CAMERON

WHEATLEY Series 500

Fire-Tested Carbon Steel Flanged-End Check Valves

TECHNOLOGY

CAMERON

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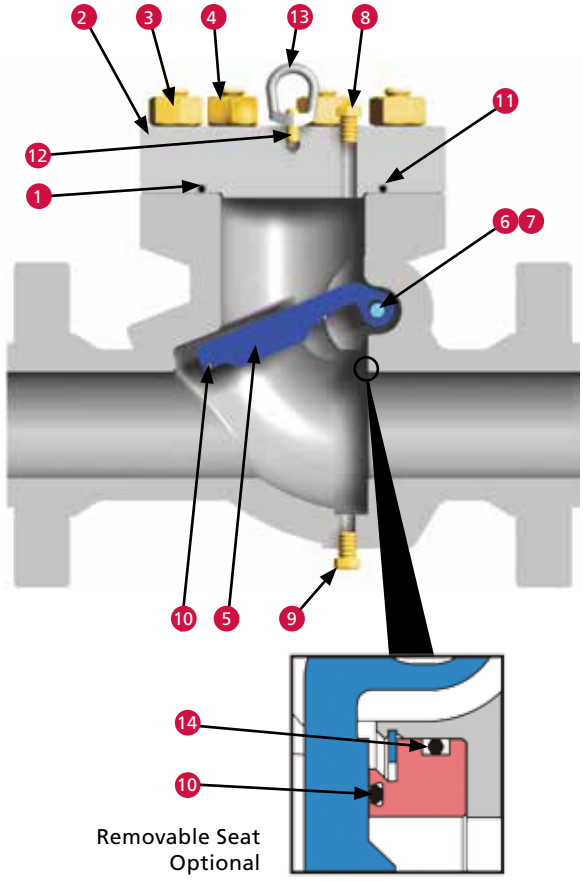
WHEATLEY SERIES 500
FIRE-TESTED CARBON STEEL
FLANGED-END CHECK VALVES

API 6D/Drilling Production

WHEATLEY® Series 500 Fire-Tested Carbon Steel Flanged-End Check Valves

API 6D/DRILLING PRODUCTION



Features

- 316 stainless steel trim is compatible with a broad range of media and operating conditions
- Full-open, through-conduit design for low pressure drop and less turbulence (allowing valves to easily pass pigs and spheres)
- 90-durometer, peroxide-cured seals are compatible with a broad range of media and operating conditions
- Seals provide a bubble-tight shutoff
- Suitable for vertical flow up or horizontal installation
- All materials conform to NACE MR0175/ISO 15156
- Cast on flanges provide greater valve body integrity and fewer leak points
- API 6D Monogram (510/511 only)
- Designed in accordance with ASME B16.34 (510/511 only)
- Valve is fire-tested to API 6FD requirements, except for 1" (25 mm) valve
- Canadian Registration Number (CRN) available upon request
- Flanges are back-faced, an extra manufacturing step that provides smoother bolting surfaces and even bolt loading
- Bolted top entry, complete with 1/2" (12.7 mm) NPT cover tap for gauges and accessories, except for 1" (25 mm) size
- In-line repairable
- Through-pin clapper shaft makes clapper removal easier, and extends valve life by transferring wear and tear to an inexpensive replaceable part

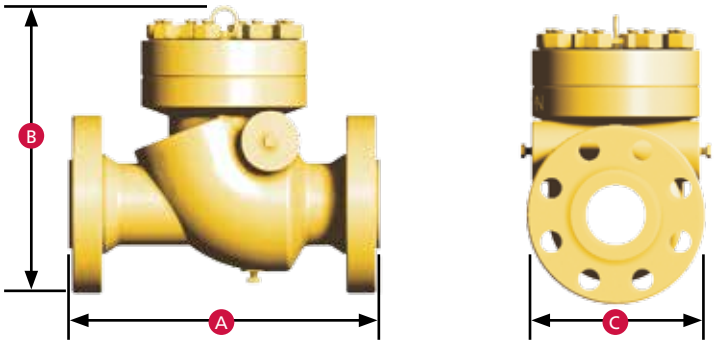
Materials List

Item	Part	Standard Trim API 6D -20° F to 250° F (-29° C to 121° C)	Standard Trim DPV -20° F to 400° F (-29° C to 204° C)
1	Body	ASTM A216 Gr. WCC	ASTM A487-4C
2	Cover	ASTM A216 Gr. WCC	ASTM A487-4C
3	Studs	ASTM A193 Gr. B7	ASTM A193 Gr. B7
4	Nuts	ASTM A194 Gr. 2H	ASTM A194 Gr. 2H
5	Clapper	ASTM A351 Gr. CF8M	ASTM A351 Gr. CF8M
6	Clapper Pin	ASTM A479 Gr. 316 SS	ASTM A479 Gr. 316 SS
7	Pin Plug	ASTM A105	ASTM A105
8	Vent Plug	ASTM A105	ASTM A105
*9	Drain Plug	ASTM A105	ASTM A105
10	Clapper/Seat O-ring	Peroxide-Cured Buna	FKM
11	Cover O-ring	Peroxide-Cured Buna	FKM
**12	Stud	ASTM A193 B7M	ASTM A193 B7M
**13	Eyebolt	Forged Steel	Forged Steel
14	Removable Seat O-ring	Peroxide-Cured Buna	FKM

* Use on 4" (100 DN) and larger.
** Items 12 and 13 are only available on 4" (100 DN) bore size ASME Class 900 and larger.
We reserve the right to change materials and specifications.

API 6D/DRILLING PRODUCTION (CONT.)

Raised-Faced or Ring-Type Joint Flanged Bolted Cover



Note: Dimensions are for estimating purposes only. For critical applications, please contact Cameron for certified drawings.

ASME Class and Dimensions

Valve Size		ASME Working			in. (mm)								Weight	
					A				B		C			
in.	(DN)	Class	Pressure (psi)	(PN)	RF		RTJ						lb	(kg)
1	(25)	150	275	(20)	7.75	(197)	8.25	(210)	5.44	(138)	4.25	(108)	15	(6.5)
		300	720	(50)	8	(203)	8.5	(216)	5.44	(138)	4.88	(124)	15	(6.5)
		600	1440	(100)	8.5	(216)	8.5	(216)	5.44	(138)	4.88	(124)	17	(7.5)
		900	2160	(150)	10	(254)	10	(254)	7.00	(178)	5.88	(149)	17	(7.5)
		1500	3600	(250)	10	(254)	10	(254)	7.00	(178)	5.88	(149)	20	(9)
2	(50)	150	275	(20)	8	(203)	8.5	(216)	8.38	(213)	6	(152)	32	(14)
		300	720	(50)	10.5	(267)	11.13	(283)	8.88	(226)	6.5	(165)	45	(20)
		600	1440	(100)	11.5	(292)	11.63	(296)	9.31	(236)	6.5	(165)	60	(27)
		900	2160	(150)	14.5	(371)	14.63	(372)	11.45	(291)	8.5	(216)	102	(46)
		1500	3600	(250)	14.5	(371)	14.63	(372)	11.45	(291)	8.5	(216)	102	(46)
		-	5000	(250)	14.5	(371)	14.63	(372)	11.45	(291)	8.5	(216)	102	(46)
3	(80)	150	275	(20)	9.5	(241)	10	(254)	10.64	(270)	7.5	(190)	60	(27)
		300	720	(50)	12.5	(318)	13.13	(334)	11.4	(290)	8.25	(210)	92	(42)
		600	1440	(100)	14	(356)	14.13	(359)	11.83	(300)	8.25	(210)	105	(47)
		900	2160	(150)	15	(381)	15.13	(384)	12.65	(384)	9.5	(241)	144	(65)
		1500	3600	(250)	18.5	(470)	18.63	(473)	15.47	(393)	10.5	(267)	244	(110)
		-	5000	(250)	18.5	(470)	18.63	(473)	15.47	(393)	10.5	(267)	244	(110)
4	(100)	150	275	(20)	11.5	(292)	12	(305)	12.25	(311)	9	(229)	95	(43)
		300	720	(50)	14	(356)	14.63	(372)	13.18	(335)	10	(254)	138	(62)
		600	1440	(100)	17	(432)	17.13	(435)	14.03	(356)	10.75	(273)	192	(87)
		900	2160	(150)	18	(457)	18.13	(461)	16.75	(425)	11.5	(292)	248	(112)
		1500	3600	(250)	21.5	(546)	21.63	(550)	19.73	(501)	12.25	(311)	447	(203)
		-	5000	(250)	21.5	(456)	21.63	(550)	19.73	(501)	12.25	(311)	447	(203)
6	(150)	150	275	(20)	14	(356)	14.5	(368)	16.5	(419)	11	(279)	166	(75)
		300	720	(50)	17.5	(445)	18.13	(461)	16.65	(423)	12.5	(318)	264	(119)
		600	1440	(100)	22	(559)	22.13	(562)	19	(483)	14	(356)	368	(167)
		900	2160	(150)	24	(610)	24.13	(613)	23.2	(589)	15	(381)	568	(257)
		1500	3600	(250)	27.75	(711)	28	(712)	23.35	(593)	15.5	(394)	760	(344)
8	(200)	150	275	(20)	19.5	(495)	20	(508)	20.35	(517)	13.5	(343)	359	(162)
		300	720	(50)	21	(533)	21.63	(550)	22.6	(574)	15	(381)	471	(213)
		600	1440	(100)	26	(660)	26.13	(664)	23.75	(603)	16.5	(419)	642	(291)
		900	2160	(150)	29	(737)	29.13	(740)	25.95	(659)	18.5	(470)	825	(374)
10	(250)	150	275	(20)	24.5	(622)	25	(635)	23.5	(597)	16	(406)	492	(223)
		300	720	(50)	24.5	(622)	25.13	(639)	24.95	(634)	17.5	(445)	660	(299)
		600	1440	(100)	31	(787)	31.13	(791)	28.2	(716)	20	(508)	1052	(477)
		900	2160	(150)	33	(839)	33.13	(842)	30.00	(762)	21.5	(546)	1260	(571)
12	(300)	150	275	(20)	27.5	(699)	28	(712)	26.3	(668)	19	(483)	656	(297)
		300	720	(50)	28	(711)	28.63	(728)	27.95	(710)	20.5	(521)	945	(428)
		600	1440	(100)	33	(838)	33.13	(842)	30.9	(785)	22	(559)	1405	(637)
		900	2160	(150)	38	(966)	38.13	(969)	34.13	(867)	24	(610)	1775	(805)

MODEL NUMBER EXPLANATION

510 Model	0 Size	5 End Connections	144 Pressure Class	1 Body	21 Trim

510	– Integral Seat API 6D
511	– Removable Seat API 6D
523	– Integral Seat DPV
524	– Removable Seat DPV

4	– RTJ
5	– Raised Face

027/028	– ASME 150
072/074	– ASME 300
144/148	– ASME 600
216/222	– ASME 900
360	– ASME 1500
500	– 5000# WP

1	= Carbon Steel
3	= 316 Stainless Steel
7	= Special Trim
8	= Special Trim

01	1″ (25 mm)
02	2″ (50 mm)
03	3″ (80 mm)
04	4″ (100 mm)
06	6″ (150 mm)
08	8″ (200 mm)
10	10″ (250 mm)
12	12″ (300 mm)

Model 510/511 API 6D	
21	= CS x SS PC Buna Seals NACE CL. III B7 Bolting
23	= CS x SS James Walker 58/90 (Viton®) Seals, NACE CL. III B7 Bolting
58	= CS x SS FKM Seals, 410 SS Clapper/Arm, 410 SS Removable Seat w/Stellite Overlay, Seal in Removable Seat on 511, NACE CL. III B7 Bolting
59	= CS x SS FKM Seals, 410 SS Clapper/Arm w/Stellite Overlay, 410 SS Removable Seat, Seal in Removable Seat 511, NACE CL. III B7 Bolting
60	= CS x SS James Walker 58/90 (Viton) Seals, 410 SS Clapper/Arm, 410 SS Removable Seat
66	= CS x SS HNBR Seals, NACE CL. II B7M Bolting
67	= LT CS x SS HNBR Seals, NACE CL. II L7M Bolting
Model 523/524 Drilling Production Valve	
33	= CS x SS FKM Seals, NACE CL. III B7 Bolting

EXAMPLE:

510-025144-121 = API 6D swing check, full opening, integral seat, 2″ (50 mm), raised-face flanged ends, ASME 600 (PN 100), CS body x SS trim, peroxide-cured Buna seals, NACE CL. III bolting.

Services for Valves and Actuation

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Cameron is well-positioned to deliver total valve and actuation service support, quickly and efficiently, with unmatched OEM expertise. Our highly skilled engineers and technicians are available around the clock, seven days a week to respond
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Learn more about WHEATLEY check valves at:
www.c-a-m.com/WHEATLEY
WHEATLEY@c-a-m.com

HSE Policy Statement
At Cameron, we are committed ethically, financially and personally to a working environment where no one gets hurt and nothing gets harmed.

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WHEATLEY Valves—Series 822 Check Valve

Designed to safely prevent backflow of liquid or gas in pipeline applications

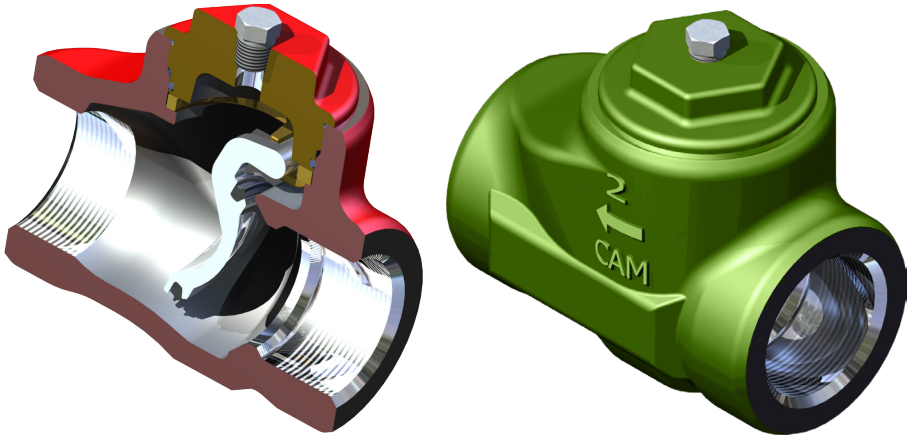
APPLICATIONS

- Pipeline applications

ADVANTAGES

- Designed in accordance with ASME B16.34 (WCC, LCC and CF8M only)
- Materials of construction that conform to NACE MR0175/ISO 15156
- Solid 316 stainless steel clapper and hanger that reduce the need for separate pins, bushings, and rollers
- Compact valve geometry for reduced weight and space
- Bevelled, self-aligning clapper and seat design with a molded seal in the clapper for a bubble-tight seal and metal-to-metal secondary seal
- Peroxide-cured nitrile rubber seals (optional fluoroelastomer or hydrogenated nitrile rubber)
- Generous wrench area on body and hex-head threaded cover for easier installation and maintenance
- Full opening
- Horizontal or vertical flow-up
- Below-the-threads cover seal that isolates the cover threads from line media
- Metal name plate

The Cameron portfolio of WHEATLEY* check valves includes the Series 822 check valve, which is designed to safely prevent backflow of liquid or gas in pipeline applications. The valve's beveled, self-aligning clapper and seat design incorporates a molded seal in the clapper for a bubble-tight primary seal and metal-to-metal secondary seal.



Cut-out (left) and full (right) view of the Series 822 check valve.

Bevelled, self-aligning clapper (left) and seat (right) design.

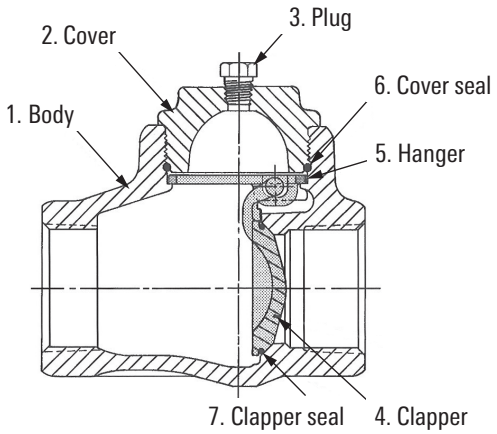
Materials List

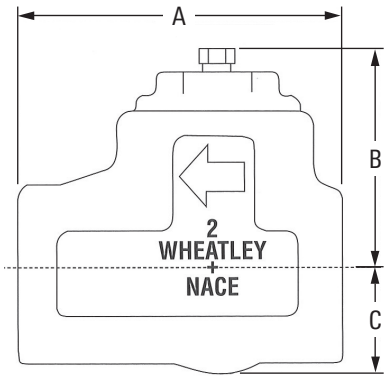
Item Number	Part Name	Material Series			
		Ductile Iron	Carbon Steel	Aluminum Bronze	Stainless Steel
1	Body	ASTM A395	ASTM A216 Grade WCC or LCC	ASTM B148 Alloy 955	ASTM A351 Grade CF8M
2	Cover	ASTM A216 Grade WCC	ASTM A216 Grade WCC or LCC	ASTM B148 Alloy 955	ASTM A351 Grade CF8M
3	Plug	ASTM A105	ASTM A105/ A473-316	ASTM A473 Type 316	ASTM A276 Type 304
4	Clapper, arm, and pin	ASTM A351 GRADE CF8M			
5	Hanger	ASTM A351 GRADE CF8M			
6	Cover seal	90-durometer peroxide-cured nitrile rubber (optional fluoroelastomer or hydrogenated nitrile rubber)			
7	Clapper seal	90-durometer peroxide-cured nitrile rubber (optional fluoroelastomer or hydrogenated nitrile rubber)			

WHEATLEY Valves—Series 822 Check Valve

Product Specifications

Material Series	Valve Size, in	End Connection	Working Pressure	Weight, lbm	A, in	B, in	C, in
Ductile iron	1	NPT	1,000–2,000	4	4¼	2¾	1⅛
	2	Grooved	2,500	9	7	4¼	1 13/16
		Grooved	2,500	10	9	4¼	1 13/16
		NPT	300–2,000	13	6	4¼	1 13/16
		NPT	300–2,000	13	7¼	4¼	1 13/16
	3	Grooved	2,500	22	10¾	5¾	2½
		NPT	600–2,000	23	8	5¾	2½
	4	NPT	1,000	35	10	6⅝	3
Carbon steel	½	NPT	275–3,600	4	3½	2¾	1⅛
	¾	NPT	275–3,600	4	3½	2¾	1⅛
	1	NPT	275–3,600	4	4¼	2¾	1⅛
	1½	NPT	275–3,600	10	6	4¼	1 13/16
	2	NPT	275–3,600	13	7¼	4¼	1 13/16
	2½	Grooved	275–2,160	11	9	4¼	1 13/16
	3	NPT	275–2,160	28	8¾	5¾	2½
	4	NPT	275–1,440	38	10	6⅝	3
Aluminun bronze	1	NPT	2,160–3,600	4	4¼	2¾	1⅛
	2	NPT	275–3,600	13	7¼	4¼	1 13/16





Model Number Explanation

Example

9D - 822 - 02 3 144 - 1 31

Model | Size | End Connection | Working Pressure | Body material | Trim materials

Model

820	Aluminun bronze
822	Integral seat

Size, in [mm]

50	½ [50]
75	¾ [50]
01	1 [80]
15	1½ [100]
02	2 [150]
25	2½ [200]
03	3 [250]
04	4 [300]

End Connection

0	Socket weld
1	Grooved
3	NPT threaded

Working Pressure

027	275
030	300
060	600
072	720
100	1,000
150	1,500
144	1,440
200	2,000
216	2,160
360	3,600

Body Maerial

1	Carbon steel
2	Ductile iron
3	Stainless steel
6	Aluminum bronze

Trim Materials

31	CF8M stainless steel (SS),† peroxide-cured (PC) nitrile seals
33	CF8M SS,† fluoroelastomer seals
66	CF8M SS,† hydrogenated nitrile rubber seals, sour trim
67	CF8M SS,† HNBR seals, sour low-temp. trim
80	CF8M SS,† PC nitrile rubber seals, 7¼-in length (2 in for DI only)

† Clapper/arm and hanger.

9D-822-023144-131

2-in NPT check valve with threaded-swing end connections, 1,440-psi working pressure, carbon steel body, stainless trim, and peroxide-cured nitrile rubber seals

Parts Replacement Kits

Material Series	Order Number	Valve Size, in
Ductile iron	9D-820-01020**X**- DIK	1
	9D-820-02020**X**- DIK	2
		2½
		3
	9D-820-04010**X**- DIK	4
Carbon steel	9D-820-01036**X**- CSK	½, ¾,1
	9D-820-02021**X**- CSK	1½
		2
		2½
		3
	9D-820-04014**X**- CSK	4
Aluminun bronze	9D-820-01036**X**- ABK	1
	9D-820-02021**X**- ABK	2

Replace **X** with "B" for nitrile rubber seals, "V" for fluoroelastomer seals, or "H" for hydrogenated nitrile rubber.

Parts kit includes item numbers 4, 6, and 7.

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WHEATLEY Valves—Short-Pattern Wafer Check Valve

Lightweight, compact design for backflow prevention in gas and liquid applications

APPLICATIONS

- Pipeline applications

ADVANTAGES

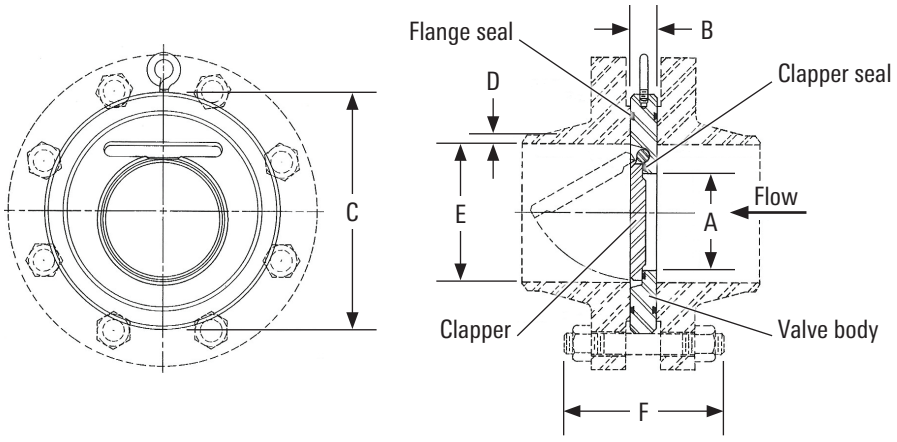
- Prevention of liquid and gas backflow
- Lightweight, compact design

The Cameron portfolio of WHEATLEY* check valves includes short-pattern wafer check valves, which are ideal in applications where

- media is clean (abrasives are not present)
- flow is steady and nonpulsating
- flow rates are low
- pigs or spheres are not intended to run through the valve
- seat velocity does not exceed
  - liquids at 15 ft/s
  - gases at 100 ft/s.

Note: The wafer check valve clapper can open approximately 50° out when the bore of the adjoining outlet flange (downstream) is equal to that listed in column “E”, entitled “Bore Minimum”. If a larger-bore flange is used, the maximum possible clapper angle can be increased. However, since “drop-in” type clappers are retained by the flange face, too large a bore will result in the clapper falling out of the valve. As a result, this model cannot be used with a slip-on flange on the downstream side.

Short-pattern wafer check valves.



Drop-in clapper design for 2-in through 12-in ASME and ANSI Class 150 through 600.

WHEATLEY Valves—Short-Pattern Wafer Check Valve

Dimensions

Working Pressure, psi	Nominal Size, in	Body-Seat Bore, in	Body Thickness, in	Body OD, in	Companion Flange, in		Ring Number	Recommended Stud Length		Weight, lbm	Order Number	
					Max. Pipe Wall	Bore Min.		O-Ring	Ring-Type Joint (RTJ)		Serrated O-Ring Face	RTJ Face
		A	B	C	D	E		F	F			
275 (ASME 150)	2	1 1/16	3/4	4 1/8	0.281	1.939	R22	3 3/4	4 1/2	3	9D-973-020027-XXX	9D-979-020027-XXX
	3	1 7/8	3/4	5 3/8	0.300	2.900	R29	4 1/4	5	5	9D-973-030027-XXX	9D-979-030027-XXX
	4	2 13/16	3/4	6 7/8	0.237	4.026	R36	4 1/4	5 1/4	7	9D-973-040027-XXX	9D-979-040027-XXX
	6	4 1/2	3/4	8 3/4	0.280	6.065	R43	4 1/2	5 1/4	12	9D-973-060027-XXX	9D-979-060027-XXX
	8	5 5/8	1 1/8	11	0.322	7.981	R48	5 1/4	6	27	9D-972-080027-XXX	9D-979-080027-XXX
	10	7 1/2	1 1/8	13 3/8	0.365	10.020	R52	5 3/4	6 1/2	36	9D-973-100027-XXX	9D-979-100027-XXX
	12	18 11/16	1 1/2	16 1/8	0.375	12.000	R56	6	6 3/4	74	9D-973-120027-XXX	9D-979-120027-XXX
720 (ASME 300)	2	1 1/16	3/4	4 3/8	0.281	1.939	R23	4	5 1/4	3	9D-973-020072-XXX	9D-979-020072-XXX
	3	1 7/8	3/4	5 7/8	0.300	2.900	R31	4 3/4	5 3/4	6	9D-973-030072-XXX	9D-979-030072-XXX
	4	2 13/16	3/4	7 1/8	0.237	4.026	R37	5	6 1/4	7	9D-973-040072-XXX	9D-979-040072-XXX
	6	4 1/2	7/8	9 7/8	0.280	6.065	R45	5 3/4	6 3/4	17	9D-973-060072-XXX	9D-979-060072-XXX
	8	5 5/8	1 1/8	12 1/8	0.322	7.981	R49	6 1/2	7 1/2	33	9D-973-080072-XXX	9D-979-080072-XXX
	10	7 1/2	1 1/2	14 1/4	0.365	10.020	R53	7 1/2	8 1/4	60	9D-973-100072-XXX	9D-979-100072-XXX
	12	8 11/16	2	16 5/8	0.375	12.000	R57	8 1/2	9 1/4	105	9D-973-120072-XXX	9D-979-120072-XXX
1,440 (ASME 600)	2	1 1/16	3/4	4 3/8	0.218	1.939	R23	4 3/4	5 1/2	3	9D-973-020144-XXX	9D-979-020144-XXX
	3	1 7/8	3/4	5 7/8	0.300	2.900	R31	5 1/2	6	6	9D-973-030144-XXX	9D-979-030144-XXX
	4	2 5/8	7/8	7 5/8	0.337	3.826	R37	6 1/2	7	10	9D-973-040144-XXX	9D-979-040144-XXX
	6	4 1/8	1 1/8	10 1/2	0.432	5.761	R45	7 3/4	8	26	9D-973-060144-XXX	9D-979-060144-XXX
	8	5	1 1/2	15 5/8	0.500	7.625	R49	9	9 1/4	48	9D-973-080144-XXX	9D-979-080144-XXX
	10	7	2 1/4	15 3/4	0.500	9.750	R53	10 3/4	11 1/4	112	9D-973-100144-XXX	9D-979-100144-XXX
	12	8 1/2	2 3/8	18	0.500	11.750	R57	11 1/8	11 5/8	152	9D-973-120144-XXX	9D-979-120144-XXX

How to Order

Part Number	Description†
9D-973-XXXXXX-167	2- to 8-in Class 300, phosphorus-coated carbon steel body, 316 stainless steel trim, highly saturated nitrile (HSN) seals, NACE compliance, service from –50 to 300 degF [–46 to 149 degC]
9D-973-XXXXXX-169	2- to 8-in Class 300, phosphorus-coated carbon steel body, 316 stainless steel trim, high-strength synthetic-rubber seals, NACE compliance, service from –40 to 400 degF [–40 to 204 degC]
9D-973-XXXXXX-170	8- to 12-in Class 600, phosphorus-coated carbon steel body and trim, HSN seals, NACE compliance, service from –50 to 300 degF [–46 to 149 degC]
9D-973-XXXXXX-171	8- to 12-in Class 600, phosphorus-coated carbon steel body and trim, high-strength synthetic-rubber seals, NACE compliance, service from –40 to 400 degF [–40 to 204 degC]
9D-973-XXXXXX-367	2- to 12-in 316 stainless steel body and trim, HSN seals, NACE compliance, service from –50 to 300 degF [–46 to 149 degC]
9D-973-XXXXXX-369	2- to 12-in 316 stainless steel body and trim, high-strength synthetic-rubber seals, NACE compliance, service from –40 to 400 degF [–40 to 204 degC]

† Sour-service low-temperature trim included.

Materials of Construction

Body	Clapper		O-Ring Seal
	2- to 8-in Class 300	8-in to 12-in Class 600	
Carbon steel (phosphorus coating)	316 stainless steel	Carbon steel (phosphorus coating)	HSN
316 stainless steel	316 stainless steel	316 stainless steel	High-strength synthetic rubber

Consult Cameron for other materials.

Body face sealing surfaces—O-ring (left) and RTJ (right).

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