



# *Kämmer Actuators Series 4*

## *Pneumatic and Electropneumatic*



*Experience In Motion*

# Actuators Series 4

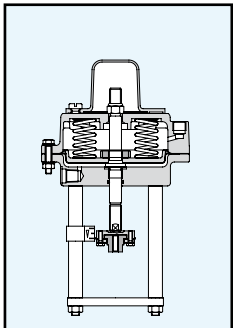
## Description

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.

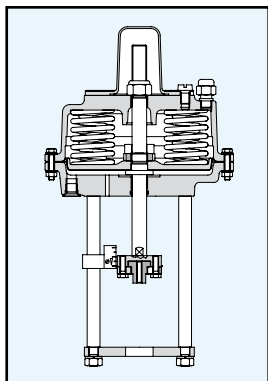
Kämmer pneumatic actuators can be equipped with an integrally mounted multifunctional positioner. The positioner can be of the pneumatic or electro-pneumatic design as both use the same housing. A pressure regulator, also within the same housing, is optional. Solenoid valves to NAMUR standard can be 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.

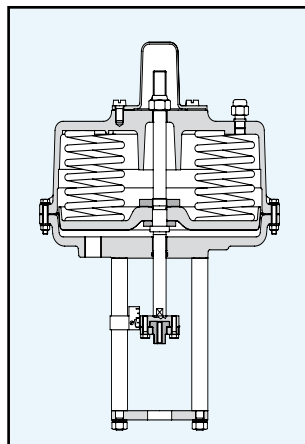
Kämmer actuators are versatile. They can be equipped with top-mounted handwheels, proximity switches, electric switches, filter regulators and pneumatic switches. When high thrust is required or when only low pressure is available, Kämmer offers a tandem actuator design, which doubles the thrust of a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



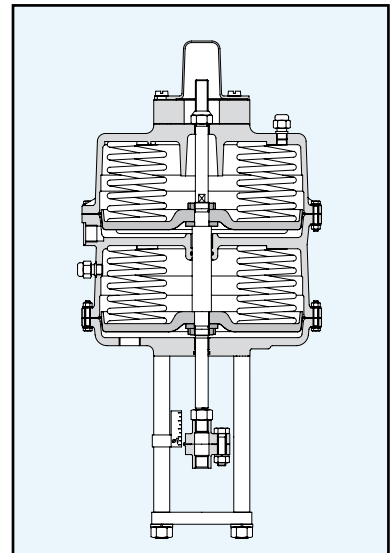
Type 47



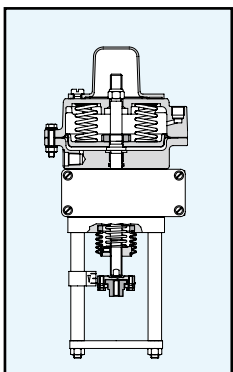
Type 48



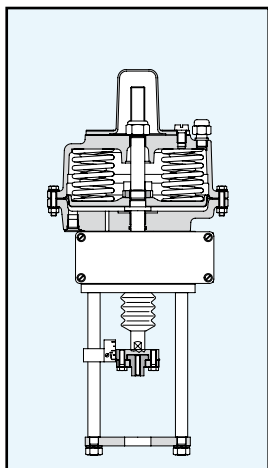
Type 49



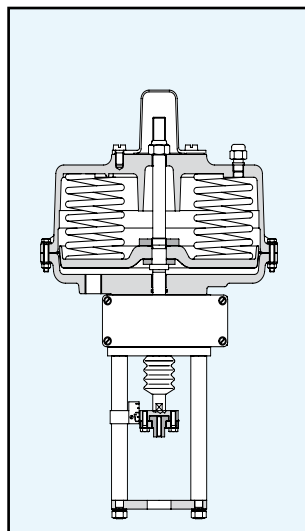
Type 4D



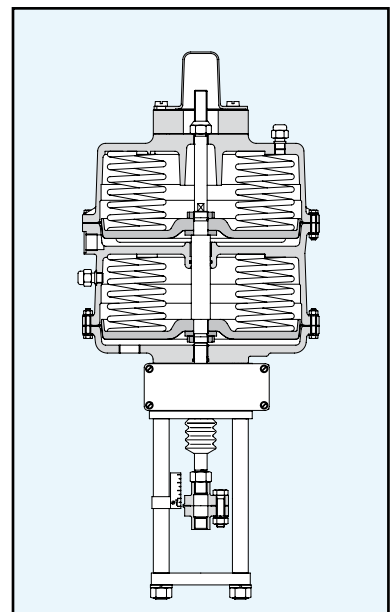
Type 37



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	
<b>Diaphragm area</b>	cm <sup>2</sup>	80	200	500	2 x 500	80	200	500	2 x 500	80	200	500	2 x 500
<b>Thrust max.</b>	daN [kp]	160	400	1000	2000	160	400	1000	2000	160	400	1000	2000
<b>Stroke</b>	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
<b>Stoking time for: 10 mm</b>	s*	0.1	0.25	0.5	1	0.5	1	2.5	5	0.5	1	2.5	5
<b>20 mm</b>	s*	0.2	0.5	1	2	1	2	5	10	1	2	5	10
<b>40 mm</b>	s*	–	–	2	4	–	–	10	20	–	–	10	20
<b>Signal range</b>		–				3 – 15 / 3 – 9 / 9 – 15 psi 0.2 – 1.0 / 0.2 – 0.6 / 0.6 – 1.0 bar 20 – 100 / 20 – 60 / 60 – 100 kPa				0/4 – 20, 4 – 12, 12 – 20 mA 20 – 12, 12 – 4, 20 – 0/4 –			
<b>Input resistance</b>		–				–				260/170 Ohm**			
<b>Inductivity / Capacitance</b>		–				–				negligible (≈0)			
<b>Spring range</b>		see appropriate spare parts list											
<b>Supply pressure</b>		20 – 60 psi 1.4 – 4.2 bar 140 – 420 kPa											
<b>Accuracy</b>		–				≤ 1%				≤ 1%			
<b>Hysteresis</b>		–				< 1%				< 1%			
<b>Operating sensitivity</b>		–				–				= 0.1%			
<b>Amplification factor</b>		–				50				50			
<b>Supply pressure influence</b>		–				0.4% / 0.1 bar				0.4% / 0.1 bar			
<b>Air consumption at 1.4 bar</b>		–				0.6 Nm <sup>3</sup> / h				0.6 Nm <sup>3</sup> / h			
<b>Electrical protection</b>		–				–				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)			
<b>Housing protection</b>		–				–				IP 54 / IP 65			
<b>Allowable ambient temp.</b>		– 30 to + 80 °C (-22 to +176° F)											
<b>Actuator action</b>		air-to-open / air-to-close, reversible											
<b>Installation position</b>		optional											
<b>Air supply</b>		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 <sup>2</sup> )	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					1.4	2.1	2.5	3.0	3.5	4.2
37	47	80	10	712	0.5 - 1.1	40	80	80	120	120	160
				713	1.0 - 1.9						
				714	1.0 - 2.2						
				715	1.5 - 2.7						
				716	1.5 - 3.0						
				717	2.0 - 3.9						
			20	722	0.5 - 1.1	40	72	80	104	112	144
				723	0.9 - 1.9						
				724	1.0 - 2.2						
				725	1.3 - 2.7						
				726	1.4 - 3.0						
				727	1.8 - 3.8						
38*	48*	200	10	812	0.5 - 1.1	100	200	200	300	300	400
				813	1.0 - 1.9						
				814	1.0 - 2.2						
				815	1.5 - 2.7						
				816	1.5 - 3.0						
				817	2.0 - 3.8						
			20	822	0.5 - 1.1	100	180	200	260	280	360
				823	0.9 - 1.9						
				824	1.0 - 2.2						
				825	1.3 - 2.7						
				826	1.4 - 3.0						
				827	1.8 - 3.8						
39	49	500	20	922	0.5 - 1.1	250	500	500	750	750	1000
				923	1.0 - 1.9						
				924	1.0 - 2.2						
				925	1.5 - 2.7						
				926	1.5 - 3.0						
				927	2.0 - 3.8						
			40	942	0.5 - 1.0	250	400	450	600	650	850
				943	0.8 - 1.6						
				944	0.9 - 1.9						
				945	1.2 - 2.3						
				946	1.3 - 2.6						
				947	1.7 - 3.3						
3D	4D	2 x 500	20	922	0.5 - 1.1	500	1000	1000	1500	1500	2000
				923	1.0 - 1.9						
				924	1.0 - 2.2						
				925	1.5 - 2.7						
				926	1.5 - 3.0						
				927	2.0 - 3.8						
			40	942	0.5 - 1.0	500	800	900	1200	1300	1700
				943	0.8 - 1.6						
				944	0.9 - 1.9						
				945	1.2 - 2.3						
				946	1.3 - 2.6						
				947	1.7 - 3.3						

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

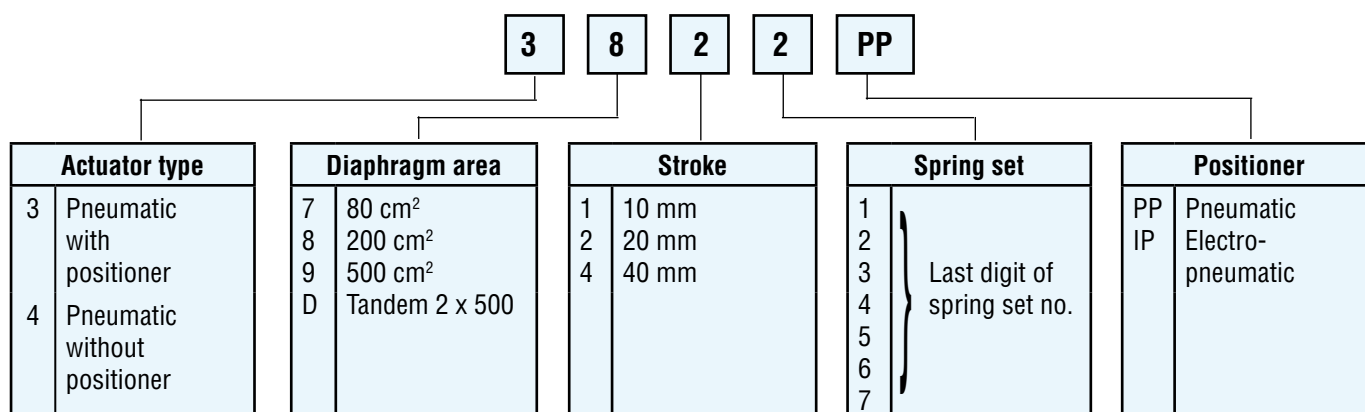
## Actuators Series 4

### Actuator thrusts, Air-to-close

Actuator size		Diaphragm area (cm <sup>2</sup> )	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	711	0.3 - 0.9	32	80	100	140	110	160
				712	0.5 - 1.1						
				713	1.0 - 1.9						
			20	722	0.5 - 1.1		64	100	140	110	160
				723	0.9 - 1.9						
38*	48*	200	10	811	0.3 - 0.9	80	200	240	340	280	400
				812	0.5 - 1.1						
				813	1.0 - 1.9						
			20	821	0.3 - 0.9	80	200	240	340	280	400
				822	0.5 - 1.1						
				823	0.9 - 1.9						
39	49	500	10	921	0.3 - 0.9	200	500	600	850	700	1000
				922	0.5 - 1.1						
				923	1.0 - 1.9						
			20	941	0.3 - 0.9	200	500	600	850	800	1100
				942	0.5 - 1.0						
				943	0.8 - 1.6						
3D	4D	2 x 500	20	921	0.3 - 0.9	400	1000	1200	1700	1400	2000
				922	0.5 - 1.1						
				923	1.0 - 1.9						
			40	941	0.3 - 0.9	400	1000	1200	1700	1600	2200
				942	0.5 - 1.0						
				943	0.8 - 1.6						

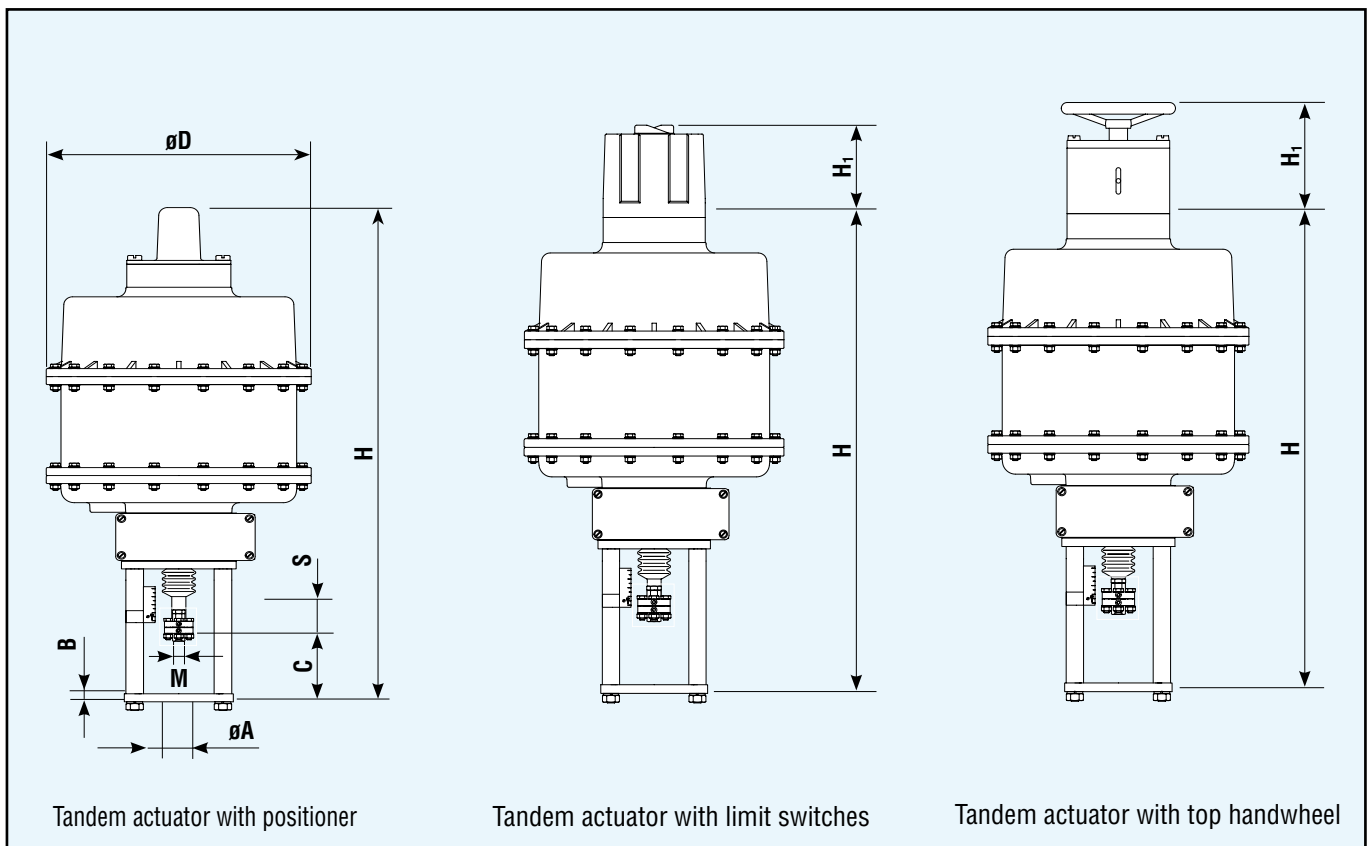
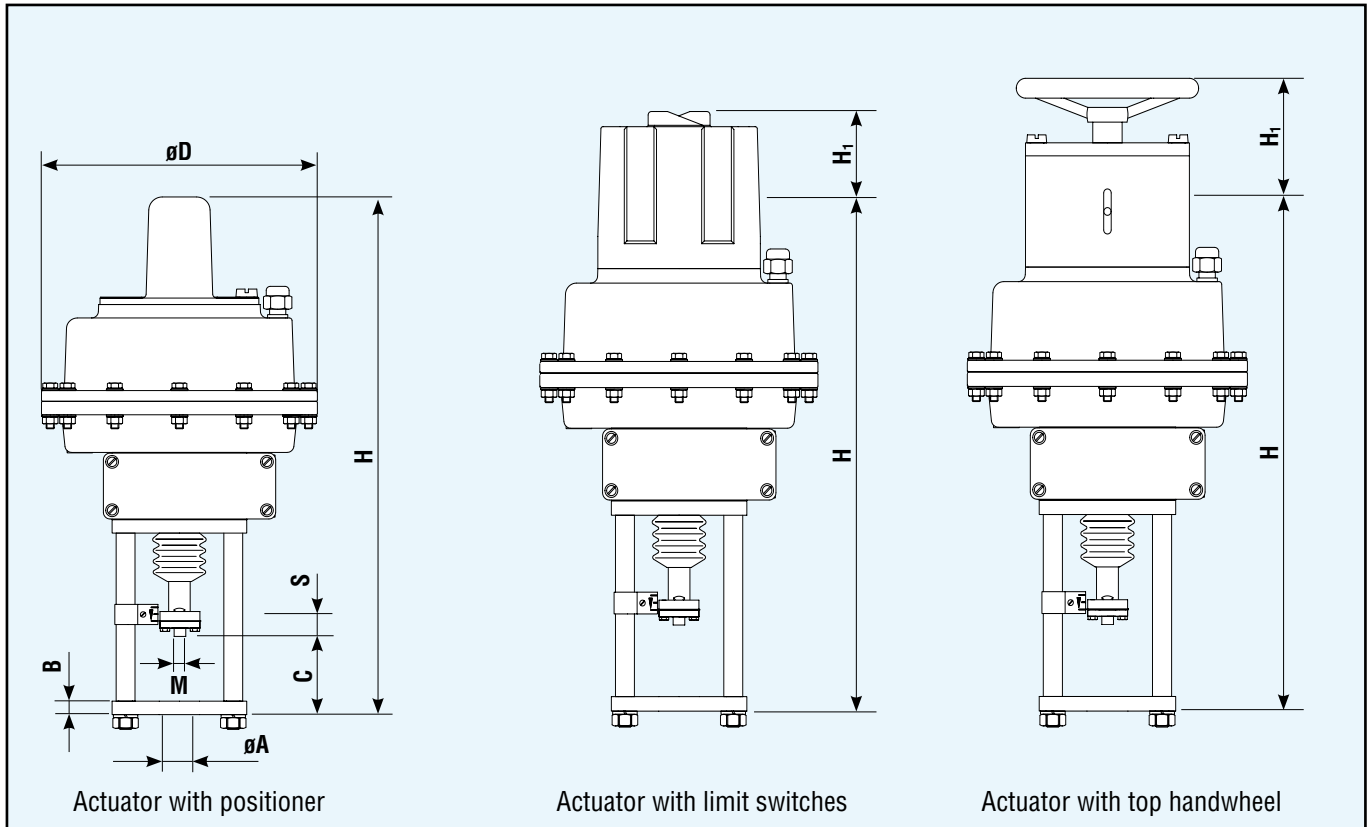
\* Actuators size 38 and 48 for thrusts ≥250 daN are supplied with 3 yoke rods only.

### Model Code



# Actuators Series 4

Dimensions [mm]



## Actuators Series 4

### 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 <sub>1</sub> 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)									

\* Dimintions for actuator ≤1000 daN. Dimintions 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



**Germany**

Flowserve Essen GmbH  
Flowserve Flow Control  
Kämmer Ventile  
Manderscheidtstrasse 19  
45141 Essen  
Germany  
Tel.: +49 (0) 201 89 19 5  
Fax.: +49 (0) 201 89 19 662

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Your contact:

A large, empty rounded rectangular box with a dashed border, intended for contact information.

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