Masoneilan Condensed Catalog

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

valves.bhge.com
Quality Control Solutions
BHGE’s 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.

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.

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.
Delivering for our customers

Global Capabilities
BHGE’s 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
BHGE 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 BHGE 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 BHGE’s 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
BHGE’s 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.
Masoneilan Control Valves

General Service

Rotary Products
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 ANSI/ISA 75.08.02 (IEC 534-3-2) and ANSI 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.

Erosive Service

Reciprocating Products
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 include 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.

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 hydrosprocessing 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**
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
BHGE 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 ANSI 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
BHGE’s 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.

**LE* (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

**SVI Digital Valve Positioner**
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: ANSI 150 - 600
- Flangeless: ANSI 150 - 600
  UNI-DIN 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: ANSI 150
  UNI-DIN 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
- ANSI 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.
36005 Series
V-Max* Control Ball Valve

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

Ratings and Connections:
• Flanged: ANSI 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).

37002 Series
Minitork® II
Swing-Through Butterfly

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

Ratings and Connections:
• Wafer for mounting between flanges:
  – ANSI 150 - 300
  – UNI-DIN 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: ANSI 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.
### 10000 Series Double Seated Globe Valve

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

- **Ratings and Connections:**
  - Flanged: ANSI 150 - 1500, UNI-DIN 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: ANSI 150 - 2500, UNI-DIN 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: ANSI 150 - 600
  - Flangeless for mounting between flanges: ANSI 150 - 2500, UNI-DIN 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 CV 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: ANSI 150 - 2500
  UNI-DIN 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: ANSI 150 - 600
  UNI-DIN 10 -100
- Threaded: NPT 3/4” through 2” (20 through 50 mm)
- Welded: BW or SW
  ANSI 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: ANSI 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: ANSI 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: ANSI 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: ANSI 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” (150x200 through 900x1200 mm)

Ratings and Connections:
• Flanged: ANSI 150 - 600
  UNI-DIN 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 ANSI 900-2500
  outlet ANSI 900 - 2500
  UNI-DIN 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: ANSI 600 - 2500
  UNI-DIN 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: ANSI 150-2500 UNI-DIN 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: ANSI 600 - 2500 UNI-DIN 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: ANSI 150 - 2500 UNI-DIN 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

- **Sizes**: 
  - ¼” through 4” (20 through 100 mm)
  - ¼” through 2” (20 through 50 mm)

### Ratings and Connections:
- Flanged: ANSI 150 - 600 UNI-DIN 10 -100
- Screwed: NPT
- Welded: BW or SW

### Body Materials:
- Carbon steel
- Stainless steel
- Chrome-moly

### Actuator:
- Model 10900 with spring-opposed diaphragm

### Trim:
- Disc plug, double seat

### Working Range:
- 0.5 to 330 psi (0.034 to 22.7 bar)

---

## 535V/535H Series

- **Sizes**: 
  - ¾” through 4” (20 through 100 mm)
  - ¾” through 2” (20 through 50 mm)

### Ratings and Connections:
- Flanged: ANSI 150 - 600 UNI-DIN 10 -100
- Screwed: NPT
- Welded: BW or SW

### Body Materials:
- Carbon steel
- Stainless steel
- Chrome-moly

### Actuator:
- Model 10900 with spring-opposed diaphragm

### Trim:
- Disc plug, double seat (535H Series)

### Working Range:
- 0.5 to 330 psi (0.034 to 22.7 bar)

## 170-172-173 Series

- **Sizes**: 
  - ¼” through 2” (6 through 50 mm)
  - ½” through 1-1/2” (15 through 40 mm)

### Ratings and Connections:
- Flanged: ANSI 150 - 600 UNI-DIN 10 -100
- Screwed: NPT
- Welded: SW

### Body Materials:
- Carbon steel
- Stainless steel
- Chrome-moly

### Actuator:
- Sizes 80 through 515 spring opposed diaphragm

### Trim:
- Single seat, disc plug
- Hard (metal) and soft (elastomer) seat options

### Working Range:
- 0.035 psi to 667 psi (0.0024 to 46 bar)

## 174 Series

- **Sizes**: 
  - ½” through 1-1/2” (15 through 40 mm)

### Ratings and Connections:
- Flanged: ANSI 150 - 600 UNI-DIN 10 -100
- Screwed: NPT
- Welded: SW

### Body Materials:
- Carbon steel

### Actuator:
- Integral spring diaphragm

### Trim:
- Single seat, disc plug
- Elastomer disc for tight shutoff

### Working Range:
- 1.4 inches W.C. to 8.8 psi (3.4 mbar to 0.61 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.

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

12400 Series
Digital Level Transmitter/Controller

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

Ratings and Connections:
• Flanged: ANSI 150 - 2500
  UNI-DIN 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 - 20 mA 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.

12800 Series
Pneumatic Level Transmitter/Controller

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

Ratings and Connections:
• Flanged: ANSI 150 - 2500
  UNI-DIN 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.

12800 Series
Pneumatic Level Transmitter/Controller

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

Ratings and Connections:
• Flanged: ANSI 150 - 2500
  UNI-DIN 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 - 20 mA 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 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.
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:
• -40ºC to +85ºC

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
• FM, FMc, 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.

SVi1000 Digital Valve Positioner

Communication / Control Platform:
• 4-20mA output or (2) Configurable Switches

Pneumatics:
• 20 – 100 psi Supply pressure
• Single-acting

Operating Temperature:
• -40ºC to +85ºC

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
• FM, FMc, 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.
Emergency Shutdown Device
& PST Controller

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
• FM, CSA, 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 1000
• SVI FF
• SVI II ESD
• DLT 12400
• DLT 12300

ValVue 3 supports the following connections:
• Hart Modem
• FF Modem
• HART® Multiplexors
• wirelessHART® gateways
• Emerson AMS OPC

Masoneilan additionally offers fully interoperable DTM 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 by BHGE

BHGE provides complete valve lifecycle management (VLM) solution from initial setup/commissioning through turnaround/outage support. Utilizing BHGE’s 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 BHGE 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:
- -40ºC to +85ºC

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 linear actuators in applications where only pneumatic or 4-20mA control signals exist.

Model 4411
Electro-Pneumatic Transducer

Output capacity:
- 12 scfm (20.4 Nm³/h)

Signals:
- Input: 4 - 20 mA (100 mA 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

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 and Air Lock Up Valves

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

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.

Note 1: Optional Stainless Steel housings available for marine offshore applications.
DIRECT SALES OFFICE LOCATIONS

AUSTRALIA
Brisbane:
Phone: +61-7-3001-4319
Fax: +61-7-3001-4399
Perth:
Phone: +61-8-6595-7018
Fax: +61-8-6595-7299
Melbourne:
Phone: +61-3-8807-6002
Fax: +61-3-8807-6577

BELGIUM
Phone: +32-2-344-0970
Fax: +32-2-344-1123

BRAZIL
Phone: +55-19-2104-6900

CHINA
Phone: +86-10-5738-8888
Fax: +86-10-5918-9707

FRANCE
Courbevoie
Phone: +33-1-4904-9000
Fax: +33-1-4904-9010

GERMANY
Ratingen
Phone: +49-2102-108-0
Fax: +49-2102-108-111

INDIA
Mumbai
Phone: +91-22-8354790
Fax: +91-22-8354791
New Delhi
Phone: +91-11-2-6164175
Fax: +91-11-5-1659635

ITALY
Phone: +39-081-7892-111
Fax: +39-081-7892-208

JAPAN
Tokyo
Phone: +81-3-6871-9008
Fax: +81-03-6890-4620

KOREA
Phone: +82-2-2274-0748
Fax: +82-2-2274-0794

MALAYSIA
Phone: +60-3-2161-0322
Fax: +60-3-2163-6312

MEXICO
Phone: +52-55-3640-5060

THE NETHERLANDS
Phone: +31-15-5808666

RUSSIA
Velikiy Novgorod
Phone: +7-8162-55-7898
Fax: +7-8162-55-7921

Moscow
Phone: +7-495-585-1276
Fax: +7-495-585-1279

SAUDI ARABIA
Phone: +966-3-341-0278
Fax: +966-3-341-7624

SINGAPORE
Phone: +65-6861-6100
Fax: +65-6861-7172

SOUTH AFRICA
Phone: +27-11-452-1550
Fax: +27-11-452-6542

SOUTH & CENTRAL AMERICA AND THE CARIBBEAN
Phone: +55-12-2134-1201
Fax: +55-12-2134-1238

SPAIN
Phone: +34-93-652-6430
Fax: +34-93-652-6444

UNITED ARAB EMIRATES
Phone: +971-4-8991-777
Fax: +971-4-8991-778

UNITED KINGDOM
Bracknell
Phone: +44-1344-460-500
Fax: +44-1344-460-537

UNITED STATES
Jacksonville, Florida
Phone: +1-904-570-3409

Deer Park, Texas
Phone: +1-281-884-1000
Fax: +1-281-884-1010

Houston, Texas
Phone: +1-281-671-1640
Fax: +1-281-671-1735

valves.bhge.com

*Denotes a trademark of Baker Hughes, a GE company LLC.

Other company names and product names used in this document are the registered trademarks or trademarks of their respective owners.

© 2019 Baker Hughes, a GE company LLC - All rights reserved.

Baker Hughes reserves the right to make changes in specifications and features shown herein, or discontinue the product described at any time without notice or obligation. Contact your BHGE representative for the most current information. The Baker Hughes logo is a trademark of Baker Hughes, a GE company. The GE Monogram is a trademark of the General Electric Company.