

## KTM PNEUMATIC ACTUATORS

### AW, AWN SERIES (FOR LARGE SIZED VALVES)

Pneumatic actuator for large-sized valves, ideally suited for control valves and remotely controlling process lines



#### FEATURES

- Scotch yoke construction ideal for large sized valves
- Two pistons in double cylinder type produces a high output torque while maintaining a relatively compact and light-weight design
- Stem top conforms to NAMUR standards for simple and direct mounting of accessories
- Separation of air chamber (cylinder) from mechanism (body) prevents air loss
- Two spring return sets according to each operating pressure:  
Standard: AW(N)-S 0.4 to 0.7 MPa  
Low pressure type: AW(N)-L 0.3 to 0.4 MPa

#### GENERAL APPLICATION

- Suitable for actuation of several types of quarter-turn valves
- Several applications that require remote control of process lines and automatically actuate various controlling valves
- Adequate for middle to large sized valves

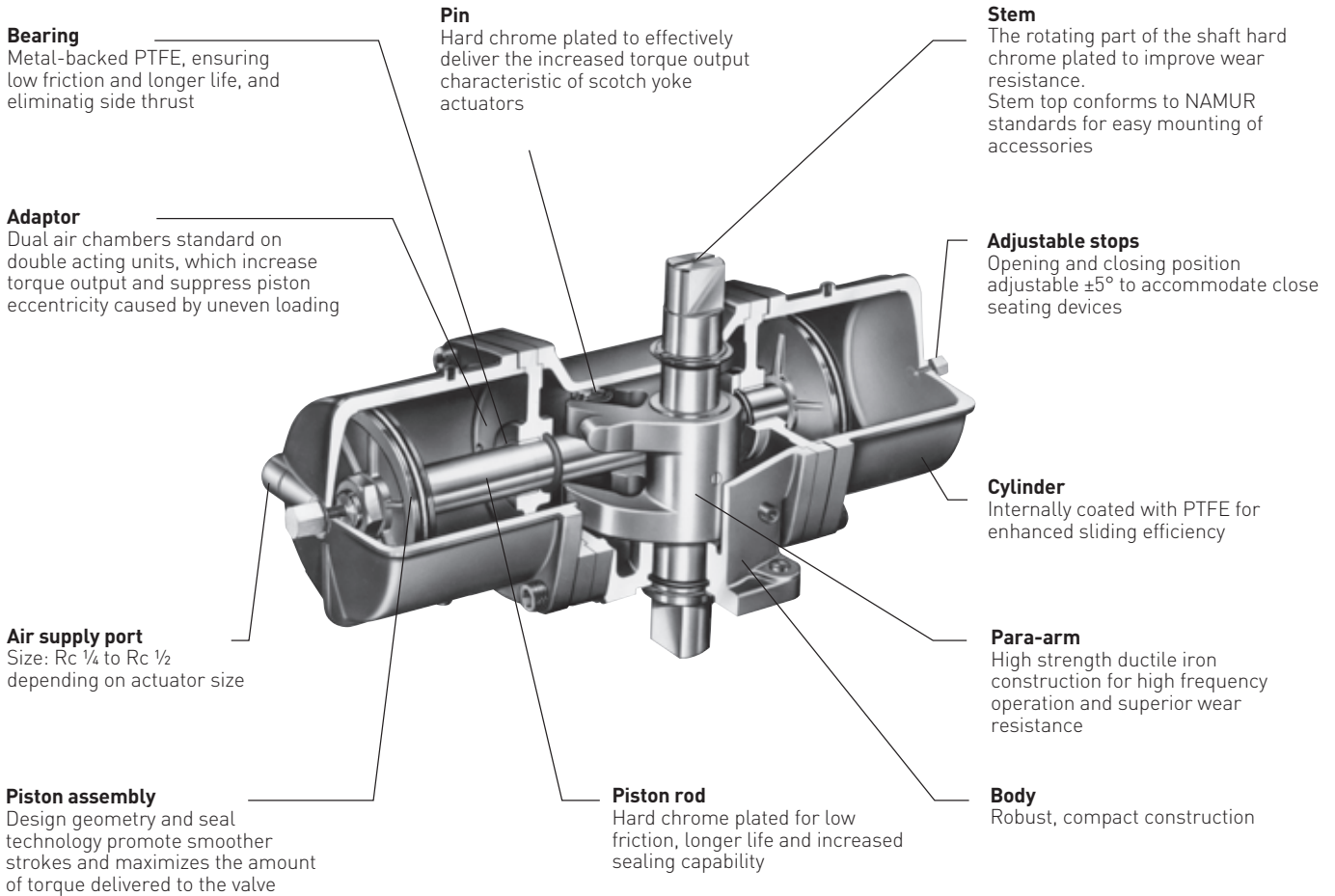
#### TECHNICAL DATA

Actuator model	
Double acting:	AWN13, AW17, AW20, AW28
Spring return*:	AWN13S, AW17S, AW20S, AW28S
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:	784 to 8985 Nm
Spring return*:	275 to 5259 Nm

\* Available in low pressure range (L).  
For more details please consult factory.

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### NOTE

Only AWN13 has an oval-shaped upper stem and a square-shaped lower stem.

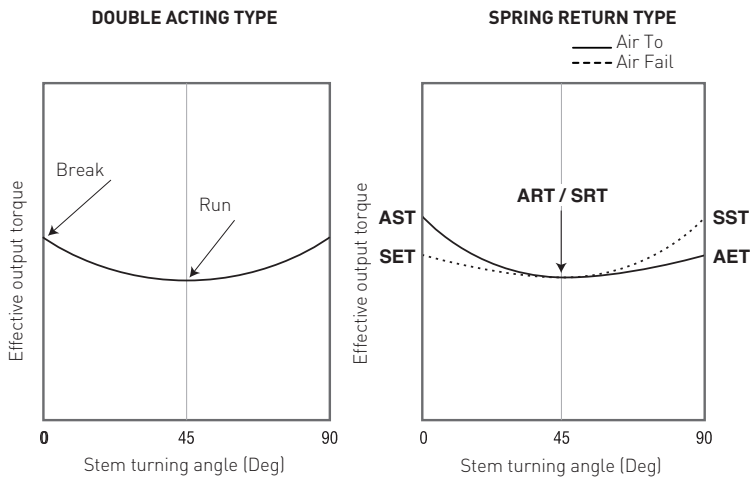
### OPTIONS

- 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 (with adaptor)
- High speed and high frequency
- High torque type (spring return)
- Lift-limiting unit
- Manual gear operator (for double acting type, AW17 through AW28)
- Manual override (for spring return type, AWN13S through AW28S)
- Partial stroke test
- ESDV of CO<sub>2</sub> gas type
- Limit switch / proximity switch mounting
- Solenoid valve mounting
- Positioner mounting

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### OUTPUT TORQUE TABLE



Double acting			Spring return			
	Nm			Nm		
	Break	Run		AET/SET	ART/SRT	AST/SST
AWN13	784	465	AWN13S	275	225	453
AW17	1,681	998	AW17S	637	485	1,005
AW20	3,748	2,225	AW20S	1,422	1,088	2,284
AW28	8,985	5,335	AW28S	3,432	2,519	5,259

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

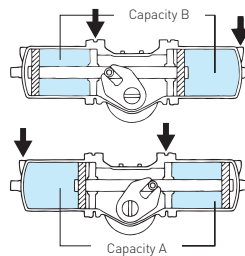
#### NOTE:

The above table shows output torque at the standard supply pressure of 0.4 MPa  
For more details of low pressure range (L), please consult us.

#### CYLINDER CAPACITY (ℓ)

Model	A	B	A + B
AWN13	3.1	3.1	6.2
AW17	6.7	6.7	13.4
AW20	14.8	14.8	29.6
AW28	34.6	34.6	69.2

For spring return type please refer to value B



#### Air consumption V<sub>D</sub>, V<sub>S</sub>

The air consumption V<sub>D</sub> and V<sub>S</sub> 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 (Nℓ):

$$V_D = (A+B) \left\{ \frac{P+0.1}{0.1} \right\} n$$

Air consumption of spring return cylinder (Nℓ):

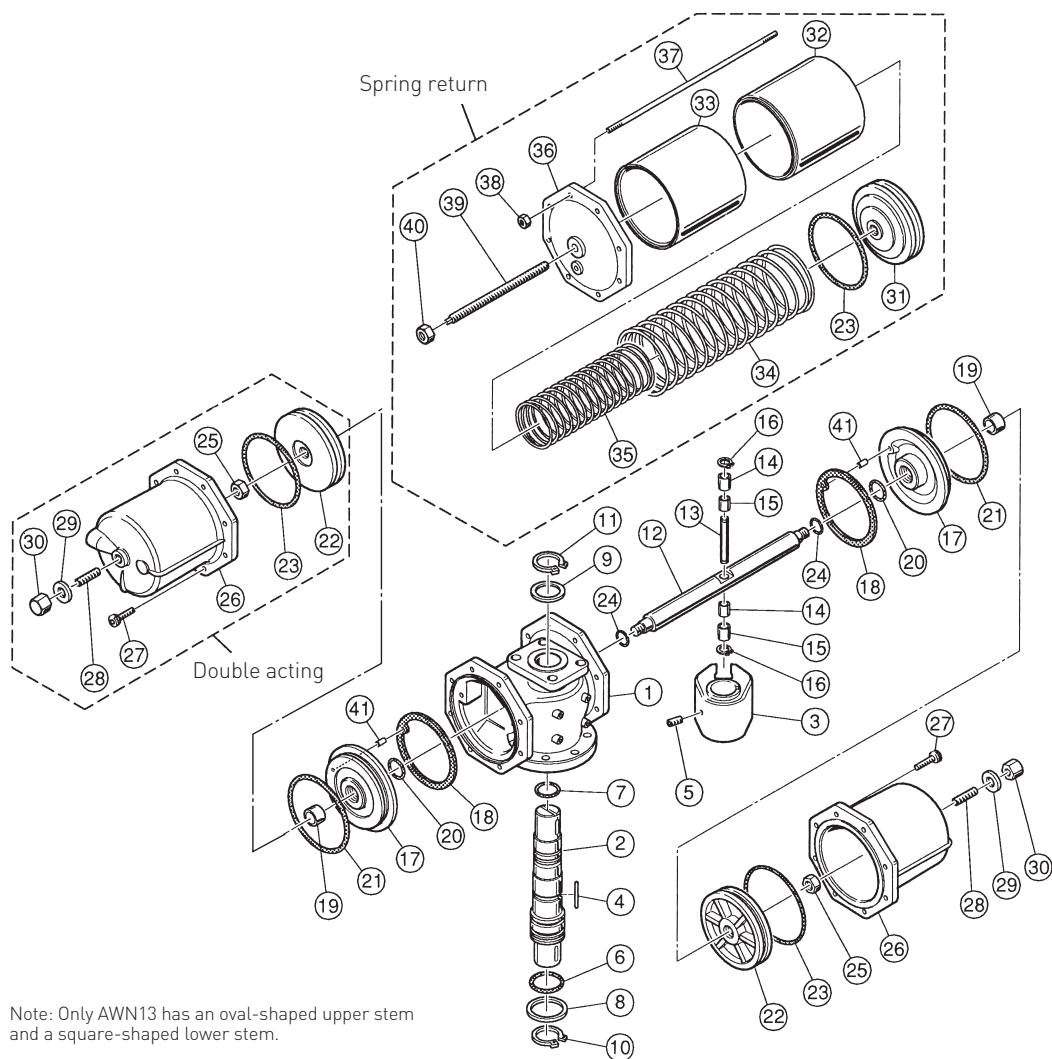
$$V_S = B \left\{ \frac{P+0.1}{0.1} \right\} n$$

#### [Remarks]

- V<sub>D</sub>: Air consumption of double acting cylinder (Nℓ)
- V<sub>S</sub>: Air consumption of spring return cylinder (Nℓ)
- A,B: Cylinder capacity (ℓ)
- P: Supply pressure (MPa)
- n: Operating cycles in a time period (One cycle means one reciprocating action)

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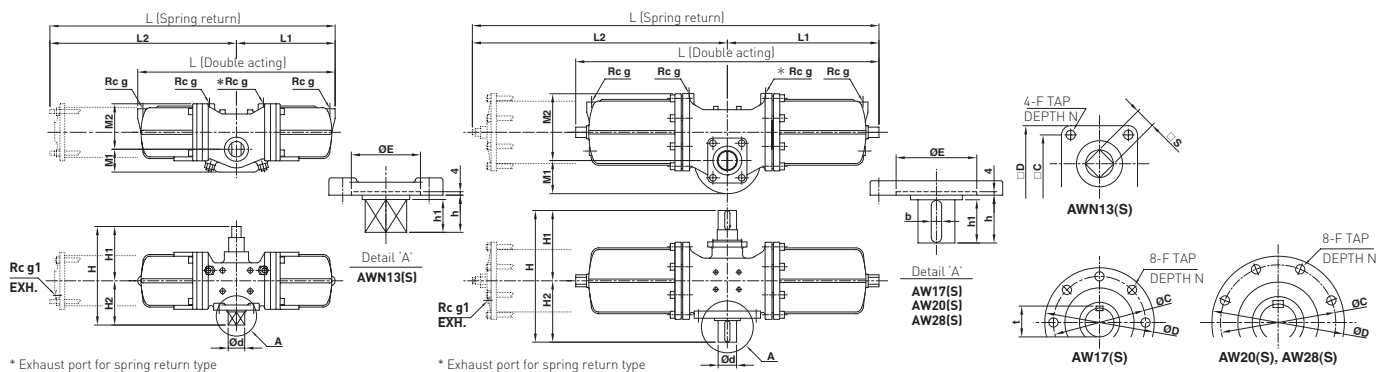
Note: Only AWN13 has an oval-shaped upper stem and a square-shaped lower stem.

### PARTS LIST

No.	Parts Name	No.	Parts Name
1	Body	22	Piston
2	Stem	23	O-ring
3	Scotch yoke	24	O-ring
4	Key	25	Nut
5	Set screw	26	Cylinder
6	O-ring	27	Cap screw
7	O-ring	28	Stopper bolt
8	Thrust bearing	29	Gasket
9	Thrust bearing	30	Cap nut
10	Snap ring	31	Spring retainer
11	Snap ring	32	Cylinder
12	Piston rod	33	Spring case
13	Pin	34	Spring (Outer)
14	Roller	35	Spring (Inner)
15	Bearing	36	Spring cover
16	Snap ring	37	Long bolt
17	Adaptor	38	Nut
18	Gasket	39	Stopper bolt
19	Bearing	40	Nut
20	O-ring	41	Pipe
21	O-ring		

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AWN13(S)

AW17(S), AW20(S), AW28(S)

Bottom works

### DIMENSIONS (mm)

Model	M1	M2	L		(L1)	(L2)	H1	H2	H	C	D	ØE	F
AWN13 (S)	66	132	571	(826)	(286)	(540)	157	128	285	□100	□132	80	M16
AW17 (S)	95	176	751	(986)	(376)	(610)	209	172	381	Ø160	Ø190	120	M16
AW20 (S)	115	233	1,053	(1,411)	(526)	(885)	244	213	457	Ø200	Ø230	140	M16
AW28 (S)	158	301	1,354	(1,837)	(677)	(1,160)	305	273	578	Ø280	Ø316	220	M20

Model	N	g	(g1)	b	Ød	h	h1	□S	t	Weight (kg)	
AWN13 (S)	20	¼	(¼)	-	48	43	38	35	-	35.8	(55.4)
AW17 (S)	25	⅜	(¼)	12	50	67	60	-	53.5	65.0	(95.0)
AW20 (S)	25	⅜	(⅜)	18	64	83	75	-	70.0	125.0	(175.0)
AW28 (S)	40	½	(½)	24	85	108	100	-	93.0	280.0	(400.0)

### NOTES

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

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## KTM MODEL CODING SYSTEM

Example:		AW	17	S	Q	HW
<b>Actuator type</b>						
AW (AWN only applicable for size 13)						
<b>Actuator size</b>						
13						
17						
20						
28						
<b>Operation type</b>		<b>Description (Supply pressure)</b>				
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 0.4 MPa)				
<b>Specials (Option)</b>		<b>Description</b>				
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)				
Q		High speed / frequency (500,000 cycles): Available for double acting type High speed: Available for spring return type				
S		High torque type (spring return)				
<b>Accessories (Option)</b>		<b>Description</b>				
Blank		Without any accessories				
CO		ESDV of CO <sub>2</sub> gas type				
H		For double acting type with manual override handle lever: Available for AWN13 only				
HG		For double acting type with manual gear operator: Available for AW17 through AW28				
HW		For spring return type with manual override handle: Available for AWN13S through AW28S				
L		With lift-limiting unit				
PS		Partial stroke test				