

Kämmer Actuators Series 4

Pneumatic and Electropneumatic



Actuators Series 4

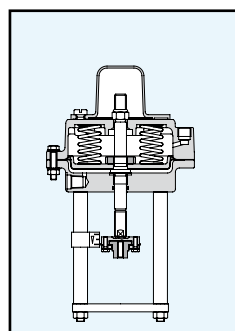
Description

Kämmer pneumatic actuators are widely known for their versatile diaphragm design, easy installation and simplified maintenance. When compared to other manufacturers' diaphragm actuator designs, Kämmer actuators have much higher thrust capabilities (up to 2000 kg), feature a very compact design (300 to 600 mm in height) and are lighter in weight (from 4 to 40 kg). They also feature a field reversible design that requires no additional parts.

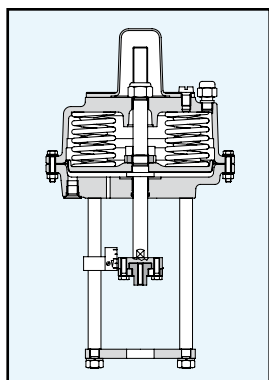
Kämmer pneumatic actuators can be equipped with an integrally mounted multifunctional positioner. The positioner can be of the pneumatic or electro-pneumatic design as both use the same housing. A pressure regulator, also within the same housing, is optional. Solenoid valves to NAMUR standard can be flanged directly to the multifunctional positioner's body. The axial design has two distinct advantages: First, its internal design protects all moving parts against damage and dirt. Second, it allows the actuator to be reversed without removing the positioner. Kämmer positioners are built rugged to withstand outside shocks without affecting accuracy. Calibration is simple with minimal interaction between the signal range and zero, allowing each to be adjusted individually. Kämmer electro-pneumatic positioners are built to intrinsically safe standards.

Kämmer actuators feature a multiple spring design for improved safety of the fail-safe mode, and for easily increasing thrust capabilities. All actuators (as well as internal springs) are coated with an epoxy resin that is baked into the surface.

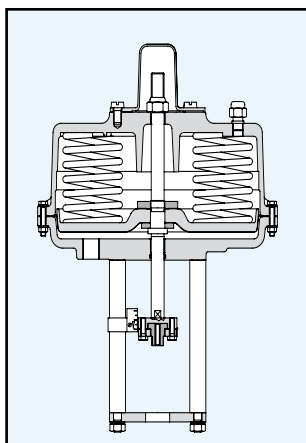
Kämmer actuators are versatile. They can be equipped with top-mounted handwheels, proximity switches, electric switches, filter regulators and pneumatic switches. When high thrust is required or when only low pressure is available, Kämmer offers a tandem actuator design, which doubles the thrust of a single diaphragm actuator.



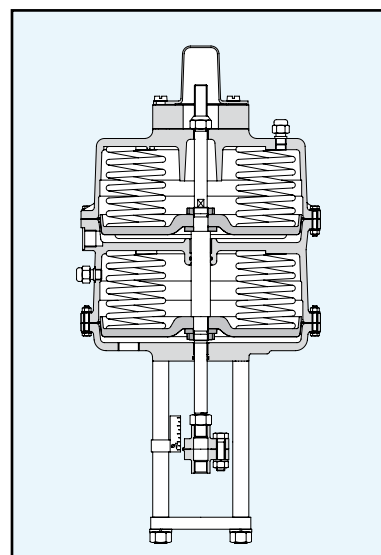
Type 47



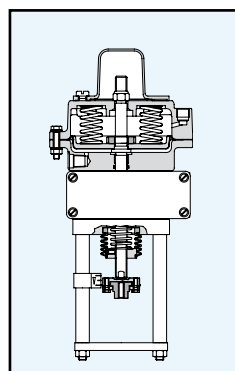
Type 48



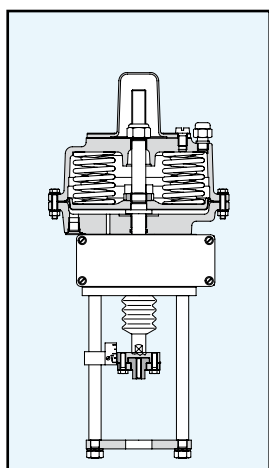
Type 49



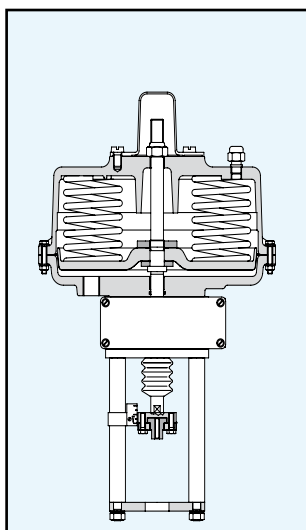
Type 4D



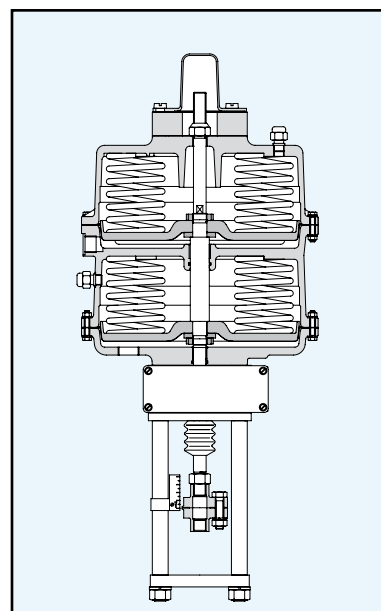
Type 37



Type 38



Type 39



Type 3D

Actuators Series 4

Technical Data

		Actuator without positioner				Actuator with P/P positioner				Actuator with I/P positioner			
		47	48	49	4D	37	38	39	3D	IP-37	IP-38	IP-39	IP-3D
Diaphragm area	cm²	80	200	500	2 x 500	80	200	500	2 x 500	80	200	500	2 x 500
Thrust max.	daN [kp]	160	400	1000	2000	160	400	1000	2000	160	400	1000	2000
Stroke	mm	10/20	10/20	10/20/40	10/20/40	10/20	10/20	10/20/40	10/20/40	10/20	10/20	10/20/40	10/20/40
Stoking time for: 10 mm	s*	0.1	0.25	0.5	1	0.5	1	2.5	5	0.5	1	2.5	5
20 mm	s*	0.2	0.5	1	2	1	2	5	10	1	2	5	10
40 mm	s*	–	–	2	4	–	–	10	20	–	–	10	20
Signal range		–				3 – 15 / 3 – 9 / 9 – 15 psi				0/4 – 20, 4 – 12, 12 – 20 mA			
		–				0.2 – 1.0 / 0.2 – 0.6 / 0.6 – 1.0 bar				20 – 12, 12 – 4, 20 – 0/4			
		–				20 – 100 / 20 – 60 / 60 – 100 kPa				–			
Input resistance		–				–				260/170 Ohm**			
Inductivity / Capacitance		–				–				negligible (≈0)			
Spring range		see appropriate spare parts list											
Supply pressure		20 – 60 psi											
		1.4 – 4.2 bar											
		140 – 420 kPa											
Accuracy		–				≤ 1%				≤ 1%			
Hysteresis		–				< 1%				< 1%			
Operating sensitivity		–				–				= 0.1%			
Amplification factor		–				50				50			
Supply pressure influence		–				0.4% / 0.1 bar				0.4% / 0.1 bar			
Air consumption at 1.4 bar		–				0.6 Nm³ / h				0.6 Nm³ / h			
Electrical protection		–				–				II2G EEx ia IIC T6 Tüv99 ATEX 1487 X			
										Suitable for connection to intrinsical safe circuits with I max. ≤ 60 mA (T6) thru 150 mA (T4)			
Housing protection		–				–				IP 54 / IP 65			
Allowable ambient temp.		– 30 to + 80 °C (-22 to +176° F)											
Actuator action		air-to-open / air-to-close, reversible											
Installation position		optional											
Air supply		dry and oil-free (instrument air)											

* Stoking time with 1.4 bar supply pressure. ** Transducer adjustable = 260 ohm, transducer not adjustable = 170 ohm,

Actuators Series 4

Actuator thrusts, Air-to-open

Actuator size		Diaphragm area (cm ²)	Stroke (mm)	Spring set No.	Spring range (bar)	Actuator thrust (daN) 1 daN ≈ 1kp Actuators with or without positioner at supply pressure (bar)					
with Positioner	without Positioner					1.4	2.1	2.5	3.0	3.5	4.2
37	47	80	10	712	0.5 - 1.1	40					
				713	1.0 - 1.9		80				
				714	1.0 - 2.2			80			
				715	1.5 - 2.7				120		
				716	1.5 - 3.0					120	
				717	2.0 - 3.9						160
			20	722	0.5 - 1.1	40					
				723	0.9 - 1.9		72				
				724	1.0 - 2.2			80			
				725	1.3 - 2.7				104		
				726	1.4 - 3.0					112	
				727	1.8 - 3.8						144
38*	48*	200	10	812	0.5 - 1.1	100					
				813	1.0 - 1.9		200				
				814	1.0 - 2.2			200			
				815	1.5 - 2.7				300		
				816	1.5 - 3.0					300	
				817	2.0 - 3.8						400
			20	822	0.5 - 1.1	100					
				823	0.9 - 1.9		180				
				824	1.0 - 2.2			200			
				825	1.3 - 2.7				260		
				826	1.4 - 3.0					280	
				827	1.8 - 3.8						360
39	49	500	20	922	0.5 - 1.1	250					
				923	1.0 - 1.9		500				
				924	1.0 - 2.2			500			
				925	1.5 - 2.7				750		
				926	1.5 - 3.0					750	
				927	2.0 - 3.8						1000
			40	942	0.5 - 1.0	250					
				943	0.8 - 1.6		400				
				944	0.9 - 1.9			450			
				945	1.2 - 2.3				600		
				946	1.3 - 2.6					650	
				947	1.7 - 3.3						850
3D	4D	2 x 500	20	922	0.5 - 1.1	500					
				923	1.0 - 1.9		1000				
				924	1.0 - 2.2			1000			
				925	1.5 - 2.7				1500		
				926	1.5 - 3.0					1500	
				927	2.0 - 3.8						2000
			40	942	0.5 - 1.0	500					
				943	0.8 - 1.6		800				
				944	0.9 - 1.9			900			
				945	1.2 - 2.3				1200		
				946	1.3 - 2.6					1300	
				947	1.7 - 3.3						1700

* Actuators size 38 and 48 for thrusts ≥250 daN are supplied with 3 yoke rods only.

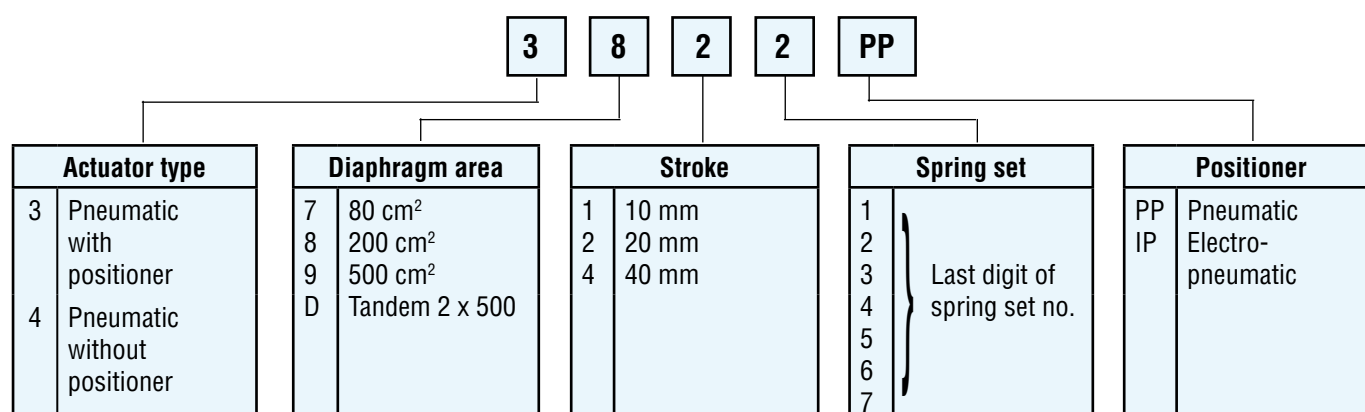
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Actuator thrusts, Air-to-close

Actuator size with without Positioner		Diaphragm area (cm ²)	Stroke (mm)	Spring set No.	Spring range (bar)	Actuator thrust (daN) 1 daN ≈ 1kp Actuators with or without positioner at supply pressure (bar)					
						1.4	2.1	2.5	3.0	3.5	4.2
37	47	80	10	711	0.3 - 0.9	32	80	100	140	110	160
				712	0.5 - 1.1						
			20	713	1.0 - 1.9						
				722	0.5 - 1.1		64	100	140	110	160
38*	48*	200	10	723	0.9 - 1.9						
				811	0.3 - 0.9	80	200	240	340	280	400
			20	812	0.5 - 1.1						
				813	1.0 - 1.9	80	200	240	340	280	400
39	49	500	10	821	0.3 - 0.9						
				822	0.5 - 1.1	200	500	600	850	700	1000
			20	823	0.9 - 1.9						
				941	0.3 - 0.9	200	500	600	850	800	1100
3D	4D	2 x 500	20	942	0.5 - 1.0						
				943	0.8 - 1.6	400	1000	1200	1700	1400	2000
			40	921	0.3 - 0.9						
				922	0.5 - 1.1	400	1000	1200	1700	1600	2200

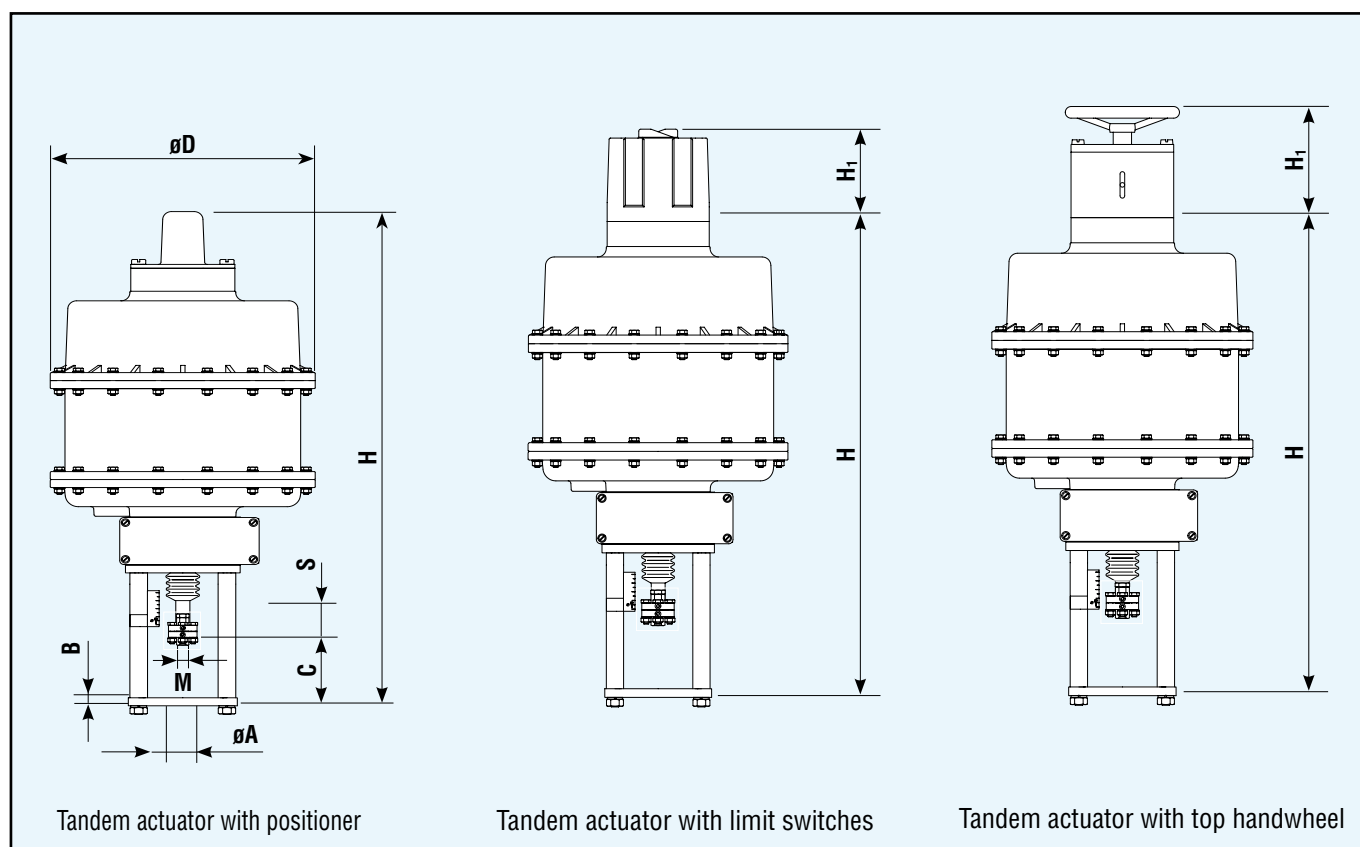
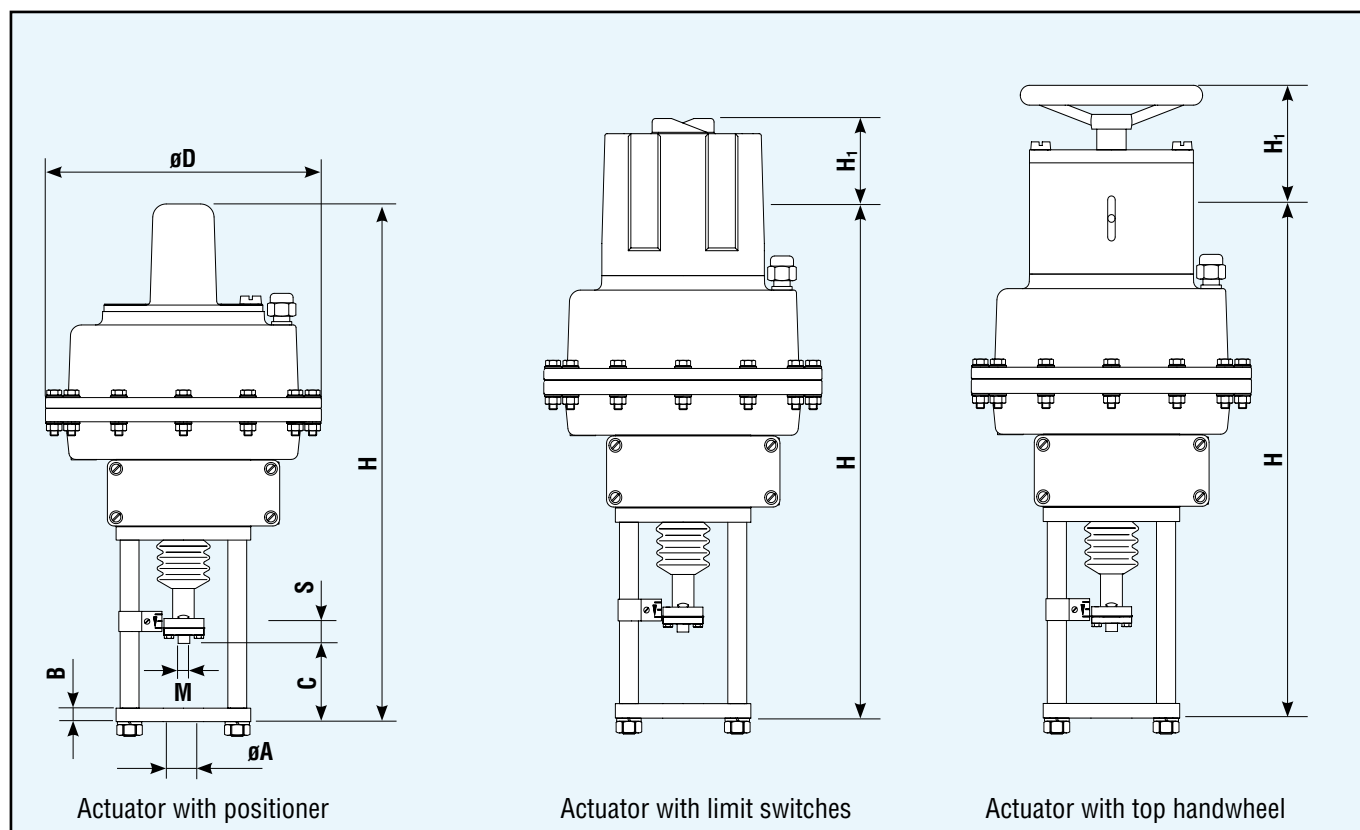
* Actuators size 38 and 48 for thrusts ≥250 daN are supplied with 3 yoke rods only.

Model Code



Actuators Series 4

Dimensions [mm]



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Dimensions [mm]

Actuator size	37	38		39	3D*	47	48		49	4D*
No of yoke rods	2	2	3	3		2	2	3	3	
Stroke	10/20	10/20		20/40		10/20	10/20		20/40	
A ø standard (optional)	20, (30,38)	20,(30,38)	30 (38)	30 (38, 45)		20, (30,38)	20,(30,38)	30 (38)	30 (38, 45)	
B	8 (12)	8 (12)	10	10/15		8 (12)	8 (12)	10	10/15	
C standard (bellows, NAMUR)	55 (80)	55	80	80		55 (80)	55	80	80	
D ø	150	205		300		150	205		300	
H standard / bellows Yoke rods acc. to NAMUR	310/335 330/335	370 390	425 425	470 470	600 600	245/270 265/270	305 325	360 360	405 405	535 535
H ₁ top mounted handwheel Limit switches	100/110 75	100 80	130 80	130/190 80		100/110 75	100 80	130 80	130/190 80	
M Internal metric thread	M4/M6/M10	M6	M6/M10	M10/M16		M4/M6/M10	M6	M6/M10	M10/M16	
Air connection	NPT ¼ " for all actuators (G ¼ " on request)									

* Dimentions for actuator ≤1000 daN. Dimentions for actuators with higher thrust on request.

Weights [kg]

Actuator	No. of yoke rods	Weight Standard	Additional weight	
			Top handwheel	Limit switches
37	2	3.5	1.1	1.5
38	2	6.5	2.0	2.5
	3	7.5	2.2	2.5
39	3	15	3.2	2.5
3D	3	30	3.2	2.5
47	2	2.2	1.1	1.5
48	2	5.0	2.0	2.5
	3	6.1	2.2	2.5
49	3	13.5	3.2	2.5
4D	3	29	3.2	2.5



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