

# 780-781 3-WAYS BALL VALVE WITH ADA ACTUATOR

## MAIN CHARACTERISTICS

The three-ways flanged ball valve type 780-781 is dedicated to the mixing or deviating functions in process of fluids. With reduced bore, floating ball construction, the 780-781 valves has seats and gland packing in PTFE. The valve is tight on the three ways. The ISO 5211 flange allows an easy mounting of standardized actuators. The pneumatic actuation through the ADA actuator is available in double effect and spring return types with numerous options.



## MODELES DISPONIBLES

1/4" à 2" ISO 7 G connections

780 : « L » port valve

781 : « T » port valve

## CLASSIFICATION FOLLOWING PED

Sizes < 1" not subjected

Sizes 1 1/4" to 2" category II, homologation CE 0035

## LIMITS OF USE

PS	TS
55 bar @ 20°C	-10°C / +140°C

## OPTIONS

Declutchable gear box  
Oversized actuator  
Actuator with special coating  
Limits switches box  
NAMUR pilot valve

## POSITIONS

Type	1	2	3	4
L 780				
T 781				

## ACTUATOR TYPE ADA

See our technical data sheet FT1510 on page 4.

## MOTORIZATION WITH ADA ACTUATOR

The actuators are sized for following operating conditions :

- 6 bar compressed air supply,
- max. pressure differential up/downstream : 10 bar.

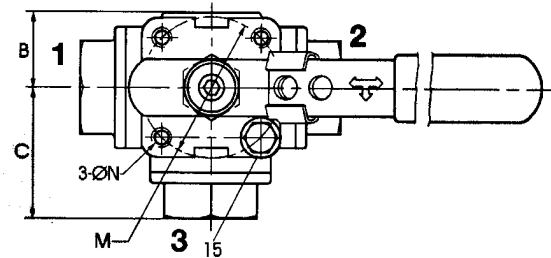
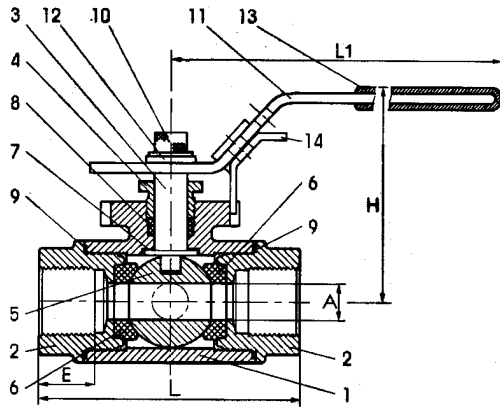
size	double effect	Spring return
1/4"	ADA 20	ASR 40
3/8"	ADA 20	ASR 40
1/2"	ADA 20	ASR 40
3/4"	ADA 40	ASR 80
1"	ADA 40	ASR 80
1 1/4"	ADA 80	ASR 130
1 1/2"	ADA 80	ASR 200
2"	ADA 130	ASR 300

For any other operating condition, please consult.

## PLAN D'ENCOMBREMENT

To know the overall dimensions of the 780+ADA assembly, see the attached drawing on page 4 of this document..

# 780-781 3-WAYS BALL VALVE WITH ADA ACTUATOR



## CONSTRUCTION

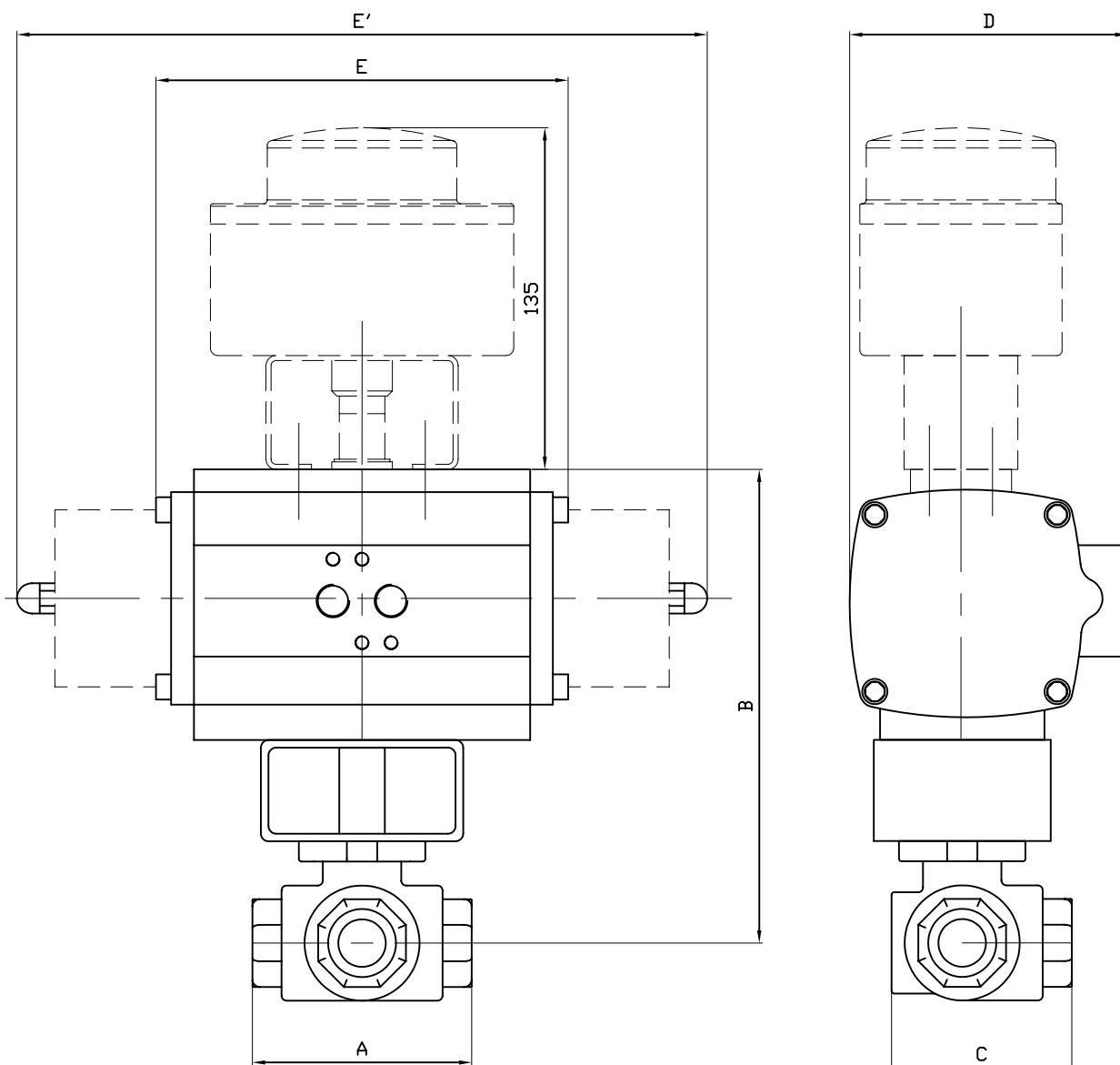
Item	Part	Material
1	Body	A351 CF8M
2	Nozzle	A351 CF8M
3	Stem	Inox 316
4	Packing nut	Inox 304
5	Ball	Inox 316
6	Seat	PTFE-Gr
7	Ring	PTFE
8	Packing	PTFE

Item	Part	Material
9	Body gasket	PTFE
10	Nut	Inox 304
11	lever	Inox 304
12	Washer	Inox 304
13	Protection	Vinyl
14	Locking device	Inox 304
15	Pin	Inox 304
16		

## DIMENSIONS (mm)


DN	¼ ID	3/8 ID	½ ID	¾ ID	1 ID	1 ¼	1 ½	2 ID
A	9,5	9,5	12	15	20	25	32	40
B	22	22	23	28	31	34	42	48
C	37	37	39	45	53	58	69	82
E	14	14	16	17	21	21	26	30
H	64,5	64,5	64,5	77,5	81	88	93	105
L	74	74	80	89	105	113	140	161
L1	92	92	112	150	150	150	150	240
M	42	42	42	50	50	50	70	70
N	M5	M5	M5	M6	M6	M6	M8	M8
Weight (Kg)	0,78	0,78	0,69	1,1	1,64	2,7	3,9	6,8

Modifications reserved

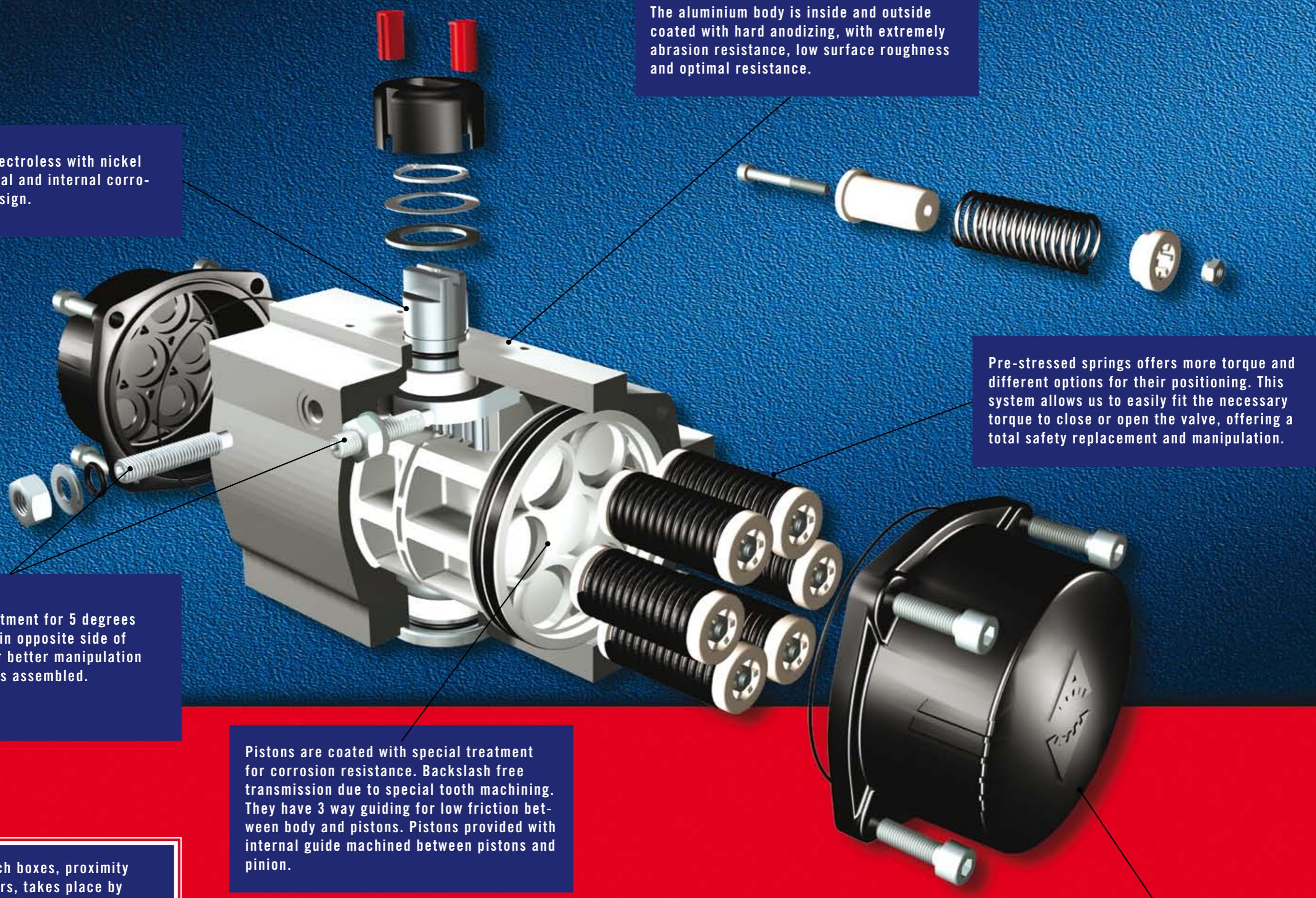


DN	1/4" - 3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
ACTREG	20 DE	40 SE	20 DE	40 SE	40 DE	80 SE	80 DE	130 SE	80 DE	130 SE	80 DE	200 SE	130 DE	200 SE
A	69		75		87		102		118		126		149	
B	133	152	136	155	163	185	187	196	192	201	201	229	218	237
C	55		61		73		85		95		105		126	
D	77	90	77	90	90	110	110	121	110	121	110	136	121	136
E / E'	128	230	128	230	143	260	162	270	162	270	162	335	184	335

Informations données à titre indicatif et sous réserve de modifications éventuelles

Ech:	Date :22/03/2004	Dessiné par : F.G.	Tolérances générales : +/- 0.2	Modifications	Date	REV.
Actionneur ACTREG + BFC Vanne à sphère MD 780-781				Matière :		
				Poids <Kg> :		
				Traitement : SANS		
				45, Rue du Ruisseau 38297 SAINT QUENTIN FALLAVIER		
				Plan n° Ens 602		





Carbon steel shaft electroless with nickel plated against external and internal corrosion. Anti-blowout design.

The aluminium body is inside and outside coated with hard anodizing, with extremely abrasion resistance, low surface roughness and optimal resistance.

Pre-stressed springs offers more torque and different options for their positioning. This system allows us to easily fit the necessary torque to close or open the valve, offering a total safety replacement and manipulation.

External stroke adjustment for 5 degrees regulation, designed in opposite side of Namur connection for better manipulation when solenoid valve is assembled.

Pistons are coated with special treatment for corrosion resistance. Backlash free transmission due to special tooth machining. They have 3 way guiding for low friction between body and pistons. Pistons provided with internal guide machined between pistons and pinion.

The assembly of switch boxes, proximity switches or positioners, takes place by means of the Namur connection VDI/VDE 3845, carried out like standard in all our models. The height of the axis to fulfil this Norm is of 30mm, for all our products, with which it entails that with a single model of Box or positioner, we can cover all our manufacturing range.

Every single actuator is tested and provided with a unique serial number for traceability. This heat number is stamped in the body.

Different end caps for double or single acting for fast and safety identification without the need to read the label, in addition less air consumption in double acting actuators. Epoxy coated as standard protected against environment corrosion.





ADA 10



SIZES:  
20 TO 2100



SIZE: 2500



SIZE: 4000



## TYPES OF ACTUATORS DOUBLE ACTING & SPRING RETURN

### GENERAL CHARACTERISTICS

- ADA type: Double acting.
- ASR type: Spring return.
- Rack and pinion design.
- Linear torque.
- Rotation angle  $90^\circ \pm 5^\circ$
- Antifriction sliding bearings.
- Long life without maintenance.
- Protected against environmental corrosion:
  - Hard anodized Aluminium body,
  - Electroless Nickel Plated pinion,
  - Epoxy coated end caps,
  - Stainless steel bolts, studs and nuts.
- Working temperature:  $-30^\circ\text{C}$  to  $100^\circ\text{C}$  in Standard Construction
  - $-15^\circ\text{C}$  to  $150^\circ\text{C}$  with FKM O-rings
  - $-40^\circ\text{C}$  to  $80^\circ\text{C}$  with Silicone O-rings
- Maximum working pressure: 8 bar (116 psig). (Except ADA10 at 10 bar)
- Total safety for springs replacement.
- Mounting of solenoid valves acc. NAMUR Std.
- Mounting of devices acc. NAMUR VDI/VDE 3845 Std.
- Coupling according to ISO 5211 and DIN 3337 (Octagonal drive)
- Position indicator can be used also to operate mechanical limit switches.

### OPTIONS ON REQUEST

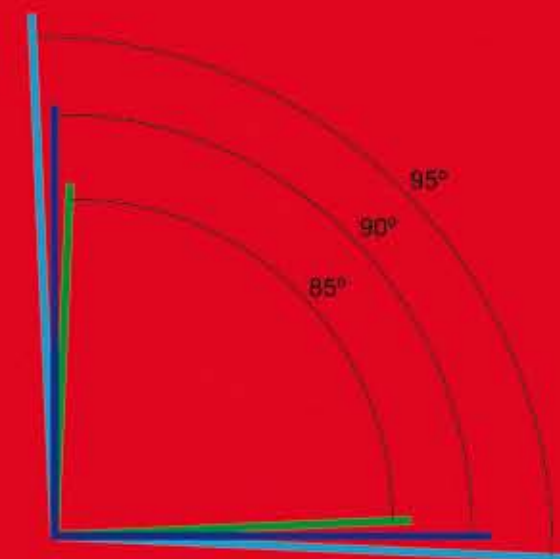
- Epoxy coated body.
- Electroless Nickel Plated body and end caps.
- High temperature construction.
- Low temperature construction.
- Stainless steel pinion
- Fast acting actuators
- Actuators with 100% travel adjustment stroke.

### BI-DIRECTIONAL TRAVEL STOPS

ACTREG pneumatic actuators are provided with bi-directional pinion travel stops.

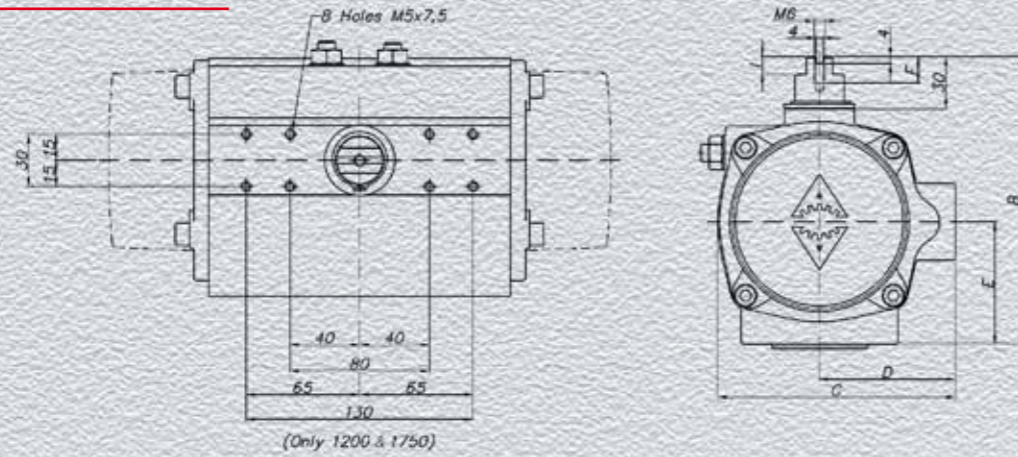
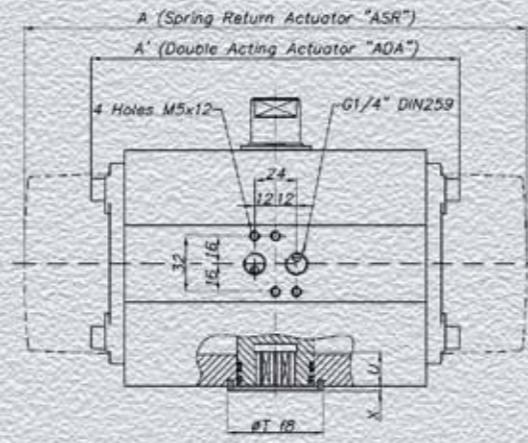
Side located stops allow a full  $\pm 5^\circ$  travel adjustment between  $85^\circ$  and  $95^\circ$ . These travel stops are designed to absorb the maximum rated torque of the actuator and the maximum impact loads associated with recommended travel speed.

Adjustment of the counterclockwise and clockwise rotation limits is accomplished by unscrewing the locking nuts, turning the respective left and right stop studs to reduce or increase the travel angle and screwing the locking nuts.





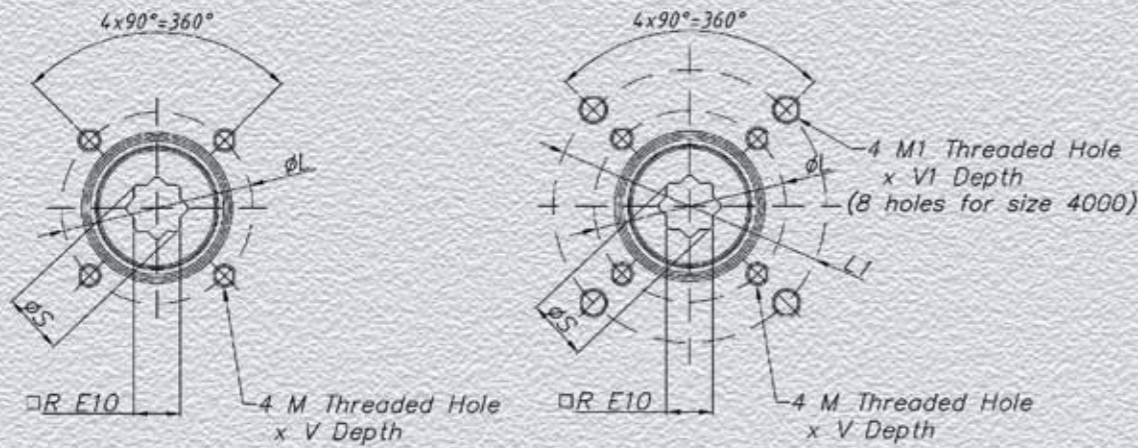
- 20
- 40
- 80
- 130
- SIZES: •200
- 300
- 500
- 850
- 1200
- 1750
- 2100



ISO 5211 DETAIL

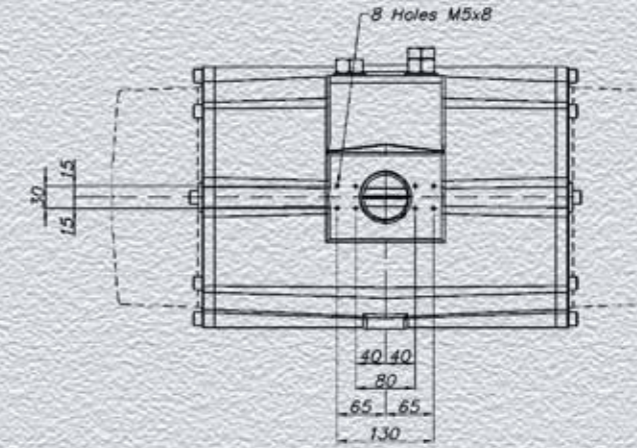
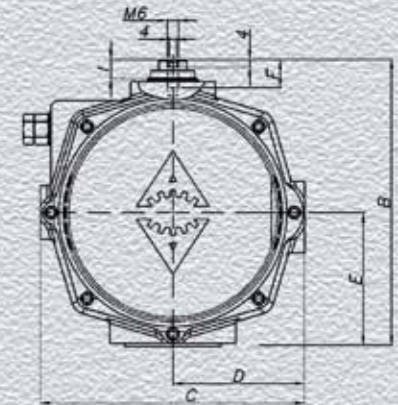
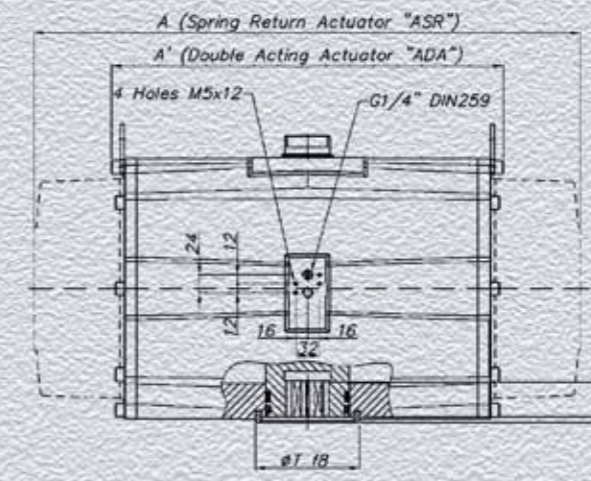
SIZES: •20•40•500•1750•2100•2500

SIZES: •20•40•130  
200•300•850•1200•4000

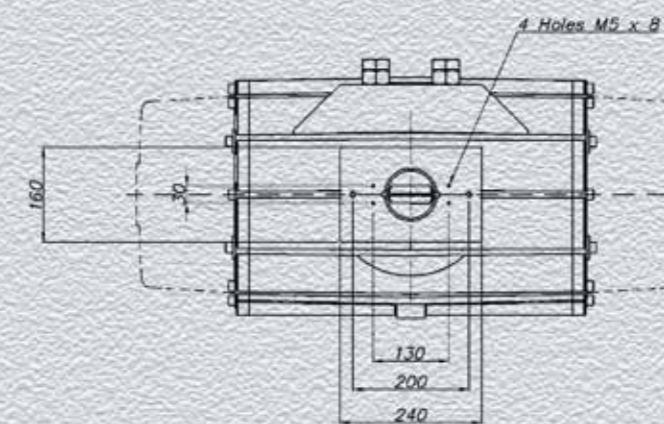
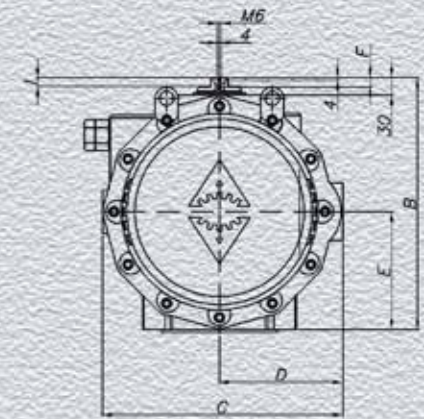
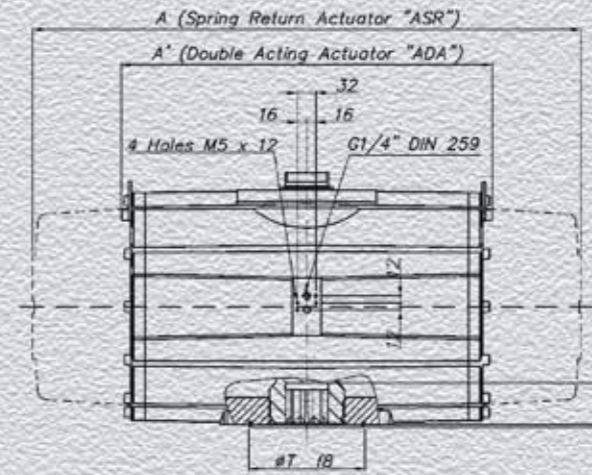


DOUBLE ACTING & SPRING RETURN ACTUATORS GENERAL DIMENSIONS IN mm

SIZE	A	A'	B	C	D	E	F	I	R	ρS	ISO 5211	ρL	MxV	ISO 5211	ρL1	M1xV1	ρT	X	U
20	163	145	96	76	48	34	9	6	9	12,5	F03	36	M5x8				25	2	10
20	163	145	96	76	48	34	9	6	14	18,1	F05	50	M6x10				35	3	12
20	163	145	96	76	48	34	9	6	14	18,1	F04	42	M5x10				35	3	12
40	195	158	115	91	56	45	9	6	14	18,1	F04	42	M5x10				35	3	12
40	195	158	115	91	56	45	9	6	14	18,1	F05	50	M6x10				35	3	12
80	217	177	137	111	66	55	12	8	17	22,5	F05	50	M6x10	F07	70	M8x16	55	3	19
130	258	196	147	122	71	60	15	8	17	22,5	F05	50	M6x10	F07	70	M8x16	55	3	22
200	299	225	165	135,5	78	70	15	10	17	22,5	F07	70	M8x16	F10	102	M10x16	55	3	23
300	348,5	273	182	152,5	86	80	16	12	22	28,5	F07	70	M8x16	F10	102	M10x16	70	3	24
500	397	304	199	173	96	85	17	15	22	28,5	F10	102	M10x16				70	3	32
850	473	372	221	191,5	106	98	15	15	27	36,5	F10	102	M10x17	F12	125	M12x20	85	3	39
1200	560	439	249	212,5	116	114	16	15	36	48,5	F10	102	M10x17	F14	140	M16x26	100	4	48
1750	601	461	280	242,5	131	130	16	15	36	48,5	F14	140	M16x26				100	4	50
2100	702	510	313	276,5	148	147	16	15	46	65,1	F16	165	M20x29				130	4	50



SIZES: •2500

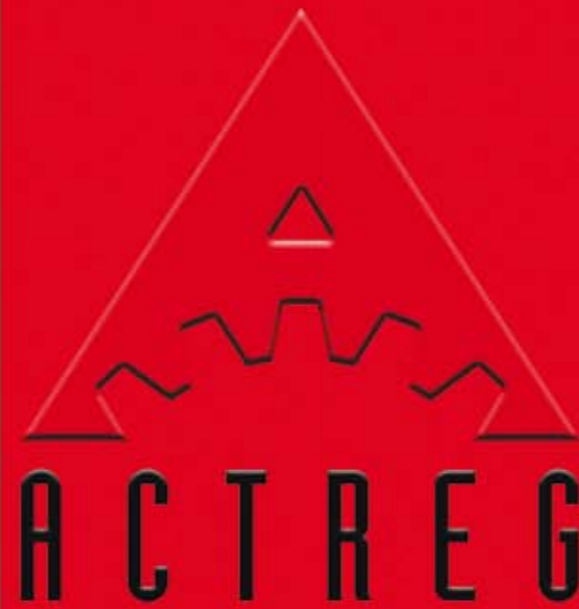


SIZES: •4000

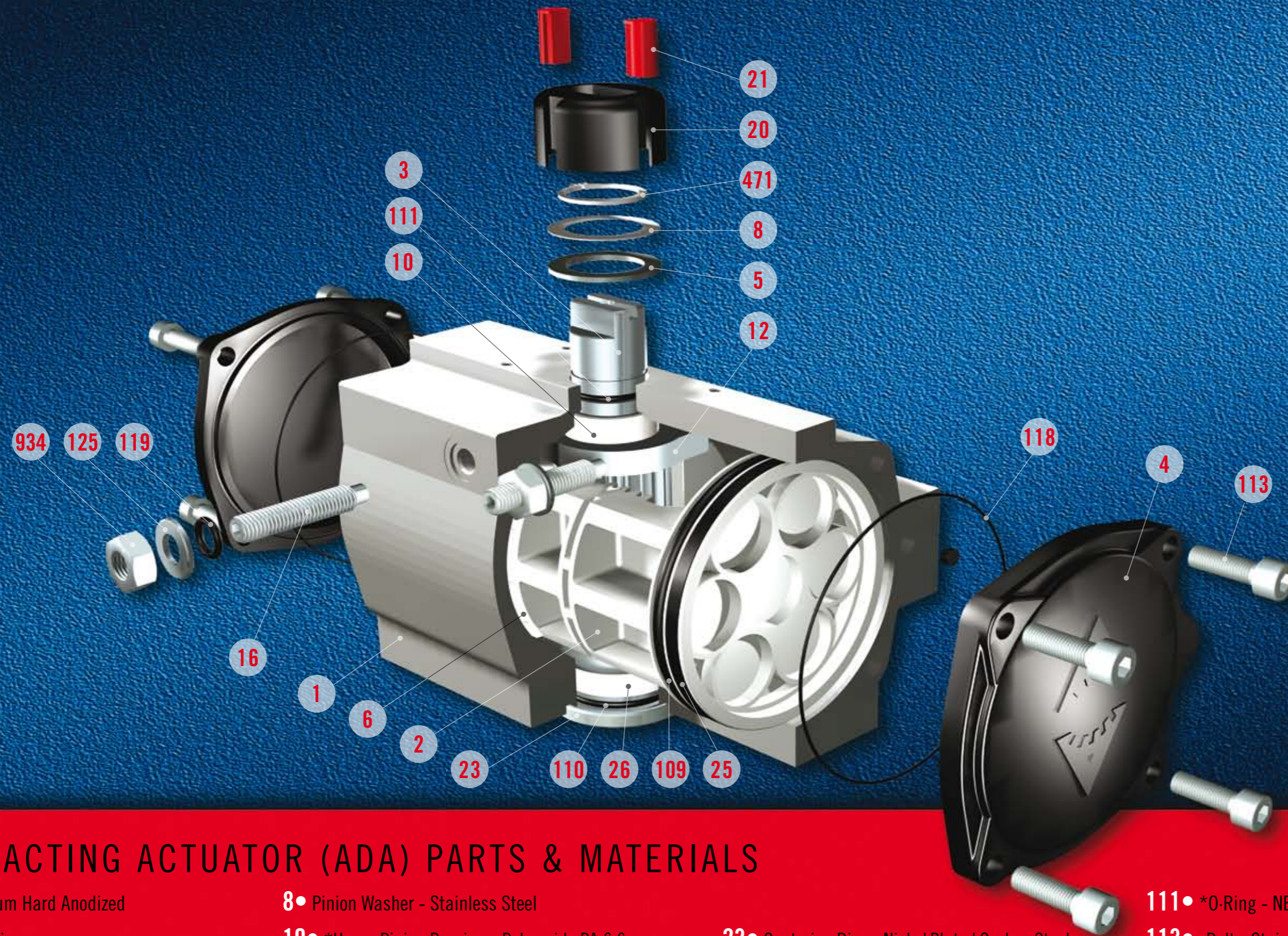
DOUBLE ACTING & SPRING RETURN ACTUATORS GENERAL DIMENSIONS IN mm

SIZE	A	A'	B	C	D	E	F	I	R	ρS	ISO 5211	ρL	MxV	ISO 5211	ρL1	M1xV1	ρT	X	U
2500	738	518	383	356	177,5	176,5	16	15	46	60,2	F16	165	M20x29				130	4	58
4000	940	630	434	415	213	201	16	15	55	72,5	F16	165	M20x30	F25	254	M16x30	200	4	60

NOTE: See page 8 for the ISO Detail.



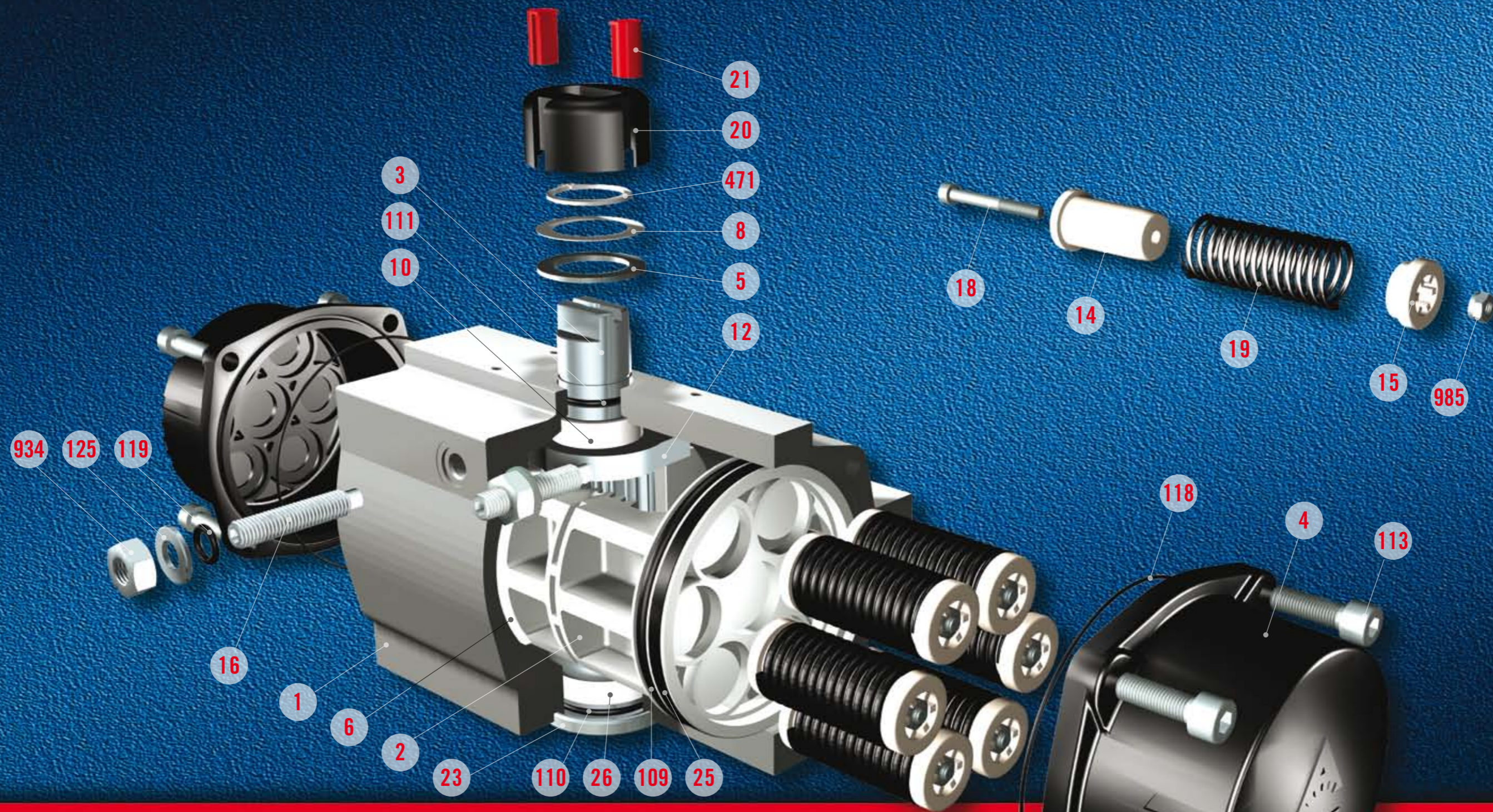




## DOUBLE ACTING ACTUATOR (ADA) PARTS & MATERIALS

- |  |  |   |                                     |
|--|--|---|-------------------------------------|
| 1• Body - Aluminium Hard Anodized              | 8• Pinion Washer - Stainless Steel   | 23• Centering Ring - Nickel Plated Carbon Steel | 111• *O-Ring - NBR                  |
| 2• Piston - Aluminium                          | 10• *Upper Pinion Bearing - Polyamide PA 6,6<br>Size 500 & greater in Reinforced Br. | 25• *Slide Guide - Polyamide PA 6,6 + 30% G.F.  | 113• Bolt - Stainless Steel         |
| 3• Pinion - Nickel Plated Carbon Steel         | 12• Stop - ASTM A-105  | 26• *Lower Pinion Bearing - Polyamide PA 6,6    | 118• *O-Ring - NBR                  |
| 4• End Caps - Aluminium Epoxy Coated           | 16• Adjustment Stroke Screw - Stainless Steel  | 41• **Stop Washer Pinion - Stainless Steel      | 119• *O-Ring - NBR                  |
| 5• *Soft Washer Pinion - Polyamide PA 6.6      | 20• Position Indicator - Polyamide   | 109• *O-Ring - NBR                              | 125• Washer - Stainless Steel       |
| 6• *Slide Piston - Polyamide PA 6,6 + 30% G.F. | 21• Cam - Polyamide  | 110• *O-Ring - NBR                              | 471• *Slip Washer - Stainless Steel |
| 7• **Lug - Nickel Plated Carbon Steel          |  |   | 934• Nut - Stainless Steel          |





## SPRING RETURN ACTUATOR (ASR) PARTS & MATERIALS

- |  |  |   |                                     |
|--|--|---|-------------------------------------|
| 1• Body - Aluminium Hard Anodized              | 10• *Upper Pinion Bearing - Polyamide PA 6,6<br>Size 500 & greater in Reinforced Br. | 20• Position Indicator - Polyamide              | 111• *O-Ring - NBR                  |
| 2• Piston - Aluminium                          | 12• Stop - ASTM A-105  | 21• Cam - Polyamide                             | 113• Bolt - Stainless Steel         |
| 3• Pinion - Nickel Plated Carbon Steel         | 14• Spring's Long Support - Polyamide PA 6.6   | 23• Centering Ring - Nickel Plated Carbon Steel | 118• *O-Ring - NBR                  |
| 4• End Caps - Aluminium Epoxy Coated           | 15• Spring's Short Support - Polyamide PA 6.6  | 25• *Slide Guide - Polyamide PA 6,6 + 30% G.F.  | 119• *O-Ring - NBR                  |
| 5• *Soft Washer Pinion- Polyamide PA 6.6       | 16• Adjustment Stroke Screw-Stainless Steel  | 26• *Lower Pinion Bearing - Polyamide PA 6,6    | 125• Washer - Stainless Steel       |
| 6• *Slide Piston - Polyamide PA 6,6 + 30% G.F. | 18• Bolt - Stainless Steel   | 41• **Stop Washer Pinion - Stainless Steel      | 471• *Slip Washer - Stainless Steel |
| 7• **Lug - Nickel Plated Carbon Steel          | 19• Spring - DIN 2076 · D-5.6  | 109• *O-Ring - NBR                              | 934• Nut - Stainless Steel          |
| 8• Pinion Washer - Stainless Steel             |  | 110• *O-Ring - NBR                              | 985• Nut - Stainless Steel          |

\*Recommended spare parts  
\*\*Only for sizes 2500 & 4000



Double Acting Actuator Torque Output in Nm. Table with columns for Size, TYPE, Pressure, and torque values for various bar pressures (3 bar to 10 bar) and 90° angles. Includes Weight (Kg) column.

Double Acting Actuator Torque Output in ft lb. Table with columns for Size, TYPE, Pressure, and torque values for various psi pressures (43.5 psi to 145 psi) and 90° angles. Includes Weight (lb) column.

▲ DOUBLE ACTING ACTUATOR TORQUE OUTPUT in Nm  
▼ SPRING RETURN ACTUATOR TORQUE OUTPUT in Nm

▲ DOUBLE ACTING ACTUATOR TORQUE OUTPUT in ft lb  
▼ SPRING RETURN ACTUATOR TORQUE OUTPUT in ft lb

Spring Return Actuator Torque Output in Nm. Table with columns for Size, TYPE, Pressure, torque values for various bar pressures (3 bar to 10 bar) and 90° angles, Spring stroke, and Weight (Kg).

Spring Return Actuator Torque Output in ft lb. Table with columns for Size, TYPE, Pressure, torque values for various psi pressures (43.5 psi to 145 psi) and 90° angles, Spring stroke, and Weight (lb).

NOTE: A= STANDARD

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