

# Masoneilan<sup>TM</sup> Condensed Catalog

## Process Control Solutions

- Control Valves
- Smart Valve Positioners
- Liquid Level Transmitters
- Pressure Regulators
- Control Equipment and Accessories

**Masoneilan**  
a Baker Hughes business



## Quality Control Solutions

*Baker Hughes™* Masoneilan automated process control solutions are known throughout the world for their quality and dependability. These solutions, including the Masoneilan 41005 Series Cage-Guided Globe Valve, are part of the portfolio of Masoneilan valve technology that has helped customers maintain smooth operations for more than 100 years.

## Global Customer Service

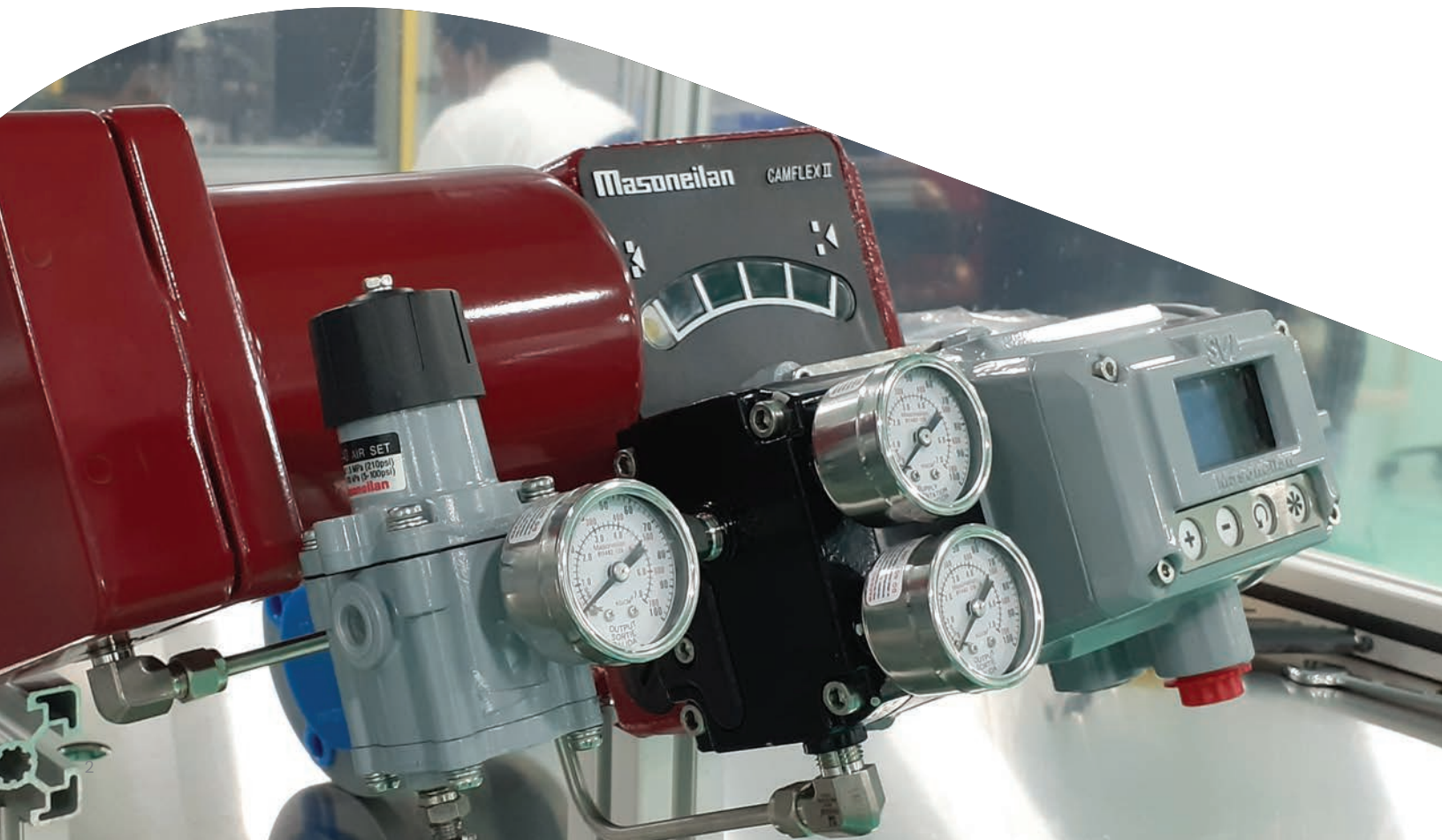
Our network of service and repair facilities around the world are ready to meet your needs day and night with onsite support, spare parts, and equipment maintenance programs.

## Advanced Digital Technology

SVI™ provides industry leading control and diagnostic solutions for all your valve needs. We lead the industry with non-contact position sense technology and are well known for simple setup, rugged construction, and high performance control in critical service valve and level transmitter applications. SVI and accompanying *ValVue™* diagnostics software works with all major DCS and plant asset management systems.

## SVI3 Digital Valve Positioner – New Product!

The third generation Baker Hughes Masoneilan SVI is a user friendly digital valve positioner for pneumatic control valves. Utilizing advanced control and diagnostic algorithms, along with field-proven noncontact position sensing technology, the SVI delivers accurate, responsive, and reliable positioning performance.



## Delivering for our customers

### Global Capabilities

Baker Hughes global infrastructure of sales offices, manufacturing operations, and technical centers of excellence supports our worldwide customers throughout the plant's life cycle.

### Field Support Services

The global network of Masoneilan Authorized Repair Centers (MARC™) and field service technicians offers factory-certified support including OEM components, onsite service, hands-on training, and post-installation analysis to support your MRO needs and maximize performance efficiencies.

### Maintenance Management Services

Baker Hughes offers *ValvKeep™* for managing installed equipment and assets throughout your plant. Plant surveys, equipment data, maintenance schedules, project planning and repair details are all easily managed using a single interface regardless of valve type or brand

### Genuine OEM Parts

We know you need us to respond quickly to your requests for the replacement parts and overhaul services that will keep your plants operating and efficient. Our global aftermarket program meets that critical need for fast responsiveness. Using OEM parts provides you with refurbished equipment meeting the original specifications.

### Diagnostic Tools and Services

Masoneilan diagnostic tools and services from Baker Hughes improves process loop performance and reduces unplanned downtime. Available field diagnostic tools include: *ValScope™* - diagnostics for analog valve positioners, *ValVue* - control valve diagnostic and configuration tool, and Baker Hughes premier Valve Lifecycle Management service which offers online valve diagnostics with no impact to process control, regardless of valve positioner brand.

## Enhancing your results

### Automated Sizing and Selection

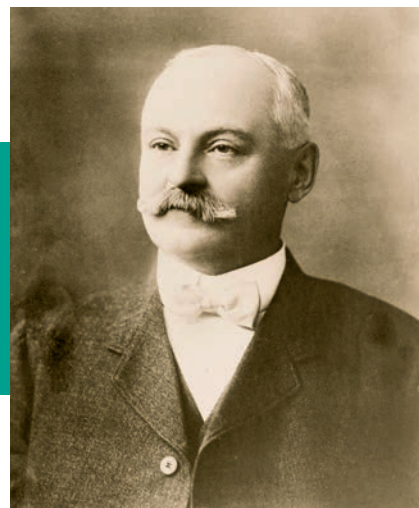
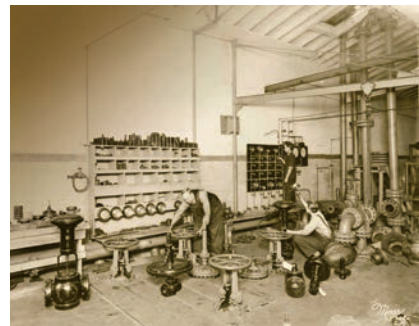
Baker Hughes user-friendly Masoneilan *ValSpeQ™* program for sizing and selecting valve solutions are based on current industry standards and calculation methods. These tools can significantly reduce the time needed to accurately specify and configure products so that you can select and implement the right solutions for your applications.

### Resident Engineering

Our Resident Engineer Program gives you effective up-front design support. It provides onsite technical assistance early in the design process to help mitigate costly design changes that may happen late in the project cycle.

### Advanced Process Control and Level Transmitter Technology

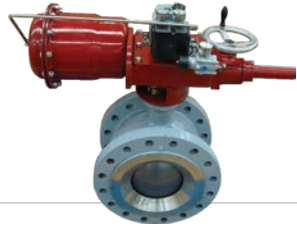
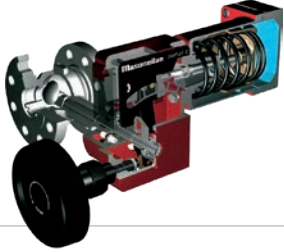
Masoneilan digital field instruments reduce costs throughout their lifecycle, by simplifying installation and setup, providing industry leading control performance, and reducing maintenance and support. SVI provides high precision HART® and FOUNDATION® Fieldbus valve positioning for both control valve and Emergency Shut Down (ESD) applications. For level transmitter applications, the 12400 DLT delivers high precision level output and control improving plant efficiency, performance, and safety.



The Masoneilan valve heritage: In 1882, William Mason invented an automatic steam reducing valve. Today, Masoneilan valves protect process industry assets around the world.

# Masoneilan Control Valves

## General Service



### Rotary Control Valves

More than 1 million **35002 Series Camflex™** valves have been successfully installed in a variety of process industries and applications. Today's Masoneilan Camflex II valve continues to offer dependability through a concept that remains a standard of excellence for eccentric-plug rotary globe control valves. The standard version includes the **EF™** Seal (Emission Free packing) with emissions rated less than 500 ppm up to 750,000 cycles.

The **36005 Series V-Max™** High Capacity Control Ball Valve incorporates a patented dual characterized V-Ported ball to offer a unique combination of high capacity and turndown capability. Available in ASME/ISA 75.08.02 (IEC 534-3-2) and ASME B16.10 short pattern face-to-face dimensions, it offers flexibility to match existing installations. Three seat types are available: MN-7 soft seat with class VI seat leakage, standard flexible metal seat, and the heavy-duty seat with class IV shutoff.



### Reciprocating Control Valves

The **21000 Series** is a single-ported, heavy top-guided globe valve that can handle a wide variety of process control applications. The 21000 Series is available with many optional packages including bellows seals and angle body designs. Trim options include low-noise, anti-cavitation, and soft-seat trims to meet various application requirements.

The versatile cage-guided **41005 Series** control valve offers solutions for demanding applications, such as high pressure drops, large capacities, and wide temperature ranges. The balanced trim design includes options for reducing noise and vibration and for containing cavitation. Various balanced-seal options are available to meet a wide range of temperature and seat leakage requirements. **Lo-dB™** cartridges or plates are also available to help maintain low outlet velocities and downstream noise.

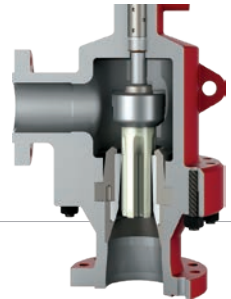
## Corrosive Service



### 31000 Series PFA-Lined

The 31000 Series is a PFA-lined control valve with an eccentric rotary globe plug that features tight shut-off capability, low dynamic forces, and control. This valve offers a solution for aggressive acids that tend to cause bellows permeation problems in reciprocating designs.

## Erosive Service



### 73000 Series

The 73000 Series valve is a sweep-angle configuration for throttling erosive process media. It is available with a wide variety of engineered trim and body materials including high nickel, duplex, titanium, ceramic, and tungsten carbide alloys.

### 74000 Series

The 74000 Series is a split-body forged angle erosion control valve with captures trim and continuous guided fluted plug for superior stability under harsh conditions with particulate flow.



## Severe Service



### 49000 Series

The 49000 Series is a large capacity control valve with an over-sized body area to house multi-stage V-LOG™ Energy Management trim. The 49000 series can be applied through a wide range of applications from high-pressure drop, anti-cavitation liquid designs through low-noise gas and steam service. Available in both globe and angle-style designs and incorporating the Lo-dB and V-LOG trims, the 49000 series offers a flexible solution to fit high-pressure drop applications in any pipe size or process-fluid application.



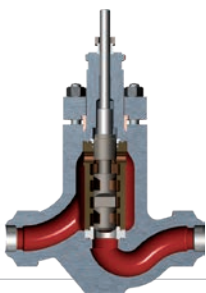
### 72000 Series

The 72000 Series family of energy management and low-noise products is configured for use in compressor anti-surge, gas-to-flare, and other venting applications where high noise attenuation and high flow capacity are required. The 72000 Series is a fabricated angle valve offering an effective solution for customers' specific process needs. Custom V-LOG trim options are available to address severe, high-expansion ratio applications.



### 77003 Series

The 77003 Series multi-stage, expanding-area control valve is primarily for high-pressure compressible fluid or two-phase applications. It controls under conditions such as flow-entrained debris, damaging vibration, and high noise, making it an ideal solution for high-pressure, high-temperature, flashing hydrocarbon liquid services. Typical applications for this design include a range from hot high-pressure separator control in hydroprocessing applications to gas well-head control in off-shore choke valve applications as well as high-pressure gas letdown with entrained debris.



### 78400/18400 Series LincolnLog™

The axial flow 78400/18400 Series LincolnLog design utilizes a tortuous path to distribute pressure drop along the axis of the plug. The axial stages throttle in unison as the plug strokes to maintain staging ratios at all lift points. Velocity and pressure drop are controlled, thus reducing cavitation and the resulting trim damage. This valve is highly effective in pump recirculation and high-pressure liquid letdown applications, especially for dirty fluid conditions.



### 79003 Series

The 79003 Series is an angle body design developed to use the Variable Resistance Trim (VRT™) for high-pressure liquid letdown applications. The anti-cavitation VRT trim can be configured to match pump flow curves, allowing steady operation as the plant is brought up to speed and comes on line. The 79003 Series can be enhanced with a partial-stack design to allow higher flow rates as the travel is increased.



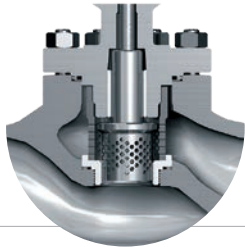
### 84003 Series SteamForm™

The 84003 Series SteamForm steam conditioning valve is built on a flexible platform to control steam under a full range of applications. Configured with a wide variety of trim options, the SteamForm operates from a range of low-pressure, steady-state process steam applications to intermittent, rapid-response turbine bypass. Built with patented technology, the SteamForm uses high rangeability spray nozzles and a proprietary water injection design for desuperheating, as well as thermally compensated trim designs for high temperature cycling in severe steam installations.

# Masoneilan Valve & Instrument Technologies

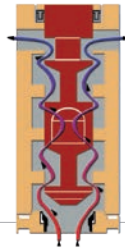
## Energy Management Trims

Baker Hughes offers a wide range of Masoneilan solutions to meet customers' fluid energy requirements.



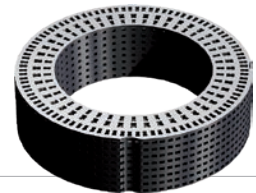
### Drilled-Hole Technology

The Masoneilan product line includes a wide selection of **single-stage** and **multiple-stage trims** with both balanced and unbalanced globe and angle valve configurations. These designs, based on drilled-hole technology, are only recommended for clean-service applications. Balanced and unbalanced anti-cavitation options are also available with metal-to-metal seating meeting ASME Class V shut-off performance.



### Axial Flow Technology

**Axial Flow trims** offer multi-stage designs for the control of high-pressure liquids without the damaging effects of cavitation, erosion, and vibration. The unique flow design of the LincolnLog develops the required resistance for throttling but also affords ample clearance for the passage of large particulate. The optional soft seat is specifically for boiler feedwater applications and offers long-term Class VI shut-off at demanding pressures. Similarly, the 77000 Series is a multi-stage trim with expanding areas for high-pressure gaseous applications.



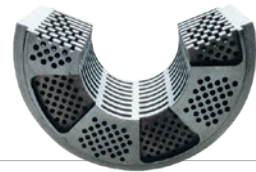
### Stacked Plate Technology

**V-LOG Energy Management Trim** is manufactured from a brazed stack of laser-cut plates, each with a series of 90 degree turns used to redirect the flow of the process fluid through a high-resistant flow path. Each stage also includes an expansion and contraction in area for maximum pressure reduction efficiency. Further, each valve body is contoured to account for flow expansion and trim area velocity to manage the total system noise, offering customers a compact energy management control valve.



### Differential Velocity Technology

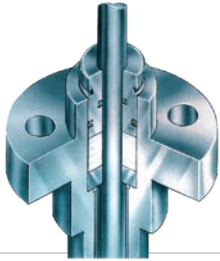
Baker Hughes patented **Masoneilan DVD™ (Differential Velocity Device)** is a highly efficient noise-reduction solution for rotary valves. Building on technology used in turbo-fan jet engines, the DVD device utilizes larger diameter outer holes to create a lower velocity annular flow stream around the flow area perimeter. This lower velocity flow stream reduces noise transmission from the higher velocity inner flow, resulting in lower external noise levels.



**Variable Resistance Trim (VRT)**, consists of a brazed stack of drilled plates which efficiently channel the flow through multiple turns in a tortuous path configuration. The design is primarily used in high-pressure drop liquid applications. VRT is typically packaged within standard Masoneilan globe and angle valve bodies.

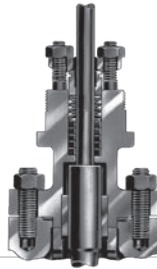
## Fugitive Emissions Control

Masoneilan solutions for reduction of Volatile Organic Chemicals (VOCs) and Hazardous Air Pollutants (HAPs)



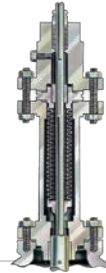
### EF (Emission Free) Seal

The EF Seal is an emission containment feature that is standard on most Masoneilan rotary products. This seal design can be easily field-retrofitted on any existing valve in the field. It is a simple dual O-ring design that has undergone extensive testing including successful completion of 750,000 full-stroke cycles without failure. This design offers an extremely cost-effective solution for upgrading processes under the guidelines of the various regional and global emissions reduction regulations.



### Low-E (Low Emission) Packing

Masoneilan reciprocating control valves can be equipped with the low emission packing systems for compliance up to Class A ISO-15848 Helium and Methane performance levels for both international and US EPA customers. These live-loaded packing systems maintain a constant sealing force within the packing box, providing low leakage performance with minimal field adjustment.



### Bellows Seal

Bellows Seals are offered for applications as a hermetic metallic seal for valve stem interfaces providing zero leakage to atmosphere. Typical applications include handling of flammable, toxic, or explosive fluids where leakage may cause environmentally unsafe conditions. The design also includes a leak-off detection port and a redundant packing box for additional safety.

## Advanced Control & Diagnostics

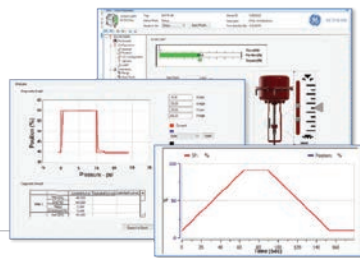


### Digital Valve Positioners

SVI provides high performance and robust control delivered in a package that is simple to use and reliable.

Industry best technologies like environmentally shielded non-contact position technology, explosion-proof (Ex 'd') rated display and user-interface (no PC/ Handheld required), auto calibration, auto tuning makes the SVI the easy choice for most control valve needs.

While capabilities such as advanced control valve diagnostics, integrated position retransmit and limit switches for valve position feedback, and full interoperability with all major DCSs and asset management systems makes the SVI valve positioner the best solution for all your critical valve needs.



### 12400 Digital Level Transmitter/Controller HART®

The Masoneilan 12400 Series Digital Level Transmitter/Controller (DLT) is a smart instrument with HART communication protocol utilizing proven liquid displacement and torque tube technology. Easy to install and operate, it is the first torque tube-type level instrument that integrates level transmitter and switch functions in a single device.

# Masoneilan Rotary Control Valves



## 35002 Series Camflex II Eccentric Plug

Sizes: 1" through 16"  
(25 through 400 mm)

### Ratings and Connections:

- Flanged: Class 150-600
- Flangeless: Class 150-600  
PN 10-100
- Screwed: NPT (1" through 2")

### Body Materials:

- Carbon steel
- Stainless steel
- High nickel alloy

### Actuators:

- Model 35 spring diaphragm
- 70 Series cylinder

### Trim:

- Eccentric rotary plug

### Inherent Characteristic:

- Linear

As the original eccentric plug rotary valve, the 35002 Series Camflex valve combines quality performance and features with an economical design. The Camflex valve offers versatility and broad application. It is now supplied with the EF seal solution to reduce fugitive emissions.



## 31000 Series PFA Lined

Sizes: 1" through 3"  
(25 through 80 mm)

### Ratings and Connections:

- Flanged: Class 150  
PN 10-16

### Body Materials:

- Cast iron PFA lined

### Actuator:

- Model 35 spring-opposed  
rolling diaphragm

### Trim:

- Eccentric rotary plug

### Inherent Characteristic:

- Linear

The 31000 Series is a PFA-lined control valve with an eccentric rotary plug that offers tight shut-off, low dynamic forces, and control. This valve is suitable for hydrofluoric and sulfuric acid applications.



## 33000 Series Triple Offset Butterfly

Sizes: 3" through 48"  
(25 through 1200 mm)

### Ratings and Connections:

- Wafer, Lugged, Double Flanged  
Short & Long Pattern
- Class 150-600

### Body Materials:

- Carbon steel
- Stainless steel
- Duplex

### Actuator:

- Model 31/32 spring diaphragm
- Model 33 spring diaphragm

### Trim:

- Torqued butterfly

### Inherent Characteristic:

- Equal percentage

The 33000 Series Triple Offset Butterfly Valve incorporates new performance enhancing operational features, allowing for a more simplified manufacturing process. The result is exclusive patented range of superior performance zero leakage bi-directional triple offset butterfly valves, suitable for extreme pressure/temperature applications.





## 37002 Series Minitork™ II Swing-Through Butterfly

Sizes: 2" through 24"  
(50 through 600 mm)

### Ratings and Connections:

- Wafer for mounting between flanges:
  - Class 150–300
  - PN 10–40

### Body Materials:

- Carbon steel
- Stainless steel
- Liners in Buna-N, Viton and Nordel

### Actuators:

- Model 33 spring diaphragm
- Model 35 spring diaphragm

### Trim:

- Low torque butterfly

### Inherent Characteristic:

- Equal percentage

The 37002 Series is a control valve used on large flow rates with low-pressure drop. It is available with complete PTFE lining (38002 Series) for corrosive fluids applications.



## 39004 Series High-Performance Butterfly

Sizes: 3" through 48"  
(80 through 1200 mm)

### Ratings and Connections:

- Wafer and lug for mounting between flanges: Class 150–600

### Body Materials:

- Carbon steel
- Stainless steel

### Actuators:

- Model 33 spring diaphragm
- Model 34 scotch yoke cylinder
- Model 96/97 pneumatic rack and pinion

### Trim:

- Double eccentric

### Inherent Characteristic:

- Equal percentage

The 39004 Series is a heavy-duty automatic throttling butterfly control valve with an eccentric disc for large flow rates and moderate-pressure applications.



## 36005 Series V-Max Control Ball Valve

Sizes: 1" through 12"  
(25 through 300 mm)

### Ratings and Connections:

- Flanged: Class 150–300

### Body Materials:

- Carbon steel
- Stainless steel

### Actuators:

- Model 33 spring diaphragm
- Model 31/32 spring diaphragm
- Model 34 scotch yoke cylinder

### Trim:

- Dual characterized, v-ported segmented ball

### Inherent Characteristic:

- Equal percentage

The 36005 Series V-Max valve is a high-capacity, control ball valve with a patented dual-characterized, segmented ball design combining high CV ratings with 500:1 turndown. It is for high viscosity fluid applications (i.e. pulp and paper industry) as well as processes requiring high capacity abilities balanced with accurate control. Standard features include the environmental packing (EF seal).

# Masoneilan Reciprocating Control Valves



## 10000 Series Double Seated Globe Valve

Sizes: 2" through 24"  
(50 through 600 mm)

### Ratings and Connections:

- Flanged: Class 150-1500  
PN 10-250
- Welded: BW or SW
- Screwed: NPT 3/4" through 2"  
(20 through 50 mm)

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Actuators:

- Model 87/88 multi-spring  
diaphragm
- Cylinder

### Trims:

- V-port or contoured plug
- Top and bottom guided

### Inherent Characteristic:

- Linear, quick opening  
or equal percentage

The 10000 Series is a double-ported valve with top and bottom stem guiding. This design is suitable for high-pressure drop applications where dirty fluid conditions exist. The 10000 Series is widely used in hydrocarbon processing applications.



## 21000 Series Globe & Angle Top-Guided Valve

Sizes: 3/4" through 8"  
(20 through 200 mm)

### Ratings and Connections:

- Flanged: Class 150-2500  
PN 10-400
- Welded: BW or SW
- Screwed: NPT 3/4" through 2"  
(20 through 50 mm)

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Actuators:

- Model 87/88 multi-spring  
diaphragm
- Model 51/52/53 piston cylinder

### Trims:

- Single seat plug top guided.
- Lo-dB and anti-cavitation trims,  
single or double stage are  
available

### Inherent Characteristic:

- Linear or equal percentage

The 21000 Series control valve is a heavy top-guided unbalanced design with noise attenuation and anti-cavitation trim options. It can handle a variety of process applications ranging from standard service conditions to more severe applications. It also includes standard bellows seal and soft seat configurations.



## 28000 Series VariPak™ Micro-Trim Globe Valve

Sizes: 1" (25 mm) standard  
1/2" through 3/4" (15 through 20  
mm) available on request

### Ratings and Connections:

- Flanged: Class 150-600
- Flangeless for mounting  
between flanges:  
Class 150-2500  
PN 10-400
- Screwed: NPT 1/2" through 1"  
(15 through 25 mm)

### Body Materials:

- Stainless steel
- Monel
- Hastelloy C
- Alloy 20

### Actuator:

- Integral spring diaphragm

### Trims:

- Full stellite needle plug
- Multistep trim available

### Inherent Characteristic:

- Linear

The 28000 Series Varipak is a compact globe style valve specifically for microflow control. The Varipak includes an adjustable Cy feature between 100 percent and 40 percent that can meet applications requiring finer control. It is available with bellows seal and anti-cavitation trim options.





## 41005 Series Globe & Angle Cage-Guided Valve

Sizes: 2" through 24"  
(50 through 600 mm)

### Ratings and Connections:

- Flanged: Class 150-2500  
PN 10-400
- Welded: BW or SW
- Screwed: NPT 2" (50 mm)

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Actuators:

- Model 87/88 multi-spring diaphragm
- Model 51/52/53 piston cylinder

### Trims:

- Balanced cage-guided trim.
- Lo-dB, anti-cavitation and VRT (Variable Resistance Trim), single and multiple cages are available

### Inherent Characteristic:

- Linear or equal percentage

The 41005 Series is a heavy-duty valve design with balanced trim configurations. It offers cage guiding for added stability and the versatility to offer noise attenuation and anti-cavitation solutions. Available with various balancing seal options including auxiliary pilot design for unmatched high-temperature performance.



## 80000 Series 3-Way Diverting or Combining Valve

Sizes: 1" through 10"  
(25 through 250 mm)

### Ratings and Connections:

- Flanged: Class 150-600  
PN 10-100
- Threaded: NPT 3/4" through 2"  
(20 through 50 mm)
- Welded: BW or SW  
Class 900-2500 on request

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Actuators:

- Model 87/88 multi-spring diaphragm
- Model 51/52/53 piston cylinder

### Trim:

- V-port plug

### Inherent Characteristic:

- Linear

The 80000 Series is a line of three-way control valves for either combining or diverting applications. Its key features include high flow capacities and low-pressure recoveries, resulting in efficient flow control performance.

# Masoneilan Angle Erosive Protection Valves



## 71000 Series Streamlined Angle Valve

Sizes: 2" x 3" through 10" x 12"  
(50 x 80 mm through 250 x 300 mm)

### Ratings and Connections:

- Flanged: Class 150-2500

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Actuators:

- Model 87/88 multi-spring diaphragm
- Model 51/52/53 piston cylinder

### Trim:

- Heavy top plug guiding coupled with a threaded seat ring design to form an outlet venturi flow path for outlet area protection

### Inherent Characteristic:

- Linear

The 71000 Series is a modified sweep-angle valve that can reduce fluid impingement through the body. This design includes heavy guiding and durable trim parts to withstand harsh operation.

### Specific applications:

- Visbreaker
- Hot hydrocarbon fluid
- Coking applications



## 73000 Series Sweep Angle Valve

Sizes: 1" x 1" through 10" x 12"  
(25 x 25 mm through 250 x 300 mm)

### Ratings and Connections:

- Flanged: Class 150-2500

### Body Materials:

- Carbon steel
- Stainless steel
- Titanium
- Hastelloy
- Others

### Actuators:

- Model 87/88 multi-spring diaphragm
- Model 51/52/53 piston cylinder

### Trims:

- High capacity single stage
- Reduced port venturi outlet
- Ceramic and tungsten carbide optional

### Inherent Characteristic:

- Linear

The 73000 Series control valve can throttle highly erosive, flashing, and two-phase flows.

### Specific applications:

- Mining
- Coal slurry
- Ash handling
- Hydrocarbon bottoms





## 74000 Series Erosion Control Valve

Sizes: 1" through 8"  
(25 through 400 mm)

Ratings and Connections:  
• Flanged: Class 150-2500

Body Materials:  
• Carbon steel  
• Stainless steel  
• Chrome-moly  
• Duplex stainless steel

Actuators:  
• Model 87/88 multi-spring diaphragm  
• Model 51/52/53 piston cylinder

Trims:  
• Fluted single and multi-stage  
• Continuous guided plug  
• Ceramic and tungsten carbide optional  
• Venturi trim to protect valve body

Inherent Characteristic:  
• Linear

The 74000 Series is a split-body forged angle erosion control valve with captured trim and continuous guided fluted plug for superior stability under harsh conditions with particulate flow.

Specific applications:  
• Resid hydro-cracking  
• Service with entrained catalyst  
• Pressure drops up to 4000 psi



## 75000 Series Tank-Drain Valve

Sizes: 1" x 1" through 10" x 12"  
(25 x 25 mm through 250 x 300 mm)

Ratings and Connections:  
• Flanged: Class 150-1500

Body Materials:  
• Stainless steel  
• Titanium  
• Hastelloy  
• Others

Actuator:  
• Model 51/52/53 piston cylinder

Trims:  
• Single piece stem and plug design with both top and bottom guiding to eliminate trim vibration at high-pressure drops

Inherent Characteristic:  
• Linear or contoured

The 75000 Series tank drain valve includes a full sweep-angle design and heavy-duty plug design to reduce erosion impact from solids or debris found in tank bottoms. It is available in 45, 60, and 90 degree-angle configurations.

Specific applications include tank level control and pressure letdown applications common in reactor or crystallizer tanks.

# Masoneilan Severe Service Control Valves



## 72000 Series Angle Valve with Lo-dB and V-LOG Trim

Sizes: 6" x 8" through 36" x 48"  
(150 x 200 through 900 x 1200 mm)

### Ratings and Connections:

- Flanged: Class 150-600  
PN 10-100 up to 600 mm
- Welded: BW

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Actuator:

- Model 51/52/53 piston cylinder

### Trims:

- Balanced cage guided trim (single or double cage)
- Lo-dB and V-LOG trims available

### Inherent Characteristic:

- Linear or equal percentage

The 72000 Series offers precise capacity control while efficiently reducing noise and outlet velocities using single or multiple cages or V-LOG trim.

### Specific applications:

- compressor antisurge
- flare to atmosphere



## 77003 Series Multi-Stage Valves (Angle/Globe)

Sizes: 2" x 3" through 8" x 10"  
(50 x 80 through 200 x 250 mm)

### Ratings and Connections:

- Flanged: inlet Class 900-2500  
outlet Class 900-2500  
PN 150-400
- Welded: BW or SW

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Actuators:

- Model 51/52/53 piston cylinder
- Model 87/88 multi-spring diaphragm

### Trims:

- Axial flow technology
- Multi-stage trim (expanding area type)
- Anti-cavitation, flashing, de-gassing, and low noise

### Inherent Characteristic:

- Linear

The 77003 Series multi-stage, expanding-area control valve is primarily for high-pressure compressible fluid or two-phase flow applications. It controls erosion, de-gassing, and high noise levels.

### Specific applications:

- hot separator letdown
- well-head choke



## 78400/18400 Series LincolnLog

Sizes: 1" through 12"  
(25 through 300 mm)

### Ratings and Connections:

- Flanged: Class 600-2500  
PN 100-400
- Welded: BW or SW

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Actuators:

- Model 87/88 multi-spring diaphragm
- Model 51/52/53 piston cylinder

### Trims:

- Axial flow technology
- Multi-stage, cage-guided, anti-cavitation trim
- Class VI available on request

### Inherent Characteristic:

- Linear

The 18400 and 78400 Series valve is used in high-pressure liquid service applications to help eliminate cavitation.

### Specific applications:

- Boiler feedwater recirculation





## 49000 Series Globe and Angle Style with Lo-dB or V-LOG Trim

Sizes: 4" through 36"  
(100 through 900 mm)

### Ratings and Connections:

- Flanged: Class 150-2500  
PN 10-400
- Welded: BW

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Actuators:

- Model 87/88 multi-spring diaphragm
- Model 51/52/53 piston cylinder

### Trims:

- Single or double stage Lo-dB and V-LOG energy management trim available in low noise flow-to-open designs or anti-cavitation flow-to-close variety of balanced trim options for Class IV and V shutoff

### Inherent Characteristic:

- Linear or equal percentage

The 49000 Series features enlarged body galleries to accommodate up to 36-stages of pressure reduction.

Specific applications include boiler feedwater start-up and control, steam letdown, pump discharge, water reinjection, gas recycle, and vent applications.



## 79003 Series Angle Style with VRT Trim

Sizes: 1" through 6"  
(25 through 150 mm)

### Ratings and Connections:

- Flanged: Class 600-2500  
PN 100-400
- Welded: BW

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Actuators:

- Model 87/88 multi-spring diaphragm
- Model 51/52/53 piston cylinder

### Trim:

- Multi-stage VRT trim design and VRT partial stack design for control over a wide range of applications

### Inherent Characteristic:

- Linear

The 79003 Series valves offers anti-cavitation service with control over a wide range of operating conditions, such as the ramp-up transition of a normal feedwater pump.

### Specific applications:

- Feedwater control
- Feedwater pump start-up valve



## 84003 Series SteamForm

Trim Sizes: 3" through 24"  
(80 through 600 mm)  
Pipe Sizes: 3" through 48"  
(80 through 1200 mm)

### Ratings and Connections:

- Flanged: Class 150-2500  
PN 10-400
- Welded: BW

### Body Materials:

- Carbon steel
- Chrome-moly

### Actuators:

- Model 87/88 multi-spring diaphragm
- Model 51/52/53 piston cylinder

### Trims:

- Single or double stage Lo-dB with optional diffuser, and V-LOG energy management trim
- Available with thermally compensated high temperature trim options for long life in high-cycling environments
- Variety of balanced trim options for Class IV and V shutoff

### Inherent Characteristic:

- Linear or equal percentage

The 84003 Series SteamForm valve includes a patented water-injection system for efficient desuperheating in steam conditioning applications.

### Specific applications:

- Turbine bypass
- Process steam conditioning

# Masoneilan Regulators



## 525/526 Series

## 535V/535H Series

Sizes: 3/4" through 4"  
(20 through 100 mm)

3/4" through 2"  
(20 through 50 mm)

### Ratings and Connections:

- Flanged: Class 150-600  
PN 10-100
- Flanged: Class 150-600  
PN 10-100
- Screwed: NPT
- Screwed: NPT
- Welded: BW or SW
- Welded: SW

### Body Materials:

- Carbon steel
- Carbon steel
- Stainless steel
- Stainless steel
- Chrome-moly
- Chrome-moly

### Actuator:

- Model 10900 with spring-opposed diaphragm
- Model 10900 with spring-opposed diaphragm

### Trim:

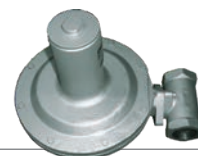
- Disc plug, double seat
- Single seat, disc plug (535H Series)

### Working Range:

- 0.5 to 330 psi  
(0.034 to 22.7 bar)
- 0.5 to 330 psi  
(0.034 to 22.7 bar)

The 525 Series regulators are configured for pressure reduction, and the 526 Series is for back-pressure applications. They are also available for differential-pressure applications in multiple configurations that can meet various combinations of capacity, pressure, and temperature requirements.

The 535V and 535H Series are available in multiple configurations for pressure reduction and differential-pressure applications.



## 170/172/173 Series

## 174 Series

Sizes: 1/4" through 2"  
(6 through 50 mm)

1/2" through 1-1/2"  
(15 through 40 mm)

### Ratings and Connections:

- Flanged: Class 150-600  
PN 10-100
- Screwed: NPT
- Screwed: NPT
- Welded: SW

### Body Materials:

- Carbon steel
- Carbon steel
- Stainless steel
- Chrome-moly

### Actuator:

- Sizes 80 through 515 spring opposed diaphragm
- Integral spring diaphragm

### Trim:

- Single seat, disc plug
- Single seat, disc plug
- Hard (metal) and soft (elastomer) seat options
- Elastomer disc for tight shutoff

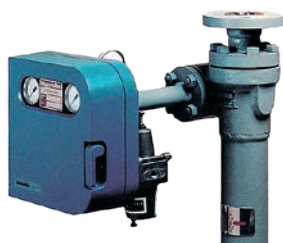
### Working Range:

- 0.035 psi to 667 psi  
(0.0024 to 46 bar)
- 1.4 inches W.C. to 8.8 psi  
(3.4 mbar to 0.61 bar)

The 170 through 173 Series regulators are a line of pressure reducing and relieving (back-pressure) and differential-pressure regulators for industrial liquid, steam, and gas applications.

The 174 Series is a low pressure regulator for gas service control. It is available in both pressure reducing and pressure relieving (back-pressure) constructions for industrial air and gas applications.

# Masoneilan Level Transmitters/Controllers



## 12800 Series Pneumatic Level Transmitter/ Controller

Range: 14" through 120" (355 through 3048 mm)

### Ratings and Connections:

- Flanged: Class 150-2500  
PN 10-100
- Screwed: NPT-F (1-1/2", 2")
- Welded

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Displacer Materials:

- Stainless steel
- Other materials on request

### Torque Tube Materials:

- Inconel
- Stainless steel
- Other materials on request

### Action:

- Proportional
- Proportional + reset
- Transmitter
- Differential gap
- Duplex

The 12800 Series pneumatic level controllers are used to control and/or transmit the level in a tank with one or two fluids (interface service).

The 12800 Series operates according to liquid displacement and torque tube principles.



## 12400 Series Digital Level Transmitter/ Controller

Range: 14" through 120" (355 through 3048 mm)

### Ratings and Connections:

- Flanged: Class 150-2500  
PN 10-100
- Screwed: NPT-F (1-1/2", 2")
- Welded

### Body Materials:

- Carbon steel
- Stainless steel
- Chrome-moly

### Displacer Materials:

- Stainless steel
- Other materials on request

### Torque Tube Materials:

- Inconel
- Stainless steel
- Other materials on request

### Electronic Instrument:

- HART protocol
- 4-20mA signal
- ATEX, FM, CSA, JIS, CU TR, CRN, IEC, INMETRO, CCOE, IA, KOSHA, NEPSI, TAIWAN TS and IEC between main approvals
- SIL2 safety certified
- Optional 2 built-in level switches
- Optional second 4-20 mA output signal

The Masoneilan 12400 Series Instrument is a two-wire loop-powered, digital-displacement type level transmitter or controller with HART communication. This high performance instrument is easily set-up and calibrated with either ValVue communication software, EDDL, DTM, a hand-held communicator, or local pushbuttons and digital display. This versatility allows the operator to configure, calibrate, and perform other functions either at the instrument or from the control room.

# Advanced Smart Instruments





## NEW Product!



### SVI3 Digital Valve Positioner

#### Communication / Control Platform:

- 4-20mA with HART®

#### Pneumatics:

- 20-120 psi Supply pressure
- Single-acting

#### Operating Temperature:

- Standard: -40°C to +85°C
- Optional Extreme Low : -55°C to +85°C

#### Materials:

- Chromated, Copper-free, Aluminum housing (Polyurethane paint, Epoxy primer)
- Composite Polymers and Stainless Steel Pneumatics

#### I/O:

- 4-20mA output
- Configurable Switches
- Discrete Input
- Remote Positioner Sensor Input (Masoneilan RPS)
- 1-5V input (Remote Sensor)

#### Mounting / Feedback:

- Non-Contact magnetic position feedback
- Rotary or Linear
- Stainless Steel brackets for all Masoneilan and major valve brands

#### Certifications:

- Explosion / Flame / Dust-proof and Intrinsically safe
- USA, Canada, ATEX, IECEx
- Regional – NEPSI, Taiwan TS, CCOE, CU-TR, AZS, UZ, INMETRO, JIS, KOSHA, IA

#### Diagnostics:

- Standard, Advanced, or Online Valve diagnostic levels available
- Continuous, Online, Online Valve, and Offline Diagnostics/Methods
- Up to 1 year of online valve diagnostic storage locally within device

#### Configuration / Monitoring Interfaces :

- Local Display with Pushbuttons (Optional)
- DTM – Full device configuration using FDT frame (ValVue recommended)
- eDDL – seamless integration into leading asset management systems

The third generation Baker Hughes Masoneilan SVI is a user friendly digital valve positioner for pneumatic control valves. Utilizing advanced control and diagnostic algorithms, along with field-proven noncontact position sensing technology, the SVI delivers accurate, responsive, and reliable positioning performance. The SVI3 is built on 20+ years and billions of hours of field proven valve position sensing technology, control algorithms, and advance performance pneumatic design. Exciting new features like online valve diagnostics take valve health predictivity to the next level, storing up to 1 year of real time valve diagnostics directly within the device. With an extended temperature range, greater air delivery, and reduced air consumption, the SVI3 performs top of class along with prior Masoneilan models. Single button SMART CAL commissioning and improved user interfaces allow for quick and easy setup on virtually any air operated actuator.



### SVI Advanced Performance Digital Valve Positioner

#### Communication / Control Platform:

- 4-20mA with HART® (SVI II AP)
- FOUNDATION® Fieldbus H1 (SVI FF)

#### Pneumatics:

- 20-150 psi Supply pressure
- Single, High Flow Single, or Double-acting

#### Operating Temperature:

- -40°C to +85°C

#### Materials:

- Aluminum (painted) or Stainless Steel Housing
- Composite Polymers and Stainless Steel Pneumatics

#### I/O:

- 4-20mA output (AP only)
- (2) Configurable Switches
- Discrete Input
- Remote Positioner Sensor Input (Remote Sensor optional)

#### Mounting / Feedback:

- Non-Contact magnetic position feedback
- Rotary or Linear
- Stainless Steel brackets for all Masoneilan and major valve brands

#### Certifications:

- Explosion / Flame / Dust-proof and Intrinsically safe
- USA, Canada, ATEX, IECEx
- Regional – NEPSI, Taiwan TS, CCOE, CU-TR, AZS, UZ, INMETRO, JIS, KOSHA, IA

#### Diagnostics:

- Standard or Advanced levels available
- Continuous, Online, and Offline Diagnostics/Methods

#### Configuration / Monitoring Interfaces :

- Local Display with Pushbuttons (Optional)
- ValVue Device Diagnostic and Configuration Tool
- DTM or eDDL – seamless integration into leading asset management systems

The Advanced Performance SVI Digital Valve Positioner models offer superior control technology for pneumatically actuated valves. Field proven, non-contact magnetic position feedback provides high precision with extreme reliability in harsh conditions. Mounting brackets for most major valve/actuator brands and optional Display with Pushbuttons promote quick and easy installation and commissioning. Available with either 4-20mA with HART® (SVI II AP) or FOUNDATION® Fieldbus (SVI FF), integration into control systems is seamless, especially when paired with ValVue software. Valve and Positioner health are monitored and analyzed through the various continuous, online, and offline diagnostics, which make the Advanced Performance positioners a perfect selection to increase control valve and plant efficiency.

# Emergency Shutdown Device & PST Controller



## SVI1000 Digital Valve Positioner

### Communication / Control Platform:

- 4-20mA with HART®

### Pneumatics:

- 20-100 psi Supply pressure
- Single-acting

### Operating Temperature:

- -40°C to +85°C

### Materials:

- Aluminum (painted)
- Composite Polymers and Stainless Steel Pneumatics

### I/O:

- 4-20mA output or (2) Configurable Switches

### Mounting / Feedback:

- Non-Contact magnetic position feedback
- Rotary or Linear
- Stainless Steel brackets for all Masoneilan and major valve brands
- Integrated magnet option for custom mounting

### Certifications:

- Intrinsically safe / Non-Incendive / Limited Energy
- USA, Canada, ATEX, IECEx
- Regional – NEPSI, Taiwan TS, CCOE, CU-TR, AZS, UZ, INMETRO, IA

### Diagnostics:

- Standard Continuous and Offline Diagnostics/Methods

### Configuration / Monitoring Interfaces :

- User-friendly "One button, one function" local interface
- ValVue Device Diagnostic and Configuration Tool
- DTM or eDDL – seamless integration into leading asset management systems

The SVI1000 is a user-friendly 4-20mA with HART® digital valve positioner for single-acting pneumatic control valves. Leveraging many of the same technologies from the SVI II AP, the SVI1000 is perfect for those that need a low maintenance valve positioner, and an ideal candidate for upgrading legacy electro-pneumatic positioners. Designed to be installed and operational in less than 5 minutes, the SVI1000 is easily through its "One button, one function" local pushbuttons or via its powerful DTM interface and ValVue software.



## SVI II ESD Emergency Shutdown Device and PST Controller

### Communication / Control Platform:

- 24Vdc or 4-20mA Safety function trip signal (SIL3)
- HART® and Switch(Discrete Output) fault annunciation

### Pneumatics:

- 20-120 psi Supply pressure
- Single-acting

### Operating Temperature:

- -40°C to +85°C

### Materials:

- Aluminum (painted) or Stainless Steel Housing
- Composite Polymers and Stainless Steel Pneumatics

### I/O:

- 4-20mA output and discrete Input

### Mounting / Feedback:

- Non-Contact magnetic position feedback
- Rotary or Linear
- Stainless Steel brackets for all Masoneilan and major valve brands

### Certifications:

- Explosion / Flame / Dust-proof and Intrinsically safe
- USA, Canada, ATEX, IECEx
- Regional – NEPSI, Taiwan TS, CCOE, CU-TR, AZS, UZ, INMETRO, JIS, KOSHA, IA

### Diagnostics:

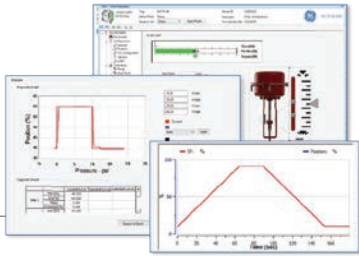
- Partial Stroke Testing (PST)

### Configuration / Monitoring Interfaces:

- Local Display with Pushbuttons
- ValVue ESD Device Diagnostic and Configuration Tool
- DTM or eDDL – seamless integration into leading asset management systems

The SVI II ESD is a SIL3 capable partial stroke test controller and emergency shutdown device. Its safety and PST function are independent of each other, allowing the device to respond to a safety function while a test is active. It can capture two shutdown events and allow continuous HART communications during a trip facilitating local panel annunciation using the built in discrete outputs. The SVI II ESD automatically captures and stores the PST results in its non-volatile memory while ValVue ESD software regularly interfaces and updates its database with PST and full stroke data.

# Masoneilan Stand Alone or Integrated Softwares



## ValVue 3 Device Diagnostics & Configuration Tool

### Key Features:

- Common interface for all instruments
- Time stamped Audit Trail provides full documentation of all changes managed by the application
- Automatic device monitoring with NAMUR 107 compliant alerts
- Provide specific task authorization with user level access control
- Easy PDF Report generation

### Benefits:

- Automates standard device commissioning steps with Sequencer to get more done, consistently and accurately
- Enables easy compliance validation for audit reports
- Enhances security by requiring user authentication
- Shorter training cycles by using the same basic interface for all field devices

ValVue 3 is compatible with:

- SVI II AP
- SVI II ESD
- SVI1000
- DLT 12400
- SVI FF
- DLT 12300

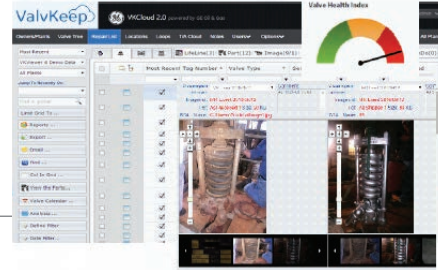
ValVue 3 supports the following connections:

- Hart Modem
- wirelessHART® gateways
- FF Modem
- Emerson AMS OPC
- HART® Multiplexors

Masoneilan additionally offers fully interoperable DTMs for host integration in the following systems:

- Yokogawa PRM v3.04+
- Honeywell FDM v400+
- Schneider Electric Foxboro FDM
- Emerson AMS v12.5+
- Rockwell Automation FactoryTalk v2.31+
- ABB 800xA v5+

ValVue 3 is a powerful and user-friendly interface designed for set-up, configuration, and diagnostics of Masoneilan instruments. ValVue improves Maintenance team efficiency by automating set up, calibration, and diagnostics procedures which is particularly helpful during plant outages.



## Valve Lifecycle Management (VLM) by Baker Hughes

Baker Hughes provides complete valve lifecycle management (VLM) solution from initial setup/commissioning through turnaround/outage support. Utilizing Baker Hughes extensive valve experience, valve optimized tools, and local service teams help Reliability and Maintenance managers:

- Prioritize valve maintenance activities
- Identify opportunities for process optimization
- Simplify troubleshooting activities
- Optimize valve spares inventory

During plant operations, VLM service subscribers receive valve fleet health reports detailing which valves need to be slotted for repair BEFORE they impact process operations. Similarly, VLM reports can be used to plan valve overhaul operations during outages providing information to overhaul valves based on operating condition rather than time based techniques reducing valves repaired by as much as 50%.

These services are often provided with no additional hardware required, regardless of valve/positioner brand.

Unlock the hidden power of your digital invest with Baker Hughes Valve Lifecycle Management Services.

# Masoneilan Instrumentation



## 4700/4800 Series

### Pneumatic & Electro-Pneumatic Positioner

#### Control Signals:

4700/4800P

- 3-15 psig
- 6-30 psig

4700/4800E

- 4-20mA

#### Pneumatics:

4700/4800P

- Direct
- Reverse
- 100 psi maximum supply pressure

4700/4800E

- Direct
- 100 psi maximum supply pressure

#### Operating Temperature:

- -40°C to +85°C

#### Materials:

- Aluminum (painted) housing
- Stainless Steel Pneumatics

#### Mounting / Feedback:

- Integrated position feedback
- Rotary or Linear cam settings
- Stainless Steel brackets for all Masoneilan and major valve brands

#### Certifications:

- Explosion proof and Intrinsically safe
- North America, Canada, ATEX
- Regional – CCOE, CU-TR, INMETRO, IA, UA TR

The model 4700/4800P and 4700/4800E are control valve positioners that use a precision feedback cam for accurate positioning, fast response, and customized control characteristics. These positioners can be used with either rotary or liner actuators in applications where only pneumatic or 4-20mA control signals exist.



## Model 4411

### Electro-Pneumatic Transducer

#### Output capacity:

- 12 scfm (20.4 Nm<sup>3</sup>/h)

#### Signals:

- Input: 4-20mA (100mA max)
- Output: 3-15 psig, 6-30 psig

#### Certification:

- Explosion proof and intrinsically safe enclosure rating per IP 66 and NEMA X

The 4411 I/P is manufactured with Reedex™ digital-micro valve technology for fast response. It is not sensitive to vibration.

- Low air consumption
- Adjustable tight shut-off feature





## 496 Series Position Switches and Transmitters<sup>(1)</sup>

### Configurations:

- Electromechanical Limit Switch:
  - quantity 1 or 2
  - single or double pole
  - double throw
- Inductive Proximity Detector Switch:
  - quantity 1 or 2
- Potentiometric Position Transmitter
- Opto-Electronics Position Transmitter

### Certifications:

- Explosion-proof / Intrinsically safe
- North America, Canada, ATEX
- Regional – NEPSI / Taiwan TS, CCOE, CU-TR / AZ, UA, KOSHA, IA

The 496 Series instrumentation can be configured as electro-mechanical switches, proximity switches, or position transmitters. These devices offer high resistance to vibration and electrical interference for reliable valve-mounted performance.

Mechanical and electrical components can operate in harsh environments and are approved for use with various hazardous area ratings in most countries.



## 78 Series Air Filter Regulator & Air Lock Up Valves<sup>(1)</sup>

### Air Filter Regulator Model 78-40:

- Inlet pressure rating: 210 psi
- Pressure set range : 5-100 psi
- Filter: Polyethylene (5µm)
- Temperature range: -40°C to 83°C, option for -50°C to 60°C or 0 to 100°C

The Model 78-40 air filter regulators are compact, lightweight, high performance pressure reducing valves. They are used primarily for supplying a stable source of air to process control equipment, such as control valve positioners and current to pneumatic transducers. These regulators are externally adjustable for fine tuning and include a locking feature for maintaining output pressure at the desired level. The compact design is easy to mount onto a range of equipment using various methods and orientations.

### Transfer/Lock Up Valves Model 78-80:

- Transfer valve pressure: 250 psi
- Max signal pressure: 150 psi
- Temperature range: -30°C to 83°C

#### Version 78-80S:

- Cv In to Out: 0.8
- Cv Out to Ex: 1.3

#### Version 78-80H:

- Cv In to Out: 4.5
- Cv Out to Ex: 5.0

The Model 78-80 transfer valve is used to switch the air flow from one port to another, when the signal pressure becomes lower than the set pressure in case of the air failure. The 3-way transfer valve can be also used as the lockup valve by plugging off the exhaust port. The lockup valve is used to lock the control valve in its last position (Air-Failure-Lock) by confining the air pressure in the actuator, when the signal pressure becomes lower than the set pressure in case of the air failure. When the failed air pressure is recovered above the set pressure, the locked position is released and the control valve will go back to the normal operation.



## BR200/BR400 High Capacity Volume Booster Relays<sup>1</sup>

### Input/Output Ratio:

- 1:1

### Maximum Supply/Signal Pressure:

- 150 psi

### Temperature range:

- -30°C to +83°C, option for -50°C to +60°C or 0°C to +100°C

### Maximum Cv BR200:

- Supply: 1.2
- Exhaust: 1.2

### Maximum Cv BR400:

- Supply: 2.6
- Exhaust: 2.4

Model BR200 and BR400 pneumatic booster relays offer high capacity air volume boost for faster, dynamic control valve system response. These devices feature a 1:1 input-to-output ratio with a maximum supply and signal pressure of 150 psi. The BR200 and BR400 also include an integrated internal bypass valve for sensitivity adjustment and dynamic response optimization. These devices also have integrated filters in both the supply and signal ports and are configured using stainless steel components and corrosion resistant finishes for a robust and reliable assembly.

## Direct Sales Office Locations

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