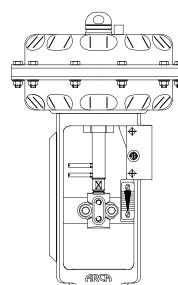


Technical Data Sheet

pneum. Piston Actuator



TD_812-DWK

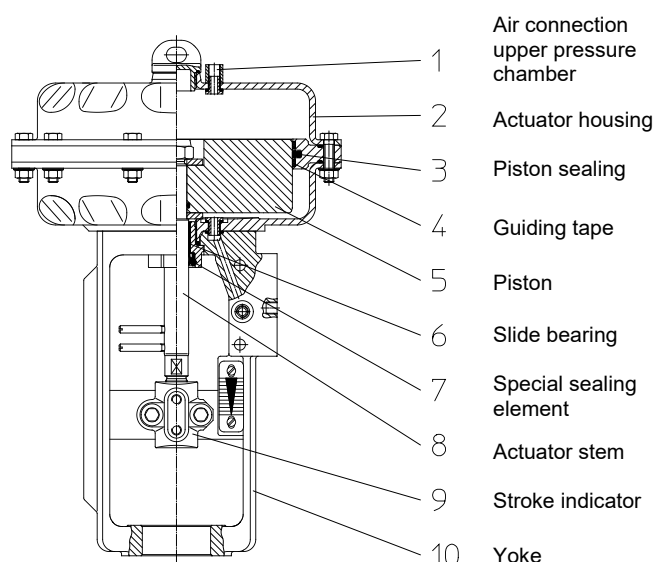
General Data

Series	812-DWK
Piston-Ø /diaphragm effective area	190 mm / 284 cm ²
Stroke	20-30 mm
Control signal	6 bar max.
Materials	Steel ST W 22, 1.0332 powder coated (option: stainless steel 1.4301) Intermediate ring Aluminium 3.2315 anodised (option: stainless steel 1.4301) Yoke 1.6220 (option: stainless steel 1.4308) Stem: 1.4122 (option: stainless steel 1.4462) Springs: 1.1230 plastic-coated Piston: 3.2315 hard coated Sealing element: high-quality, special polyurethane
Piston sealing	PTFE/glass fibre, life loaded by O-Ring
Operating temperature	-20°C to +80°C (option: -40°C to + 80°C)
No. of springs	Standard: w/o spring, optional: safety position „closed“ with 3 or 6 springs
Air connections	G ¹ / ₈
Control force spring max.	6,3 kN at 20 mm stroke
Control force air max.	16 kN at 6 bar

Functional description

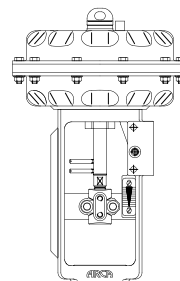
The ARCADRIVE 812-DWK is a double acting pneumatic piston actuator and is used to actuate linear valves. The actuator positions the valve plug in dependence of the signal pressure on the top and bottom side of the piston, which in turn is controlled by a double acting pneumatic or electro-pneumatic positioner. Optionally, a fail position "valve closed" can be maintained by built-in springs.

- The actuator has a compact design with a low installed height. The double acting operation mode in combination with the optionally available spring sets ensures a good adaptation to the particular operating conditions and safety requirements.
- A hard coated aluminium piston (5) is connected to the actuator stem (8) and divides the actuator housing (2) into two independent pressure chambers. The piston seal (3), made of extremely low friction PTFE-compound and energized by an O-ring, guarantees a reliable tight separation between both pressure chambers. As soon as a differential pressure between both pressure chambers arises, the piston (5) with the actuator stem (8) starts to move and actuates the linear valve.
- The signal pressure to the bottom actuator chamber is routed via internal channels in the yoke (10); the upper actuator chamber is pressurized via external tubing.
- The yoke (10) connects the actuator to the control valve. The actuator stem (8) is connected to the valve stem via the coupling (9), which also acts as a stroke indicator, and is securely guided in the slide bearing (6) and sealed with a special sealing element (7) with wiper ring.



Technical Data Sheet

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TD_812-DWK

Control forces and control ranges

Actuator double-acting w/o springs

Size	Dia-phragm surface (cm²)	Stroke (mm)	Control force in both directions (kN) at control pressure							Force-diagram (page 3)
			3 bar	3,5 bar	4 bar	4,5 bar	5 bar	5,5 bar	6 bar	
812-213 N-DWK..	284	20	7,9	9,2	10,6	12	13,4	14,8	16,2	I
812-223 N-DWK..		20	7,9	9,2	10,6	12	13,4	14,8	16,2	I
812-234 N-DWK..		30	7,9	9,2	10,6	12	13,4	14,8	16,2	II

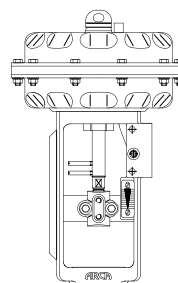
Actuator double-acting with springs (safety position „closed“)

Size	Dia-phragm surface (cm²)	Stroke (mm)	No. of springs	Control force in opening direction (kN) at control pressure					Control force Spring (safety position) (kN)
				4 bar	4,5 bar	5 bar	5,5 bar	6 bar	
812-2133N-DWOK..	284	20	3	6,2	7,6	9,0	10,4	11,8	2,2
812-2136N-DWOK..		20	6	1,8	3,2	4,6	6,0	7,4	5,0
812-2233N-DWOK..		20	3	6,2	7,6	9,0	10,4	11,8	2,2
812-2233N-DWOK..		20	6	1,8	3,2	4,6	6,0	7,4	5,0
812-2343N-DWOK..		30	3	6,2	7,6	9,0	10,4	11,8	1,4
812-2346N-DWOK..		30	6	1,8	3,2	4,6	6,0	7,4	3,4

Size	dia-phragm surface (cm²)	Stroke (mm)	No. of springs	Control force in closed direction (kN) at control pressure					Control force Spring (safety position) (kN)
				4 bar	4,5 bar	5 bar	5,5 bar	6 bar	
812-2133N-DWOK..	284	20	3	13,4	14,8	16,2	17,6	19,0	2,2
812-2136N-DWOK..		20	6	16,2	17,6	19,0	20,4	21,8	5,0
812-2233N-DWOK..		20	3	13,4	14,8	16,2	17,6	19,0	2,2
812-2233N-DWOK..		20	6	16,2	17,6	19,0	20,4	21,8	5,0
812-2343N-DWOK..		30	3	12,6	14,0	15,4	16,8	18,2	1,4
812-2346N-DWOK..		30	6	14,6	16,0	17,4	18,8	20,2	3,4

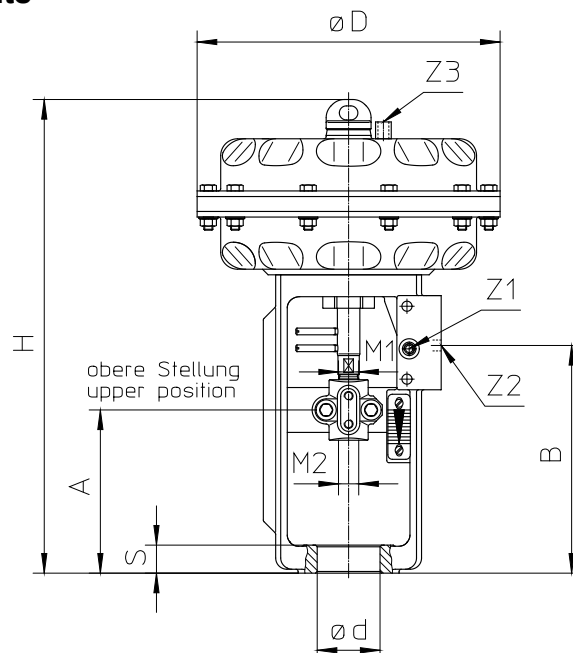
Caution: The actuator forces and spring ranges listed above are for actuator without valve at nominal stroke only

Technical Data Sheet pneum. Piston Actuator



**TD_812-
DWK**

Dimensions and weights



Size	Dia- phragm surface (cm ²)	Weight (kg)	Stroke (mm)	Ø D (mm)	M1 actuator	M2 (valve stem)	Ø d (mm)	S (mm)	A (mm)	B (mm)	H (mm)	Z1 Z2 Z3
812-213...-DW...	284	17	20	270	M18x1,5	M12	40	20	120	180	403	G $\frac{1}{8}$
812-223...-DW...		17					48					
812-234...-DW...		18	30			M18x1,5	56	25	142	203	426	

Force diagrams

Diagram I: 812-2.3 N-DWK

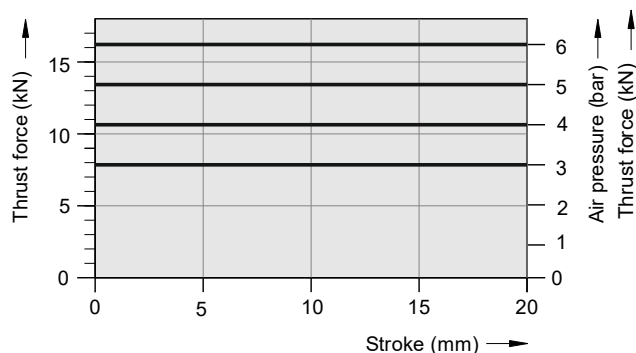
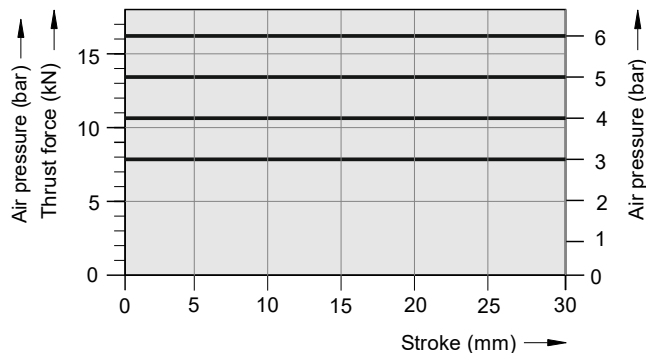
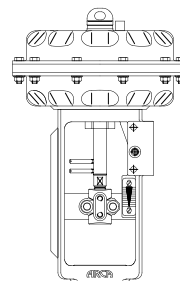


Diagram II: 812-234 N- DWK



Technical Data Sheet

pneum. Piston Actuator



TD_812-DWK

Type code

812 -2 2 3 _ N- DWK 0

Series

Actuator size

2 = MFI (diaphragm surface 284 cm²)

Yoke (ø = adapter in mm)

0	1	2	3
w/o	ø40	ø48	ø56

Stroke

3	4
20 mm	30 mm

Spring set

= w/o spring 3 = 3 springs 6 = 6 springs

Material of diaphragm chamber

N = diaphragm head steel / yoke steel

A = diaphragm head steel / yoke stainless steel

V = diaphragm head stainless steel / yoke stainless steel

Function

DWK = double-acting

DWOK = double-acting with safety position „closed“

Extra equipment

0 = w/o

4 = low temperature (-40° C)

6 = screws stainless steel (for actuator with spring 3 long screws to relieve the springs)

SD = stem 1.4462 (Duplex)

AP = outer parts in stainless steel passivated