

Series 3800 Pneumatically Operated Cylinder Actuators

AO-3800 Features

General

The AO-3800 Rotary cylinder actuators are designed to operate rotary valves, such as Ball valves, Butterfly valves and Plug valves for throttling or on-off service.

3800 Canted Scotch & Yoke

Aluminum Body
Light Medium Industries

3800 Canted Scotch & Yoke

Cast Iron (FCD) Body
Heavy Industries - Oil & Gas, Power Plant

3800 Rack & Pinion

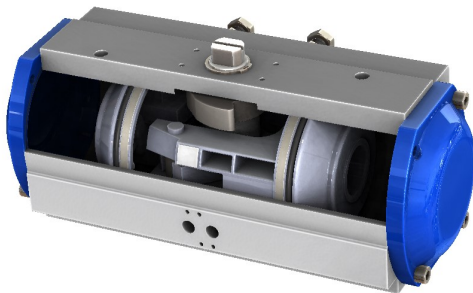
Aluminum Body
Light Medium Industries

Type of Actuators:

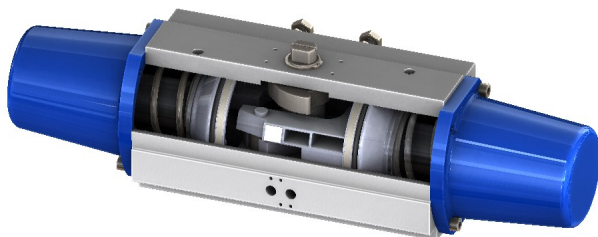
- **3800D:** Double acting
- **3800S:** Spring return acting (Air to clock-wise or counter clock-wise)

Scope of Design:

- Maximum output torque: 3.6 to 3539 Kgf-m
- Cylinder bore: 50 to 300 mm



Type A(3800D)



Type A(3800S)

Canted Scotch Yoke Cylinder Mechanism

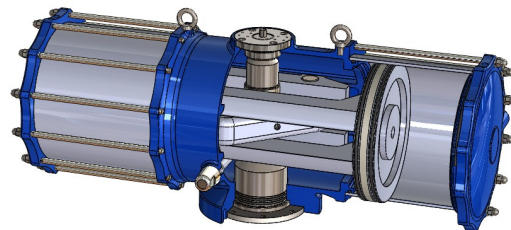
Fig.1 shows the comparison between the output torque curves of a canted, as a constant torque actuator. (i.e. Rack and pinion type)
These graphs demonstrate that, being the same the arm length and the cylinder diameter, the canted scotch-yoke actuator have the most suitable mechanism, from technical and economical reason, to operate quarter turn valves.

Rack & Pinion Cylinder Mechanism

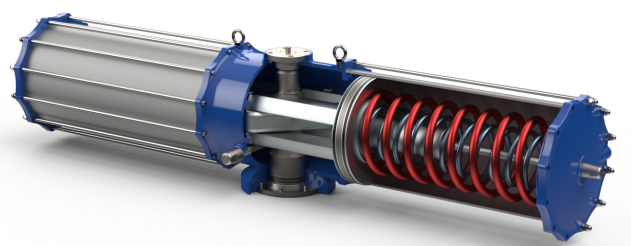
The hardened alloy steel pinion is precision ground and Nickel plated (over 15um) in order to reduce friction, provide maximum wear resistance. Full conformance with the newest standards of ISO 5211 & DIN 3337. The dimensions can be customized and as options, stainless steel and aluminum alloy are also available.

Working conditions:

- Maximum working pressure: 8 Kgf/cm²G
- Temperature:
 - Standard: -20°C ~ +80°C
 - Low: -40°C ~ +60°C
 - High: 0°C ~ +150°C



Type B(3800D)



Type B(3800S)

Over torque and travel stops

All manufactured valves have acceptable \pm tolerance. When these tolerances of the components of an automated valve assembly are added, the actuator must provide compensation by being able to rotate more than 90° with over travel in both directions, and then stop precisely at the required position. AO-3800 actuator, with two way rotation travel stops, provide a minimum rotation of -5° to 95° , and positive, adjustable, rotation stopping (10° at each end)

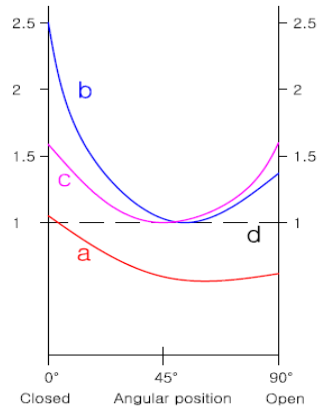
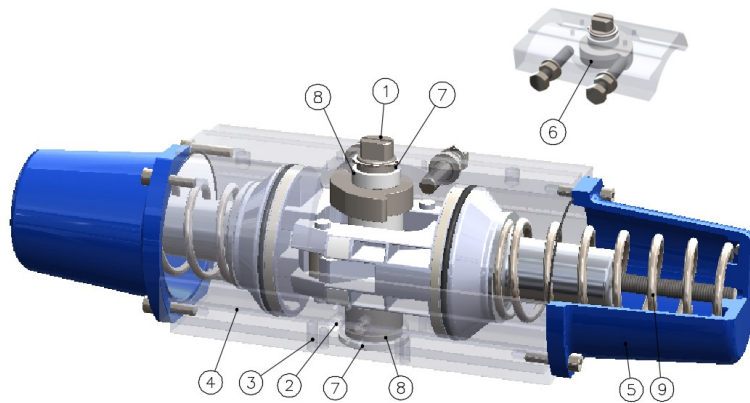


Figure 1. Torque curves

- a. Valve torque
- b. Actual output torque (canted scotch & yoke)
- c. Actual output torque (symmetric scotch & yoke)
- d. Output torque actuator (rack & pinion)

Canted Scotch & Yoke Type

Features & Benefits



1. NAMUR STANDARD SLOTTED SPINDLE (NAMUR Accessory mounting)

Provide a self centering, positive, no slop drive for positioners and switches and eliminates the actuator/ accessory coupling.

2. NAMUR SOLENOID MOUNTING PAD (An international Standard)

Permits choice of various manufactures' solenoid valves to be direct mounted to the actuator. A single solenoid valve can be used for all actuator sizes.

3. ISO 5211 STANDARD MOUNTING PAD (An international Standard)

Designed for optimum strength and interchangeability. Standardized mounting dimensions bolt diameters and bolt hole depths for ease and flexibility of mounting; with or without brackets.

4. LARGE AIR PASSAGE

This unique "supply-size" internal air passage permits obstruction free, fast operation an simple "air assist" when required.

5. VERSATILE MODULAR DESIGN

Attach or remove double acting or spring modules in minutes, select any combination of fail position, spindle rotation or actuator alignment in minutes - Safety!

6. TWO DIRECTIONAL TRAVEL STOPS (Option Parts)

Exclusive standard provides rotational adjustment for the actuator Spindle, in both directions of travel. Standard up to size AC12

7. SPINDLE THRUST AND RADIAL BEARINGS

Acetal thrust bearings project against vertical forces and also seal against atmospheric intrusion. Acetal Radial Bearings support all radial forces.

8. SPINDLE SEALS - TOP AND BOTTOM

Seals to the atmosphere are located to minimize any crevices and maximize the protection against external corrosive build up.

9. INDESTRUCTIBLE FAIL SAFE SPRINGS

Designed, built and protected to never break - rated to compensate for "spring set" for true fail safe confidence. Guaranteed and backed by a free complete actuator replacement. Highest "end of stroke" forces in the industry, for maximum reserve.

Torque Table (YA Type - Canted Scotch & Yoke)

Size : YA05S/D, 06S/D, 08S/D, 10S/D, 12S/D, 14S/D, 16S/D, 19S/D, 21S/D, 25S/D

DOUBLE ACTING (N.m)

Model	4 Bar (Air to Open)			5 Bar (Air to Open)		
	0°	45°	90°	0°	45°	90°
YA05D	32.4	17.9	33.8	39.9	21.9	43.6
YA06D	70.3	40	70.7	83.8	51.1	87
YA08D	135.8	71.4	135.8	169.3	90	165.8
YA10D	242	148	235	311	185	296
YA12D	589	304	480	716	383	602
YA14D	834	415	715	1017	520	912
YA16D	1174	638	1195	1447	799	1412
YA19D	1602	976	1536	1964	1218	1855
YA21D	2267	1420	2426	2805	1746	2999
YA25D	3687	2399	4639	4534	3025	5857

SPRING RETURN (N.m)

Model	Angle	SPRING	AIR 4BAR	SPRING	AIR 5BAR
YA05S	0°	10.1	24.4	13.5	27.6
	45°	6.7	12.5	9.5	14.1
	90°	13.0	19.3	19.1	22.4
YA06S	0°	23.9	52.8	36.1	56.1
	45°	15.4	28	24.3	29
	90°	27.9	39.3	49.2	33.6
YA08S	0°	42.8	122.9	69.8	122.9
	45°	25.8	61.4	48.4	54
	90°	48.4	75.4	95.9	74.5
YA10S	0°	80.1	180.6	112.7	207.6
	45°	60.5	93.1	85.7	100.5
	90°	121	130.3	164.8	135
YA12S	0°	235.5	342.6	267.2	471.1
	45°	150.9	160.1	173.2	234.6
	90°	278.4	223.4	329.6	312.8
YA14S	0°	329.6	473.9	400.3	623.8
	45°	206.7	223.4	228.1	316.5
	90°	393.8	322.1	446.9	470.2
YA16S	0°	559.5	703.8	472.9	1152.6
	45°	332.4	326.8	277.4	571.6
	90°	662.9	462.7	525.1	896.6
YA19S	0°	911.4	895.6	902.1	1313.6
	45°	567	444.1	592.1	693.6
	90°	1074.4	485.1	1157.2	877
YA21S	0°	977.6	1564.1	1182.4	1666.5
	45°	540	800.7	698.3	10133.4
	90°	1042.7	1005.5	1331.3	1387.2
YA25S	0°	1768.9	2513.7	1908.6	3668.1
	45°	940.3	1433.7	1042.7	1973.7
	90°	1796.8	2169.2	2020.3	3156.1

Torque Table (YC Type - Canted Scotch & Yoke)

Size : YC10S/D, 12S/D, 14S/D, 16S/D, 21S/D, 25S/D, 30S/D, 40S/D, 50S/D

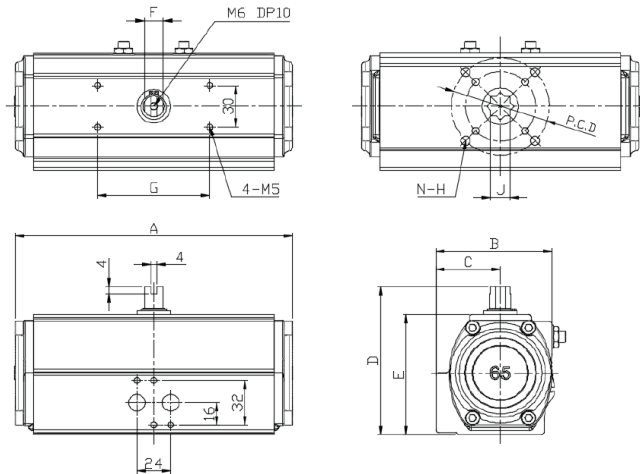
DOUBLE ACTING (N.m)

Model	4 Bar (Air to Open)			5 Bar (Air to Open)		
	0°	45°	90°	0°	45°	90°
YC10D	242	148	235	311	185	296
YC12D	589	304	480	716	383	602
YC14D	834	415	715	1017	520	912
YC16D	1174	638	1195	1447	799	1412
YC21D	2267	1420	2426	2805	1746	2999
YC25D	3687	2399	4639	4534	3025	5857
YC30D	6421	4622	7612	7788	5760	9570
YC40D	23178	9366	16556	25667	11707	22230
YC50D	47348	22308	42711	59185	27885	53388

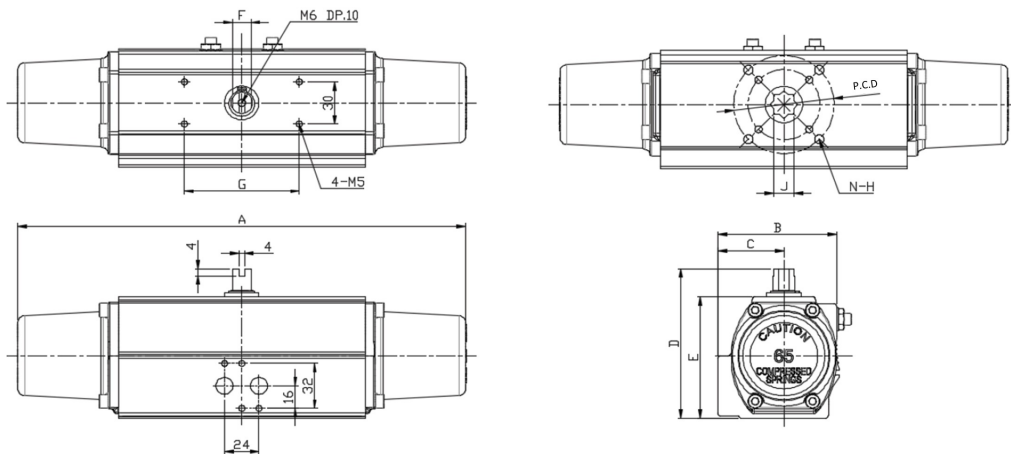
SPRING RETURN (N.m)

Model	Angle	SPRING	AIR 4BAR	SPRING	AIR 5BAR
YC10S	0°	80.1	180.6	112.7	207.6
	45°	60.5	93.1	85.7	100.5
	90°	121	130.3	164.8	135
YC12S	0°	235.5	342.6	267.2	471.1
	45°	150.9	160.1	173.2	234.6
	90°	278.4	223.4	329.6	312.8
YC14S	0°	329.6	473.9	400.3	623.8
	45°	206.7	223.4	228.1	316.5
	90°	393.8	322.1	446.9	470.2
YC16S	0°	559.5	703.8	472.9	1152.6
	45°	332.4	326.8	277.4	571.6
	90°	662.9	462.7	525.1	896.6
YC21S	0°	977.6	1564.1	1182.4	1666.5
	45°	540	800.7	698.3	10133.4
	90°	1042.7	1005.5	1331.3	1387.2
YC25S	0°	1768.9	2513.7	1908.6	3668.1
	45°	940.3	1433.7	1042.7	1973.7
	90°	1796.8	2169.2	2020.3	3156.1
YC30S	0°	3696	4143	3957	5903
	45°	1881	2542	2151	3454
	90°	3333	3547	3957	5093
YC40S	0°	9150	14027	10274	15393
	45°	5162	4204	5971	5736
	90°	10976	5580	13439	8792
YC50S	0°	16521	30828	22805	36380
	45°	10858	11450	13816	14069
	90°	25348	17363	31008	22380

Dimension Table

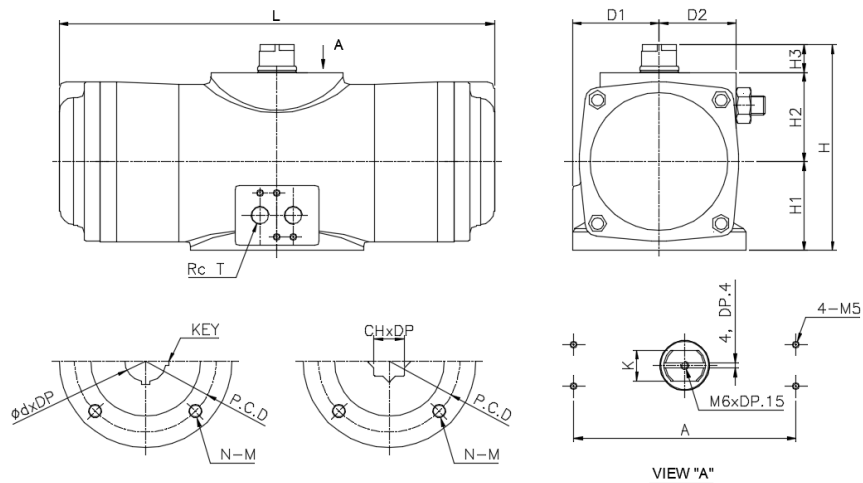


MODEL	A	B	C	D	E	F	G	ISO	P.C.D(Ø)	N-H	J	Stem Depth	Weight (Kg)
YA05D	162	75	40	90	70	9	80	F03/F05/F07	36/50/70	4-M5/M6/M8	11x11	13	1.4
YA06D	202	89	46	107	87	13	80	F05/F07	50/70	4-M6/M8	14x14	17	2.3
YA08D	262	101	49.5	126	106	13	80	F07	70	4-M8	17x17	19	3.9
YA10D	311	129	61.5	148	128	19	80	F07/F10	70/102	4-M8/M10	22x22	26	6.7
YA12D	390	151	71.5	174	154	19	80	F07/F10	70/102	4-M8/M10	22x22	26	11.3
YA14D	431	164	77	192	172	24	80	F10/F12	102/125	4-M10/M12	27x27	30	16.4
YA16D	506	188	89	216	196	24	80	F14	140	4-M16	36x36	38	23.7
YA19D	581	217	102	244	224	24	80/130	F14	140	4-M16	36x36	38	34.8
YA21D	605	231	115	284	254	36	130	F16	165	4-M20	46x46	60	45.5
YA25D	755	301	152	335	305	36	130	F16	165	4-M20	46x46	60	65.8

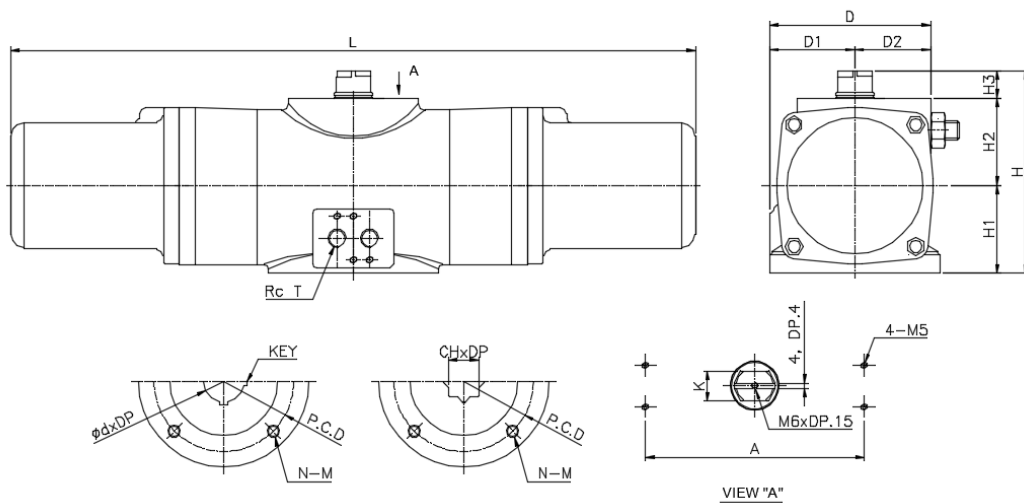


MODEL	A	B	C	D	E	F	G	ISO	P.C.D(Ø)	N-H	J	Stem Depth	Weight (Kg)
YA05S	257	75	40	90	70	9	80	F03/F05/F07	36/50/70	4-M5/M6/M8	11x11	13	1.6
YA06S	314	89	46	107	87	13	80	F05/F07	50/70	4-M6/M8	14x14	17	3
YA08S	430	101	49.5	126	106	13	80	F07	70	4-M8	17x17	19	5.3
YA10S	500	129	61.5	148	128	19	80	F07/F10	70/102	4-M8/M10	22x22	26	9.5
YA12S	606	151	71.5	174	154	19	80	F07/F10	70/102	4-M8/M10	22x22	26	17.6
YA14S	682	164	77	192	172	24	80	F10/F12	102/125	4-M10/M12	27x27	30	23.9
YA16S	781	188	89	216	196	24	80	F14	140	4-M16	36x36	38	36.6
YA19S	894	217	102	244	224	24	80/130	F14	140	4-M16	36x36	38	56.9
YA21S	982	231	115	284	254	36	130	F16	165	4-M20	46x46	60	77.2
YA25S	1108	301	152	335	305	36	130	F16	165	4-M20	46x46	60	119.6

Dimension Table



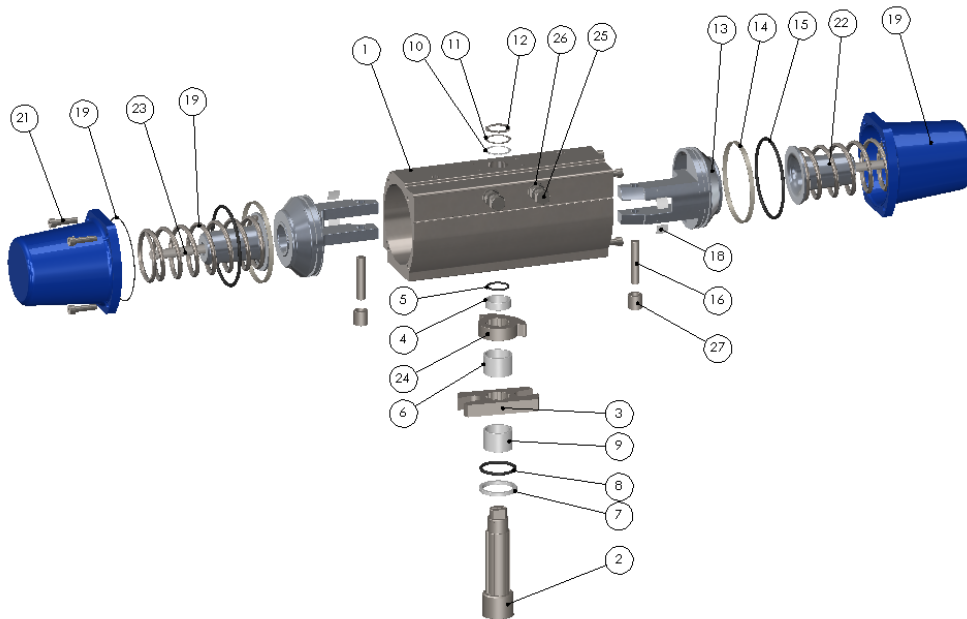
SIZE	ISO. BASE	L	D	D1	D2	H	H1	H2	H3	PCDØ	N-H	ØdxDp	Key	CHxDp	K	Rc T	A
YC10D	F07/F10	313.5	125	62.5	62.5	148	64	84	20	Ø70 / Ø102	4-M8/M10	-	-	□22x26	19	1/4"	80
YC12D	F07/F10	374	151.5	76.5	75	173.5	77	76.5	20	Ø70 / Ø102	4-M8/M10	-	-	□22x26	19	1/4"	80
YC14D	F10/F12	443	175	87.5	87.5	175	86	106	20	Ø102 / Ø125	4-M10/M12	-	-	□27x30	24	1/4"	80
YC16D	F14	511	210	105	105	216	98	118	20	Ø140	4-M16	-	-	□36x38	24	1/4"	80
YC21D	F16	618	300	150	150	285	128	127	30	Ø165	8-M16/4-M20	-	-	□46x60	36	1/4"	80
YC25D	F16	754	310	155	155	335	150	155	30	Ø165	4-M20	-	-	□46x60	36	3/8"	130
YC30D	F25	907	366	183	183	426.5	190	206.5	30	Ø254	4-M20	Ø 90x80	25x14	-	17	3/8"	130
YC40D	F30	1352	434	209	225	531	276	255	20	Ø298	8-M20	Ø 90x80	25x14	-	17	1/2"	80/130
YC50D	F40	2002	625	310	315	777	420	329	20	Ø406	8-M36	Ø 180x200	45x22	-	17	1/2"	100/150



SIZE	ISO. BASE	L	D	D1	D2	H	H1	H2	H3	PCDØ	N-H	ØdxDp	Key	CHxDp	K	Rc T	A
YC10S	F07/F10	501.5	125	62.5	62.5	148	64	84	20	Ø70 / Ø102	4-M8/M10	-	-	□22x26	19	1/4"	80
YC12S	F07/F10	605	151.5	76.5	75	173.5	77	76.5	20	Ø70 / Ø102	4-M8/M10	-	-	□22x26	19	1/4"	80
YC14S	F10/F12	682	175	87.5	87.5	175	86	106	20	Ø102 / Ø125	4-M10/M12	-	-	□27x30	24	1/4"	80
YC16S	F14	781	210	105	105	216	98	118	20	Ø140	4-M16	-	-	□36x38	24	1/4"	80
YC21S	F16	962	300	150	150	285	128	127	30	Ø165	8-M16/4-M20	-	-	□46x60	36	1/4"	80
YC25S	F16	1084	310	155	155	335	150	155	30	Ø165	4-M20	-	-	□46x60	36	3/8"	130
YC30S	F25	1344	366	183	183	426.5	190	206.5	30	Ø254	4-M20	Ø 90x80	25x14	-	17	3/8"	130
YC40S	F30	2339	434	209	225	531	276	255	20	Ø298	8-M20	Ø 90x80	25x14	-	17	1/2"	80/130
YC50S	F40	3422	625	310	315	777	420	329	20	Ø406	8-M36	Ø 180x200	45x22	-	17	1/2"	100/150

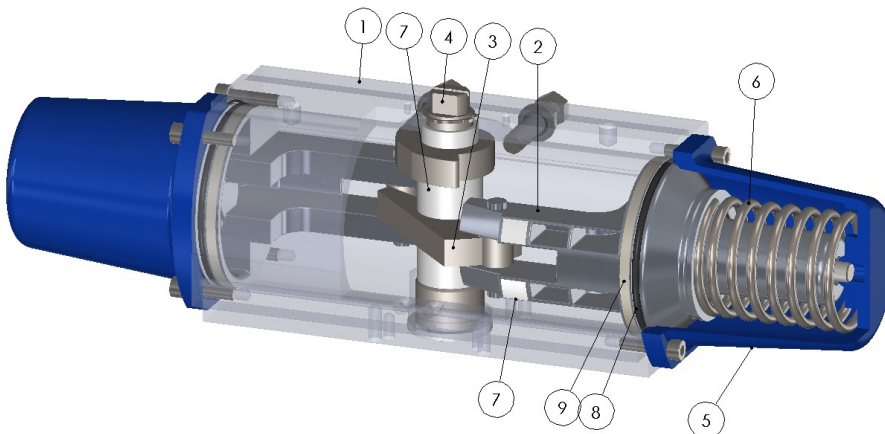
Part List

YA Type - Canted Scotch & Yoke



No.	Part Name	No.	Part Name
1	BODY	15	PISTON GUIDE-RING
2	SHAFT	16	PISTON PIN
3	CRANK	17	PISTON ROLLER
4	BUSHING (TOP)	18	PISTON PAD
5	BODY O-RING (TOP)	19	COVER
6	SHAFT ROLLER (TOP)	20	COVER O-RING
7	BUSHING (BOTTOM)	21	COVER BOLT
8	BODY O-RING (BOTTOM)	22	SPRING CAP
9	SHAFT ROLLER (BOTTOM)	23	SPRING
10	BODY WASHER (BOTTOM)	24	STOPPER
11	BODY WASHER (TOP)	25	STOPPER BOLT
12	BODY SNAP-RING	26	STOPPER O-RING
13	PISTON	27	STOPPER WASHER
14	PISTON O-RING	28	STOPPER NUT

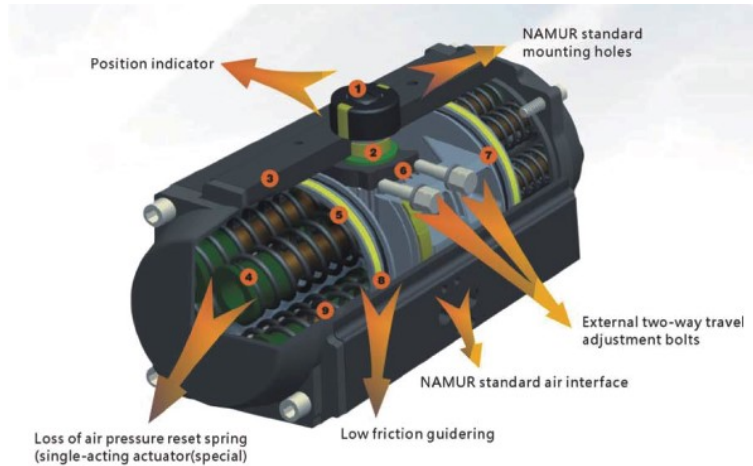
YC Type - Canted Scotch & Yoke



No.	Part Name
1	BODY
2	PISTON LINK
3	DISC
4	SPINDLE
5	SPRING CASE
6	SPRING
7	GUIDE
8	O-RING
9	WEAR RING

AO-3800 Rack & Pinion (RP Type)

Features & Benefits



Indicator

A position indicator with Namur mounting is standard on all pneumatic actuators for mounting accessories.

Pinion

The hardened alloy steel pinion is precision ground and Nickel plated (over 15µm) in order to reduce friction, provide maximum wear resistance. Full conformance with the newest standards of ISO 5211 & DIN 3337. The dimensions can be customized and as options, stainless steel and aluminum alloy are also available.

Pistons

The precisely-balanced and hard anodized treatment (over 30µm) die cast aluminum pistons are fitted with high quality rings and guides. The twin rack and piston design creates a constant torque output on all actuators.

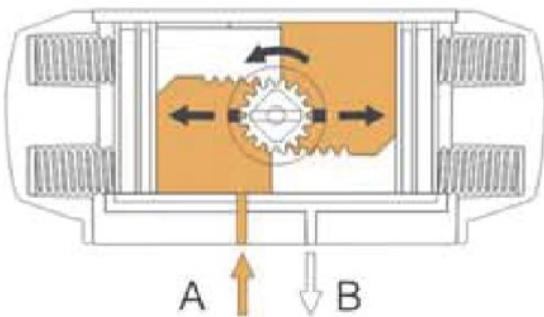
High Performance Spring

The high tensile steel springs are coated with epoxy for corrosion resistance and longer service. The preloaded springs can be safely & rapidly disassembled.

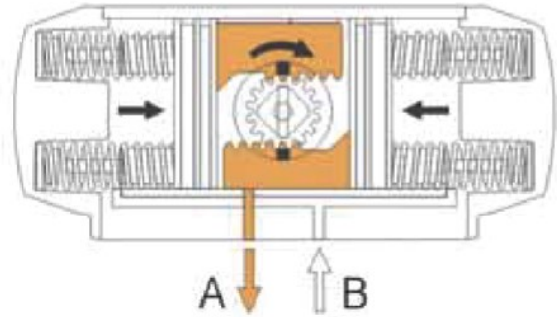
Travel Adjustment

The standard adjustment is $\pm 5^\circ$ in both the open closed positions through easily accessible external adjustment bolts.

3800 Operating Principle of double acting actuator



clockwise Air to port A forces the pistons outwards, causing the piston to turn counter-clockwise while air is being exhausted from port B.



Air to port B forces the pistons inwards, causing the piston to turn clockwise while air is being exhausted from port A.

Torque Table (RP Type - Rack & Pinion)

Torque Table of Double Acting Actuator

Model	Air Supply Pressure (unit:bar)			
	3.0	4.0	5.0	6.0
	Air Torque Output(Nm)			
RP05D	12.0	16.0	20.0	24.0
RP06D	21.7	28.9	36.1	43.4
RP08D	42.8	57.0	71.3	85.5
RP10D	97.7	130.3	162.9	195.5
RP12D	173.3	231.0	288.8	346.5
RP14D	260.7	347.6	434.5	521.4
RP16D	397.2	529.6	662.0	794.4
RP19D	640.2	853.6	1067.0	1280.4
RP21D	789.8	1173.1	1466.4	1759.7
RP24D	1379.0	1838.6	2298.3	1757.9
RP27D	1939.2	2585.6	3232	3878.4
RP30D	2289.1	3136.9	3984.7	4832.5
RP35D	3359.7	4479.6	5599.5	6194.4

Torque Table of Spring Return Actuator

Air Torque Output(Nm)												OutPut torque spring	
Air Supply Pressure (unit : bar)		2.5Bar		3Bar		4Bar		5Bar		6Bar			
Model	Spring number	0°start	90°end	0°start	90°end	0°start	90°end	0°start	90°end	0°start	90°end	0°start	90°end
RP05S	5	5.7	3.8	7.6	5.7							6.2	4.3
	6	4.9	2.5	6.9	4.5	10.9	8.5	14.0	10.4			7.4	5.0
	7	4.0	1.3	6.0	3.3	9.8	7.3	13.2	9.1	17.2	14.1	8.6	5.9
	8			5.2	2.0	9.2	6.0	12.3	7.9	16.3	12.8	9.9	6.7
	9			4.3	0.8	8.3	4.8	11.5	6.7	15.5	11.6	11.1	7.6
	10					7.4	3.6	10.6	5.4	14.6	10.4	12.4	8.5
	11					6.6	2.3	9.7	4.2	13.8	9.1	13.6	9.3
RP06S	5	11.4	7.7	15.0	11.4	22.3	14.9					10.4	6.8
	6	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9			12.5	8.2
	7	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9			14.6	9.6
	8			10.9	5.1	18.2	12.4	25.5	19.8	32.8	27.0	16.7	10.9
	9					16.8	10.4	24.1	17.7	31.4	24.9	18.8	12.3
	10					1.4	8.2	22.8	15.6	30.0	22.8	20.9	13.7
	11							21.5	13.5	28.7	20.7	22.9	15.0
12							20.0	11.4	27.3	18.6	25.0	16.4	

Torque Table (RP Type - Rack & Pinion)

Torque Table of Spring Return Actuator

Air Torque Output(Nm)													
Air Supply Pressure (unit : bar)		2.5Bar		3Bar		4Bar		5Bar		6Bar		OutPut torque spring	
Model	Spring number	0° start	90° end	0° start	90° end	0° start	90° end	0° start	90° end	0° start	90° end	0° start	90° end
RP08S	5	23.3	16.1	31.1	24.0	16.8	39.7					23.0	15.8
	6	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7			27.6	19.0
	7	17.0	6.9	24.8	14.8	40.5	30.5	56.2	46.2			32.3	22.1
	8			21.7	10.1	37.4	25.8	53.1	41.5	68.8	57.2	36.8	25.3
	9					34.2	21.3	49.9	37.0	65.6	52.6	41.4	28.5
	10					31.0	16.6	46.7	32.3	62.4	48.0	46.0	31.6
	11							43.6	27.7	59.3	43.4	50.6	34.8
	12							40.4	23.2	56.1	38.9	55.2	38.0
RP10S	5	51.0	33.4	67.5	49.9	100.6	83.0					49.2	31.6
	6	44.7	23.5	61.1	40.0	94.2	73.2	127.3	106.2			59.1	38.0
	7	38.4	13.7	54.9	30.3	87.9	63.4	121.0	96.4			68.9	44.3
	8			48.5	20.4	81.6	53.5	114.7	86.5	147.7	119.6	78.7	50.6
	9					75.3	43.7	108.4	76.8	141.5	109.8	88.6	56.9
	10					68.9	33.4	102.0	66.5	135.1	99.6	98.4	63.3
	11							95.7	57.0	128.7	90.1	108.3	69.6
	12							89.4	47.5	122.5	80.6	118.1	75.9
RP12S	5	73.0	47.0	98.0	72.0	148.0	122.0					79.0	52.0
	6	62.0	31.0	88.0	56.0	127.0	107.0	188.0	157.0			94.0	63.0
	7	52.0	15.0	77.0	40.0	117.0	90.0	178.0	141.0			110.0	73.0
	8			67.0	25.0	107.0	75.0	167.0	125.0	217.0	176.0	125.0	84.0
	9					96.0	59.0	157.0	109.0	207.0	159.0	141.0	94.0
	10						44.0	146.0	94.0	196.0	144.0	157.0	105.0
	11							136.0	78.0	186.0	128.0	173.0	115.0
	12							125.0	63.0	176.0	113.0	188.0	125.0
RP14S	5	128.0	85.0	171.0	127.0	256.0	213.0					129.0	86.0
	6	111.0	59.0	154.0	102.0	239.0	187.0	325.0	273.0			155.0	103.0
	7	94.0	33.0	137.0	76.0	222.0	162.0	308.0	247.0			181.0	120.0
	8			120.0	50.0	205.0	136.0	291.0	221.0	376.0	307.0	206.0	137.0
	9					187.0	110.0	273.0	196.0	358.0	281.0	232.0	155.0
	10					170.0	84.0	256.0	169.0	341.0	255.0	258.0	172.0
	11							238.0	143.0	324.0	229.0	284.0	189.0
	12							221.0	118.0	307.0	203.0	310.0	206.0
RP16S	5	193.0	124.0	259.0	191.0	392.0	324.0					208.0	140.0
	6	165.0	83.0	232.0	149.0	365.0	282.0	498.0	415.0			250.0	168.0
	7	137.0	41.0	203.0	107.0	336.0	240.0	469.0	373.0			282.0	196.0
	8			176.0	66.0	309.0	199.0	442.0	237.0	575.0	465.0	33.0	223.0
	9					280.0	157.0	413.0	290.0	546.0	423.0	375.0	251.0
	10					253.0	115.0	386.0	248.0	519.0	381.0	417.0	279.0
	11							358.0	207.0	491.0	340.0	458.0	307.0
	12							330.0	165.0	463.0	298.0	500.0	335.0

Torque Table (RP Type - Rack & Pinion)

Torque Table of Spring Return Actuator

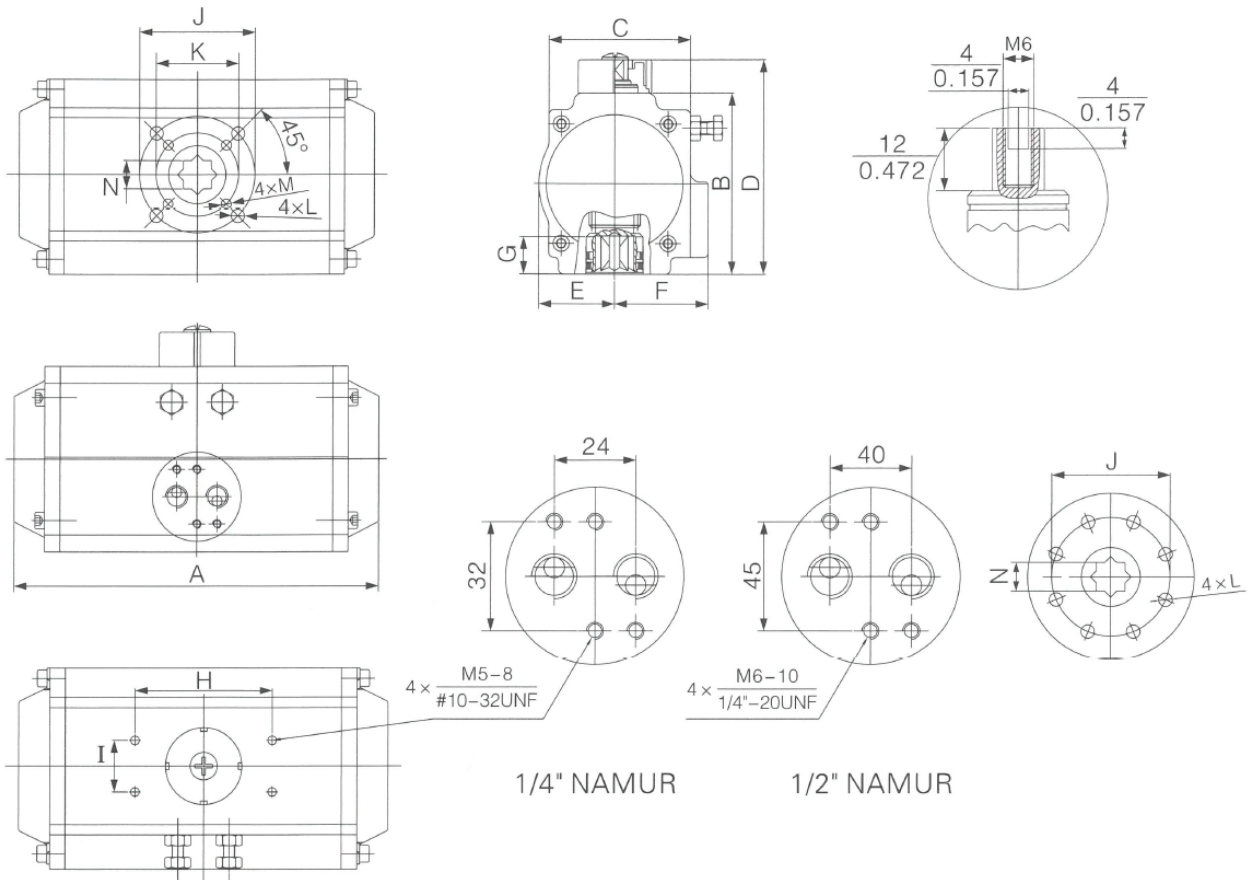
		Air Torque Output(Nm)										OutPut torque spring	
Air Supply Pressure (unit : bar)		2.5Bar		3Bar		4Bar		5Bar		6Bar			
Model	Spring number	0° start	90° end	0° start	90° end	0° start	90° end	0° start	90° end	0° start	90° end	0° start	90° end
RP19S	5	332	222	438	329	651	542					309	200
	6	292	161	398	267	611	480	824	693			371	240
	7	252	99	358	205	571	418	784	631			433	280
	8			318	143	531	356	744	569	957	782	495	320
	9					491	295	704	507	917	720	557	360
	10					451	233	664	446	877	658	618	400
	11						624	384	837	597		680	440
	12							584	322	797	535	742	480
RP21S	5	390.0	285.0	523.0	418.0	789.0	684.0					380.0	275.0
	6	335.0	209.0	468.0	342.0	734.0	608.0	1000.0	874.0			456.0	330.0
	7	280.0	133.0	413.0	266.0	679.0	532.0	945.0	798.0			532.0	385.0
	8			358.0	190.0	624.0	456.0	890.0	722.0	1156.0	988.0	608.0	440.0
	9					569.0	380.0	835.0	646.0	1101.0	912.0	684.0	495.0
	10					514.0	304.0	780.0	570.0	1046.0	836.0	760.0	550.0
	11							725.0	494.0	991.0	760.0	836.0	605.0
	12							670.0	418.0	936.0	684.0	912.0	660.0
RP24S	5	552.0	409.0	744.0	600.0	1129.0	985.0					554.0	410.0
	6	470.0	297.0	662.0	489.0	1047.0	874.0	1432.0	1259.0			665.0	492.0
	7	388.0	187.0	580.0	379.0	964.0	764.0	1349.0	1149.0			775.0	575.0
	8			498.0	268.0	883.0	653.0	1267.0	1037.0	1652.0	1422.0	886.0	656.0
	9					800.0	542.0	1185.0	926.0	1569.0	1311.0	998.0	739.0
	10					718.0	431.0	1103.0	816.0	1488.0	1201.0	1108.0	821.0
	11							1021.0	705.0	1406.0	1090.0	1219.0	903.0
	12							939.0	594.0	1323.0	979.0	1330.0	985.0
RP27S	5	903	675	1195	968	1779	1552					787	560
	6	790	519	1083	811	1667	1396	2252	1981			943	672
	7	679	361	972	654	1556	1238	2141	1823			1101	783
	8			860	497	1444	1081	2029	1666	2614	2252	1258	895
	9					1332	823	1917	1509	2502	2094	1416	1007
	10					1220	767	1805	1352	2390	1937	1572	1119
	11							1693	1194	2278	1779	1730	1231
	12							1582	1037	2167	1623	1887	1342
RP30S	5	1097.0	729.0									1061.0	730.0
	6	935.0	494.0	1316.0	875.0							1273.0	876.0
	7	772.0	258.0	1153.0	639.0	1916.0	1402.0					1485.0	1022.0
	8			991.0	403.0	1754.0	1166.0	2517.0	1929.0			1697.0	1168.0
	9					1592.0	930.0	2355.0	1693.0	3118.0	2456.0	1909.0	1314.0
	10					1430.0	695.0	2193.0	1458.0	2956.0	2221.0	2122.0	1460.0
	11							2030.0	1222.0	2793.0	1985.0	2334.0	1606.0
	12							1868.0	986.0	2631.0	1749.0	2546.0	1752.0

Torque Table (RP Type - Rack & Pinion)

Torque Table of Spring Return Actuator

Air Torque Output(Nm)												OutPut torque spring		
Air Supply Pressure (unit : bar)		2.5Bar		3Bar		4Bar		5Bar		6Bar				
Model	Spring number	0° start	90° end	0° start	90° end	0° start	90° end	0° start	90° end	0° start	90° end	0° start	90° end	
RP35S	5	1553.0	964.0									1702.0	1173.0	
	6	1292.0	586.0	1863.0	1157.0							2043.0	1408.0	
	7	1031.0	208.0	1602.0	779.0	2745.0	1922.0					2383.0	1642.0	
	8			1341.0	401.0	2484.0	1544.0	3626.0	2686.0				2724.0	1877.0
	9					1963.0	1165.0	3336.0	2307.0	4508.0	3449.0	3064.0	2112.0	
	10						787.0	3105.0	1929.0	4247.0	3071.0	6405.0	2346.0	
	11							2844.0	1551.0	3986.0	2693.0	3745.0	2581.0	
	12							2584.0	1172.0	3726.0	2314.0	4086.0	2816.0	

Dimension Table

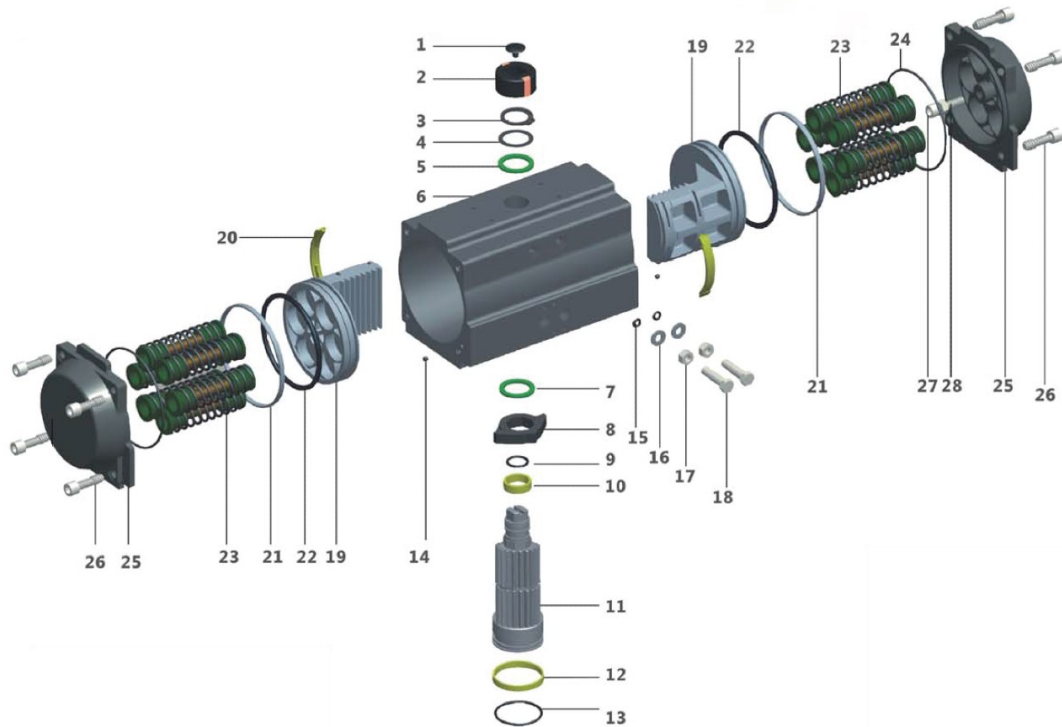


UNIT : mm

Model	A	B	C	D	E	F	G	H	I	N	J	K	L	M	Air Connection
RP05 S/D	147	72.8	60.5	92	26	41.5	14	80	30	11	F05	F03	M6 x 10	M5 x 7.5	1/4"
RP06 S/D	170	90.5	70	110	33.5	47	17	80	30	14	F07	F05	M8 x 13	M6 x 7.5	1/4"
RP08 S/D	212	109	86	129	40	57	17	80	30	14	F07	F05	M8 x 13	M6 x 10	1/4"
RP10 S/D	270	135	104.8	155	52	64	26	80	30	17	F10	F07	M10 x 16	M8 x 13	1/4"
RP12 S/D	302	157	120	185	60	74.5	25	80	30	22	F10	F07	M10 x 16	M8 x 13	1/4"
RP14 S/D	398	174	125	200	65	77	30	130	30	27	F12	F10	M12 x 20	M10 x 16	1/4"
RP16 S/D	460	201	143	230	74	87	30	130	30	27	F12	F10	M12 x 20	M10 x 16	1/4"
RP19 S/D	534	232	172.8	259	86	103	40	130	30	36	F14	-	M16 x 20	-	1/4"
RP21 S/D	536	257	194	285	97	113	43	130	30	36	F14	-	M16 x 20	-	1/4"
RP24 S/D	606	290	230	318	115	130	50	130	30	46	F16	-	M20 x 25	-	1/4"
RP27 S/D	715	330	252	359	126	147	50	130	30	46	F16	-	M20 x 25	-	1/2"
RP30 S/D	775	348	390	370	162	173	50	130	30	46	F16	-	M20 x 25	-	1/2"
RP35 S/D	845	410	385	440	190	195	50	130	30	46	F16	-	M20 x 25	-	1/2"

Part List

RP



Parts list

No.	Name	Number	material	Protection	Optional Material
1	Indicator screw	1	plastic		
2	Indicator	1	plastic		
3	Circlip	1	Stainless steel		
4	Gasket	1	Stainless steel		
5	Gasket	1	Engineering plastics		
6	Actuator body	1	Aluminum Alloy	Hard anodized, etc.	
7	Thrust Bearing (Pinion)	1	Nylon 66		
8	Stroke Cam	1	Steel		
9	O-Ring(Top Pinion)	1	NBR		Viton/HNBR
10	Bearing (Top Pinion)	1	Nylon 66		
11	Pinion	1	H2	Nickel plating	Stainless steel
12	Bearing(Lower Pinion)	1	Nylon 66		
13	O-Ring(Lower Pinion)	1	NBR		Viton / HNBR
14	Plug	2	NBR		Viton/HNBR
15	Stroke Bolt O-Ring	2	NBR		Viton / HNBR
16	Stroke Bolt Washer	2	Stainless steel		
17	Stroke Bolt Retaining Nut	2			Stainless steel
18	Stroke Bolt	2	Stainless steel		
19	Piston	2	Die Cast Aluminum Alloy	Hard anodized (over 30um)	
20	Piston Guide	2	Nylon 66		
21	Piston Bearing	2	Nylon 66		
22	Piston Seal	2	NBR		Viton/ HNBR
23	Spring (Cartridge)	0~12	High Performance Spring steel	Epoxy Coated	
24	End Cap Seals	2	NBR		Viton/HNBR
25	End Cap	2	Die Cast Aluminum	Epoxy coated (over 80um)	Nickel or PTFE coated
26	End Cap Bolts	8	Stainless steel		

Warranty / Remedy

Korea Motoyama Inc. warrants goods of its manufacture as being free of defective materials and faulty workmanship for 12 months from the date of shipment, unless otherwise specified. In this period, all of our products claimed by original defects may be returned to our factory after notice and authorization by us. If warranted goods are returned to Korea Motoyama Inc. during the period of coverage, it will be repaired or replaced without charge for those items it finds defective. Such defects shall be exclusive of the effects of corrosion, erosion, normal wear or improper handling and storage. In case our engineers have field service, the user shall detach and install valves by his cost. Determination of the suitability of the Products for the use contemplated by the buyer or buyer's customer(s) is the sole responsibility of the buyer in connection therewith. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.

Specifications are subject to change without notices.

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VALVES & CONTROLS

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