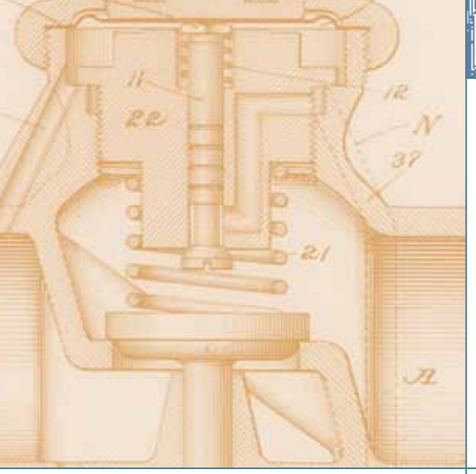
Masoneilan®

125

Years of Excellence

DRESSER



Masoneilan®
125
Years of Excellence

The year was 1882; in big cities elevated cars were powered by steam engines burning wood or coal. Horses pulled street cars, buses, carriages, fire engines, and freight elevators.

1882 - The Beginning

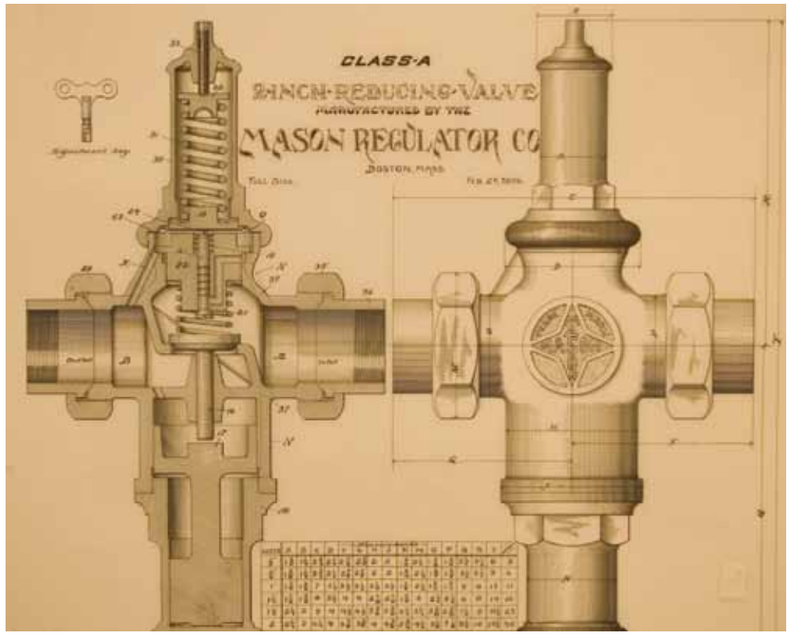
It was 1882 when the history of Masoneilan began. A young inventor had an idea for an automated steam pump governor, opened his own business in a section of Boston and laid the foundation of what would become a worldwide corporation. That inventor, William Mason, established the Mason Regulator Company and commercialized his first invention by regulating the steam used to drive fire engine pumps. “Up to the late 19th century”, Mason once said, “it was necessary for a pump-man to stand over the steam pump all the time to regulate it - so I set to work to find a better way. That was simply another case of necessity being the mother of invention.”

Over the course of the next several decades, the Mason Regulator Company played an instrumental role in developing energy control devices as the source of energy itself continually evolved in industry. During the late 19th century, steam was the major source of energy used in industry. As steam replaced coal stoves for interior heating of railway cars, the Mason reducing valve became the standard steam pressure regulating device used by the leading railroads of the United States, Britain, the rest of Europe and Japan. By 1901, 25,000 Mason reducing valves had been sold. When airbrakes came into common use by locomotives, Mason pressure regulators were used to control the steam-driven air pumps.

Then came the automobile. When the Stanley brothers of Newton, Massachusetts developed the Stanley Steamer they asked their innovative friend, William Mason, to design a steam engine to drive it. Several thousands of these engines were built before the internal combustion engine replaced the steam engine for use in automobiles. An early model of the engine, built in 1897, is displayed at the Smithsonian Institute in Washington, D.C.

It was necessary for a pump-man to stand over the steam pump all the time to regulate it. So I set to work to think of a better way. That was simply another case of necessity being the mother of invention. - William Mason

Mason Steam Reducing Valve



The Mason Steam Reducing Valve

The Mason Hydraulic Damper Regulator

The Mason Steam Pump Regulator

William Mason’s earliest invention around 1880, was an automatic governor for controlling a steam pump.

DRESSER

As steam was one of the main sources of energy in the 19th century, Mason's valves became standard equipment for railroads and early steam-powered automobiles, including the Stanley Steamer.

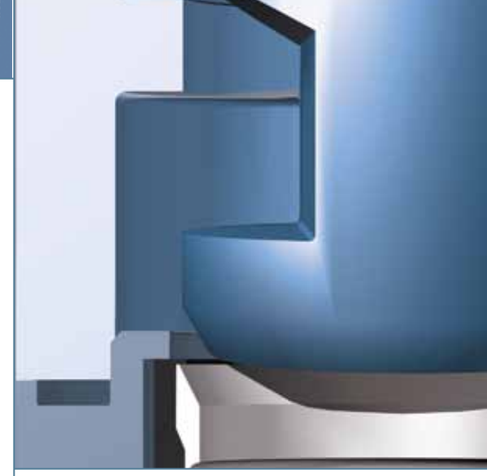
The Stanley Steamer

The Mason Stanley Steamer Auto Engine was so successful that it was adopted by the Locomobile Company and many others that made automobiles.

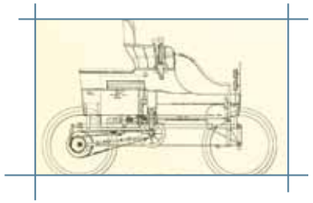
Industrial Expansion

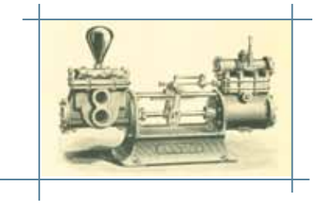
The early part of the 20th century brought rise to significant growth for industrialized nations and for the Mason Regulator Company. Through the 1920s and 1930s large scale activity in the process industries such as petroleum, chemicals, paper and textiles, brought about a tremendous growth in the use of automatic controls. As new industrial processes developed and became more complex, it became clear that without automatic process control, process industry capacity and profitability would be constrained. Faced with the necessity of keeping pace with accelerating demands of the petroleum industry in particular, the Mason Regulator Company, in 1931, acquired the Neilan Company of California, a manufacturer of "regulating valve specialties and automatic control devices". One of these devices, an early control valve, was the basis for the entire control valve industry today.

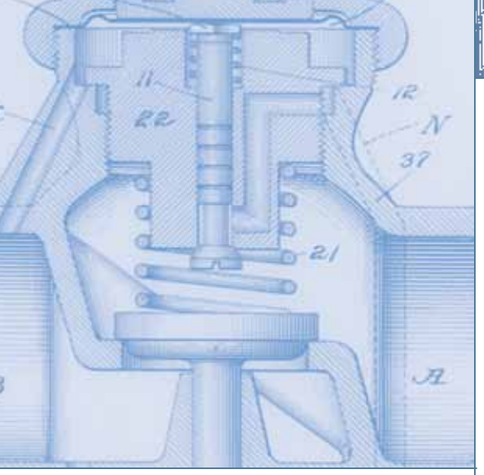
In the years since 1931, Mason-Neilan developed and improved four basic groups of products that form the major components of process control equipment: indicating, transmitting, recording and/or controlling instruments; control valves; liquid level controllers and pressure regulating valves. With a broadened product portfolio Mason-Neilan was well positioned to take advantage of burgeoning international trade. Recognizing the potential for process control growth abroad, Mason-Neilan began building an international sales organization by the early 1930s. Later when restrictions on the import of foreign goods imposed by Britain and France made the sales of American products difficult, Mason-Neilan began establishing a European manufacturing presence to supply that market.



One of Mr. Mason's first successes was a patent awarded him in 1883 for a pump governor to control the speed of reciprocating and flywheel steam pumps.







Masoneilan developed and improved four basic groups of products that form the major components of process control equipment today.

Mason Regulator Company
Dorchester, MA USA

Drafting Department

Shop Area

Office Area

New Industries
New Processes
New Technology

In the late 1930s the oil industry was developing new processes that required new valve designs and materials of construction. While the first oil wells were rather shallow extractions, newer deeper wells were being drilled by rapidly developing drilling technology. These deeper wells required high-pressure valves in distribution lines that fed tanks that in turn required liquid level control. Mason-Neilan developed new valve designs that not only handled the higher pressures but also proved effective in corrosive fluid applications. By 1940, the demand for high octane fuels and the development of synthetic rubbers called for an increasing volume of Mason-Neilan process control devices. In 1942 the Big Inch Pipeline, approved for carrying petroleum products from Texas to the Atlantic seaboard was approved for construction. Mason-Neilan worked with oil pipeline engineers to develop equipment for the 26 pumping stations spaced at 52 mile intervals to maintain line pressures. The control system that was developed included the coordinated application of pressure and temperature measurement and control.

Over the course of the next 50 years and through the end of the 20th century, Masoneilan kept pace with process industry advancements by pioneering leading control valve technology. Some of Masoneilan's most significant innovations and industry firsts over this period include:

Universally accepted measure for valve capacity: Cv 1944
Split-body valve for chemical service: Annin 1948
Highly reliable and cost effective spring & diaphragm actuators 1955
Valves for the first nuclear generator power plant (Peach Bottom, PA) . . .1958
Control equipment for Apollo space program ground installations 1964
Quick-change trim for top-entry globe valves 1967
First rotary globe valve (eccentric plug design: Camflex®) 1968
Valves in hydrogen service for the space shuttle program 1971
Low noise valves with Lo-dB® trim 1975
Vaaler award 6 years in a row for best chemical industry technology 1981
High pressure, axial flow liquid letdown valve: LincolnLog® 1982
Actuator concept allowing easy adjustment of valve Cv: Varipak® 1984
Valves for energy management of compressible fluids: V-Log® 1998
Steam pressure reducing and desuperheating valves: SteamForm® 2002

Masoneilan's early valves, developed in the 1920's, are the basis of the entire control valve industry today.

During the 1920's and 1930's, Mason Regulator Co. produced equipment to meet the growing needs of industry.

Masoneilan engineers developed the concept of C_V - the first breakthrough in valve technology in decades.

Masoneilan is the global leader in providing Flexible Best Fit control valve solutions for process industries.

Masoneilan now has Major Manufacturing centers in:

- Suzhou, China
- Conde, France
- Coimbatore, India
- Naples, Italy
- Kariwa, Japan
- Avon, USA

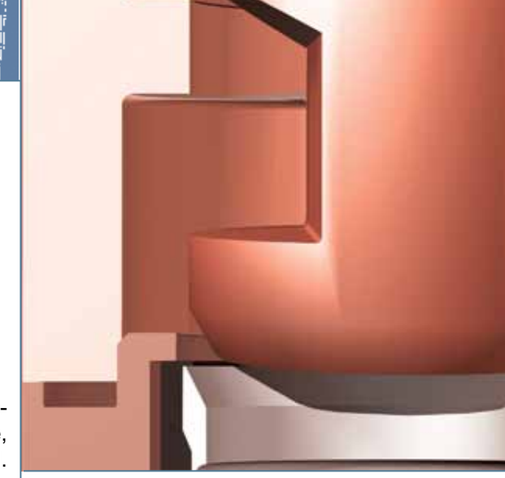
Meeting the Needs of Industry

The Rise of Digital Instrumentation

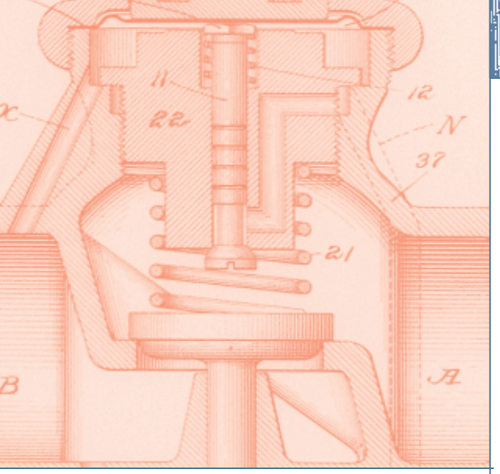
In the latter half of the 20th century while valve designs evolved to meet ever changing process industry requirements, valve mounted instrumentation took on a major transformation of its own. In the early 1980s Masoneilan was the first control valve manufacturer to begin development of digital valve instrument technology. In addition to superior control performance, this digital architecture provided data communication capability by virtue of the HART® protocol that became the de facto standard in intelligent instrument command and feedback. Now for the first time process plant owner/operators had the ability to communicate remotely with the control valves in the field performing such functions as calibration and performance monitoring from the control room. With the introduction of the SVI® family of digital positioners, Masoneilan ushered in a new era of valve positioners, microprocessor based with on-board sensors, that allowed for process loop control at the valve and revolutionary diagnostic capability. With ready access to real time control valve performance data including data archiving and trending capability, users of Masoneilan digital positioners had for the first time the tool they had needed to effectively implement preventive and predictive maintenance practice.

As digital instrument communication protocol continued to evolve, Fieldbus standards emerged. Masoneilan was an early entrant in the Fieldbus arena with the introduction of its FVP® positioner in 2000. Like the SVI series of HART based valve positioners the FVP valve controller offers:

- Superior control performance
- World class diagnostic functionality
- Easy to use and powerful interface (ValVue® software)
- Universal mounting capability
- Robust package leveraging features such as non-contacting stem feedback
- Scalable platforms
- True open, neutral, systems interoperabiltity



1997 - Masoneilan was presented with Control Engineering's Editors Choice Award for the SVI® Smart Valve Interface



Masoneilan Today - Engineered Solutions

The standardization of the valve flow coefficient provided a universally accepted yardstick for measuring the flow capacity of valves.

INSTRUMENTATION

As the digital age of control valve positioners takes hold in the process industries, Masoneilan continues to innovate with best in class product. The latest development in Masoneilan HART® based positioners is the SVI® II AP. The SVI II AP is unparalleled in control performance and through improvements in materials of construction and design architecture (fewer moving mechanical parts) is the industry's most robust high performance digital positioner. Complementing improvements in instrument hardware design, Masoneilan has advanced the state of the art in control valve diagnostic functionality. With five pressure sensors and easy to use ValVue® companion software, SVI II AP provides a full complement of diagnostic capability. Acquisition of data such as total travel and time open/time closed and time near close assists the user in identifying performance degradation or impending component failure. Masoneilan is advancing diagnostic capability even further through the development of on-line diagnostic software that reads data from the positioner while the valve is in normal operation mode precluding the need to disturb the process.

Through on-line health alarms, on-line diagnostics can detect if air supply is critically low, if valve actuation is obstructed or, via trend analysis, if the valve trim is prematurely wearing or if the valve is not suitable for the application. Masoneilan is leading developments in valve diagnostics allowing process operators to benefit greatly from maintenance efficiencies and operations optimization made possible through real-time, actionable final control element performance data.

With digital instrument technology Masoneilan is venturing into new markets with one of the most significant being safety instrumented systems. Emergency shutdown valves, critical components in plant safety systems, must be operationally tested on a regular basis. Traditionally this testing involved complex pneumatic panels and a process that exposed people to safety risk. By incorporating partial stroke capability in its SVI® II ESD instrument, Masoneilan offers the operator a reliable test method that from the safety of the control room can be invoked with the device remaining active.

Masoneilan has introduced an extremely reliable digital positioner with true system interoperability.

SVI® II AP
Advanced Performance
Digital Positioner

FVP®
Foundation Fieldbus
Positioner / Controller

ValVue®
Device Management
Software

Masoneilan Control Valve Solutions are typically provided as a complete system, which includes the valve assembly plus an integrated actuation and instrumentation package.

CONTROL VALVES

Through its Engineered Products group, Masoneilan has the wherewithal to modify standard valve offerings or to custom design valve solutions for any application. With a full range of standard products, expertise in control valve design, intimate knowledge of customer processes and the highly developed skill of valve application engineering, Masoneilan provides industry leading best fit solutions. And for the most challenging applications in power generation, oil & gas production and gas processing, Masoneilan technology continues to serve as the industry benchmark. Masoneilan offers highly reliable control valves for applications such as compressor anti-surge, high pressure vents, turbine by-pass and boiler feed water start-up.

The Masoneilan **SteamForm**® and **V-Log**® offerings are two highly successful severe service valve designs.

The SteamForm design combines over 15 years of proven pressure reduction performance with state-of-the-art and patented desuperheating design representing the latest in steam conditioning technology. SteamForm provides the following advantages:

- Long term, reliable tight shutoff
- Improved temperature control
- Fast response and precise control
- High performance cavitation elimination
- Mitigation of thermal expansion and thermal shock effects

The Masoneilan V-Log is proving, in an increasing number of varied applications, to be extremely reliable for high mass flow and high energy, compressible fluid applications. The three dimensional, labyrinth tortuous path stacked plate trim design of the V-Log is a very effective means of managing high process fluid energy. In a variety of applications including vent-to-flare, compressor recycle, wellhead choke, gas storage, soot blower and turbine bypass, the V-Log provides the following benefits:

- Efficient scalable solutions for high pressure drop applications
- Minimized noise and system vibration
- High control resolution and unequaled control accuracy
- High rangeability allowing a "two valve in one" approach
- Reliable and durable tight shutoff

SE-20
Forged Body
Control Valve

21000 Series
High Performance
Globe Valve

84000 Series
SteamForm®
Steam Conditioning
Valve

Masoneilan's worldwide manufacturing units are supported by an integrated network of sales offices, providing the widest range of valve solutions and services for virtually every process control application.

Masoneilan now has major Aftermarket Customer Support centers in:

- San Jose Dos Campos, Brazil
- Tlalnepantla, Mexico
- Novgorod, Russia
- Jubail, Saudi Arabia
- Singapore, Singapore
- Edenvale, South Africa
- Jebel Ali, U.A.E.
- Houston, USA

Best in Class Life-Cycle Cost

Customer For Life

To provide comprehensive local support, Masoneilan has established a global network of fully authorized repair and service centers, MARCs – Masoneilan authorized repair centers. Masoneilan and its MARC's are driven by a "Customer for Life" philosophy which comes to life through a comprehensive suite of aftermarket services including OEM Rapid Parts, on-site diagnostics, service and repair. The service offerings from Masoneilan span all phases of the equipment life cycle from engineering to start-up through to operation and maintenance:

- Technical support from custom design to applications engineering
- Support of installation, set-up and commissioning
- Products with best in class control performance
- Diagnostic tools that can support process control optimization objectives
- Tools providing the intelligence necessary for preventive maintenance

Life-Cycle Services from Masoneilan

Engineering
- Design for Ultra-High Reliability
- Interoperability Engineering
- Extreme Service Valve Design
- Custom Valve Testing

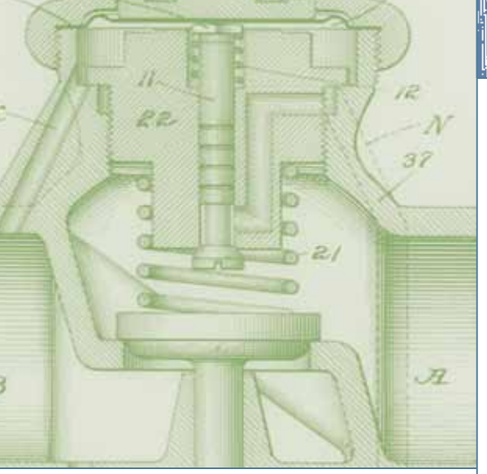
Procurement / Start-up & Commissioning
- Valve Sizing & Selection
  - – ValSpeQ®
- Resident Engineer
- Project Management
- Start-Up Assistance
- Configuration Services
- Systems Integration
- Factory Technical Support

Operations
- OEM Parts
- Performance Optimization
  - – SVI® II / FVP® Diagnostics
- Hot Swap Program
- Inventory Management
- Valve Survey / Assessment

Maintenance
- Factory Certified Repair - MARC®
- Turnaround Management
- Valve Technician Training
- Asset Data Management
  - – ValvKeep®
- Predictive / Preventive Maintenance
  - – ValScope®
- On-Line Diagnostics
- Mobile Valve Servicing

Life Extension
- Re-Manufactured Valves
- Smart Instrument Refurbishment
- Valve Trim Retrofits
- Re-Instrumentation

Masoneilan equipment was used on ground installations for the Apollo program.



Masoneilan has been involved in nuclear contracting since installing valves in the first nuclear generator power plant in 1958, the Peach Bottom Power Plant in Pennsylvania, USA.

Looking Forward

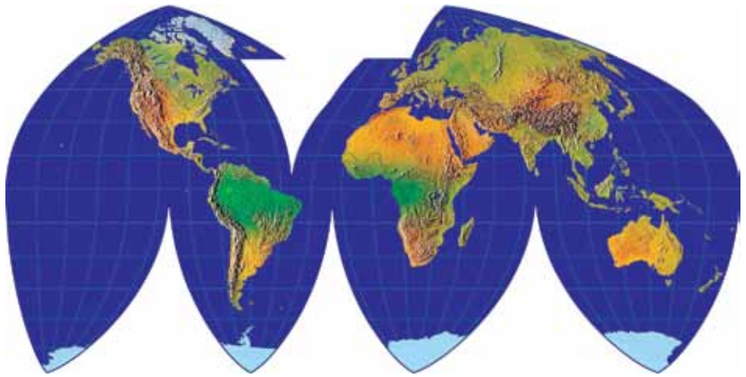
Andrew Norman - President, Masoneilan

With roots tracing back to the Mason Regulator Company, Masoneilan has a rich and storied past. For well over a century Masoneilan has been synonymous with innovation, leading technology and responsiveness to market needs. In 1985 Masoneilan was acquired by Dresser Industries and has since grown to become a global player in the control valve industry and Dresser's second largest business unit.

Today we see significant process industry challenges as the world's growing economies accelerate the development of infrastructure and their consumption of energy while operating under increasingly complex trade barrier constraints, growing regulatory demands and increasing awareness of the need to protect our environment. These economic forces are combining to create new opportunities for our business and driving the development of new industrial processes such as gas to liquids conversion, coal gasification, biofuels, integrated gasification, combined cycle and many other exciting technologies.

With its breadth of products and services, unequaled global presence and advanced process control expertise Masoneilan is uniquely positioned to be the leading provider of flexible, best fit control valve solutions. In solving today's challenges and looking forward to those of the tomorrow, it is clear that Masoneilan will draw upon the dedication and entrepreneurial sprit of its people, leveraging its past to remain the supplier of choice for engineered control valve solutions.

Now, as a part of the new Dresser, Inc. the same pioneering spirit and commitment to excellence that has earned Masoneilan its current standing in the control valve industry will continue to serve as the foundation for our future success.



Masoneilan's Research and Development Group produced a new product, The Lo-dB® High Pressure Control Valve, to reduce noise to acceptable limits, and provide long-term maintenance-free service.

Solving The Problem. Satisfying The Need.

- Technical Leadership
- Innovative Solutions
- Solution Integration
- Aftermarket Support
- Best In Class

Did You Know...

Masoneilan was first to utilize a pressure recovery factor for more accurate valve sizing.

Masoneilan was first to develop low noise trim: Lo-dB® trim and valves.

Masoneilan was first to introduce a method to calculate noise in control valves handling gases, steam and cavitating fluids.

FLEXIBLE BEST FIT TECHNOLOGY

DRESSER

www.Masoneilan.com