



AMESA

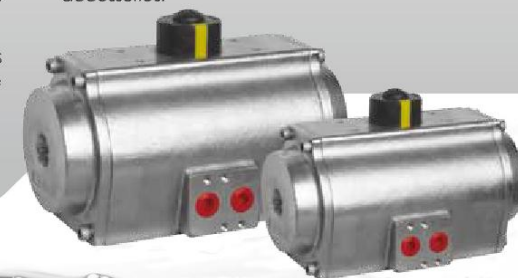


AMESA

> **Introducing**

Stainless Steel Pneumatic Actuator of A-MAX series

- > ASTM316L, 316, 304, 303 stainless steel pneumatic actuator with electro-polish finish offer excellent resistance to most corrosive chemicals as well as industrial atmospheres.
- > Dual piston, rack and pinion design for compact construction, symmetric mounting position, high-cycle life and fast operation, reverse rotation can be accomplished in the field by simply inverting the pistons.
- > Multiple bearings and guides on racks and pistons, low friction, high cycle life and no fear of spring's pop-out.
- > Preloaded spring cartridge design, with coated spring for flexible range, greater safety and corrosion resistance, longer cycle life.
- > Full conformance to the latest specifications: ISO5211, DIN 3337 and Namur or product interchangeability and easy mounting of solenoids, limit switches and other accessories.

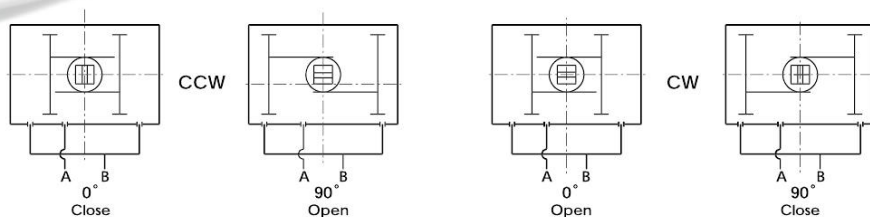


AMEAS INFORMATION

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Operating Principle

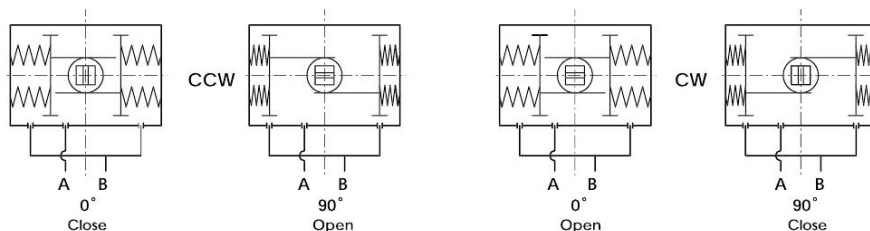
Double Acting Actuators



Air to Port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port B. Air to Port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from Port A.

Air to Port A forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from Port B. Air to Port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port A.

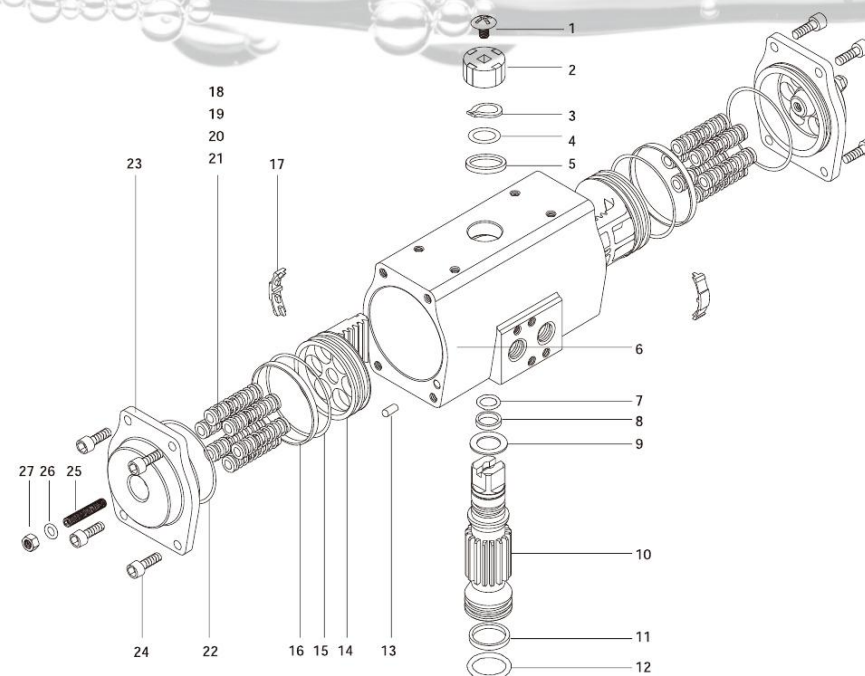
Spring Return Actuators



Air to port A forces the pistons outwards, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port B. Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.

Air to port B forces the pistons outwards, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port B. Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.

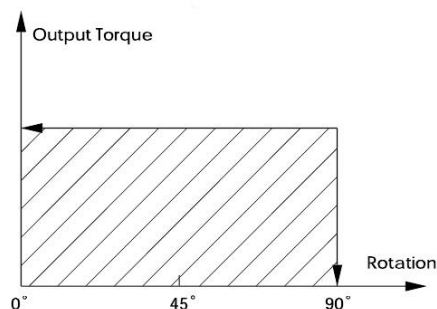
Parts and Materials



No.	Description	Qty.	Standards Material
1	Indicator screw	1	Plastic(ABS)
2	Indicator	1	Plastic(ABS)
3	Circlip	1	Stainless steel(304)
4	Thrust washer	1	Stainless steel(304)
5	Outside washer	1	Polyoxymethylene
6	Body	1	Stainless steel(304)
7	O-ring(Pinion top)	1	Viton/NBR
8	Bearing(Pinion top)	1	Polyoxymethylene
9	Inside washer	1	Polyoxymethylene
10	Pinion	1	Stainless steel(304)
11	Bearing(Pinion bottom)	1	Polyoxymethylene
12	O-ring(Pinion bottom)	1	Viton/NBR
13	Plug	2	NBR
14	Piston	2	Stainless steel(304)
15	O-ring(Piston)	2	Viton/NBR
16	Bearing(Piston)	2	Polyoxymethylene
17	Guide(Piston)	2	Nylon6
18	Spring	*	Spring steel
19	Spring Retainer(L)	*	Nylon66
20	Spring Retainer(R)	*	Nylon66
21	Retainer Connector	*	Brass
22	O-ring(End-Cap)	2	Viton/NBR
23	End-Cap	2	Stainless steel(304)
24	End-Cap Screw	8	Stainless steel(304)
25	Adjust Screw	2	Stainless steel(304)
26	O-ring (Adjust Screw)	2	Stainless steel(304)
27	Nut (Adjust Screw)	2	Viton/NBR

Output Torque with Double Acting

Output Torque of Double Acting Actuators

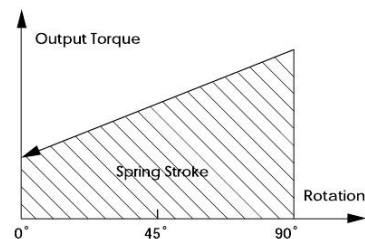
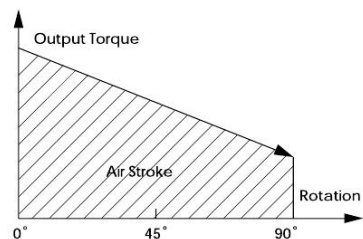


Output Torque Table of A Series Pneumatic Actuators with Double Acting

Model	Air pressure(Bar)									
	2	2.5	3	4	4.5	5	5.5	6	7	8
A-45DA	6.0	7.6	9.1	12.1	13.6	15.1	16.6	18.1	21.1	24.2
A-60DA	14.2	17.8	21.3	28.4	32.0	35.5	39.1	42.6	49.7	56.8
A-85DA	30.8	38.5	46.2	61.6	69.4	77.1	84.8	92.5	107.9	123.3
A-105DA	65.8	82.2	98.7	131.6	148.0	164.4	180.9	197.3	230.2	263.1
A-125DA	103	128	154	205	231	256	282	308	359	410
A-140DA	175	219	263	351	395	439	482	526	614	702
A-160DA	267	334	401	535	601	668	735	802	935	1069
A-210DA	526	658	789	1052	1184	1316	1447	1579	1842	2105

Output Torque with Spring Return

Output Torque of Pneumatic Actuator with Spring Return

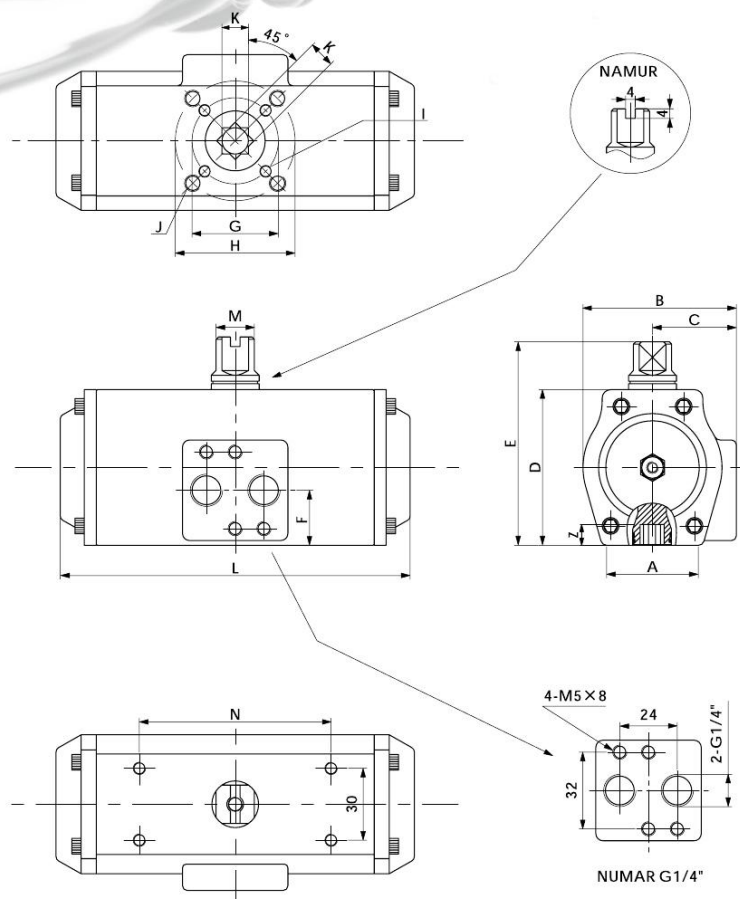


Output Torque of A Series Pneumatic Actuator with Spring Return

Unit mm

Model	Spring Qty.	Air pressure(Bar)																				Springs/output	
		2		2.5		3		4		5		6		7		8							
		0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End		
A-45SR	K5	3.0	1.2	4.6	2.8															4.6	2.9		
	K6			3.9	1.8	5.4	3.3													5.5	3.5		
	K7					4.8	2.3	7.8	5.3											6.5	4.1		
	K8							7.2	4.3	10.2	7.3									7.4	4.6		
	K9							6.6	3.4	9.6	6.4	12.6	9.4							8.3	5.2		
	K10									9.0	5.4	12.0	8.4	15.0	11.4	18.1	4.5			9.2	5.8		
	K11									8.4	4.4	11.4	7.4	14.4	10.4	17.5	13.5			10.1	6.4		
A-60SR	K12													10.8	6.5	13.8	9.5	16.9	12.6	11.1	7.0		
	K5	7.0	3.2	10.6	6.8															10.4	6.8		
	K6			9.2	4.6	12.7	8.1													12.5	8.2		
	K7					11.2	5.9	18.3	13.0											14.6	9.6		
	K8							16.9	10.8	24.0	17.9									16.7	10.9		
	K9							15.4	8.6	22.5	15.7	29.6	22.8							18.8	12.3		
	K10									21.1	13.5	28.2	20.6	35.3	27.7	42.4	34.8			20.9	13.7		
A-85SR	K11									19.7	11.3	26.8	18.4	33.9	25.5	41.0	32.6			22.9	15.0		
	K12											25.3	16.2	32.4	23.3	39.5	30.4			25.0	16.4		
	K5	14.2	6.6	21.9	14.3															23.0	15.8		
	K6			18.5	9.4	26.2	17.1													27.6	19.0		
	K7					22.9	12.3	38.3	27.7											32.2	22.1		
	K8							35.0	22.8	50.5	38.3									36.8	25.3		
	K9							31.6	18.0	47.1	33.5	62.5	48.9							41.4	28.5		
A-105SR	K10									43.8	28.7	59.2	44.1	74.6	59.5	90.0	74.9			46.0	31.6		
	K11									40.5	23.8	55.9	39.2	71.3	54.6	86.7	70.0			50.6	34.8		
	K12											52.5	34.4	67.9	49.8	83.3	65.2			55.2	38.0		
	K5	32.5	14.0	48.9	30.4															49.2	31.6		
	K6			42.2	20.0	58.7	36.5													59.1	38.0		
	K7					52.1	26.2	85.0	59.1											68.9	44.3		
	K8							78.3	48.7	111.1	81.5									78.7	50.6		
A-125SR	K9							71.7	38.4	104.5	71.2	137.4	104.1							88.6	56.9		
	K10									97.8	60.8	130.7	93.7	163.6	126.6	196.5	159.5			98.4	63.3		
	K11									91.1	50.4	124.0	83.3	156.9	116.2	189.8	149.1	108.3	69.4				
	K12									84.5	40.1	117.4	73.0	150.3	105.9	183.2	138.8	118.1	75.9				
	K5	47.9	20.5	72.9	45.5															78.4	52.4		
	K6			61.9	29.0	87.9	55.0													94.1	62.8		
	K7					76.8	38.5	127.8	89.5											109.7	73.3		
A-140SR	K8							116.8	73.0	167.8	124.0									125.4	83.8		
	K9							105.8	56.5	156.8	107.5	208.8	159.5							141.1	94.2		
	K10									145.8	91.0	197.8	143.0	248.8	194.0	299.8	245.0	156.8	104.1				
	K11									134.8	74.5	186.8	126.5	237.8	177.5	288.8	228.5	172.4	115.0				
	K12											175.7	110.0	226.7	161.0	277.7	212.0	188.1	125.0				
	K5	84.7	39.3	128.7	83.3															129.0	85.8		
	K6			110.6	56.1	154.6	100.1													154.8	102.0		
A-160SR	K7					136.6	73.0	224.6	161.0											180.5	120.0		
	K8							206.5	133.8	294.5	221.8									206.3	137.0		
	K9							188.5	106.7	276.5	194.7	363.5	281.7							232.1	154.0		
	K10									258.4	167.5	345.4	254.5	433.4	342.5	521.4	430.5	257.9	171.0				
	K11									240.3	140.4	327.3	227.4	415.3	315.4	503.3	403.4	283.7	188.0				
	K12											309.3	200.2	397.3	288.2	485.3	376.2	309.5	205.0				
	K5	120.0	47.7	187.0	114.7															208.3	139.0		
A-210SR	K6			157.6	70.9	224.6	137.9													250	168.0		
	K7					195.2	94.0	329.2	228.0											292	196.0		
	K8							299.8	184.2	432.8	317.2									333	223.0		
	K9							270.4	140.3	403.4	273.3	537.4	407.3							375	251.0		
	K10									374.0	229.5	508.0	363.5	641.0	496.5	775.0	630.5	417	279.0				
	K11									344.6	185.6	478.6	319.6	611.6	452.6	745.6	586.6	458	307.0				
	K12											449.2	275.7	582.2	408.7	716.2	542.7	500	335.0				
A-210SR	K5	237	126	369	258															360	260.0		
	K6			311	178	442	309													432	313.0		
	K7					384	230	647	493											503	365.0		
	K8							589	413	853	677									575	417.0		
	K9							531	333	795	597	1058	860							647	469.0		
	K10									737	517	1000	780	1263	1043	1526	1306	719	521.0				
	K11									679	437	942	700	1205	963	1468	1226	791	573.0				
K12											884	620	1147	883	1410	1146	863	625.0					

Dimension



Unit:mm

Model	A	B	C	D	E	F	G	H	I	J	K	L1	M	N	Z	Air Connection
A-45	48	70	41	65	85	23	Φ36	Φ50	M5x8	M6x10	11	148	16	80	14	G1/4"
A-60	58	78	43	81	101	23		Φ50		M6x10	14	167	16	80	18	G1/4"
A-85	75	102	53.5	108	128	24	Φ50	Φ70	M6x10	M8x13	17	197	16	80	21	G1/4"
A-105	92	122	63.5	133	153	24		Φ70		M8x13	22	251	16	80	26	G1/4"
A-125	96	140	72	155	185	28	Φ70	Φ102	M8x13	M10x16	22	284	22	130	26	G1/4"
A-140	112	154	78	171.5	201.5	34	Φ102	Φ125	M10x16	M12x20	27	360	22	130	31	G1/4"
A-160	127	173	86	197	227	39	Φ102	Φ125	M10x16	M12x20	27	420	22	130	31	G1/4"
A-210	144	226	110	255	285	45		Φ140		M16x25	36	530	32	130	40	G1/4"

Operating Conditions

1. Operating media
Dry or lubricated air, the non-corrosive gases or oil.
2. Air supply pressure
Double acting: 2~8 Bar; Spring return: 2~8 Bar
3. Operating temperature
Standard: -20℃ ~+80℃
Low temperature: -35℃ ~+80℃
High temperature: -15℃ ~+150℃
4. Travel adjustment
Adjustment range of ±4°when the pistons move to the sides of cylinder.
5. Lubrication
Under normal operating condition, no need of heavy lubricant
6. Application
Either indoor or outdoor
7. Highest pressure
The maximum input pressure is 10 Bar

Air Consumption

A Series Air volume opening & closing

Model	Volume Opening	Volume Closing
A-45DA	0.08	0.11
A-63DA	0.20	0.23
A-85DA	0.41	0.55
A-105DA	0.94	1.18
A-125DA	1.47	1.85
A-140DA	2.43	3.20
A-160DA	3.65	5.03
A-210DA	7.4	9.7

Air consumption :

$L/Min = \text{Air volume (Air volume Opening + Air volume closing)} \times [(\text{Air Supply (Kpa)} + 101.3) + 101.3] \times \text{Action cycle times (/min)}$

Weight Table

A Series

Unit:Kg

Model	A-45	A-60	A-85	A-105	A-125	A-140	A-160	A-210
Weight(SR)	2.65	4.10	7.00	12.60	19.20	27.30	37.60	100.00
Weight(DA)	2.51	3.85	6.35	11.90	18.00	24.80	35.80	91.00