



# Masoneilan\* 41005 Series

Heavy Duty, Globe-Style Control Valves

Dependable globe-style control valve solutions for maximum performance in severe service conditions



# 41005 Series Cage-Guided Globe Valves

## Excellent Performance and Reliability

Masoneilan 41005 Series cage-guided control valves from BHGE provide highly dependable, field- proven performance for a variety of critical process control applications in industries such as power, onshore and offshore oil and gas, petrochemical, and refining. The valves' rugged design delivers excellent performance even in severe conditions.

## High Process Yields

The 41005 Series provides excellent throttling control performance resulting in efficient process output and high process yields. The balanced trim construction reduces the resultant forces acting on the valve plug, which decreases the actuator thrusts required to move and position the plug. Even at high temperatures, the use of low friction Teflon® packing further enhances throttling performance. This is made possible by the extended packing box design in the standard 41005 Series bonnet.

## Lower Operating Costs

Dependable control valve tight shut-off helps minimize the loss of valuable process fluids and potentially can eliminate the need for separate isolation valves. In addition, excessive valve-seat leakage can lead to premature trim wear and reduced performance.

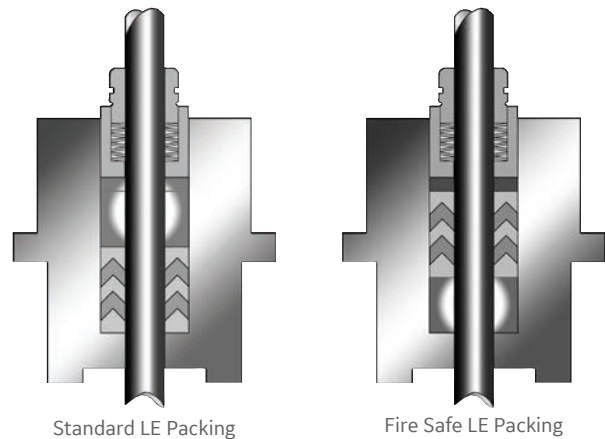
The 41005 Series is available with a pilot-balanced trim option for tight shut-off (Class V) at high temperatures, and a soft-seat design for bubble-tight (Class VI) shut-off in accordance with ANSI/FCI and IEC specifications.

## High Reliability

Standard hardened trim materials in the 41005 Series provide excellent wear resistance and long life, even under high-pressure and high-temperature conditions. Various trim options are available to control and reduce the potentially damaging effects of noise and cavitation. Overall valve reliability is also enhanced with minimized application of soft goods such as gaskets and seals.

## Low-Emissions Compliance

Addressing environmental concerns surrounding fugitive emissions from industrial plants, BHGE offers low-emissions packing options for all Masoneilan globe valve designs, meeting various global and regional requirements. The EPA-compliant Masoneilan LE® Packing design also is available in a fire- safe version.





# Customer Benefits

## Design Simplicity

Sizing and selection is simplified with the versatile 41005 Series valve design, which provides various trim options in a common platform to handle a wide range of applications. This also allows users to easily modify, upgrade or change trim style in the field by simply replacing trim components to accommodate changes in process conditions.

## Compact Design

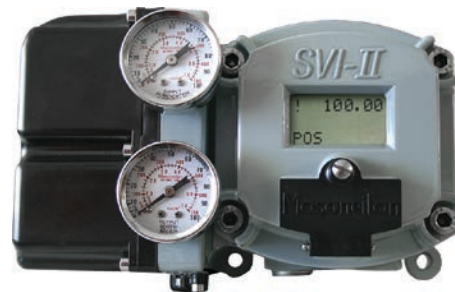
Compared to equivalent valve designs, the 41005 Series offers ease of handling and installation with a compact, low weight, and low profile assembly. Valve orifice sizes are configured for capacity and noise performance, while body bowl dimensions are streamlined resulting in a highly efficient valve package.

## Ease of Maintenance

Simple top-entry access to the 41005 Series trim components provides a maintenance-friendly design, which is further enhanced with the quick change trim construction. The versatility and reduced number of parts used in the 41005 Series design can help reduce overall plant inventory costs. Making maintenance and repairs even easier, there are no special components, such as shims, required in the assembly.

## Advanced Digital Performance

Greater control resolution and accuracy are available when the 41005 Series is supplied with smart valve instrumentation such as the Masoneilan SVI\*II AP or the Masoneilan SVI\* FF. Since both instruments are available in single- or double-acting configurations and offer advanced control technology, they provide higher precision for pneumatically actuated control valves. In addition, Masoneilan's ValVue\* smart communications software provides real-time preventive and predictive diagnostics data that helps to ensure critical control valve asset availability and to maximize end user return on investment.



SVI II AP Digital Valve Positioner



SVI II FF Digital Valve Positioner



# Design Flexibility

Standard options in the 41005 Series product line include:

## High-Capacity Globe or Angle Bodies

- Lo-dB\* Noise Attenuation Trim
- Anti-Cavitation Trim
- Single and Multi-Stage Trim Options
- Pilot-Balanced Tight Shut-off Trim
- Reduced-Capacity Trim
- Soft-Seat Trim
- Tungsten Carbide Trim
- Low-Emissions Packing
- Extension Bonnets
- Cryogenic Design
- NACE-Compliant Configuration
- Spring-Diaphragm or Piston Actuation
- Advanced Digital Positioning and Control



# Key Features

## Pressure-Balanced Trim

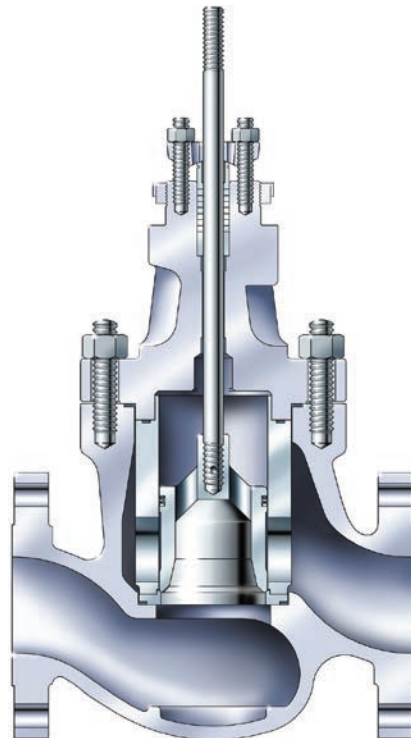
- Reduced Actuator Size and Thrust Requirements
- High-Pressure Drop Capability
- Smooth and Efficient Throttling Process Control

## High-Capacity Design

- Large, Streamlined Body-Bowl Design
- Maximum Single-Port Orifice Sizes
- Flexible Flow Characterization
- Optional High-Capacity Version

## Heavy Cage Guiding

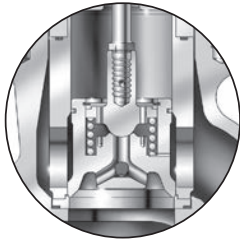
- Valve-Plug Guiding Over Full Stroke Range
- Excellent Trim Alignment and Dynamic Stability
- Enhanced Guiding to Reduce Mechanical and Flow-Induced Vibration Effects



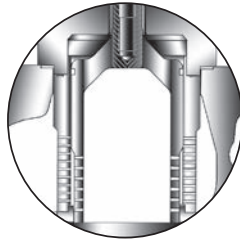
# Key Features

## Wide Operating Range

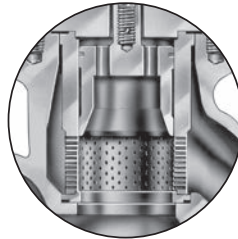
- Various Noise-Attenuation and Anti-Cavitation Trims
- Optimized Price-to-Performance Balance-Seal Options
- Wide Range of Standard Sizes and Pressure Ratings
- High- and Low-Temperature Configurations



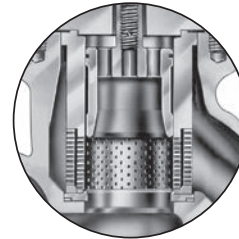
Pilot Balanced Construction



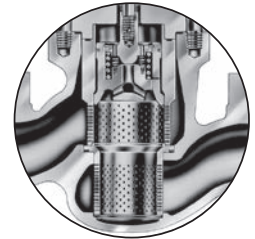
Multi-Stage Anti-Cavitation



Single Stage Lo-dB or Anti-Cavitation



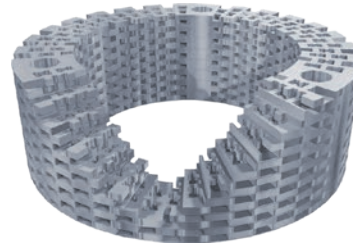
Multi-Stage Lo-dB



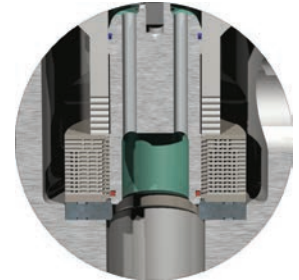
Single Stage Lo-dB with Diffuser

## Severe Service Options

- Multi-Stage Anti-Cavitation Trim
- V-LOG\* Tortuous-Path Energy Management Trim
- High-Pressure Anti-Cavitation Variable-Resistance Trim (VRT\*)
- Custom-Characterized Cages



V-LOG Trim



VRT Trim

# Product Specifications

## Operating Envelope

Sizes	2" to 24" (50mm to 610mm)
Pressure Ratings	ASME Class 150 to 2500 (Equivalent PN)
Seat Leakage	ANSI/FCI/IEC Class II, III, IV, V and VI
C <sub>v</sub> Range	10 to 7000
Temperature Range	-320°F to +1050°F (-196°C to +566°C)

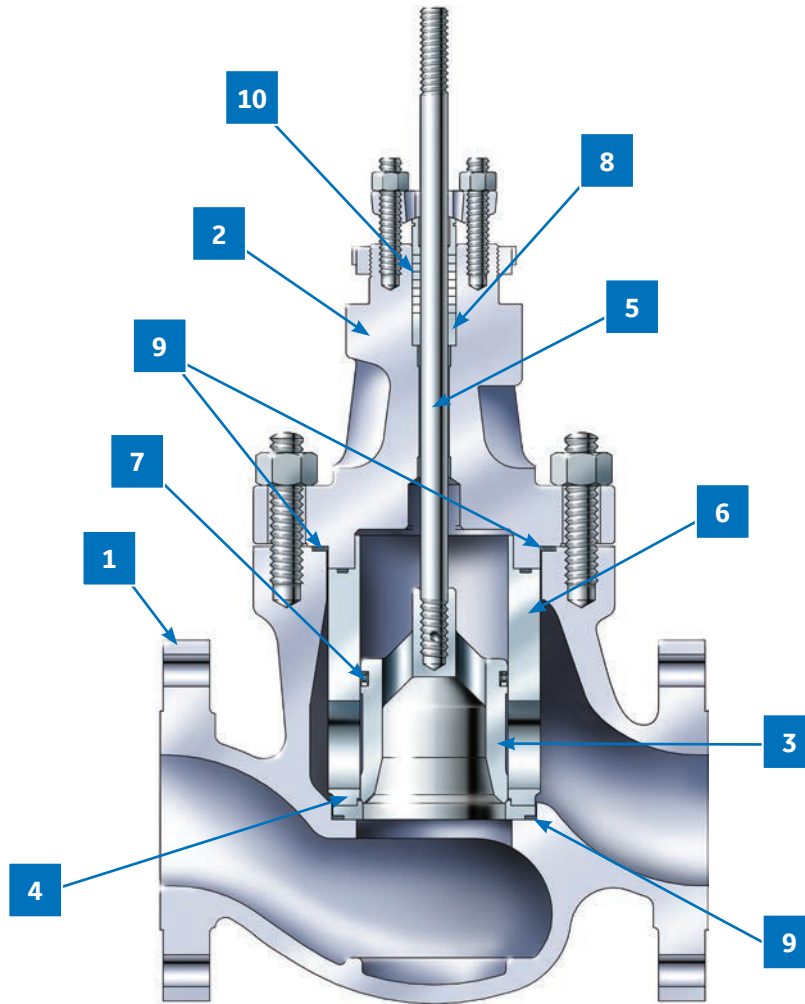
**Note:** Consult factory for details on available sizes, ratings, and configurations.

## End Connections

ASME Class 150 - 2500

Connections:	Valve Sizes	
	2" (50mm)	3" to 24" (80 to 610 mm)
RF Flanged	●	●
Socket Weld	●	
Threaded	●	
RT Joint	●	●
Butt Weld	●	●

# Materials of Construction

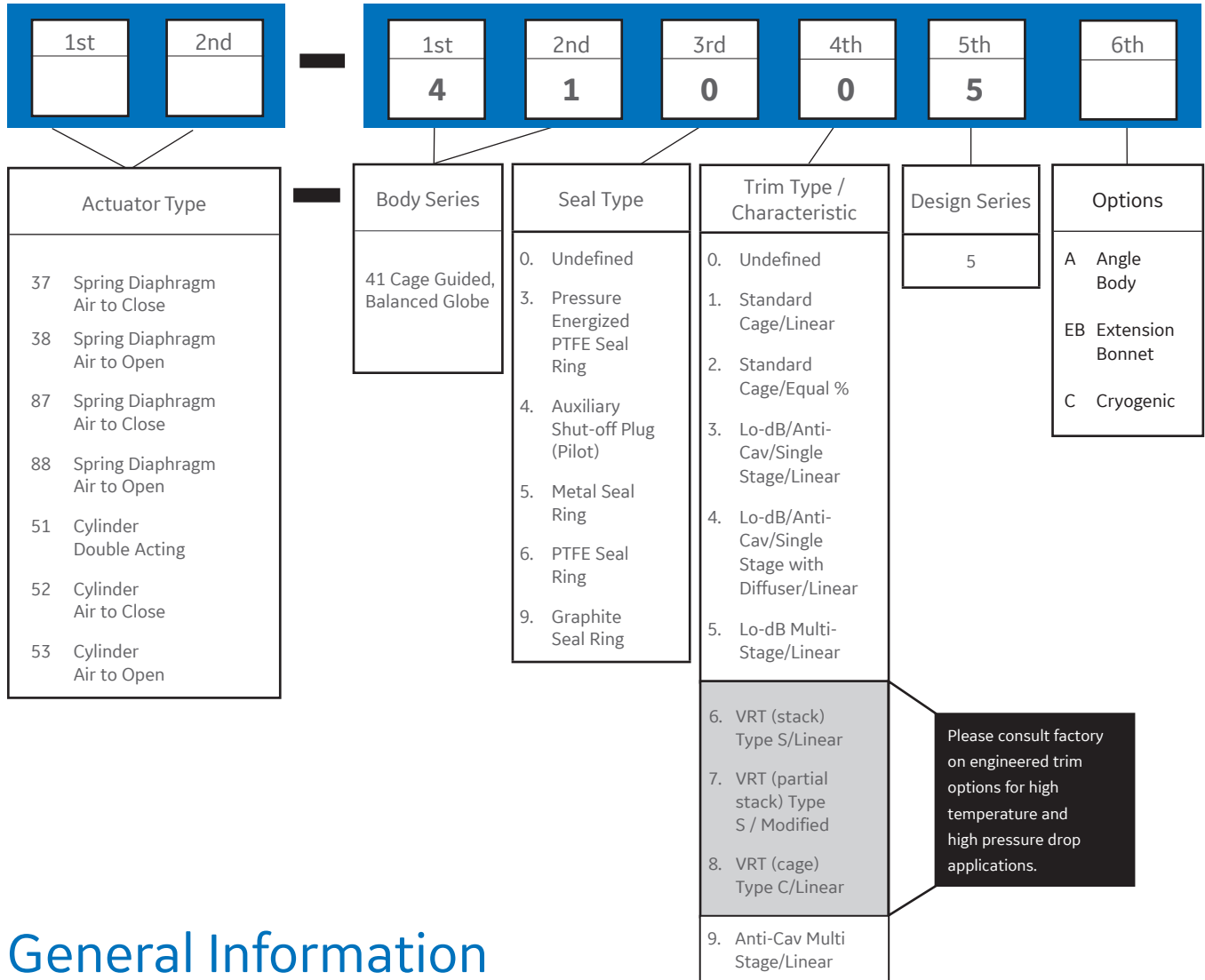


## Materials of Construction

1 & 2	Body and Bonnet	Carbon Steel, Stainless Steel, Chrome-Moly, Other Alloys
3	Plug	Stainless Steel, Stainless Steel with Stellite or Equivalent Hardfacing and Nitrided Surfaces
4	Seat Ring	Hardened Stainless Steel, Stainless Steel with Stellite or Equivalent Hardfacing
5	Stem	Stainless Steel, Inconel
6	Cage	Stainless Steel with Chrome-Plating and Nitriding
7	Balance Seal Ring	Teflon, Ni-Resist, Nitrided Stainless Steel, Graphite, and Spring Energized Teflon
8	Guide Bushing	Hardened Stainless Steel, Stainless Steel with Hardfacing
9	Gaskets	Stainless Steel with Flexible Graphite Filler
10	Packing	Teflon, Flexible Graphite and Low Emissions

Note: Refer to 41005 Series Tech-Spec for detailed material specifications and operating temperature limits.

# Numbering System



## General Information

### Flow Direction

Standard Trim: flow-to-open or flow-to-close  
 Lo-dB Trim: flow-to-open  
 Lo-dB Trim w/ Diffuser: flow-to-close  
 Anti-Cavitation Trim: flow-to-close

### Body

Type: high capacity globe or angle

### Body and Bonnet

Materials: carbon steel  
 316 stainless steel  
 chrome-molybdenum steel  
 others

### Trim

Cage Type: cylindrical ported drilled hole (Lo-dB or Anti-cav)  
 single or multi-stage  
 Plug Type: pressure balanced  
 Seal Rings: teflon, metal or graphite  
 Seat Ring: quick change  
 Guide: heavy cage guiding  
 Capacity: full area or reduced  
 Cv Ratio: 50:1  
 Flow Characteristics: linear or equal %

### Actuation

Type: multi-spring diaphragm  
 spring diaphragm  
 spring-return cylinder  
 double-acting cylinder  
 handwheel (optional)

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