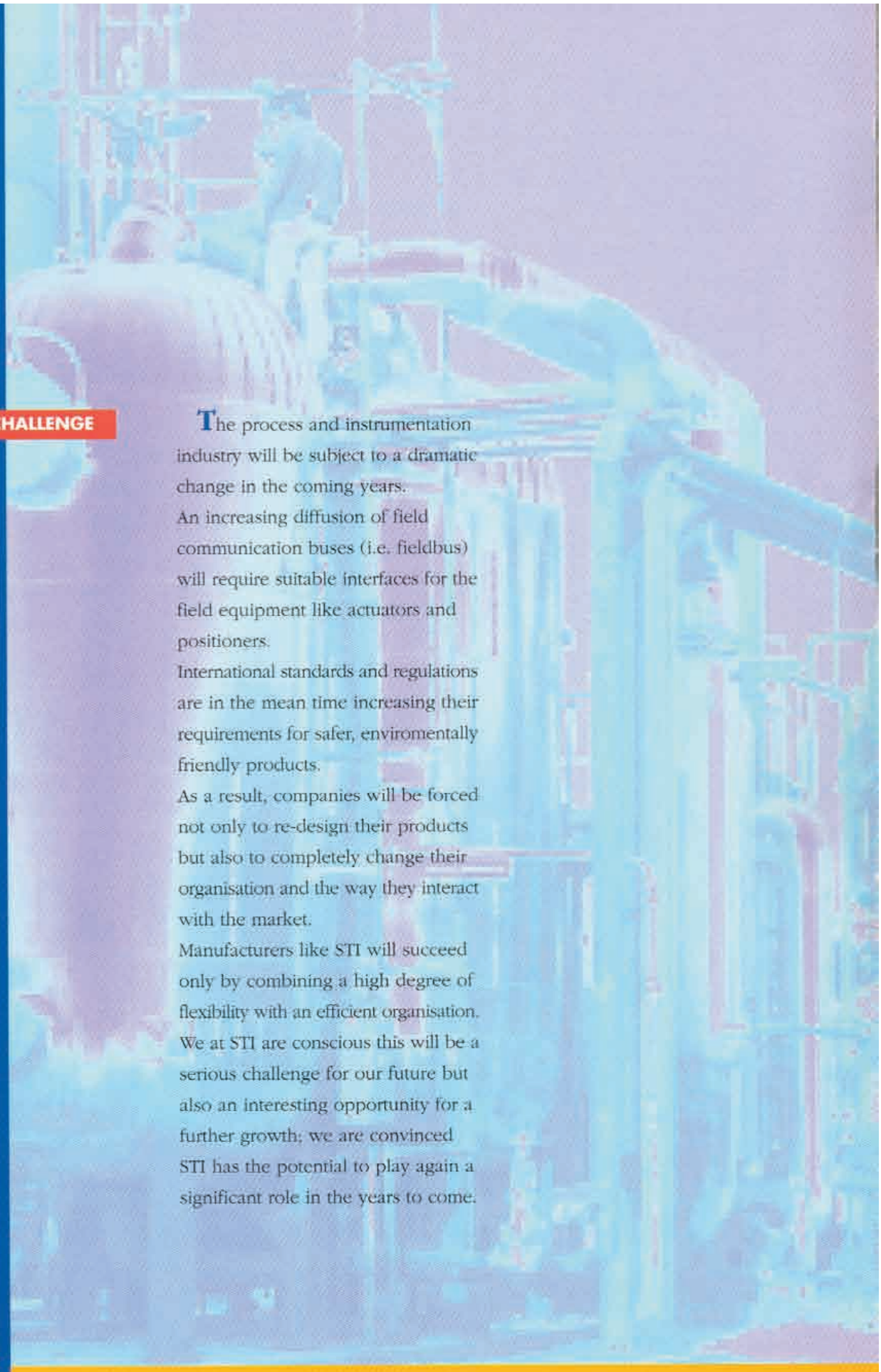
COMPANY PROFILE



THE FUTURE CHALLENGE

The process and instrumentation industry will be subject to a dramatic change in the coming years.
An increasing diffusion of field communication buses (i.e. fieldbus) will require suitable interfaces for the field equipment like actuators and positioners.
International standards and regulations are in the mean time increasing their requirements for safer, enviromentally friendly products.
As a result, companies will be forced not only to re-design their products but also to completely change their organisation and the way they interact with the market.
Manufacturers like STI will succeed only by combining a high degree of flexibility with an efficient organisation.
We at STI are conscious this will be a serious challenge for our future but also an interesting opportunity for a further growth; we are convinced STI has the potential to play again a significant role in the years to come.

Sergio Lattuada, *President*

STI is the acronym of Strumentazione Industriale (meaning Industrial Instrumentation).
The company was founded in 1960 by Sergio Lattuada, an instrumentation engineer with a broad experience in industrial plants.
By that time, the industry in Italy was booming, but reliable, up-to-date, easy to use products were not available on the market.
In the beginning STI employed only a small team of engineers and started manufacturing control valves and accessories.

Thanks to the knowledge and dedication of all the people involved, the company had a very fast growth and soon new products were designed and manufactured.
In 1963 a new division was started for the air and gas treatment.
Today STI manufacturing activities are distributed over three buildings and the total plant area exceeds 30.000 square meters.
STI headquarters are located in Gorle, near Bergamo in northern Italy but a network of associated companies, distributors and sales agents is spread over several countries in the world.

SALES & MARKETING

Over the years STI gained a sound reputation not only as a supplier of high-quality products, but also as a "problem-solving" company.
For this reason most of the customers consider STI as a partner rather than a supplier and very often they ask STI sales engineers for a specific support.
STI sales and marketing team consists of highly qualified technicians and engineers; the sales force is also continuously trained on new applications and new products which are made available. STI sales staff is therefore in position to react fast to the various customers' requirements and to size the most appropriate products for a given application.
Many customers are taking advantage of this specific expertise which is related not only to the products manufactured by STI, but also to the context in which the products are to be used or installed.
Specific applications softwares are used for the sizing and calculation of actuators, control valves and air or gas treatment units.
In case of special products or applications, the sales department receives the back-up of STI engineering or research offices, thus improving the flexibility and the ability to meet the various demands for non-standard products.

ENGINEERING

The challenging target for engineering nowadays is to reduce the cost of the products while improving their quality and reliability.
STI engineers are therefore continuously involved in the design of new products as well in revising the existing ones in order to make them more efficient and easy to produce.
Such ambitious target in STI is achieved by training the engineers on the up-to-date technology and with the support of specific engineering softwares like CAD, CAE and systems for finite elements analysis.
The result of this continuous process is the widely recognized ability of STI engineers to design equipment which meet all the functional requirements while still making them as simple as possible.

STI products are also designed to be safe, easy to install, use and mount, and environmentally friendly; they comply with the applicable sections of most demanding international standards such as ISO, EN, CENELEC, NEMA, ISA, ANSI, DIN, BS, ASME, API and many others.
Specific attention is also paid to the requirements of European Directives in terms of safety and environment.

RESEARCH & DEVELOPMENT

Research & Development play a very important role in STI business philosophy.

A considerable portion of STI human and financial resources is dedicated to the development of products, or processes, which often reflect the "state of the art" of technology.

This attitude over the years produced several international patents which found immediate application in the company production range.

This is the case, for example, of the STI patented valving system for gas treatment which is still recognized in the industry as the most reliable, efficient one available on the market for this specific application.

Sometimes STI technology is transferred to associated companies in various countries which are allowed to manufacture there under licence; in such cases very often STI engineers are considering some modifications to the products to meet local requirements (i.e. for welding, pressure vessels or safety regulations).

MANUFACTURING

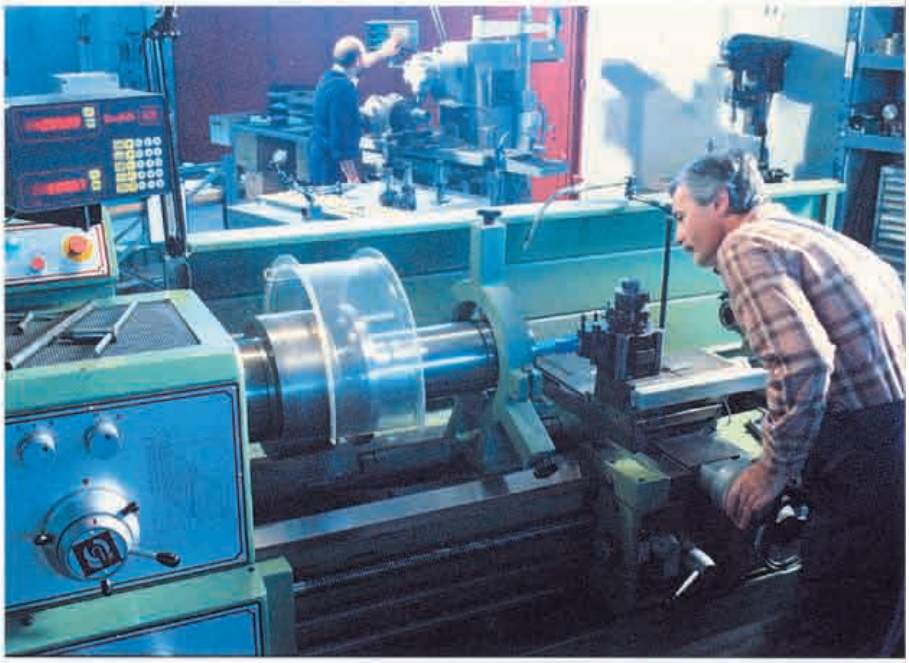
Manufacturing some of the STI products requires both a skilled labour force and specific tools which are developed and designed by STI engineers.

To gain flexibility, however, the company over the years has grown a network of well-qualified suppliers which may take care of some manufacturing steps.

The suppliers are continuously monitored and trained to make sure they meet STI high-level quality requirements.

Most of the manufacturing takes place on advanced machining centers which ensure high productivity and reliability.

The whole manufacturing process is controlled by an advanced computerized system which allows to trace the various materials and their production level.



ED STATES OF AMERICA

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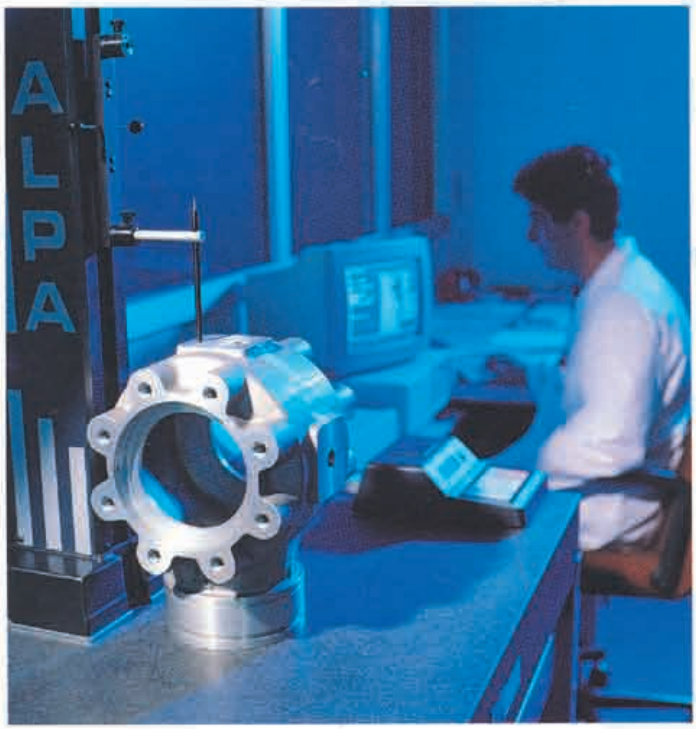
In testimony whereof I have hereunto set my
hand and caused the seal of the Patent and
Trademark Office to be affixed at the City
of Washington this twenty-second day of
February in the year of our Lord one
thousand nine hundred and eighty-three
and of the Independence of the United States
the two hundred and seventh.

QUALITY

The very concept of quality has been present in STI since the time of its foundation.

However the first Quality Assurance System was started at the end of the 70s as a response to a specific requirement from the growing nuclear industry.



Since then the system was continuously updated and improved to take into account both the company increasing size and products range as well as new requirements from the market.

STI holds a ISO EN 9001 Quality Certificate and therefore the Quality System is an integral part of today's Company life.

To improve the "quality of quality" STI data processing system was modified to integrate the Quality Assurance System; as a result, now, this system is not handled in parallele to the company main flow of information but it is intrinsecally connected to the various processes (i.e engineering and manufacturing).

In the meantime, a lot of efforts were dedicated to the cooperation with the various suppliers to make sure they were in position to meet their targets; a strong emphasis was also placed on the importance of the "on time" delivery.

ASSEMBLY

Some products in STI range are produced in relatively low quantities or modified to meet specific requirements from the contractors or end users.

In such cases the availability of a skilled well-trained and motivated assembly staff is a key element to the quality of the final product.

In STI this goal has been achieved thanks to a team of high qualified technicians who take care of most of assembly processes, supported by the information (i.e. manufacturing drawings) which the data processing system makes available even at the workshop level.

On the contrary, some products are manufactured in large batches and therefore STI has dedicated a lot of efforts to improve the automation level of the assembly process in order to reduce human intervention to a minimum.

TESTING

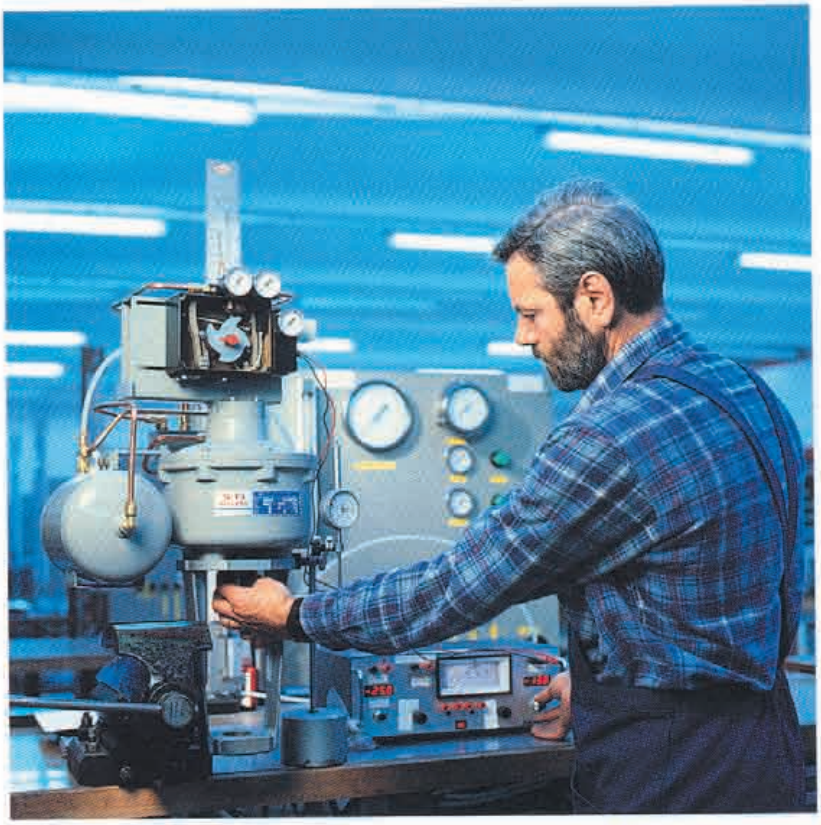
All the equipment manufactured by STI are subject to several tests prior to delivery.

Testing requirements are defined for every product by specific Quality Control Plans, which are continuously up-dated to take into account the increasing market requirements.

Tests (i.e. non destructive testing on materials or welds) are carried out by highly skilled and qualified engineers. Material, endurance and performance tests are routinely carried out by STI Quality Assurance Department.

Equipment manufactured by STI are individually identified by a serial number and therefore can be linked to the test results.

Test certificates are issued according to the Quality Control Plans and the results of the testing are stored into the data processing system, thus available for review for several years.



STOCK & DELIVERY

For STI it is often a must to meet ready-from-stock deliveries for its products.

Due to increasingly reduced time for plant design and built-up, engineering companies and contractors are sometimes in the need to get, as fast as possible, additional units which were not considered in the initial requirements.

On the other side, STI products are very often a key item of the plants they are part of; therefore, in case of an emergency, complete units or spare parts must be available in order to avoid extremely costly drops in the plants productivity.

To meet all these requirements, most of the products manufactured by STI are available from stock either as complete units, sub-assembled items or spare parts.

Thanks to an advanced level of automation, the various materials are easily traceable and can be made available reducing human intervention to a minimum and, therefore, improving the productivity.

SHIPPING

Some of STI products, i.e. large air dryers, are rather complex and, due to their dimensions, cannot be shipped by truck without a partial disassembly.

Other products, like pneumatic actuators, require specific care for the accessories they have installed which might be damaged during transportation, if not properly protected.

All these problems are well known to the people of STI shipping department: they know STI products are used world-wide and could lay for months in the desert sands or in any other harsh enviroments prior being installed.

This is the reason why STI quality requirements for packing are very restrictive and can be further improved by specific customer's requirements.

CUSTOMER SERVICE

In many cases, the post-sales service is as important as the quality of the products which have been delivered. In order to make the best use of actuators, positioners, dryers or other equipment they purchased, the customers need to know how to install, run and maintain them. To meet such requirements, STI holds several training courses to engineeers entrusted with plants erection and start-up as well as to maintenance engineers. Depending on the subject, the training is focused on the selection and sizing of the equipment to the installation or the maintenance of the products.

Specific training is also carried out for STI sales engineers and distributors.

A team of engineers is available in STI to grant technical support to the customers. They can provide information on STI products, even those supplied several years before, send technical documentation and advise the people on the field who might be needing any assistance.

The service department is also available to supply spare parts lists and quotations and make sure, in case of emergency, that parts are delivered on time.

FIELD ASSISTANCE

On site assistance may be necessary in several circumstances in industrial plants.
In some instances, the availability of service engineers as soon as possible can limit or avoid the plants stop and, therefore, reduce production losses to a minimum.
STI is in position to meet such requirements by offering the customers the availability of skilled engineers; they have several years of experience in servicing industrial plants and can therefore supervise installations and start-ups or solve the problems which might have been encountered.
Whenever needed, STI service staff can also provide periodic maintenance of installed units and carry out on site-training for maintenance engineers.

PRODUCTION RANGE

Over the years, STI acquired a widely recognized experience in solving specific problems of the industry. This experience was leading in the design and development of a family of products, which meet the most demanding industry requirements. Such products gained a sound reputation for their quality combined with ease of maintenance even in the most adverse enviromental conditions. STI engineering and research departements are working closely together to develop new products and up-date the existing ones in order to keep them in line with the upgrading of international standards. The production capability of STI covers two main fields of activity as described below.

PNEUMATIC PRODUCTS

- ACTUATORS
- POSITIONERS
- ACCESSORIES
- SPECIAL PRODUCTS

AIR AND GAS TREATMENT

- DRYERS
- SPECIAL PRODUCTS

APPLICATION	ACTUATOR SERIES
CONTROL VALVES	SC/V

GENERAL SERVICE	SC
DAMPERS and variable pitch fans	APL

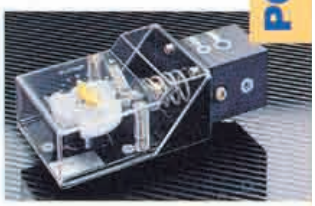
	CML-CMV
METERING PUMPS	SC/BQ SC/V

	SC/B

FEATURES	SIZES	STROKE OR ANGLE
High thrust actuator designed to meet control valves requirements. Thrust from 2.000 N to 500.000 N. Double acting or spring return construction. High speed construction on request.	Ø 150 to Ø 800 mm	40 mm to 500 mm
Linear actuator designed for a broad application range. By using a suitable linkage, it can produce a rotary motion. Thrust from 300 N up to 100.000 N. High speed construction on request.	Ø 63 mm to Ø 420 mm	75 mm to 800 mm (longer strokes on request)
Piston actuators with hinged lever arm. Suitable from small to medium torque requirements. Torque 200 Nm to 3.000 Nm. Double acting or spring return construction. Manual control by means of a handwheel High speed construction on request.	Ø 150 to Ø 250 mm	45° to 90°
Piston actuator enclosed in rugged protection housing. Broad range of options and accessories. Automatic manual operation on air failure. Torque from 100 Nm to 200.000 Nm. Higher torque available on request.	Ø 63 to Ø 330 mm	70° to 90°
Air over oil actuator suitable for pulsating applications. Thrust from 200 N to 25.000 N.	Ø 50 to Ø 250 mm	10 mm to 100 mm
Small pneumatic actuator suitable for direct installation on metering pumps. Thrust from 200 N to 3.500 N.	Ø 50 to Ø 80 mm	10 mm to 100 mm

APPLICATION	TYPE	POSITIONER SERIES
ROTARY POSITIONERS	PNEUMATIC	SR/CCK
		CRP
		CRP-SS
		UP1/R
	ELECTRO PNEUMATIC	UP1-EP/R
LINEAR POSITIONERS	PNEUMATIC	SA
		UP1/I UP1/L
		DE/3M-1
		SA/CL-1
	ELECTRO PNEUMATIC	UP1-EP/I UP1 EP/L
		SA/CL-1/EP

FEATURES	OPTIONS
Compact design, low cost.	
General purpose application.	Manifold available in stainless steel for corrosive environments.
Full stainless steel construction for extremely corrosive enviroments.	Available with 1/2" spool valve for high flow delivery.
Vibration-resistant, high accuracy, broad calibration range.	Position transmitter.



Vibration-resistant, high accuracy, broad calibration range.	Available with 1/2" spool valve for high flow delivery. Position transmitter. Intrinsically safe or explosion proof construction.

Compact, top mounted positioner, suitable for limited strokes up to 60 mm.	
High accuracy positioner, top mounted, suitable for strokes up to 100 mm. **UP1/I**: feedback transmission by chain. **UP1/L**: feedback transmission by lever.	Available with 1/2" spool valve for high flow delivery.
General purpose positioner, side mounted. Suitable for strokes 75 to 300 mm.	

Heavy duty, long stroke cam positioner, side mounted. Suitable for unlimited strokes.	Available with 1/2" spool valve for high flow delivery. Special construction for dust and corrosive environments. Position transmitter and by pass valve.
High accuracy positioner, top mounted, suitable for strokes up to 100 mm. **UP1/I**: feedback transmission by chain. **UP1/L**: feedback transmission by lever.	Available with 1/2" spool valve for high flow delivery. Position transmitter. Intrinsically safe or explosion proof construction.

Heavy duty, long stroke cam positioner, side mounted. Suitable for unlimited strokes.	Available with 1/2" spool valve for high flow delivery. Special construction for dust and corrosive environment. Position transmitter. Intrinsically safe or explosion proof construction.

ACCESSORIES

STI can offer a broad range of accessories which can be used in conjunction with STI actuators and positioners, or as stand-alone units. All the accessories produced by STI are designed and manufactured to meet the most stringent industry requirements in terms of safety, reliability and easy installation.

SPECIAL PRODUCTS

STI started its activity as a manufacturer of high performance control valves and still retains the know-how to design and produce control valves. Such products, however, are not treated as mass production but engineered each time to meet specific applications.
Apart from valves, STI is in a position to meet special requirements for pneumatic products and air/gas treatment.
STI sales engineers will be glad to provide further information or to discuss specific applications.

SERIES	FEATURES
MANUAL HANDWHEEL	Suitable for most of pneumatic actuators, a declutchable handwheel (for emergency operation) is available in several sizes and various configurations.
POSITION TRANSMITTER	
PNEUMATIC TYPE	Ideal for application in very hazardous applications (i.e.mining industry).
POTENTIOMETRIC TYPE	Low cost, general purpose application.
ELECTRONIC TYPE	High performance, wear-free transmitter.
AIR-LOCK DEVICE	Pressostatic device which, fitted to a double acting actuator, allows to select a safety function in case of air failure. Available in a broad range of sizes and functions.
DERIVATIVE UNIT	Used in conjunction with STI positioners the derivative unit enables to increase the speed of the actuator without hunting.

Low flow valves	Extremely low flow rate, high pressure.
Split body valves	Oxygen service, corrosive service, high pressure, low temperature.
Globe valves	Oxygen service, high temperature, high pressure, low flow.
Butterfly valves	Extremely high temperature, special tightness.
Actuators	Extremely fast action, damping effect.
Positioners	Corrosive environments, low temperature, natural gas service.
Dryers	Natural gas, hydrogen or helium service, extremely low dew point, high pressure. Pneumatic control system.

GAS AND AIR TREATMENT

KIND OF PROCESS	SERIES
ADSORPTION	HMV HME-V
	HL-N
	PRI
	VRE
	ERE
DELIQUESCENT	DE

CAPACITY RANGE Nm3/h referring to 7 Bar g.	FEATURES AND APPLICATIONS
1 - 30 30 - 350	Heatless regenerated with low pressure drop units.High efficiency and load flexibility thanks to the adjustable cycle time. Applications: low flow capacity instrument air production, natural gas drying for instrument service, low dew-point requirements (less than -40°C).
350 - 4.800 AND OVER	Heatless regenerated high efficiency and low pressure drop units with patented process valves and logic control system. Purge flow metering system. Applications: instrument air production, pneumatic conveying, natural gas drying,low dew-point requirements (less than -40°C).
100 - 460	High efficiency heat regenerated units with heaters fitted inside finned heat exchanger placed inside the adsorption tower. Low pressure drop and power consumption with patented process valves and logic control system. Purge flow metering system. Applications: instrument air production, pneumatic conveying, natural gas drying,low dew-point requirements (less than -40°C).
460 - 12.000 AND OVER	High efficiency heat regenerated units with patented process valves, logic control system and regeneration air control system. Low pressure drop. Purge flow metering system. Applications: instrument air production, pneumatic conveying, low dew-point requirements (less than -40°C).
250 - 7.500 AND OVER	High efficiency heat regenerated units with patented regeneration system for low power consumption. Patented process valves and logic control system. With heating media availability the unit can operate without power supply. Applications: instrument air production, pneumatic conveying, low dew-point requirements (less than -40°C).
1 - 15.000	The simplest consumptionless low cost dryers. Applications: blasting and painting stations, natural gas drying, explosion proof applications, pneumatic conveying, low and high pressure applications, artificial snow production and many others.