

KEYSTONE FIGURE 738 KNIFE GATE VALVES

PNEUMATIC ACTUATOR

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



FEATURES

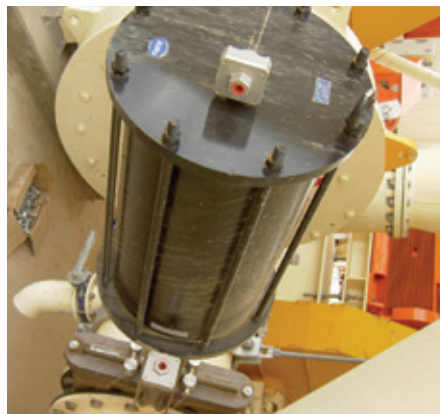
- Suits all linear actuated valves.
- The Keystone F738 pneumatic actuator series is engineered to provide the maximum force output with minimum supply pressure.
- Simplicity and reliability are the fundamental design parameters.
- Rugged yet functional design.
- Operates with or without lubrication.
- 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.

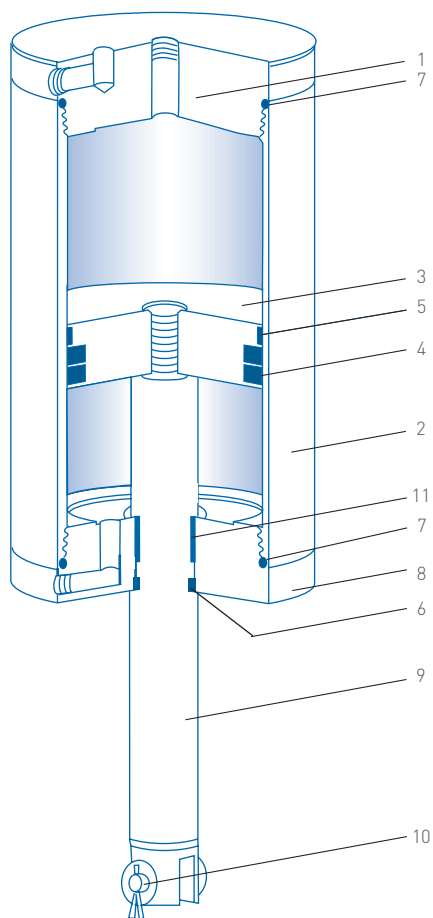
TECHNICAL DATA

Temperature:	Minus 20°C to 80°C
Pressure rating:	P1 - P10 & P17 1000 kPa max rated P11 - P16 700 kPa max rated



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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

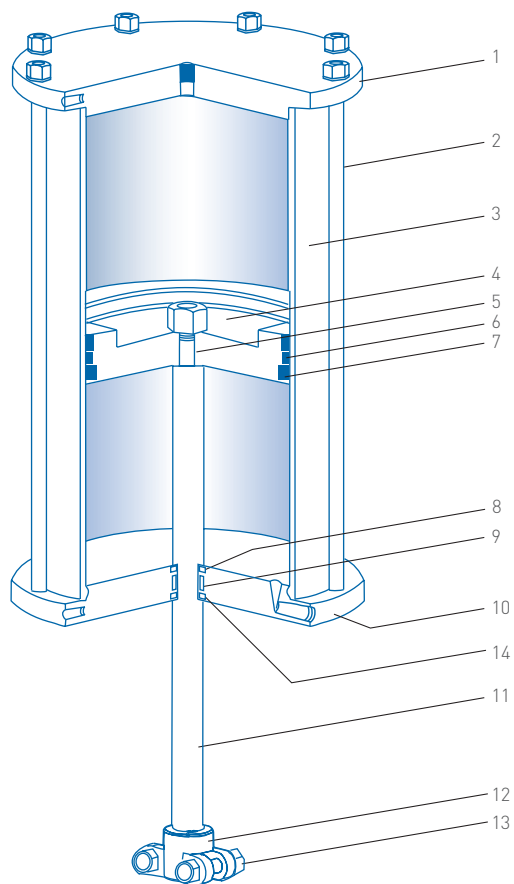
- F791 Solenoids
- Limit switches
- Proximity switches
- F793 Positioners
- F493 Failsafe systems

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



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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

NOTE

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

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ACTUATOR SELECTION CHART - NORMAL SERVICE

Valve size mm	Actuator supply pressure (kPa)	Line pressure differential (kPa)				
		175	350	550	700	1000
50	1000					
	700					
	550					
	415					
65	1000					
	700			P1		
	550					
	415					
80	1000					
	700					
	550					
	415					P2
100	1000					
	700					
	550					P2
	415					
125	1000					
	700			P3		
	550					
	415					P4
150	1000					
	700					
	550					
	415					P4
200	1000					
	700					
	550			P4		
	451					P5
250	1000					
	700					
	550			P6		
	415					
300	1000					
	700					
	550					
	415					P7
350	1000					
	700			P7		
	550					
	415					P8
400	1000					
	700					
	550			P9		
	415					P10
450	700					
	550					
	415					P13
	700					
500	550			P17		
	415					
	700					
	550					
600	700					
	550			P13		
	415					P15
	550					

SEVERE SERVICE +

Line pressure differential (kPa)			
350	550	700	1000
	P1		P2
			P2
			P2
			P2
	P3		P4
	P4		P5
P3		P4	P5
			P5
P4		P5	
	P6		P7
	P7		P8
P6		P7	P8
	P7		P8
		P8	P11
	P7		P7
			P8
		P8	P11
			P10
P9		P10	P11
			P12
			P13
P17		P13	P14
	P13	P14	P15
P17		P13	P14
	P13	P13	P15
			P16
P13		P14	P15
	P14	P15	P16
	P15	P16	-

† SEVERE SERVICE INCLUDES:

- All pulp & paper stock
- Heavy slurries
- Polyurethane trim valves eg. F951 or F952 urethane

NOTE:

When selecting an actuator for a polyurethane lined valve (Trim No. 188, 193), refer to the severe service chart only.

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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.

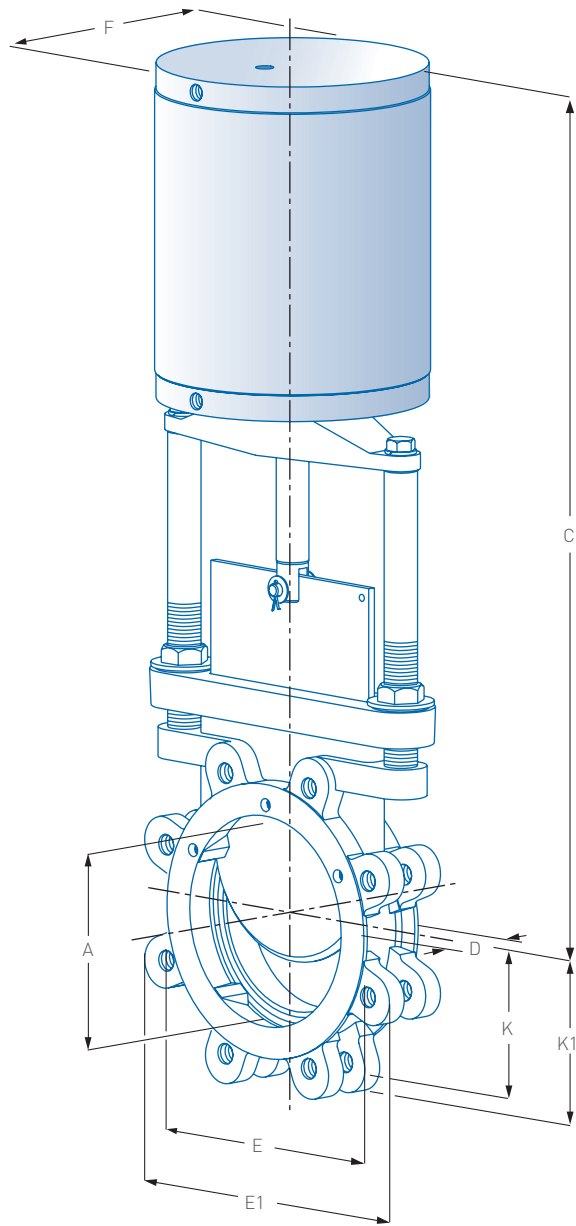
Where possible, the cylinder actuated valves should be mounted in the vertical position with the cylinder uppermost to prevent gate misalignment and possible structural damage to the valve assembly.

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 (400mm bore x 600 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, Pentair recommend the use of purpose built guards and shrouds. Refer to the Pentair data sheet or consult factory for details. Contact Pentair Valves & Controls for advice or assistance.



NOTE
DN 150 F952 valve illustrated.

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DIMENSIONS (mm)

Actuator number	Valve size	Description bore x stroke	A	E	E1	C	D	F	K	K1	Port size	Act. mass (kg)
P1	50	F738 80 x 120	50	159	159	408	49	Ø89	46	79	1/8" BSPT	2.2
	65		65	172	177	434	49	Ø89	54	89	1/8" BSPT	2.2
	80		80	190	192	467	52	Ø89	64	96	1/8" BSPT	2.2
	100		100	210	222	502	52	Ø89	79	105	1/8" BSPT	2.2
P2	50	F738 100 x 120	50	159	159	408	49	Ø110	46	79	1/8" BSPT	2.9
	65		65	172	177	434	49	Ø110	54	89	1/8" BSPT	2.9
	80		80	190	192	467	52	Ø110	64	96	1/8" BSPT	2.9
	100		100	210	222	502	52	Ø110	79	105	1/8" BSPT	2.9
P3	125	F738 100 x 176	125	254	256	621	58	Ø110	93	128	1/8" BSPT	3.9
	150		150	285	285	655	58	Ø110	106	141	1/8" BSPT	3.9
P4	125	F738 140 x 233	125	254	256	696	58	Ø150	93	128	1/4" BSPT	7.2
	150		150	285	285	730	58	Ø150	106	141	1/4" BSPT	7.2
	200		200	338	340	845	71	Ø150	135	170	1/4" BSPT	7.2
P5	125	F738 200 x 233	125	254	256	709	58	Ø210	93	130	1/4" BSPT	14
	150		150	285	285	743	58	Ø210	106	141	1/4" BSPT	14
	200		200	338	340	858	71	Ø210	135	170	1/4" BSPT	14
P6	250	F738 200 x 321	250	326	406	1062	71	Ø210	163	203	1/4" BSPT	17
	300		300	418	474	1161	76	Ø210	190	237	3/8" BSPT	17
P7	250	F738 250 x 351	250	326	406	1139	71	276	163	203	3/8" BSPT	63
	300		300	418	474	1238	76	276	190	237	3/8" BSPT	63
	350		330	458	520	1283	76	276	N/A	260	3/8" BSPT	63
P8	250	F738 300 x 351	250	326	406	1120	71	330	163	203	3/8" BSPT	85
	300		300	418	474	1219	76	330	190	237	3/8" BSPT	85
	350		330	N/A	520	1275	76	330	N/A	260	3/8" BSPT	85
P9	400	F738 250 x 401	378	N/A	584	1430	89	276	N/A	292	3/8" BSPT	64
P10	400	F738 300 x 401	378	N/A	584	1412	89	330	N/A	292	3/8" BSPT	87
P11	300	F738 350 x 401	300	418	474	1352	76	Ø448	190	237	1/2" BSPT	150
	350		330	N/A	520	1408	76	Ø448	N/A	260	1/2" BSPT	150
	400		378	N/A	584	1495	89	Ø448	N/A	292	1/2" BSPT	150
P12	400	F738 400 x 401	378	N/A	584	1495	89	Ø505	N/A	292	1/2" BSPT	197
P13	450	F738 350 x 595	425	N/A	628	1808	89	Ø448	N/A	314	1/2" BSPT	160
	500		470	N/A	696	1905	114	Ø448	N/A	248	1/2" BSPT	160
	600		571	N/A	822	2093	114	Ø448	N/A	411	1/2" BSPT	160
P14	450	F738 400 x 595	425	N/A	628	1808	89	Ø505	N/A	314	1/2" BSPT	207
	500		470	N/A	696	1905	114	Ø505	N/A	348	1/2" BSPT	207
	600		571	N/A	822	2093	114	Ø505	N/A	411	1/2" BSPT	207
P15	450	F738 450 x 595	425	N/A	628	1817	89	Ø560	N/A	314	1/2" BSPT	290
	500		470	N/A	696	1914	114	Ø560	N/A	348	1/2" BSPT	290
	600		571	N/A	822	2102	114	Ø560	N/A	411	1/2" BSPT	290
P16	500	F738 500 x 595	470	N/A	696	1919	114	Ø626	N/A	348	1/2" BSPT	385
	600		571	N/A	822	2107	114	Ø626	N/A	411	1/2" BSPT	385
P17	450	F738 300 x 500	425	N/A	628	1659	89	330	N/A	314	3/8" BSPT	91
	600		470	N/A	696	1756	114	330	N/A	348	3/8" BSPT	91

NOTE:

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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