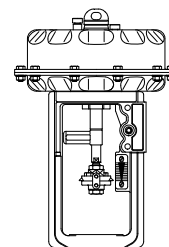


Technical Data Sheet

pneum. Multi-Spring-Actuator



TD_812

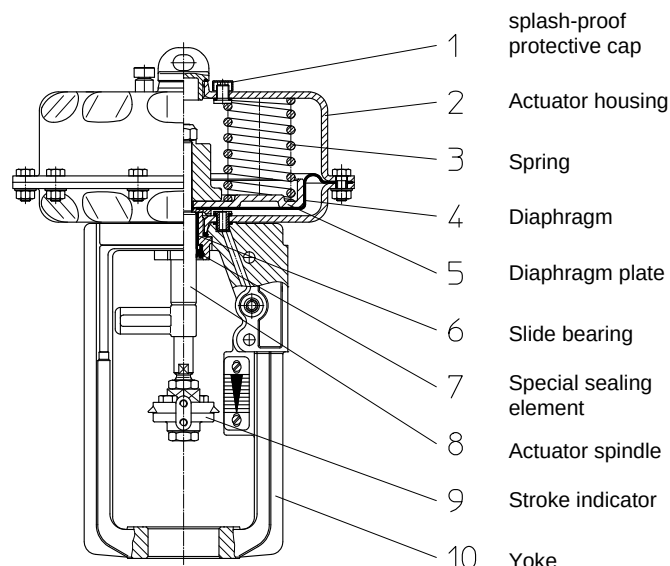
Technical Data

Series	812
Diaphragm effective area	320 / 720 cm ²
Stroke	20-60 mm
Control signal	6 bar max.
Materials	Diaphragm- and spring chamber: Steel ST W 22, 1.0332 (Optional: stainless steel 1.4301) Diaphragm plate: St W 22 chromitized Yoke: GGG-40, 0.7040 Spindle: 1.4122 Springs: 1.1230 plastic-covered Diaphragm: NBR, fabric-reinforced (moulded) Gasket: high-quality, special polyurethane
Spring chamber	Optionally with air scavenging
Operating temperature	-20 to +80°C (Option -40 to + 80°C)
No. of springs	3-12
Control force spring max.	4,8 - 16 kN
Control force air max.	14,4 - 32,4 kN

Functional description

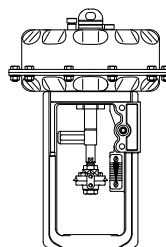
The ARCAPAQ® is a pneumatic multi-spring diaphragm actuator with spring return (fail safe) and is used to actuate linear valves. The actuator positions the valve plug, which in turn is controlled by a pneumatic or electro-pneumatic positioner. These actuators can be operated in the "Air to open" function or with the reverse action "Air to close".

- The actuator has a compact design with a low installed height. Various spring sets with different ranges ensure good adaptation to the relevant operating conditions.
- A fabric-reinforced diaphragm ensures smooth conversion of the pneumatic application of pressure into the linear motion of the actuator spindle. The power diaphragm (4), supported by the diaphragm disc (5), is connected to the actuator spindle (8) and separates the actuator housing (2) into pressure and spring chambers. If the force of the compressed air control signal exceeds the opposing spring force (3), the actuator spindle (8) moves and actuates the linear valve.
- The control signal is carried to the diaphragm chamber via internal channels in the yoke (10). The air supply and venting (ventilation) of the spring chamber is carried out by means of the protective cap (1), which is impermeable to splash water, or the chamber is purged through internal channels with the air from the positioner.
- The yoke (10) connects the actuator to the control valve, while the actuator spindle (8) is connected to the valve spindle via the coupling shown as a stroke indicator (9), securely guided in the slide bearing (6) and sealed with a special sealing element (7) with wiper.



Technical Data Sheet

pneum. Multi-Spring Actuator



TD_812

Control forces and control ranges

Opening function (air to open - spring to close)

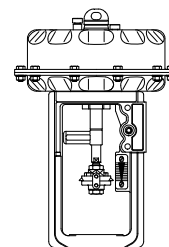
Size	Diaphragm surface (cm ²)	Type	No. of springs	Stroke (mm)	Control range		Control force (kN)	Force diagram (page 4)
					from (bar)	to (bar)		
MFI-20	320	812-213.. 812-223..	3	20	0,75	1,5	2,4	IA
			6		1,5	3,0	4,8	
MFI-20(v)		812-224..	3		1,0	1,5	3,2	IB
			6		2,0	3,0	6,4	
			7		2,3	3,5	7,4	
MFI-30		812-234..	3	30	0,75	1,5	2,4	II
			6		1,5	3,0	4,8	
MFIII-30	812-334..	3	0,7		1,5	5	III	
		6	1,5		3,0	10		
		9	1,8		3,7	13		
		12	2,2		4,4	16		
MFIII-60	812-346..	3	60	0,7	1,5	5	IV	
		6		1,4	3,0	10		
		9		1,7	3,6	12		
		12		2,0	4,3	14		

Closing function (air to close - spring to open)

Closing function (air to close, spring to open)										
Size	Diaphragm surface (cm²)	Type	No. of springs	Stroke (mm)	Control pressure min. bar	Control force (kN) depending on control pressure				
						2,0 bar	3,0 bar	4,0 bar	5,0 bar	6,0 bar
MFI-20	320	812-213.. 812-223..	3	20	1,5	1,6	4,8	8,0	11,2	14,4
			6		3,0	-	-	3,2	6,4	9,6
MFI-20(v)		812-224..	3		1,5	-	4,8	8,0	11,2	14,4
			6		3,0	-	-	3,2	6,4	9,6
			7		3,5	-	-	1,6	4,8	8,0
MFI-30		812-234..	3		30	1,5	1,6	4,8	8,0	11,2
			6	3,0		-	-	3,2	6,4	9,6
MFIII-30	812-334..	3	1,5	3,6		10,8	18	25,2	32,4	
		6	3,0	-		-	7,2	14,4	21,6	
		9	3,7	-		-	2,2	9,4	16,6	
		12	4,4	-		-	-	4,3	11,5	
MFIII-60	812-346..	3	60	1,5	3,6	10,8	18	25,2	32,4	
		6		3,0	-	-	7,2	14,4	21,6	
		9		3,6	-	-	2,9	10,1	17,3	
		12		4,3	-	-	-	5,0	12,2	

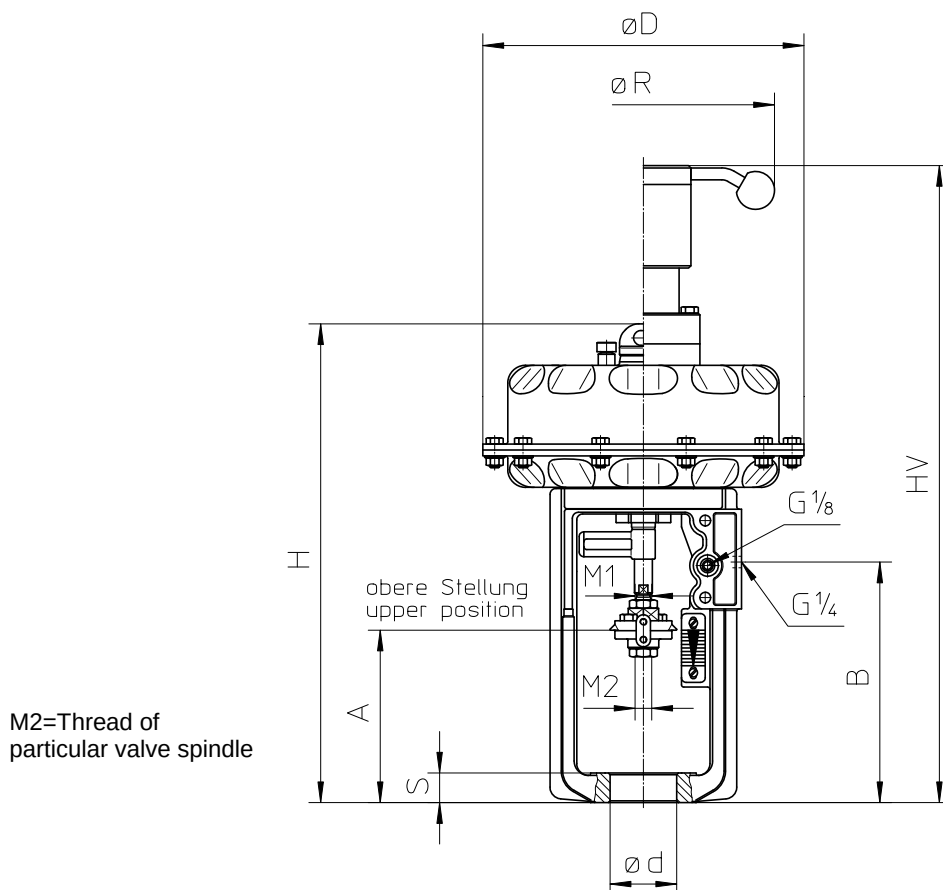
Technical Data Sheet

pneum. Multi-Spring Actuator



TD_812

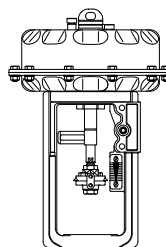
Dimensions and weights



Size	Diaphragm surface (cm²)	Type	Weight	No. of springs	Stroke (mm)	Ø D (mm)	M1 actuator	Ø d (mm)	S (mm)	A (mm)	B (mm)	H (mm)	HV (mm)	Ø R (mm)																													
MFI-20	320	812-213..	14	3	20	270	14	40	20	120	180	361	508	220																													
				6																																							
		812-223..		3				48																																			
MFI-20(v)		812-224..	15	3	20			400				20x1,5	56		25	142	251	489	651	335																							
				6																																							
				7																																							
MFI-30	720	812-234..	16	3	30	20x1,5	72		30	192	309			625			888																										
				6																																							
MFIII-30		812-334..	40	3				60				400	20x1,5		72	30			192	309	625	888																					
				6																																							
				9																																							
		812-346..	45	3	60																			400	20x1,5	72	30	192	309	625	888												
				6																																							
				9																																							
MFIII-60		812-346..	47	12				60																									400	20x1,5	72	30	192	309	625	888			

Technical Data Sheet

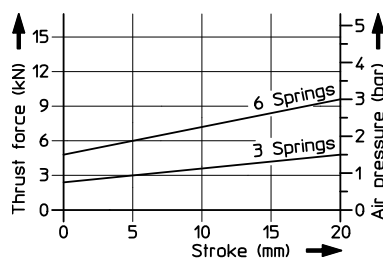
pneum. Multi-Spring Actuator



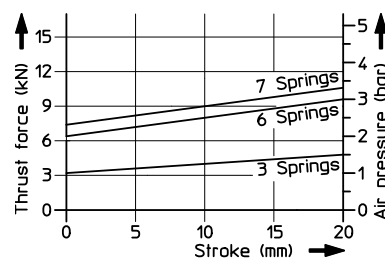
TD_812

Force diagram

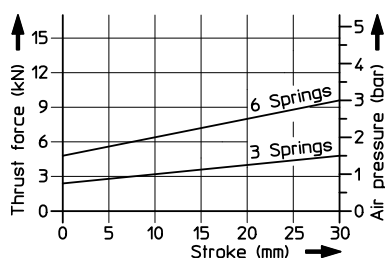
IA MFI-20



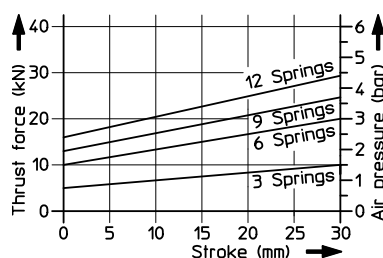
IB MFI-20(v)



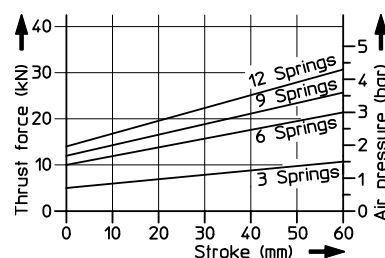
II MFI-30



III MFIII-30



IV MFIII-60



Type code

812 -2 2 3 3 2- O B 0 -HV

Series

Actuator size

2 MFI diaphragm surface 320 cm²

3 MFIII diaphragm surface 720 cm²

Yoke (ø = adapter in mm)

0 1 2 3 4 5 6 9
w/o ø40 ø48 ø56 ø72 ø40-8C ø48-8C special

Stroke

1 2 3 4 5 6
10 mm 15 mm 20 mm 30 mm 45 mm 60 mm

Spring set

3=3 springs 6(7)=6(7) springs 9=9 springs 0=12 springs

Material of diaphragm chamber

2 = Steel StW22 3 = Stainless steel

Function

O = springs move the spindle downwards (air to open)

S = springs move the spindle upwards (air to close)

Execution

B or E*

Extra equipment

0 1 2 3 4 5
None Stroke limitation Lifting eye 1+2 Low temperature design Air connection 1/2"

Handwheel

* Exec. B: Reversible, w/o spring chamber purge; Exec. E: Reversible, with integrated spring chamber purge.