

41005 SERIES CONTROL VALVES

Heavy Duty

General Service

Severe Service

Cage-Guided

Globe Valves



Massonellian

Where Flexibility Meets



Best Fit Technology

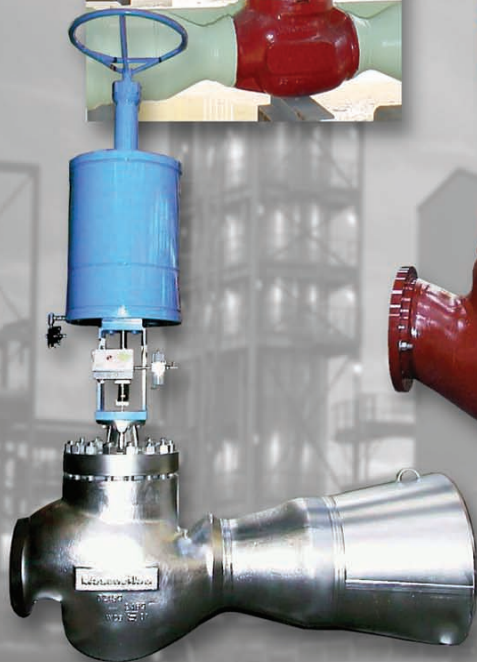


41005 SERIES

HEAVY DUTY

Masonellan's 41005 Series cage-guided control valves are designed to meet a variety of industrial process control applications.

Product features and materials of construction provide excellent performance in general purpose and severe service conditions.



Some of the standard options provided in the 41005 Series product line includes:

- High Capacity Globe or Angle Bodies
- Lo-dB[®] Noise Attenuation Trim
- Anti-Cavitation Trim
- Single & Multi-Stage Trim Options
- Pilot Balanced Tight Shutoff 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 & Control

CONTROL VALVES

DEPENDABLE SOLUTIONS

The 41005 Series has provided over 30 years of highly dependable field performance in a variety of process industries including: Power, Onshore and Offshore Oil & Gas, Petrochemical, and Refining. The rugged design and breadth of material options give the standard product offering a very extensive application range.



The 41005 Series is also an excellent platform for offering custom engineered control valve designs to meet today's challenging process requirements. The inherent design, Flexibility coupled with Masoneilan's Best Fit application philosophy, provides the optimal control valve solution. Variations of the 41005 Series provide superior control performance, durability, and reliability resulting in increased revenue and reduced life cycle cost.



41005 SERIES

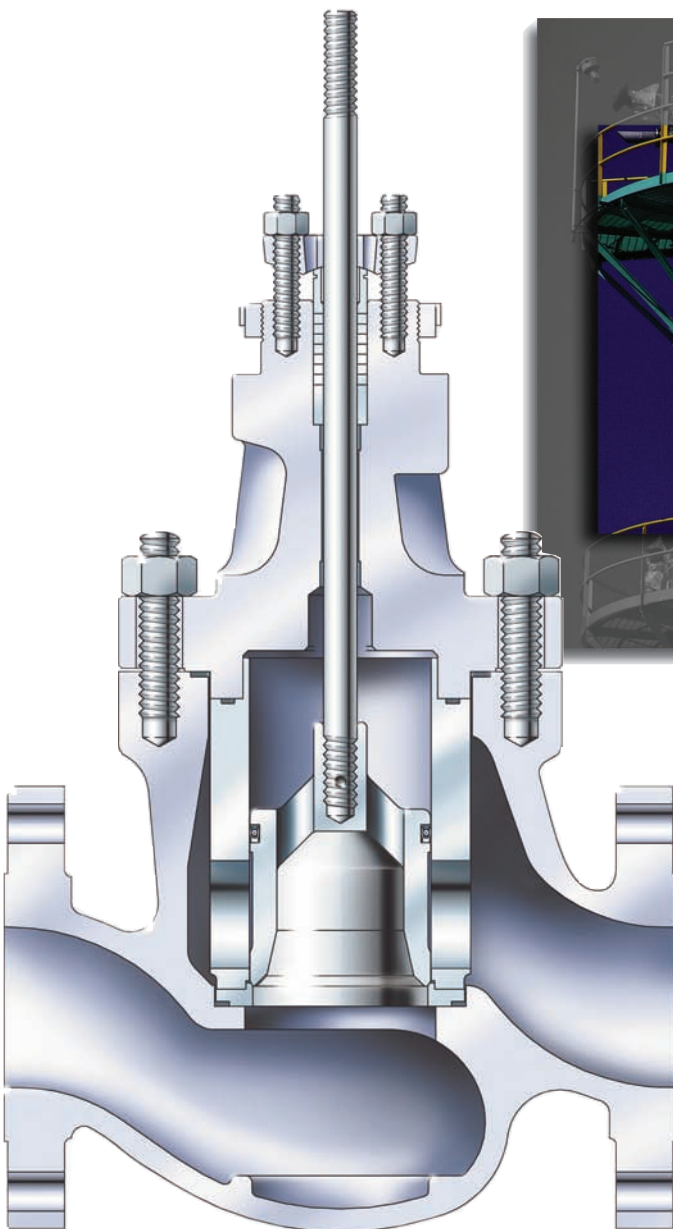
Key Features

PRESSURE BALANCED TRIM

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

HIGH CAPACITY DESIGN

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



HEAVY CAGE GUIDING

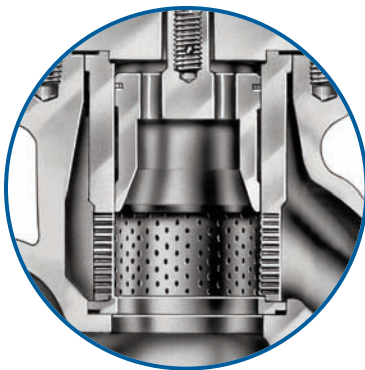
- Maximum Plug Support Over Full Stroke Range
- Excellent Trim Alignment & Dynamic Stability
- Large Guiding Area Minimizes Mechanical Vibration Effects

CONTROL VALVES

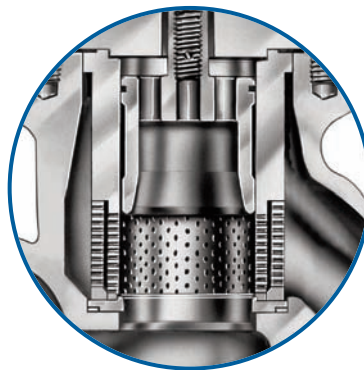
Key Features

WIDE OPERATING RANGE

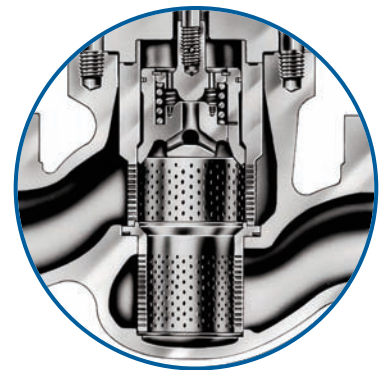
- Various Noise Attenuation & Anti-Cavitation Trims
- Optimized Price-to-Performance Balance Seal Options
- Low Pressure Recovery (High F_L) Design
- High and Low Temperature Configurations



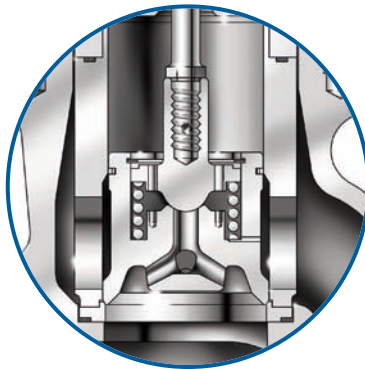
Single Stage Lo-dB®
or Anti-Cavitation



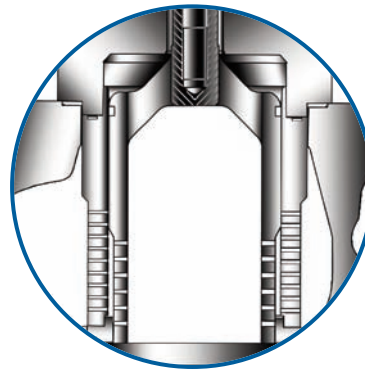
Multi-Stage Lo-dB®



Single Stage Lo-dB®
with Diffuser



Pilot Balanced
Construction



Multi-Stage Anti-Cavitation

ENGINEERED 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

41005 SERIES

Customer Benefits

HIGH PROCESS YIELDS

Excellent throttling control performance provided by the 41005 Series results 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. Throttling performance is further enhanced by the use of low friction Teflon® packing even at higher temperatures. This is made possible due to the extended packing box design in the standard 41005 Series bonnet.

LOWER OPERATION COSTS

Dependable control valve tight shutoff helps to minimize the loss of valuable process fluids and can potentially eliminate the need for separate isolation valves. Excessive valve seat leakage could also lead to trim wear and reduced performance.



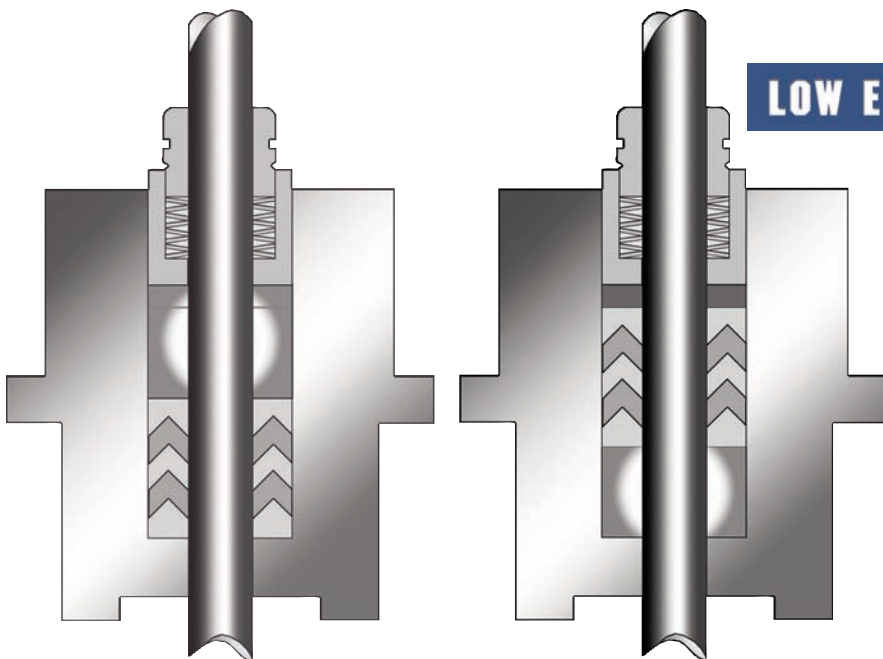
The 41005 Series is available with a Pilot Balanced trim option for tight shutoff (Class V) at high temperature, and a soft seat design for bubble tight (Class VI) shutoff in accordance with ANSI/FCI and IEC requirements.

CONTROL VALVES

Customer Benefits

HIGH RELIABILITY

Standard hardened trim materials in the 41005 Series provides excellent wear resistance and long life even in high pressure and high temperature applications. Various trim options are available to control and eliminate the potential damaging effects of noise and cavitation. Overall valve reliability is also enhanced with the minimum number of soft goods used, such as gaskets and seals.



Standard LE Packing

Fire Safe LE Packing

LOW EMISSIONS COMPLIANCE

Masoneilan offers low emissions packing options for all globe valve designs meeting both EPA and TA-LUFT requirements, in order to address growing environmental concerns relative to industrial plant fugitive emissions. Masoneilan's EPA compliant LE[®] Packing design is also available in a fire safe version.

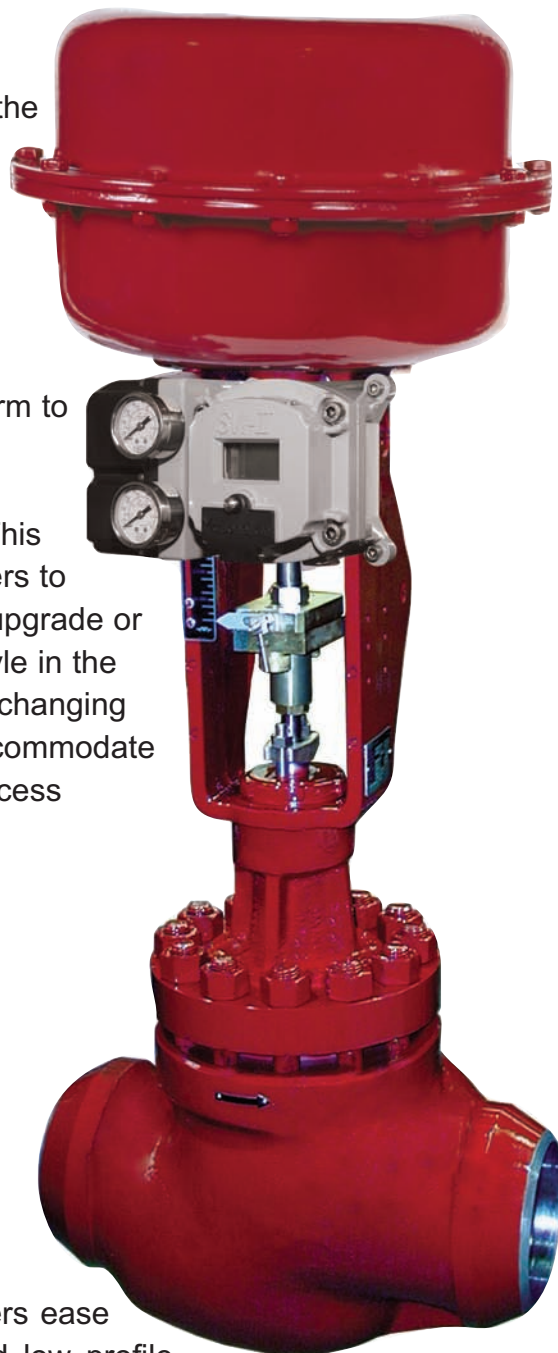
41005 SERIES

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 changing the cage 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. Seat ring port sizes are optimized for capacity and noise performance, while minimizing body bowl size for efficient valve packaging.

CONTROL VALVES

Customer Benefits

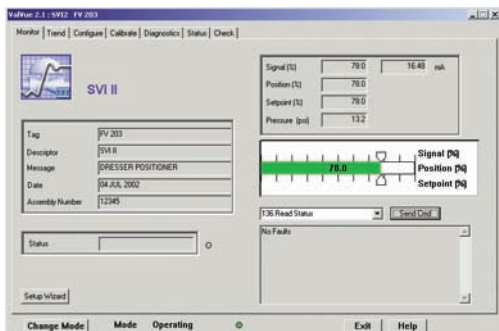
EASE OF MAINTENANCE

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 minimum number of parts used in the 41005 Series design can help reduce overall plant inventory costs. There are no special components, such as shims required in the assembly, thus further simplifying the maintenance and repair process.



ADVANCED DIGITAL PERFORMANCE

Greater control resolution and accuracy are available when the 41005 Series is supplied with Masoneilan's smart valve instrumentation such as the SVI®II AP or the Masoneilan FVP®. Both instruments are available in single or double-acting configurations and offer advanced control technology, providing higher precision for pneumatically actuated control valves. When coupled with Masoneilan's ValVue® software the control valve assembly delivers real time preventive and predictive diagnostic benefit ensuring asset availability and maximizing return on investment.



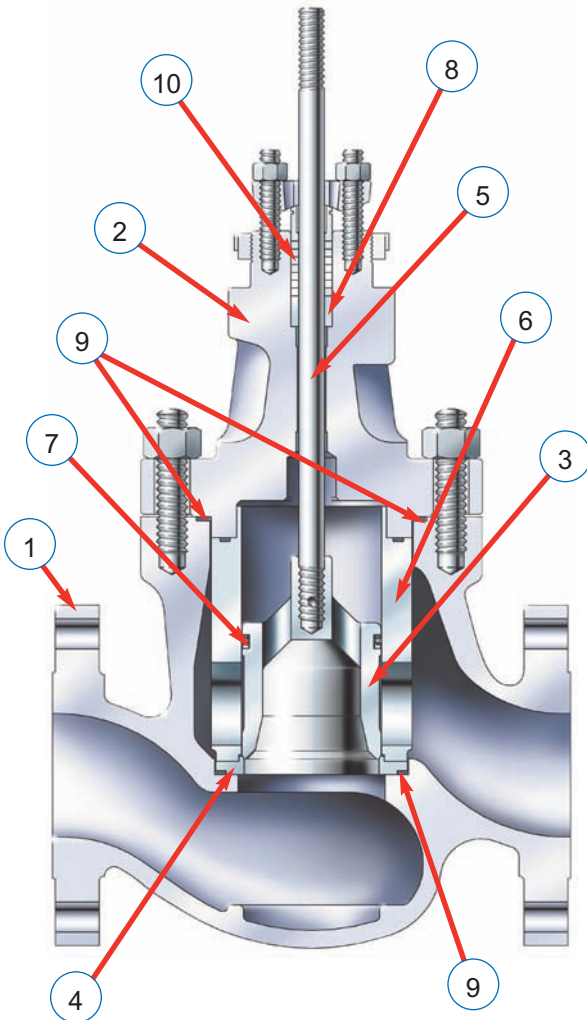
41005 SERIES

Product Specifications

Operating Envelope *	
Sizes	2" to 30" (50mm to 610mm)
Pressure Ratings	ANSI Class 150 to 2500 (Equivalent PN)
Seat Leakage	ANSI/FCI/IEC Class II, III, IV, V and VI
C _v Range	10 to 6300
Temperature Range	-320°F to +1050°F (-196°C to +566°C)

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

End Connections		
ANSI Class 150 - 2500		
Connections	Valve Sizes	
	2" (50mm)	3" to 30" (80 to 610 mm)
RF Flanged	●	●
Socket Weld	●	
Threaded	●	
RT Joint	●	●
Butt Weld	●	●

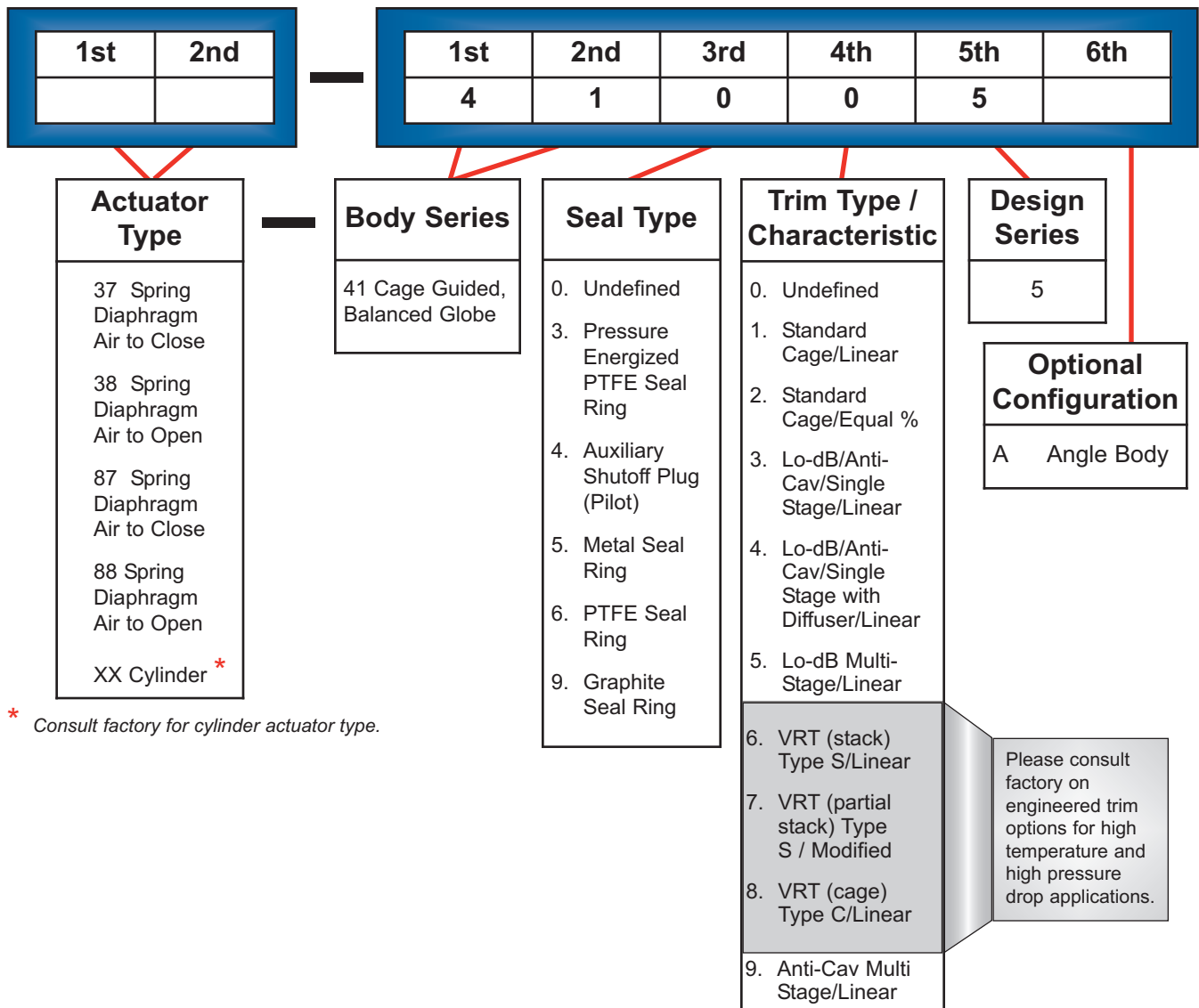


Materials of Construction		
1	Body	Carbon Steel, Stainless Steel, Chrome-Moly, Other Alloys
2	Bonnet	
3	Plug	Stainless Steel, Stainless Steel with Stellite Hardfacing and Nitrided Surfaces
4	Seat Ring	Hardened Stainless Steel, Stainless Steel with Stellite Hardfacing
5	Stem	Stainless Steel, Inconel
6	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 Specification Data Bulletin CH3000 for detailed material specifications and operating temperature limits.

CONTROL VALVES

Numbering System General Information



* Consult factory for cylinder actuator type.

<ul style="list-style-type: none"> ● Flow Direction <p>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</p> <ul style="list-style-type: none"> ● Body <p>Type: high capacity globe or angle</p> <ul style="list-style-type: none"> ● Body and Bonnet <p>Materials: carbon steel 316 stainless steel chrome-molybdenum steel others</p>	<ul style="list-style-type: none"> ● Trim <p>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 %</p> <ul style="list-style-type: none"> ● Actuation <p>Type: multi-spring diaphragm spring diaphragm spring-return cylinder double-acting cylinder handwheel (optional)</p>
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