

Bear Dump Valve

Reliable, Solar Ready & Power Fail Safe

A reliable dump valve requires outstanding performance in both the actuator and valve. To achieve this the Bear Dump Valve uses a low power and extensively tested Bear BAQ electric actuator. It is combined with the Hydroplex MiniMax or CSX valve with its low maintenance twin tungsten carbide disc trim technology. Reliable and zero-emission, using Calscan's Bear Dump Valve will help modernize your separator design.



www.calscan.net

Electric Motor Features and Specifications

Calscan is continuously testing a 24 VDC electric motor by fully opening and closing every 30 seconds at twice the required max torque of the MiniMax/CSX valve. With over $\frac{3}{4}$ million cycles so far the motor is performing flawlessly, indicating the Bear BAQ Quarter Turn Actuator can take the rigors of driving a dump valve.

- Open or Close time 9 Seconds
- Explosion Proof Class I Div1/Zone 1 Certified
- Power and RTU fail safe operation when used with the Bear FSC and Bear UPS
- Fail on Loss of Signal (Open or Closed)
- Actuator is sealed water tight, so no heater required
- No Disk Springs (Belleville Washers) to wear out
- 4-20mA Modulating or Digital On/Off Control
- Low quiescent current: <15mA On/Off and <40mA Modulating
- 21 to 32 VDC @ <0.7 amp of operating current at 1000psi differential
- For complete electrical information see: BAQ-10Gxx-15S/50 in the "Bear BAQ 24VDC Quarter Turn Actuators" data sheet



The MiniMax and CSX valve is a much higher reliability and cost effective replacement for linear dump valves



Abrasion Resistant Tungsten Trim rotates to throttle flow without exposing sealing surface to sand

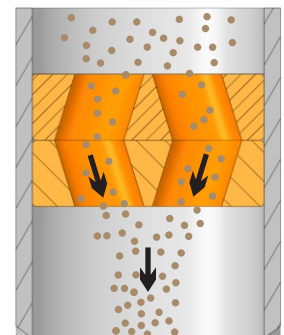
MiniMax and CSX Valve Trim Details

The MiniMax/CSX has a unique Twin Disc trim that is specifically designed for precision control of liquids and gases in severe service applications.

There are two quarter-turn tungsten carbide concentric discs with matching orifices. Each are diamond-polished to ± 0.00002 in to achieve positive shutoff. One disc is stationary in the valve and the other rotates to adjust the flow path. The tungsten carbide discs are abrasion resistant and direct the flow to the centerline of the piping which greatly extends the service life of the throttling valve body.

A unique property of the twin disc format is it separates the sealing surface from the control surface. As **the sealing surface is not exposed to the fluid media**, such as sand, the Minimax/CSX can maintain a more reliable longer lasting shut off seal.

These features result in an extremely durable design with easy field maintenance, increased service life, and reduced operational costs.



Tungsten Carbide Trim directs sand in flow media to center of piping to protect the softer valve body

Tungsten Carbide Trim Options

Color Indicator on trim shows size	Orifice Size Inches	Cv	64th inch Equivalent Diameter	Hole Geometry
	1/8	0.74	11.3	Round
	3/16	1.66	16.97	Round
	1/4	2.95	22.6	Round
	3/8	6.63	33.9	Round
	1/2	11.78	45.3	Round
	3/4	22.31	62.3	Pie

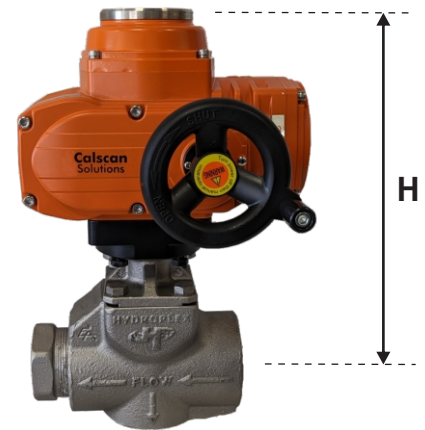
Note: Generally when throttling under high pressure drops, the valves would be set at: >40% open for liquids and >30% for gas



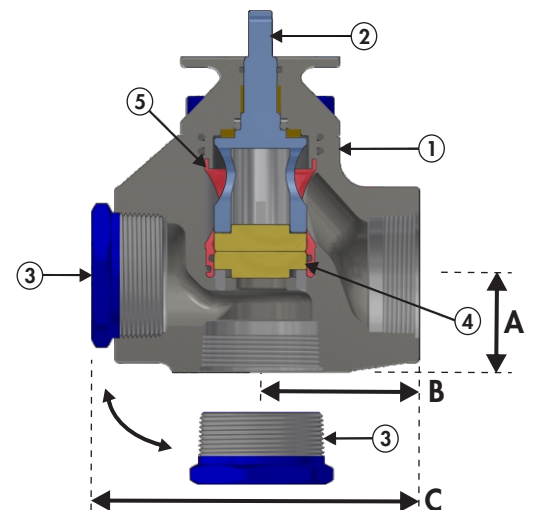
Removable Cartridge holds Trim for fast and easy maintenance

MiniMax Valve Features and Specifications

- 3000 psi (20600 kPa) MAWP
- The recommended maximum differential pressure in liquid service is 1500 psi (10300 kPa) for 90° angle configurations and 500 psi (3400 kPa) for in-line.
- ANSI FCI 70-2 (ANSI B16.104) Class IV shutoff seal
- Body - WCB Carbon Steel
- Seals - Peroxide Cured Buna N 90D
- Disc - Tungsten Carbide with Nickel Binder
- Internals or Rotators -ANSI Type S17400 PH
- Inline or Angle Body conversion by moving 2" NPT plug
- High Repeatability Rate maintains unparalleled control
- Twin Disc Design separates control and sealing surfaces for longer useful life
- Robust Stem and Seal design integration provides for hundreds thousands of cycles
- Ease of maintenance with the Internal Cartridge Assembly



The Bear electric actuator is direct mounted to the MiniMax valve to reduce height
H = 11.5 inches



MiniMax Dimensions

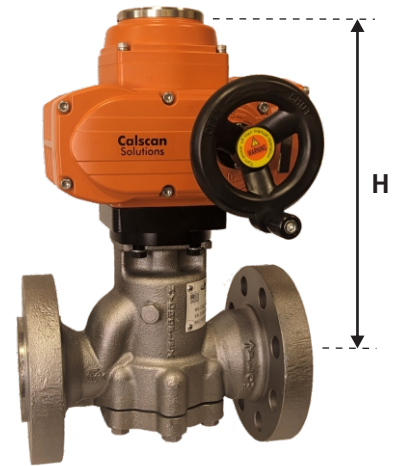
Connection Size	A	B	C
1 inch FNPT	2.66in	3.82in	7.45in
2 inch FNPT	1.84in	3.00in	5.75in

MiniMax Valve Cut-Away

- 1 - Valve Body:** Durable carbon steel body
- 2 - Stem Assembly:** The smaller shaft diameter reduces operating torque
- 3 - Convertible Configuration:** With Hex Plug placement, choose to plumb in-line or 90° right angle to fit your configuration
- 4 - Tungsten Carbide Control Discs:** The Bear Dump Valve standard trim size is 3/4in but also is available in smaller sizes
- 5 - Assembly Cage:** Removable cartridge allows for easy assembly and disassembly of all internal valve components

CSX Valve Specifications

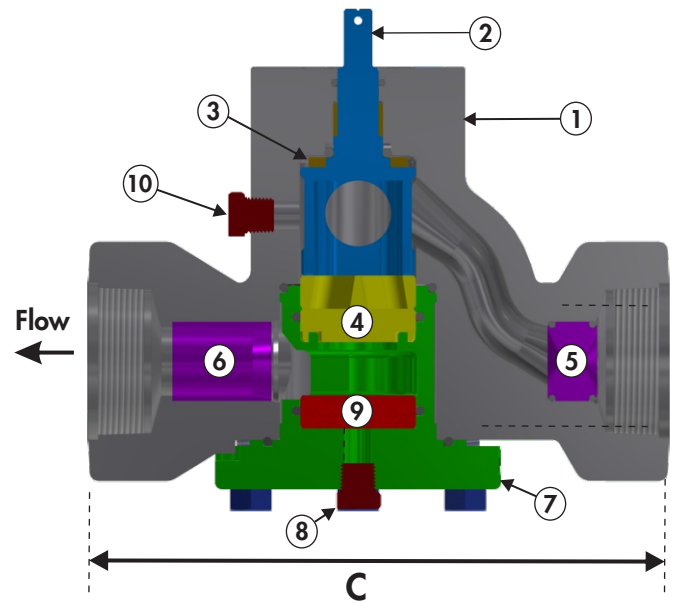
- 5000 psi (34400 kPa) MAWP
- Open/Close time 9 Seconds for differential pressures < 3000psi (20700 kPa)
- ANSI FCI 70-2 (ANSI B16.104) Class IV shutoff seal
- CSX Body - WCB Carbon Steel
- Seals - Peroxide Cured Buna N 90D
- Disc - Tungsten Carbide with Nickel Binder
- Internals or Rotators -ANSI Type S17400 PH
- High Repeatability Rate maintains unparalleled control in throttling applications



The Bear electric actuator is direct mounted to the CSX valve to reduce height
H = 12 inches

CSX Valve Cut-Away

- 1 - Valve Body:** Durable carbon steel body
- 2 - Stem Assembly**
- 3 - Thrust Bearing**
- 4 - Tungsten Carbide Control Discs:** All valves come standard with Tungsten carbide Trim available in sizes up to 3/4in
- 5 - Optional Fixed Orifice Bean:** Removable fixed size choke for multistage throttling
- 6 - Optional Wear Sleeve:** The wear sleeve is made from a durable Stellite for abrasive or turbulent environments extending valve life
- 7 - Cartridge Assembly:** Removable cartridge allows for easy assembly and disassembly of all internal valve components
- 8 - Maintenance Detection Port:** A pressure sensor can be added here for early detection of valve wear
- 9 - Wear Disc:** Removable cartridge allows for easy assembly and disassembly of all internal valve components
- 10 - Methanol Injection Port:** Optionally inject methanol right where its needed, where the pressure drops and the hydrates form



CSX End to End Dimensions

Connection Size	Length C
1 inch FNPT	10.37in
2 inch FNPT	8.625in
2 inch 150RF	10.0in
2 inch 300RF	14.125
2 inch 600RF	9.75in
2 inch 1500RF	17.125

Ball Valve Specifications

Bear ¼ Turn Actuators can be attached to a variety of ball valves. Calscan typically recommends and supplies 1 and 2 inch stainless NPT fullport A-T Controls Series 88 ball valves for low differential dump valves situations.

For complete Series 88 ball valve size and configurations information see the "88-3R.pdf" datasheet.



The Bear electric actuator direct mounted to the Series 88 2 inch full port ball valve

Adjusting the Fully Open/Close Position

For detailed instructions on how to adjust the fully Open/Close position of the valve, see the "Bear BAQ 24VDC Quarter Turn Actuators" data sheet

Ordering Information

Bear Dump Valve

BDV	Body	Port	Control	Fail	Trim
	MA = MiniMax Angle MI = MinMax Inline C = CSX B = Ballvalve	1 = 1 inch FNPT 2 = 2 inch FNPT 150 = 150RF Flange 600 = 600RF Flange 1500 = 1500RF Flange	G = Digital On/Off using SSR3 GEY = 4-20mA Control & Feedback	C = Closed O = Open	750 = 3/4in 500 = 1/2in 375 = 3/8in 250 = 1/4in 187 = 3/16in 125 = 1/8in 375D = 3/8in Dump Trim

Calscan Solutions

4188 93 St NW
Edmonton, Alberta
T6E 5P5
Ph:780-944-1377
www.calscan.net