

Fisher™ CHP Valve, NPS 8 CL2500

Description

The NPS 8 CL2500 Fisher CHP is a compact and high-performance, high-pressure globe valve designed especially for use in boiler feedwater flow control applications in power plants.

Modern power plants require higher valve capacity as the pressure drop is invariably low at all flow rate conditions because feedwater pumps use a variable pressure pump design.

Standard features offered with the CHP valve include rugged cage guiding, top entry design for easy maintenance, spiral wound gaskets, and hardened trim material to meet stringent boiler feedwater application requirements.

The CHP control valve uses a balanced plug. The trim is limited to an upper temperature of 380°C (716°F). The CHPT control valve uses a PEEK (Poly Ether Ether Ketone) anti-extrusion ring with a spring-loaded PTFE seal for service up to 316°C (600°F). The CHPD control valve uses multiple graphite piston rings and is designed for use in higher temperature service exceeding the limit of the CHPT.

Contact your [Emerson sales office](#) or Local Business Partner for more information.



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FISHER CHP NPS 8
CL2500 VALVE

Table 1. Specifications

<p>Size/ASME Class NPS 8 / CL2500</p> <p>Maximum Inlet Pressure and Temperature⁽¹⁾ Consistent with CL2500 according to ASME B16.34 Maximum temperature limit is 380°C (716°F). See table 2 and figure 3</p> <p>Maximum Pressure Drops⁽¹⁾ Standard Cages: See figure 4 Cavitrol III 2-Stage Cages: 149 bar (2160 psi) but not to exceed maximum inlet pressure</p> <p>End Connection Style Buttweld Ends: All buttwelding end schedules per ASME B16.25</p> <p>Bonnet Style Plain Bonnet: 5H inch Yoke Boss</p> <p>Construction Materials Valve Body and Bonnet: WCC Steel, WC9 Alloy Steel Trim and Other Parts: See tables 1 and 2</p> <p>Flow Coefficient See Fisher Catalog 12</p>	<p>Flow Direction Standard Cages: Flow up or down Cavitrol III 2-Stage Cages: Flow down</p> <p>Port Diameter 136.5 mm (5-3/8 inch)</p> <p>Flow Characteristics and Valve Plug Travel See table 3</p> <p>Stem Diameter 31.8 mm (1-1/4 inch)</p> <p>Shutoff Classification per ANSI/FCI 70-2 and IEC 60534-4⁽²⁾ CHPT: Class IV (standard), Class V (optional) CHPD: Class II (standard) CHPD with Bore-Seal: Class V (standard)</p> <p>Weight 810 kg (1786 lbs)</p> <p>Dimensions See figure 1</p> <p>Packing Arrangements ■ Standard PTFE V-ring, ■ Double PTFE V-ring, ■ Graphite Ribbon/Filament</p>
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1. The pressure/temperature limits in this bulletin and any applicable standard or code limitation for valves should not be exceeded.
2. For boiler feedwater applications, proper use of a block valve during closing of the control valve is recommended to minimize control valve trim damage.

High Temperature Seal (HTS1)

The High Temperature Seal (HTS1) is available for the CHPT only and is required for applications where the service temperature exceeds 232°C (450°F). This seal is available for all sizes and trims of the CHPT and allows the valve to be used in temperatures up to 316°C (600°F) for non-oxidizing service and up to 260°C (500°F) for oxidizing service.

See table 2 for temperature limits and figure 2. The High Temperature Seal is used in place of the standard plug seal ring. This seal employs a similar seal ring as the standard CHPT, but with the addition of an anti-extrusion ring.

Bore Seal

The Bore Seal is available for the CHPD only and is required for Class V shutoff applications where the service temperature exceeds 316°C (600°F). For service temperatures below 316°C (600°F) the CHPT should be used when Class V shutoff is required. See table 2 for temperature limits.

The Bore Seal employs a metal C-shaped seal ring that is secured to the outside diameter of the valve plug. When the valve plug comes into contact with the seat ring, to close the valve, the Bore Seal is compressed against the cage wall thereby blocking a secondary leakage path that exists between the plug and cage wall.

When the valve plug is not in contact with the seat ring (i.e. valve open) the Bore Seal is not engaged and the piston rings that are also secured to the outside diameter of the plug assume the role of blocking this secondary leakage path.

Figure 1. Dimensions, mm (Inches)

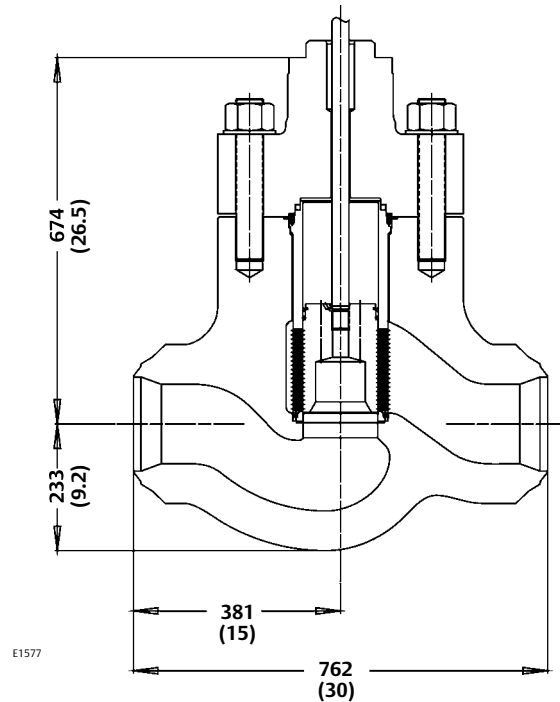
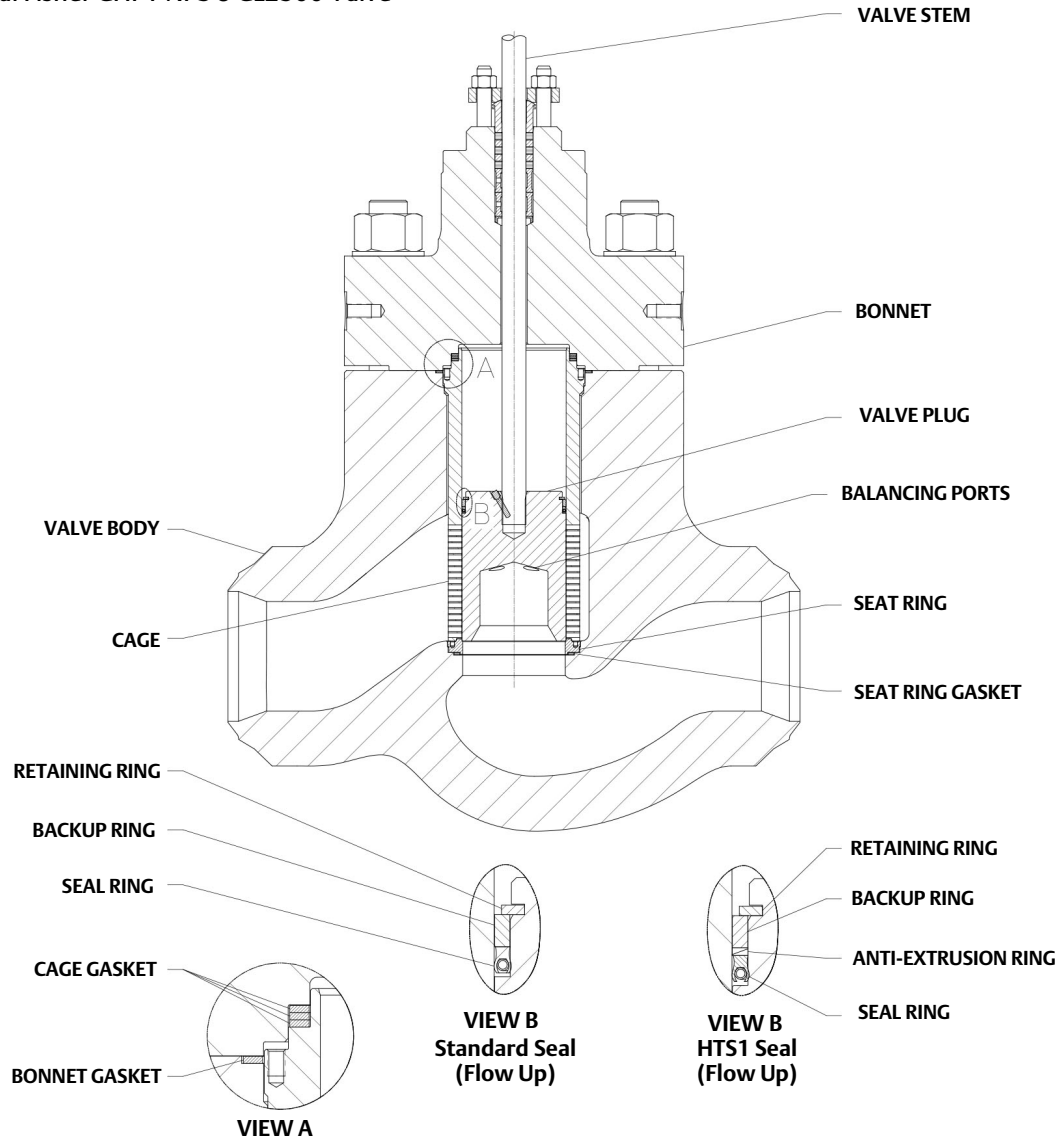


Figure 2. Typical Fisher CHPT NPS 8 CL2500 Valve



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Table 1. Trim Descriptions

VALVE	TRIM (CAGE)	VALVE PLUG	SEAT RING	CAGE	TEMPERATURE LIMIT
CHPT and CHPD	Standard	416 SST	416 SST	17-4 SST PH H1075	See figure 3
	Cavitrol III 2-Stage	420 SST	420 SST	17-4 SST PH H1075	
CHPD with Bore Seal	Standard	416 SST	416 SST	17-4 SST PH H1075 with CoCr-A	
	Cavitrol III 2-Stage	420 SST	420 SST	17-4 SST PH H1075 with CoCr-A	

Table 2. Construction Materials

PART	MATERIAL	TEMPERATURE		
		C	F	
Valve Body and Bonnet	WCC	-29° to 380°	-20° to 716°	
	WC9			
Valve Plug, Seat Ring, and Cage	See table 1	See figure 3		
Valve Stem	S20910	Not a limiting factor		
Valve Body to Bonnet Bolting	SA-193-B7 NCF2 studs, SA-194-2H NCF2 nuts			
Bonnet, Cage and Seat Ring Gaskets	N06600/Graphite			
CHPD	Piston Ring			Graphite 17F39
CHPD with Bore Seal	Piston Ring	Graphite 17F39		
	Bore Seal	N07718		
CHPT	Seal Ring	PTFE with N10276 spring	-46° to 232°	-50° to 450°
	Backup Ring	S41600	Not a limiting factor	
	Retaining Ring	18-8 SST		
CHPT with HTS1 Seal	Seal Ring	PTFE/graphite with R30003 spring	-46° to 232° ⁽¹⁾	-50° to 450° ⁽¹⁾
	Anti-Extrusion Ring	PEEK (Poly Ether Ether Ketone)	-73° to 316°	-100° to 600°
	Backup Ring	S41600	Not a limiting factor	
	Retaining Ring	18-8 SST		
Packing	See Bulletin 59.1:065, Packing Selection Guidelines for Fisher Sliding-Stem Valves (D101986X012)			

1. When used with a PEEK anti-extrusion ring, the PTFE/graphite with R30003 spring seal ring may be used up to 316°C (600°F) for non-oxidizing service or up to 260°C (500°F) for oxidizing service.

Figure 3. Pressure/Temperature Limit

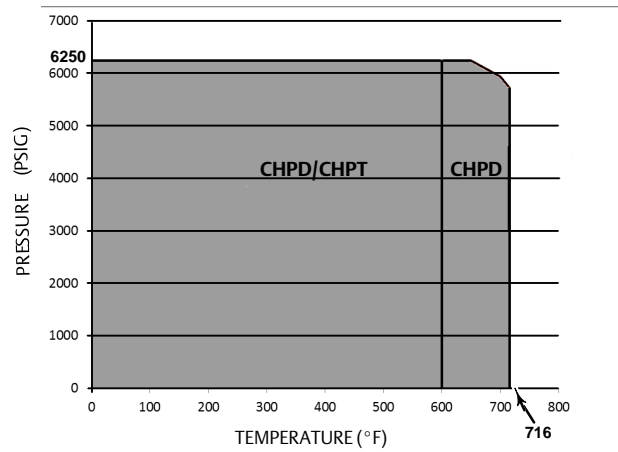
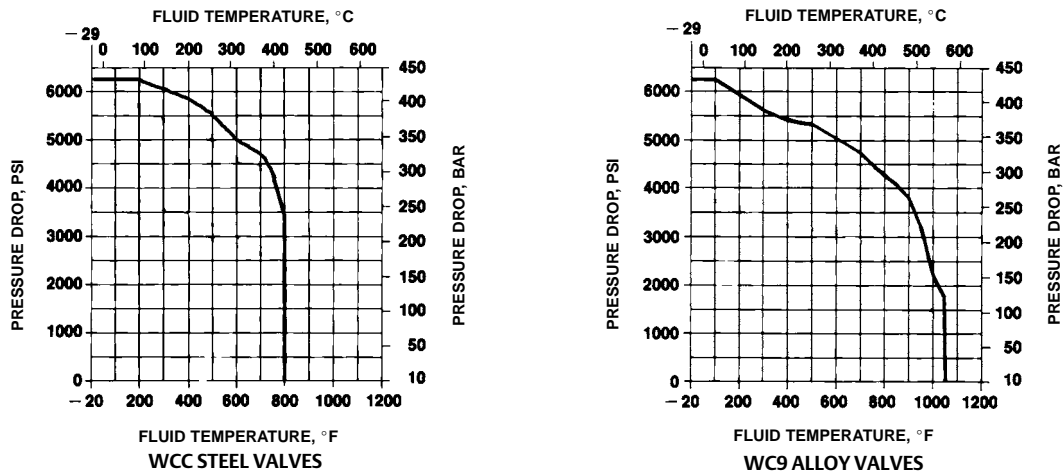


Figure 4. Pressure/Temperature Limits for Standard Cages



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Note:

1. Do not exceed the maximum pressure and temperature for the pressure rating of the valve material and valve size used. Refer to table 2 and figure 3 for pressure/temperature limits of the trim used.

Table 3. Flow Characteristic and Valve Plug Travel

TRIM (CAGE)	CHARACTERISTIC	MAXIMUM VALVE PLUG TRAVEL	
		mm	Inches
Standard	Equal Percentage	102	4
	Linear	152	6
	Modified Equal Percentage	152	6
Cavitrol III 2-Stage	Linear	152	6

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CHP Valve
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