



ADVANCED
ACTUATORS LIMITED

'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

DE-CLUTCHABLE HAND WHEEL

- PAINTED IN ACTUATOR SPEC. SYSTEM
- DE-CLUTCHABLE
- LOCKING DEVICE

POSITION TRANSMITTER

- NON-CONTACT TYPE
- EEXD, I.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

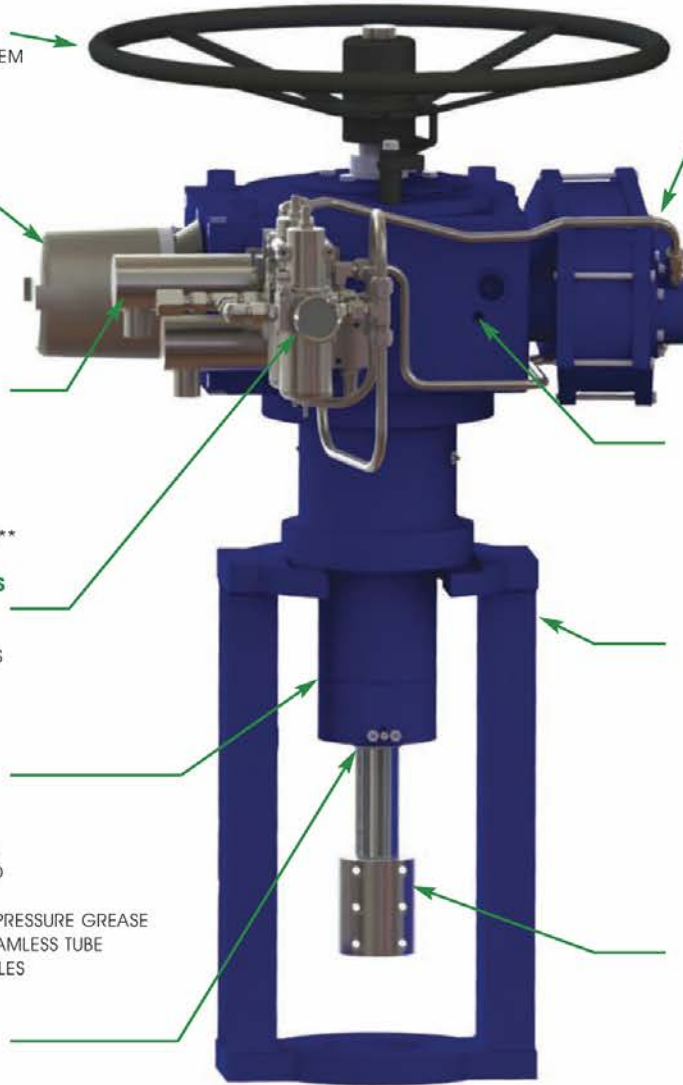
- 0-20 BAR FOR PNEUMATIC
- 0-200 BAR FOR HYDRAULIC
- AVAILABLE IN VARIOUS MATERIALS
- 3um FOR OIL
- 6um FOR AIR
- SINGLE & DUAL VERSIONS

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

- EN8 BODY
- SS431S29T 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 LENGTHS 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



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Hydraulic Version

Supply Pressures & Associated Equipment

Maximum working pressure	210 bar
Nominal working pressure	150 bar
Minimum working pressure	50 bar
Supply medium	Hydraulic oil 15 – 46Cst
Max flow requirement	5ltr/min
Oil filters	Optional extra
Pressure gauges	Optional extra

Output Torque Range

Maximum	500 Nm *
Minimum	80 Nm

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

SHA

Pneumatic Version

Supply Pressures & Associated Equipment

Maximum working pressure	10 Bar
Nominal working pressure	7 Bar
Minimum working pressure	4 Bar
Supply medium	Compressed air or dry H2S scrubbed natural gas
Consumption	2 – 3 cf/min
Air filters	Standard
Pressure gauges	Standard

Output Torque Range

Maximum	500 Nm
Minimum	80 Nm

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

SPA

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 EExd IIC T6
EExia 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 Eexd or I.S. format, HART, SMART
or Foundation Fieldbus

www.advanced-actuators.com

Advanced Actuators

Unit 4, Ryefield Way
Silsden
West Yorkshire
United Kingdom
BD20 0EF

Tel +44 (0) 8707 576 664

Fax +44 (0) 8707 576 665

Email: sales@advanced-actuators.com

Web: www.advanced-actuators.com



Distributed by

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 ISD O5211 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.

