



# MODEL — 590-01

## Pressure Reducing Valve



- Sensitive and Accurate Pressure Control
- High Corrosion Resistance
- Easy Adjustment and Maintenance
- Optional Check Feature
- Fully Supported Frictionless Diaphragm

The Cla-Val Model 590-01 Pressure Reducing Valve automatically reduces a higher inlet pressure to a steady lower downstream pressure regardless of changing flow rate and/or varying inlet pressure. All metal parts are 316 Stainless Steel for high corrosion resistance in many industrial applications. This valve is an accurate, pilot-operated regulator capable of holding downstream pressure to a pre-determined limit. When downstream pressure exceeds the pressure setting of the pilot control, the valve and close drip-tight.

If a check feature is added, and a pressure reversal occurs, the downstream pressure is admitted in the main valve cover chamber, closing the valve to prevent return flow.

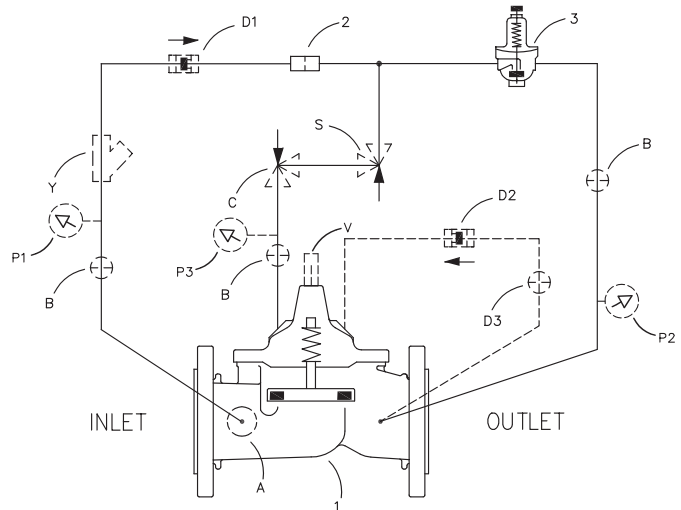
### Schematic Diagram

Item	Description
1	100-46 Hytrol Main Valve
2	X58C Restriction Fitting
3	CRD Pressure Reducing Control

### Optional Features

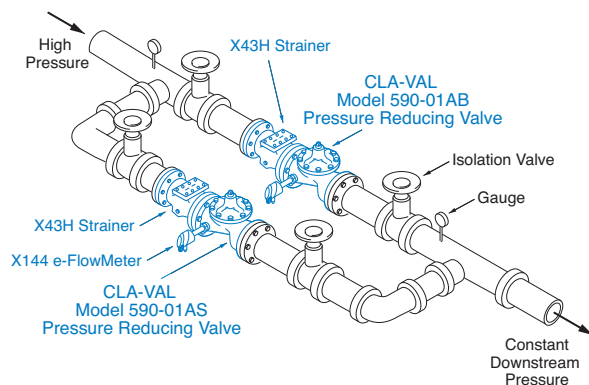
Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CV Flow Control (Closing)*
D	Check Valves with Isolation Valve
P	X141 Pressure Gauge
S	CV Flow Control (Opening)
V	X101 Valve Position Indicator
Y	X43 "Y" Strainer

\*The closing speed control (optional) on this valve should always be open at least three (3) turns off its seat.

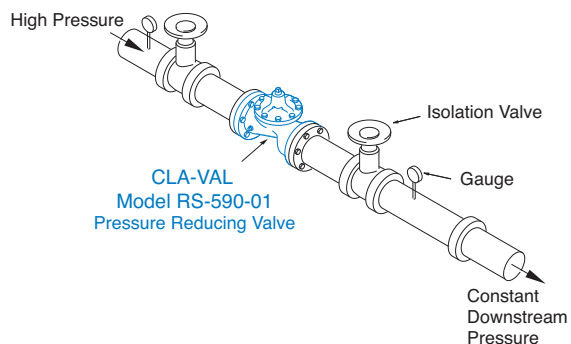


### Typical Applications

Typical pressure reducing valve station using Model 590-1AS in parallel to handle wide range of flow rates. Larger Model 590-01AB valve takes care of peak loads. Smaller Model 590-01AS handles low flows.



The 590-01D Combination Pressure Reducing and Check Valve is installed downstream of a pump where a constant system pressure is required. The check feature is to prevent reverse flow through the pump and to hold system pressure when the pump is off.



## Model 590-01

### Specifications

#### Sizes

Globe (inch):

1½", 2", 2½", 3", 4", 6", 8", 10", 12"

Globe (mm):

40, 50, 65, 80, 100, 150, 200, 250, 300

Grooved End (inch): 1-1/2" - 6"

Grooved End (mm): 40 - 150 mm

#### End Detail

Slip-on Two Piece Flange

Dimensions Per ANSI B16.5

Grooved End AWWA/ANSI C-606

#### Pressure Rating

ANSI Class 150:

Maximum 285 psi

ANSI Class 300:

Maximum 400 psi

Higher Pressure Available

Please Contact Factory

#### Operating Temperature

Fluids Compatible with Valve

Materials

-40° to 180° F (-40° to 82° C)

#### Materials

Body, Cover, Trim,  
Diaphragm Assembly,  
Flanges, and Fasteners  
316 Series  
Stainless Steel  
Electropolished

Disc:

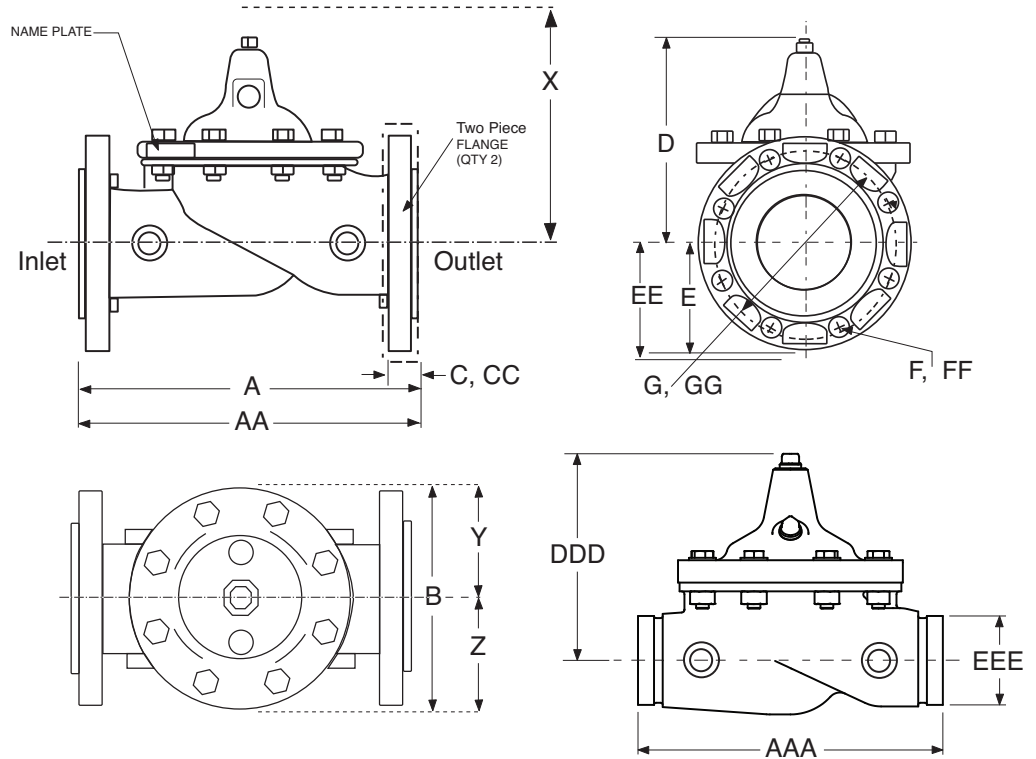
Buna-N® Rubber\*

Diaphragm:

Nylon Fabric Reinforced  
Synthetic Buna-N® Rubber\*

\* Contact Factory for Other

Disc or Diaphragm Materials



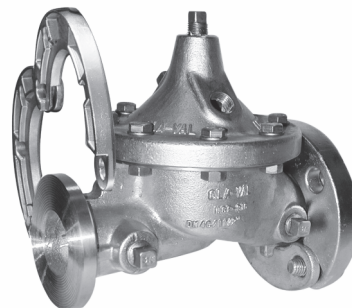
### Model 590-01 Dimensions (Inches)

Valve Size (Inches)	1½	2	2½	3	4	6	8	10	12
A 150 ANSI	7.87	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00
AA 300 ANSI	7.87	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00
AAA Grooved End	8.50	11.00	11.00	12.00	15.00	20.00	—	—	—
B	5.62	6.61	8.00	9.13	11.50	15.75	20.00	23.62	28.00
C	0.56	0.62	0.69	0.75	0.94	1.00	1.12	1.19	1.25
CC 300 ANSI	0.81	0.88	1.00	1.12	1.25	1.44	1.62	1.88	2.00
D	5.90	6.25	7.25	8.20	10.21	13.32	16.38	21.00	25.38
DDD Grooved End	5.29	6.34	7.43	8.14	10.30	13.03	—	—	—
E	2.56	3.05	3.54	3.75	4.53	5.61	6.75	8.00	9.50
EE 300 ANSI	3.05	3.25	3.74	4.13	5.02	6.30	7.50	8.75	10.25
EEE Grooved End	1.13	1.50	1.88	2.13	2.68	3.86	—	—	—
F	0.62	0.75	0.75	0.75	0.75	0.88	0.88	1.00	1.00
FF 300 ANSI	0.88	0.75	0.88	0.88	0.88	0.88	1.00	1.12	1.25
G	3.88	4.75	5.50	6.00	7.50	9.50	11.75	14.25	17.00
GG 300 ANSI	4.50	5.00	5.88	6.62	7.88	10.62	13.00	15.25	17.75
Flange Bolts (150 Class)	4	4	4	4	8	8	8	12	12
Flange Bolts (300 Class)	4	8	8	8	8	12	12	12	16
Approx. Wt. (Lbs.)	25	35	55	75	160	290	340	600	1000
Approx. X Pilot System	11.00	13.00	14.00	15.00	17.00	29.00	31.00	33.00	36.00
Approx. Y Pilot System	9.00	9.00	10.00	11.00	12.00	20.00	22.00	24.00	26.00
Approx. Z Pilot System	9.00	9.00	10.00	11.00	12.00	20.00	22.00	24.00	26.00

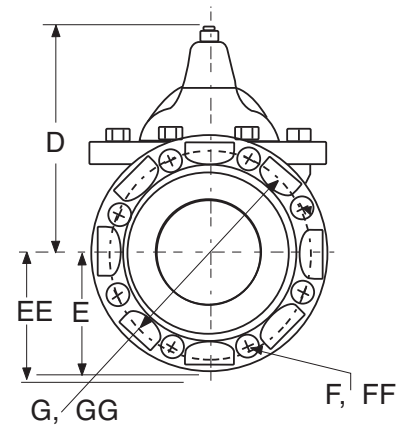
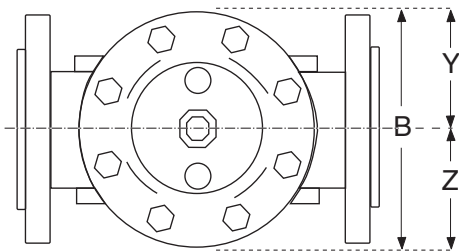
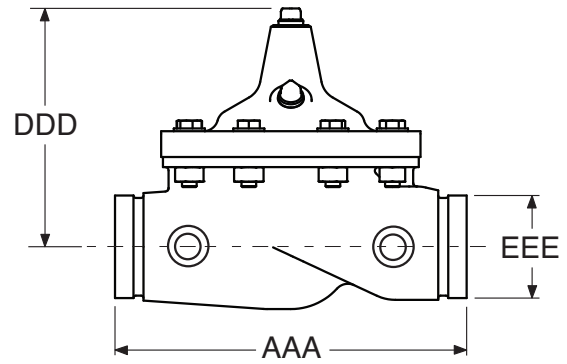
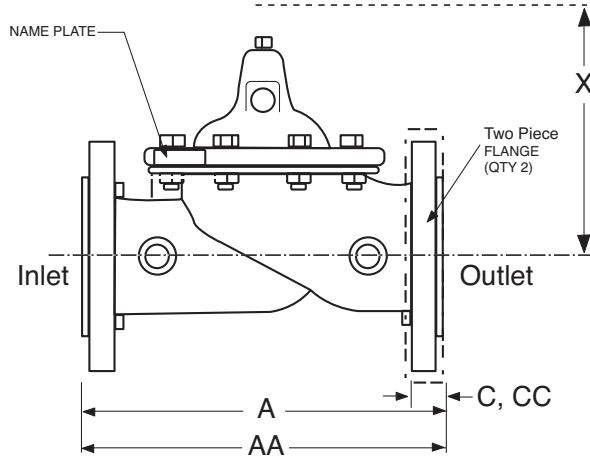
### 100-46 Full Port Functional Data

Size (Inches)	Cv (gpm)*	Cv (l/s)**
1½	32	8
2	54	13
2½	85	20
3	115	27
4	200	48
6	440	105
8	770	185
10	1245	299
12	1725	414

\*Cv = gpm flow at 1 psi drop  
\*\*Cv = l/s flow at 1 bar drop



## Model 590-01 Dimensions (mm)



## Model 590-01 Dimensions (mm)

Valve Size (mm)	40	50	65	80	100	150	200	250	300
A 150 ANSI	200	238	279	305	381	508	645	756	864
AA 300 ANSI	200	238	279	305	381	508	645	756	864
AAA Grooved End	216	279	279	305	381	508	—	—	—
B	143	168	203	232	292	400	508	600	711
C	14	16	18	19	24	25	28	30	32
CC 300 ANSI	21	22	25	28	32	37	41	48	51
D	150	159	184	208	259	338	416	533	645
DDD Grooved End	134	161	189	207	262	331			
E	65	78	90	95	115	143	172	203	241
EE 300 ANSI	78	83	95	105	128	160	190	222	260
EEE Grooved End	29	38	48	54	68	98	—	—	—
F	16	19	19	19	19	22	22	25	25
FF 300 ANSI	22	19	22	22	22	22	25	28	32
G	99	121	140	152	190	241	299	362	432
GG 300 ANSI	114	127	149	168	200	270	330	387	451
Flange Bolts (150 Class)	102	102	102	102	203	203	203	305	305
Flange Bolts (300 Class)	102	203	203	203	203	305	305	305	406
Approx. Wt. (Kgs.)	11	16	25	34	73	132	154	272	454
Approx. X Pilot System	279	330	356	381	432	737	787	838	914
Approx. Y Pilot System	229	229	254	279	305	508	559	610	660
Approx. Z Pilot System	229	229	254	279	305	508	559	610	660

590-01 Valve Selection	100-01 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes									
	Inches	1½	2	2½	3	4	6	8	10	12
	mm	40	50	65	80	100	150	200	250	300
Main Valve 100-46	Pattern	G	G	G	G	G	G	G	G	G
	End Detail	F	F	F	F	F	F	F	F	F
Suggested Flow (gpm)	Maximum	125	210	460	460	800	1800	3100	4900	7000
	Maximum Intermittent	160	260	580	580	990	2250	3900	6150	8720
	Minimum	1	1	2	2	4	10	15	35	50
Suggested Flow (Liters/Sec)	Maximum	8	13	29	29	50	113	195	309	442
	Maximum Intermittent	10	16	37	37	62	142	246	387	549
	Minimum	.03	.06	.09	0.13	0.25	0.63	0.95	2.2	3.2

100-46 Series is the full internal port Hytrol. For Lower Flows Consult Factory \*Globe Grooved Only

## Pilot System Specifications

### Adjustment Ranges

- 2 to 30 psi
- 15 to 75 psi
- 20 to 105 psi
- 30 to 300 psi\*

\*Supplied unless otherwise specified  
Other ranges available, please consult factory

### Temperature Range

Water: to 180°F

### Materials

#### Standard Pilot System Materials

Pilot Control: Stainless Steel Type 303  
Trim: Stainless Steel Type 303  
Rubber: Buna-N® Synthetic Rubber

#### Optional Pilot System Materials

Pilot Systems are available with optional  
316 Stainless Steel or Monel materials.

Note: Available with remote sensing control.



### When Ordering, Specify

1. Catalog No. 590-01
2. Valve Size
3. Pattern - Globe
4. Pressure Class
5. Flanged (150 / 300)
6. Trim Material
7. Adjustment Range
8. Desired Options
9. When Vertically Installed

### Valve Options

X141  
Pressure  
Gauge



X101AR Valve  
Position Indicator  
with Air Release



X101  
Valve Position  
Indicator



X144 e-FlowMeter



X43H  
Strainer



Stainless  
Steel Pilot



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