



DIAPHRAGM MULTI-SPRING PNEUMATIC ACTUATORS TYPE P1/R1

APPLICATION AREA

The multi-spring diaphragm pneumatic actuators of P1/R1 type are applied for control operation of control valves and other positioning elements in industrial automatic systems.

There are three design options of the actuators:

- | | |
|--|-------------|
| - direct action (air - advances the stem) | - type P1, |
| - reverse action (air - retracts the stem) | - type R1, |
| - direct action, handwheel | - type P1B, |
| - reverse action, handwheel | - type R1B |

FEATURES

- completely reversible action, option to change spring range w/o extra parts,
- rigid structure of cast yoke,
- wide range of available forces,
- linear dependence of stem movement from control pressure, due to application of diaphragms with constant effective area,
- various spring ranges achieved by changing the number of springs and/or changing position of spacer elements,
- capability of the actuator to incorporate side-mounted handwheel, pneumatic or electro-pneumatic positioners, limit switches, air sets, three-way pneumatic solenoid valves, lockup valves, position transducers,
- high strength of diaphragms, springs and packings,
- low weights and small overall dimensions.



TECHNICAL PARAMETERS

- | | | |
|-------------------------|--|--------------|
| - input signal range: | 20...100 kPa; 40...120 kPa; 60...140 kPa | - 3 springs |
| | 40...200 kPa; 80...240 kPa; 120...280 kPa | - 6 springs |
| | 180...380 kPa | - 12 springs |
| | Doubled number of springs (TANDEM version) for the 3000 actuator | |
| - max. supply pressure: | 400 kPa (450 kPa for the range 180...380 kPa) | |
| - working temperature: | - 40...+80°C | |
| - relative humidity: | max. 98% | |

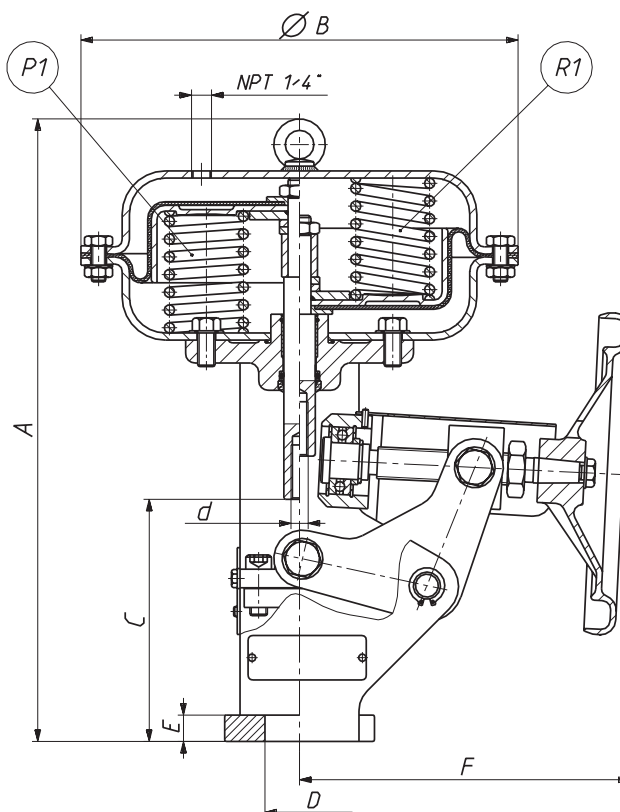
Diaphragm effective area	Stroke	Spring range
[cm ²]	[mm]	[kPa]
400	20	1...6
630	20; 38	1...7
1000	38; 50; 63	
1500	38; 50; 63; 80; 100	
3000	50; 63; 80; 100	

37-700 Przemysł, 23 Obozowa St.
tel. +48 16 678 66 01, fax +48 16 678 65 24
marketing@polna.com.pl, www.polna.com.pl

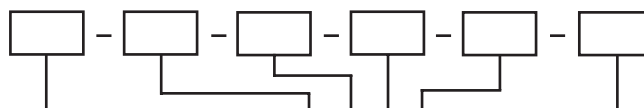
DIMENSIONS AND WEIGHTS

Actuator size	A	B	C		D	E	F	d
			P1; P1B	R1; R1B				
	[mm]							
400	453	305	127	100	57,15	17,7	255	M12x1,25
630	548	375	127	107		17,7	280	M12x1,25 M16x1,5
					84,15	22,5		
1000	773	477	153	90	57,15	17,7	340	M12x1,25 M16x1,5 M20x1,5
					84,15; 95,25	22,5		
1500	833	550	184	102	57,15	17,7	410	M12x1,25 M16x1,5 M20x1,5 M24x1,5
					84,15; 95,25	22,5		
3000	1138	550			84,15; 95,25			

Actuator size	Weight	
	P1; R1	P1B; R1B
	[kg]	
400	20	28
630	40	50
1000	85	105
1500	120	150
3000	225	255



PRODUCT CODE



Type:

- direct action: **P1**
- reverse action: **R1**
- direct action, with drive: **P1B**
- reverse action, with drive: **R1B**

Size:

400
630
1000
1500
3000

Stroke [mm]:

20
38
50
63
80
100

Connection thread:

M12x1,25 **12**
M16x1,5 **16**
M20x1,5 **20**

Spud diameter [mm]:

57,15 **57**
84,15 **84**
95,25 **95**

Spring range

[kPa]:
20...100 **1**
40...200 **2**
40...120 **3**
80...240 **4**
60...140 **5**
120...280 **6**
180...380 **7**

Example of the product code:

The pneumatic actuator of reverse action, with handwheel, size – 400, stroke 20 mm, spring range 40...200 kPa, with yoke Ø 57,15, and connection thread M12x1,25:

R1B - 400 - 20 - 2 - 57 - 12.