



↖ *Engineering
GREAT Solutions*

IMI STI

Total Capability in Valve Actuation



Engineering Great Solutions for Over 50 Years



Since its foundation in 1960, IMI STI has focused on the design, development and production of complete actuation systems for the operation of industrial valves in the most demanding applications and processes across the world.

IMI STI is now an international leader in valve actuation. We design and manufacture complete actuation systems, which can be fully customised to meet customer needs, applications or processes. We offer a diverse range of valve actuation (both pneumatic or hydraulic) products including linear and quarter turn actuators, smart and traditional positioners, and a full range of accessories.

Quarter turn range ideal for critical ball and butterfly valve applications



Project: LNG terminal, Uruguay

Smooth and precise valve operation without any maintenance for the whole operating life



Project: LNG plant, Russia

Total Capability in Valve Actuation

Our actuators are designed to drive control valves in the most demanding applications such as turbine bypass in power plants and anti-surge valves in LNG industries (LNG ships and LNG liquefaction plants).

Advanced software and diagnostic capabilities ensure our actuators are tailored to your plant's specific requirements.

Our facilities are world class, complete with:

- > Workshop area, 12.000 m²
- > Offices, 3.000 m²
- > Painting system
- > Torque test bench
- > Thermal test chamber (-70°C / +150°C)
- > Research and development laboratory



Painting system



Torque test bench

Critical applications

Fossil Power

Our fast-stroking, highly-reliable actuators have been recognised for providing superior performance in severe service applications for over 50 years. Key applications include turbine bypass systems, steam damper heating, boiler level control (including nuclear), pump recirculation, emergency shut-down, line isolation and dampers for fans.

Oil & Gas

In the oil and gas industries we provide actuation for control valves anti-surge (hot gas bypass), choke valves and gas to flare as well as applications such as dampers for fans.

Our range of quarter turn actuators operate ball and butterfly valves in oil and gas applications and in petrochemical, including FPSO applications.

LNG

Most compressor anti-surge valves in LNG plants worldwide are fitted with an IMI STI actuation control system, maintaining plant up-time and operational efficiency.

In 4 years we have supplied more than 400 actuators for large compressor anti-surge valves.

Other industries

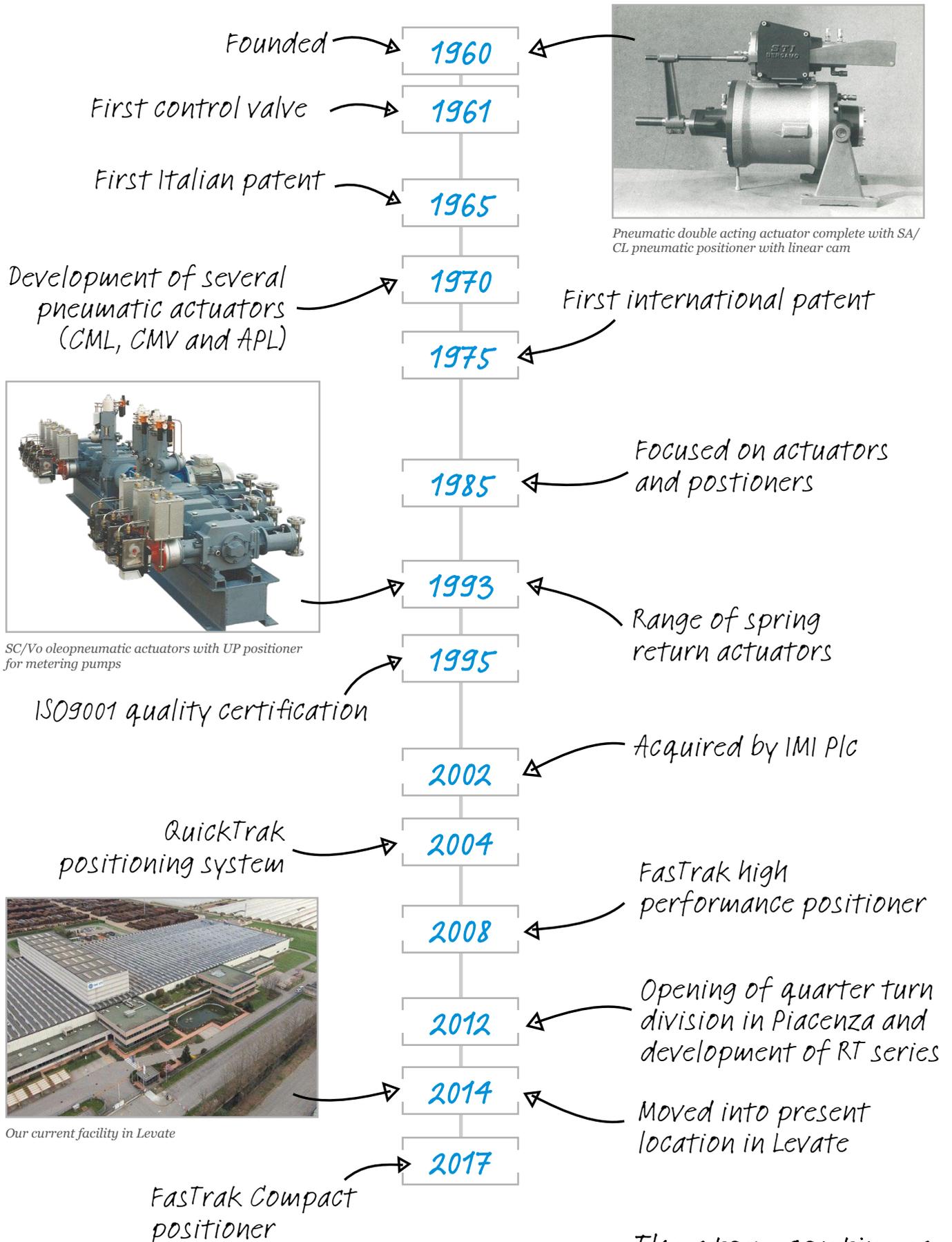
- > Petrochemical
- > Iron & Steel
- > Nuclear



Quarter turn actuators for power & desalination project

Driving valves in the most demanding applications across the world

Company history



The story continues...

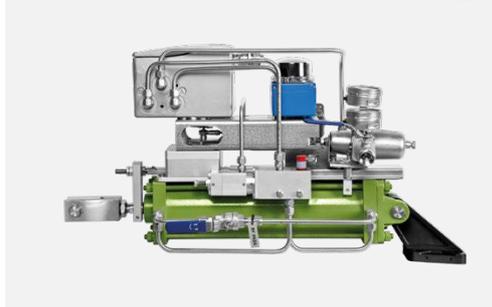
Product Categories

SC Series

Linear actuators



The SC series of actuators are provided with a built-in permanent lubrication system, patented by IMI STI, which assures an extremely smooth valve operation even if dry instrument air is used. Thanks to this lubrication system, which is common to all IMI STI actuators, no maintenance of moving parts is required, even after many years of continuous service.



SC

SC is a complete line of linear pneumatic actuators purposely designed and manufactured for the operation of flow control devices such as dampers, louvers, butterfly and ball valves. Thanks to their design, they are perfectly suited to applications on power plants, refineries, steel pipe works and on board vessels.

The SC actuator provides excellent response times without the use of a booster. A high speed design is also available.



SC/V

SC/V pneumatic linear piston actuators are designed to drive control valves for the most demanding applications of power and oil & gas industries. This includes turbine bypass, steam conditioning valves, compressor anti-surge valves and many others.



SC/VH

IMI STI's hydraulic linear piston actuators are designed to drive on/off and control valves for the most demanding applications in the power and oil and gas industries; such as control, choke, gate, globe and wedge valves.

Thanks to the rugged and reliable design of the SC/VH actuators, they ensure smooth and precise valve operation without any maintenance for the whole operating life, even in the harshest of environments.



SC/VLT

The SC/VLT lift and turn valve actuator is made of two main parts:

- > The cylinder group, with a piston inside that divides the internal volume into two chambers.
- > The yoke, that fixes the cylinder to the valve and defines valve movement (linear and rotary movement).

This actuator has been purposely designed for valves such as double block and bleed plug valves (a replacement to the conventional multi-valve system) and similar.

*Request dedicated
product brochures or visit
www.imi-critical.com for
more information*

RT Series

Quarter turn actuators



Our RT series offers a complete range of pneumatic and hydraulic quarter-turn single/double acting actuators, suitable for the operation of quarter turn valves (ball valves, butterfly valves and plug valves) for on-off and modulating heavy-duty service.

The actuator is made up of a waterproof scotch yoke mechanism transforming the linear movement of the pneumatic cylinder (on closing or opening) into the rotary movement, necessary for valve operation.



RTC & RTQ

The RTC & RTQ single/double acting pneumatic low-pressure actuators are housed in carbon steel material without any cast/grey/ductile iron or aluminum parts.

Totally sealed, weatherproof housing provides complete protection for all moving parts.

Scotch yoke mechanism is available in both canted or symmetrical options for ideal torque distribution.

The actuator's angular stroke is adjustable between $-4^{\circ}/+4^{\circ}$ at both ends by means of the external stainless steel mechanical stops arranged into the side-wall of the mechanism's body and into the end flange of the pneumatic cylinder.

The RTC Compact Actuators are designed to provide high torque with minimum space and weight.

The optional spring package is installed inside the cylinder.

The RTQ High Torque Actuators are designed with interchangeable power and spring modules for easy and quick reversal of the fail-safe mode without any safety issues.

The optional spring package is designed with inherently safe design which ensures high efficiency, functionality and safe maintenance, preventing any accidental hazards due to corrosion of fasteners.



RTCH & RTQH

The RTCH & RTQH single/double acting hydraulic high-pressure actuators are housed in carbon steel material without any cast/grey/ductile iron or aluminum parts.

Totally sealed weatherproof housing provides complete protection for all moving parts.

Stainless steel travel stops allow for fine adjustments of the angular stroke between 82° and 98° .

The RTCH Compact Actuators are designed to provide high torque with minimum space and weight.

For spring return, the hydraulic cylinder is installed inside the spring with a single gasket for easy maintenance and no external tie rods.

The RTQH High Torque Actuators are designed with interchangeable power and spring modules for easy and quick reversal of the fail-safe mode without any safety issues.

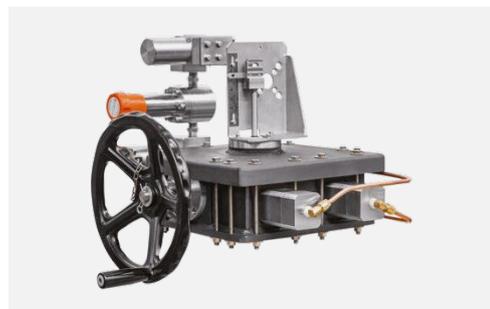
The cylinder design allows for easy on-site replacement of all hydraulic seals.

SM Series

Stepper motor actuator



The SM series has an internal mechanism which is arranged to be incorporated with the female thread of the threaded valve stem. Two hydraulic or pneumatic actuators drive the rotation of the internal mechanism of the stepper motor, one clockwise and the other anticlockwise, therefore allowing the rotation in defined steps and the linear movement of the threaded rod.



SM/P & SM/H

These actuators are available in different sizes to meet different torque requirements.

Typically it is used on choke valves.

CM Series

Enclosed actuators



This pneumatic actuator system is composed of an actuator (SC) and a manual override integrated into a steel housing which also works as a carrying structure. The CM series is able to control final elements like dampers, butterfly valves, speed variators, radial vanes and hydraulic converters. Thanks to various models, it can provide different ranges of torque to meet most applications.



CML

The CML actuator provides small to medium torque (up to 1000 N) for angular control.



CMV

The CMV actuator is able to control final elements such as in modern power stations using high power actuators to develop torque up to 41000 N.

PT Series

Positioners



The PT series includes a wide range of positioners including pneumatic, electro-pneumatic and smart models (high and low flow rate).



FT - FasTrak

FasTrak is a smart positioner with a high-capacity, high-precision digital-pneumatic valve controller that replaces a conventional positioner. It has excellent dynamic performance and high flow ($C_v = 2$).



FTC - FasTrak Compact

FasTrak Compact is a high-precision digital-pneumatic valve controller, with very good dynamic performance. FTC is compatible with single and double acting actuators (with or without a spring), a piston or a diaphragm.



Other Products

- > QT - QuickTrak
- > ST - SmarTrak
- > CRP-3M & CRP-3/M-EP
- > DE/3M-3 & DE/3M-3-EP
- > SA/CL & SA/CL-EP
- > SA-1 & SA-1-EP
- > SR/CCK
- > UP & UP-EP

AC Series Accessories



A full range of accessories and control systems are available, designed and manufactured to meet the most demanding of customer specifications. Our accessories are designed with a manifold mounting system to save space and costs. It is a special IMI STI application whereby fittings or nipples are not necessary. This is due to the connection being achieved using machined connection faces with a sealing o'ring. This system saves assembly time, reduces inventory and cost on items such as fittings, and saves space due to the reduced dimensions.



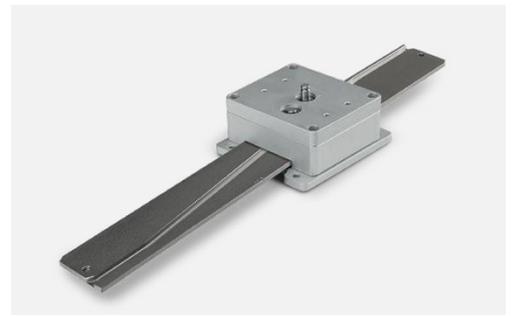
AL - Air-lock



BD - Derivative Booster



CO - 3-way Valve



MC - Motion Converter



Other AC Series Products

- > AV - Volume booster
- > BV - Big volume booster
- > BW - Ultra high capacity booster
- > CF - Fast commutator
- > CS - Quick exhaust
- > GR - Manual override
- > SAR - Snap acting relay
- > SL - Silencer
- > SR - Quick exhaust valve
- > TP - Pressure switch
- > TR - Electric position transmitter and limit switches
- > UD - Derivative unit

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Special Applications

IMI STI specialises in the supply of custom-made valve actuating systems. We have developed innovative products to satisfy the demands of various markets for a multitude of industrial applications.

Stainless steel

Due to the harsh and corrosive environments found in industries such as petrochemical, marine and offshore, a stainless steel actuator is the ideal solution. IMI STI is able to provide this solution, for linear and quarter turn actuators (along with control components like positioners and other accessories).

Fast acting

Thanks to decades of experience with hydraulic fast-acting actuators, IMI STI has developed and designed bespoke pneumatic quick exhaust valves for large pneumatic spring return actuators. This design reduces to a minimum the dead time after pilot signal cut-off, allowing the valve to reach extremely fast emergency stroke times even when a high flow capacity (typical of big pneumatic cylinders) is required. Quick exhaust valves can be provided complete with hydraulic damper to smooth final degrees of the closing stroke, protecting the valve seat and reducing shock and vibrations on the valve and pipeline. This execution allows the valve to reach fast stroke times up to 0.3 seconds (depending on cylinder volume and working pressure).

Low and high temperature

Pneumatic components used in "extreme" temperature applications have different requirements. IMI STI has products that are specifically designed to be used for both high and very low temperature applications.

120° actuator

Scotch yoke pneumatic actuator (RT series) with a stroke of 120° for a 3-way ball valve.

Fire proofing

To maintain a valve's control and operational process even in case of fire, IMI STI actuators can be provided with suitable fireproof protection that will guarantee normal working conditions for a significant period of time in temperatures of over 1000°C, protecting all mechanical parts and control circuit equipment.

This enclosure could be both flexible and rigid, based on customer requirement.

Big linear pneumatic actuator ND 1500mm completely in stainless steel for major customer



Project: Petrochemical plant, Russia

Flexible enclosure

Rigid enclosure



Project: FPSO project, Brazil



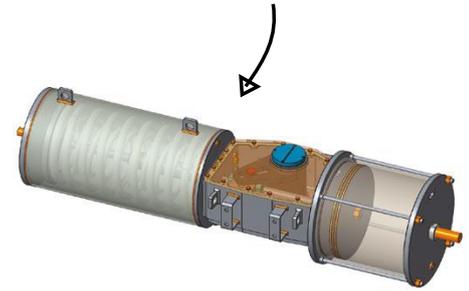
Project: NGL plant, UAE

Zero Backlash scotch yoke mechanism

Zero Backlash mechanism for modulation of a quarter turn valve

The majority of pneumatic/hydraulic actuators uses scotch yoke technology to transform the linear piston movement into a rotary one. Gaps between the sliding block and the scotch yoke slot inevitably have a negative influence on both precision and functional dynamic (i.e. hysteresis, dead band, small step response, etc.). Over the course of the operational life of the actuator, this inaccuracy becomes inevitable and increases over time.

Our Zero Backlash mechanism solves the intrinsic and the wear-related gap between the sliding block and the scotch yoke slot, maintaining friction values at comparable levels to state-of-the-art technology.



Solutions for large valves

Our experience and facility allows us to design and develop any size of cylinder, from ND 63 up to 1700 mm.



Project: Coal liquefaction plant, China

Electro-hydraulic

Hydraulic actuation is the best solution when high forces and critical control modulating is required. This system has several advantages, such as:

- > Increased safety with automatic fail safe position in case of electric power failure.
- > High level of reliability due to continuous monitoring of working status.
- > Compact execution with reduction of dimensions and weight due to the availability of high pressure hydraulic medium for actuator operation.
- > Hydraulic energy stored in high pressure compact accumulators, available at any time under all circumstances.
- > LCD display for easy calibration, position, pressure and fault diagnostic.

The design of this system is extremely flexible and can be adapted to suit many different application or plant requirement, providing a highly customised product in various configurations:

- > Centralised power pack designed with built-in accumulator rack and control cabinet for control of one or more valves.
- > Self-contained hydraulic units with compact power pack integrated with the actuator.
- > Fully independent hydraulic system for on/off or modulating service.
- > Hydraulic unit for HIPPS application on safety and critical valves.

Bleed Steam Valve solution completed for power plant in Poland



Key capabilities

Our know-how in actuator development and our commitment to continuous improvement in the areas of performance and reliability not only ensures that the most up-to-date technologies and materials are used (our actuators and accessories are designed, engineered, assembled and tested in Italy), but also that our clients can count on a reduction in their long term operational costs, thanks to the long and trouble-free life of our products.

Engineering and R&D

Our extensive expertise in actuator design fully utilises the opportunities for innovative and competitive engineering solutions whilst ensuring compliance with all relevant standards.

IMI STI regularly reviews its product lines and surveys customer requirements and specifications to ensure effective additions to, and strengthening of its products range.

The Research and Development department controls a suite of test facilities which include a laboratory, where our engineers develop new patents (20+ innovations each year).

Continuous investment in computerised systems, integrated machining centres, test benches and computer controlled state of the art machine tools, ensure the highest level of component quality and repeatability in line with our policy of maintaining IMI STI as a manufacturing centre of excellence.



Our state-of-the-art R&D department

Aftermarket

IMI STI actuators and accessories are installed in demanding applications therefore it is crucial to keep them operating at peak performance levels.

IMI STI provides a wide range of aftermarket support services, from web-based spare parts availability to express delivery of components. A team of qualified engineers is available for customer support, including on-site, commissioning, troubleshooting and maintenance activities.

Most of IMI STI actuators are equipped with a diagnostic communication tool to deliver plant operators with information about optimal equipment performance and to ensure compliance to safety and regulatory requirements.

- > **Fast delivery of spare parts**, 24 hour shipment service (10,000 parts at our workshop to minimise stand-by)
- > **Field service on site** for spare parts installation and upgrade
- > **Maintenance service on site** for regular maintenance of our actuators and accessories
- > **Remote customer care** telephone assistance during start-up, commissioning or normal operation
- > **Spare parts service** to guarantee original spare parts and assure immediate compatibility
- > **Training on site** for better calibration and knowledge of our system
- > **Upgrade service** to identify the best new solution available for your system



We're dedicated to excellent aftermarket service



Our actuators and accessories are designed, engineered, assembled and tested in Italy

Quality

In a quality driven market, IMI STI's engineering is world famous as proven by the large quantity of actuators installed in critical applications across the world. Our extensive expertise in actuator design allows us to produce world-leading solutions whilst ensuring compliance with all relevant standards.

IMI STI is committed to continuous improvement in safety, environment and quality performance in each business area. Quality management is a fundamental must for the whole production process and for the provision of the best possible customer service. Market requirements are in a state of constant evolution and customers' quality needs are met and exceeded by our complete, adaptable business processes from your initial order to the final delivery.

Certificates

As a result of our commitment to a continuous quality improvement, IMI STI has obtained the certificates of conformity to the following standards:

System	
ISO 9001	International
PED module H & H1	International
ATEX	International
IECEX	International
Products	
IECEX	International
SIL	International
ATEX	Europe
PED	Europe
TR CU	Russia / Kazakhstan / Belarus
ULc	USA / Canada
CSA us	USA / Canada
INMETRO	Brazil
SANS	South Africa
CCOE	India
CCC	China














 We also have qualifications from some of the biggest players in the global market. Visit stiactuation.com for an up-to-date list of our qualifications.

Our global reach

For more than 50 years, our business has been synonymous with innovation and performance in the severe service valve and controls industry. We have manufacturing operations in 19 countries and support our customers on the ground via local manufacturing facilities and our global service network, which includes 200 dedicated aftermarket specialists.



Europe

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Piacenza
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Mannheim, Germany | 7
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Manchester
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IMI CCI Brazil
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South Africa

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IMI Critical Engineering Russia
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Australia

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