

## Masoneilan\* Valves

# 87/88 Pneumatic Multi-Spring Diaphragm Actuators

Actuator air action can be changed in the field for increased flexibility and reduced inventory.

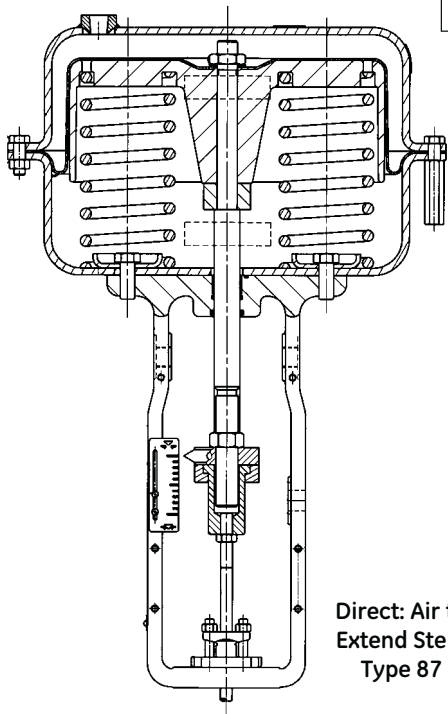


imagination at work

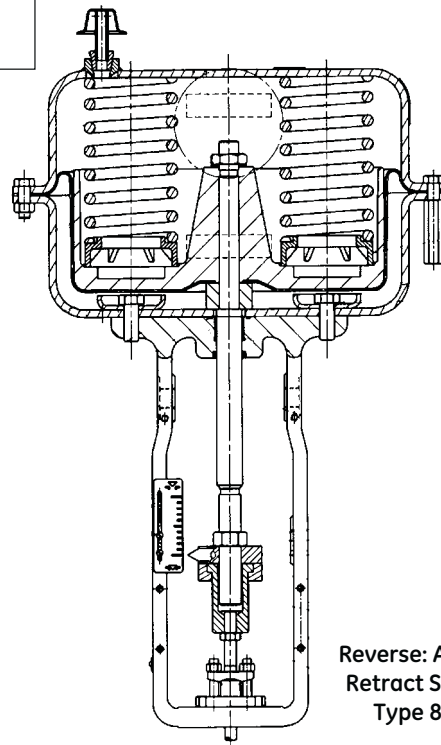
# Numbering System

1st	2nd
8	

Actuator Type
87 Air to Close
88 Air to Open

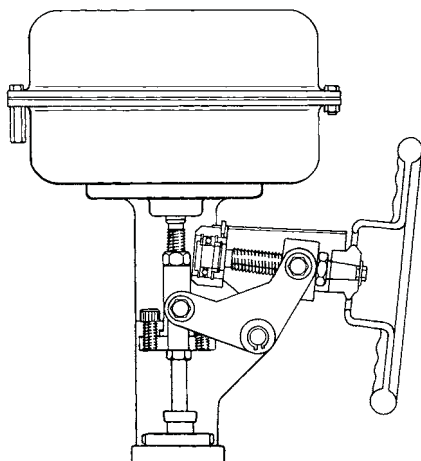


Direct: Air to Extend Stem  
Type 87



Reverse: Air to Retract Stem  
Type 88

# Handwheel



Actuator Size	Maximum Travel		Equivalent Air Supply		Number of Turns
	Inches	(mm)	psi	(bar)	
6	0.8	20	60	4.1	5
10	1.5	38	60	4.1	9
16	2.5	63	60	4.1	17
23	2.5	63	60	4.1	25

SIZE 23L WITH 4" STROKE ALSO NOW AVAILABLE

# Specifications

Bench ranges available: 3-15, 6-30, 11-23, 21-45 for all actuator sizes

Actuator Size	Diaphragm Effective Area		Stem Travel		Max Supply	
	sq. in.	sq. cm.	(inches)	mm	(psi)	(bar)
6	60	387	0.8	20	60	4.1
10	100	645	0.8 / 1.5	20 / 38	60	4.1
16	160	1032	0.8 / 1.5 / 2.0 / 2.5	20 / 38 / 50 / 63	60	4.1
23	230	1484	0.8 / 1.5 / 2.0 / 2.5	20 / 38 / 50 / 63	60	4.1

SIZE 23L WITH 4" STROKE ALSO NOW AVAILABLE

## Standard Springs

Actuator Size 6, 10, 16, and 23

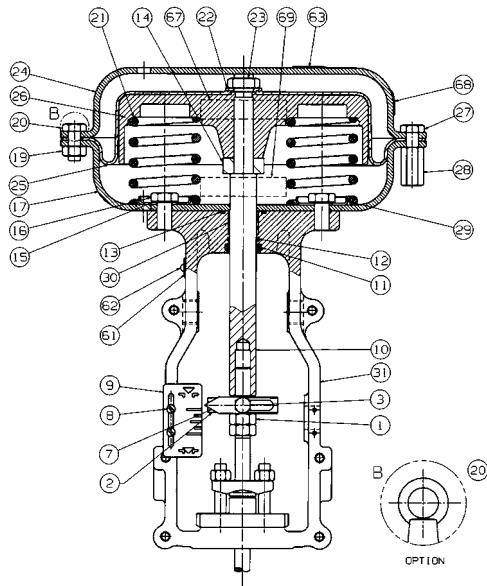
Spring Type	Spring Qty	Placement
3-15	3	Lower Level
6-30	6	Lower Level
11-23	3	Upper Level
21-45	6	Upper Level

## Air Connections

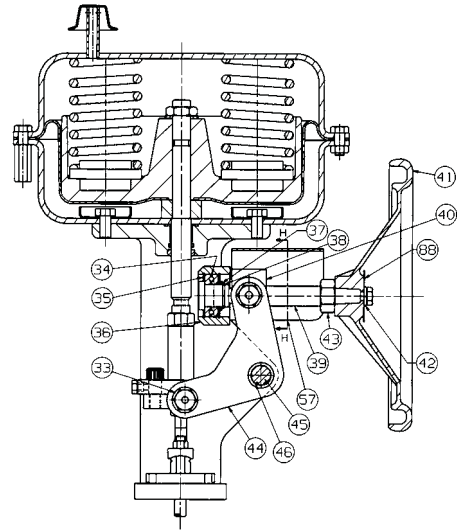
Standard: 1/4" NPT - Size 6, 10 1/2" NPT - Size 16, 23

Optional: 1/2" NPT - Size 6, 10

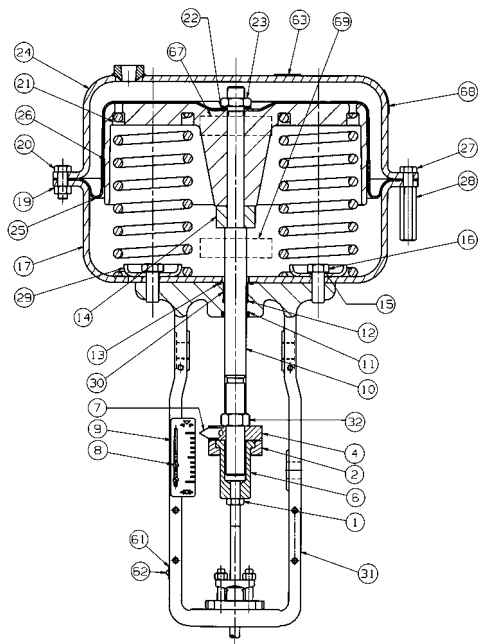
# Materials



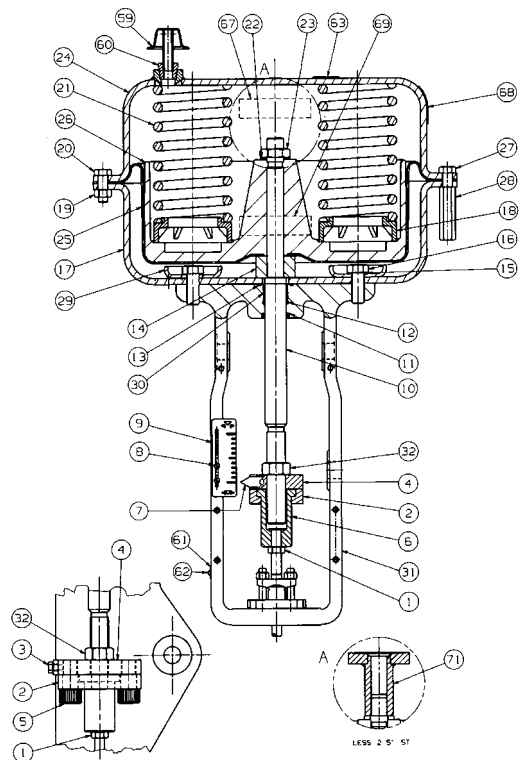
Size 6 Actuator



Size 10 Actuator  
with Optional Handwheel

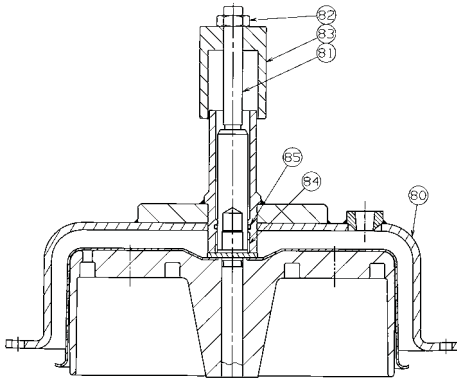


Size 16 Actuator Air to Close (Model 87)

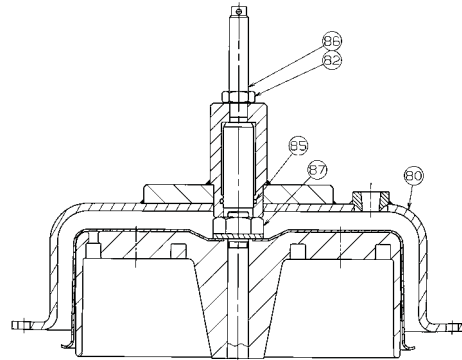


Size 16 Actuator Air to Open  
(Model 88)

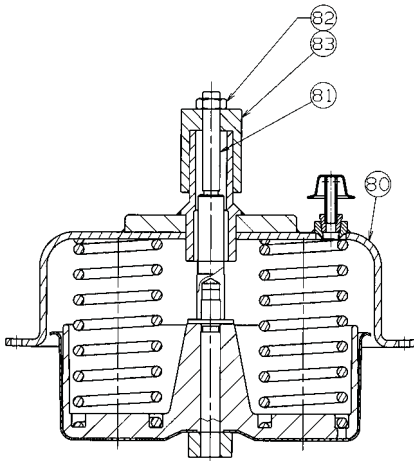
# Materials



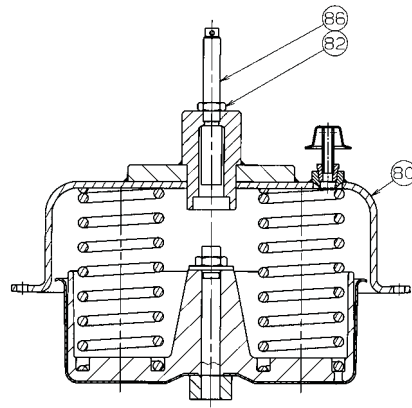
**Model 87 - Down Stop**  
Optional Adjustable Limit Stop



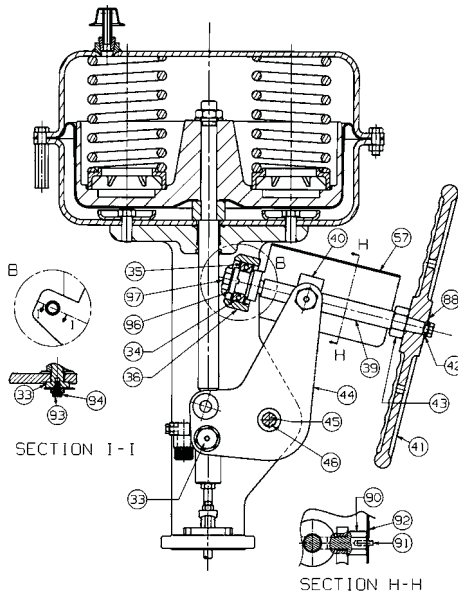
**Model 87 - Up Stop**  
Optional Adjustable Limit Stop



**Model 88 - Down Stop**  
Optional Adjustable Limit Stop



**Model 88 - Up Stop**  
Optional Adjustable Limit Stop



**Size 23 Actuator with Optional Handwheel**

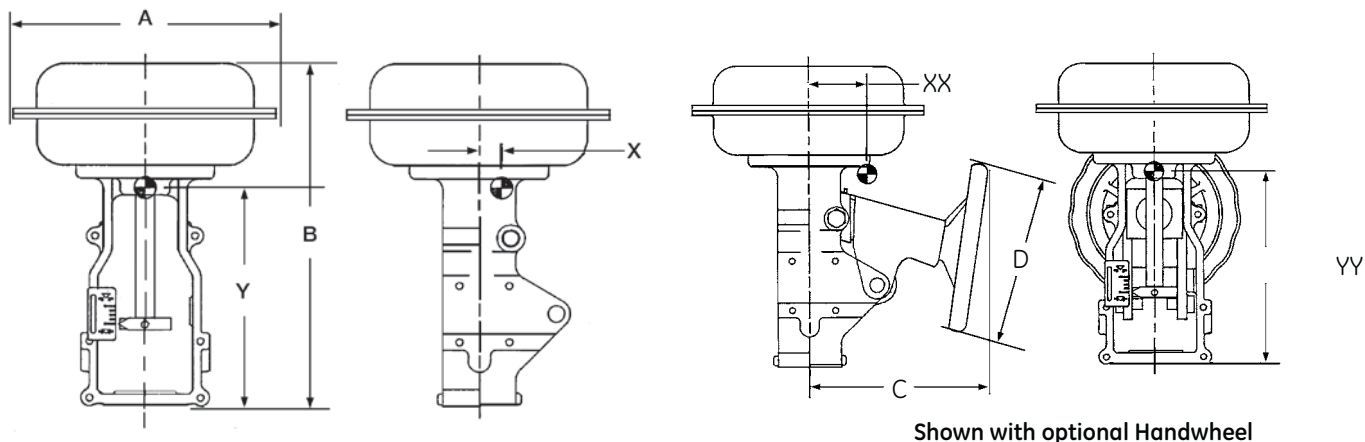
# Materials

## Parts Reference for Actuator Sizes 6,10,16 and 23

Ref No.	Description	Material
1	Lock Nut	Carbon Steel
2	Stem Connector-Bottom	Carbon Steel, Zinc Plate
3	Cap Screw-Pointer	Carbon Steel
4	Stem Connector-Top	Carbon Steel, Zinc Plate
5	Cap Screw-Connector	Carbon Steel
6	Connector Insert	Carbon Steel, Zinc Plate
7	Pointer	Stainless Steel
8	Screw-Pan Head	Carbon Steel
9	Scale-Travel	Stainless Steel
10	Actuator Stem	Stainless Steel
11	Stem Wiper	Polyurethane
12	Oring	Buna-N
13	Oring	Buna-N
14	Spacer	Carbon Steel, Zinc Plate
15	Seal Washer	Steel & Rubber
16	Cap Screw-Yoke	Carbon Steel
17	Lower Diaphragm Case	Carbon Steel
18	Spring Spacer	Carbon Steel
19	Hex Nut	Carbon Steel
20	Cap Screw-Hex Head	Carbon Steel
21	Spring	Carbon Steel
22	Washer Flat	Carbon Steel
23	Nut-Jam	Carbon Steel
24	Upper Diaphragm Case	Carbon Steel
25	Diaphragm	Buna-N/Polyester
26	Diaphragm Plate	Aluminum Alloys
27	Cap Screw-Comp	Carbon Steel
28	Compression Nut	Carbon Steel
29	Spring Guide	Carbon Steel
30	Bushing	PTFE/Steel
31	Yoke	Cast Iron
32	Lock Nut	Carbon Steel
33	Pivot Pin	Carbon Steel, Zinc Plate
34	Thrust Bearing	Carbon Steel
35	Retaining Ring	Carbon Steel

Ref No.	Description	Material
36	HW Pivot	Carbon Steel
37	Bearing Ring	Carbon Steel
38	Retaining Ring	Carbon Steel
39	HW Stem	Carbon Steel, Zinc Plate
40	Traveling Nut	Leaded Steel
41	Handwheel	Cast Iron
42	Washer-Flat	Carbon Steel
43	HW Limitation Nut	Carbon Steel, Zinc Plate
44	HW Lever	Carbon Steel
45	Lever Pin	Carbon Steel, Zinc Plate
46	Retaining Ring-Lever Pin	Carbon Steel
57	HW Cover	Carbon Steel
59	Vent Plug	Carbon Steel
60	Pipe Fitting	Carbon Steel, Zinc Plate
63	Information Label	Vinyl
67	Warning Label	Vinyl
68	Warning Label	Vinyl
69	Warning Label	Vinyl
71	Travel Stop	Carbon Steel, Zinc Plate
80	Upper Diaphragm Case	Carbon Steel
81	Stem Extension	Stainless Steel
82	Lock Nut	Stainless Steel
83	Limit Stop	Stainless Steel
84	Bushing	Steel/PTFE Lined
85	Oring	Buna-N
86	Stopper	Stainless Steel
87	Stopper	Carbon Steel
88	Plate-Rotation Arrow	Stainless Steel
90	Pivot Pin-HW Lock	Carbon Steel, Zinc Plate
91	Handwheel Lock Pin	Stainless Steel
92	Information Plate-HW	Vinyl
93	Cap Screw-Hex Head	Carbon Steel
94	Washer-Flat	Carbon Steel
96	End Flange	Carbon Steel, Zinc Plate
97	Cap Screw-HW Stem	Carbon Steel

# Dimensions and Weights (U.S.)



Dimensions and Weights

Actuator Size	Actuator Dimensions (inches)				Weights (lbs.)	
	A	B (Model 88)	C	D	Standard	w/Handwheel
6	11.50	15.54 (17.52)	10.00	9.00	45	60
10	14.50	19.58 (21.54)	10.90	12.00	85	105
16	18.75	28.22 (30.79)	14.00	18.00	210	245
23	21.63	30.71 (33.27)	16.00	18.00	265	320

Actuator Removal Clearance = 6 inches

Center of Gravity (inches)

Without Handwheel

Size	X	Y
6	.19	9.75
10	.0	12.88
16	.13	18.50
23	.06	21.13

With Handwheel

Size	XX	YY
6	1.25	9.13
10	0.88	12.00
16	1.38	16.75
23	1.38	19.00

Limit Stops (inches)

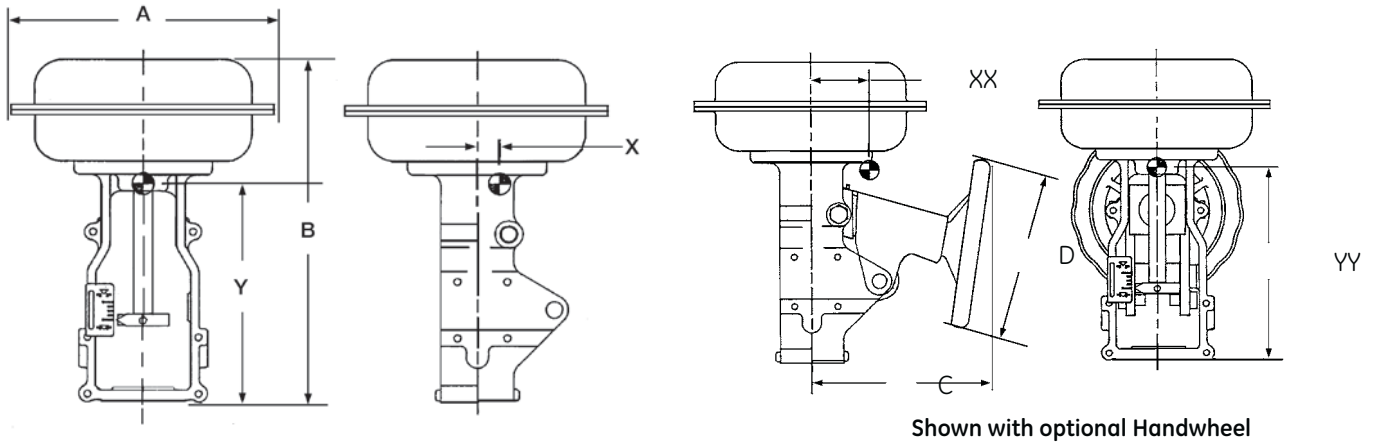
Up Stop

Size	Model	Overall Height B
6	87	19.45
10		25.43
16		36.42
23		38.84
6	88	19.16
10		25.06
16		35.48
23		38.65

Down Stop

Size	Model	Overall Height B
6	87	19.80
10		25.98
16		37.20
23		39.90
6	88	19.74
10		25.85
16		37.46
23		40.33

# Dimensions and Weights (Metric)



Dimensions and Weights

Shown with optional Handwheel

Actuator Size	Actuator Dimensions (mm)				Weights (kg)	
	A	B (Model 88)	C	D	Standard	w/Hand-wheel
6	302	395 (445)	254	229	20	27
10	373	497 (547)	277	305	39	48
16	476	717 (782)	356	457	95	111
23	549	780 (845)	406	457	120	145

Actuator Removal Clearance = 127 MM

Center of Gravity (mm)  
Without Handwheel

Size	X	Y
6	5	248
10	0	327
16	3	470
23	2	537

With Handwheel

Size	XX	YY
6	32	232
10	22	305
16	35	425
23	35	483

Limit Stops (mm)  
Up Stop

Size	Model	Overall Height B
6	87	494
10		646
16		925
23		987
6	88	487
10		636
16		901
23		982

Down Stop

Size	Model	Overall Height B
6	87	503
10		660
16		945
23		1014
6	88	501
10		657
16		952
23		1024



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