

## Application

The single-acting, pneumatic actuators of series P/R are used for operating valves with linear movement in industrial automated systems and equipment.

## Versions

P	NO, spring open (stem retract)
PN	inclusive top-mounted handwheel
R	NC, spring close (stem extends)
RN	inclusive top-mounted handwheel



## Features

- » Temperature range -30°C up to +80°C (Buna-N® [NBR] with polyester fabric)
- » Low temperature version -40°C possible (Silicon diaphragm)
- » Optimal certification/confirmaton according to ATEX 94/9/EC (2014/34/EU), GOST-R (TR) and SIL3 according to IEC 61508 (SIL2 > 5 years)

## Design and technical Specification

Actuator Sizes:	250; 400; 630; 1000; 1500 cm <sup>2</sup>
Supply Pressure:	max. 6,0 bar
Connection:	1/4" NPT; 1/2" NPT
Pipe Diameter:	Ø 6x1; Ø 8x1; Ø 10x1; Ø 12x1

Table 1 Actuator forces FS [kN]

Size [cm <sup>2</sup> ]	max. allowable Supply Pressure [bar]	Type P (NO, Stem retract) Supply Pressure [bar]			Type R (NC, Stem extends) Spring Range [bar]					
		1,4	2,5	4,0	0,2...1,0	0,4...1,2	0,4...2,0	0,6...1,4	0,8...2,4	1,2...2,8
250	6,0	1,0	3,8	7,5	0,5	1,0	1,5	2,0	3,0	-
400		1,6	6,0	12	0,8	1,6	2,4	3,2	4,8	-
630		2,5	9,5	18,9	1,3	2,5	3,8	5,0	7,6	11,3
R-630T	5,0	-	-	-	2,6	5,0	7,6	10	15,2	22,6
1000		4,0	15	30	2,0	4,0	6,0	8,0	12	18
1500		6,0	22,5	45	3,0	6,0	9,0	12	18	27
1500T		12	45	90	6,0	12	18	24	36	54

Table 2 Features

Size [cm <sup>2</sup> ]	Diaphragm eff. area [cm <sup>2</sup> ]	Stroke [mm]	Spring Range [bar]			Supply Pressure max. [bar]	Revolutions per stroke (P/R-N)
			3 Springs	6 Springs	12 Springs		
250	250	20	0,2...1,0	0,4...2,0	-	6,0	5
400	400						
630	630	20; 38	0,4...1,2	0,8...2,4	-	5,0	5; 9
R-630T	2 x 630						
1000	1000	38; 50; 63	0,6...1,4	1,2...2,8	1,2...2,8	5,0	8; 10; 13; 16; 20
1500	1500	38; 50; 63; 80; 100					
1500T	2 x 1500	50; 63; 80; 100					

Table 3 Actuator Volume

Size [cm <sup>2</sup> ]	Initial Volume [cm <sup>3</sup> ]	Final Volume [cm <sup>3</sup> ] at stroke					
		20 [mm]	38 [mm]	50 [mm]	63 [mm]	80 [mm]	100 [mm]
250	830	1130	-	-	-	-	-
400	1500	2300	-	-	-	-	-
630	3480	4740	5870	-	-	-	-
1000	5720	-	9520	10220	12020	-	-
1500	7900	-	13600	15400	17350	19900	22900

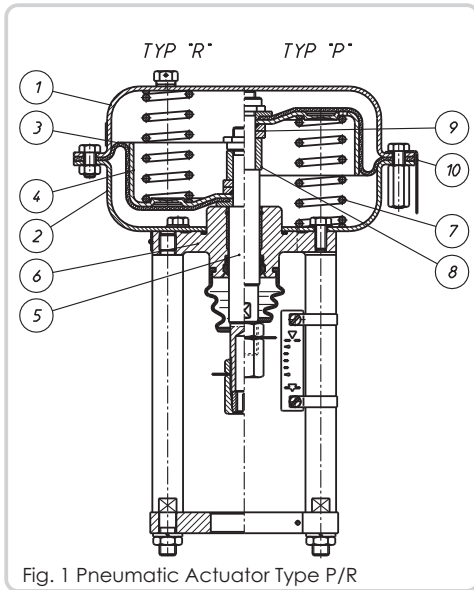


Fig. 1 Pneumatic Actuator Type P/R

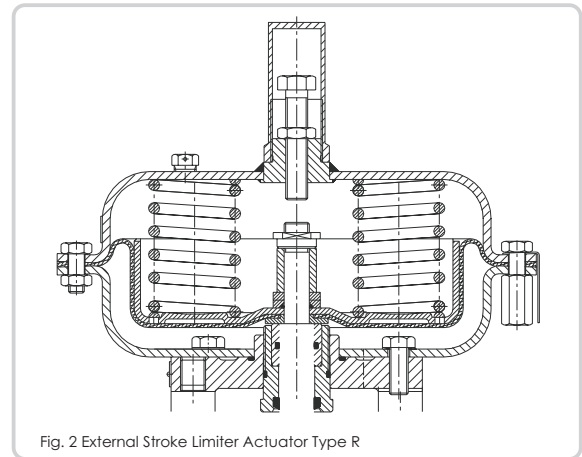


Fig. 2 External Stroke Limiter Actuator Type R

**Actuator Chamber (1; 2); Diaphragm (3); Diaphragm Plate(4); Stem (5); Bearing and Connection Block (6); Spring (7); Distance Bushing (8); Distance Spacer (9); Warning Label (10)**

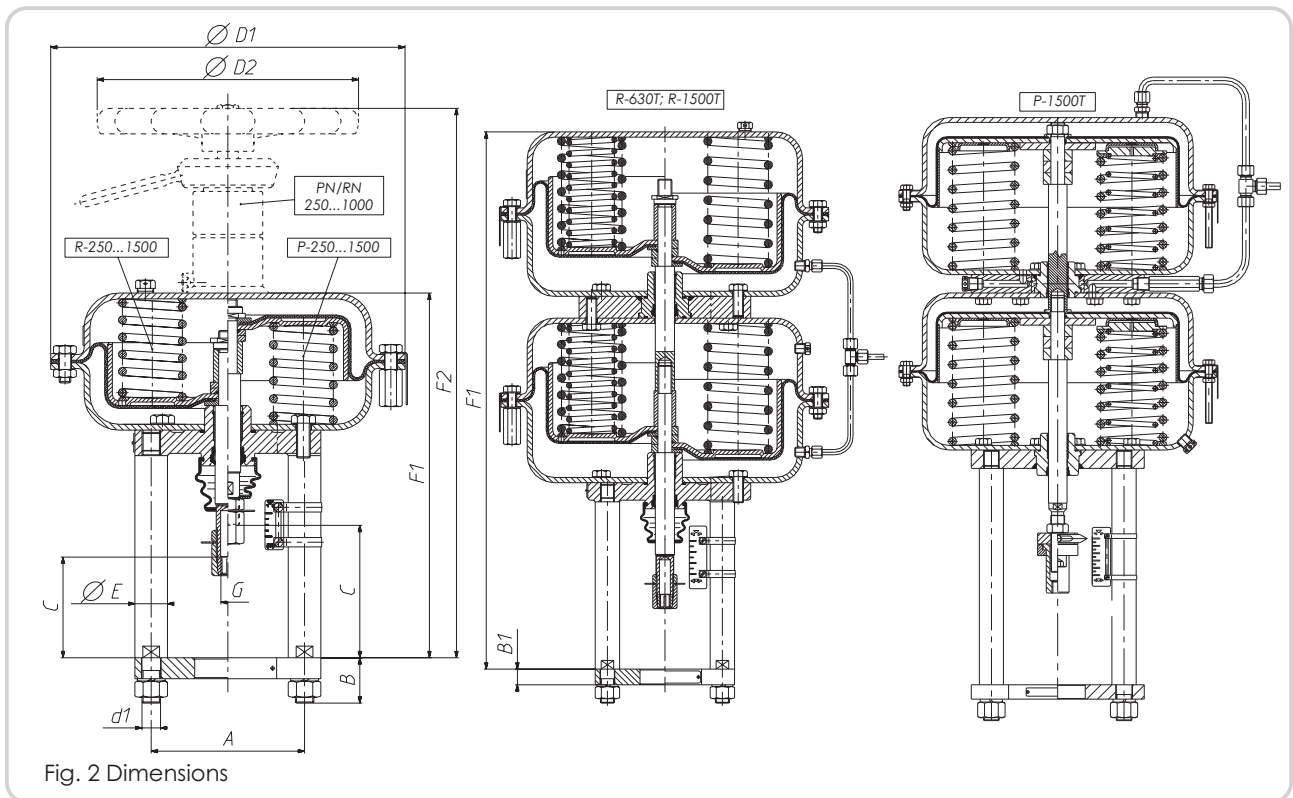


Fig. 2 Dimensions

Table 4 Dimensions [mm] & Weight [kg]

Size [cm <sup>2</sup> ]	A	B	B1	C		D1	D2	d1	E	F1	F2	G	Weight [kg]	
				P; PN	R; RN								P; R	PN; RN
250	110	31	18	112	86	240	225	M12	22	306	468	M12x1,25	10	14,5
400	132	39	20	116		305	305	M16	28	312	474		16	20,5
630			134	375		-	402			564	30		37	
R-630T	216	50	22	-	477	450	M24	42	585	825	M16x1,5	74	100	
1000			18	107	84	550	-		M27	42	679	-	M16; M20; M24x1,5	95
1500	230	62	22	103	80									
			25	100	77									
1500T	230	62	18	107	84									
			22	103	80									
			25	100	77				983			200		

## Application

The single-acting, pneumatic actuators of series P1/R1 are used for operating valves with linear movement in industrial automated systems and equipment.

## Versions

- P1 NO, spring open (stem retract)  
P1B inclusive side-mounted handwheel
- R1 NC, spring close (stem extends)  
R1B inclusive side-mounted handwheel

## Features

- » Temperature range -30°C up to +80°C (Buna-N® [NBR] with polyester fabric)
- » Low temperature version -40°C possible (Silicon diaphragm)
- » Optimal certification/confirmaton according to ATEX 94/9/EC (2014/34/EU), GOST-R (TR) and SIL3 according to IEC 61508 (SIL2 > 5 years)



## Design and technical Specification

Actuator Sizes: 250; 400; 630; 1000; 1500 cm<sup>2</sup>  
Supply Pressure: max. 6,0 bar  
Connection: 1/4" NPT; 1/2" NPT  
Pipe Diameter: Ø 6x1; Ø 8x1; Ø 10x1; Ø 12x1

Table 1 Actuator forces FS [kN]

Size [cm <sup>2</sup> ]	max. allowable Supply Pressure [bar]	Type P1 (NO, Stem retract) Supply Pressure [bar]			Type R1 (NC, Stem extends) Spring Range [bar]					
		1,4	2,5	4,0	0,2...1,0	0,4...1,2 0,4...2,0	0,6...1,4	0,8...2,4	1,2...2,8	1,8...3,8
400	6,0	1,6	6,0	12	0,8	1,6	2,4	3,2	4,8	-
630	6,0	2,5	9,5	18,9	1,3	2,5	3,8	5,0	7,6	11,3
1000	5,0	4,0	15	30	2,0	4,0	6,0	8,0	12	18
1500	5,0	6,0	22,5	45	3,0	6,0	9,0	12	18	27
1500T	5,0	12	45	90	6,0	12	18	24	36	54

Table 2 Features

Size [cm <sup>2</sup> ]	Diaphragm eff. area [cm <sup>2</sup> ]	Stroke [mm]	Spring Range [bar]			Supply Pressure max. [bar]	Revolutions per stroke (P1/R1-B)
			3 Springs	6 Springs	12 Springs		
400	400	20	0,2...1,0	0,4...2,0	-	6,0	5
630	630	20; 38					5; 9
1000	1000	38; 50; 63	0,4...1,2	0,8...2,4	1,8...3,8	5,0	8; 10; 13; 16; 20
1500	1500	38; 50; 63; 80; 100					
1500T	2 x 1500	50; 63; 80; 100	0,6...1,4	1,2...2,8			

Table 3 Actuator Volume

Size [cm <sup>2</sup> ]	Initial Volume [cm <sup>3</sup> ]	Final Volume [cm <sup>3</sup> ] at stroke					
		20 [mm]	38 [mm]	50 [mm]	63 [mm]	80 [mm]	100 [mm]
400	1500	2300	-	-	-	-	-
630	3480	4740	5870	-	-	-	-
1000	5720	-	9520	10220	12020	-	-
1500	7900	-	13600	15400	17350	19900	22900

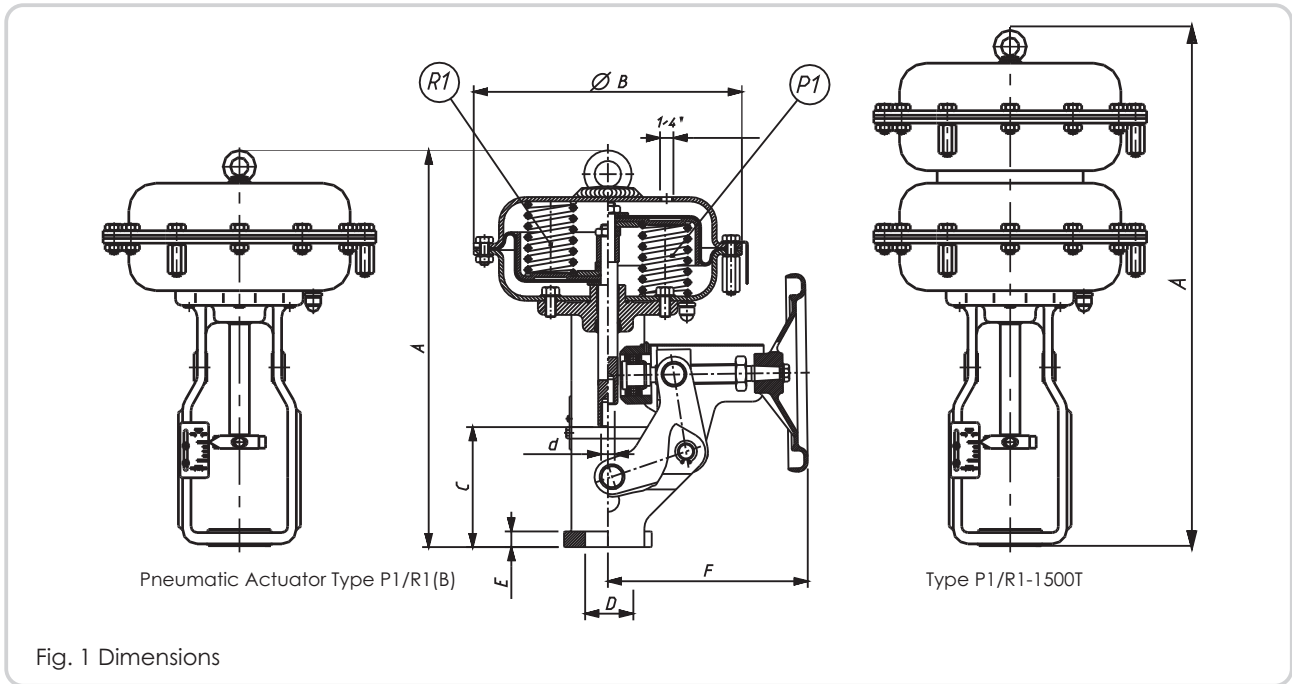


Fig. 1 Dimensions

Table 4 Dimensions [mm] & Weight [kg]

Size [cm <sup>2</sup> ]	A	B	C		D	E	F	d	Weight [kg]	
			P1; P1B	R1; R1B					P1; R1	P1B; R1B
400	453	305	127	100	57,15	17,7	255	M12x1,25	20	28
630	548	375		107	84,15	22,5	280	M12x1,25 M16x1,5	40	50
1000	773	477	153	90	57,15	17,7	340	M12x1,25 M16x1,5 M20x1,5	85	105
1500	833	550	184	102	84,15	22,5		410	M12x1,25 M16x1,5 M20x1,5	120
1500T	1138	550			84,15 95,25		84,15 95,25		M24x1,5	225

## MANUAL ACTUATOR TYPE 20

Table 14 Dimensions & Weight

Type	Stroke [mm]	d <sub>1</sub>	d <sub>2</sub>	H	D	Revolutions per stroke	Weight [kg]
20-20-57-M12	20	M12x1,25	57,15	265	228	8	7,5
20-20-84-M12			84,15				
20-38-57-M16	38	M16x1,25	57,15	385	298	15	10
20-38-84-M16			84,15				
20-38-95-M16			95,25				
20-50-84-M20	50	M20x1,5	84,15	533	610	16	16
20-50-95-M20			95,25				
20-63-95-M24	63	M24x1,5	95,25	533	610	20	24
20-80-95-M24	80					19	

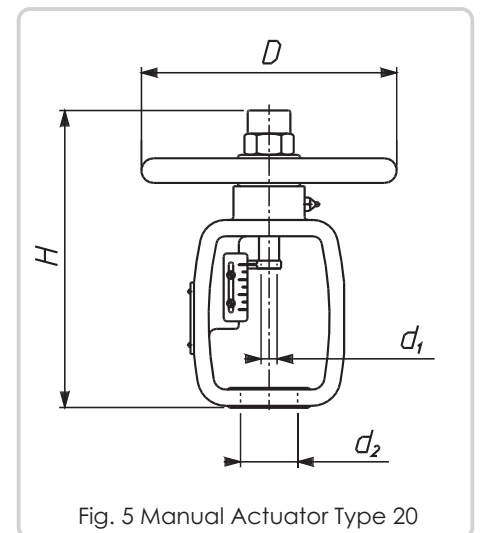


Fig. 5 Manual Actuator Type 20