‘S’ Range of Hydraulic & Pneumatic Stepping Actuators

Technical Specification

www.advanced-actuators.com
Basic Design Concept

The Advanced Actuators range of stepping actuators are based on widely used mechanical principles, which we have refined and improved upon to give a reliable, cost effective product, available with either hydraulic or pneumatic controls. Generally the actuator is coupled into a hydraulic or pneumatic ring main provided by others. Via a series of hydraulic controls and two directional solenoids valves oil or air is fed to one of two cylinders, which act upon a mechanical ratchet/gear wheel.

The rotation of the gear wheel is selected by giving an electrical pulse to one of the two solenoid valves. Linear motion is achieved via a drive nut, which is connected to the gear wheel. The mechanical drive mechanism can be supplied complete with drive nut, threaded drive shaft, valve actuator mounting bracket and stem connector to fit directly to your valve. A full detailed specification for each type of actuator is attached along with common features and options.
Key Features

**DR-CLUTCHABLE HAND WHEEL**
- Painted in actuator spec system
- De-clutchable
- Locking device

**POSITION TRANSMITTER**
- Non-contact type
- Exd. 1.s. or Safe Area
- mA - Vdc - digital signals
- SS316L housing

**SOLENOID VALVES**
- Available in
  - Explosion Proof
  - Intrinsically Safe
  - Safe area
- International certification
- SS316L housing
- M20 entries
- Typical supply 24Vdc
- Power requirement 6W
- Other types/custom available**

**PRESSURE FILTERS & REGULATORS**
- 0-50 bar for pneumatic
- 0-200 bar for hydraulic
- Available in various materials
  - 6um for oil
  - 3um for air
- Single & dual versions

**NUT BOX ASSEMBLY**
- Rotary to linear movement
- Strokes up to 5"
- Includes high load bearings
- Contains acme screw thread
- Low backlash design
- Internally coated with high pressure grease
- Case manufactured from seamless tube
- Designed for high load cycles

**ADJUSTABLE STOP**
- Enables stroke reduction
- Up to 50% reduction
- Anti-lock design

**HYDRAULIC & PNEUMATIC CYLINDERS**
- Eni body
- SS316/29F piston rod
- Modular design for all customer options
- Standard stroke ranges
- For faster delivery options
- Single & double peck option

**MECHANICAL FEATURES**
- Integral lifting lugs
- All removable bolts A4-70 grade
- All holes are blind to prevent water ingress
- All clamp loads & torques supplied
- Cs components passivated & painted to AA offshore system**

**MOUNTING YOKE**
- Universal fit
- Standard length in 50mm steps
- Adjustable limit switch positions
- Bottom plate machined to suit
- Customer mounting
- Slotted top for height restricted mounting**

**CONNECTOR & POSITION INDICATOR**
- Manufactured from SS316L
- Anti-rotation device
- Graduated scale
- Incorporated limit striker**

NOTE: Items marked * are optional features & should be requested at quote.
Please see your copy specification for details.

Advanced Actuators Limited
### Hydraulic Version

#### Supply Pressures & Associated Equipment

<table>
<thead>
<tr>
<th><strong>Maximum working pressure</strong></th>
<th>210 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal working pressure</strong></td>
<td>150 bar</td>
</tr>
<tr>
<td><strong>Minimum working pressure</strong></td>
<td>50 bar</td>
</tr>
<tr>
<td><strong>Supply medium</strong></td>
<td>Hydraulic oil 15 – 46Cst</td>
</tr>
<tr>
<td><strong>Max flow requirement</strong></td>
<td>5 ltr/min</td>
</tr>
<tr>
<td><strong>Oil filters</strong></td>
<td>Optional extra</td>
</tr>
<tr>
<td><strong>Pressure gauges</strong></td>
<td>Optional extra</td>
</tr>
</tbody>
</table>

#### Output Torque Range

<table>
<thead>
<tr>
<th><strong>Maximum</strong></th>
<th>500 Nm *</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimum</strong></td>
<td>80 Nm</td>
</tr>
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</table>

*Please contact Advanced for output torques above 500 Nm or below 80 Nm and strokes above 5 inches.*

### Pneumatic Version

#### Supply Pressures & Associated Equipment

<table>
<thead>
<tr>
<th><strong>Maximum working pressure</strong></th>
<th>10 Bar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal working pressure</strong></td>
<td>7 Bar</td>
</tr>
<tr>
<td><strong>Minimum working pressure</strong></td>
<td>4 Bar</td>
</tr>
<tr>
<td><strong>Supply medium</strong></td>
<td>Compressed air or dry H2S scrubbed natural gas</td>
</tr>
<tr>
<td><strong>Consumption</strong></td>
<td>2 – 3 cf/min</td>
</tr>
<tr>
<td><strong>Air filters</strong></td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Pressure gauges</strong></td>
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Common Features

Design temperature
-30°C  +80°C

Cycle Time
Speed 0 to 120 steps/min
Steps per rev 17 to 45 steps/rev

Failure Action
Fail position Last command position
Manual override Square drive 38mm (1.5”)
Valve interface Mounting flange to suit valve

Materials of Construction
Actuator body SG iron casting
Solenoid valve body Stainless steel 316L
Hydraulic pipework and fittings Stainless steel 316L – twin ferrule
External corrosion protection Advanced standard offshore paint finish, two pack polyurethane

Solenoid Valves
For hydraulic or pneumatic applications
ATEX certified explosion proof or intrinsically safe
Supply voltage 24V DC
Certification ATEX Exd IIC T6

Cable Entry
M20 conduit ½” NPT optional
Ingress protection IP66 to IEC 60529/NEMA 4X

Options
Carbon or stainless steel actuator housing
Position controllers in Exd or I.S. format; HART, SMART
or Foundation Fieldbus

www.advanced-actuators.com
Other Products

E Range of Actuators

Linear or 0 – 90 degree electro-hydraulic actuators for modulating or isolating duty. Thrusts up to 80,000kg and torques up to 135,000NM within the standard range. Optional features make these units adaptable for most applications.

Z Range of Actuators

A range of self-contained linear electro-hydraulic actuators, which are both versatile and extremely robust. These actuators have fully adjustable thrust and speed controls. No external pipe work and completely sealed against ingress of contaminants means little or no maintenance. Ideal for on/off applications

Electric Actuators

Modular in design, both multi and 1/4 turn available offering compact solutions. For modulating or isolating duty with options of foundation field bus and HART. Other features include double sealing of the enclosure, standard ISO 5211 mounting, local or remote control and manual operation are a few of the options with these actuators.

Pneumatic Actuators

Quarter turn scotch yoke design in both single and double acting formats. Anodised outer surface with double coating on the cylinder bore. Mountings for both ISO 5211 and DIN3337. Optional features include limit switches, position controllers, integrally mounted solenoid controls and valve/actuator mounting brackets.

Hydraulic Cylinders

Complete range of heavy-duty high quality fully serviceable (i.e. can be rebuilt) metric hydraulic cylinders to CETOP/R10H.

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