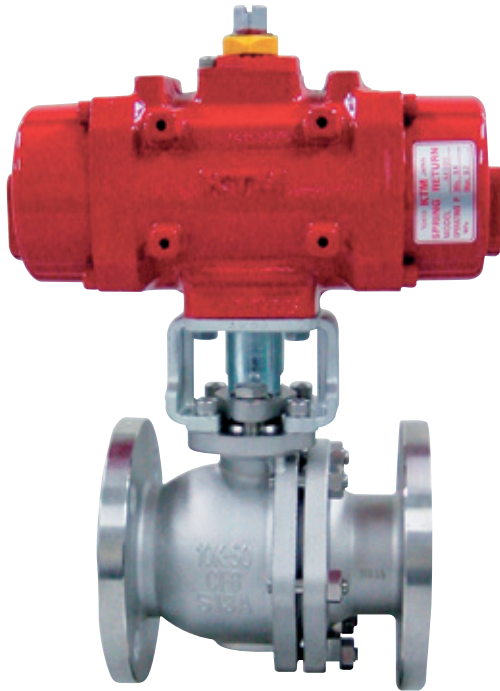




KTM PNEUMATIC ACTUATORS
AK SERIES (FOR SMALL AND MIDDLE SIZED VALVES)

Compact and light-weight actuator, equipped with a guide rod for smooth operation and extended durability



FEATURES

- Double acting and single acting type are of the same shape and dimension
- Double rack and pinion gear construction produces a smooth uniform stroke throughout the whole range
- Guide rod eliminates side loading of the piston for smooth actuation and greater durability
- Double rack design allows for a larger cylinder bore and shorter piston stroke, resulting in a more compact unit and high torque
- ISO 5211 mounting pattern to provide the greatest flexibility for valve adaptation
- Air supply port (piping seat) and stem top conform to NAMUR standards for simple and direct mounting of accessories
- Interchangeable spring return sets according to each operating pressure/torque:

Standard:	AK-S	0.4 to 0.7MPa
Low pressure type:	AK-L	0.3 to 0.7MPa
High torque type:	AK-H	0.5 to 0.7MPa

GENERAL APPLICATION

- Suitable for actuation of several types of quarter-turn valves
- Available for using at limited space because of its lightweight compact design
- Adequate for small to middle size valves

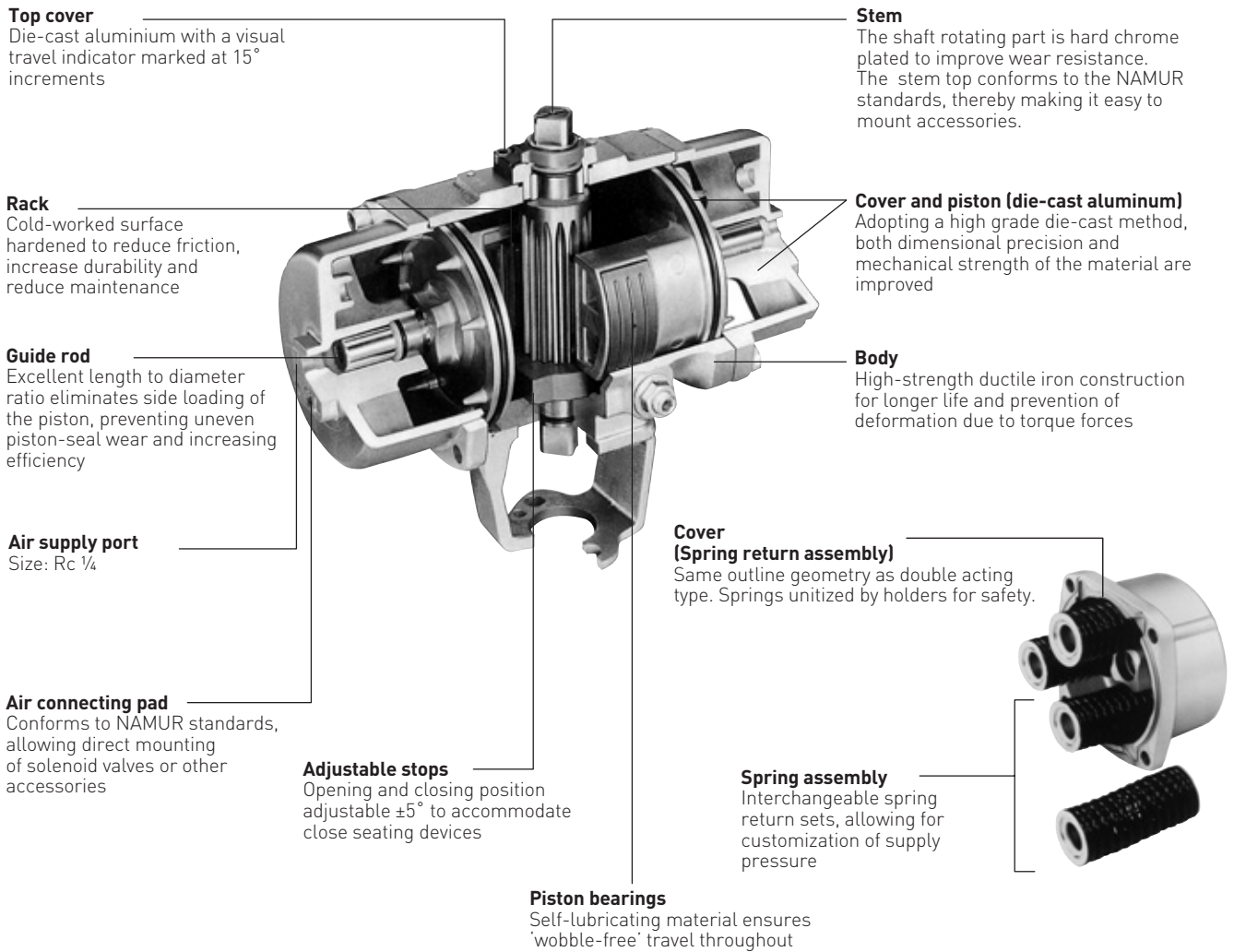
TECHNICAL DATA

Actuator model	
Double acting:	AK05*, 07, 09, 12, 15
Spring return**:	AK07S, 09S, 12S, 15S
Supply pressure	
Double acting:	0.3 to 0.7 MPa
Spring return**:	0.4 to 0.7 MPa
Temperature:	-20°C to 80°C (ambient temperature)
Output torque	
Double acting:	23.5 to 270 Nm
Spring return**:	14.7 to 162 Nm

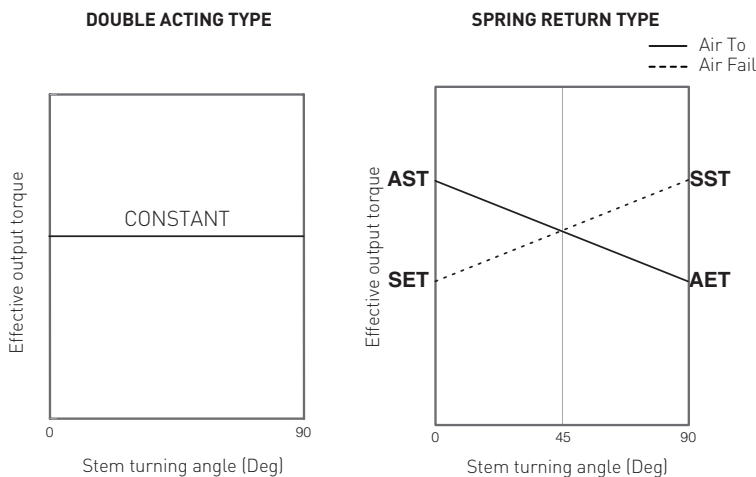
* Model AK05 is not available as spring return
 ** Available also for low pressure type (L) and high torque type (H). For more details please consult us.

KTM PNEUMATIC ACTUATORS

AK SERIES (FOR SMALL AND MIDDLE SIZED VALVES)



OUTPUT TORQUE TABLE



	Double acting		Spring return	
	Nm		Nm	
			AET/SET	AST/SST
AK05	23.5	-	-	-
AK07	37.3	AK07S	14.7	22
AK09	68.7	AK09S	28.0	42
AK12	141.0	AK12S	57.0	85
AK15	270.0	AK15S	108.0	162

NOTE
The above table shows output torque at the standard supply pressure of 0.4 MPa

- AET** : Air End Torque
- SET** : Spring End Torque
- AST** : Air Start Torque
- SST** : Spring Start Torque

KTM PNEUMATIC ACTUATORS

AK SERIES (FOR SMALL AND MIDDLE SIZED VALVES)

Air consumption V_D , V_S

The air consumption V_D and V_S show the volume of air consumed in a certain time period. For the same size cylinder, air consumption increases in direct proportion to the operating time. The consumption is determined by the formula as shown below. The total air consumption is equivalent to the sum obtained for the total units.

Air consumption of double acting cylinder ($N\ell$):

$$V_D = (A+B) \{ (P+0.1)/0.1 \} n$$

Air consumption of spring return cylinder ($N\ell$):

$$V_S = B \{ (P+0.1)/0.1 \} n$$

[Remarks]

V_D : Air consumption of double acting cylinder ($N\ell$)

V_S : Air consumption of spring return cylinder ($N\ell$)

A, B: Cylinder capacity (ℓ)

P: Supply pressure (MPa)

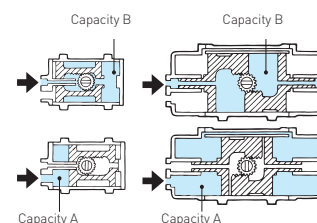
n: Operating cycles in a time period

(One cycle means one reciprocating action)

CYLINDER CAPACITY (ℓ)

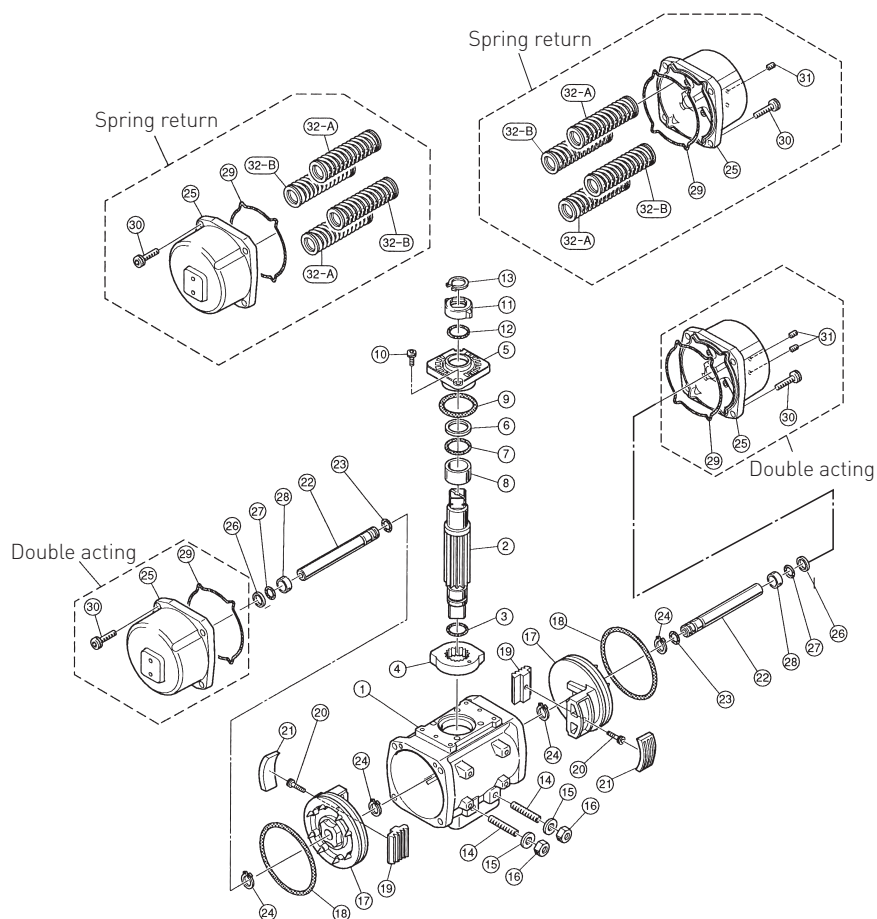
Model	A	B	A + B
AK05	0.14	0.34	0.48
AK07	0.45	0.29	0.74
AK09	0.88	0.52	1.40
AK12	1.70	1.05	2.75
AK15	3.30	2.30	5.60

For spring return type please refer to value B



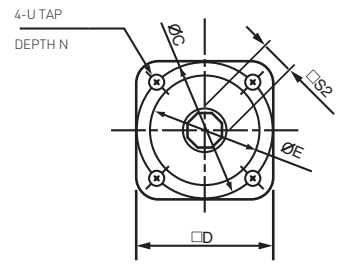
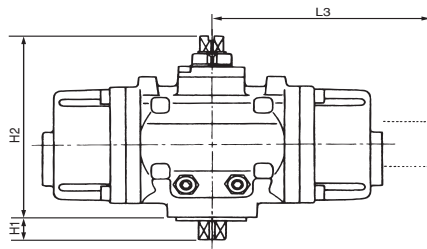
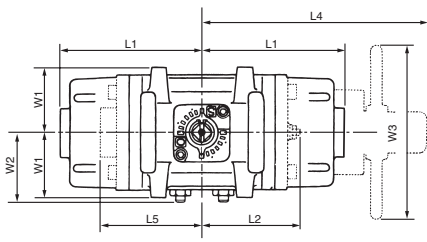
PARTS LIST

No.	Parts name
1	Body
2	Stem
3	O-ring
4	Stopper
5	Top cover
6	Back-up ring
7	O-ring
8	Stem bearing
9	O-ring
10	Cap screw
11	Indicator
12	O-ring
13	Snap ring
14	Stopper bolt
15	Seal washer
16	Nut
17	Piston
18	O-ring
19	Rack
20	Cap screw
21	Piston bearing
22	Guide rod
23	O-ring
24	Snap ring
25	Cover
26	Back-up ring
27	O-ring
28	Rod bearing
29	O-ring
30	Cap screw
31	Plug
32A	Spring unit A
32B	Spring unit B



KTM PNEUMATIC ACTUATORS

AK SERIES (FOR SMALL AND MIDDLE SIZED VALVES)



Bottom works

- L2, L5 :For AK05
- L3 :For lift-limiting device
- L4, W3 :For manual override (spring return only)

DIMENSIONS (mm)

Model	H1	H2	W1	W2	W3	L1	L2	L3	L4	L5	D	ØC	ØE	S2	U	N	ISO 5211	Weight (kg)	
AK05	18	142	50	-	-	-	80.5	-	-	84.5	50	50	35	14	M6	9	F05	3.4	-
AK07 (S)	18	142	50	49	120	115.5	-	150.5	182.5	-	50	50	35	14	M6	9	F05	4.2	(4.7)
AK09 (S)	21	165	60	60	160	131.5	-	168.5	205.5	-	70	70	55	17	M8	12	F07	6.4	(7.4)
AK12 (S)	29	202	75	77	200	157.0	-	197.0	245.0	-	96	102	70	24	M10	15	F10	11.9	(13.9)
AK15 (S)	29	231	90	94	300	195.0	-	238.0	305.0	-	96	102	70	24	M10	15	F10	19.0	(23.0)

NOTES

1. Data in parenthesis () apply to spring return type.
2. Available for spring return in low pressure type (L) and high pressure type (H). For more details please consult us.

SELECTION GUIDE

Example:	AK	07	L	A	HW
Actuator type					
AK					
Actuator size					
05*					
07					
09					
12					
15					
*Model 05 is not available as spring return					
Operation type	Description (Supply pressure)				
Blank	Double acting type (0.3 to 0.7 MPa)				
S	Spring return type – Standard (0.4 to 0.7 MPa)				
L	Spring return type – Low pressure type (0.3 to 0.7 MPa)				
H	Spring return type – High torque type (0.5 to 0.7 MPa)				
Specials (Option)	Description				
Blank	No specials				
A	Direct-acting spring return (Counter-clockwise rotation under supply pressure loss)				
B	Stainless steel external bolts and nuts				
K	For high temperature (0°C to 120°C)				
T	For low temperature (-45°C to 60°C)				
N	Air connection port; NPT				
Accessories (Option)	Description				
Blank	Without any accessories				
L	With lift-limiting unit				
HW	For spring return type with manual override handle				

OPTIONS

- Direct-acting spring return
- Stainless steel external bolts and nuts
- For control valves
- High temperature service (0°C to 120°C)
- Low temperature service (-45°C to 60°C)
- Air connection port; NPT
- Lift-limiting unit
- Manual override (for spring return type)
- Limit switch / proximity switch mounting
- Solenoid valve mounting
- Positioner mounting
- Partial stroke test

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