MA-SERIES

Pneumatic stroke actuator

Diaphragm effective areas
– 70 to 1070 cm²

Shut off forces
– 0,5 to 122 kN

Strokes
– 10 to 140 mm

Allowable airpressure up to 6 bar

Table of contents:

Available on request:

Additional:

Features	Advantages
Heavy-duty type	■ Also adapted for rough operation
Precise stem guide	■ Low wear ■ Long life cycle
Component parts replaceable	■ Low maintenance costs
Modular design	■ Various combinations – 5 actuator sizes – 120 different spring combinations – Numerous strokes realizable – Completely and partly made of stainless steel
Namur pillar yoke	■ Easy mounting of control valves and other parts ■ Easy adaption to all types of valves and other applications
Spring closed (Po) Spring open (Ps) Double acting – Stroke limitations – Handwheels	■ Optimal adjustment to your operating conditions

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Applications

The diaphragm actuators of type series MA are mainly used to operate linear stroking valves. However, applying corresponding gearing systems they are also used for operating rotating valves, as well as for any linear movements in the range of strokes and powers.

Technical data

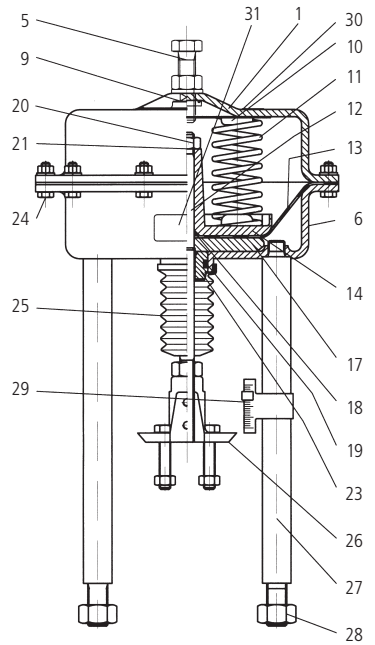
Size	Outside diameter (mm)	Max. shut off force* (kN) Po	Max. shut off force* (kN) Ps	Normal stroke (mm)
16	160	2,8	3,8	16
21	210	5,5	7	16
31	310	11	20	30
41	410	28	42	30
60	600	50	75	60

* normal stroke in position "closed"

- The simple acting actuators of type series MA are reversible
- Double acting is available for all actuator sizes
- All actuators can be provided with handwheel or stroke limitation
- Allowable ambient temperature –30 to +90°C

Materials

MA 16 A, 21 A, 31 A/B



		Material	
Pos.	Description	Standard	Rust resistant
1	Upper case	1.0335	1.4301
5	Stroke limitation	1.4305	
6	Lower case	1.0335	1.4301
9	Vent screw	PVC	
10	Spring centering plate	1.4016	
11	Spring	Spring steel	
12	Stem	1.4305	
13	Diaphragm	NBR	
14	Diaphragm plate	1.0038	1.4301
17	Pressure plate	1.0038	1.4301
18	O-ring	NBR	
19	Stem rings	1.4300	
20	Stem nut	8.8 Zinc coated	A2 – 70
21	Washer	Zinc coated	A2
23	Guiding	1.4301	
24	Rimscrews with nuts and washers	8.8 Zinc coated	A2 – 70
25	Protection bellows	CR	
26	Coupling	1.4308	
27	Pillar	1.0718	1.4305
28	Pillar nut	8 Zinc coated	A2 – 70
29	Stroke scale	1.4301	
30	Name plate	1.4301	

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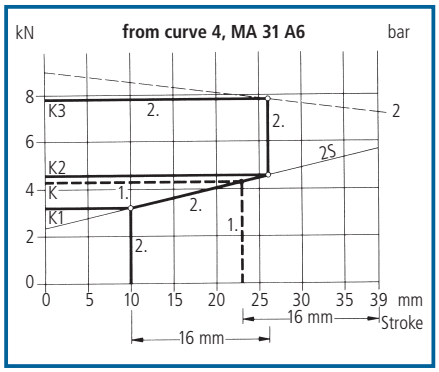
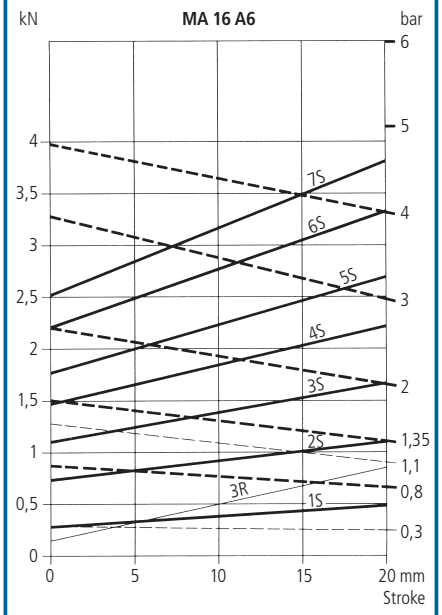
Spring diagrams (in extracts)

Construction

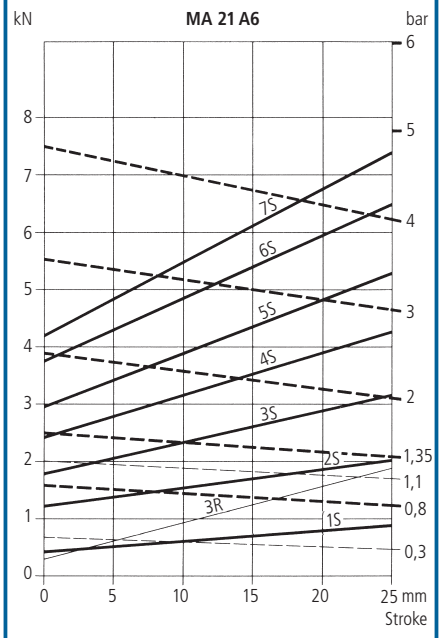
Given: Supply pressure 2 bar, stroke 16 mm
Example 1: Maximum possible power by spring. According to curve K = 4,3 kN.
Example 2: Balance of power by spring and surplus power by supply pressure at the end of the stroke, e.g. three-way valves.
According to curve K1 = 3,2 kN, K2 = 4,6 kN, K3 = 7,8 kN.
Lp = K3 – K2 = 3,2 kN = surplus power by supply pressure.



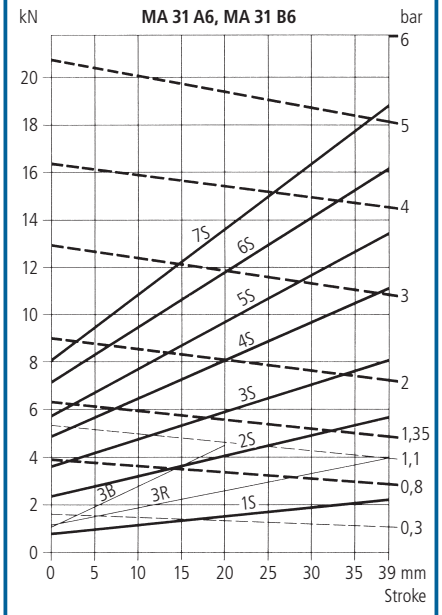
Curve 1



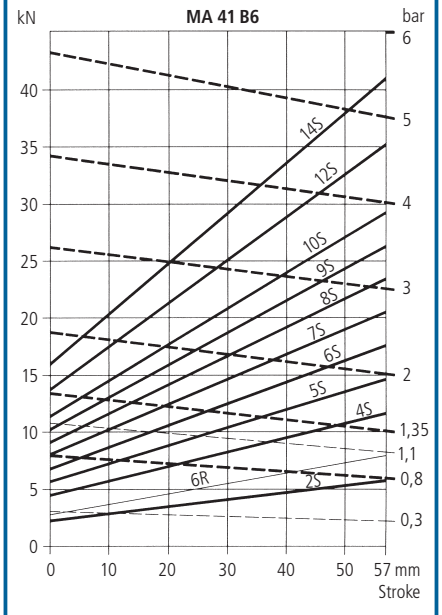
Curve 2



Curve 4



Curve 9



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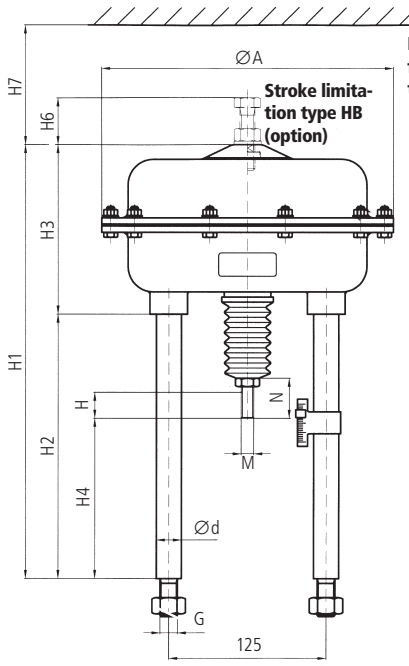
Dimensions and weights
MA 2/3



MA 16, 21, 31, 41

MA 60
MA 3.41... S19*

Type	Max. stroke H	A	H1	H2	H3	H4	H6	H7 o. HB	M	N	d	G	R	Weight ca. kg
	Function Po and Ps simple acting													
MA 3.16 A6…	20	162	266	166	100	96	30	40	M12	37	20	M16	R1/4"	4
MA 2.21 A6…	25	210	343	226	117	96	42	40		55				7
MA 3.21 B6…	35	210	352	226	126	96	42	40						7
MA 3.31 A6…	39	310	372	208	164	96	42	40						16
MA 3.1.31 B6…	20	310	372	208	164	96	42	40						16
MA 3.31 C6…	59	310	414	230	184	96	42	40						18
MA 3.41 A6…*	39	415	436	206	230	95	38	40	M16	60	28			51
MA 3.41 B6…*	57	415	472	224	248	95	38	40						58
MA 3.41 C6…*	90	415	644	287	357	95	38	45						76
MA 3.41 D6…*	118	415	784	312	472	95	38	45						91
MA 2.60 A6…	85	598	822	288	534	96	38	55	M24x2	80	35	M24	R3/4"	192
MA 3.60 C6…	136	598	1217	360	857	96	38	65						295
MA 3.60 D6…	125	598	864	330	534	96	38	55						192
MA 3.60 G6…	60	598	643	260	383	96	42	55						160
	Function Pos double acting (with stroke limitation)													
MA 3.1.16 A6	44	162	303	199	100	93	52	40	M12	37	20	M16	R1/4"	4
MA 3.21 A6	64	210	396	271	117	97	70	40		55				7
MA 3.1.31 A6	72	310	425	252	164	97	62	40	M16	55				16
MA 3.1.41 A6	107	415	504	274	230	93	50	40	M18x1,5	60	28			51
MA 2.60 A6	140	598	750	367	383	98	90	55	M24x2	80	35	M24	R3/4"	174

* 3-pillar yoke – see drawing
The height dimensions shown here apply for type MA 2/3. For height dimensions for MA 9 please refer to catalogue B215.1

Detailed documentation is available on request – please phone us: +41 (0)61 467 91 20, or visit our internet site: www.von-rohr.ch

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