

MasoneilanTM 41005 Series

Heavy duty, globe-style control valves

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



Masoneilan

a Baker Hughes business

41005 Series Cage-Guided Globe Valves

Excellent performance

Masoneilan 41005 Series cage-guided control valves from Baker Hughes 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 PTFE 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.

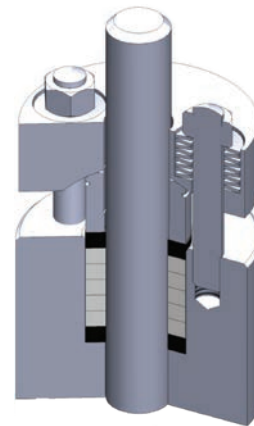
The 41005 Series is available with a pilot balanced trim option for tight shut off (Class V) at high temperatures, and a soft seat design for bubble tight (Class VI) shut off in accordance with ANSI/FCI and IEC specifications.

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, Baker Hughes offers low-emissions packing options for all Masoneilan globe valve designs, meeting various global and regional requirements.



Low-E Packing



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

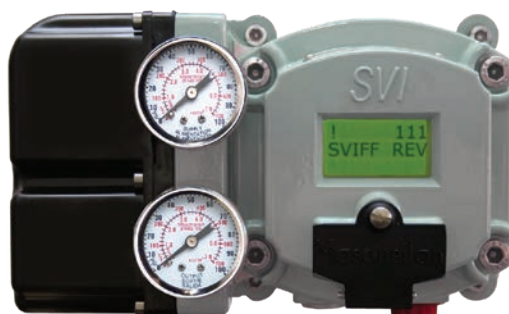
Simple top entry access to the 41005 Series trim components provides a maintenance friendly design, which is further enhanced with the quick change trim construction. The versatility and reduced number of parts used in the 41005 Series design can help reduce overall plant inventory costs, making maintenance 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 a Masoneilan **SVI™** digital valve positioner. Our wide portfolio offers options for most valve and actuator combinations, with an unmatched range of capabilities. Combined with **ValvKeep™** asset management and **ValVue™** smart communications software providing real-time preventive and predictive diagnostics data, you can be assured of critical control valve asset availability to optimize service and increase efficiency.



SVI3 Digital Valve Positioner



SVI FF Digital Valve Positioner



Design Flexibility

Standard options in the 41005 Series product line include:

High-capacity globe or angle bodies

- Large, streamlined body and bowl design
- Maximum single port orifice sizes
- Flexible flow characterization
- Optional high capacity version
- **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

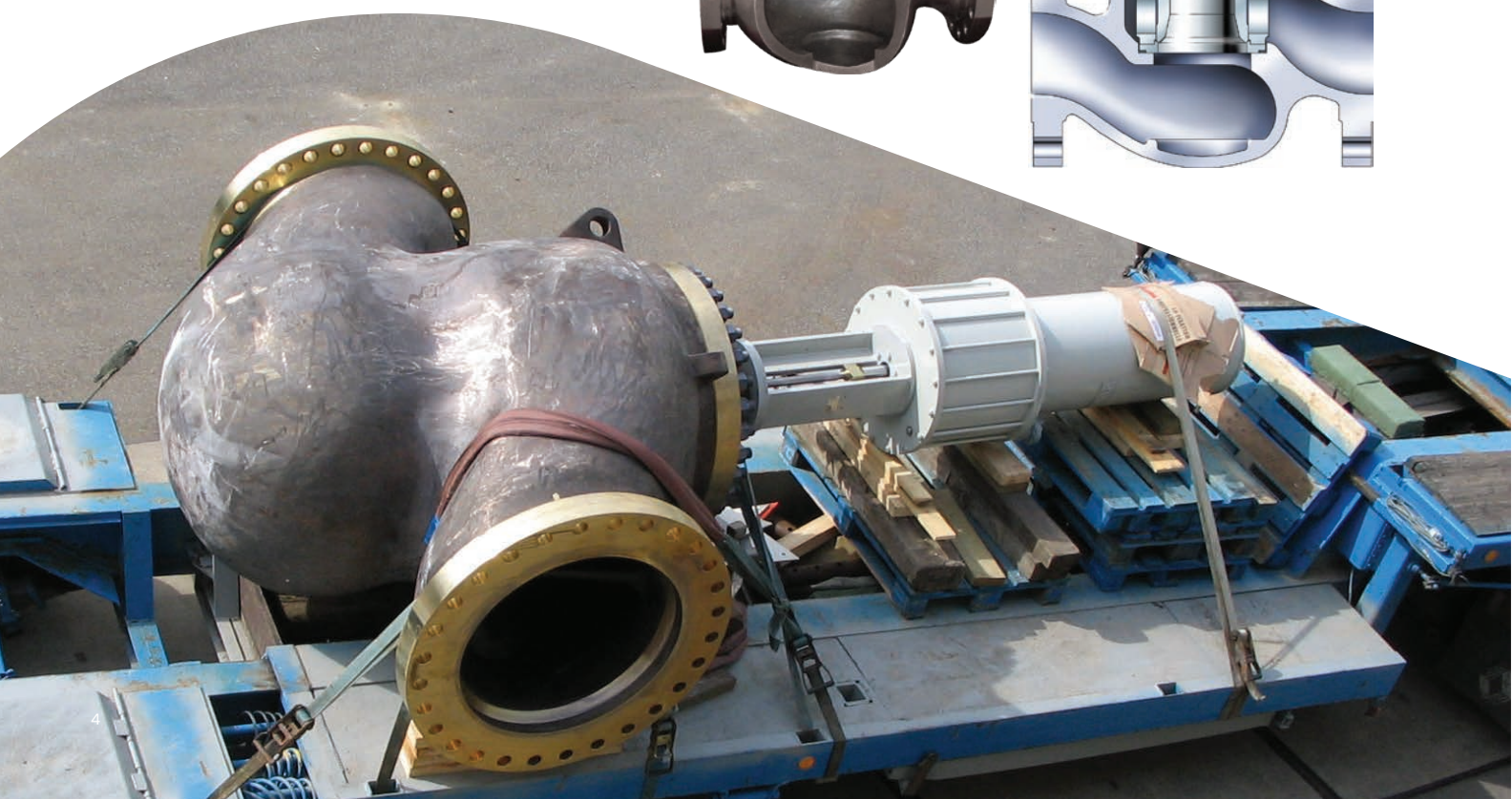
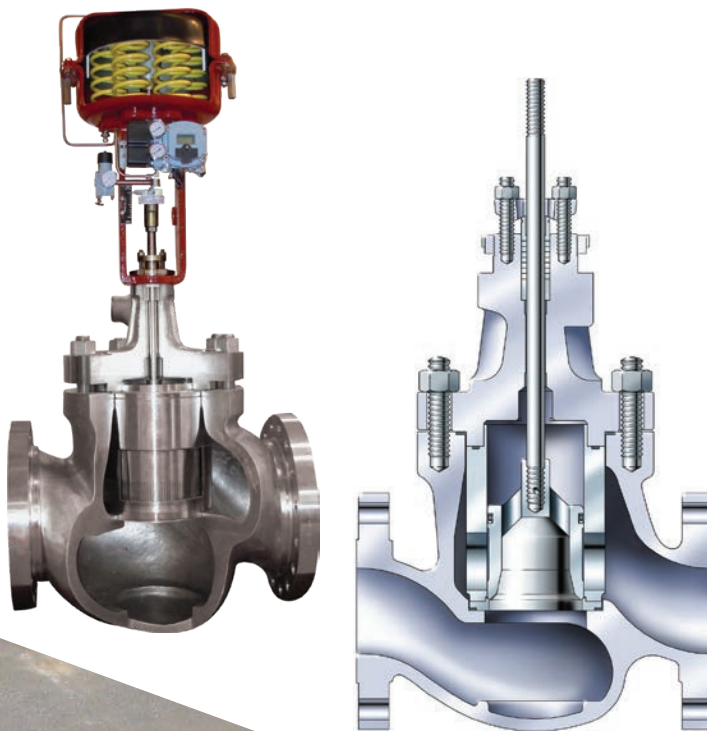
Key Features

Pressure-balanced trim

- Reduced actuator size and thrust requirements
- High pressure drop capability
- Smooth and efficient throttling process control

Heavy cage guiding

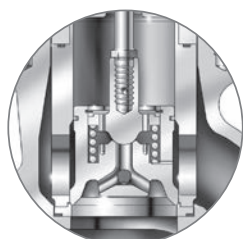
- Valve plug guiding over full stroke range
- Excellent trim alignment and dynamic stability
- Enhanced guiding to reduce mechanical and flow-induced vibration effects



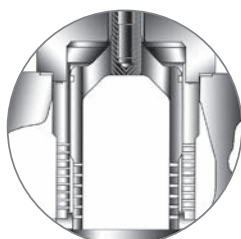
Key Features

Wide Operating Range

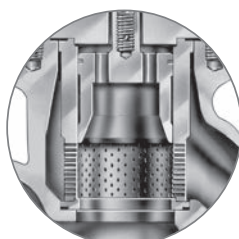
- Various noise attenuation and anti-cavitation trims
- Wide range of standard sizes and pressure ratings
- Optimized seal options
- High and low temperature configurations



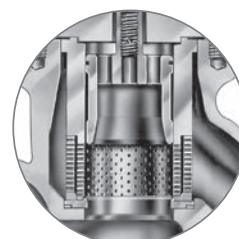
Pilot Balanced Construction



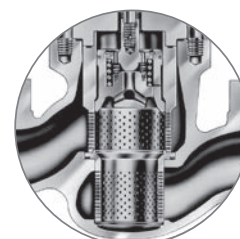
Multistage Anti-Cavitation



Single Stage Lo-dB or Anti-Cavitation



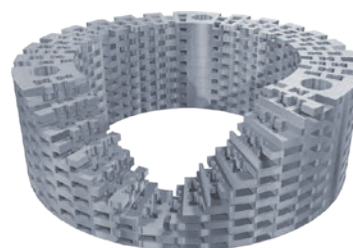
Multistage Lo-dB



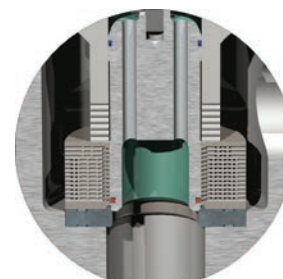
Single Stage Lo-dB with Diffuser

Severe Service Options

- Multistage 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

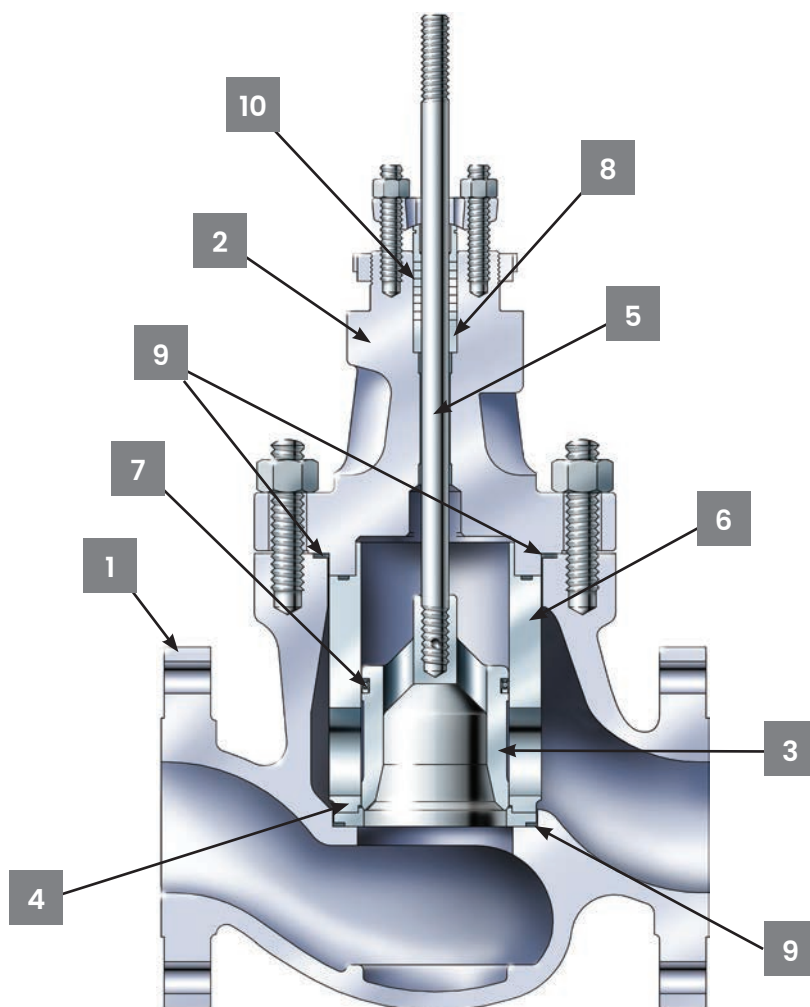
Product Specifications

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 _v Range	10 to 10500
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		
	Valve Sizes	
Connections:	2" (50mm)	3" to 30" (80 to 762mm)
RF Flanged	•	•
Socket Weld	•	–
Threaded	•	–
RT Joint	•	•
Butt Weld	•	•

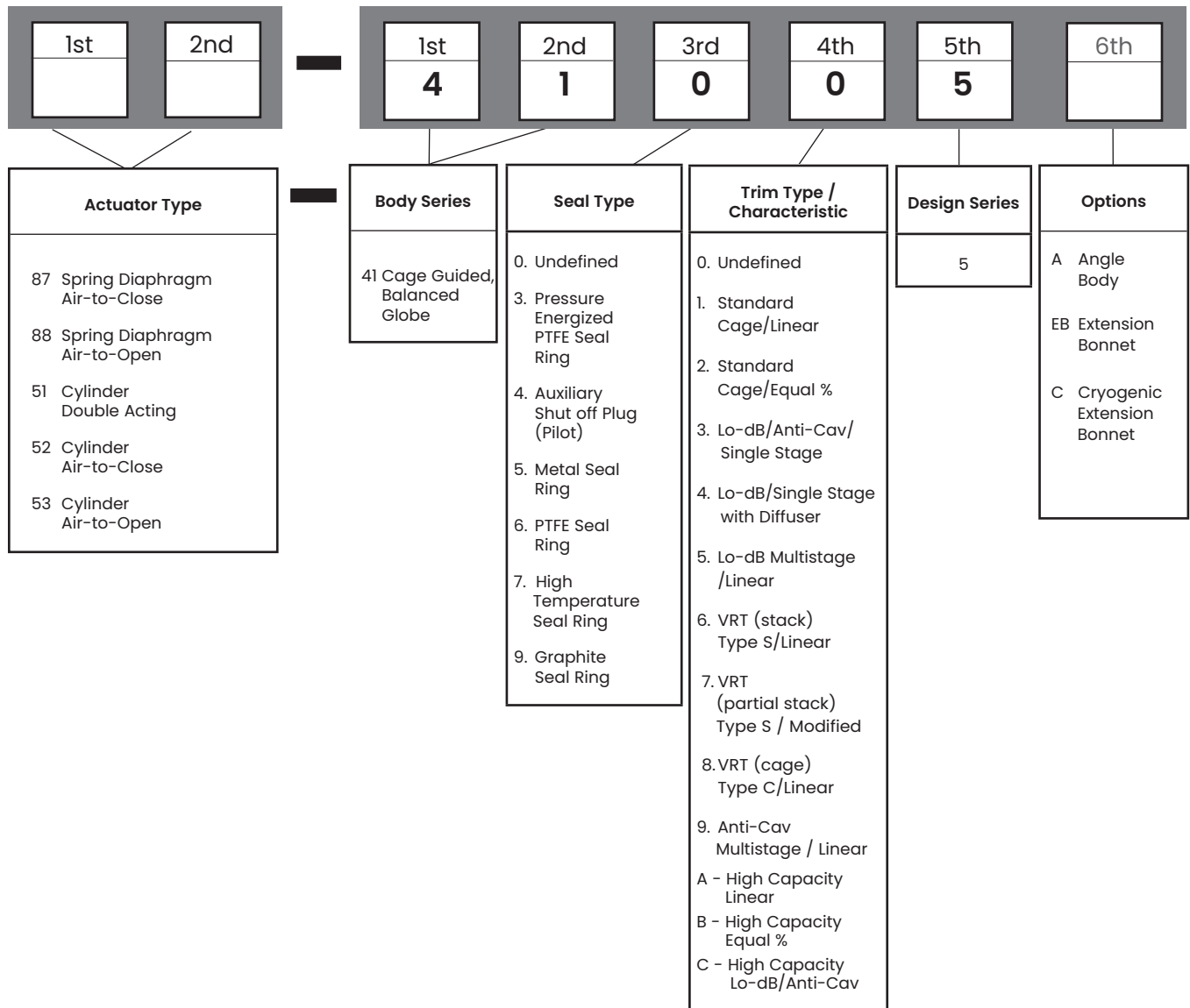
Materials of Construction



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	PTFE, ni-resist, nitrided stainless steel, graphite, and spring energized seal
8	Guide bushing	Hardened stainless steel, stainless steel with hardfacing
9	Gaskets	Stainless steel with flexible graphite filler
10	Packing	PTFE, flexible graphite and low emissions

Note: Refer to 41005 Series technical specifications 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

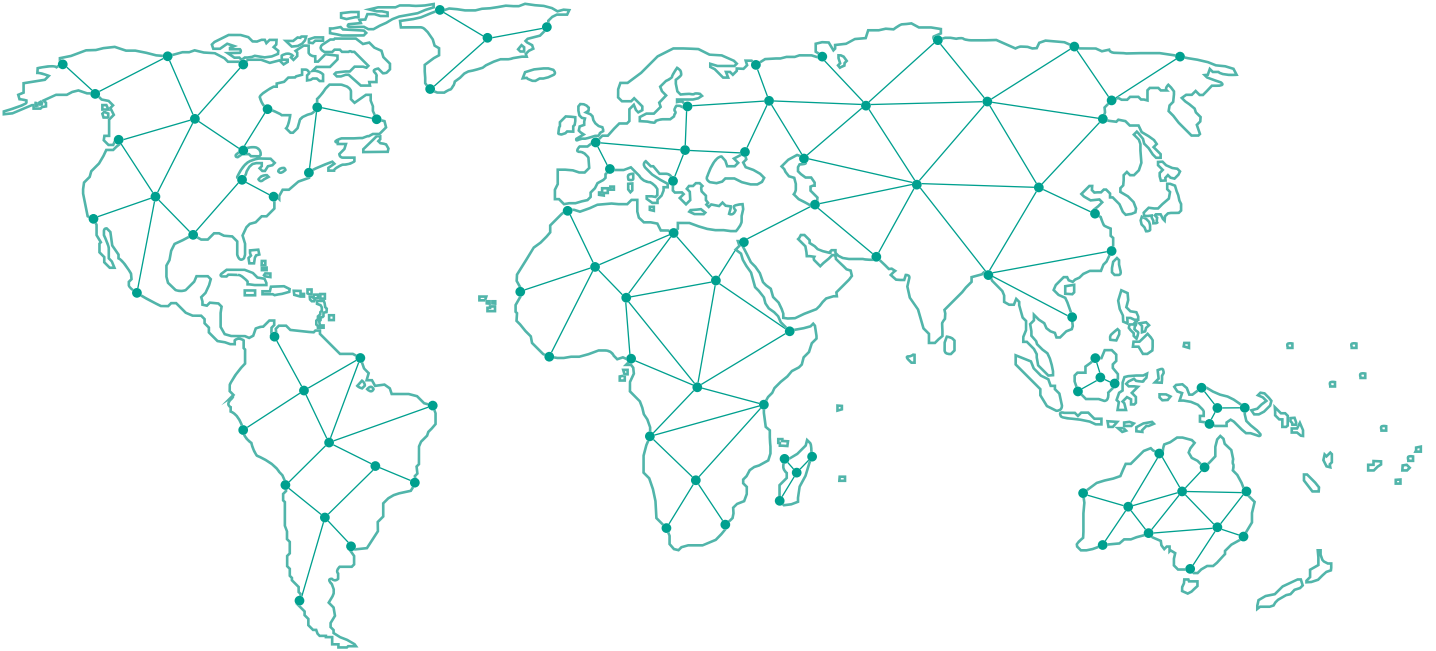
Cage Type: • cylindrical ported
 • drilled hole (Lo-dB or Anti-cav)
 • single or multistage
 Plug Type: pressure balanced
 Seal Rings: PTFE, metal or graphite
 Seat Ring: quick change
 Guide: heavy cage guiding
 Capacity: full area or reduced
 Cv Ratio: 50:1
 Flow Characteristics: linear or equal %

Actuation

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

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