

Approval and Industry Standard

- Actuators manufactured in conformity with CE certification to PED 97/23/EC
- Actuators certified to Explosion Protection Certificate
- Actuators certified to IP66/IP67
- Actuators designed and manufactured under a third party accredited
- ISO 9001:2000 quality assurance program.
- Suitable for Safety Integrity Level applications in accordance with IEC 61508 : 2000
- GOST-R Russian certificate of conformity

FLOWBUS[®]

EPT Series

Heavy Duty Scotch Yoke Actuators

FLOWBUS[®] Corporation

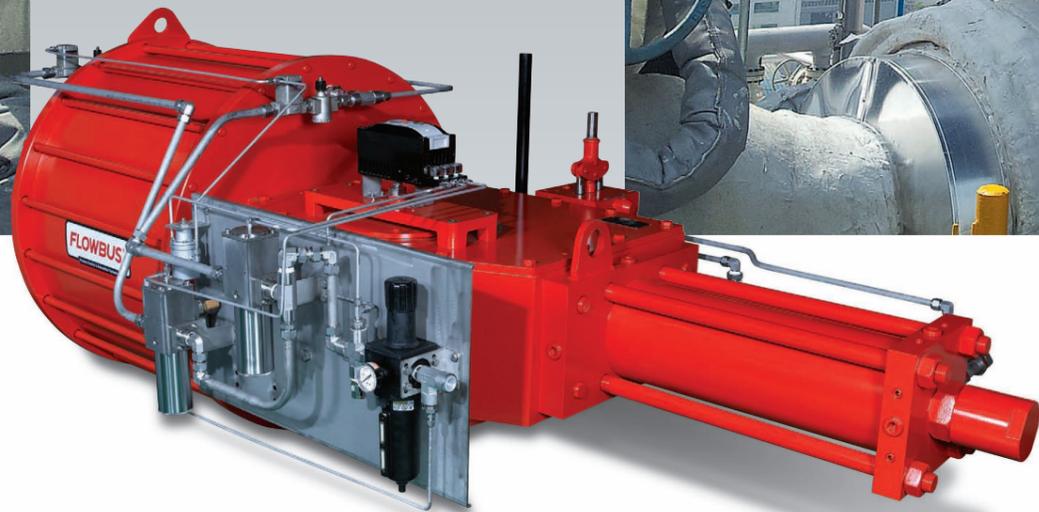
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Due to continuous development, product data is subject to change without prior notice.
Literature #PA.008.02.Rev.4-Sep/18/14



Heavy Duty Pneumatic Actuators Scotch Yoke Design

FLOWBUS EPT Series heavy duty scotch yoke actuators are designed for rotary on-off or modulating service, and can be supplied with either symmetrical or canted torque output. The EPT series are designed to operate ball, butterfly and plug valves requiring a rotary, quarter-turn movement which will support plant operation under safety instrumentation systems. Available in both double and spring return configurations, the modular design can be quickly and easily converted in the field. Flowbus is able to make the EPT actuators a high quality, reliable actuator, utilizing tried and tested methods of operation combined with the latest innovations in technology.



» Safety Design Unit

To avoid accidental release of spring force, the EPT actuators have been designed with an inherently safe spring return unit. The spring units are supplied as fully welded modules. The spring and spring retainer are self-centered and bearing guided within the spring module, ensuring accurate alignment and extending spring life. The spring is compressed towards the drive module during operation, provides no impact on the spring end cover, reducing stresses and increasing safety. The spring tension can be adjusted to give optimum torque outputs.

» Efficiency and Reliable Solution

The EPT Series actuators are constructed to offer efficient and reliable performance with reduced repairs and increased actuator life. The permanently lubricated, sliding bearings combine with a low friction, corrosion resistant hard chrome internal coating to ensure perfect operation of the internal components while the heavy duty construction and external coating protect the actuator from corrosive environments.

» Torque Outputs

The EPT double acting actuator torque output ranging from 917 to 800,000 N.m (8110 to 7,080,600 ins.lbs.), while the spring return actuator produces spring end torques ranging from 447 to 546679 N.m (3950 to 4,838,500 ins.lbs.). The actuators are rated for continuous operation at pneumatic supply pressures from 3 to 12 bar (40 to 170 psig).

» Temperature Ranges

Standard EPT actuators are designed for operating temperatures of -20°C to +80°C (-4°F to +176°F). Options are available for low and high temperatures of -48°C (-54.4°F) and +177°C (+350°F) respectively. Special requirements can be supplied on request. For higher and lower temperature applications, consult Flowbus.

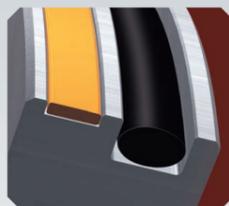
» Flowbus ; A Complete Solution

Flowbus can supply not only an actuator, but a complete tailored solution to meet your application. From basic ancillaries such as solenoids, through ESD systems and smart positioners, Flowbus is able to use their years of valve and actuator experience to enhance performance and provide the perfect solution to your application requirements.

Key Advantages : EPT Series

01 Piston Guide Ring

The EPT Series has a guide ring fitted to the piston to prevent lateral deflection, ensure smooth, steady operation and extend piston operating life.

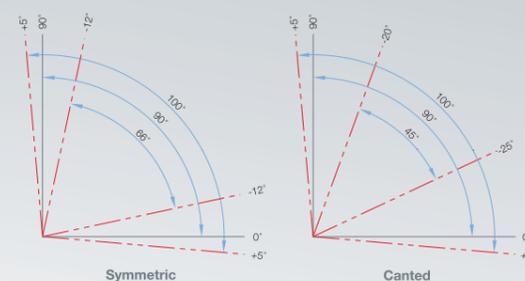


04 Simple Actuator Mounting

The EPT Series yoke is designed with two full length keyways. This not only simplifies assembly but also allows for ease of modification to the actuator orientation to accommodate last minute pipe work changes, in addition to providing easier visual confirmation of alignment, thus reducing maintenance and assembly time. Specially designed dowel pins in the main actuator drive module ensure simple and accurate alignment of modules when assembling the actuator or performing maintenance.

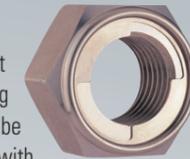
07 Wide Adjustable Stopper

The EPT Series actuators offer travel stops allowing $\pm 5^\circ$ of adjustment to give a travel range from 80° to 100° . Both the stoppers are externally accessible for easy travel adjustment. Optional extended travel stoppers provide a greater range of adjustment.



09 Spring Rod Nut

The spring rod nut locks the spring to prevent accidental release under repetitive spring impacts. In addition, spring tension can be adjusted. The spring module is designed with a tension lock ensuring that the spring force cannot be accidentally released during disassembly from the drive module.



10 Wear Resistance

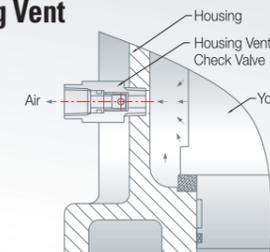
The EPT Series guide rod has an advanced surface treatment, which combined with self-lubricating bearings, provides superior wear resistance and extends the life of all sliding components.

11 High Efficient Operation

The EPT Series piston rod is locked by a guide block, supported by a high strength alloy steel guide rod with a self-lubricating bearing. This ensures efficient operation and improves the transfer of energy from the actuator to the valve stem.

12 Integral Housing Vent

The main actuator housing incorporates an integral check valve in order to release overpressure while preventing ingress of foreign objects or water.



13 High Visibility Position Indicator

A high visibility position indication beacon is available as an optional feature on the EPT actuators. The indicator is impact resistant and weather proof to IP66/67 standard.

14 Ancillary Bracket

A multifunction bracket is available for ancillaries. The bracket can be assembled in various configurations to provide optimum mounting of ancillary equipment.

15 ISO or MSS Mounting Standard

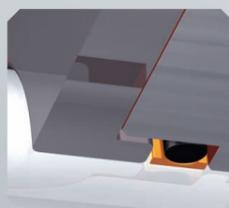
The EPT actuators have an optional VDI/VDE 3845 mounting interface enabling simple mounting of ancillary equipment.

02 External Tie Rods

The external tie rods protect the cylinder tube from accidental damage during piping work and prevent deformation.

03 Advanced Sealing Compounds

The EPT Series utilizes both PTFE and rubber seals. The PTFE seal offers a high level of sealing performance and is self-lubricating, ensuring smooth operation of moving parts. The rubber seal offers long term, high performance sealing with no tendency to set or creep.



05 Replaceable Bearing

Low friction, permanently lubricated, high performance bearings protect all components, extending actuator life by ensuring smooth operation. Bearing replacement is simple and instructions can be found in the operating and maintenance manual.



06 NAMUR Standard

For ancillary equipment such as positioners and switchboxes, the latest VID/VDE 3845 mounting interface is provided to allow quick and simple mounting and it is designed to meet the weather proof standard.

08 Cylinder Tube Coating

The EPT actuators incorporate a hard chrome internal coating to resist wear, corrosion and thermal and physical shock while providing a low friction lubricating interior finish. The coating ensures that the cylinder tube is fully protected regardless of what corrosive elements are drawn in from the surrounding atmosphere. As an option, electroless nickel and Teflon plated cylinders are available in accordance with the industry application.

Features and Benefits

Manual Overrides

1. Jackscrew Manual Override

A compact jackscrew override is available as an option and offers efficient and precise performance even when the air supply fails. The jackscrew allows the actuator to be manually operated with no loss of torque or decrease in operating speed. Even when operating at maximum speed, the jackscrew is designed to withstand the forces produced without damage to itself or the actuator.

2. Hydraulic Manual Override

Flowbus Hydraulic Manual Override is an independent manual override system for EP-Series pneumatic actuator. It is composed of a hydraulic cylinder, pump and oil tank. The hydraulic cylinder can be divided into various types according to the shape and action of the yoke. The specially designed hydraulic override cylinder is installed inside the spring module. This standardized actuator overall length and isolates the hydraulic fluid to eliminate contamination and spillage.

HIPPS (High Integrity Pressure Protection Systems)

FLOWBUS; A Complete Valve Actuation Technology

A high-integrity pressure protection system (HIPPS) is a type of safety instrumented system (SIS) designed to prevent over-pressurization of a plant, such as a chemical plant or oil refinery. Where HIPPS is applied as a pressure protection system, the system shall be documented to have the same or better safety reliability as a pressure relief device system. Alternatively IEC 61508, part 5 can be used to develop the appropriate Safety Integrity Level (SIL) for each specific HIPPS application. The safety reliability of the HIPPS system shall be documented to meet the selected SIL level considering for instance common mode failures, as the HIPPS system may consist of several identical HIPPS loops.

SIL Applicable FLOWBUS suitable for use in SIL 3&4

Flowbus offer the ability to perform according to the IEC61508 and 61511 standards. The pneumatic actuator series are certified SIL 3 without the partial stroke systems and SIL 4 with periodic proof testing device.

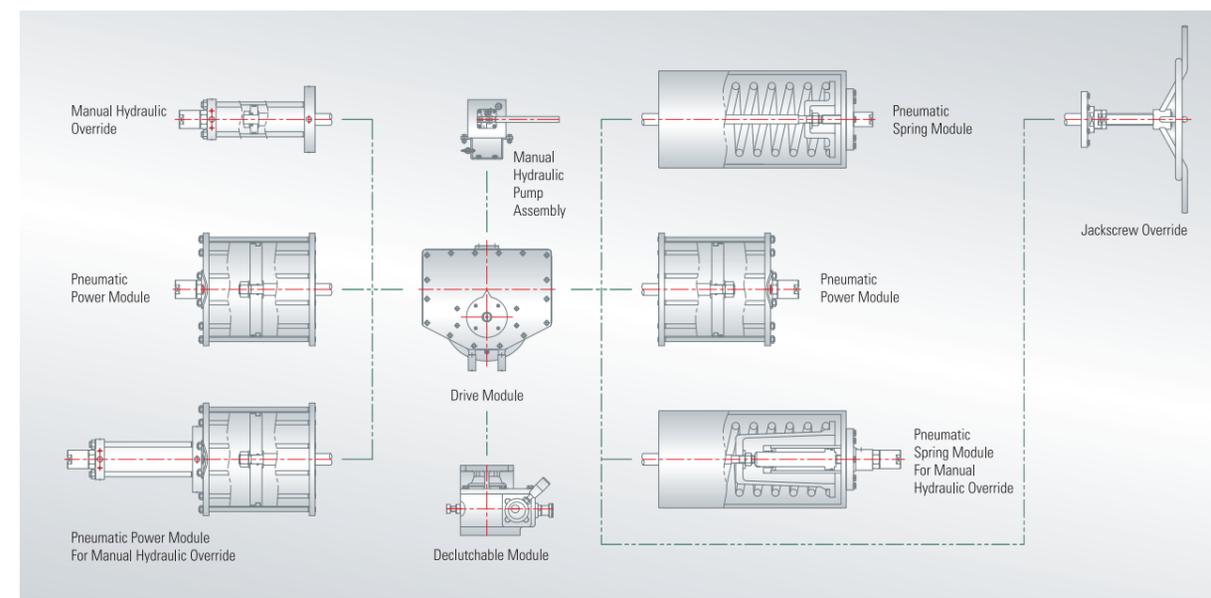
Fire Proofing Solutions

Our extensive knowledge of the valve and actuator industry in oil and gas, refinery, petrochemical applications enables us to provide various fire protection solutions to allow the critical actuator and related control systems to continue operating for a period of time in fire temperatures of 1000 deg C in accordance with UL1709. By installation various fire protection systems such as a flexible & semi-rigid enclosure jacket, rigid enclosure, removable covers and intumescent coating or any other requirements, the critical valve actuation systems can be protected efficiently from danger and damage from fire. FLOWBUS is able to offer the fire proofing systems in both new and existing actuators and its controls systems.



Versatile Modular Design

The EPT Series modular design consists of spring, power and drive modules. The modules have been designed for easy disassembly and this allows the actuator to be quickly and easily converted from double acting to single acting configuration, or for the addition of ancillaries such as a manual override unit. The modular design allows these modifications to be performed without removing the actuator from the valve.



Torque Outputs

The EPT Series actuators provide either symmetric or canted torque data. In accordance with the industry demand, the torque outputs can be delivered as shown the graph.

