

Fisher™ A11 High-Performance Butterfly Valve CL900-2500

The Fisher A11 High-Performance Butterfly Valve maintains tight shutoff, and can be specified for a wide range of pressure and temperature conditions, including cryogenic applications.

The A11 valve is available in a lugged design. A square or keyed shaft can combine with a variety of hand levers, handwheels, or pneumatic piston diaphragm actuators. A splined shaft can combine with a variety of spring-and-diaphragm or pneumatic piston actuators. These combinations help make the A11 valve a reliable, high-performance butterfly valve for both throttling and on-off applications in the process industries.

The A11 valve can be supplied with one of several dynamic seals (figure 1) that can be used in a variety of demanding applications. With the appropriate seal selection and materials of construction, the pressure-assisted seal helps provide excellent shutoff against the full ASME class pressure range for the A11 valve.

Features

- **Shaft Versatility**— This valve will meet your actuator needs with a choice of square, keyed, or splined shaft connections.
- **Excellent Shutoff Integrity**— The pressure-assisted seal design provides tight shutoff and permits the use of smaller, less expensive actuators in applications requiring full ASME B16.34 shutoff capabilities.



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- **Excellent Emissions Capabilities**— The optional ENVIRO-SEAL™ packing systems are designed with very smooth shaft surfaces and live-loading to provide improved sealing, guiding, and loading force transmission. The seal of the ENVIRO-SEAL system can control emissions to below 100 ppm (parts per million).
- **Sour Service Capability**— Trim and bolting materials are available for applications involving sour liquids and gases. These constructions comply with NACE MR0175-2002, MR0103, and MR0175 / ISO 15156.
- **High-Temperature/Cryogenic Capabilities**— Optional valve constructions allow this valve to meet both high-temperature and cryogenic applications (see table 4 for cryogenic and high-temperature actuator configurations).
- **Easy Installation**— The valve body self-centers on the line flange bolts as a fast, accurate means of centering the valve in the pipeline.

Features (continued)

- **Reliable Flange Gasketing Surface**— Seal retainer screws are located so there is no interference with the sealing function of either flat sheet or spiral wound line flange gaskets.
- **True Bidirectional Shutoff Performance**— A feature of the valve design is that the torque necessary to open and close the valve is the same regardless of the direction in which the differential pressure is applied.
- **Ease of Maintenance**— Interchangeability of all parts, including shafts and disks, simplifies service and reduces maintenance costs.

Standard Seal Configurations

- **Standard Soft Seal (ETFE CL900, and 1500)**— A resilient dynamic seal with an elastomeric back-up ring for low to moderate temperature applications.
- **High-Pressure Seal (CL900, and 1500)**— This robust, stainless steel seal is available for severe service, cryogenic, and high-temperature applications to 704°C (1300°F), for NACE, and for other applications to 816°C (1500°F).
- **Cryo-Tight Cryogenic Seal**— This resilient dynamic seal is available with or without an aluminum back-up ring for low temperature applications.

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Specifications

Available Configurations and Sizes

Lugged

Available Sizes and Shaft Styles

PRESSURE RATING	VALVE SIZE, NPS		
	Keyed	Square	Splined
CL900	12 to 24 (standard), 3 ⁽²⁾ to 10 (optional)	Consult your Emerson sales office	Consult your Emerson sales office
CL1500	3 ⁽³⁾ to 20 (standard)		
CL2500	Consult your Emerson sales office		

1. Refers to a valve construction consisting of a CL1500 body and trim suitable for a shutoff pressure drop of 150 psid.
2. Sizes NPS 3 and 4 are CL900 bodies with CL600 internals.
3. Sizes NPS 3 and 4 are CL1500 bodies with CL600 internals. Sizes NPS 6 and 8 are CL1500 bodies with CL900 internals.

End Connection Style

Lugged style designed to fit between raised-face mating flanges of appropriate class pressure rating ASME B16.5

NPS 6 through 24: CL900

NPS 10 through 20: CL1500

Maximum Inlet Pressure⁽¹⁾

Valve Body: Consistent with CL900 and 1500 pressure/temperature ratings per ASME B16.34, see table 9

Seal: See figure 1

Materials of Construction

See table 1

Disk Hard Surfacing: All CL900 and 1500 disk edges must be coated, regardless of the seal type. Metal, Phoenix III and cryogenic seals require the disk to be coated, regardless of the valve class.

Maximum Temperature Capabilities⁽¹⁾

See table 1

High-Temperature and Cryogenic Applications: See table 4 for available valve and actuator combinations

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

Class VI Soft Seal: Bubble-tight shutoff (exceeds Class VI)

High Pressure Seal: Standard Class V

Cryogenic Seal (Reverse direction only)

CTFE: 10% of Class IV

CTFE with Aluminum Backup Ring: Class VI

Consult Emerson sales office for other shutoff classifications

Flow Characteristic

Modified equal percentage

Flow Coefficients

See Fisher Catalog 12

Noise Levels

See Fisher Catalog 12 for sound pressure level prediction

Available Actuators

Handlever; handwheel; or pneumatic piston, spring return, double-acting, spring and diaphragm

Disk Rotation

Clockwise (CW) to close

Valve Dimensions and Approximate Weights

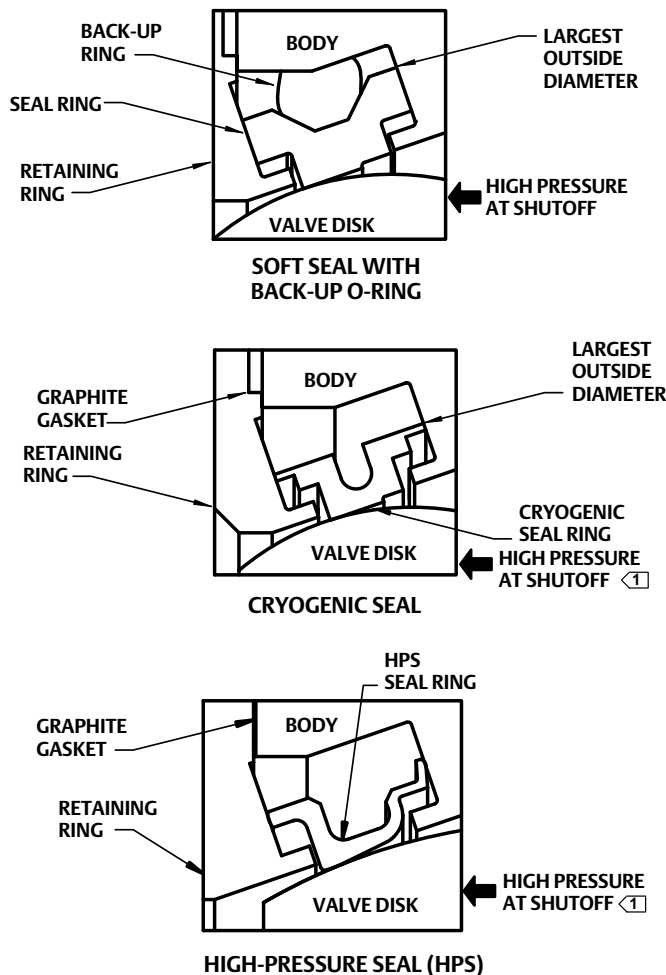
See figure 3

For general packing guidelines, see Bulletin 59.3:042 Packing Selection Guidelines for Rotary Valves, ([D102093X012](#))

For information on ENVIRO-SEAL packing system see Bulletin 59.3:041 ENVIRO-SEAL Packing Systems for Rotary Valves, ([D101638X012](#))

1. The pressure/temperature limits in this bulletin, and any applicable code or standard limitation, should not be exceeded.

Figure 1. Available Seal Configurations



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Notes:

① This unidirectional seal must be installed so that the retaining ring is downstream from the high pressure side of the valve at shutoff, as shown.

Installation

Preferred valve orientation for the A11 valve is reverse flow direction. Reverse flow direction is into the side of the valve body opposite the retaining ring or into the shaft side of the disk.

For erosive and many severe service applications, valves with bidirectional seals can and should be installed with the shaft horizontal and in the forward flow direction to prevent direct impingement of the process media on the seal, and to minimize the exposure of the shaft bearings to the process media.

The standard soft seal and the Phoenix III seal both offer bidirectional shutoff. Valves using either metal or cryogenic seals are unidirectional and must be installed in the reverse flow orientation.

For assistance in selecting the appropriate combination of actuator action and open valve position, consult your [Emerson sales office](#) or Local Business Partner.

Dimensions and weights for lugged valves are shown in figure 3.

Table 1. Material Temperature Ranges

PART NAME	MATERIAL	TEMP °C	TEMP °F
Valve Body	WCC Steel, SA-516-70 or SA-105	-29 to 427	-20 to 800
	CF8M, CF8, CF3M, CF3	-254 to 538	-425 to 1000
	CF8M, CF8C, CF8 ⁽¹⁾ FMS 20B16 a Fisher material standard (0.04% min carbon)	over 538 to 816	over 1000 to 1500
	LCC	-45 to 343	-50 to 650
	C12A	-29 to 649	-20 to 1200
	WC9	-29 to 593	-20 to 1100
Disk	CG8M, CG3M, CF8C	-198 to 538	-325 to 1000
	CF8M	-254 to 538	-425 to 1000
	CB7Cu-1	-29 to 427	-20 to 800
Disk Seating Surface Coating	Chrome Plating	-254 to 427	-425 to 800
	Chromium Coat per FFS 2E1	-254 to 593	-425 to 1100
	Chromium Carbide Coating	-254 to 816	-425 to 1500
	CoCr-A (Alloy 6) ⁽³⁾		
Shaft	S17400 (H1025)	-73 to 427	-100 to 800
	S17400 (H1150M)	-196 to 427	-320 to 800
	N05500 ⁽³⁾	-254 to 482	-425 to 900
	N07718	-254 to 704	-425 to 1300
	S20910 ⁽³⁾	-196 to 593	-320 to 1100
Bearings ⁽²⁾	N07750 ⁽³⁾	over 593 to 816	over 1100 to 1500
	PEEK	-73 to 260	-100 to 500
	PTFE Composition	-254 to 163	-425 to 325
	S31600 (316 SST Nitrided) R30006 (Alloy 6) ⁽³⁾	-254 to 816	-425 to 1500
Seal Ring	Soft - ETFE	-54 to 149	-65 to 300
	HPS - S20910 ⁽³⁾	-254 to 649	-425 to 1200
Backup Ring	Used with Soft Seal		
	Fluorocarbon	-29 to 204	-20 to 400
	EPR	-54 to 182	-65 to 360
	Nitrile ⁽³⁾	-29 to 93	-20 to 200
	Chloroprene ⁽³⁾	-43 to 149	-45 to 300
	Used with Cryogenic Seal		
Aluminum ⁽³⁾	-254 to 149	-425 to 300	
Packing	PTFE V-Ring	-254 to 232	-425 to 450
	PTFE ENVIRO-SEAL	-254 to 232	-425 to 450
	Square Ring Graphite for Oxidizing Service	-254 to 538	-425 to 1000
	Square Ring Graphite for Non-oxidizing Service	-254 to 816	-425 to 1500
	Graphite ENVIRO-SEAL	-198 to 315	-325 to 600

1. Special retaining ring screws for lugged valves over 538°C (1000°F).
 2. Special thrust bearings are required for high temperature applications over 343°C (650°F) (with 6 and 12 inch extensions). Constructions with carbon steel valves and SST disks may require special thrust bearings at temperatures greater than 343°C (650°F).
 3. Special option; contact your [Emerson sales office](#).

Table 2. Trim Descriptions - CL900 and CL1500

Trim Type	Trim Number	Temperature Range	Disk Material	Disk Edge Coating	Seal Type	Seal Material	Shaft	Bearings	Packing ⁽⁵⁾
Standard	500 ⁽¹⁾	-29 to 149°C -20 to 300°F	CB7Cu-1	Chrome Plated	Soft	ETFE	S17400 H1025	PEEK	PTFE
	502	-46 to 232°C -50 to 450°F	CB7Cu-1	Chrome Plated	HPS	S20910 Nitrided	S17400 H1025	PEEK	PTFE
	504	-40 to 149°C -40 to 300°F	CB7Cu-1	Chrome Plated	Phoenix III	S31600/ETFE	S17400 H1025	PEEK	PTFE
	506 ⁽²⁾	-46 to 427°C -50 to 800°F	CB7Cu-1	Chromium Coat per FFS 2E1	HPS	S20910 Nitrided	S17400 H1025	316 SST Nitrided	Graphite
High-Temperature	514H ⁽³⁾	-46 to 427°C -50 to 800°F	CB7Cu-1	Chromium Coat per FFS 2E1	HPS	S20910 Nitrided	S17400 H1025	316 SST Nitrided	Graphite
	516H ⁽⁴⁾	-46 to 538°C -50 to 1000°F	CF8M	Chromium Coat per FFS 2E1	HPS	S21800 Nitrided	N07718	316 SST Nitrided	Graphite

1. Trim 500 is furnished as standard trim in all CL1500 A11 valves.
2. If operating temperature is above 343°C (650°F), see table 4 for available actuator configurations.
3. Trim includes 6-inch shaft extension.
4. Trim includes 12-inch shaft extension.
5. Consult Bulletin 59.3:042 Packing Selection Guidelines for Rotary Valves, [D102093X012](#), for packing selection guidelines regarding pressure/temperature limits.

Table 3. Cryogenic Shaft Extension Lengths⁽¹⁾

STANDARD CRYOGENIC EXTENSION LENGTH, INCH FOR VALVE BODY SIZE, NPS										
3	4	6	8	10	12	14	16	18	20	24
14-3/4	17-3/4	19-1/4	26-3/4	28-1/2	33-1/2	36	36	36	36	36

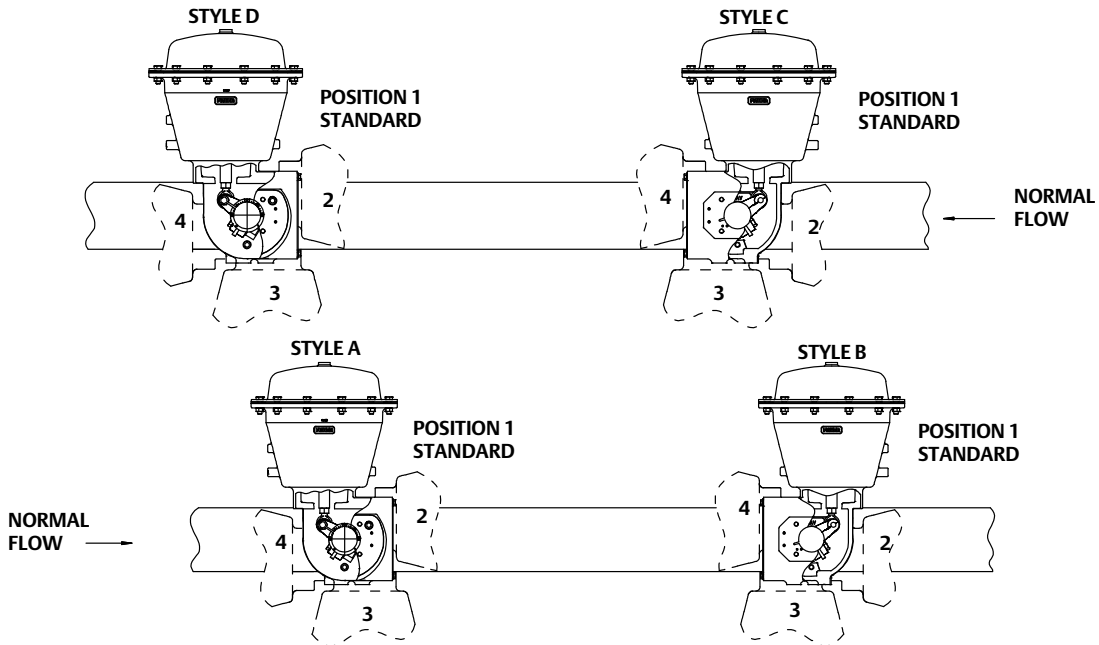
1. Extension length measured from center of valve body to bottom of packing flange.

Table 4. Valve/Actuator Combinations

TEMPERATURE RANGE	SELECTION GUIDELINES	
	1052, 1061, or 2052 ⁽¹⁾	G Series ⁽²⁾ , FieldQ™ ⁽⁴⁾
-254 to -196°C (-425 to -320°F)	Valve with cryogenic extension and special trim materials ⁽³⁾ and standard actuator	
-196 to -46°C (-320 to -50°F)	Valve with cryogenic extension and trim and standard actuator	
-46 to 343°C (-50 to 650°F)	Valve (select appropriate trim) and standard actuator	
343 to 426°C (650 to 800°F)	Mounting positions 1 and 3: Valve (select appropriate trim) and standard actuator Mounting positions 2 and 4: Valve with 6-inch extension (select trim 514H or 564H) and standard actuator - ambient temperature may dictate the need for a high-temperature diaphragm	Valve (select appropriate trim) and actuator with high-temperature O-rings option or Valve with 6-inch extension (select trim 514H) and standard actuator
426 to 538°C (800 to 1000°F)	Mounting positions 1 and 3: Valve (select appropriate trim) and standard actuator Mounting positions 2 and 4: Valve with 6-inch extension (select trim 564H or 514H with N07718 shaft) and standard actuator - ambient temperature may dictate the need for a high-temperature diaphragm	Valve (select appropriate trim) and actuator with high-temperature O-rings option or Valve with 6-inch extension (select trim 564H or 514H with N07718 shaft) and standard actuator
538 to 816°C (1000 to 1500°F)	Valve with 12-inch extension and special trim materials ⁽³⁾ and standard actuator	Valve with 12-inch extension and special trim materials ⁽³⁾ and standard actuator

1. See figure 2 for actuator mounting positions.
 2. Select keyed shaft option when using G series actuator.
 3. Consult your [Emerson sales office](#).
 4. Select square shaft option when using FieldQ actuators.

Figure 2. Mounting Styles and Positions



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Table 5. Dimensions and Weights Lugged Style CL900

VALVE SIZE, NPS	A	B	C	D	E		F	G Square	H	K	M ⁽¹⁾	R _Ø Keyed	KEY SQ SIZE	APPROX WEIGHT
					Keyed Shaft	Sq Shaft								
mm														kg
6	381	76	233	233	210	90	67	22	235	46	126	25	6	59.0
8	470	109	305	305	210	90	67	35	273	51	164	38	10	120
10	546	146	353	353	210	95	67	35	273	51	182	44	10	210
12	610	229	445	445	295	---	95	---	337	76	165	57	13	450
14	635	216	451	451	295	---	95	---	337	76	208	57	13	444
16	705	241	438	438	314	---	117	---	337	76	217	70	16	513
18	781	273	524	524	314	---	114	---	337	76	⁽²⁾	70	16	703
20	857	292	695	695	314	---	114	---	305	165	284	70	16	991
24	1041	333	657	657	314	---	117	---	572	203	366	95	22	1628
Inches														lbs
6	15.00	3.00	9.19	9.19	8.25	3.56	2.62	0.87	9.25	1.812	4.98	1.00	1/4	130
8	18.50	4.31	12.00	12.00	8.25	3.75	2.62	1.37	10.75	2.00	6.46	1.50	3/8	264
10	21.50	5.75	13.88	13.88	8.25	3.75	2.62	1.37	10.75	2.00	7.17	1.75	3/8	463
12	24.00	9.00	17.50	17.50	11.62	---	3.75	---	13.25	3.00	6.48	2.25	1/2	993
14	25.00	8.50	17.75	17.75	11.62	---	3.75	---	13.25	3.00	8.17	2.25	1/2	978
16	27.75	9.50	17.25	17.25	12.38	---	4.62	---	13.25	3.00	8.55	2.75	5/8	1132
18	30.76	10.75	20.63	20.63	12.38	---	4.50	---	13.25	3.00	⁽²⁾	2.75	5/8	1550
20	33.75	11.50	27.38	27.38	12.38	---	4.50	---	12.00	6.50	11.19	2.75	5/8	2185
24	41.00	13.12	25.88	25.88	12.38	---	4.62	---	22.50	8.00	14.40	3.75	7/8	3590

1. M dimension is the disk chordal swing diameter.
2. Contact your [Emerson sales office](#).

Table 6. Dimensions Lugged Style CL900

VALVE SIZE, NPS	L	J
	mm	
6	See Thread Info Below	See Thread Info Below
8		
10		
12		
14		
16		
18		
20		
24		
VALVE SIZE, NPS	Inches	
6	5/8-11 4 Holes	1-1/8-8 12 Holes
8	3/4-10 4 Holes	1-3/8-8 12 Holes
10	3/4-10 4 Holes	1-3/8-8 16 Holes
12	7/8-9 4 Holes	1-3/8-8 20 Holes
14	7/8-9 4 Holes	1-1/2-8 20 Holes
16	7/8-9 4 Holes	1-5/8-8 20 Holes
18	1-1/4-7 6 Holes	1-7/8-8 20 Holes
20	1-1/4-7 6 Holes	2-8 20 Holes
24	1-1/4-7 6 Holes	2-1/2-8 20 Holes

Table 7. Dimensions and Weights Lugged Style CL1500

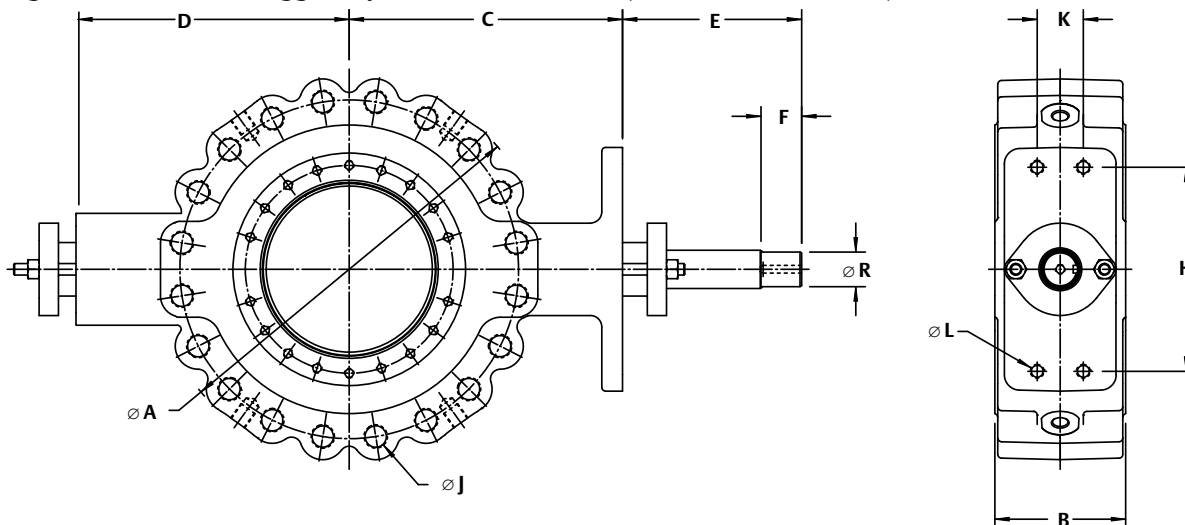
VALVE SIZE, NPS	A	B	C	D	E	F	H	K	M ⁽¹⁾	R \varnothing Keyed	KEY SQ SIZE	APPROX WEIGHT
					Keyed Shaft							
mm												
10	584	178	399	399	295	95	337	76	118	57	13	311
12	673	267	445	445	305	105	337	76	(2)	64	16	663
14	754	283	483	483	210	114	337	76	(2)	70	16	810
16	826	321	559	559	314	152	305	152	(2)	70	22	1152
18	914	349	629	629	379	164	508	203	(2)	102	25	1613
20	991	410	682	682	404	171	508	203	(2)	108	25	2250
Inches												
10	23.00	7.00	15.69	15.69	11.62	3.75	13.25	3.00	4.63	2.25	1/2	685
12	26.50	10.50	17.50	17.50	12.00	4.13	13.25	3.00	(2)	2.50	5/8	1462
14	29.69	11.13	19.00	19.00	8.25	4.50	13.25	3.00	(2)	2.75	5/8	1785
16	32.52	12.63	22.00	22.00	12.38	6.00	12.00	6.00	(2)	2.75	7/8	2540
18	36.00	13.75	24.75	24.75	14.94	6.44	20.00	8.00	(2)	4.00	1	3555
20	39.00	16.13	26.84	26.84	15.89	6.75	20.00	8.00	(2)	4.25	1	4960

1. M dimension is the disk chordal swing diameter.
2. The disk size is less than the face-to-face dimension of this valve. Therefore, the disk chordal swing is not applicable when sizing this valve.

Table 8. Dimensions Lugged Style CL1500

VALVE SIZE, NPS	L	J
	mm	
10	See Thread Info Below	See Thread Info Below
12		
14		
16		
18		
20		
VALVE SIZE, NPS	Inches	
10	7/8-9 4 Holes	1-7/8-8 12 Holes
12	7/8-9 4 Holes	2-8 16 Holes
14	7/8-9 4 Holes	2-1/4-8 16 Holes
16	1-1/4-7 6 Holes	2-1/2-8 16 Holes
18	1-1/4-7 6 Holes	2-3/4-8 16 Holes
20	1-1/4-7 6 Holes	3-8 16 Holes

Figure 3. Dimensions Lugged Style CL900 and CL1500 (also see tables 5 and 7)



Pressure Drops

Pressure drop limits of any given valve are based on valve body, and trim material limits. To find the appropriate pressure drop limitation, choose the desired valve size and temperature range. Then search

table 9 for body limitations and tables 10 and 11 for trim limitations. Information on limits for S31254, CW2M, M35-1 and other alloy constructions can be obtained by contacting your [Emerson sales office](#) or Local Business Partner. The lowest number from the tables is the appropriate limit. The tables for both trim and body limits must be consulted.

Table 9. Maximum Allowable Shutoff Pressure Drops (Valve Ratings) Based on Carbon Steel and Stainless Steel Valve Types⁽¹⁾ (The tables for both trim and body limits must be consulted)

TEMPERATURE RANGE	PRESSURE RANGE			
	CL900		CL1500	
	WCC	CF8M	WCC	CF8M
°C	Bar			
-254 to -29	---	148.9	---	248.2
-29 to 38	155.1	148.9	258.6	248.2
93	155.1	128.2	258.6	213.4
149	150.7	115.8	251.0	192.7
204	145.5	106.2	242.7	177.2
260	137.6	98.9	229.3	164.8
316	125.1	93.4	208.6	155.5
343	121.7	91.4	202.7	152.4
371	114.8	90.0	191.3	149.6
399	104.8	88.3	174.8	147.2
427	85.2	87.2	141.7	145.5
454	---	86.5	---	144.1
482	---	85.8	---	143.1
510	---	80.0	---	133.1
538	---	75.2	---	125.5
°F	Psi			
-450 to -20	---	2160	---	3600
-20 to 100	2250	2160	3750	3600
200	2250	1860	3750	3095
300	2185	1680	3640	2795
400	2110	1540	3520	2570
500	1995	1435	3325	2390
600	1815	1355	3025	2255
650	1765	1325	2940	2210
700	1665	1305	2775	2170
750	1520	1280	2535	2135
800	1235	1265	2055	2110
850	---	1255	---	2090
900	---	1245	---	2075
950	---	1160	---	1930
1000	---	1090	---	1820

1. For pressure/temperature rating of other materials, contact your Emerson sales office.

Table 10. Maximum Allowable Shutoff Pressure Drops, CL900^(1,2)

TRIM NUMBER	TEMP RANGE	NPS 6	NPS 8	NPS 10	NPS 12	NPS 14	NPS 16	NPS 18	NPS 20	NPS 24
	°C									
500	-46 to 38	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4
	38 to 93	75.8	75.8	75.8	75.8	75.8	75.8	75.8	75.8	75.8
	93 to 121	41.4	41.4	41.4	41.4	41.4	41.4	41.4	41.4	41.4
	121 to 149	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
502	-46 to 38	100.0	155.1	110.7	155.1	146.6	154.2	151.9	120.0	128.7
	38 to 149	84.6	146.2	110.7	150.7	146.5	139.3	139.1	120.0	128.6
	149 to 232	78.8	140.4	110.7	141.7	141.7	131.5	134.1	120.0	128.7
504	-46 to 38	103.4	103.4	103.4	103.4	103.4	103.4	103.4	91.0	92.8
	38 to 93	96.5	96.5	96.5	96.5	96.5	96.5	96.5	91.0	92.8
	93 to 121	62.1	62.1	62.1	62.1	62.1	62.1	62.1	62.1	62.1
	121 to 149	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7
506	-46 to 38	81.1	122.2	78.5	131.3	104.1	119.8	118.7	82.5	89.9
	38 to 149	67.6	122.2	78.5	131.3	104.1	103.4	118.7	82.5	89.9
	149 to 232	62.6	122.2	78.5	131.3	104.1	97.4	118.7	82.5	89.9
	232 to 343	58.1	121.3	78.5	121.3	104.1	91.8	118.7	82.5	89.9
	343 to 427	55.5	105.1	78.5	105.1	104.1	88.7	105.1	82.5	89.9
514H, 516H	343 to 427	55.5	105.1	78.5	105.1	104.1	88.7	105.1	82.5	89.9
514H ⁽³⁾ , 516H	427 to 538	70.4	62.5	58.7	88.0	48.9	39.1	37.2	52.8	43.0
TRIM NUMBER	°F	Psi								
500	-50 to 100	1500	1500	1500	1500	1500	1500	1500	1500	1500
	100 to 200	1100	1100	1100	1100	1100	1100	1100	1100	1100
	200 to 250	600	600	600	600	600	600	600	600	600
	250 to 300	100	100	100	100	100	100	100	100	100
502	-50 to 100	1451	2250	1606	2250	2126	2237	2203	1741	1866
	100 to 300	1227	2120	1606	2185	2125	2020	2017	1741	1865
	300 to 450	1143	2036	1606	2055	2055	1907	1945	1741	1866
504	-50 to 100	1500	1500	1500	1500	1500	1500	1500	1320	1346
	100 to 200	1400	1400	1400	1400	1400	1400	1400	1320	1346
	200 to 250	900	900	900	900	900	900	900	900	900
	250 to 300	300	300	300	300	300	300	300	300	300
506	-50 to 100	1176	1773	1138	1905	1510	1737	1721	1197	1304
	100 to 300	980	1773	1138	1905	1510	1500	1721	1197	1304
	300 to 450	908	1773	1138	1905	1510	1412	1721	1197	1304
	450 to 650	842	1760	1138	1760	1510	1332	1721	1197	1304
	650 to 800	805	1525	1138	1525	1510	1286	1525	1197	1304
514H, 516H	650 to 800	805	1525	1138	1525	1510	1286	1525	1197	1304
514H ⁽³⁾ , 516H	800 to 1000	1021	907	851	1276	709	567	539	766	624

1. Consult your [Emerson sales office](#) if higher pressure drops are required.
2. Consult Bulletin 59.3:042 Packing Selection Guidelines for Rotary Valves, [D102093X012](#), for packing selection guidelines regarding pressure/temperature limits.
3. Trim 514H with optional N07718 shaft.

Table 11. Maximum Allowable Shutoff Pressure Drops, CL1500^(1, 2)

TRIM NUMBER	TEMP RANGE	NPS 10	NPS 12	NPS 14	NPS 16	NPS 18	NPS 20
	°C	Bar					
500	-46 to 38	103.4	103.4	103.4	103.4	103.4	103.4
	38 to 93	75.8	75.8	75.8	75.8	75.8	75.8
	93 to 121	41.4	41.4	41.4	41.4	41.4	41.4
	121 to 149	6.9	6.9	6.9	6.9	6.9	6.9
502	-46 to 38	155.1	155.1	155.1	155.1	155.1	155.1
	38 to 149	155.0	155.1	155.1	155.1	155.1	155.1
	149 to 232	146.1	155.1	155.1	155.1	155.1	155.1
504	-46 to 38	103.4	103.4	103.4	103.4	103.4	103.4
	38 to 93	96.5	96.5	96.5	96.5	96.5	96.5
	93 to 121	62.1	62.1	62.1	62.1	62.1	62.1
	121 to 149	20.7	20.7	20.7	20.7	20.7	20.7
506	-46 to 38	133.5	155.1	116.5	139.5	155.1	155.1
	38 to 149	114.2	155.1	116.5	139.5	155.1	155.1
	149 to 232	107.1	155.1	116.5	139.5	155.1	155.1
	232 to 343	100.6	155.1	116.5	139.5	155.1	155.1
	343 to 427	96.9	155.1	116.5	139.5	155.1	155.1
514H, 516H	343 to 427	96.9	155.1	116.5	139.5	155.1	155.1
514H ⁽³⁾ , 516H	427 to 538	78.2	70.4	86.0	78.2	66.5	74.3
TRIM NUMBER	°F	Psi					
500	-50 to 100	1500	1500	1500	1500	1500	1500
	100 to 200	1100	1100	1100	1100	1100	1100
	200 to 250	600	600	600	600	600	600
	250 to 300	100	100	100	100	100	100
502	-50 to 100	2250	2250	2250	2250	2250	2250
	100 to 300	2248	2250	2250	2250	2250	2250
	300 to 450	2119	2250	2250	2250	2250	2250
504	-50 to 100	1500	1500	1500	1500	1500	1500
	100 to 200	1400	1400	1400	1400	1400	1400
	200 to 250	900	900	900	900	900	900
	250 to 300	300	300	300	300	300	300
506	-50 to 100	1936	2250	1689	2024	2250	2250
	100 to 300	1657	2250	1689	2024	2250	2250
	300 to 450	1553	2250	1689	2024	2250	2250
	450 to 650	1459	2250	1689	2024	2250	2250
	650 to 800	1405	2250	1689	2024	2250	2250
514H, 516H	650 to 800	1406	2250	1689	2024	2250	2250
514H ⁽³⁾ , 516H	800 to 1000	1134	1021	1248	1134	964	1077

1. Consult your [Emerson sales office](#) if higher pressure drops are required.
2. Consult Bulletin 59.3:042 Packing Selection Guidelines for Rotary Valves, [D102093X012](#), for packing selection guidelines regarding pressure/temperature limits.
3. Trim 514H with optional N07718 shaft.

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