



## KEYSTONE PNEUMATIC ACTUATOR

FIGURE 738

The F738 is a linear pneumatic actuator, designed especially for use on linear actuated valves



### FEATURES

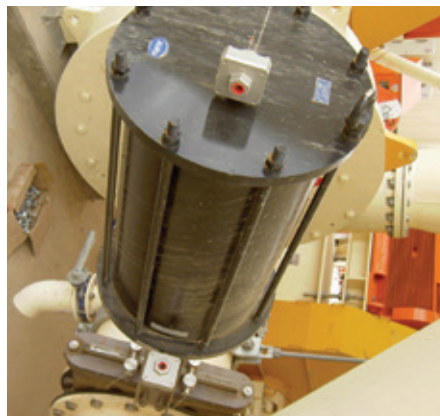
- Suits all linear actuated valves.
- The Keystone F738 pneumatic actuator series is engineered to provide the maximum force output with minimum supply pressure.
- Simplicity and reliability are the fundamental design parameters.
- Rugged yet functional design.
- Operates with or without lubrication.
- Simple to retro-fit.
- Wide range of sizes available.
- Maintenance friendly.
- A full range of "bolt-on" modular accessory packages are available including solenoid valves, limit switches, positioners and fail-safe systems.
- Hydraulic cylinder option is also available using high pressure oil.
- Spring return actuators are available in selected sizes.
- The Keystone F493 failsafe units are an ideal choice for larger actuators as it eliminates bulky spring return actuators when limited space is available.

### GENERAL APPLICATIONS

The F738 is ideal for automated process plants. Available in either aluminium or glass epoxy construction making it suitable for most services.

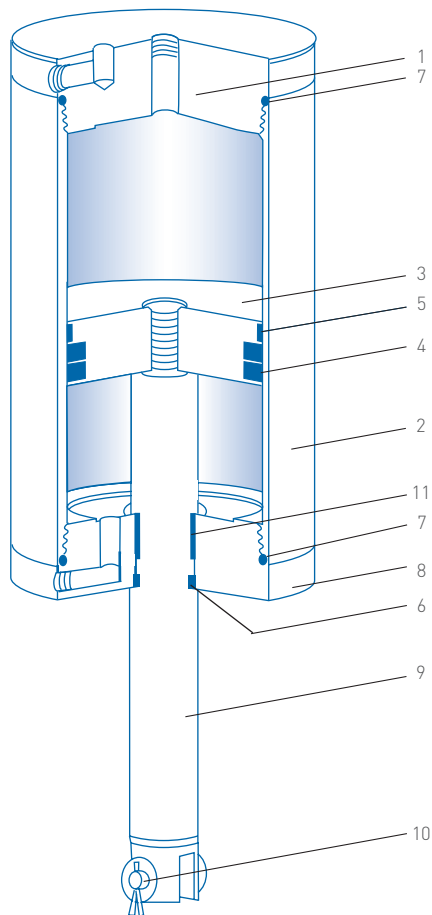
### TECHNICAL DATA

Temperature: - 20°C - 80°C (-4°F - 175°F)  
Pressure rating: P1 - P10 and P17  
1000 kPa (150 psi) max rated  
P11 - P16  
700 kPa (100 psi) max rated



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FIGURE 738



## PARTS LIST - Aluminium construction sizes P1-P6

No.	Description	Material
1	End cap	Anodized aluminium
2	Barrel*	Aluminium alloy
3	Piston	Aluminium
4	Piston	Seal nitrile
5	Piston wear ring	Carbon filled PTFE
6	Piston rod seal	Nitrile
7	Barrel seal	Nitrile
8	Head cap	Anodized aluminium
9	Piston rod	316 S/S
10	Clevis pin	304 S/S
11	Rod bearing	Sintered bronze

### NOTE

\* Aluminium alloy barrels are standard for P1 to P6 actuators.

## OPTIONS

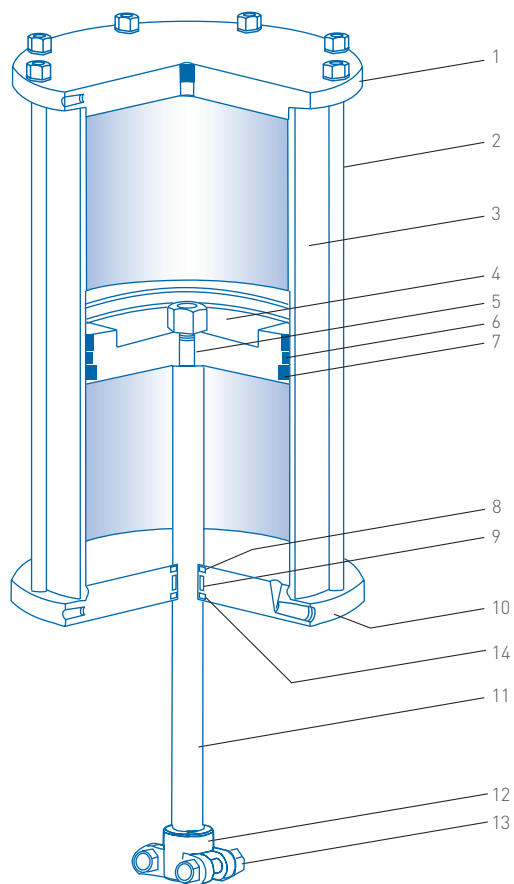
- F791 Solenoids
- Limit switches
- Proximity switches
- F793 Positioners
- F493 Failsafe systems

The F493 Failsafe is ideal for use with F738 pneumatic actuators as it eliminates the need for bulky spring return actuators.



# KEYSTONE PNEUMATIC ACTUATOR

FIGURE 738



## PARTS LIST - Gloss epoxy construction sizes P1-P17

No.	Description	Material
1	End cap	Carbon steel
2	Tie rod	Carbon steel
3	Barrel	Filament wound glass epoxy
4	Piston	Carbon steel
5	Piston rod seal upper	Nitrile
6	Piston wear ring	Carbon filled PTFE
7	Piston seal	Nitrile
8	Piston rod seal	Nitrile
9	Piston rod bushing	Sintered bronze or PTFE/lead/bronze
10	Head cap	Carbon steel
11	Piston rod	316 S/S
12	Clevis	304 S/S
13	Clevis fasteners	304 S/S
14	Piston rod scraper seal	Nitrile

## NOTES

Gloss epoxy style is supplied as an alternative to aluminium construction on size P1 to P6.  
Where service compatibility is an issue or when spring return is required.



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FIGURE 738

## GUIDELINES AND RECOMMENDATIONS

Cylinder actuated valves tend to be large and heavy and consideration must be given to adequately support both the actuated valve and adjoining pipe work particularly where light weight pipe or tube is being used. Heavy cylinder actuated valves mounted in other than the vertical position can also cause the pipeline to twist.

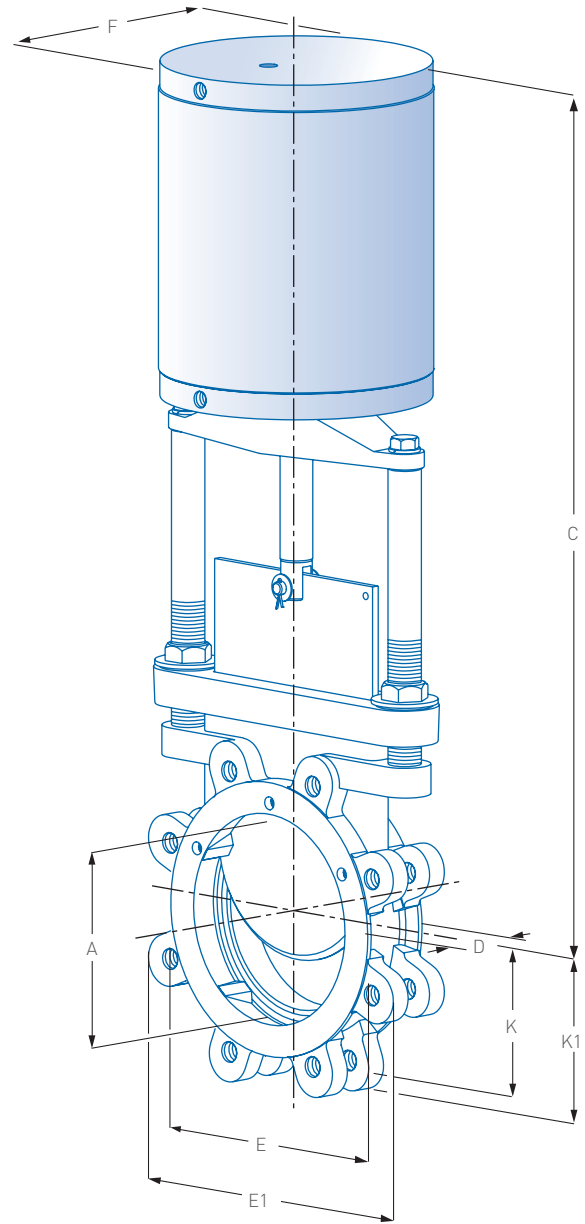
Where possible, the cylinder actuated valves should be mounted in the vertical position with the cylinder uppermost to prevent gate misalignment and possible structural damage to the valve assembly.

If mounted in any other position (angled, horizontal etc.), the cylinders must be properly supported by a suitable structure.

Large valves using cylinders (not vertically mounted) in size P14 (400 mm bore x 600 stroke / 15.7 inch bore x 23.4 stroke) and above must have a fully engineered structure to suit site conditions.

Actuated valves are generally operated from a remote location, caution should be exercised if working in close proximity to any moving parts.

To minimize risk to personnel, Emerson recommend the use of purpose built guards and shrouds. Refer to the Emerson data sheet or consult factory for details.  
Contact Emerson for advice or assistance.



**Note:** DN 150 (NPS 6) F952 valve illustrated.

# KEYSTONE PNEUMATIC ACTUATOR

FIGURE 738

## DIMENSIONS mm (inches)

Actuator number	Valve		A	E	E1	C	D	F	K	K1	Port size	Act. mass kg (lbs)
	size DN (NPS)	Description bore x stroke										
P1	50 (2)	80 x 120 (3.15 x 4.72)	50 (1.97)	159	159 (6.26)	408 (16.06)	49 (1.93)	Ø89 (Ø3.5)	46	79 (3.11)	1/8" BSPT	2.2 (5)
	65 (2½)		65 (2.60)	172	177 (6.97)	434 (17.09)	49 (1.93)	Ø89 (Ø3.5)	54	89 (3.50)	1/8" BSPT	2.2 (5)
	80 (3)		80 (3.15)	190	192 (7.56)	467 (18.39)	52 (2.05)	Ø89 (Ø3.5)	64	96 (3.78)	1/8" BSPT	2.2 (5)
	100 (4)		100 (3.94)	210	222 (8.74)	502 (19.76)	52 (2.05)	Ø89 (Ø3.5)	79	105 (4.13)	1/8" BSPT	2.2 (5)
P2	50 (2)	100 x 120 (4 x 4.75)	50 (1.97)	159	159 (6.26)	408 (16.06)	49 (1.93)	Ø110 (Ø4.30)	46	79 (3.11)	1/8" BSPT	2.9 (6)
	65 (2½)		65 (2.56)	172	177 (6.97)	434 (17.09)	49 (1.93)	Ø110 (Ø4.31)	54	89 (3.50)	1/8" BSPT	2.9 (6)
	80 (3)		80 (3.15)	190	192 (7.56)	467 (18.39)	52 (2.05)	Ø110 (Ø4.32)	64	96 (3.78)	1/8" BSPT	2.9 (6)
	100 (4)		100 (3.94)	210	222 (8.74)	502 (19.76)	52 (2.05)	Ø110 (Ø4.33)	79	105 (4.13)	1/8" BSPT	2.9 (6)
P3	125 (5)	100 x 176 (4 x 6.95)	125 (4.92)	254	256 (10.08)	621 (24.45)	58 (2.28)	Ø110 (Ø4.34)	93	128 (5.04)	1/8" BSPT	3.9 (9)
	150 (6)		150 (5.91)	285	285 (11.22)	655 (25.79)	58 (2.28)	Ø110 (Ø4.35)	106	141 (5.55)	1/8" BSPT	3.9 (9)
P4	125 (5)	140 x 233 (5.5 x 9.15)	125 (4.92)	254	256 (10.08)	696 (27.40)	58 (2.28)	Ø150 (Ø6.00)	93	128 (5.04)	1/4" BSPT	7.2 (16)
	150 (6)		150 (5.91)	285	285 (11.22)	730 (28.74)	58 (2.28)	Ø150 (Ø6.00)	106	141 (5.55)	1/4" BSPT	7.2 (16)
	200 (8)		200 (7.87)	338	340 (13.39)	845 (33.27)	71 (2.80)	Ø150 (Ø6.00)	135	170 (6.69)	1/4" BSPT	7.2 (16)
P5	125 (5)	200 x 233 (7.9 x 9.15)	125 (4.92)	254	256 (10.08)	709 (27.91)	58 (2.28)	Ø210 (Ø8.26)	93	130 (5.12)	1/4" BSPT	14 (31)
	150 (6)		150 (5.91)	285	285 (11.22)	743 (29.25)	58 (2.28)	Ø210 (Ø8.26)	106	141 (5.55)	1/4" BSPT	14 (31)
	200 (8)		200 (7.87)	338	340 (13.39)	858 (33.78)	71 (2.80)	Ø210 (Ø8.26)	135	170 (6.69)	1/4" BSPT	14 (31)
P6	250 (10)	200 x 321 (7.9 x 12.6)	250 (9.84)	326	406 (15.98)	1062 (41.81)	71 (2.80)	Ø210 (Ø8.26)	163	203 (8.00)	1/4" BSPT	17 (37)
	300 (12)		300 (11.81)	418	474 (18.66)	1161 (45.71)	76 (2.99)	Ø210 (Ø8.26)	190	237 (9.33)	1/4" BSPT	17 (37)
P7	250 (10)	250 x 351 (9.8 x 13.8)	250 (9.84)	326	406 (15.98)	1139 (44.84)	71 (2.80)	276 (10.87)	163	203 (8.00)	3/8" BSPT	63 (140)
	300 (12)		300 (11.81)	418	474 (18.66)	1238 (48.74)	76 (2.99)	276 (10.87)	190	237 (9.33)	3/8" BSPT	63 (140)
	350 (14)		330 (13.00)	458	520 (20.47)	1283 (50.51)	76 (2.99)	276 (10.87)	-	260 (10.24)	3/8" BSPT	63 (140)
P8	250 (10)	300 x 351 (11.8 x 13.8)	250 (9.84)	326	406 (15.98)	1120 (44.09)	71 (2.80)	330 (13.00)	163	203 (8.00)	3/8" BSPT	85 (187)
	300 (12)		300 (11.81)	418	474 (18.66)	1219 (47.99)	76 (3.00)	330 (13.00)	190	237 (9.33)	3/8" BSPT	85 (187)
	350 (14)		330 (13.00)	-	520 (20.47)	1275 (50.20)	76 (3.00)	330 (13.00)	-	260 (10.24)	3/8" BSPT	85 (187)
P9	400 (16)	250 x 401 (9.8 x 15.8)	378 (14.88)	-	584 (22.99)	1430 (56.30)	89 (3.50)	276 (10.87)	-	292 (11.50)	3/8" BSPT	64 (140)
P10	400 (16)	300 x 401 (11.8 x 15.8)	378 (14.88)	-	584 (22.99)	1412 (55.59)	89 (3.50)	330 (13.00)	-	292 (11.50)	3/8" BSPT	87 (191)
P11	300 (12)	350 x 401 (13.8 x 15.8)	300 (11.81)	418	474 (18.66)	1352 (53.23)	76 (3.00)	Ø448 (Ø17.63)	190	237 (9.33)	1/2" BSPT	150 (330)
	350 (14)		330 (13.00)	-	520 (20.47)	1408 (55.43)	76 (3.00)	Ø448 (Ø17.63)	-	260 (10.24)	1/2" BSPT	150 (330)
	400 (16)		378 (14.88)	-	584 (22.99)	1495 (58.86)	89 (3.50)	Ø448 (Ø17.63)	-	292 (11.50)	1/2" BSPT	150 (330)
P12	400 (16)	400 x 401 (15.7 x 15.7)	378 (14.88)	-	584 (22.99)	1495 (58.86)	89 (3.50)	Ø505 (Ø19.88)	-	292 (11.50)	1/2" BSPT	197 (433)
P13	450 (18)	350 x 595 (13.8 x 23.4)	425 (16.73)	-	628 (24.72)	1808 (71.18)	89 (3.50)	Ø448 (Ø17.63)	-	314 (12.36)	1/2" BSPT	160 (352)
	500 (20)		470 (18.50)	-	696 (27.40)	1905 (75.00)	114 (4.49)	Ø448 (Ø17.63)	-	248 (9.76)	1/2" BSPT	160 (352)
	600 (24)		571 (22.48)	-	822 (32.36)	2093 (82.40)	114 (4.49)	Ø448 (Ø17.63)	-	411 (16.18)	1/2" BSPT	160 (352)
P14	450 (18)	400 x 595 (15.7 x 23.4)	425 (16.73)	-	628 (24.72)	1808 (71.18)	89 (3.50)	Ø505 (Ø19.88)	-	314 (12.36)	1/2" BSPT	207 (455)
	500 (20)		470 (18.50)	-	696 (27.40)	1905 (75.00)	114 (4.49)	Ø505 (Ø19.88)	-	348 (13.70)	1/2" BSPT	207 (455)
	600 (24)		571 (22.48)	-	822 (32.36)	2093 (82.40)	114 (4.49)	Ø505 (Ø19.88)	-	411 (16.18)	1/2" BSPT	207 (455)
P15	450 (18)	450 x 595 (17.7 x 23.4)	425 (16.73)	-	628 (24.72)	1817 (71.54)	89 (3.50)	Ø560 (Ø22.05)	-	314 (12.36)	1/2" BSPT	290 (638)
	500 (20)		470 (18.50)	-	696 (27.40)	1914 (75.35)	114 (4.49)	Ø560 (Ø22.05)	-	348 (13.70)	1/2" BSPT	290 (638)
	600 (24)		571 (22.48)	-	822 (32.36)	2102 (82.76)	114 (4.49)	Ø560 (Ø22.05)	-	411 (16.18)	1/2" BSPT	290 (638)
P16	500 (20)	500 x 595 (19.7 x 23.4)	470 (18.50)	-	696 (27.40)	1919 (75.55)	114 (4.49)	Ø626 (Ø24.64)	-	348 (13.70)	1/2" BSPT	385 (847)
	600 (24)		571 (22.48)	-	822 (32.36)	2107 (82.95)	114 (4.49)	Ø626 (Ø24.64)	-	411 (16.18)	1/2" BSPT	385 (847)
P17	450 (18)	300 x 500 (11.8 x 19.7)	425 (16.73)	-	628 (24.72)	1659 (65.31)	89 (3.50)	330 (13.00)	-	314 (12.36)	3/8" BSPT	91 (200)
	600 (24)		470 (18.50)	-	696 (27.40)	1756 (69.13)	114 (4.49)	330 (13.00)	-	348 (13.70)	3/8" BSPT	91 (200)

### NOTES

E = F951 Wafer style

K = F951 Wafer style

E1 = F952 Lugged style

K1 = F952 Lugged style

Dimensions are nominal only.

These valve dimensions apply to F951 and F952 knife gate valves only.

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