

Fisher™ Large ED/EWD and ET/EWT Valves NPS 12 through 30

Fisher NPS 12 through 30 CL150 through CL600 ED/EWD and ET/EWT series control valves are used for either throttling or on-off control of a wide variety of liquids and gasses.

ED/EWD series valves utilize a hanging cage and a seat ring that is bolted into the valve body. These valves have two graphite piston rings between the cage and plug, which provide up to a Class IV standard shutoff. They are used for high temperature applications between 316°C (600°F) and 593°C (1100°F). Shutoff can be improved to Class V by using the Bore seal.

ET/EWT series valves utilize a hanging cage and a seat ring that is threaded into the cage. These valves have two spring loaded seal rings, one between the cage and plug and another between the seat ring and valve body, which provide up to a Class V standard shutoff. They are used for low to medium temperature applications between -46°C (-50°F) and 232°C (450°F). This temperature range can be extended to 316°C (600°F) for non-oxidizing service and to 260°C (500°F) for oxidizing service by using the High Temperature (HTS1) seal.

The temperature range of the ET/EWT series can be extended to cryogenic temperatures as low as -198°C (-325°F) with the ET-C and EWT-C specialized versions of these valves. The specialized valves feature unique trim, seals, and a longer extension bonnet to tolerate the extreme cold.

A range of severe service trims are available for noise abatement or cavitation control. Noise abatement trims help with aerodynamic noise attenuation in gas services and feature a Whisper Trim™ III or WhisperFlo™ cage. Cavitation control trims help prevent the damaging effects of liquid cavitation and include either a Cavitrol™ III cage (for services without entrained particulate) or Dirty Service Trim (DST) set (for services with entrained particulate).



W9156-1

Fisher NPS 24x20 Valve Assembly with Piston Actuator

Features

- **Stable Control at High Pressure Drops**— Rugged cage guiding stabilizes the valve plug at all points in its travel range. This guiding reduces vibration, mechanical noise, and the need for hydraulic snubbers.
- **Economy**— Streamlined flow passages provide greater capacities per initial investment than most globe valves of the same size. Balanced valve plug design can allow use of smaller actuators in high pressure drop applications.
- **Cost-Effective Operation**— Increased wear resistance of the standard hardened stainless steel trim means long-lasting service.
- **Easy Maintenance**— The valve can stay in the pipeline during removal of trim parts for inspection or maintenance.

Specifications

Valve Sizes

ED, ET, and ET-C: ■ NPS 12, ■ 14, ■ 16, ■ 18, ■ 20, and ■ 30

EWD, EWT, and EWT-C⁽²⁾: ■ NPS 16x12, ■ 20x16, ■ 24x16, and ■ 24x20

End Connection Styles

Flanged: CL150, 300, and 600 raised-face or ring-type joint flanges per ASME B16.5.

NPS 30 valve size has series A or B flanges, per ASME B16.47

Buttwelding: All ASME B16.25 schedules through schedule 120 that are compatible with the ASME B16.34 valve body rating

For other end connections, contact your [Emerson Process Management sales office](#) for details.



Maximum Inlet Pressure⁽¹⁾

Flanged: Consistent with CL150, 300, and 600 pressure-temperature ratings per ASME B16.34

Buttwelding: Consistent with CL600 pressure-temperature ratings per ASME B16.34

Material Temperature and Pressure Drop Capabilities⁽¹⁾

See tables 4, 6, 7, and 8

Shutoff Classifications per ANSI/FCI 70-2 and IEC 60534-4

ET, ET-C, EWT, and EWT-C:

Standard: Class V

Optional (for all cages except Cavitrol III): Class IV

ED and EWD:

Standard: Class IV

Optional: Class V

Construction Materials

Valve Body and Bonnet: ■ WCC steel, ■ LCC steel, ■ WC9 alloy steel, ■ C12A alloy steel, ■ CF8M stainless steel, ■ CD3MN duplex stainless steel, or ■ CD3MWCuN super-duplex stainless steel

Trim and Other Parts: See tables 4, 6, 7, and 8

Flow Characteristics

Standard Cages: ■ Linear or ■ Equal percentage

Whisper Trim III and WhisperFlo Cages: Linear

Cavitrol III Cages: Linear

For other characteristics, contact your Emerson Process Management sales office for details.

Flow Direction

Standard Cages: Down

Whisper Trim III and WhisperFlo Cages: Up

Cavitrol III Cages: Down

Flow Coefficients

See Fisher Catalog 12

Port Diameters

See tables 1, 2, and 3

Valve Plug Travel

102 through 505 mm (4 to 19-7/8 inches).

See tables 1, 2, and 3

Yoke Boss and Valve Stem Diameters

■ 127 mm (5H-inch) diameter yoke boss, with 31.8 mm (1.25 inch) diameter valve stem for all valves except NPS 30

■ 179 mm (7-inch) diameter yoke boss, with 50.8 mm (2 inch) diameter valve stem for NPS 30 valve

Bonnet Style

ED, EWD, ET, and EWT: Style 1 extension

ET-C and EWT-C: Style 3 extension

Approximate Weights

See table 10

Dimensions

See figure 6, table 9

1. The pressure/temperature limits in this bulletin and any applicable standard or code limitation for valve should not be exceeded.
2. Size designations are "End Connection Size" x "Nominal Trim Size"

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Figure 1. Typical Fisher ED/EWD Valve

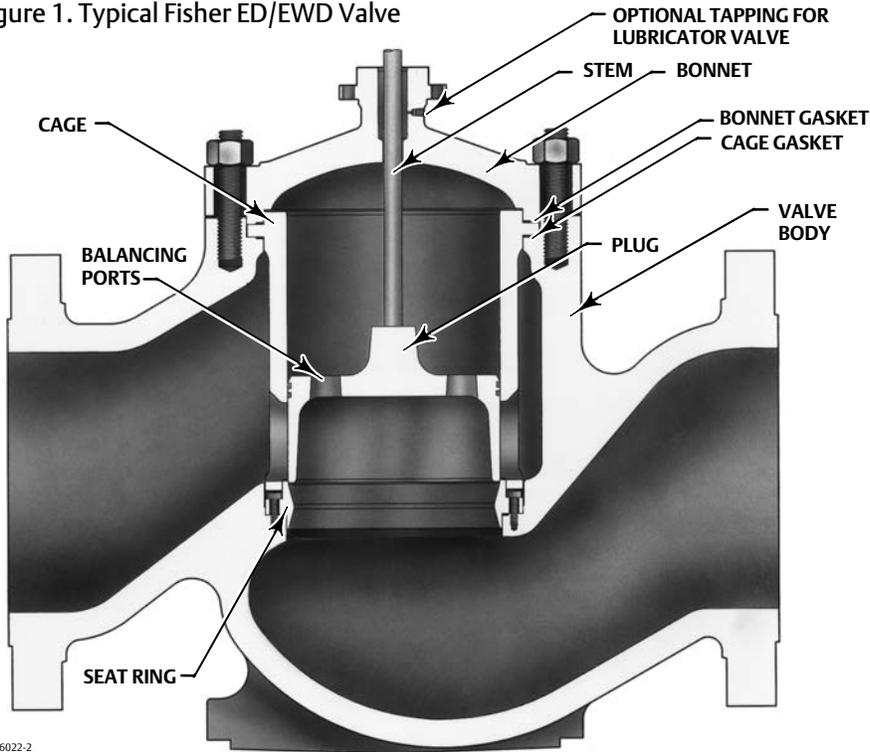


Figure 2. Typical Fisher ED/EWD Valve with Bore Seal

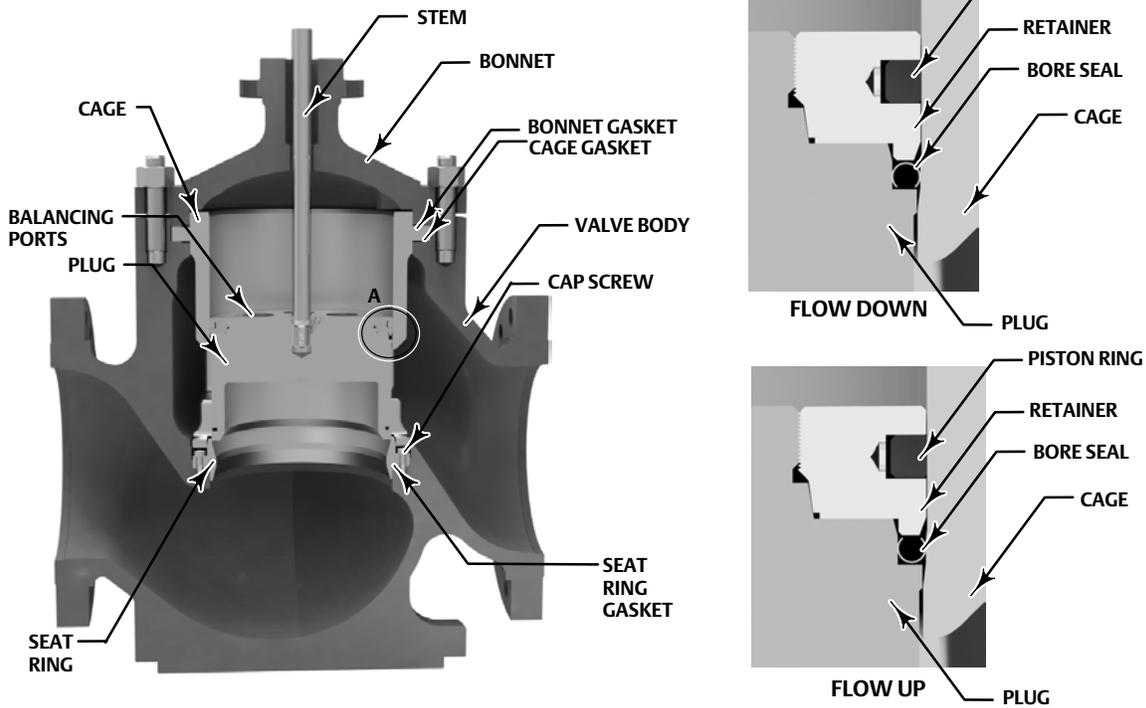
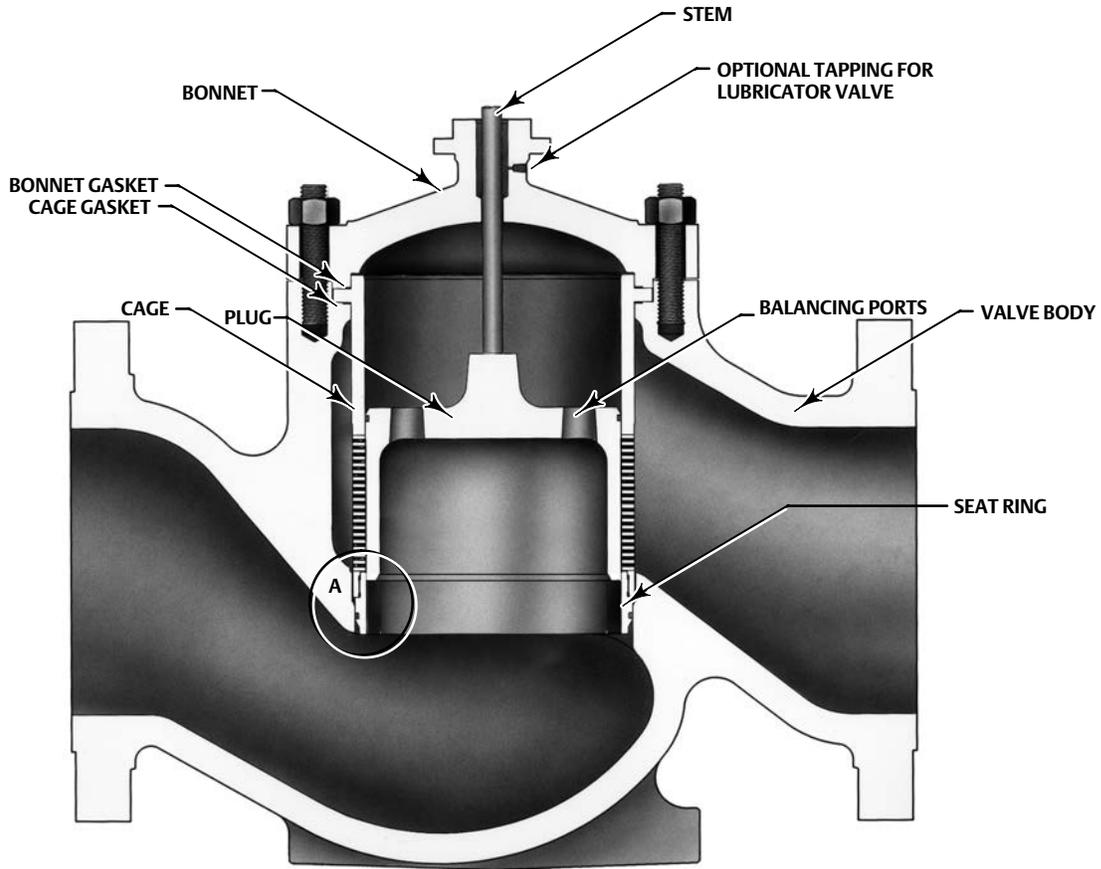
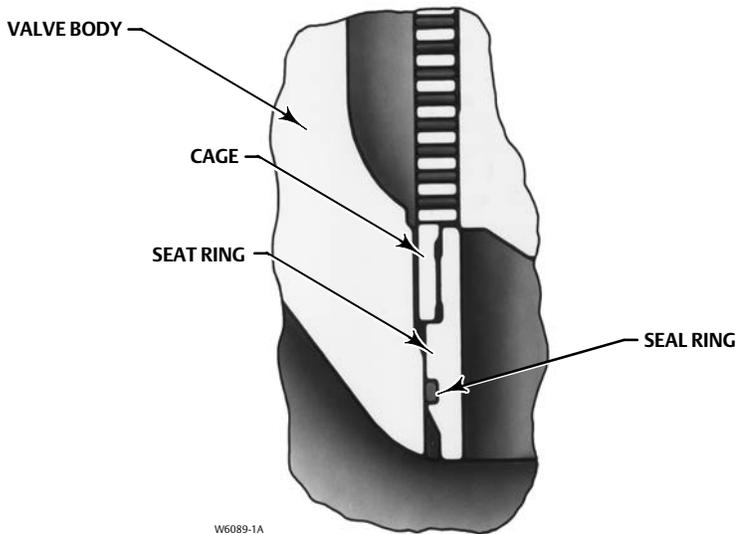


Figure 3. Typical Fisher ET/EWT Valve



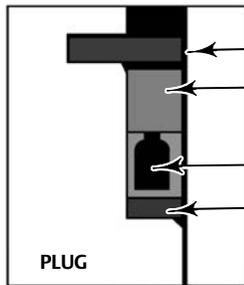
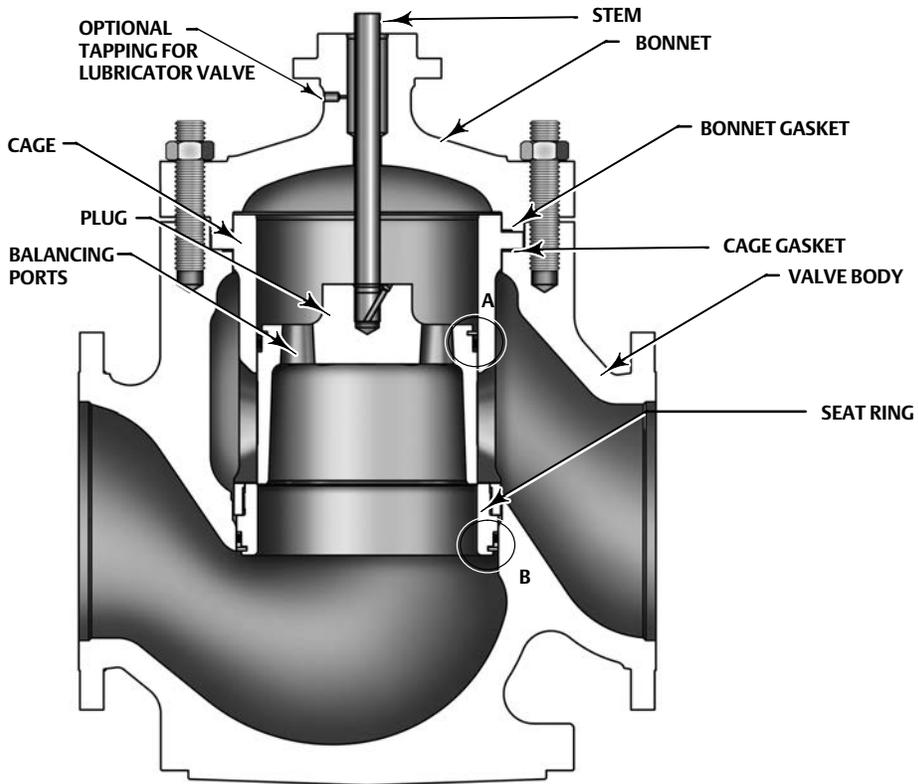
W6088-2



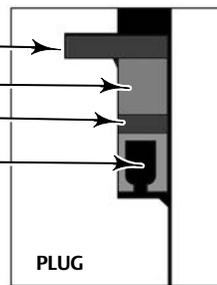
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SEAT RING THREADED TO CAGE
VIEW A

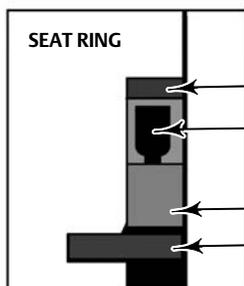
Figure 4. Typical Fisher ET/EWT Valve with HTS1 Seal



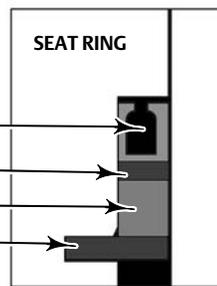
VIEW A - FLOW UP



VIEW A - FLOW DOWN



VIEW B - FLOW UP



VIEW B - FLOW DOWN

Figure 5. Typical Fisher ET-C/EWT-C Valve

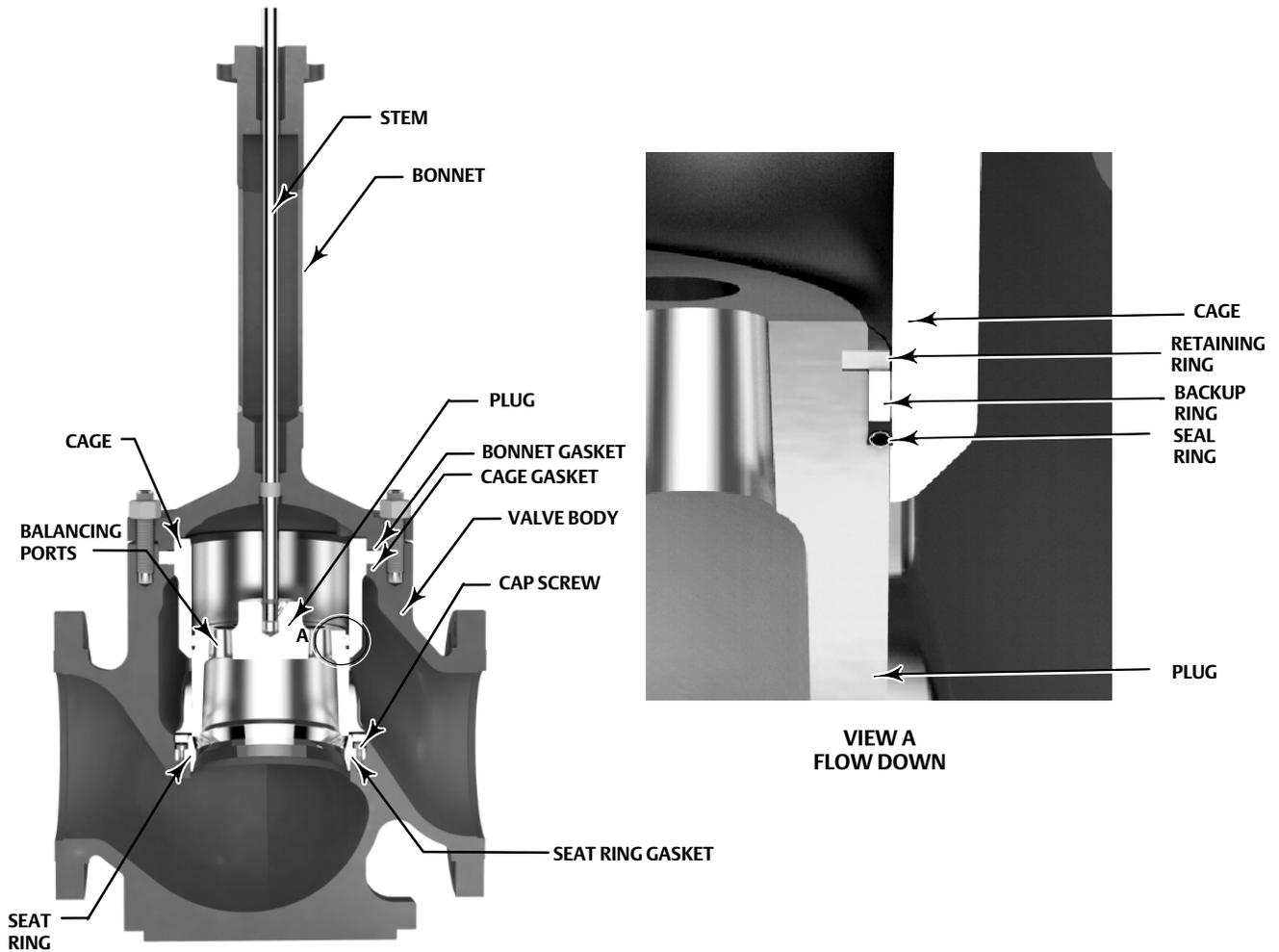


Table 1. Port Diameters and Valve Plug Travels for ED/EWD Valves

VALVE SIZE, NPS	TRIM (CAGE)	PORT DIAMETER		VALVE STYLE	MAXIMUM VALVE PLUG TRAVEL	
		mm	Inches		mm	Inches
12, 14, and 16x12	Standard	279	11.00	Short Neck	102	4.00
				Short Neck	140	5.50
	Whisper Trim III Levels A, B, and C	279	11.00	Short Neck	140	5.50
				Long Neck	203	8.00
	Whisper Trim III Level D	254	10.00	Long Neck	203	8.00
	WhisperFlo	279	11.00	Short Neck	140	5.50
Long Neck				203	8.00	
16	Standard	375	14.75	Short Neck	102	4.00
				Short Neck	140	5.50
				Long Neck ⁽¹⁾	203 ⁽¹⁾	8.00 ⁽¹⁾
	Whisper Trim III Levels A, B, and C	375	14.75	Long Neck	203	8.00
	Whisper Trim III Level D	375	14.75	Long Neck	203	8.00
WhisperFlo	375	14.75	Long Neck	203	8.00	
18, 20x16, and 24x16	Standard	375	14.75	Short Neck	102	4.00
				Short Neck	140	5.50
				Short Neck ⁽¹⁾	203 ⁽¹⁾	8.00 ⁽¹⁾
	Whisper Trim III Levels A, B, and C	375	14.75	Short Neck	203	8.00
				Long Neck	276	10.88
	Whisper Trim III Level D	375	14.75	Short Neck	203	8.00
				Long Neck	276	10.88
				Long Neck	378	14.88
	WhisperFlo	375	14.75	Short Neck	203	8.00
				Long Neck	276	10.88
Long Neck				378	14.88	
20 and 24x20	Standard	464	18.25	Short Neck	203	8.00
				Short Neck	276	10.88
	Whisper Trim III Levels A, B, and C	464	18.25	Long Neck	378	14.88
				Short Neck	276	10.88
	Whisper Trim III Level D	464	18.25	Long Neck	378	14.88
				Short Neck	276	10.88
WhisperFlo	464	18.25	Long Neck	378	14.88	
			Short Neck	276	10.88	
30	Standard	610	24.00	Short Neck	302	11.88
				Short Neck	302	11.88
	Whisper Trim III Levels A, B, and C	610	24.00	Long Neck	505	19.88
				Short Neck	302	11.88
	Whisper Trim III Level D	610	24.00	Long Neck	505	19.88
				Short Neck	302	11.88
WhisperFlo	610	24.00	Long Neck	505	19.88	
			Short Neck	302	11.88	

1. Available with standard equal percentage trim only.

Table 2. Port Diameters and Valve Plug Travels ET/EWT Valves

VALVE SIZE, NPS	TRIM (CAGE)	PORT DIAMETER		VALVE STYLE	MAXIMUM VALVE PLUG TRAVEL	
		mm	Inches		mm	Inches
12, 14, and 16x12	Standard	279	11.00	Short Neck	102	4.00
				Short Neck	140	5.50
	Whisper Trim III Levels A, B, and C	279	11.00	Short Neck	140	5.50
				Long Neck	203	8.00
	Whisper Trim III Level D	254	10.00	Long Neck	203	8.00
	WhisperFlo	279	11.00	Short Neck	140	5.50
				Long Neck	203	8.00
Cavitrol III	279	11.00	Long Neck	203	8.00	
16	Standard	375	14.75	Short Neck	102	4.00
				Short Neck	140	5.50
				Long Neck ⁽¹⁾	203 ⁽¹⁾	8.00 ⁽¹⁾
	Whisper Trim III Levels A, B, and C	375	14.75	Long Neck	203	8.00
		413	16.25			
	Whisper Trim III Level D	375	14.75	Long Neck	203	8.00
WhisperFlo	375	14.75	Long Neck	203	8.00	
Cavitrol III	375	14.75	Long Neck	203	8.00	
18, 20x16, and 24x16	Standard	375	14.75	Short Neck	102	4.00
				Short Neck	140	5.50
				Short Neck ⁽¹⁾	203 ⁽¹⁾	8.00 ⁽¹⁾
	Whisper Trim III Levels A, B, and C	413	16.25	Short Neck	203	8.00
				Long Neck	276	10.88
				Long Neck	378	14.88
	Whisper Trim III Level D	375	14.75	Short Neck	203	8.00
				Long Neck	276	10.88
				Long Neck	378	14.88
	WhisperFlo	375	14.75	Short Neck	203	8.00
				Long Neck	276	10.88
				Long Neck	378	14.88
Cavitrol III	375	14.75	Long Neck	276	10.88	
			Long Neck	378	14.88	
20 and 24x20	Standard	464	18.25	Short Neck	203	8.00
	Whisper Trim III Levels A, B, and C	502	19.75	Short Neck	276	10.88
				Long Neck	378	14.88
					429	16.88 ⁽²⁾
	Whisper Trim III Level D	464	18.25	Short Neck	276	10.88
				Long Neck	378	14.88
	WhisperFlo	464	18.25	Short Neck	276	10.88
				Long Neck	378	14.88
	Cavitrol III	464	18.25	Short Neck	276	10.88
Long Neck				378	14.88	
30	Standard	610	24.00	Short Neck	302	11.88
	Whisper Trim III Levels A, B, and C	660	26.00	Short Neck	302	11.88
				Long Neck	505	19.88
	Whisper Trim III Level D	610	24.00	Short Neck	302	11.88
				Long Neck	505	19.88
	WhisperFlo	610	24.00	Short Neck	302	11.88
				Long Neck	505	19.88

1. Available with standard equal percentage trim only.
 2. For NPS 20 only, the maximum travel for the Long Neck is 429 mm (14.88 inches)

Table 3. Port Diameters and Valve Plug Travels ET-C/EWT-C Valves

VALVE SIZE, NPS	TRIM (CAGE)	PORT DIAMETER		VALVE STYLE	MAXIMUM VALVE PLUG TRAVEL		
		mm	Inches		mm	Inches	
12, 14, and 16x12	Standard	279	11.00	Short Neck	102	4.00	
				Short Neck	140	5.50	
	Whisper Trim III Levels A, B, and C	279	11.00	Short Neck	140	5.50	
				Long Neck	203	8.00	
	Whisper Trim III Level D	254	10.00	Long Neck	203	8.00	
	WhisperFlo	279	11.00	Short Neck	140	5.50	
				Long Neck	203	8.00	
	Cavitrol III	279	11.00	Long Neck	203	8.00	
	16	Standard	375	14.75	Short Neck	102	4.00
					Short Neck	140	5.50
Long Neck ⁽¹⁾					203 ⁽¹⁾	8.00 ⁽¹⁾	
Whisper Trim III Levels A, B, and C		375	14.75	Long Neck	203	8.00	
Whisper Trim III Level D		375	14.75	Long Neck	203	8.00	
WhisperFlo		375	14.75	Long Neck	203	8.00	
Cavitrol III	375	14.75	Long Neck	203	8.00		
18, 20x16, and 24x16	Standard	375	14.75	Short Neck	102	4.00	
				Short Neck	140	5.50	
				Short Neck ⁽¹⁾	203 ⁽¹⁾	8.00 ⁽¹⁾	
	Whisper Trim III Levels A, B, and C	375	14.75	Short Neck	203	8.00	
				Long Neck	276	10.88	
				Long Neck	378	14.88	
	Whisper Trim III Level D	375	14.75	Short Neck	203	8.00	
				Long Neck	276	10.88	
				Long Neck	378	14.88	
	WhisperFlo	375	14.75	Short Neck	203	8.00	
				Long Neck	276	10.88	
				Long Neck	378	14.88	
	Cavitrol III	375	14.75	Long Neck	276	10.88	
				Long Neck	378	14.88	
20 and 24x20	Standard	464	18.25	Short Neck	203	8.00	
	Whisper Trim III Levels A, B, and C	464	18.25	Short Neck	276	10.88	
				Long Neck	378	14.88	
	Whisper Trim III Level D	464	18.25	Short Neck	276	10.88	
				Long Neck	378	14.88	
	WhisperFlo	464	18.25	Short Neck	276	10.88	
				Long Neck	378	14.88	
	Cavitrol III	464	18.25	Short Neck	276	10.88	
				Long Neck	378	14.88	
	30	Standard	610	24.00	Short Neck	302	11.88
Whisper Trim III Levels A, B, and C		610	24.00	Short Neck	302	11.88	
				Long Neck	505	19.88	
Whisper Trim III Level D		610	24.00	Short Neck	302	11.88	
				Long Neck	505	19.88	
WhisperFlo		610	24.00	Short Neck	302	11.88	
				Long Neck	505	19.88	

1. Available with standard equal percentage trim only.

High Temperature Seal (HTS1)

The High Temperature Seal (HTS1) is available for the ET and EWT 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 ET and EWT 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 tables 4 and 6 for temperature limits and figure 4.

The High Temperature Seal is used in place of the standard plug seal ring and seat ring seal ring. This seal employs a similar seal ring as the standard ET and EWT, but with the addition of an anti-extrusion ring, backup ring, and retaining ring.

Cryogenic Service ET-C and EWT-C

The ET-C and EWT-C are designed to provide throttling or on-off control of liquids and gases at cryogenic temperatures as low as -198°C (-325°F). These valves are identical to the standard ET and EWT, but with a few differences, which allow the valve to tolerate the very low temperatures. See tables 4 and 7 for temperature limits and figure 5. These differences include:

- Style 3 Extension Bonnet
- Bolted-In Seat Ring
- Cryogenic Plug Seal

The style 3 extension bonnet is different from the style 1 in that it is designed to locate the temperature sensitive packing parts further away from the valve body, preventing them from being exposed to temperature extremes. The bolted-in seat ring is similar to that used with the ED or EWD valve and accommodates the unavoidable material shrinkage that occurs at cryogenic temperatures, which would otherwise loosen the ET or EWT's standard threaded-in seat ring. The cryogenic plug seal is used in place of the standard ET or EWT plug seal ring. The maximum valve shutoff that can be attained at these cryogenic temperatures with the cryogenic seal is Class V.

Bore Seal

The Bore Seal is available for the ED and EWD 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 ET or EWT should be used when Class V shutoff is required. See tables 4, 7, and 8 for temperature limits and figure 2.

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.

Table 4. Construction Materials (WCC, WC9, CF8M, LCC, and C12A Valves)

PART		MATERIAL	TEMPERATURE		
			°C	°F	
Valve Body and Bonnet		WCC Steel LCC Steel WC9 Alloy Steel CF8M Stainless Steel C12A Alloy Steel	-29 to 427 -46 to 343 -29 to 593 -198 to 593 -29 to 593	-20 to 800 ⁽³⁾ -50 to 650 -20 to 1100 ⁽²⁾ -325 to 1100 ⁽¹⁾ -20 to 1100	
Cage, Seat Ring, and Valve Plug		See tables 7 and 8	See tables 7 and 8		
Valve Stem		S20910	Not a Limiting Factor		
Cage Baffle (Whisper III Level D3 Cages Only)	Trim 40, 50	Steel	Not a Limiting Factor		
	Trim 41	2.25 Cr - 1 Mo Nitrided			
	Trim 42	9 Cr - 1 Mo - V			
	Trim 43, 44, 46, 48	316 SST			
	Trim 47	17-4 SST DBL H1150			
	Trim 49	2205 Duplex (22 Cr - 5 Ni)			
	Trim 50	2507 Super-Duplex (25 Cr - 7 Ni)			
Bonnet, Seat Ring, and Cage Gaskets		N06600/Graphite	Oxidizing -198 to 427	-325 to 800	
			Non-Oxidizing Not a Limiting Factor		
Valve Body-to-Bonnet Bolting	WCC Valve	SA-193-B7 Studs, SA-194-2H Nuts SA-193-B7M Studs ⁽⁴⁾ , SA-194-2HM Nuts ⁽⁴⁾	Not a Limiting Factor		
	LCC Valve	SA-193-B7 Studs, SA-194-2H Nuts SA-193-B7M Studs ⁽⁴⁾ , SA-194-2HM Nuts ⁽⁴⁾	-29 to 316	-20 to 600	
	WC9 Valve	SA-193-B7 Studs, SA-194-2H Nuts SA-193-B16 Studs, SA-194-7 Nuts	-29 to 427	-20 to 800	
		N07718 HT Studs, N07718 HT Chrome Coat Nuts	Not a Limiting Factor		
	C12A Valve	N07718 HT Studs, N07718 HT Chrome Coat Nuts	Not a Limiting Factor		
	CF8M Valve	See table 5			
ED and EWD Valves	Piston Ring	Graphite (Fisher Designation FMS17F39)	Oxidizing	-46 to 538	-50 to 1000
			Non-Oxidizing Not a Limiting Factor		
	Bore Seal	N07718	Not a Limiting Factor		
Seat Ring Cap Screws	N07718	Not a Limiting Factor			
ET and EWT Valves	Seal Ring	Glass and Moly-Filled PTFE with N10276 spring PTFE/graphite with R30003 spring	-46 to 232 -46 to 316	-50 to 450 -50 to 600	
	Anti-extrusion Ring	PEEK (poly ether ether ketone)	Not a Limiting Factor		
	Backup Ring	S41000	Not a Limiting Factor		
		S31600			
Retaining Ring	18-8 Stainless Steel N07750	Not a Limiting Factor			
ET-C and EWT-C Valves	Seal Ring	UHMWPE (ultra high molecular weight polyethylene)	-198 to 66	-325 to 150	
	Backup Ring	S31600	Not a Limiting Factor		
	Retaining Ring	18-8 Stainless Steel N07750	Not a Limiting Factor		
	Seat Ring Cap Screws	N07718	Not a Limiting Factor		
Packing		See bulletin 59.1:062, Packing Selection Guidelines for Fisher Sliding-Stem Valves (D101986X012)			
Packing Flange		S31600	Not a Limiting Factor		
Packing Flange Bolting		SA-193-B8M Studs, SA-194-8M Nuts	Not a Limiting Factor		
Packing Follower, Spring, and Lantern Ring		S31600	Not a Limiting Factor		
Packing Box Ring		S31600	Not a Limiting Factor		

1. Flanged valve bodies are limited to 593°C (1000°F).
2. Flanged valve bodies are limited to 482°C (900°F).
3. Flanged valve bodies are limited to 354°C (700°F).
4. Exposed bolting compliant to NACE MR0175-2002, MR0175-2003, MR0175/ISO 15156, and MR0103.
5. Exposed bolting compliant to NACE MR0103.
6. CL600 NPS 30 valve bodies are not available with this bolting.

Table 5. Construction Materials (CF8M)

Valve Body and Bonnet Material	Valve Size, NPS	Valve Pressure Class	Valve Body-to-Bonnet Bolting Material	Temperature	
				°C	°F
CF8M	12, 14, 16x12	All	SA-193-B8M Class 2 Studs, SA-194-8M Nuts	-198 to 427	-325 to 800
			SA-479 S20910 Chrome Coat Studs ⁽¹⁾ , SA-479 S20910 Nuts ⁽¹⁾	Not a limiting factor	
	16, 18, 20x16, 24x16	CL150 and CL300	SA-193-B8M Class 2 Studs, SA-194-8M Nuts	-198 to 121	-325 to 250
			SA-453 Gr 660A Studs, SA-453 Gr 660A Nuts	-29 to 538	-20 to 1000
			SA-479 S20910 Chrome Coat Studs ⁽¹⁾ , SA-479 S20910 Nuts ⁽¹⁾	Not a limiting factor	
			SA-453 Gr 660A Studs, SA-453 Gr 660A Nuts	-29 to 538	-20 to 1000
	20, 24x20	All	SA-479 S20910 Chrome Coat Studs ⁽¹⁾ , SA-479 S20910 Nuts ⁽¹⁾	Not a limiting factor	
			SA-453 Gr 660A Studs, SA-453 Gr 660A Nuts	-29 to 538	-20 to 1000
	30	CL150 and CL300	SA-193-B8M Class 2 Studs, SA-194-8M Nuts	-198 to 427	-325 to 800
			SA-479 S20910 Chrome Coat Studs ⁽¹⁾ , SA-479 S20910 Nuts ⁽¹⁾	Not a limiting factor	
		CL600	SA-479 S20910 Chrome Coat Studs ⁽¹⁾ , SA-479 S20910 Nuts ⁽¹⁾	Not a limiting factor	
			SA-479 S20910 Chrome Coat Studs ⁽¹⁾ , SA-479 S20910 Nuts ⁽¹⁾	Not a limiting factor	

1. Exposed bolting compliant to NACE MR0103.

Table 6. Construction Materials (CD3MN and CD3MWCuN Valves)

PART	MATERIAL	TEMPERATURE	
		°C	°F
Valve Body and Bonnet	CD3MN Duplex Stainless Steel CD3MWCuN Super-Duplex Stainless Steel	-46 to 316 -46 to 316	-50 to 600 -50 to 600
Cage, Seat Ring, and Valve Plug	See table 7	See table 7	
Valve Stem	S32760	Not a Limiting Factor	
Bonnet, Seat Ring, and Cage Gaskets	N06600/Graphite	Oxidizing	Not a Limiting Factor
		Non-Oxidizing	
Valve Body-to-Bonnet Bolting	SA-193-B7 Studs, SA-194-2H Nuts	Not a Limiting Factor	
	S32760 Studs, S32760 Nuts ⁽¹⁾	Not a Limiting Factor	
	SA-193-B7/Zinc HDG Studs SA-194-2H/Zinc HDG Nuts	-46 to 199	-50 to 390
Seal Ring	Glass and Moly-Filled PTFE with N10276 spring PTFE/graphite with R30003 spring	-46 to 232 -46 to 316	-50 to 450 -50 to 600
Anti-extrusion Ring	PEEK (poly ether ether ketone)	Not a Limiting Factor	
Backup Ring	S41000 S31600	Not a Limiting Factor	
Retaining Ring	18-8 Stainless Steel	Not a Limiting Factor	
Packing	See bulletin 59.1:062, Packing Selection Guidelines for Fisher Sliding-Stem Valves (D101986X012)		
Packing Flange	S31600	Not a Limiting Factor	
Packing Flange Bolting	SA-193-B8M Studs, SA-194-8M Nuts	Not a Limiting Factor	
Packing Follower, Lantern Ring, and Box Ring	CD3MN Valve	S31803	Not a Limiting Factor
	CD3MWCuN Valve	S32760	Not a Limiting Factor

1. Exposed bolting compliant to NACE MR0175-2002.

Table 7. Standard, Whisper Trim III, and Cavitrol III⁽⁶⁾ Trim Descriptions

VALVE	TRIM DESIGNATION	BODY MATERIAL	VALVE PLUG	SEAT RING	CAGE	TEMPERATURE LIMIT	
						°C	°F
ED/EWD	40	WCC ⁽⁴⁾ /WC9	CA6NM HT	17-4 SST H1075	17-4 SST H1075	-29 to 427	-20 to 800
	41	WCC ⁽⁴⁾	WC9 Steel with CoCr-A	2.25 Cr - 1 Mo with CoCr-A	2.25 Cr - 1 Mo Nitrided	-29 to 427	-20 to 800
		WC9 ⁽⁵⁾				-29 to 566	-20 to 1050
	42	C12A	F91 with CoCr-A	9 Cr - 1 Mo - V with CoCr-A	9 Cr - 1 Mo - V Nitrided	-29 to 593	-20 to 1100
	43 ⁽¹⁾	WCC/WC9	CF8M with CoCr-A	316 SST with CoCr-A	316 SST Chrome Plate	-29 to 316	-20 to 600
CF8M		-73 to 316				-100 to 600	
44 ⁽¹⁾	CF8M	CF8M with CoCr-A	316 SST with CoCr-A	316 SST Chrome Coated	-73 to 538	-100 to 1000	
ED/EWD With Bore Seal	40	WCC/WC9	CA6NM HT	17-4 SST H1075	17-4 SST H1075	-29 to 371	-20 to 700
	41	WCC ⁽⁴⁾	WC9 Steel with CoCr-A	2.25 Cr - 1 Mo with CoCr-A	2.25 Cr - 1 Mo Nitrided	-29 to 427	-20 to 800
		WC9 ⁽⁵⁾				-29 to 566	-20 to 1050
42	C12A	F91 with CoCr-A	9 Cr - 1 Mo - V with CoCr-A	9 Cr - 1 Mo - V Nitrided	-29 to 593	-20 to 1100	
ET/EWT	45	WCC/WC9	CA6NM HT	17-4 SST H1075	17-4 SST H1075	-29 to 316	-20 to 600
		LCC/CF8M				-46 to 316	-50 to 600
	46 ^(1,7)	WCC/WC9	CF8M with CoCr-A	316 SST with CoCr-A	316 SST Chrome Plate	-29 to 316	-20 to 600
		LCC				-46 to 316	-50 to 600
		CF8M				-73 to 316	-100 to 600
	47 ⁽²⁾	WCC/WC9	CF8M with CoCr-A	316 SST with CoCr-A	17-4 SST DBL H1150	-29 to 93	-20 to 200
		LCC				-46 to 93	-50 to 200
	49 ⁽³⁾	CD3MN	2205 Duplex ⁽⁸⁾ with R31233	2205 Duplex ⁽⁸⁾ with CoCr-A	2205 Duplex ⁽⁸⁾ Chrome Plate	-51 to 316	-60 to 600
50 ⁽³⁾	CD3MWCuN	2507 Super-Duplex ⁽⁹⁾ with R31233	2507 Super-Duplex ⁽⁹⁾ with CoCr-A	2507 Super-Duplex ⁽⁹⁾ Chrome Plate	-51 to 316	-60 to 600	
ET-C/EWT-C	48 ⁽¹⁾	CF8M	CF8M with CoCr-A	316 SST	316 SST Chrome Coated	-198 to 66	-325 to 150

1. NACE MR0175-2002, MR0175-2003, MR0175/ISO 15156, and MR0103 approved trim combination. Environmental restrictions apply to MR0175/ISO15156.
2. NACE MR0175-2002 approved trim combination.
3. NACE MR0175-2003 and MR0175/ISO15156 approved trim combination. Environmental restrictions apply to MR0175/ISO15156.
4. Flanged valve bodies are limited to 354°C (700°F)
5. Flanged valve bodies are limited to 482°C (900°F)
6. Cavitrol III trim is only available with trim 45.
7. When used with the high temperature seal (HTS1), NACE MR0175/ISO 15156 compliance is not available.
8. 22 Cr - 5 Ni duplex stainless steel.
9. 25 Cr - 7 Ni super-duplex stainless steel.

Table 8. WhisperFlo Trim Descriptions

VALVE	TRIM DESIGNATION	BODY MATERIAL	VALVE PLUG	SEAT RING	CAGE	CAGE RETAINER	TEMPERATURE LIMIT	
							°C	°F
ED/EWD	954	WCC ⁽²⁾	CA6NM HT	2.25 Cr - 1 Mo with CoCr-A	S41000/ ENC/ R31233	2.25 Cr - 1 Mo Nitrided	-29 to 427	-20 to 800
		WC9					-29 to 482	-20 to 900
	951(1)	WCC ⁽²⁾	CF8M with CoCr-A	316 SST with CoCr-A	S31603/ ENC/ R31233	316 SST Chrome Coated	-29 to 427	-20 to 800
		WC9 ⁽³⁾					-29 to 566	-20 to 1050
		CF8M ⁽⁴⁾					-29 to 593	-20 to 1100
	956	C12A	CA6NM HT	9 Cr - 1 Mo - V with CoCr-A	S41000/ ENC/ R31233	9 Cr - 1 Mo - V	-29 to 593	-20 to 1100
ED/EWD With Bore Seal	954	WCC ⁽²⁾	CA6NM HT	2.25 Cr - 1 Mo with CoCr-A	S41000/ ENC/ R31233	2.25 Cr - 1 Mo Nitrided	-29 to 427	-20 to 800
		WC9					-29 to 482	-20 to 900
	956	C12A	CA6NM HT	9 Cr - 1 Mo - V with CoCr-A	S41000/ ENC/ R31233	9 Cr - 1 Mo - V	-29 to 593	-20 to 1100
ET/EWT	955	WCC/WC9	CA6NM HT	17-4 SST H1075	S41000/ ENC/ R31233	17-4 SST H1075	-29 to 316	-20 to 600
	953(1)	WCC/WC9/ CF8M	CF8M with CoCr-A	316 SST with CoCr-A	S31603/ ENC/ R31233	316 SST Chrome Coated	-29 to 316	-20 to 600

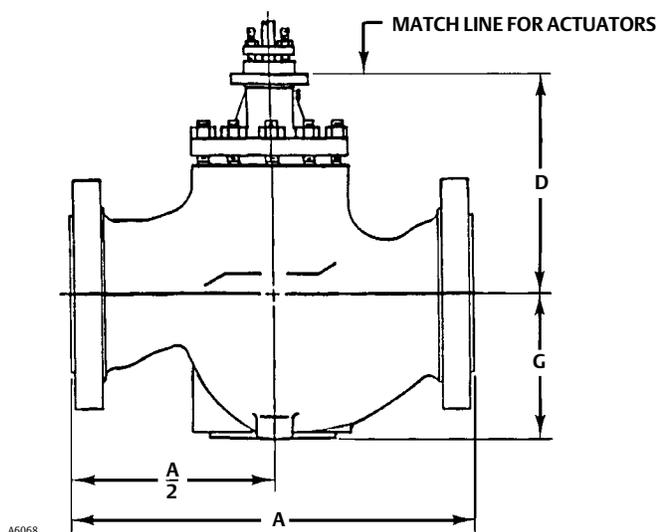
1. NACE MR0175-2002, MR0175-2003, and MR0103 approved trim combination.
 2. Flanged valve bodies are limited to 354°C (700°F)
 3. Flanged valve bodies are limited to 482°C (900°F)
 4. Flanged valve bodies are limited to 593°C (1000°F)

Table 9. Dimensions

VALVE SIZE, NPS	END CONNECTION	A						G				D							
		Pressure Class										ED, EWD, ET, and EWT				ET-C and EWT-C			
		CL150		CL300		CL600		CL150/300		CL600		Short-Neck		Long-Neck		Short-Neck		Long-Neck	
		Type	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
12	RF	737	29.00	775	30.50	819	32.25	338	13.31	338	13.31	592	23.32	745	29.32	1232	48.52	1385	54.52
	RTJ	749	29.50	790	31.12	822	32.38												
	BW	Not Available				819	32.25												
14	RF	889	35.00	927	36.50	972	38.25	379	14.92	379	14.92	561	22.07	713	28.06	1201	47.27	1353	53.26
	RTJ	902	35.50	943	37.12	975	38.038												
	BW	Not Available				972	38.25												
16x12	RF	1016	40.00	1057	41.62	1108	43.62	370	14.56	389	15.31	561	22.07	713	28.06	1201	47.27	1353	53.26
	RTJ	1029	40.50	1073	42.25	1111	43.75												
	BW	Not Available				1108	43.62												
16	RF	1016	40.00	1057	41.62	1108	43.62	429	16.89	437	17.19	663	26.12	816	32.12	1353	53.26	1505	59.26
	RTJ	1029	40.50	1073	42.24	1111	43.75												
	BW	Not Available				1108	43.62												
18	RF	1146	45.12	1184	46.62	1257	49.50	487	19.19	487	19.19	765	30.13	859 ⁽²⁾	33.82 ⁽²⁾	1455	57.27	1548 ⁽²⁾	60.96 ⁽²⁾
	RTJ	1159	45.62	1200	47.24	1260	49.62												
	BW	Not Available				1257	49.50												
20x16	RF	1267	49.88	1308	51.50	1372	54.00	487	19.19	487	19.19	765	30.13	859 ⁽²⁾	33.82 ⁽²⁾	1455	57.27	1548 ⁽²⁾	60.96 ⁽²⁾
	RTJ	1280	50.38	1327	52.25	1378	54.25												
	BW	Not Available				1372	54.00												
24x16	RF	1556	61.24	1600	63.00	1676	66.00	526	20.69	526	20.69	816	32.12	1121	44.12	1505	59.26	1810	71.26
	RTJ	1568	61.74	1623	63.88	1686	66.38												
	BW	Not Available				1676	66.00												
20	RF	1267	49.88	1308	51.50	1372	54.00	514	20.25	514	20.25	917	36.12	1121	44.12	(1)	(1)	(1)	(1)
	RTJ	1280	50.38	1327	52.25	1378	54.25												
	BW	Not Available				1372	54.00												
24x20	RF	1556	61.25	1600	63.00	1676	66.00	514	22.25	565	22.25	917	36.12	1121	44.12	(1)	(1)	(1)	(1)
	RTJ	1565	61.62	1623	63.88	1686	66.38												
	BW	Not Available				1676	66.00												
30	RF	2134	84.00	2134	84.00	(1)	(1)	699	27.50	(1)	(1)	1134	44.64	1401	55.14	(1)	(1)	(1)	(1)
	RTJ	(1)	(1)	2159	85.00	(1)	(1)												
	BW	Not Available				(1)	(1)												

1. Contact your Emerson Process Management sales office for these dimensions.
2. For 378 mm (14.88 inch) valve plug travel, add 203 mm (8 inches) to this dimension.

Figure 6. Dimensions (also see table 9)



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Table 10. Approximate Weights

VALVE SIZE, NPS	PRESSURE CLASS	END CONNECTION TYPE	APPROXIMATE WEIGHT							
			ED/EWD and ET/EWT				ET-C/EWT-C			
			Short Neck		Long Neck		Short Neck		Long Neck	
			Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb
12	CL150-300	Flanged	950	2100	1090	2400	982	2170	1122	2470
	CL600	Flanged	1270	2800	1410	3100	1302	2870	1442	3170
		Buttwelding	1130	2500	1270	2800	1162	2570	1302	2870
14	CL150-300	Flanged	1130	2500	1230	2700	1162	2570	1262	2770
	CL600	Flanged	1410	3100	1590	3500	1442	3170	1622	3570
		Buttwelding	1180	2600	1360	3000	1212	2670	1392	3070
16x12	CL150-300	Flanged	1320	2900	1450	3200	1352	2970	1482	3270
	CL600	Flanged	1680	3700	1810	4000	1712	3770	1842	4070
		Buttwelding	1410	3100	1540	3400	1442	3170	1572	3470
16	CL150-300	Flanged	1720	3800	2040	4500	1752	3870	2072	4570
	CL600	Flanged	2310	5100	2590	5700	2342	5170	2622	5770
		Buttwelding	2090	4600	2360	5200	2122	4670	2392	5270
18	CL150-300	Flanged	2310	5100	2500	5500	2342	5170	2532	5570
	CL600	Flanged	2900	6400	3130	6900	2932	6470	3162	6970
		Buttwelding	2540	5600	2770	6100	2572	5670	2802	6170
20x16	CL150-300	Flanged	2500	5500	2680	5900	2532	5570	2712	5970
	CL600	Flanged	3180	7000	3360	7400	3212	7070	3392	7470
		Buttwelding	2770	6100	2990	6600	2802	6170	3022	6670
24x16	CL150-300	Flanged	3360	7400	3810	8400	3392	7470	3842	8470
	CL600	Flanged	4260	9400	4810	10600	4292	9470	4842	10670
		Buttwelding	3770	8300	4220	9300	3802	8370	4252	9370
20	CL150-300	Flanged	4122	9088	4526	9978	(1)	(1)	(1)	(1)
	CL600	Flanged	4736	10442	5112	11269	(1)	(1)	(1)	(1)
		Buttwelding	4583	10104	4808	10600	(1)	(1)	(1)	(1)
24x20	CL150-300	Flanged	5507	12140	5856	12910	(1)	(1)	(1)	(1)
	CL600	Flanged	6796	14982	7172	15811	(1)	(1)	(1)	(1)
		Buttwelding	6327	13949	6549	14437	(1)	(1)	(1)	(1)
30	CL150-300	Flanged	7390	16300	8350	18400	7535	16620	18545	18720
	CL600	Flanged	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
		Buttwelding	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

1. Contact your [Emerson Process Management sales office](#) for these weights.

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