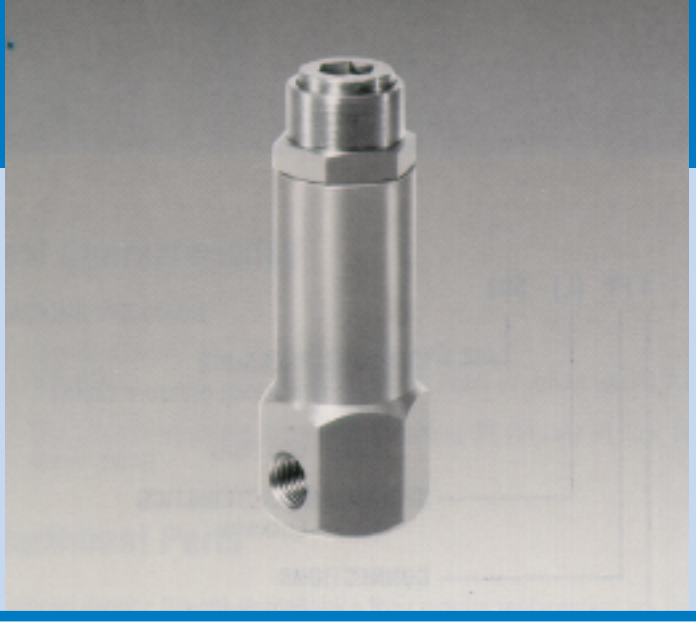


5300 SERIES

400 to 10,500 PSIG

RELIEF VALVES

Fred C. Gilbert Co.
106 Norris Road
Bakersfield, Ca. 93308
661-399-9569
fax 661-393-9654

Features

- **Zero Leakage**
- **Dead Tight Seal**
  Well Above 95% of Cracking Pressure
- **Positive Reseal at a High Percentage of Cracking Pressure**
- **No Pressure Rise With Increasing Flow**

Technical Data

Materials of Construction

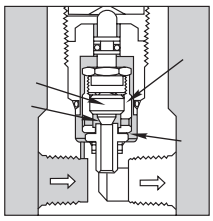
Body – Brass, 303 or 316 Stainless St.
O-Rings – Buna N, Neoprene and Viton®
Poppet –
Liquid Service - CRES 440C
Gas Service to 3074 - Kel F
Gas Service above 3074 - Polyimide
Retainer, Stem – 303 Stainless Steel
Seat – 17-4 PH Stainless Steel
Spring – 17-7 PH Stainless Steel
Backup Rings – Teflon®

Pressure Ratings

Operating Pressure– 400 to 10,500 PSIG
(28 to 724 BAR);
Specify Cracking Pressure
Proof Pressure –
8BB, 2PP 420 - 3074 PSIG
4PP 400 - 2299 PSIG 4,500 PSIG
8BB, 2PP 3075 - 7560 PSIG
4PP 2300 - 7200 PSIG 16,000 PSIG
Burst Pressure –
Brass - Over 30,000 PSIG
Stainless Steel - Over 40,000 PSIG

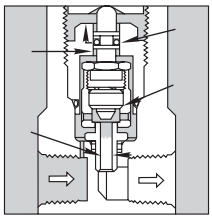
How It Works

CLOSED



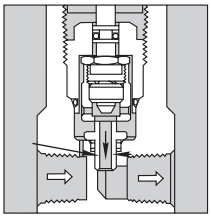
In the closed position the poppet (1) is impressed against the orifice (2) by the spring and seals the orifice. This impression is limited by the poppet retainer (3) which bottoms on the shoulder of the orifice nozzle unit at point 3A. As system pressure rises, pressure within the poppet retainer and above the poppet increases, effecting further sealing efficiency. As pressure rises above normal operating pressure, the poppet retainer (3) moves upward overcoming breakaway friction of the O-ring seal (4) before the preset cracking pressure is reached. This insures extremely precise cracking pressure accuracy.

CRACKING



When system pressure rises above the cracking pressure, the force at area (6) is increased and overcomes the preset spring force, permitting the poppet retainer (3) to continue its upward movement and lift the poppet (1) away from the orifice at (5) permitting flow through the orifice passage (7).

OPEN



Under conditions of flow, back pressure in the orifice nozzle (7) reduces the effective downward force on the poppet, whichallows the poppet retainer unit to open further, providing increased flow with little or no increase in pressure. Where the valve is used as a sequence or priority valve, the downstream pressure buildup permits the poppet to open fully, allowing flow with minimum pressure drop.

Temperature Range

–20°F to +350°F
–29°C to +175°C
Based On O-Ring Material,
See Page 2

Valve Sizes

1/4” to 1/2”

CIRCLE SEAL CONTROLS, INC.
A division of CIRCOR International, Inc.
Certified to ISO 9001

5300 SERIES

400 to 10,500 PSIG

How To Order

L 53 49 B - 4 PP (L) - 500

VARIATION
L - For All Liquid Service

BASIC MODEL NUMBER
5300 Series

O-RING MATERIAL & TEMPERATURE
49 - Buna N -20°F to +250°F
33 - Neoprene -20°F to +240°F
32 - Viton® -20°F to +350°F

BODY MATERIAL
B - Brass
T - 303 Stainless Steel
T1 - 316 Stainless Steel

CRACKING PRESSURE
Specify cracking pressure setting in PSIG.
500 - 500 PSIG

SPECIAL CHARACTERISTICS
(L) - Lockwire

CONNECTIONS
P - Female Pipe
B - Female Tube, AND10050
J - Female Tube, MS33649
K - British Parallel Pipe (Male)
L - British Parallel Pipe (Female)
G - Aminco, Union
V - NASA MC240

VALVE SIZE
(Pipe Sizes in 1/8"-Increments; Tube Sizes in 1/16"-Increments)
4 - 1/2"

Notes:

Back Pressure – Any back pressure above atmosphere reduces the cracking pressure by .35 psi for each 1.0 psi of back pressure.

Cracking Pressure – Valves are preset at factory. Pressure at which valves will crack in normal service, cracking pressure = 5%.

Leakage at Reseal Pressure – Air - Zero; Liquid - 5 Drops/Min. (Max.)

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

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

Cracking Pressure Setting • Range • Replacement Spring Number

Dash No.	Port Size	C.P. Setting	C.P. Range	Spring Number
4PP	1/2"	500	400 - 700	A565-100
		700	550 - 950	A565-140
		1000	850 - 1350	A565-200
		1500	1250 - 2000	A565-300
		2000	1650 - 2700	A565-400
		3000	1900 - 3500	A575-500
		5000	3100 - 7200	A575-1000
		8000	4000 - 10,500	575-910
2PP	1/4"	500	420 - 600	535-70
8BB	1/2"	700	575 - 850	535-100
		1000	825 - 1190	535-140
		1400	1170 - 1650	535-200
		1700	1500 - 2075	535-250
		2200	1710 - 2570	535-300
		2800	2300 - 3120	535-400
		3500	3030 - 4100	545-500
		5800	3890 - 7560	545-850
		8000	4000 - 10,500	545-1030

5300-8BB, 5300-2PP – Springs in the 420-3074 psi range are interchangeable and springs in the 3075-10,500 psi range are interchangeable.

5300-4PP – Springs in the 400-2299 psi range are interchangeable and springs in the 2300-10,500 psi range are interchangeable.

Reseal Characteristics

CRACKING PRESSURE

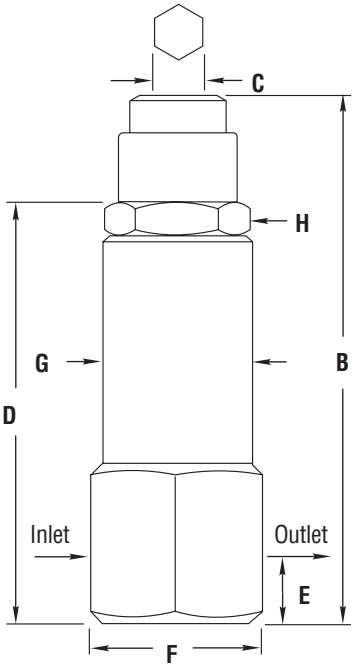
Standard Seals . . . . . 5 cc/min. with gas
Teflon® . . . . . 0.02 cc/min. scfm or valves with C.P. over 450 psi

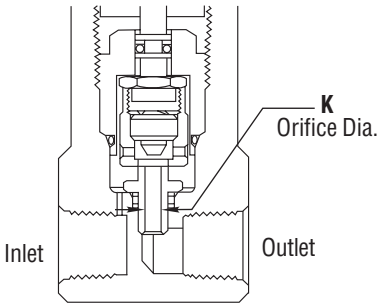
The point at which the valve closes, cutting off virtually all flow, is called the reseal point. The reseat point is substantially above reseal.

Replacement Parts

In normal service the only parts which may require replacement are the O-rings. A complete Repair Kit may be ordered. See table on previous page for replacement springs.

Dimensions





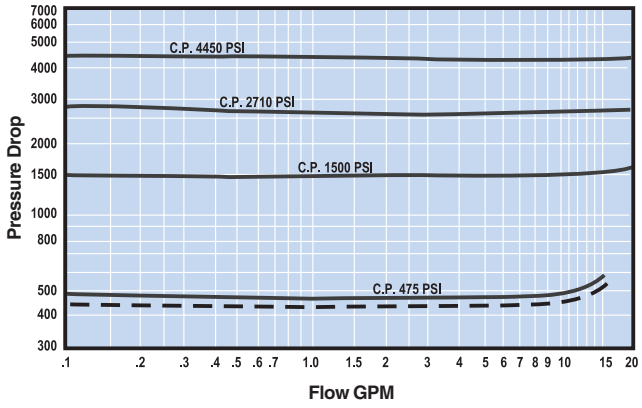
Pipe Size	C.P. Range (PSI)	B Max.	C Hex.	D	E	F Hex.	G Dia.	H Hex.	K Dia.	Weight (lbs.) Brass	Weight (lbs.) 303 S.S.
1/4"	420-3074	4.88	1/2	3.83	.52	1.50	1.38	1.25	.125	1.6	1.5
1/4"	3075-10,500	5.78	3/8	3.83	.52	1.50	1.38	1.25	.125	1.8	1.7
1/2"	400-2299	7.01	9/16	5.67	.82	2.00	1.75	1.50	.188	3.2	3.0
1/2"	2300-10,500	8.48	1/2	5.67	.82	2.00	1.75	1.50	.188	3.7	3.5

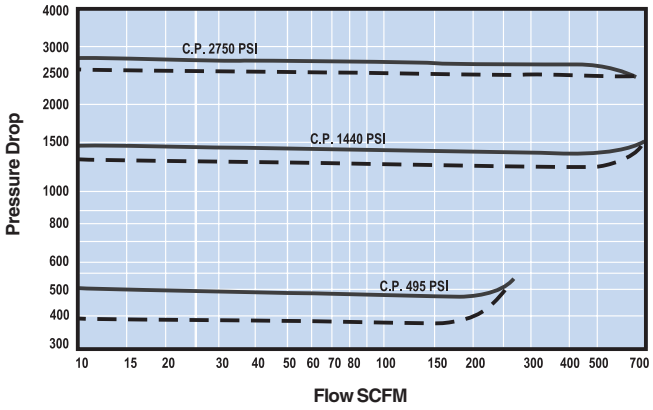
Tube Size	C.P. Range (PSI)	B Max.	C Hex.	D	E	F Hex.	G Dia.	H Hex.	K Dia.	Weight (lbs.) Brass	Weight (lbs.) 303 S.S.
1/2"	420-3074	4.88	1/2	4.59	.70	1.875	1.38	1.25	.125	1.6	1.5
1/2"	3075-10,500	5.78	3/8	4.59	.70	1.875	1.38	1.25	.125	1.8	1.7

Dimensions in inches.

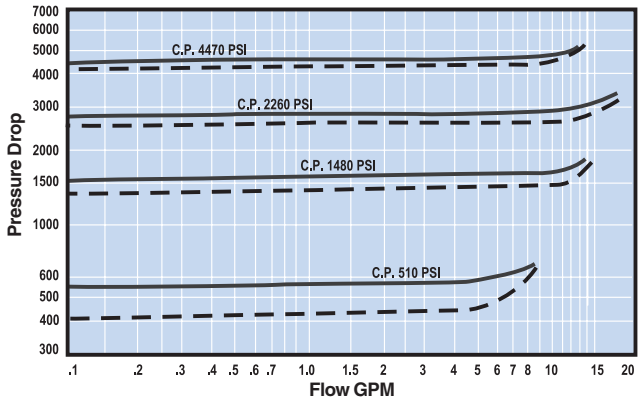
Typical Flow Curves

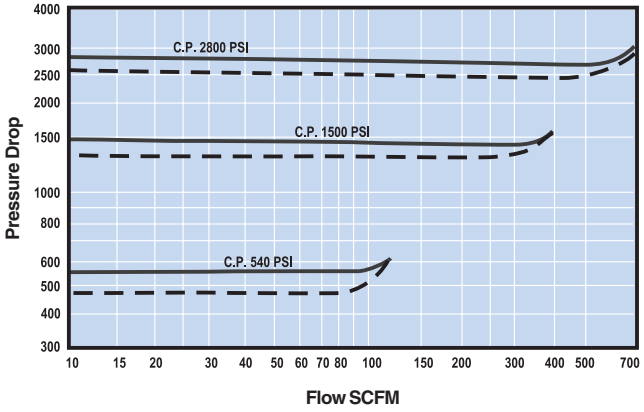
5300-4PP with HYDRAULIC FLUID





5300-BB, 5300-2PP with HYDRAULIC FLUID





Increasing Flow ———— Decreasing Flow — — —

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