



## Actuator Type S - Technical Data, Summary Size 3 and 5



Trutorq actuators are pneumatic quarter turn actuators based on double rack and pinion design.

The S-type actuator is generally recommended to “small” Ball valves and Plug valves.

### **Material, standard (outside)**

- Anodized Aluminum, Black

### **Movement**

- 0° to 90°

### **End Stop Adjustment**

Single End Stop Adjustment, Open position, located in the End Cap

### Over travel

- Open: 3°
- Closed: 0° to 0.5°
- Note! If the actuator is assembled Fail Open (FO), the over travel will be the opposite, ie.  
Open: 0° to 0.5°  
Closed: 3°

### **Sizes**

- 3 and 5

### **Torque**

Linear torque, ie a Double Acting (DA) Actuator has the same torque over the entire movement

### **Torque Output, Double Acting (DA) at 6 bar/80 psi**

- 23 to 50 Nm
- 192 to 442.54 in.lbs

### **Torque Output, Spring Return (SR) at 6 bar/80 psi**

- 8 to 18 Nm
- 64 to 159.31 in.lbs

### **Operating Pressure**

- DA: 2-10 bar / 30-145 psi
- SR: 2-10 bar / 30-145 psi. When the Actuators will be used at Operating pressures below 5.5 bar / 79.8 psi, we recommend that you contact your TT distributor.



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### Drive Medium

- Standard: Air (Dry or Lubricated) or inert gases (non-dangerous fluids)

### Temperature Range, Standard execution (Buna Nitrile, NBR O-seals)

- - 30° to + 80°C
- - 22° to + 175°F

### Temperature Range, High temperature (Viton O-seals)

- - 20° to + 140°C
- - 4° to + 284°F

### Temperature Range, Low temperature

- -45° to +60°C
- -49° to +140°F

### Temperature Range, Arctic temperature

- -50° to +60°C
- -58° to +140°F

### Stroke, Double Acting (DA)

Looking at the front of the Actuator, Port A is on the left side and Port B on the right

Port A: Air to Open (Anti-clockwise)

Port B: Air to Close (Clockwise)

### Stroke, Spring Return (SR)

Port A: Air to Open (Anti-clockwise, compressing springs)

Port B: Exhaust Port

Setting from the factory: Fail close (FC), clockwise closing. To change to Fail Open (FO): see separate instructions

### Max number of springs

A Spring Kit consists of 12 single springs placed in a circle between the Pistons and End Caps. To adjust for different Air Pressure; reduce the number of springs.

### Drive shaft

Stardrive shaft tailored to international standard for square-section shafts.

### Standard Connections

Solenoid valves – Namur

Fitting accessories – ISO 5211, DIN 3337, Namur

Stardrive shaft – ISO 5211 (90°), DIN 79 (45°), Namur

### Lubricants, recommended

Springs and piston rack segments: Statoil Molyway LI 712 or similar

O-rings and plastic parts: Statoil Uniway LIX 42PA or similar

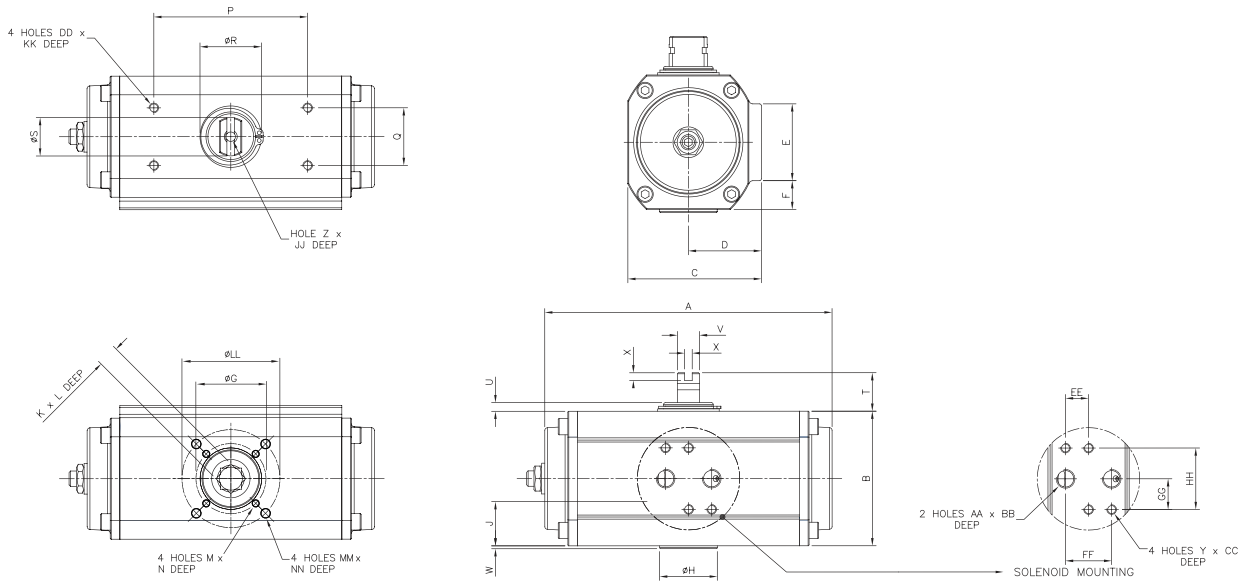
### Standards and Certificates

The Actuators are designed to and in compliance with several different standards. They also have different types of certificates, see separate information.



# TruTorq Pneumatic Actuator Type S, Metric Size 3 and 5

- Double acting (DA) and Spring Return (SR)
- Single End Stop Adjustment, open position



## DIMENSIONS, METRIC (mm)

| Actuator size | ISO     | A     | B    | C    | D    | E    | F    | ØG   | ØH   | J    | K    | L    | M  | N    | P    | Q    | ØR   | ØS   | T    | U   |
|---------------|---------|-------|------|------|------|------|------|------|------|------|------|------|----|------|------|------|------|------|------|-----|
| TT 3          | F04     | 149.5 | 70.0 | 69.5 | 38.0 | 49.0 | 10.5 | 42.0 | 30.0 | 23.0 | 11.0 | 11.0 | M5 | 8.0  | 80.0 | 30.0 | 32.0 | 20.0 | 20.0 | 4.5 |
| TT 5          | F05/F07 | 186.5 | 87.0 | 90.5 | 49.0 | 49.0 | 22.0 | 50.0 | 35.0 | 34.5 | 14.0 | 15.0 | M6 | 10.0 | 80.0 | 30.0 | 32.0 | 20.0 | 20.0 | 4.5 |

| Actuator size | ISO     | V    | W   | X   | Y  | Z  | AA   | BB   | CC  | DD | EE   | FF   | GG   | HH   | JJ   | KK  | ØLL  | MM | NN   |
|---------------|---------|------|-----|-----|----|----|------|------|-----|----|------|------|------|------|------|-----|------|----|------|
| TT 3          | F04     | 11.5 | 1.5 | 4.0 | M5 | M6 | G1/8 | 10.0 | 8.0 | M5 | 12.0 | 24.0 | 16.0 | 32.0 | 12.0 | 8.0 | -    | M6 | 10.0 |
| TT 5          | F05/F07 | 11.5 | 3.0 | 4.0 | M5 | M6 | G1/8 | 10.0 | 8.0 | M5 | 12.0 | 24.0 | 16.0 | 32.0 | 12.0 | 8.0 | 70.0 | M8 | 12.0 |

## TORQUE

| Actuator size | Air Supply | DA Torque | SR Torque (Nm) |           |                |              |            |
|---------------|------------|-----------|----------------|-----------|----------------|--------------|------------|
|               | BAR        | Nm        | Air - Start    | Air - End | Spring - Start | Spring - End | Spring Qty |
| TT 3          | 6          | 23        | 15             | 8         | 15             | 8            | 12         |
| TT 5          | 6          | 50        | 32             | 18        | 32             | 18           | 12         |

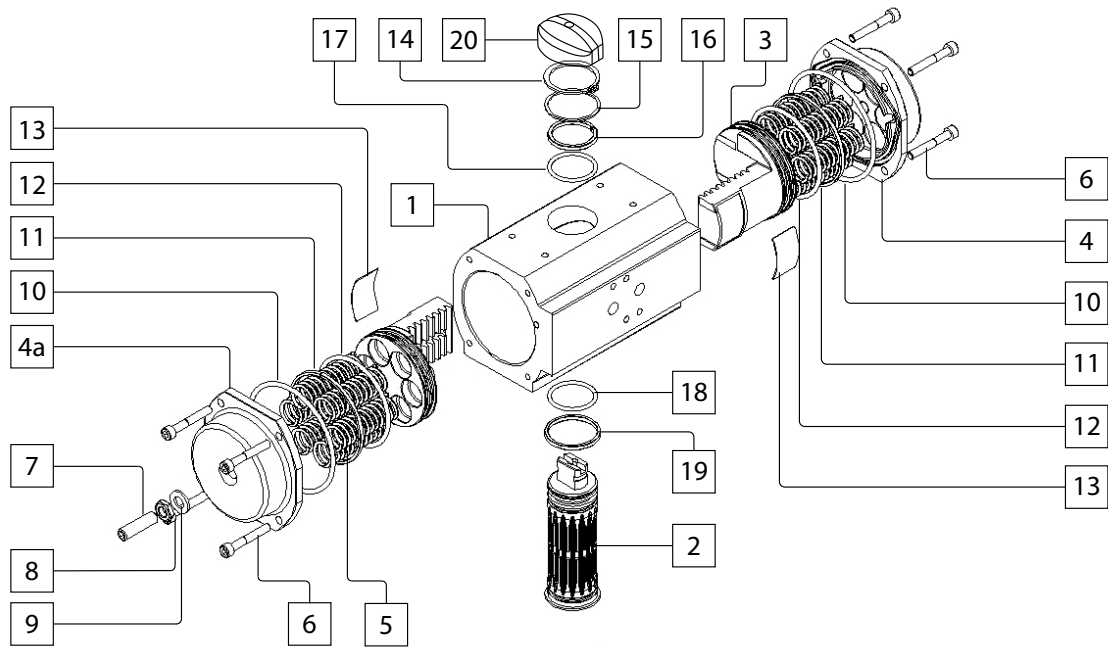
## OPERATING DETAILS

| Actuator size | Operating time (sec) * |          |         |          | Air consumption (litre) |       | Overall weight (kg) |     |
|---------------|------------------------|----------|---------|----------|-------------------------|-------|---------------------|-----|
|               | DA Open                | DA Close | SR Open | SR Close | Open                    | Close | DA                  | SR  |
| TT 3          | < 1                    | < 1      | < 1     | < 1      | 0.1                     | 0.1   | 1.3                 | 1.4 |
| TT 5          | < 1                    | < 1      | < 1     | < 1      | 0.2                     | 0.3   | 2.5                 | 2.7 |

\* Note! May be affected by air pipe diameter and type of solenoid valve



## Part List for Pneumatic Actuator Type S, Size 3 and 5



| S-Type Actuator |                              |          | Material                 |
|-----------------|------------------------------|----------|--------------------------|
| Ref.no.         | Description                  | Quantity | Standard                 |
| 1               | Body                         | 1        | Alum. Anodized           |
| 2               | Driveshaft                   | 1        | Ni Plated Steel + Teflon |
| 3               | Piston                       | 2        | Alum.                    |
| 4               | End Cap                      | 1        | Polyester Coated         |
| 4a              | End Cap with Stop Adjustment | 1        | Polyester Coated         |
| 5               | Spring                       | max 12   | SiCr                     |
| 6               | End Cap Bolt                 | 8        | Stainless Steel          |
| 7               | Stop Adjustment Screw        | 1        | Stainless Steel          |
| 8               | Stop Adjustment Nut          | 1        | Stainless Steel          |
| 9               | Stop Adjustment Washer       | 1        | Stainless Steel          |
| 10              | Stop Adjustment O-ring       | 1        | Buna Nitril              |
| 11              | End Cap O-ring               | 2        | Buna Nitril              |
| 12              | Piston Back-up Bearing       | 2        | POM                      |
| 13              | Piston O-ring                | 2        | Buna Nitril              |
| 14              | Piston Wearpad               | 2        | POM                      |
| 15              | Driveshaft Washer            | 1        | POM                      |
| 16              | Driveshaft Circlip           | 1        | Steel                    |
| 17              | Driveshaft Upper O-ring      | 1        | Buna Nitril              |
| 18              | Driveshaft Upper Bearing     | 1        | POM                      |
| 19              | Driveshaft Lower O-ring      | 1        | Buna Nitril              |
| 20              | Driveshaft Lower Bearing     | 1        | POM                      |
| 21              | Centralization Ring          | 1        | POM                      |
| 22              | Position Indicator           | 1        | POM                      |