



# PNEUMATIC ACTUATORS



# A C T U A T O R S   F O R   E V E R Y   E N V I R O N M E N T

ACTREG, S.A. manufactures a wide range of pneumatic actuators offering reliable performance across all major valve applications.

The international distribution secures quick availability and more importantly, personalised service for valve manufacturers, valve stockists and contractors.

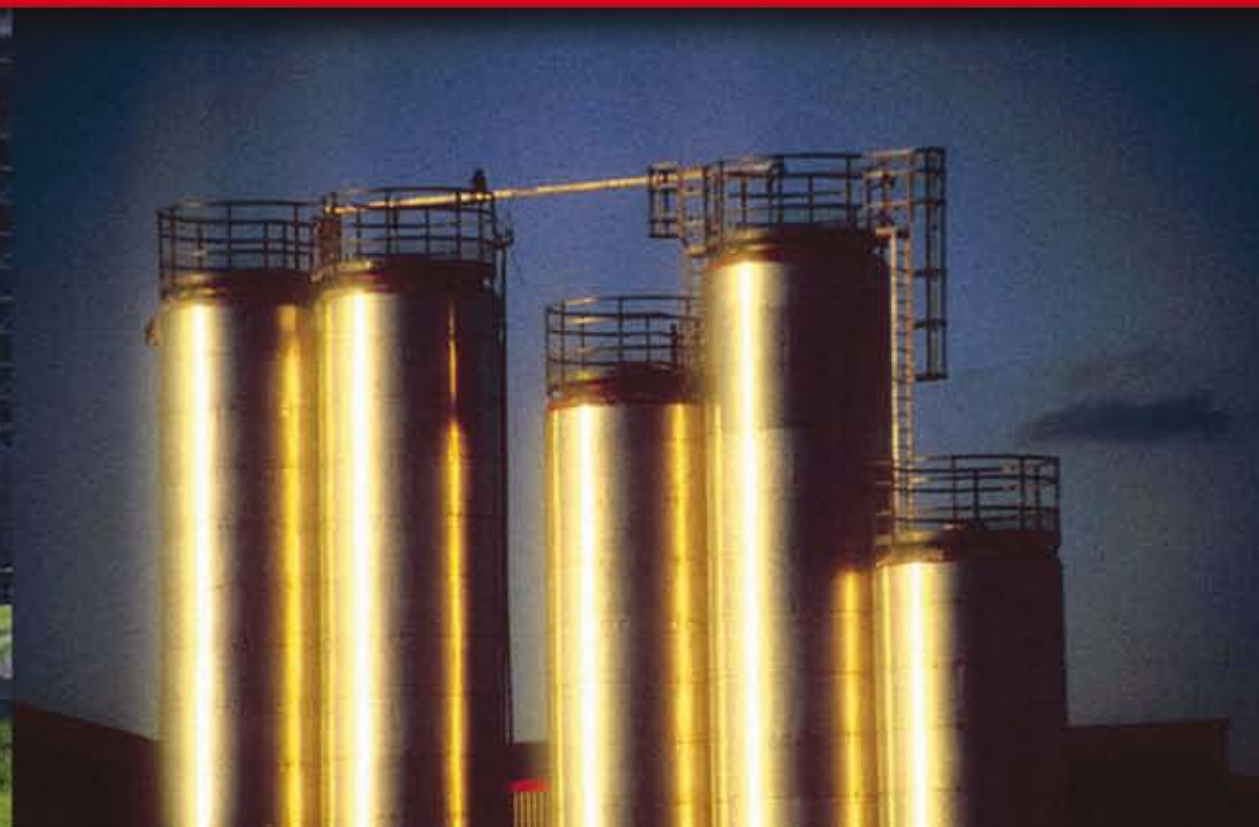
The product, double acting and spring return rack and pinion actuators with torque figures up to 6421 Nm is a superior combination of features for reliable and dependable service for 1/4 turn valves.

ACTREG pneumatic actuators are manufactured in 14 different sizes, in both double acting (ADA) and spring return (ASR) types.

Engineered to meet all applications and environmental conditions, the precision in design and quality provide long and safe operational performance in valve control.

ACTREG has invested in quality assurance and state-of-the-art machining and testing facilities in order to assist customers in safely controlling their processes.

ACTREG engineers are happy to help you with your automation demands.





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

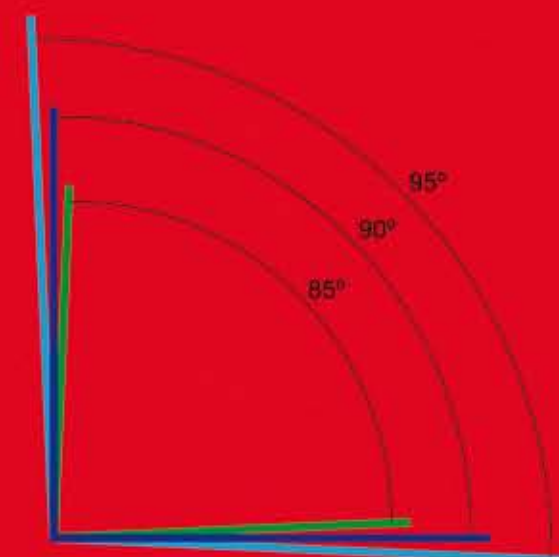
- Epoxy coated body.
- Electroless Nickel Plated body and end caps.
- High temperature construction.
- Low temperature construction.
- Stainless steel pinion
- Fast acting actuators
- Actuators with 100% travel adjustment stroke.

### 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.



# ASSEMBLY VARIATIONS



## SPRING COMBINATIONS & CORRECT POSITION OF SPRINGS

## ACTUATOR SIZE ASR-20



S.04

S.06

S.08

## ACTUATOR SIZE ASR-40 TO 4000



S.04

S. 06

S.08

(Only for ASR-40 & 80)



S.10

S.12

S.14

Depending on air supply pressure, springs function and torque figures of the valve, the required springs force varies. Actreg spring return actuators offer 6 different options, from 2 to 7 springs in each end cap.

The correct position of the springs, in order to optimize its function, is given above.

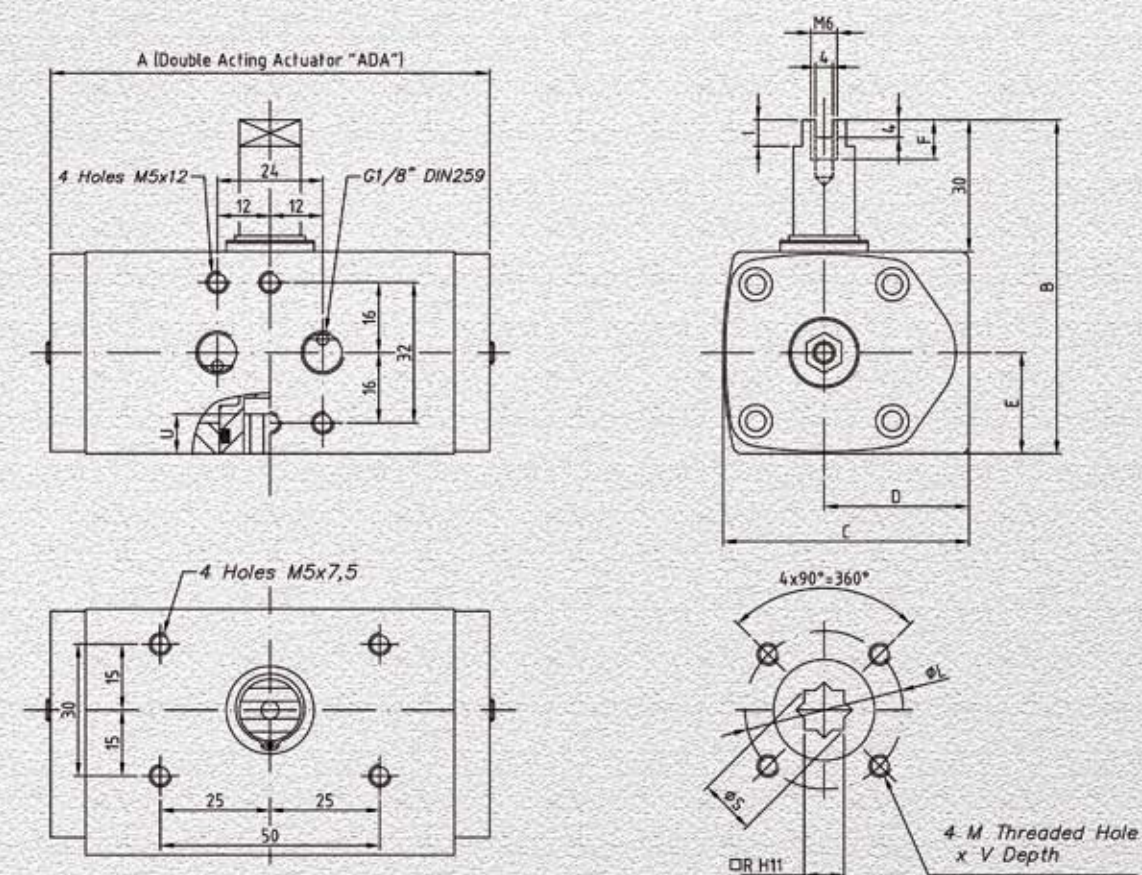
NOTE: Our Standard construction is with the maximum spring combination (S14) except size ASR-20 which is assembled with spring combination (S06).

# ADAPTORS

“Together with the actuator up to size 200 included, we supply a stem adaptor witch allows the mounting of the actuator on different ISO 5211 shaft dimensions. Other adaptors with different dimensions are available under request.”



NEW SIZE ADA 10



### DOUBLE ACTING & SPRING RETURN ACTUATORS GENERAL DIMENSIONS IN mm

| SIZE | A   | B  | C  | D  | E  | F | I | R | øS   | ISO 5211 | øL | MxV  | U  |
|------|-----|----|----|----|----|---|---|---|------|----------|----|------|----|
| 10   | 100 | 76 | 56 | 33 | 23 | 9 | 6 | 9 | 12,5 | F03      | 36 | M5X8 | 10 |

The diagram shows an exploded view of a mechanical assembly against a blue background. The main assembly is a white, rectangular block with a circular base and a central shaft. Various components are shown in their relative positions, including a black cap, a spring, a pin, a piston, and a motor. Callout boxes provide detailed information about the materials and features of the components.

Electroless with nickel  
al and internal corro-  
sign.

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.

tment for 5 degrees  
in opposite side of  
better manipulation  
s assembled.

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

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rs, takes place by

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The diagram shows an exploded view of a mechanical assembly against a blue background. The main assembly is a complex metal component with various internal features. Surrounding it are several individual parts, including a black cylindrical cap, a silver spring, a white cylindrical component, a black coiled spring, a white circular component, and a small black nut. A red rectangular block is also visible. Callout boxes with white text provide details about the components:

- Top left:** Electroless with nickel al and internal corrosion sign.
- Top right:** The aluminium body is inside and outside coated with hard anodizing, with extremely abrasion resistance, low surface roughness and optimal resistance.
- Bottom left:** Adjustment for 5 degrees in opposite side of better manipulation is assembled.
- Bottom center:** 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.
- Bottom right:** 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.

The diagram shows an exploded view of a mechanical assembly against a blue background. The main assembly is a white, rectangular block with a central vertical shaft and a large, circular, multi-ported component on the right. Various parts are shown floating around the main assembly, including a black cap, a spring, a pin, a coil spring, a small white component, and a nut. Callout boxes with lines pointing to specific parts provide technical details.

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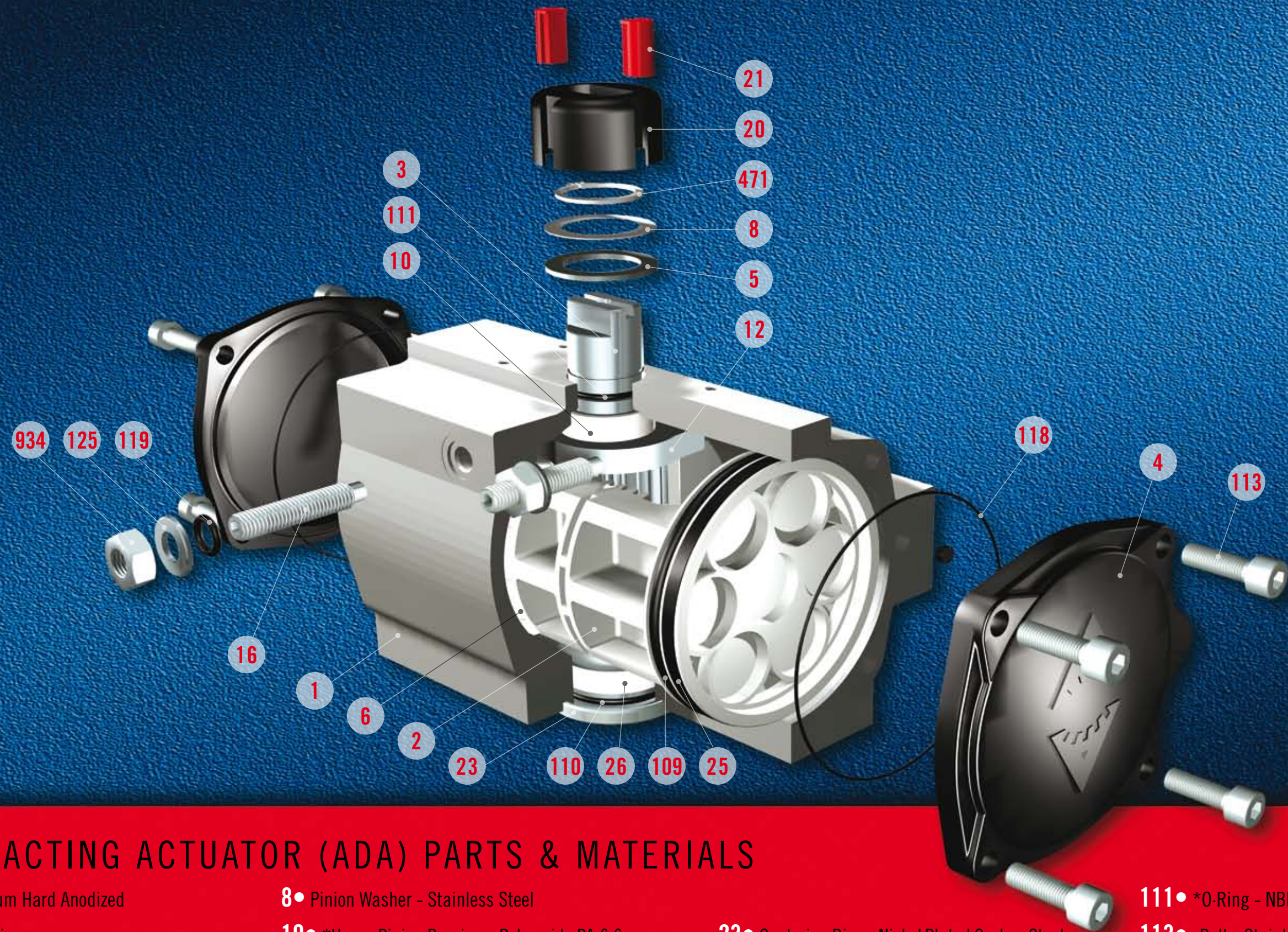
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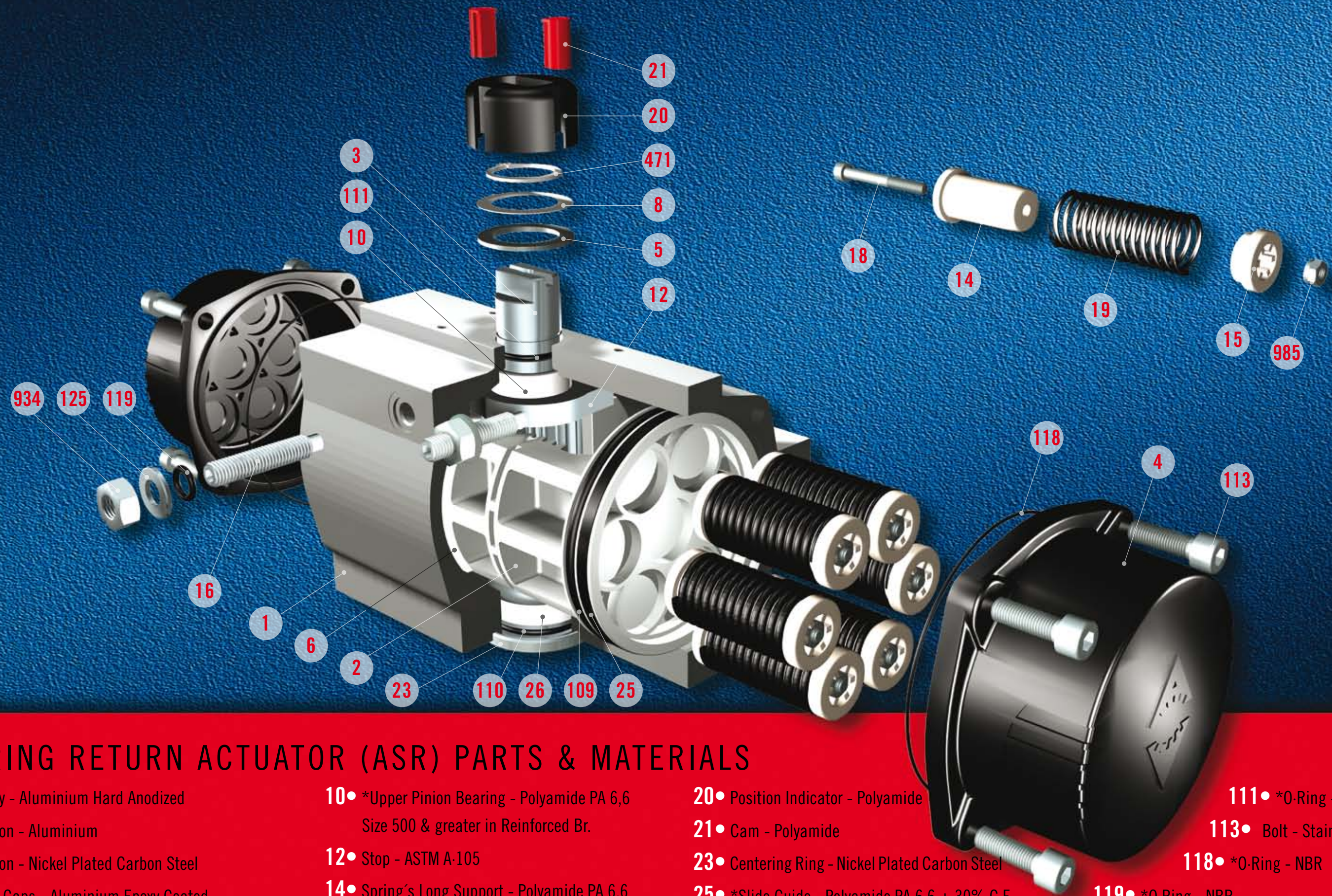
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## DOUBLE ACTING ACTUATOR (ADA) PARTS & MATERIALS

- |                                                |                                                                                      |                                                 |                                     |
|------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------|
| 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
- 2• Piston - Aluminium
- 3• Pinion - Nickel Plated Carbon Steel
- 4• End Caps - Aluminium Epoxy Coated
- 5• \*Soft Washer Pinion- Polyamide PA 6.6
- 6• \*Slide Piston - Polyamide PA 6,6 + 30% G.F.
- 7• \*\*Lug - Nickel Plated Carbon Steel
- 8• Pinion Washer - Stainless Steel

- 10• \*Upper Pinion Bearing - Polyamide PA 6,6  
Size 500 & greater in Reinforced Br.
- 12• Stop - ASTM A-105
- 14• Spring's Long Support - Polyamide PA 6.6
- 15• Spring's Short Support - Polyamide PA 6.6
- 16• Adjustament Stroke Screw-Stainless Steel
- 18• Bolt - Stainless Steel
- 19• Spring - DIN 2076 · D-5.6

- 20• Position Indicator - Polyamide
- 21• Cam - Polyamide
- 23• Centering Ring - Nickel Plated Carbon Steel
- 25• \*Slide Guide - Polyamide PA 6,6 + 30% G.F.
- 26• \*Lower Pinion Bearing - Polyamide PA 6,6
- 41• \*\*Stop Washer Pinion - Stainless Steel
- 109• \*O-Ring - NBR
- 110• \*O-Ring - NBR

- 111• \*O-Ring - NBR
- 113• Bolt - Stainless Steel
- 118• \*O-Ring - NBR

- 119• \*O-Ring - NBR
- 125• Washer - Stainless Steel
- 471• \*Slip Washer - Stainless Steel
- 934• Nut - Stainless Steel
- 985• Nut - Stainless Steel

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

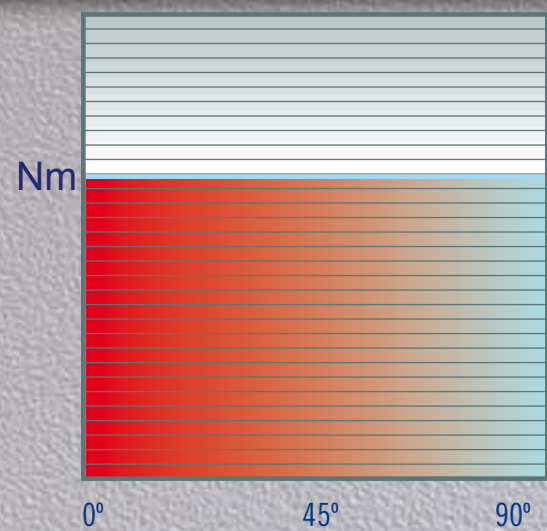
| Double Acting Actuator Torque Output in Nm |      |                                       |    |         |    |       |    |         |    |       |    |         |    |       |    |         |    |       |    |      |    |             |       |       |
|--------------------------------------------|------|---------------------------------------|----|---------|----|-------|----|---------|----|-------|----|---------|----|-------|----|---------|----|-------|----|------|----|-------------|-------|-------|
| Size                                       | TYPE | Output Torque For Double Acting in Nm |    |         |    |       |    |         |    |       |    |         |    |       |    |         |    |       |    |      |    | Weight (Kg) |       |       |
|                                            |      | 3 bar                                 |    | 3,5 bar |    | 4 bar |    | 4,5 bar |    | 5 bar |    | 5,5 bar |    | 6 bar |    | 6,5 bar |    | 7 bar |    |      |    |             | 8 bar |       |
|                                            |      | Pressure                              | 0° | 90°     | 0° | 90°   | 0° | 90°     | 0° | 90°   | 0° | 90°     | 0° | 90°   | 0° | 90°     | 0° | 90°   | 0° | 90°  | 0° |             | 90°   | 0°    |
| 10                                         | D    | 6                                     |    | 8       |    | 9     |    | 10      |    | 11    |    | 11,5    |    | 12    |    | 12      |    | 13    |    | 14   |    | 15          |       | 0,64  |
| 20                                         | D    | 9,7                                   |    | 11,4    |    | 13    |    | 14,6    |    | 16,2  |    | 17,8    |    | 19,5  |    | 21,1    |    | 23    |    | 26   | -  | -           |       | 1,4   |
| 40                                         | D    | 20,3                                  |    | 23,7    |    | 27,1  |    | 30,5    |    | 33,9  |    | 37,3    |    | 41    |    | 44      |    | 47    |    | 54   | -  | -           |       | 2,1   |
| 80                                         | D    | 38,5                                  |    | 44,9    |    | 51,3  |    | 57,7    |    | 64,1  |    | 70,5    |    | 77    |    | 83      |    | 90    |    | 103  | -  | -           |       | 3     |
| 130                                        | D    | 59,1                                  |    | 68,9    |    | 78,7  |    | 88,6    |    | 98,4  |    | 108,3   |    | 118   |    | 128     |    | 138   |    | 157  | -  | -           |       | 3,8   |
| 200                                        | D    | 88                                    |    | 102     |    | 117   |    | 131     |    | 146   |    | 161     |    | 175   |    | 190     |    | 205   |    | 234  | -  | -           |       | 5,6   |
| 300                                        | D    | 145                                   |    | 170     |    | 194   |    | 218     |    | 242   |    | 267     |    | 291   |    | 315     |    | 339   |    | 388  | -  | -           |       | 8,5   |
| 500                                        | D    | 217                                   |    | 253     |    | 289   |    | 325     |    | 361   |    | 397     |    | 433   |    | 469     |    | 505   |    | 577  | -  | -           |       | 11,2  |
| 850                                        | D    | 359                                   |    | 419     |    | 479   |    | 538     |    | 598   |    | 658     |    | 718   |    | 778     |    | 837   |    | 957  | -  | -           |       | 16,9  |
| 1200                                       | D    | 519                                   |    | 606     |    | 692   |    | 779     |    | 865   |    | 952     |    | 1038  |    | 1125    |    | 1211  |    | 1384 | -  | -           |       | 25,8  |
| 1750                                       | D    | 707                                   |    | 824     |    | 942   |    | 1060    |    | 1178  |    | 1295    |    | 1413  |    | 1531    |    | 1649  |    | 1884 | -  | -           |       | 32,5  |
| 2100                                       | D    | 1086                                  |    | 1267    |    | 1448  |    | 1629    |    | 1810  |    | 1991    |    | 2172  |    | 2353    |    | 2534  |    | 2896 | -  | -           |       | 40,8  |
| 2500                                       | D    | 1730                                  |    | 2019    |    | 2307  |    | 2596    |    | 2884  |    | 3172    |    | 3461  |    | 3749    |    | 4038  |    | 4614 | -  | -           |       | 69,6  |
| 4000                                       | D    | 2408                                  |    | 2809    |    | 3210  |    | 3612    |    | 4013  |    | 4414    |    | 4816  |    | 5217    |    | 5618  |    | 6421 | -  | -           |       | 129,4 |

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

| Spring Return Actuator Torque Output in Nm |       |                                       |     |         |     |       |     |         |     |       |     |         |     |       |      |         |      |       |      |       |      |             |       |       |      |
|--------------------------------------------|-------|---------------------------------------|-----|---------|-----|-------|-----|---------|-----|-------|-----|---------|-----|-------|------|---------|------|-------|------|-------|------|-------------|-------|-------|------|
| Size                                       | TYPE  | Output Torque For Double Acting in Nm |     |         |     |       |     |         |     |       |     |         |     |       |      |         |      |       |      |       |      | Weight (Kg) |       |       |      |
|                                            |       | 3 bar                                 |     | 3,5 bar |     | 4 bar |     | 4,5 bar |     | 5 bar |     | 5,5 bar |     | 6 bar |      | 6,5 bar |      | 7 bar |      | 8 bar |      |             |       |       |      |
|                                            |       | Pressure                              |     | 0°      | 90° | 0°    | 90° | 0°      | 90° | 0°    | 90° | 0°      | 90° | 0°    | 90°  | 0°      | 90°  | 0°    | 90°  | 0°    | 90°  |             |       |       |      |
| 20                                         | S04   |                                       |     |         | 8   | 5     | 9   | 7       | 11  | 8     | 13  | 10      | 14  | 12    | 16   | 13      | 17   | 15    | 19   | 17    | 22   | 20          | 4     | 7     | 1,51 |
|                                            | S06 A |                                       |     |         |     |       |     |         |     | 11    | 7   | 12      | 9   | 14    | 10   | 15      | 12   | 17    | 13   | 20    | 17   | 7           | 11    | 1,54  |      |
|                                            | S08   |                                       |     |         |     |       |     |         |     |       | 10  | 5       | 12  | 7     | 14   | 9       | 15   | 10    | 18   | 14    | 9    | 15          | 1,56  |       |      |
| 40                                         | S04   | 16                                    | 14  | 20      | 17  | 23    | 20  | 26      | 24  | 30    | 27  | 33      | 30  | 37    | 34   | 40      | 37   | 43    | 41   | 50    | 47   | 5           | 8     | 2,17  |      |
|                                            | S06   | 14                                    | 10  | 18      | 14  | 21    | 17  | 24      | 20  | 28    | 24  | 31      | 27  | 34    | 30   | 38      | 34   | 41    | 37   | 48    | 44   | 7           | 12    | 2,20  |      |
|                                            | S08   |                                       |     | 15      | 10  | 19    | 14  | 22      | 17  | 26    | 20  | 29      | 24  | 32    | 27   | 36      | 30   | 39    | 34   | 46    | 41   | 10          | 16    | 2,23  |      |
|                                            | S10   |                                       |     |         |     |       |     |         |     | 24    | 17  | 27      | 20  | 30    | 24   | 34      | 27   | 37    | 30   | 44    | 37   | 12          | 20    | 2,26  |      |
|                                            | S12   |                                       |     |         |     |       |     |         |     | 21    | 13  | 25      | 17  | 28    | 20   | 32      | 24   | 35    | 27   | 42    | 34   | 15          | 24    | 2,29  |      |
|                                            | S14 A |                                       |     |         |     |       |     |         |     |       |     | 23      | 13  | 26    | 17   | 30      | 20   | 33    | 24   | 40    | 30   | 17          | 28    | 2,32  |      |
| 80                                         | S04   | 31                                    | 27  | 38      | 34  | 44    | 40  | 50      | 46  | 57    | 53  | 63      | 59  | 70    | 66   | 76      | 72   | 82    | 78   | 95    | 91   | 9           | 13    | 3,28  |      |
|                                            | S06   | 27                                    | 21  | 34      | 28  | 40    | 34  | 47      | 41  | 53    | 47  | 59      | 53  | 66    | 60   | 72      | 66   | 79    | 73   | 92    | 86   | 13          | 20    | 3,36  |      |
|                                            | S08   |                                       |     |         |     | 37    | 29  | 43      | 35  | 49    | 41  | 56      | 48  | 62    | 54   | 69      | 61   | 75    | 67   | 88    | 80   | 17          | 27    | 3,43  |      |
|                                            | S10   |                                       |     |         |     |       |     | 39      | 29  | 46    | 36  | 52      | 42  | 59    | 49   | 65      | 55   | 71    | 61   | 84    | 74   | 22          | 33    | 3,51  |      |
|                                            | S12   |                                       |     |         |     |       |     |         |     | 42    | 30  | 48      | 36  | 55    | 43   | 61      | 49   | 68    | 56   | 81    | 69   | 26          | 40    | 3,58  |      |
|                                            | S14 A |                                       |     |         |     |       |     |         |     |       | 45  | 31      | 51  | 37    | 58   | 44      | 64   | 50    | 77   | 63    | 30   | 47          | 3,65  |       |      |
| 130                                        | S06   | 43                                    | 36  | 52      | 46  | 62    | 56  | 72      | 65  | 82    | 75  | 92      | 85  | 102   | 95   | 111     | 105  | 121   | 115  | 141   | 134  | 19          | 27    | 4,40  |      |
|                                            | S08   |                                       |     | 47      | 38  | 57    | 48  | 67      | 58  | 76    | 68  | 86      | 77  | 96    | 87   | 106     | 97   | 116   | 107  | 135   | 127  | 26          | 36    | 4,50  |      |
|                                            | S10   |                                       |     |         |     | 51    | 40  | 61      | 50  | 71    | 60  | 81      | 70  | 91    | 80   | 100     | 89   | 110   | 99   | 130   | 119  | 32          | 45    | 4,60  |      |
|                                            | S12   |                                       |     |         |     |       |     | 56      | 42  | 65    | 52  | 75      | 62  | 85    | 72   | 95      | 82   | 105   | 92   | 124   | 111  | 39          | 54    | 4,70  |      |
|                                            | S14 A |                                       |     |         |     |       |     |         |     |       | 70  | 54      | 80  | 64    | 89   | 74      | 99   | 84    | 119  | 103   | 45   | 64          | 4,80  |       |      |
| 200                                        | S06   | 61                                    | 49  | 76      | 63  | 90    | 78  | 105     | 92  | 119   | 107 | 134     | 122 | 149   | 136  | 163     | 151  | 178   | 166  | 207   | 195  | 31          | 46    | 6,50  |      |
|                                            | S08   |                                       |     | 67      | 50  | 81    | 65  | 96      | 79  | 111   | 94  | 125     | 109 | 140   | 123  | 154     | 138  | 169   | 152  | 198   | 182  | 42          | 61    | 6,70  |      |
|                                            | S10   |                                       |     |         |     | 72    | 52  | 87      | 66  | 102   | 81  | 116     | 96  | 131   | 110  | 146     | 125  | 160   | 139  | 189   | 169  | 52          | 77    | 6,90  |      |
|                                            | S12   |                                       |     |         |     |       |     | 78      | 53  | 93    | 68  | 107     | 83  | 122   | 97   | 137     | 112  | 151   | 126  | 180   | 156  | 63          | 92    | 7,00  |      |
|                                            | S14 A |                                       |     |         |     |       |     |         |     | 99    | 70  | 113     | 84  | 128   | 99   | 142     | 113  | 172   | 143  | 213   | 173  | 73          | 107   | 7,30  |      |
| 300                                        | S06   | 102                                   | 75  | 126     | 99  | 151   | 123 | 175     | 148 | 199   | 172 | 223     | 196 | 247   | 220  | 272     | 245  | 296   | 269  | 344   | 317  | 51          | 83    | 9,65  |      |
|                                            | S08   |                                       |     | 112     | 76  | 136   | 100 | 160     | 124 | 185   | 148 | 209     | 173 | 233   | 197  | 257     | 221  | 281   | 245  | 330   | 294  | 68          | 111   | 9,92  |      |
|                                            | S10   |                                       |     |         |     | 122   | 76  | 146     | 101 | 170   | 125 | 194     | 149 | 219   | 173  | 243     | 198  | 267   | 222  | 315   | 270  | 85          | 138   | 10,20 |      |
|                                            | S12   |                                       |     |         |     |       |     | 131     | 77  | 156   | 101 | 180     | 126 | 204   | 150  | 228     | 174  | 253   | 198  | 301   | 247  | 102         | 166   | 10,50 |      |
|                                            | S14 A |                                       |     |         |     |       |     |         |     |       | 165 | 102     | 190 | 126   | 214  | 151     | 238  | 175   | 287  | 223   | 319  | 193         | 10,80 |       |      |
| 500                                        | S06   | 152                                   | 119 | 188     | 155 | 224   | 191 | 260     | 227 | 296   | 263 | 333     | 299 | 369   | 335  | 405     | 371  | 441   | 407  | 513   | 480  | 76          | 115   | 13,33 |      |
|                                            | S08   | 131                                   | 86  | 167     | 122 | 203   | 158 | 239     | 194 | 275   | 231 | 311     | 267 | 347   | 303  | 383     | 339  | 419   | 375  | 492   | 447  | 101         | 153   | 13,84 |      |
|                                            | S10   |                                       |     |         |     | 181   | 126 | 217     | 162 | 254   | 198 | 290     | 234 | 326   | 270  | 362     | 306  | 398   | 342  | 470   | 414  | 126         | 192   | 14,35 |      |
|                                            | S12   |                                       |     |         |     |       |     | 196     | 129 | 232   | 165 | 268     | 201 | 304   | 238  | 340     | 274  | 376   | 310  | 449   | 382  | 152         | 230   | 14,85 |      |
|                                            | S14 A |                                       |     |         |     |       |     |         |     |       | 247 | 169     | 283 | 205   | 319  | 241     | 355  | 277   | 427  | 349   | 477  | 268         | 15,36 |       |      |
| 850                                        | S06   | 260                                   | 209 | 320     | 269 | 380   | 328 | 440     | 388 | 500   | 448 | 559     | 508 | 619   | 568  | 679     | 627  | 739   | 687  | 858   | 807  | 116         | 177   | 19,7  |      |
|                                            | S08   | 227                                   | 159 | 287     | 218 | 347   | 278 | 407     | 338 | 467   | 398 | 526     | 458 | 586   | 518  | 646     | 577  | 706   | 637  | 826   | 757  | 155         | 236   | 20,3  |      |
|                                            | S10   |                                       |     | 254     | 168 | 314   | 228 | 374     | 288 | 434   | 348 | 494     | 408 | 553   | 467  | 613     | 527  | 673   | 587  | 793   | 707  | 193         | 295   | 20,9  |      |
|                                            | S12   |                                       |     |         |     |       |     |         |     | 341   | 238 | 401     | 298 | 461   | 358  | 521     | 417  | 580   | 477  | 640   | 537  | 232         | 353   | 21,6  |      |
|                                            | S14 A |                                       |     |         |     |       |     |         |     |       | 428 | 307     | 488 | 367   | 547  | 427     | 607  | 487   | 727  | 607   | 817  | 412         | 22,2  |       |      |
| 1200                                       | S06   | 373                                   | 289 | 460     | 376 | 546   | 462 | 633     | 549 | 720   | 635 | 806     | 722 | 893   | 808  | 979     | 895  | 1066  | 981  | 1239  | 1154 | 171         | 271   | 30,1  |      |
|                                            | S08   | 325                                   | 213 | 411     | 299 | 498   | 386 | 584     | 472 | 671   | 559 | 758     | 645 | 844   | 732  | 931     | 818  | 1017  | 905  | 1190  | 1078 | 229         | 361   | 31,1  |      |
|                                            | S10   | 276                                   | 136 | 363     | 222 | 449   | 309 | 536     | 395 | 622   | 482 | 709     | 569 | 795   | 655  | 882     | 742  | 969   | 828  | 1142  | 1001 | 286         | 451   | 32,2  |      |
|                                            | S12   |                                       |     |         |     | 401   | 232 | 487     | 319 | 574   | 405 | 660     | 492 | 747   | 578  | 833     | 665  | 920   | 751  | 1093  | 924  | 343         | 541   | 33,2  |      |
|                                            | S14 A |                                       |     |         |     |       |     |         |     | 525   | 329 | 612     | 415 | 698   | 502  | 785     | 588  | 871   | 675  | 1044  | 848  | 400         | 631   | 34,3  |      |
| 1750                                       | S06   | 477                                   | 349 | 595     | 466 | 712   | 584 | 830     | 702 | 948   | 820 | 1066    | 937 | 1183  | 1055 | 1301    | 1173 | 1419  | 1291 | 1654  | 1526 | 270         | 4     |       |      |

# DOUBLE ACTING ACTUATOR (ADA)

In double acting actuators, the pinion rotation and its reversal are obtained by reversing the supply to the two input ports. The output torques obtainable mainly depend on the cylinder diameter and the supply pressure: by increasing one or both factors, the available torque also increases. The friction should usually be negligible. As shown in diagram (A), the torque of ADA actuator is constant throughout the entire rotation and relevant reversal. The advised safety factor, in addition to the operation torque is approx. 20%.



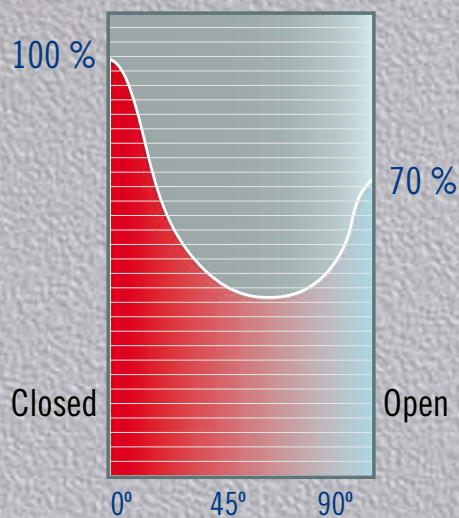
A

• Torque

## BALL VALVE

The performance of the ball valve is based on the concept of a drilled ball with two seats. Rotation of the ball permits or prevents the passage of fluid. The torque needed to open or close the valve is of course generated by the friction between ball and seats and stem and packing. From the diagram it can be observed that the max. torque point is attained when, in presence of pressure, the closed valve starts to open.

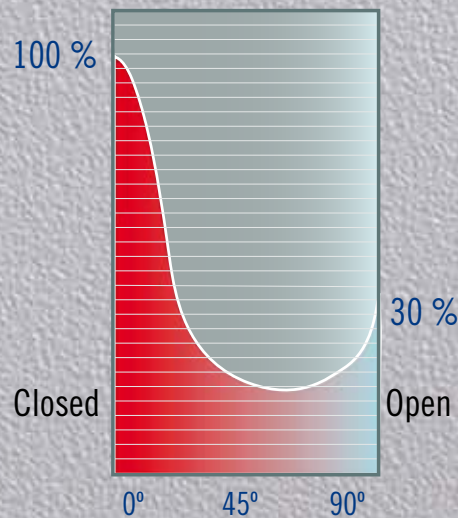
Operations Torque for Ball Valves



## BUTTERFLY VALVE

The performance of the butterfly valve is based on the concept of a disc rotating on an axis inside a sealed duct. The open or closed of the valve position is obtained by the rotation of the disc through its shaft. The torque needed to drive a butterfly is generated by the friction between the disc and the seat, through the rod joint and also due to the differential pressure being exerted on the disc. From the diagram it can be observed that the maximum torque is attained in the closed position of the valve and that it is reduced after a small rotation

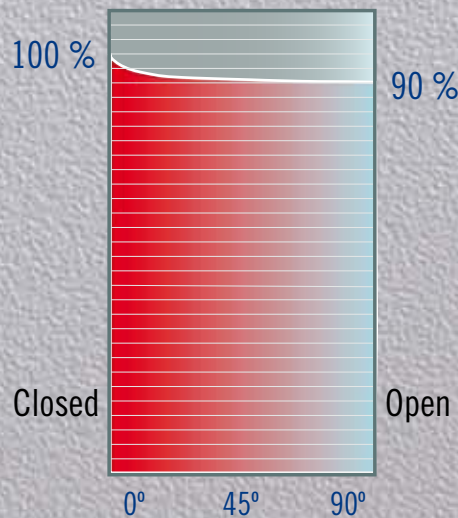
Operations Torque for butterfly Valves



## PLUG VALVE

The performance of the plug valve is similar to that of the ball valve and is based on the concept of a drilled plug conical or cilindrical. The rotation of the pin in the seat allows the valve to open and close. The operation torque is not affected by the fluid pressure but is generated from the friction between the rotating parts. As shown in the diagram, the maximum torque point occurs when the valve is in closed position, but remains high anyway throughout the complete rotation.

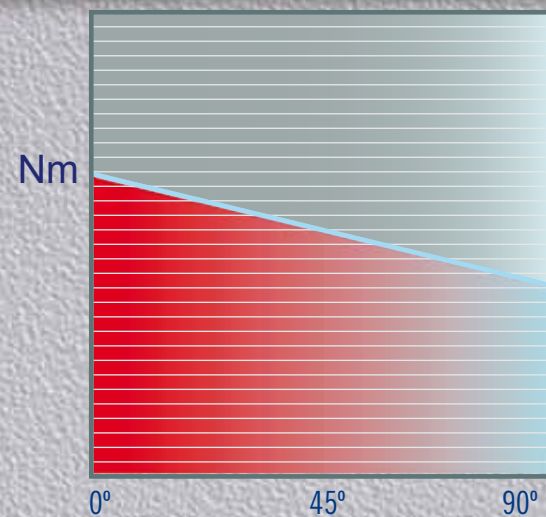
Operations Torque for Plug Valves



| STROKE TIMES OBTAINED WITH NO RESISTANT TORQUE         |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| AIR PRESSURE: 6 bar-TIMES: s (seconds) - DOUBLE ACTING |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                        | 20   | 40   | 80   | 130  | 200  | 300  | 500  | 850  | 1200 | 1750 | 2100 | 2500 | 4000 |
| Opening                                                | 0,04 | 0,08 | 0,11 | 0,15 | 0,15 | 0,30 | 0,40 | 0,80 | 1,20 | 1,80 | 2,3  | 2,80 | 3,00 |
| Closing                                                | 0,09 | 0,08 | 0,10 | 0,15 | 0,22 | 0,40 | 0,50 | 0,90 | 1,50 | 2,00 | 2,6  | 3,10 | 3,50 |

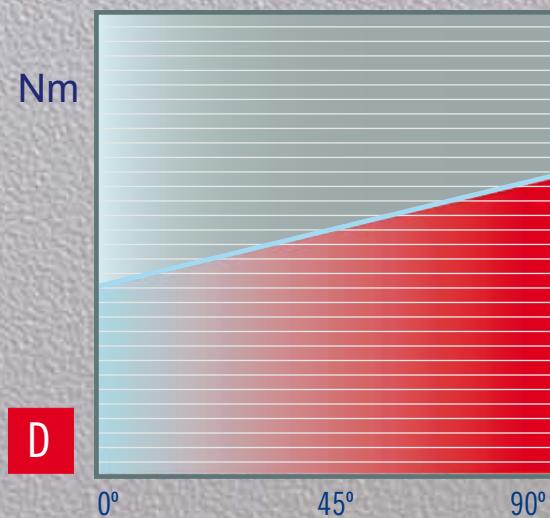
# SPRING RETURN ACTUATOR (ASR)

In spring return actuators, springs are used to reverse the rotation of the pinion. The output torque depends not only on the cylinder diameter and the supply pressure but also on the presence of the springs, which should be compressed to guarantee the return. As shown in diagram (C), the available torque at 0° progressively reduces during the rotation due to the springs compression. On the contrary, as shown in diagram (D), the return force at 90° progressively decreases up to 0° for the same reason. Owing to the higher friction present, the safety coefficient advised in this case is approx. 30%.



C

• Torque with Air



D

• Torque with Spring

| STROKE TIMES OBTAINED WITH NO RESISTANT TORQUE         |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| AIR PRESSURE: 6 bar-TIMES: s (seconds) - SPRING RETURN |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                        | 20   | 40   | 80   | 130  | 200  | 300  | 500  | 850  | 1200 | 1750 | 2100 | 2500 | 4000 |
| Opening                                                | 0,12 | 0,20 | 0,27 | 0,32 | 0,50 | 0,70 | 0,90 | 2,20 | 2,30 | 2,80 | 3,3  | 3,80 | 4,30 |
| Closing                                                | 0,18 | 0,29 | 0,40 | 0,50 | 0,60 | 0,85 | 1,10 | 2,60 | 2,80 | 3,20 | 3,7  | 4,20 | 5,00 |

# ACTREG CERTIFICATES

ACTREG, S.A. has a Management System certified in accordance with the requirements of ISO 9001:2000 by BVQI for the design, development, manufacturing and distribution of pneumatic actuators and accesories for valves. Certified by BVQI No. ESPMDD005463.

ADA/ASR 10 up to ADA/ASR 300 are classified as category SEP in accordance with the requirements of Pressure Equipment Directive 97/23/EC. ADA/ASR 500 up to ADA/ASR 4000 are classified as Category I, Procedure module A.

All ACTREG pneumatic actuators are classified for use in potentially explosive atmospheres as Group II Category 2, suitable for zones 1, 2, 21 and 22 in accordance with Annex VIII of Directive 94/9/CE (ATEX). Technical file is deposited in LCIE, No. LCIE 05 AR 022.

ACTREG pneumatic actuators have got SIL 3 (Safety integral level 3) certificate. The ACTREG actuators have met manufacturer design process requirements of Safety integrity Level (SIL) 3. This is intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

GOST-R certificate Approval of Company Products by GOST (Russian Federation).



## DECLUTCHABLE

### General Characteristics

- ◆ Aluminium housing
- ◆ Actreg`s direct mounting
- ◆ User-friendly
- ◆ Rugged construction
- ◆ Compact design – low weight
- ◆ Double adjustment stroke
- ◆ Sealed to IP-65
- ◆ Integral top flange
- ◆ Iso 5211 double drilling



## LIMIT SWITCH BOX

### DESIGN

This kind of limit switch box applies compact design to offer a mini-type weather proof protection in aluminium die-cast enclosure and O-ring. The bracket is designed according to ISO 5211 and NAMUR standard.

### FEATURES

- ◆ Compact and beautiful design: -Mini type aluminum die-casting cover and housing with powder coated in black color.
- ◆ Bolts on visual position indicates: secure waterproof.
- ◆ “Quick-set” cam: With spring loaded splinted cam, no need to adjust again after initial setting and easy setting without tool.
- ◆ Multipoint terminal strip: Standard 8 points and enough strips for connection.
- ◆ Dual cable entries: 2xG ½ (Standard); 2-M 20x1.5 or 2x1/2 NPT (Option)
- ◆ Captive cover bolts; No worry to loose bolts while cover opens.
- ◆ Easy mounting: NAMUR standard Stainless steel shaft and bracket.
- ◆ The boxes are manufactured in acc. with NAMUR (VDI/VDE 3845)
- ◆ The boxes complies with the “Low voltage Directive” (73/23 CEE + 93/68/CEE) criteria as described in the European Community Directives.
- ◆ Enclosure Housing IP 67 acc. to UNE 20-324-93.
- ◆ Position indicator of great visibility Open / Closed.
- ◆ PG 9 standard gland.
- ◆ Temperature rating determined by electromechanic or inductive limit switches.
- ◆ Adjustable bracket for all kind of actuator ISO 5211.
- ◆ Other options under request.





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