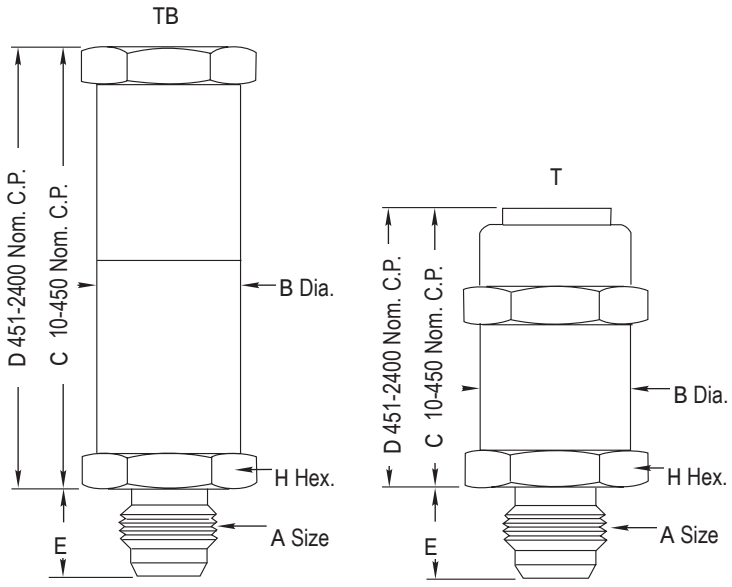
Valves are preset at factory. Pressure at which valves will crack in normal service is a nominal cracking pressure of ±5%.

After a prolonged period of storage with no system pressure, these relief valves will evidence an apparent high cracking pressure on first crack. Therefore, in receiving inspection tests, true cracking pressure should be determined after the first crack.

Teflon® and Vespel® are registered trademarks of DuPont. Viton® is a registered trademark of DuPont Dow Elastomers.

Please consult your Circle Seal Controls Representative or our factory for information on special connections, O-rings, operating pressures and temperature ranges.

Dimensions



TB — INLINE 5100 SERIES

Prod. No.	A Size	B Dia. H Hex.	C ± .030	D ± .030	E ± .015
4TB	1/4″	.810*	2.77	3.80*	.550
6TB	3/8″	1.000	2.91	3.81	.556
8TB	1/2″	1.000	2.80	3.70	.657
10TB	5/8″	1.250	4.00	4.90	.758
12TB	3/4″	1.375	3.72	4.62	.864
16TB	1″	1.625	5.17	6.67	.911

*Exceptions: 1/4″ size – C.P. 1201-2400 psi “B” dim. 100, C.P. 451-1200 psi “D” 3.37.

T — DISCHARGE TO ATMOSPHERE 5100 SERIES

Prod. No.	A Size	B Dia. H Hex.	C Max.	D Max.	E ± .015
4T	1/4″	.811*	2.16	3.06*	.550
6T	3/8″	1.000	2.29	3.19	.556
8T	1/2″	1.000	2.00	2.90	.657
10T	5/8″	1.250	3.11	4.01	.758
12T	3/4″	1.370	2.74	3.64	.864
16T	1″	1.620	4.15	5.65	.911
20T	1-1/4″	2.000	5.69	—	.958

*Exceptions: 1/4″ size – C.P. 1201-2400 psi “B” dim. 1.00, C.P. 451-1200 psi “D” 2.76. Dimensions in inches.

Cracking Pressure Setting • Range

ALL SIZES EXCEPT 1/4″

Dash No.	Range (PSI)	Dash No.	Range (PSI)	Dash No.	Range (PSI)	Dash No.	Range (PSI)
13	13 - 19	100	100 - 139	400	421 - 450	625	1201 - 1400
20	20 - 31	140	140 - 199	500	551 - 670	850	1401 - 1900
32	32 - 49	200	200 - 270	625	671 - 820	1000	1901 - 2600
50	50 - 69	250	271 - 345	850	821 - 1200		
70	70 - 99	300	346 - 420				

Nominal and dash number are the same up to 1200 psi.

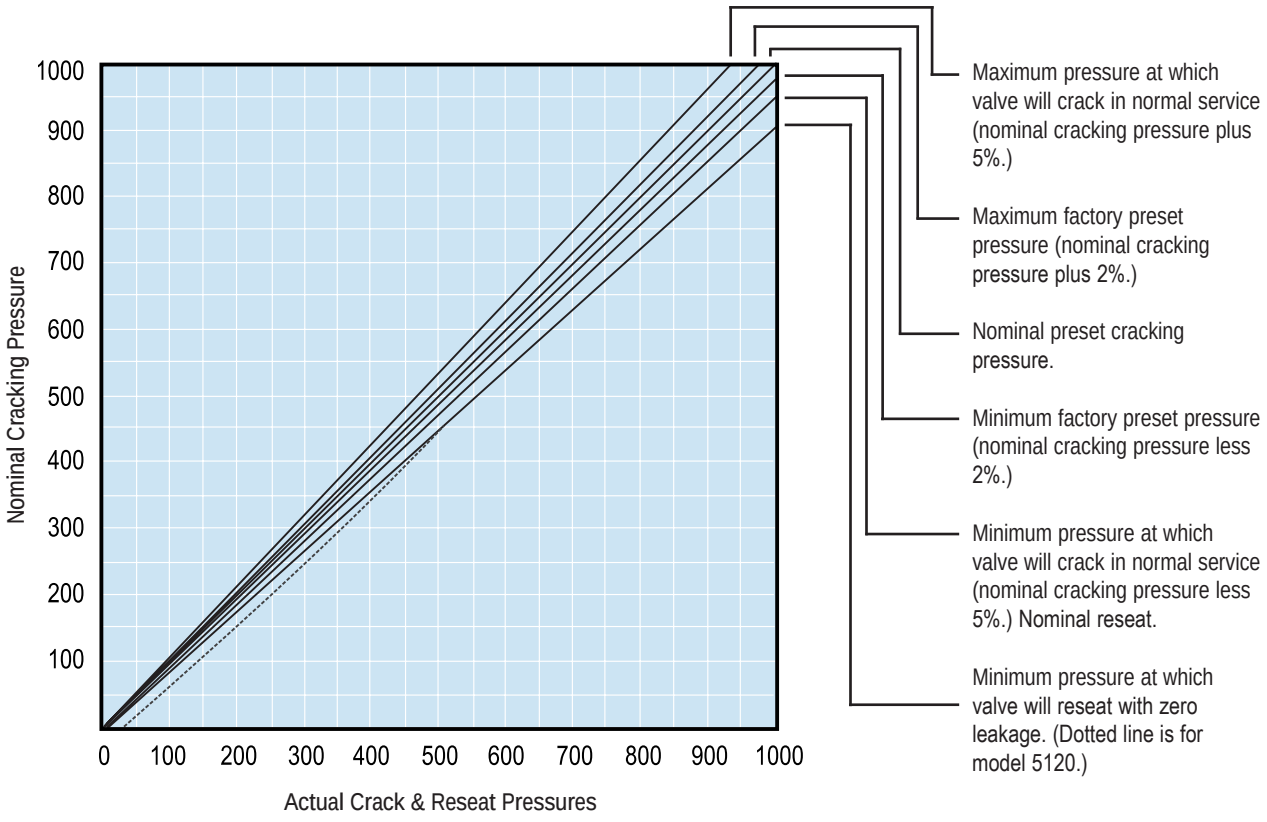
1/4″ SIZE

Dash No.	Range (PSI)	Dash No.	Range (PSI)	Dash No.	Range (PSI)	Dash No.	Range (PSI)
13	10 - 16	100	83 - 115	400	341 - 450	625	1201 - 1600
20	17 - 25	140	116 - 165	500	451 - 600	850	1601 - 1900
32	26 - 40	200	166 - 220	625	601 - 825	1000	1901 - 2600
50	41 - 57	250	221 - 285	1000	826 - 1200.9		
70	58 - 82	300	286 - 340				

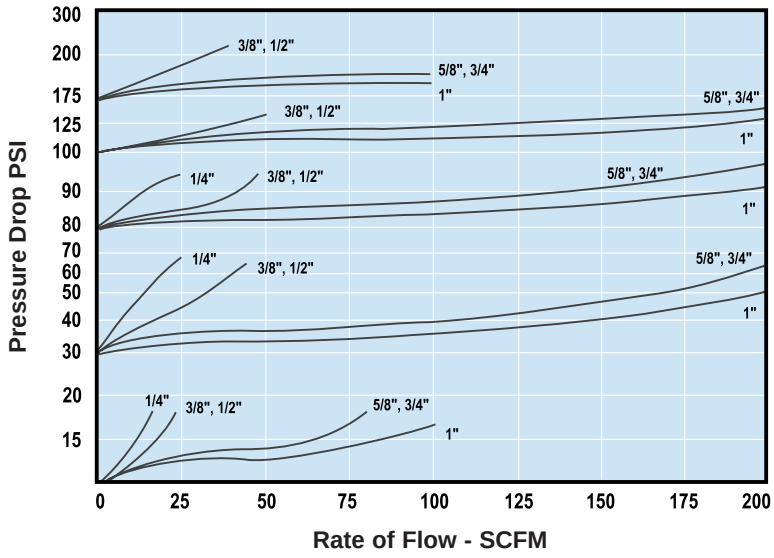
Cracking Pressure & Reseal Characteristics

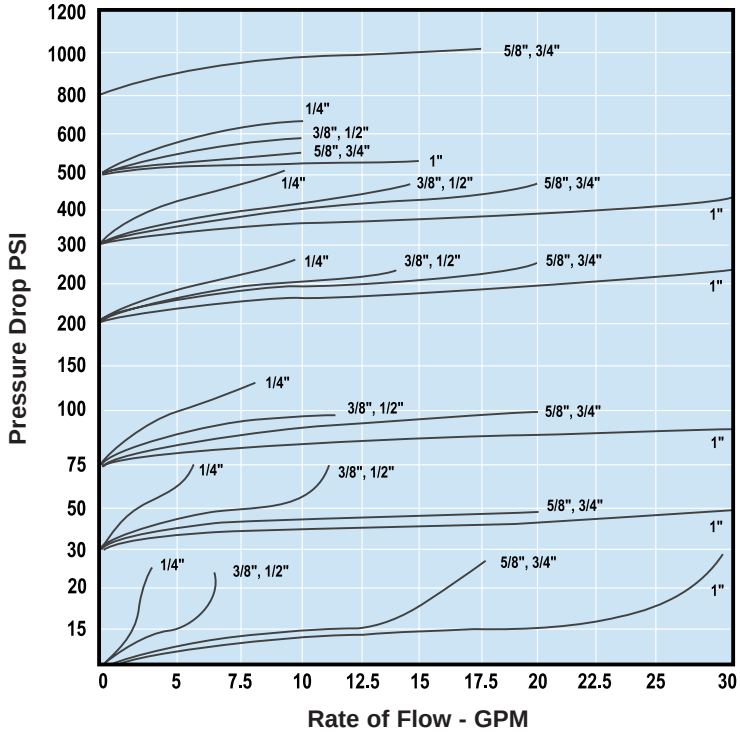
Cracking Pressure is defined as 5 cc/min. with gas (0.02 SCFM for model 5120 or for C.P. over 450 psi).

The point at which the valve closes, cutting off virtually all flow is called the reseal point. The reseat point is substantially above reseal.



Typical Flow Curves





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