



WKM 370D6 Trunnion-Mounted Ball Valves

WKM valves for general-purpose petroleum and chemical process applications

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WKM 370D6 Trunnion- Mounted Ball Valves

Cameron is a leading provider of valve, valve automation, and measurement systems to the oil and gas industry.

Our products control, direct, and measure the flow of oil and gas as it is moved to refineries, petrochemical plants, and industrial centers for processing. We provide valve products that are sold through distributor networks worldwide. Our products are used in oil, gas, and industrial applications and include widely recognized brands such as

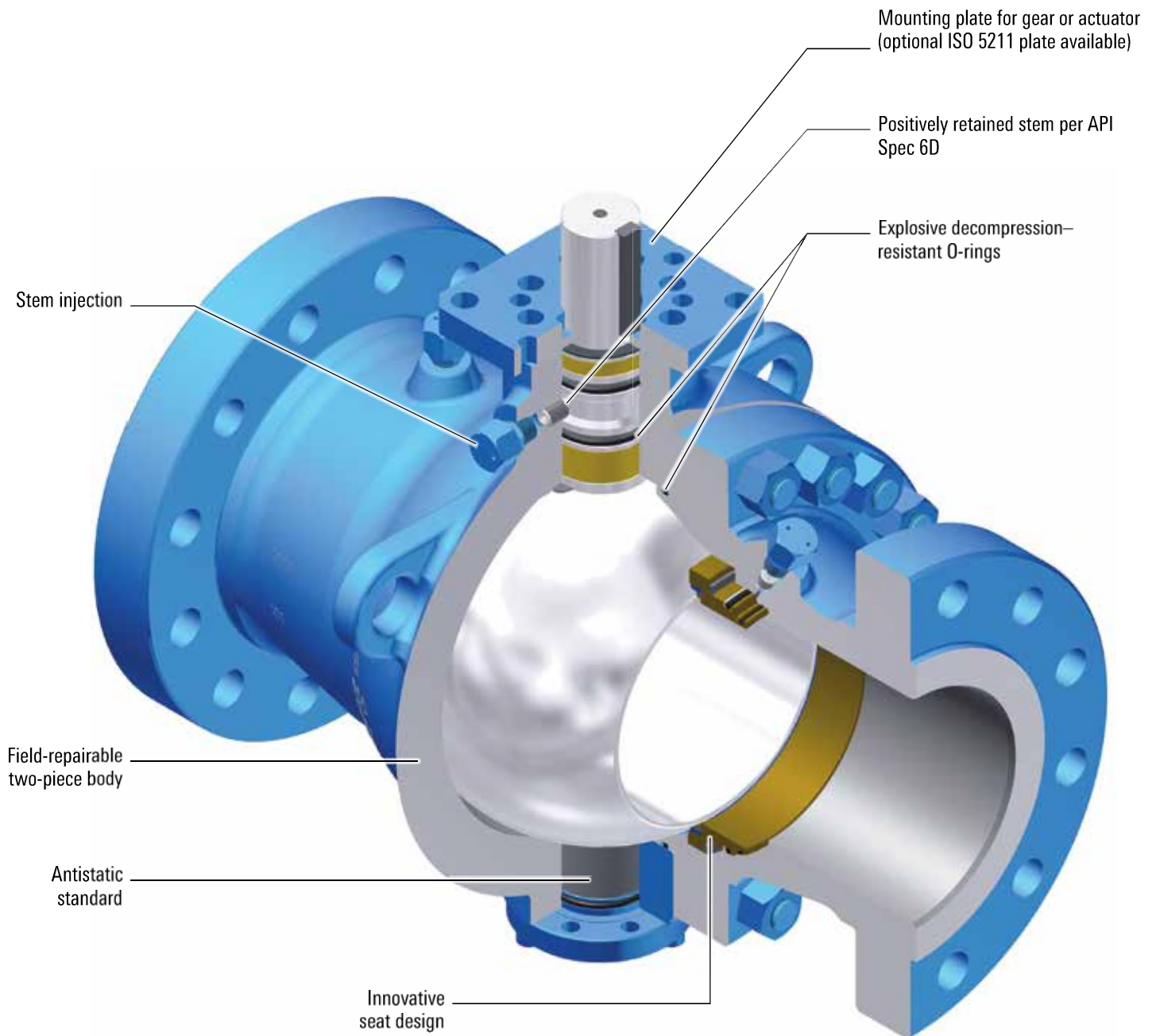
- DEMCO* valves
- NAVCO* floating ball valves
- NEWCO* gate, globe, and choke valves
- DOUGLAS CHERO* forged-steel gate, globe, and check valves
- NUTRON* ball valves
- THORNHILL CRAVER* choke valves
- TOM WHEATLEY* check valves
- WHEATLEY* check valves
- WKM* valves.

Our WKM valve product line offers gate valves, trunnion-mounted and floating ball valves, and butterfly valves, all built to standards for demanding applications. The WKM 370D6* trunnion-mounted ball valve is recognized throughout the world for durability, reliability, and flexibility in many challenging situations.

ASME Classes 150–2500 and 5,000-psi valves

2 to 16 in [50 to 400 mm]

WKM 370D6 ball valves are designed and engineered for heavy-duty performance. Used in many general-purpose petroleum and chemical process applications, these valves also can be specified for more demanding applications.



Features and benefits

Fire tested for safety

WKM 370D6 ball valves are qualified under API Spec 607 standards.

Actuation friendly

Valves can come with a gear operator from DYNATORQUE* valve accessories or an ISO 5211 certified mounting pad for easy actuation.

End connections

Valves are generally flanged; 2-, 3-, and 4-in Class 150 valves come in flanged × flanged configuration.

Body style

Two-piece body is standard.

Standard materials

Choose carbon steel, stainless steel (SS), or low-temperature carbon steel.

Optional stem materials

Choose 316 SS, 410 SS, 4130 LAS, or INCONEL® material.

Double-block-and-bleed operation

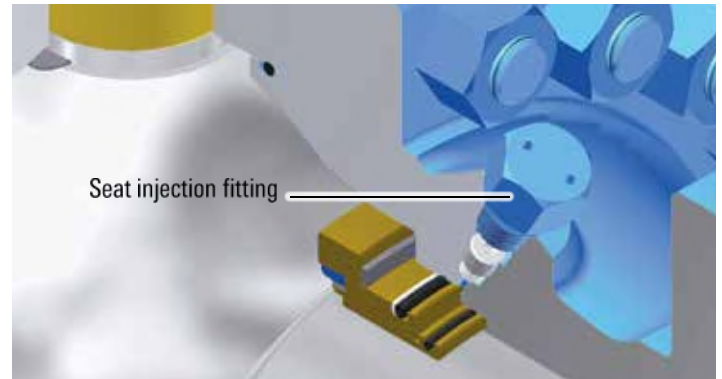
The pressure-actuated seats and bleed fittings enable double-block-and-bleed operation. When used for block and bleed, this feature can permit the valve to take the place of two valves. It also enables the operator to check up- and downstream sealing by bleeding off the body pressure. All sizes can block and bleed in both the open and closed positions.

Standard NACE trim†

Valves are compliant with NACE MR0175 and ISO 15156 certification for buried service.

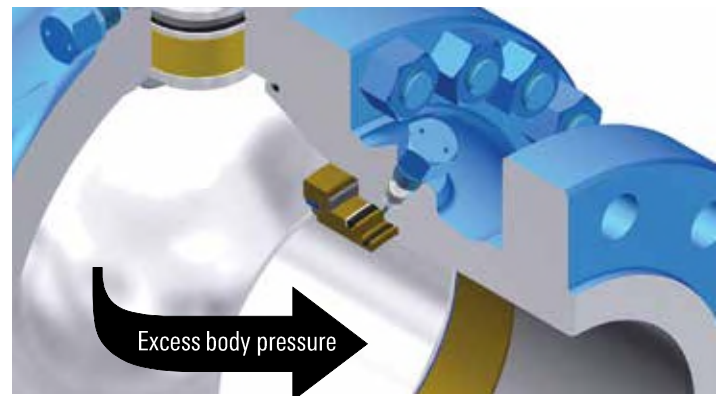
Bidirectional flow

This valve uses pressure-actuated seats with locked-in, nonmetallic face seals. To help ensure sealing at low pressure, special wave springs force the seats against the ball. At higher pressures, the upstream seat is forced against the ball by the pressure working across the differential area between the seat insert and the seat O-ring. The higher the pressure, the tighter the seal.



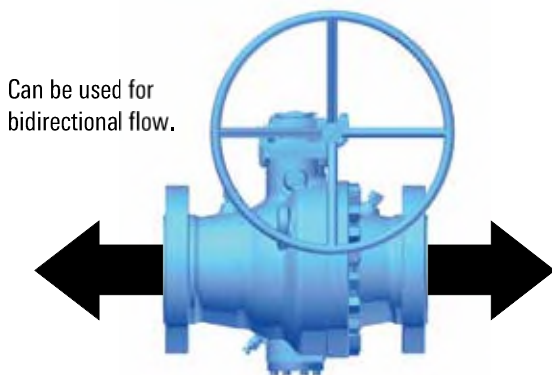
Secondary seat seal injection

In the event of damage to the valve seat, sealant can be injected to temporarily seal the valve.



Automatic body pressure relief

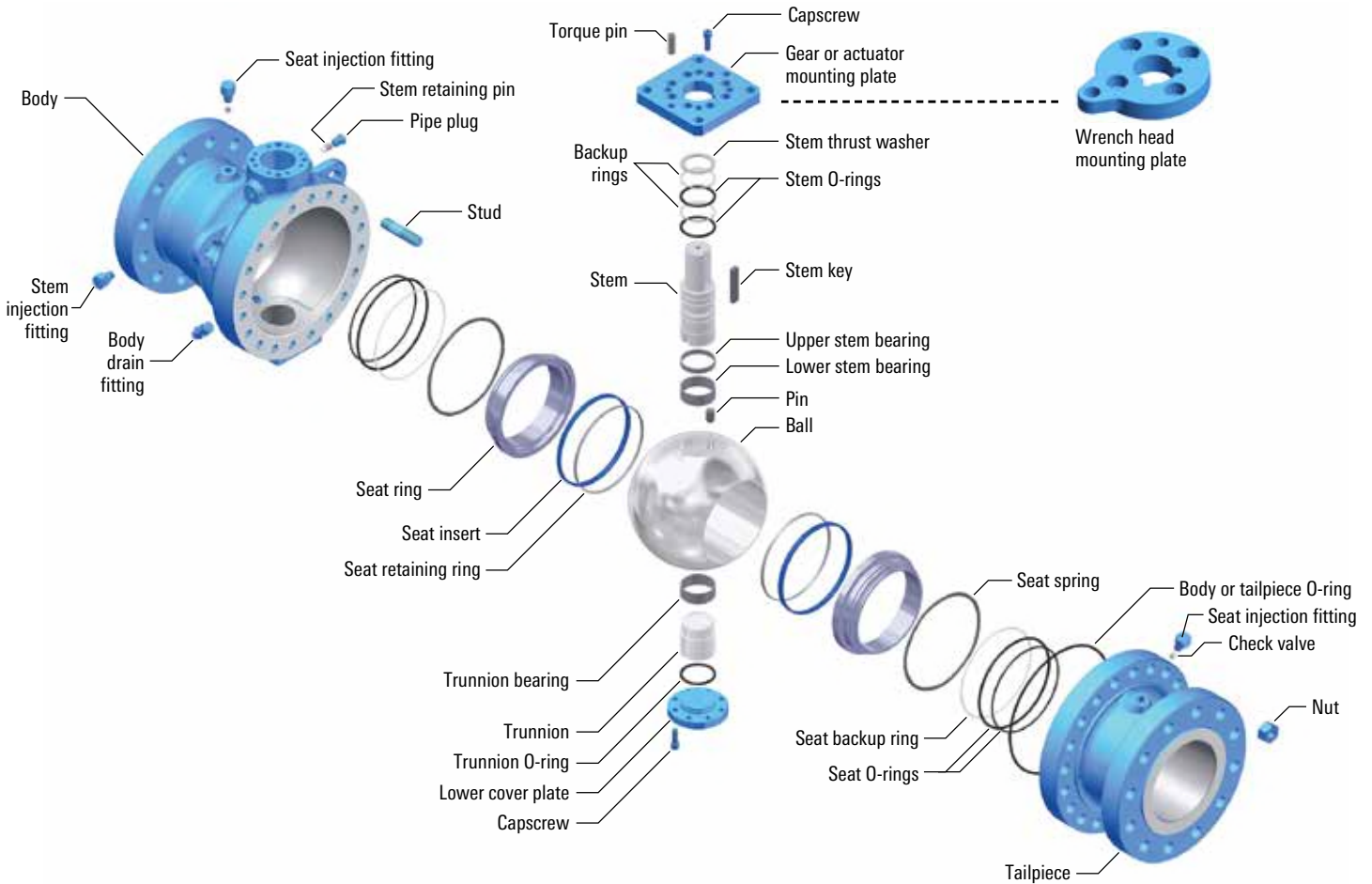
Seats internally relieve excess body pressure.



Can be used for bidirectional flow.

†NACE MR0175 and ISO 15156 compliance—Materials of construction shall be in compliance with the prequalified material requirements specified by NACE MR0175 and ISO 15156 certification. According to NACE MR0175 and ISO 15156 certification, it is the manufacturer's responsibility to meet metallurgical requirements and the customer's or user's responsibility to ensure that a material will be satisfactory in the intended environment. When given the application requirements (environment) by the customer or user, Cameron can make technical recommendations in accordance with NACE MR0175 and ISO 15156 certification, but that in no way certifies or warrants the product or materials for the application.

Standards and specifications



Design and testing standards

- API Spec 6D
- API Spec 598
- API Spec 607 6th Ed. fire testing
- NACE MR0175 and ISO 15156 certification
- ASME Standard B16.34 (valves, flange end)
- Manufacturers Standardization Society Standard Practice 6 (MSS SP-6), standard finishes for pipe flanges)
- MSS SP-25 (standard marking system for valves)
- MSS SP-55 (quality standards for steel castings)

In addition, WKM 370D6 trunnion-mounted ball valves can be supplied to comply with

- Conformité Européenne Pressure Equipment Directive (CE/PED)
- ISO 5211 certification top works
- Canadian Registration Number (CRN)
- API Spec 608
- fugitive emissions certification.

ASME Pressure Classes

Size, in [mm]	ASME Class						
	150	300	600	900	1500	2500	5000-psi
2 [50]	●	●	●	●	●	●	●
3 × 2 [80 × 50]			●	●			
3 [80]	●	●	●	●	●	●	●
4 × 3 [100 × 80]			●	●			
4 [100]	●	●	●	●	●	●	●
6 × 4 [150 × 100]	●	●	●	●	●	●	
6 [150]	●	●	●	●	●		●
8 × 6 [200 × 150]	●	●	●	●	●		
8 [200]	●	●	●	●			
10 × 8 [250 × 200]	●	●	●	●			
10 [250]	●	●	●	●			
12 × 10 [300 × 250]	●	●	●	●			
12 [300]	●	●	●	●			
14 [350]	●	●	●				
16 [400]	●	●	●				

Materials list

Body Group Trim Number	24	37	23	27
Part	Carbon Steel	Low-Temperature Carbon Steel	Stainless Steel	Carbon Steel 3-mil Electroless Nickel Plating (ENP)
Body	A216 Gr. WCC	A352 Gr. LCC	A351 Gr. CF8M	–
Tailpiece	A216 Gr. WCC	A352 Gr. LCC	A351 Gr. CF8M	–
Lower cover plate	Carbon steel	A350 Gr. LF2	316 SS	–
Studs	A320 Gr. L7M (zinc plated)	A320 Gr. L7M (zinc plated)	A320 Gr. L7M (zinc plated)	–
Nuts	A194 Gr. 7ML (zinc plated)	A194 Gr. 7ML (zinc plated)	A194 Gr. 7ML (zinc plated)	–
Capscrews	L7M	L7M	L7M	–
Pipe plug	SS	SS	SS	–
Adapter plate	Carbon steel (CS)	A350 Gr. LF2	A350 Gr. LF2	–

All body group trim numbers are compliant with NACE MR0175 and ISO 15156 certification.

Internal Group Trim Number	24	37	23	27
Ball	A216 Gr. WCC/A105 CS ENP	A352 Gr. LCC/A350 Gr. LF2 ENP	A182 Gr. 316/A351 Gr. CF8M	A216 Gr. WCC/A105 CS 3 mil ENP
Stem drive pin	Alloy steel	Alloy steel	316 SS	Alloy steel
Stem or trunnion	A105 CS ENP	A350 Gr. LF2 ENP	A182 Gr. 316 SS	A105 CS 3 mil ENP
Seat rings	A 216 Gr. WCC/A105 CS ENP	A352 Gr. LCC/A350 Gr. LF2 ENP	A182 Gr. 316/A351 Gr. CF8M	A216 Gr. WCC/A105 CS 3 mil ENP
Seat spring	B637 N07500	B637 N07500	B637 N07500	B637 N07500
Stem and trunnion bearings	CS and filled PTFE	CS and filled PTFE	CS and filled PTFE [†]	CS and filled PTFE
Thrust washer	CS and filled PTFE	CS and filled PTFE	CS and filled PTFE [†]	CS and filled PTFE
Ground spring	SS	SS	SS	SS

Note: Trim 24 is suitable for ambient temperatures from –20 to 400 degF [–29 to 204 degC].

Trims 23 and 37 are suitable for ambient temperatures from –50 to 400 degF [–46 to 204 degC] (must be combined with appropriate seal code).

[†] 23-23 full stainless steel gets stainless steel thrust washer and bearings.

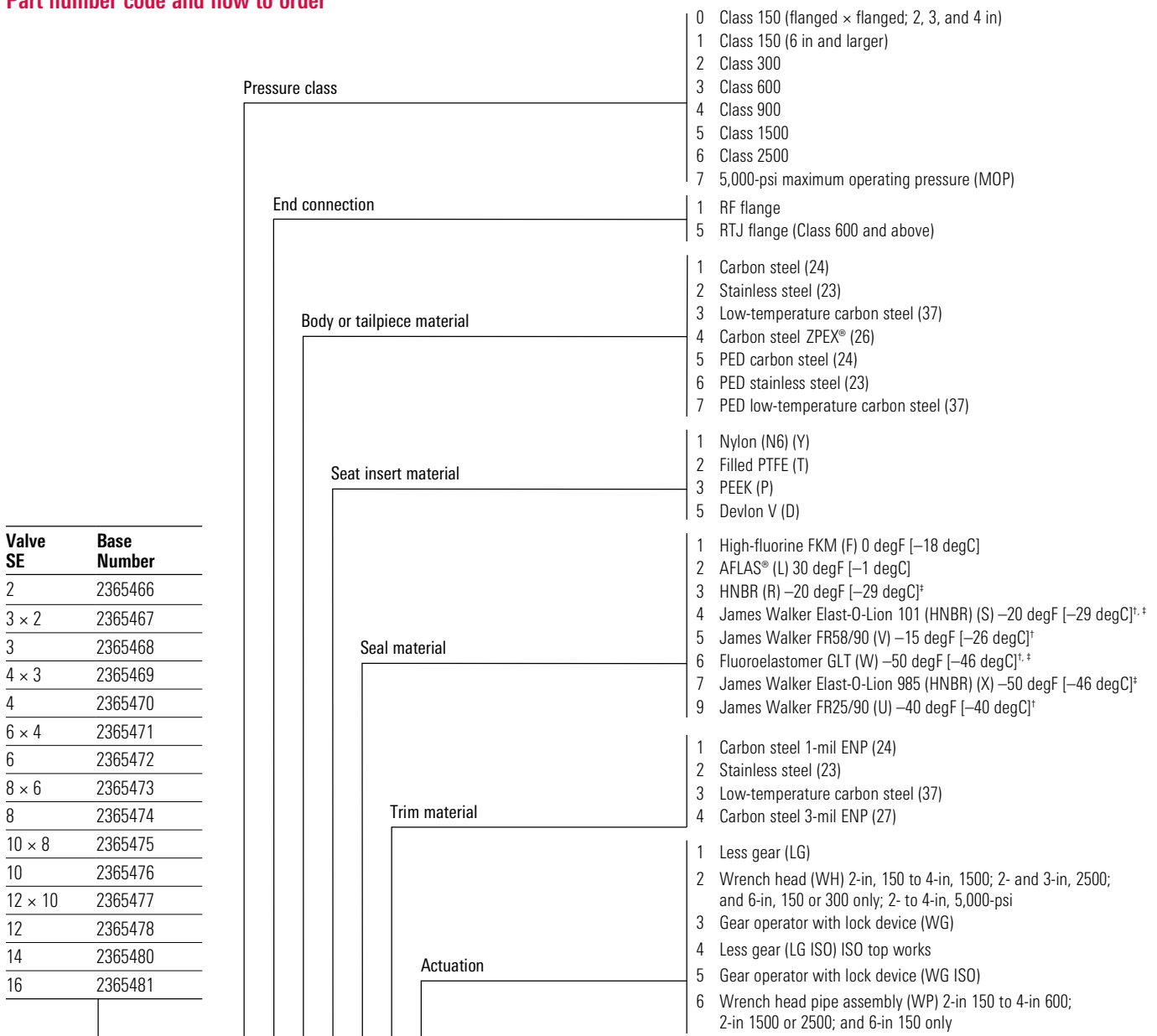
Seal Group Trim Code	YXF [†]	TFF	YRF	PWF [†]
Part	Fire Tested	Classes 150–600 Fire Tested	Fire Tested	Fire Tested
Temperature limits	–50 [†] to 250 degF [–46 to 121 degC]	0 to 350 degF [–18 to 177 degC]	–20 to 250 degF [–29 to 121 degC]	–50 [†] to 350 degF [–46 to 177 degC]
Seat face seals	Nylon (N6)	Filled PTFE	Nylon (N6)	PEEK [®]
Stem seal O-rings	James Walker [®] HNBR	FKM [®]	HNBR	FKM GLT
Body and tailpiece O-rings	James Walker HNBR	FKM	HNBR	FKM GLT
Seat O-rings	James Walker HNBR	FKM	HNBR	FKM GLT
Trunnion O-ring	James Walker HNBR	FKM	HNBR	FKM GLT
Backup rings	Nylon or PEEK	PEEK	Nylon or PEEK	PEEK

[†] When combined with trim 23 or 37, use body and internal group code. Consult Cameron for a complete list of trim temperature ranges.

Trim codes

2	D6	600	RF × RF	24	Y	R	F	24	LG		
Size, in [mm]	Valve model	Pressure class	End connections	Body group	Seat group	Seal group	Fire tested	Internal group	Actuation		
2 to 16 in [50 to 400 mm]	370D6	150 to 5000	Stainless steel	23	23	FKM	F	Stainless steel	Less gear	LG	
	370D6P-PED		Carbon steel			24	James Walker 985		X	Carbon steel	24
Low-temperature carbon steel	37	HNBR	R			Carbon steel 3-mil ENP	27		Wrench head	WH	
				Devlon®	D	James Walker 101	S	Low-temperature carbon steel	37		
				Nylon (N6)	Y	FKM GLT	W				
				Filled PTFE	T	James Walker FR58	V				
				PEEK	P						

Part number code and how to order



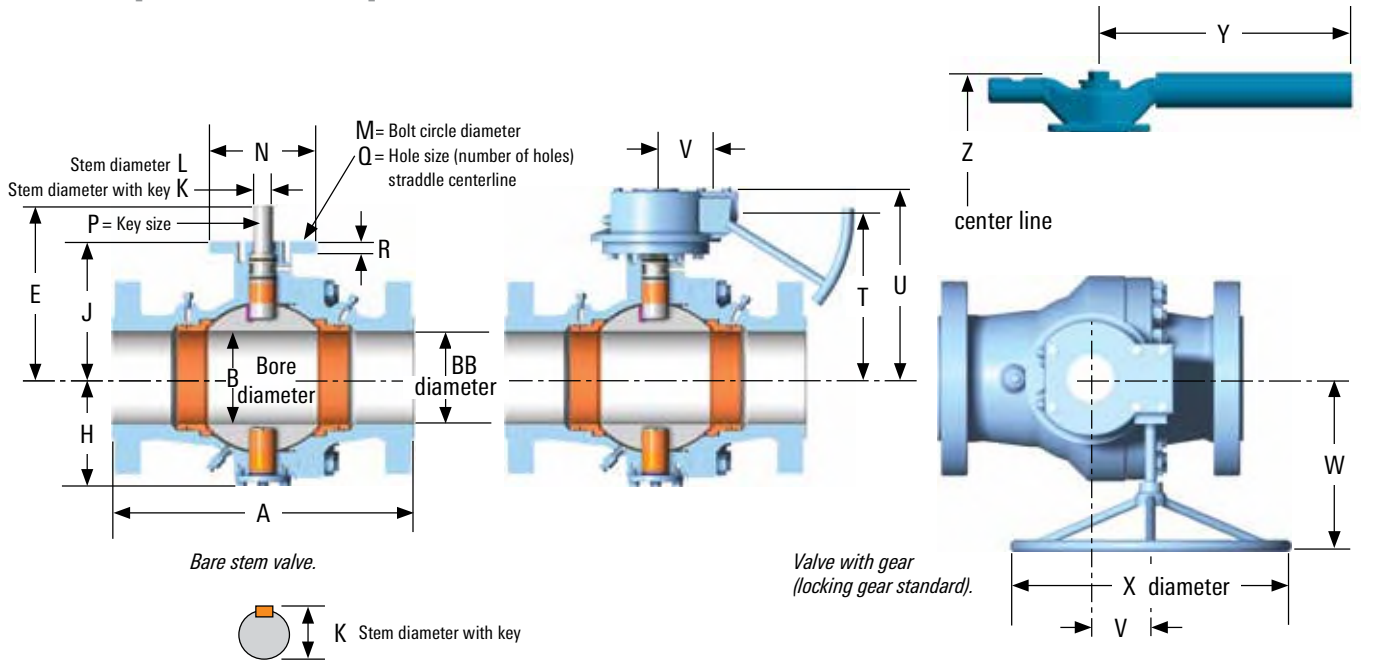
Valve SE	Base Number
2	2365466
3 × 2	2365467
3	2365468
4 × 3	2365469
4	2365470
6 × 4	2365471
6	2365472
8 × 6	2365473
8	2365474
10 × 8	2365475
10	2365476
12 × 10	2365477
12	2365478
14	2365480
16	2365481

XXXXXXXX-XXXXXXXX

[†]Antiexplosive decompression (AED) certified
[‡]Low-emissions certified

ASME Class 150 valve dimensions

2 to 16 in [50 to 400 mm]



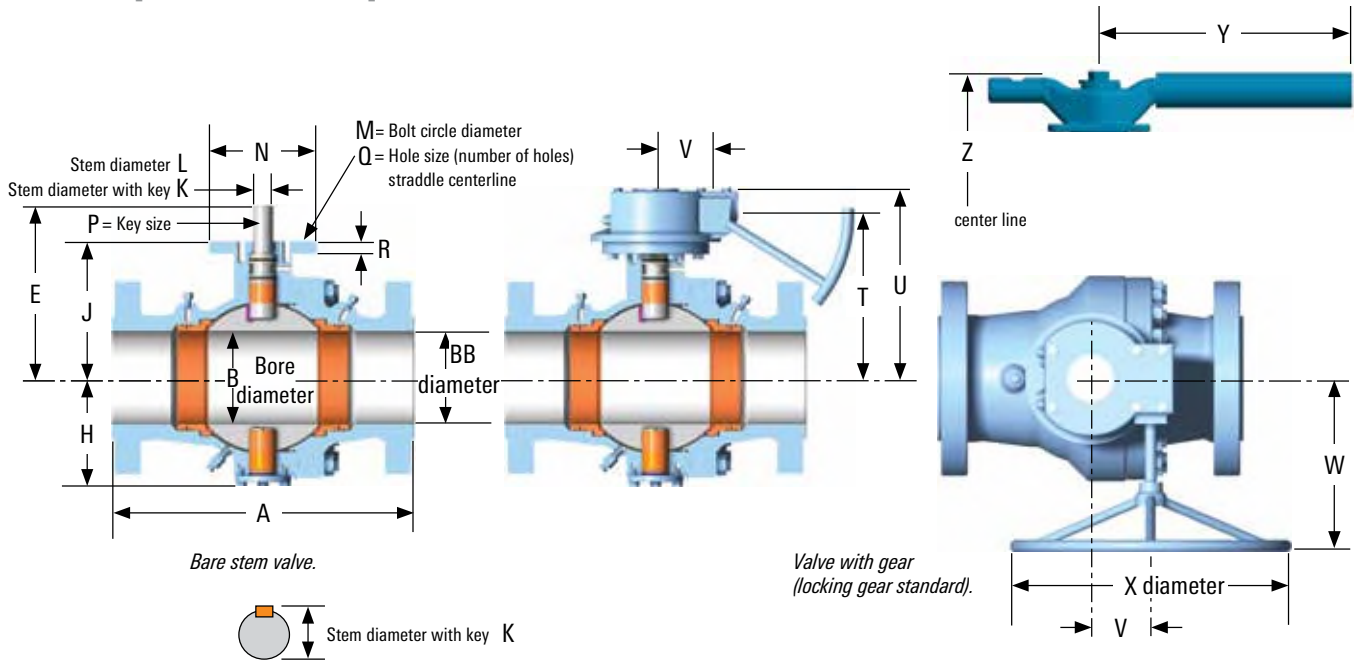
Dimensions

Size, in [mm]	A		B	BB	E	H	J	K	L	M*	N*	P	Q*	R	T	U	V	W	X	Y	Z
	RF	RJ																			
2 [50]	7.00 [178]	-	2.00 [51]	2.00 [51]	6.31 [160.3]	4.31 [109.5]	4.67 [118.6]	0.962 [24.43]	0.862 [21.8]	4.016 [102.00]	4.90 [124.4]	0.318 [8.08]	0.43 [10.9] (4)	0.59 [14.99]	5.77 [146.6]	7.32 [185.9]	1.75 [44.5]	9.06 [230.12]	6.00 [154.4]	7.7 [196]	6.7 [170]
3 [80]	8.00 [203]	-	3.00 [76]	3.00 [76]	7.14 [181.4]	5.19 [131.8]	5.54 [140.7]	1.219 [30.96]	1.098 [27.89]	4.016 [102.00]	4.90 [124.4]	0.318 [8.08]	0.43 [10.9] (4)	0.59 [14.99]	6.64 [168.7]	8.19 [208.0]	1.75 [44.5]	9.06 [230.12]	6.00 [154.4]	13.7 [348]	7.5 [191]
4 [100]	9.00 [229]	-	4.00 [102]	4.00 [102]	9.14 [232.2]	6.65 [168.9]	7.11 [180.6]	1.533 [38.94]	1.413 [35.89]	5.512 [140.00]	6.90 [175.00]	0.398 [10.11]	0.67 [17] (4)	0.77 [19.56]	8.48 [215.4]	10.18 [258.6]	2.51 [63.8]	9.06 [230.12]	6.00 [154.4]	23.9 [607]	9.6 [244]
6 × 4 [150 × 100]	15.50 [394]	-	4.00 [102]	6.00 [152]	9.14 [232.2]	6.65 [168.9]	7.11 [180.6]	1.533 [38.94]	1.413 [35.89]	5.512 [140.00]	6.90 [175.00]	0.398 [10.11]	0.67 [17] (4)	0.77 [19.56]	8.48 [215.4]	10.18 [258.6]	2.51 [63.8]	9.06 [230.12]	6.00 [154.4]	-	-
6 [150]	15.50 [394]	-	6.00 [152]	6.00 [152]	11.50 [292.1]	8.25 [209.5]	9.17 [232.9]	1.770 [44.96]	1.650 [41.91]	6.00 [152.40]	7.00 [177.8]	0.476 [12.09]	0.56 [14.2] (4)	0.84 [21.3]	10.54 [267.7]	12.24 [310.9]	2.51 [63.8]	12.19 [309.6]	12.00 [304.8]	38.2 [970]	11.9 [302]
8 × 6 [200 × 150]	18.00 [457]	-	6.00 [152]	8.00 [203]	11.50 [292.1]	8.25 [209.5]	9.17 [232.9]	1.770 [44.96]	1.650 [41.91]	6.00 [152.40]	7.00 [177.8]	0.476 [12.09]	0.56 [14.2] (4)	0.84 [21.3]	10.54 [267.7]	12.24 [310.9]	2.51 [63.8]	12.19 [309.6]	12.00 [304.8]	-	-
8 [200]	18.00 [457]	-	8.00 [203]	8.00 [203]	14.00 [355.6]	10.06 [255.5]	11.52 [292.6]	2.024 [51.41]	1.886 [47.90]	6.496 [165.00]	8.00 [203.2]	0.556 [14.12]	0.81 [20.6] (4)	0.94 [23.88]	13.02 [330.7]	14.79 [375.7]	3.00 [76.2]	12.19 [309.6]	16.00 [406.4]	-	-
10 × 8 [250 × 200]	21.00 [533]	-	8.00 [203]	10.00 [254]	14.00 [355.6]	10.06 [255.5]	11.52 [292.6]	2.024 [51.41]	1.886 [47.90]	6.496 [165.00]	8.00 [203.2]	0.556 [14.12]	0.81 [20.6] (4)	0.94 [23.88]	13.02 [330.7]	14.79 [375.7]	3.00 [76.2]	12.19 [309.6]	16.00 [406.4]	-	-
10 [250]	21.00 [533]	-	10.00 [254]	10.00 [254]	16.52 [419.6]	12.00 [304.8]	13.42 [340.9]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.9]	15.30 [388.6]	17.28 [438.9]	3.63 [92.08]	14.94 [379.5]	20.00 [508.0]	-	-
12 × 10 [300 × 250]	24.00 [610]	-	10.00 [254]	12.00 [305]	16.52 [419.6]	12.00 [304.8]	13.42 [340.9]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.9]	15.30 [388.6]	17.28 [438.9]	3.63 [92.08]	14.94 [379.5]	20.00 [508.0]	-	-
12 [300]	24.00 [610]	-	12.00 [305]	12.00 [305]	17.95 [501.6]	13.27 [337.0]	14.85 [377.2]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.9]	16.73 [424.9]	18.71 [475.2]	3.63 [92.08]	14.94 [379.5]	20.00 [508.0]	-	-
14 [350]	27.00 [686]	-	13.25 [337]	13.25 [337]	21.04 [534.4]	15.28 [388.1]	16.97 [431.0]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	11.90 [302.00]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	19.22 [488.2]	21.68 [550.7]	4.63 [117.5]	18.09 [459.5]	24.00 [609.6]	-	-
16 [400]	30.00 [762]	-	15.25 [387]	15.25 [387]	22.67 [575.8]	16.91 [429.5]	18.6 [472.4]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	11.90 [302.00]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	20.85 [529.6]	23.31 [592.1]	4.63 [117.5]	19.72 [500.9]	30.00 [762.0]	-	-

*M, N, and Q dimensions are for less gear and with gear configurations only.

ASME Class 300 valve dimensions

2 to 16 in [50 to 400 mm]



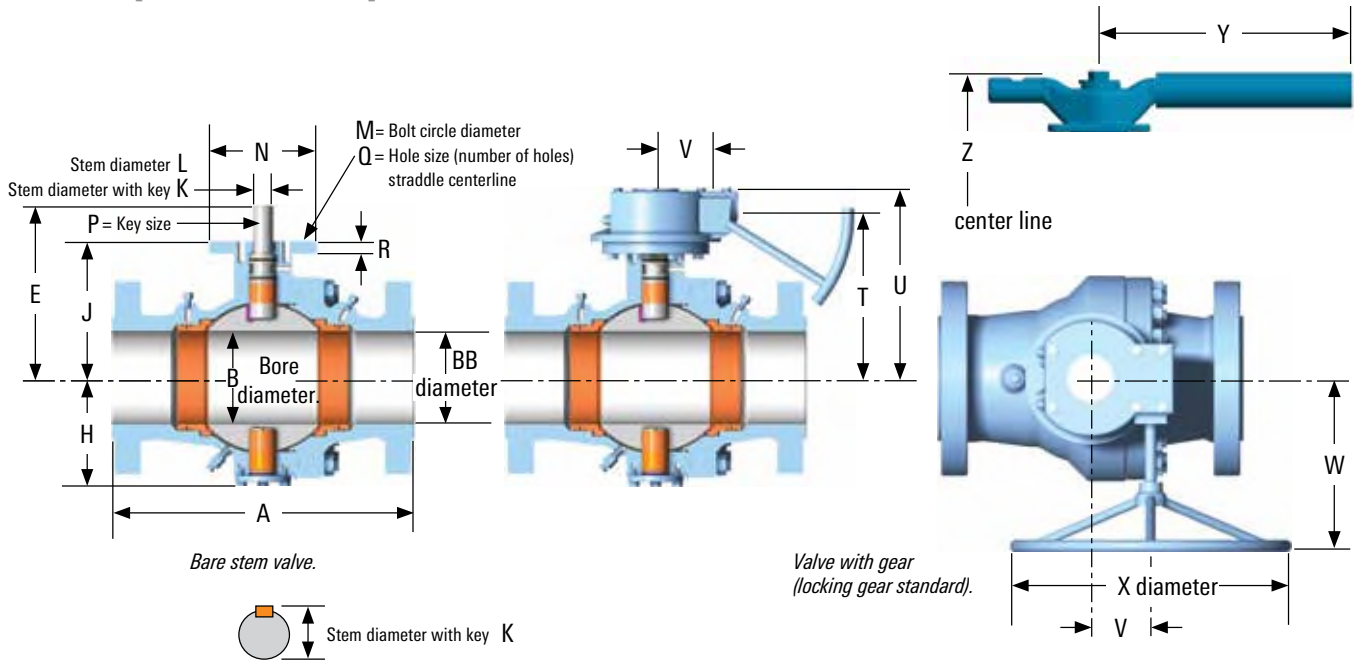
Dimensions

Size, in [mm]	A		B	BB	E	H	J	K	L	M [†]	N [†]	P	Q [†]	R	T	U	V	W	X	Y	Z
	RF	RJ																			
2 [50]	8.50 [216]	-	2.00 [51]	2.00 [51]	6.31 [160.3]	4.31 [109.5]	4.67 [118.6]	1.219 [30.96]	1.098 [27.89]	4.016 [102.00]	4.90 [124.4]	0.318 [8.08]	0.43 [10.9] (4)	0.59 [14.99]	5.77 [146.6]	7.32 [185.9]	1.75 [44.5]	9.06 [230.12]	6.00 [154.4]	13.7 [348]	6.7 [170]
3 [80]	11.12 [282]	-	3.00 [76]	3.00 [76]	7.14 [181.4]	5.19 [131.8]	5.54 [140.7]	1.219 [30.96]	1.098 [27.89]	4.016 [102.00]	4.90 [124.4]	0.318 [8.08]	0.43 [10.9] (4)	0.59 [14.99]	6.64 [168.7]	8.19 [208.0]	1.75 [44.5]	9.06 [230.12]	6.00 [154.4]	19.7 [500]	7.5 [191]
4 [100]	12.00 [305]	-	4.00 [102]	4.00 [102]	9.14 [232.2]	6.65 [168.9]	7.11 [180.6]	1.533 [38.94]	1.413 [35.89]	5.512 [140.00]	6.90 [175.00]	0.398 [10.11]	0.67 [17] (4)	0.77 [19.56]	8.48 [215.4]	10.18 [258.6]	2.51 [63.8]	9.06 [230.12]	6.00 [154.4]	31.9 [810]	9.6 [244]
6 × 4 [150 × 100]	15.88 [403]	-	4.00 [102]	6.00 [152]	9.14 [232.2]	6.65 [168.9]	7.11 [180.6]	1.533 [38.94]	1.413 [35.89]	5.512 [140.00]	6.90 [175.00]	0.398 [10.11]	0.67 [17] (4)	0.77 [19.56]	8.48 [215.4]	10.18 [258.6]	2.51 [63.8]	9.06 [230.12]	6.00 [154.4]	-	-
6 [150]	15.88 [403]	-	6.00 [152]	6.00 [152]	11.50 [292.1]	8.25 [209.5]	9.17 [232.9]	1.770 [44.96]	1.650 [41.91]	6.00 [152.40]	7.00 [177.8]	0.476 [12.09]	0.56 [14.2] (4)	0.84 [21.3]	10.54 [267.7]	12.24 [310.9]	2.51 [63.8]	12.19 [309.6]	12.00 [304.8]	-	-
8 × 6 [200 × 150]	19.75 [502]	-	6.00 [152]	8.00 [203]	11.50 [292.1]	8.25 [209.5]	9.17 [232.9]	1.770 [44.96]	1.650 [41.91]	6.00 [152.40]	7.00 [177.8]	0.476 [12.09]	0.56 [14.2] (4)	0.84 [21.3]	10.54 [267.7]	12.24 [310.9]	2.51 [63.8]	12.19 [309.6]	12.00 [304.8]	-	-
8 [200]	19.75 [502]	-	8.00 [203]	8.00 [203]	14.95 [379.7]	10.45 [265.4]	11.85 [301.0]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.88]	13.73 [348.7]	15.71 [399.0]	3.63 [92.08]	13.81 [350.8]	16.00 [406.4]	-	-
10 × 8 [250 × 200]	22.38 [568]	-	8.00 [203]	10.00 [254]	14.95 [379.7]	10.45 [265.4]	11.85 [301.0]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.88]	13.73 [348.7]	15.71 [399.0]	3.63 [92.08]	13.81 [350.8]	16.00 [406.4]	-	-
10 [250]	22.38 [568]	-	10.00 [254]	10.00 [254]	16.52 [419.6]	12.00 [304.8]	13.42 [340.9]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.9]	15.30 [388.6]	17.28 [438.9]	3.63 [92.08]	14.94 [379.5]	20.00 [508.0]	-	-
12 × 10 [300 × 250]	25.50 [648]	-	10.00 [254]	12.00 [305]	16.52 [419.6]	12.00 [304.8]	13.42 [340.9]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.9]	15.30 [388.6]	17.28 [438.9]	3.63 [92.08]	14.94 [379.5]	20.00 [508.0]	-	-
12 [300]	25.50 [648]	-	12.00 [305]	12.00 [305]	20.17 [512.3]	14.41 [366.0]	16.10 [408.9]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	9.50 [241.3]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	18.35 [466.1]	20.81 [528.6]	4.63 [117.5]	18.09 [459.5]	24.00 [609.6]	-	-
14 [350]	30.00 [762]	-	13.25 [337]	13.25 [337]	21.04 [534.4]	15.28 [388.1]	16.97 [431.0]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	11.90 [302.00]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	19.22 [488.2]	21.68 [550.7]	4.63 [117.5]	19.72 [500.9]	30.00 [762.0]	-	-
16 [400]	33.00 [838]	-	15.25 [387]	15.25 [387]	24.46 [621.3]	18.18 [461.8]	19.89 [505.2]	3.342 [84.89]	3.145 [79.88]	10.375 [263.53]	12.00 [305.00]	0.87 [22.10]	0.67 [17] (8)	1.27 [32.3]	25.01 [635.3]	26.40 [670.6]	5.67 [144.1]	19.78 [502.4]	20.00 [508.0]	-	-

[†]M, N, and Q dimensions are for less gear and with gear configurations only.

ASME Class 600 valve dimensions

2 to 16 in [50 to 400 mm]



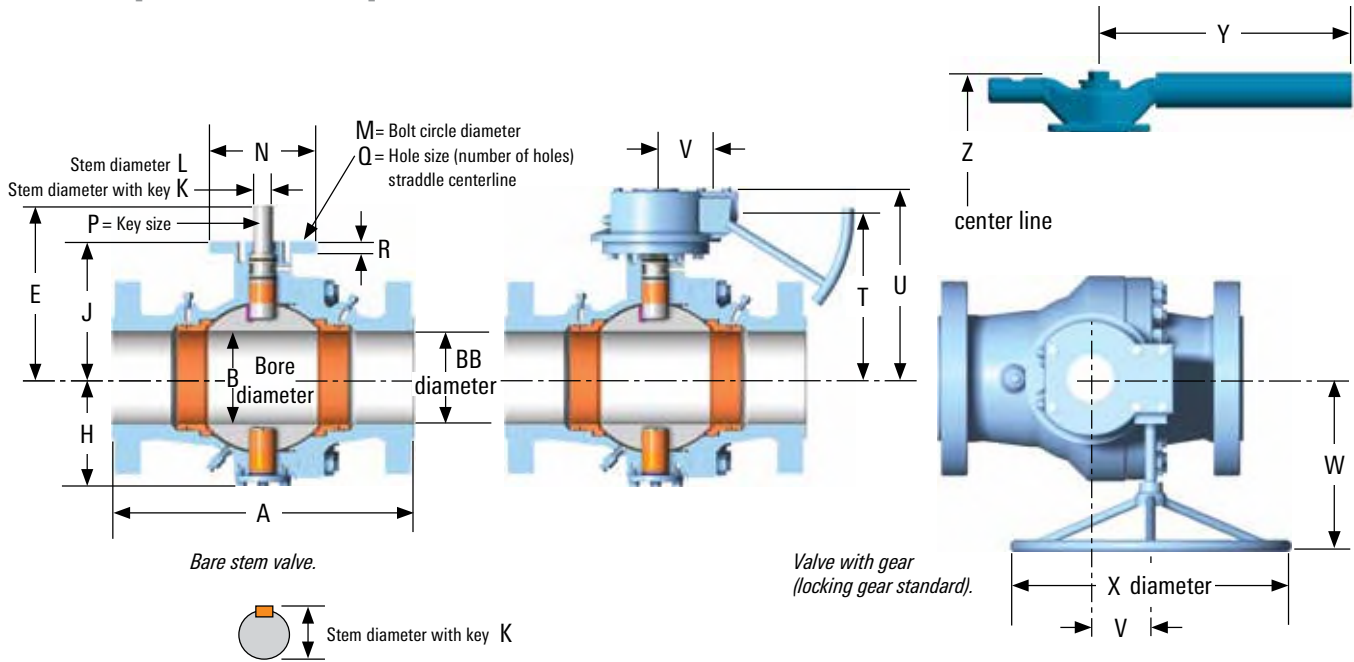
Dimensions

Size, in [mm]	A		B	BB	E	H	J	K	L	M*	N*	P	Q*	R	T	U	V	W	X	Y	Z
	RF	RJ																			
2 [50]	11.50 [292]	11.62 [295]	2.00 [51]	2.00 [51]	6.31 [160.3]	4.31 [109.5]	4.67 [118.6]	1.219 [30.96]	1.098 [27.89]	4.016 [102.00]	4.90 [124.4]	0.318 [8.08]	0.43 [10.9] (4)	0.59 [14.99]	5.77 [146.6]	7.32 [185.9]	1.75 [44.5]	9.06 [230.12]	6.00 [154.4]	13.7 [348]	6.7 [170]
3 × 2 [80 × 50]	14.00 [356]	14.12 [359]	2.00 [51]	3.00 [76]	6.31 [160.3]	4.31 [109.5]	4.67 [118.6]	1.219 [30.96]	1.098 [27.89]	4.016 [102.00]	4.90 [124.4]	0.318 [8.08]	0.43 [10.9] (4)	0.59 [14.99]	5.77 [146.6]	7.32 [185.9]	1.75 [44.5]	9.06 [230.12]	6.00 [154.4]	-	-
3 [80]	14.00 [356]	14.12 [359]	3.00 [76]	3.00 [76]	8.27 [210.1]	5.84 [148.3]	6.23 [158.2]	1.533 [38.94]	1.413 [35.89]	5.512 [140.00]	6.90 [175.00]	0.398 [10.11]	0.67 [17] (4)	0.77 [19.56]	7.60 [193.0]	9.30 [236.2]	2.51 [63.8]	9.06 [230.12]	6.00 [154.4]	31.9 [810]	8.7 [221]
4 × 3 [100 × 80]	17.00 [432]	17.12 [435]	3.00 [76]	4.00 [102]	8.27 [210.1]	5.84 [148.3]	6.23 [158.2]	1.533 [38.94]	1.413 [35.89]	5.512 [140.00]	6.90 [175.00]	0.398 [10.11]	0.67 [17] (4)	0.77 [19.56]	7.60 [193.0]	9.30 [236.2]	2.51 [63.8]	9.06 [230.12]	6.00 [154.4]	-	-
4 [100]	17.00 [432]	17.12 [435]	4.00 [102]	4.00 [102]	10.10 [256.5]	7.02 [178.3]	7.77 [197.4]	1.770 [44.96]	1.650 [41.91]	6.00 [152.40]	7.00 [177.8]	0.476 [12.09]	0.56 [14.2] (4)	0.84 [21.3]	9.14 [232.2]	10.84 [275.3]	2.51 [63.8]	12.19 [309.6]	12.00 [304.8]	45.2 [1,148]	10.6 [269]
6 × 4 [150 × 100]	22.00 [559]	22.12 [562]	4.00 [102]	6.00 [152]	10.10 [256.5]	7.02 [178.3]	7.77 [197.4]	1.770 [44.96]	1.650 [41.91]	6.00 [152.40]	7.00 [177.8]	0.476 [12.09]	0.56 [14.2] (4)	0.84 [21.3]	9.14 [232.2]	10.84 [275.3]	2.51 [63.8]	12.19 [309.6]	12.00 [304.8]	-	-
6 [150]	22.00 [559]	22.12 [562]	6.00 [152]	6.00 [152]	12.53 [318.3]	8.87 [225.3]	10.04 [255.0]	2.024 [51.41]	1.886 [47.90]	6.496 [165.00]	8.00 [203.2]	0.556 [14.12]	0.81 [20.6] (4)	0.94 [23.88]	11.54 [293.1]	13.31 [338.1]	3.00 [76.2]	13.31 [338.1]	20.00 [508.0]	-	-
8 × 6 [200 × 150]	26.00 [660]	26.12 [663]	6.00 [152]	8.00 [203]	12.53 [318.3]	8.87 [225.3]	10.04 [255.0]	2.024 [51.41]	1.886 [47.90]	6.496 [165.00]	8.00 [203.2]	0.556 [14.12]	0.81 [20.6] (4)	0.94 [23.88]	11.54 [293.1]	13.31 [338.1]	3.00 [76.2]	13.31 [338.1]	20.00 [508.0]	-	-
8 [200]	26.00 [660]	26.12 [663]	8.00 [203]	8.00 [203]	14.95 [379.7]	10.45 [265.4]	11.85 [301.1]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.9]	13.73 [348.7]	15.71 [399.0]	3.63 [92.08]	16.44 [417.6]	24.00 [609.6]	-	-
10 × 8 [250 × 200]	31.00 [787]	31.12 [790]	8.00 [203]	10.00 [254]	14.95 [379.7]	10.45 [265.4]	11.85 [301.1]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.9]	13.73 [348.7]	15.71 [399.0]	3.63 [92.08]	16.44 [417.6]	24.00 [609.6]	-	-
10 [250]	31.00 [787]	31.12 [790]	10.00 [254]	10.00 [254]	18.60 [472.4]	12.91 [327.9]	14.53 [369.1]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	11.90 [302.00]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	16.78 [426.2]	19.24 [488.7]	4.63 [117.5]	19.72 [500.9]	30.00 [762.0]	-	-
12 × 10 [300 × 250]	33.00 [838]	33.12 [841]	10.00 [254]	12.00 [305]	18.60 [472.4]	12.91 [327.9]	14.53 [369.1]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	11.90 [302.00]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	16.78 [426.2]	19.24 [488.7]	4.63 [117.5]	19.72 [500.9]	30.00 [762.0]	-	-
12 [300]	33.00 [838]	33.12 [841]	12.00 [305]	12.00 [305]	20.17 [512.3]	14.41 [366.0]	16.1 [408.9]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	11.90 [302.00]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	18.35 [466.1]	20.81 [528.6]	4.63 [117.5]	19.72 [500.9]	30.00 [762.0]	-	-
14 [350]	35.00 [889]	35.12 [892]	13.25 [337]	13.25 [337]	22.84 [580.1]	16.55 [420.4]	18.54 [470.9]	3.342 [84.89]	3.145 [79.88]	10.375 [263.53]	12.00 [305.00]	0.87 [22.10]	0.67 [17] (8)	1.27 [32.3]	23.66 [601.0]	25.05 [636.3]	5.67 [144.1]	21.28 [540.5]	24.00 [609.6]	-	-
16 [400]	39.00 [991]	39.12 [994]	15.25 [387]	15.25 [387]	25.64 [651.3]	18.37 [466.6]	20.17 [512.3]	4.088 [103.84]	3.852 [97.84]	11.732 [298.00]	13.70 [348.00]	1.106 [28.09]	0.83 [21.1] (8)	1.36 [34.5]	25.36 [644.1]	26.74 [679.2]	7.30 [185.5]	22.59 [573.8]	30.00 [762.0]	-	-

*M, N, and Q dimensions are for less gear and with gear configurations only.

ASME Class 900 valve dimensions

2 to 12 in [50 to 300 mm]



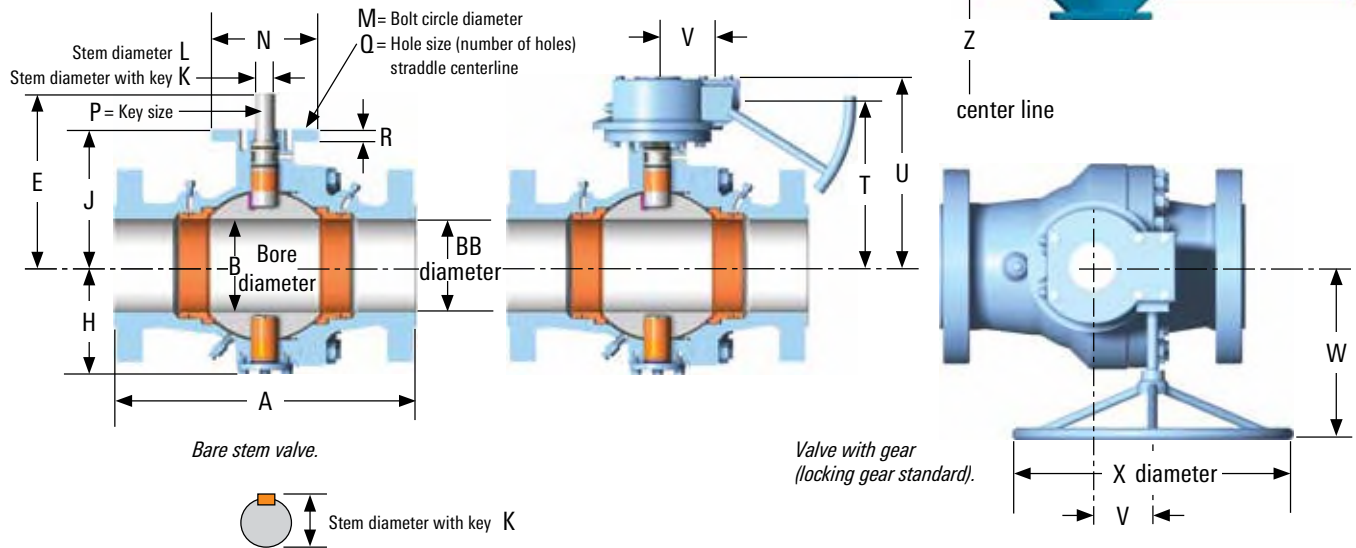
Dimensions

Size, in [mm]	A		B	BB	E	H	J	K	L	M*	N*	P	Q*	R	T	U	V	W	X	Y	Z
	RF	RJ																			
2 [50]	14.50 [368]	14.62 [371]	2.00 [51]	2.00 [51]	6.31 [160.3]	4.31 [109.5]	4.67 [118.6]	1.219 [30.96]	1.098 [27.89]	4.016 [102.00]	4.90 [124.4]	0.318 [8.08]	0.43 [10.9] (4)	0.59 [14.99]	5.77 [146.6]	7.32 [185.9]	1.75 [44.5]	9.06 [230.12]	6.00 [154.4]	19.7 [500]	6.7 [170]
3 × 2 [80 × 50]	15.00 [381]	15.12 [384]	2.00 [51]	3.00 [76]	6.31 [160.3]	4.31 [109.5]	4.67 [118.6]	1.219 [30.96]	1.098 [27.89]	4.016 [102.00]	4.90 [124.4]	0.318 [8.08]	0.43 [10.9] (4)	0.59 [14.99]	5.77 [146.6]	7.32 [185.9]	1.75 [44.5]	9.06 [230.12]	6.00 [154.4]	-	-
3 [80]	15.00 [381]	15.12 [384]	3.00 [76]	3.00 [76]	8.27 [210.1]	5.84 [148.3]	6.23 [158.2]	1.533 [38.94]	1.413 [35.89]	5.512 [140.00]	6.90 [175.00]	0.398 [10.11]	0.67 [17] (4)	0.77 [19.56]	7.60 [193.0]	9.30 [236.2]	2.51 [63.8]	9.06 [230.12]	6.00 [154.4]	36.9 [937]	8.7 [221]
4 × 3 [100 × 80]	18.00 [457]	18.12 [460]	3.00 [76]	4.00 [102]	8.27 [210.1]	5.84 [148.3]	6.23 [158.2]	1.533 [38.94]	1.413 [35.89]	5.512 [140.00]	6.90 [175.00]	0.398 [10.11]	0.67 [17] (4)	0.77 [19.56]	7.60 [193.0]	9.30 [236.2]	2.51 [63.8]	9.06 [230.12]	6.00 [154.4]	-	-
4 [100]	18.00 [457]	18.12 [461]	4.00 [102]	4.00 [102]	10.10 [256.5]	7.02 [178.3]	7.77 [197.4]	1.770 [44.96]	1.650 [41.91]	6.00 [152.40]	7.00 [177.8]	0.476 [12.09]	0.56 [14.2] (4)	0.84 [21.3]	9.14 [232.2]	10.84 [275.3]	2.51 [63.8]	12.19 [309.6]	12.00 [304.8]	-	-
6 × 4 [150 × 100]	24.00 [610]	24.12 [613]	4.00 [102]	6.00 [152]	10.10 [256.5]	7.02 [178.3]	7.77 [197.4]	1.770 [44.96]	1.650 [41.91]	6.00 [152.40]	7.00 [177.8]	0.476 [12.09]	0.56 [14.2] (4)	0.84 [21.3]	9.14 [232.2]	10.84 [275.3]	2.51 [63.8]	12.19 [309.6]	12.00 [304.8]	-	-
6 [150]	24.00 [610]	24.12 [613]	6.00 [152]	6.00 [152]	13.61 [345.7]	9.12 [231.6]	10.51 [267.0]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.88]	12.39 [314.7]	14.37 [365.0]	3.63 [92.08]	14.94 [379.5]	20.00 [508.0]	-	-
8 × 6 [200 × 150]	29.00 [737]	29.12 [740]	6.00 [152]	8.00 [203]	13.61 [345.7]	9.12 [231.6]	10.51 [267.0]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	0.94 [23.88]	12.39 [314.7]	14.37 [365.0]	3.63 [92.08]	14.94 [379.5]	20.00 [508.0]	-	-
8 [200]	29.00 [737]	29.12 [740]	8.00 [203]	8.00 [203]	17.20 [436.9]	11.77 [299.0]	13.13 [333.5]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	11.90 [302.00]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	15.38 [390.7]	17.84 [453.1]	4.63 [117.5]	18.09 [459.5]	24.00 [609.6]	-	-
10 × 8 [250 × 200]	33.00 [838]	33.12 [841]	8.00 [203]	10.00 [254]	17.20 [436.9]	11.77 [299.0]	13.13 [333.5]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	11.90 [302.00]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	15.38 [390.7]	17.84 [453.1]	4.63 [117.5]	18.09 [459.5]	24.00 [609.6]	-	-
10 [250]	33.00 [838]	33.12 [841]	10.00 [254]	10.00 [254]	18.60 [472.4]	12.91 [327.9]	14.53 [369.1]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	11.90 [302.00]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	16.78 [426.2]	19.24 [488.7]	4.63 [117.5]	19.72 [500.9]	30.00 [762.0]	-	-
12 × 10 [300 × 250]	38.00 [965]	38.12 [968]	10.00 [254]	12.00 [305]	18.60 [472.4]	12.91 [327.9]	14.53 [369.1]	3.007 [76.38]	2.830 [71.88]	10.00 [254.00]	11.90 [302.00]	0.792 [20.12]	0.67 [17] (8)	1.25 [31.80]	16.78 [426.2]	19.24 [488.7]	4.63 [117.5]	19.72 [500.9]	30.00 [762.0]	-	-
12 [300]	38.00 [965]	38.12 [968]	12.00 [305]	12.00 [305]	22.09 [561.1]	15.80 [401.3]	17.52 [445.0]	3.342 [84.89]	3.145 [79.88]	10.375 [263.53]	12 [305.00]	0.87 [22.10]	0.67 [17] (8)	1.27 [32.3]	22.64 [575.1]	24.03 [610.4]	5.67 [144.1]	21.28 [540.5]	24.00 [609.6]	-	-

*M, N, and Q dimensions are for less gear and with gear configurations only.

ASME Class 1500 and 2500 and 5,000-psi valve dimensions

2 to 8 in × 6 in [50 to 200 mm × 150 mm]



Dimensions

ASME Class 1500

Size, in [mm]	A		B	BB	E	H	J	K	L	M [†]	N [†]	P	Q [†]	R	T	U	V	W	X	Y	Z
	RF	RJ																			
2 [50]	14.50 [368]	14.62 [371]	2.00 [51]	2.00 [51]	7.57 [192.3]	5.21 [132.3]	5.54 [140.7]	1.533 [38.94]	1.413 [35.89]	5.512 [140.00]	6.90 [175.00]	0.398 [10.11]	0.67 [17] (4)	0.77 [19.56]	6.91 [175.5]	8.61 [218.7]	2.51 [63.8]	9.06 [230.12]	6.00 [152.4]	23.9 [607]	8.00 [203]
3 [80]	18.50 [470]	18.62 [473]	3.00 [76]	3.00 [76]	9.44 [239.8]	6.36 [161.5]	7.13 [181.1]	1.770 [44.96]	1.650 [41.91]	6.00 [152.40]	7.00 [177.8]	0.476 [12.09]	0.56 [14.2] (4)	0.84 [21.3]	8.50 [215.9]	10.20 [259.1]	2.51 [63.8]	12.19 [309.6]	12.00 [304.8]	-	-
4 [100]	21.50 [546]	21.63 [549]	4.00 [102]	4.00 [102]	11.19 [284.2]	7.59 [192.8]	8.70 [221.0]	2.024 [51.41]	1.886 [47.90]	6.496 [165.00]	8.00 [203.2]	0.556 [14.12]	0.81 [20.6] (4)	0.94 [23.88]	10.20 [259.1]	11.97 [304.0]	3.00 [76.2]	11.56 [293.6]	14.00 [355.6]	-	-
6 × 4 [150 × 100]	27.75 [705]	28.00 [711]	4.00 [102]	6.00 [152]	11.19 [284.2]	7.59 [192.8]	8.70 [221.0]	2.024 [51.41]	1.886 [47.90]	6.496 [165.00]	8.00 [203.2]	0.556 [14.12]	0.81 [20.6] (4)	0.94 [23.88]	10.20 [259.1]	11.97 [304.0]	3.00 [76.2]	11.56 [293.6]	14.00 [355.6]	-	-
6 [150]	27.75 [705]	28.00 [711]	6.00 [152]	6.00 [152]	13.61 [345.7]	10.25 [260.4]	10.83 [275.1]	2.514 [63.86]	2.357 [59.87]	8.50 [215.9]	9.50 [241.3]	0.712 [18.08]	0.68 [17.3] (4)	1.04 [26.4]	12.71 [322.8]	14.69 [373.1]	3.63 [92.08]	16.44 [417.6]	24.00 [609.6]	-	-
8 × 6 [200 × 150]	32.75 [832]	33.12 [841]	6.00 [152]	7.62 [194]	13.61 [345.7]	10.25 [260.4]	10.83 [275.1]	2.514 [63.86]	2.357 [59.87]	8.00 [203.20]	9.50 [241.3]	0.712 [18.08]	0.81 [20.6] (4)	1.04 [26.4]	12.71 [322.8]	14.69 [373.1]	3.63 [92.08]	16.44 [417.6]	24.00 [609.6]	-	-

ASME Class 2500

2 [50]	17.75 [451]	17.88 [454]	1.76 [45]	1.76 [45]	7.57 [192.3]	5.21 [132.3]	5.54 [140.7]	1.533 [38.94]	1.413 [35.89]	5.512 [140.00]	6.90 [175.00]	0.398 [10.11]	0.67 [17] (4)	0.77 [19.56]	6.91 [175.5]	8.61 [218.7]	2.51 [63.8]	9.06 [230.12]	6.00 [152.4]	36.97 [939]	8.00 [203]
3 [80]	22.75 [578]	23.00 [584]	2.53 [64]	2.53 [64]	9.94 [252.5]	6.91 [175.5]	7.34 [186.4]	1.770 [44.96]	1.650 [41.91]	6.00 [152.40]	7.70 [195.6]	0.476 [12.09]	0.56 [14.2] (4)	1.09 [27.7]	8.71 [221.2]	10.41 [264.4]	2.51 [63.8]	12.56 [319.0]	14.00 [355.6]	-	-
4 [100]	26.50 [673]	26.88 [983]	3.53 [90]	3.53 [90]	11.19 [284.2]	7.75 [196.9]	8.91 [226.3]	2.024 [51.41]	1.886 [47.90]	6.496 [165.00]	8.40 [213.4]	0.556 [14.12]	0.67 [17] (4)	1.16 [29.50]	10.41 [264.4]	12.18 [309.4]	3.00 [76.2]	14.81 [376.02]	24.00 [609.6]	-	-
6 × 4 [150 × 100]	36.00 [914]	36.50 [927]	3.53 [90]	5.25 [133]	11.19 [284.2]	7.59 [192.8]	8.70 [221.0]	2.024 [51.41]	1.886 [47.90]	6.496 [165.00]	8.40 [213.4]	0.556 [14.12]	0.67 [17] (4)	1.16 [29.50]	10.20 [259.1]	11.97 [304.0]	3.00 [76.2]	11.56 [293.6]	14.00 [355.6]	-	-

5,000-psi Maximum Operating Pressure

2½ [52.4]	-	14.625 [371]	2.075 [53]	2.075 [53]	7.57 [192]	5.21 [132.3]	5.52 [140.2]	1.533 [38.9]	1.413 [35.89]	5.512 [140.00]	6.90 [175.26]	0.394 [10.01]	0.67 [17] (4)	0.77 [19.56]	6.89 [175.01]	8.59 [218.2]	2.51 [63.8]	9.06 [230.12]	6.00 [152.4]	37.00 [940]	8.00 [203]
3½ [79.4]	-	18.63 [473]	3.145 [80]	3.145 [80]	9.44 [240]	6.36 [161.5]	7.09 [180.1]	1.77 [45.0]	1.65 [41.91]	6.00 [152.40]	6.00 [152.40]	0.472 [11.99]	0.56 [14.2] (4)	0.84 [21.34]	8.46 [214.88]	10.16 [258.1]	2.51 [63.8]	12.19 [309.63]	12.00 [304.8]	-	-
4½ [103.2]	-	21.63 [549]	4.075 [104]	4.075 [104]	11.19 [284]	7.59 [192.8]	8.69 [220.7]	2.024 [51.4]	1.886 [47.90]	6.50 [165.10]	8.00 [203.20]	0.551 [14.00]	0.81 [20.6] (4)	0.94 [23.88]	10.19 [258.83]	11.94 [303.3]	3.00 [76.2]	13.31 [338.07]	20.00 [508.0]	-	-
7½ × 6 [179.3 × 150]	-	28.00 [711]	6.02 [153]	6.00 [152]	13.61 [346]	10.25 [260.4]	10.61 [269.5]	2.514 [63.9]	2.357 [59.87]	8.50 [215.90]	10.00 [254.00]	0.709 [18.01]	0.67 [17] (4)	1.04 [26.42]	12.49 [317.25]	14.48 [367.8]	3.63 [92.2]	16.50 [419.10]	24.00 [609.6]	-	-

[†]M, N, and Q dimensions are for less gear and with gear configurations only.

Weights and C_v data

Weights, lbm [kg]— Valve Only, Bare Stem

Valve Port Size, in [mm]	Valve Pressure Classes											
	150		300		600		900		1500		2500	
	RF	RF	RF	RTJ	RF	RTJ	RF	RTJ	RF	RTJ		
2 [50]	41 [19]	53 [24]	64 [29]	68 [31]	101 [46]	108 [49]	139 [63]	146 [66]	185 [84]	194 [88]		
3 × 2 [80 × 50]	–	–	87 [40]	92 [42]	116 [52]	124 [56]	–	–	–	–		
3 [80]	69 [31]	96 [44]	142 [64]	137 [62]	172 [78]	180 [81]	250 [113]	260 [118]	435 [197]	452 [205]		
4 × 3 [100 × 80]	–	–	186 [84]	195 [89]	225 [102]	236 [107]	–	–	–	–		
4 [100]	130 [59]	172 [78]	246 [112]	256 [116]	313 [142]	324 [147]	437 [198]	451 [204]	674 [306]	702 [318]		
6 × 4 [150 × 100]	171 [78]	229 [104]	346 [157]	362 [164]	458 [208]	477 [216]	663 [301]	688 [312]	1,171 [531]	1,231 [558]		
6 [150]	257 [116]	320 [145]	460 [209]	476 [216]	728 [330]	746 [339]	1,039 [471]	1,063 [482]	–	–		
8 × 6 [200 × 150]	304 [138]	410 [186]	582 [264]	602 [273]	926 [420]	956 [434]	1,331 [604]	1,377 [625]	–	–		
8 [200]	475 [215]	632 [287]	846 [384]	867 [393]	1,231 [558]	1,260 [572]	–	–	–	–		
10 × 8 [250 × 200]	532 [241]	719 [326]	1,069 [485]	1,103 [500]	1,456 [660]	1,494 [678]	–	–	–	–		
10 [250]	783 [355]	965 [438]	1,472 [668]	1,503 [682]	1,857 [842]	1,894 [859]	–	–	–	–		
12 × 10 [300 × 250]	880 [399]	1,113 [505]	1,589 [721]	1,622 [736]	2,115 [959]	2,161 [980]	–	–	–	–		
12 [300]	1,165 [528]	1,476 [670]	1,993 [904]	2,025 [918]	2,861 [1,298]	2,905 [1,318]	–	–	–	–		
14 [350]	1,663 [754]	1,972 [895]	2,539 [1,152]	2,576 [1,168]	–	–	–	–	–	–		
16 [400]	2,441 [1,107]	2,940 [1,334]	3,870 [1,755]	3,919 [1,778]	–	–	–	–	–	–		

Weights, lbm [kg]— Worm Gear Actuator Only

2 [50]	8 [4]	8 [4]	8 [4]	8 [4]	8 [4]	8 [4]	15 [7]	15 [7]	15 [7]	15 [7]
3 × 2 [80 × 50]	–	–	8 [4]	8 [4]	8 [4]	8 [4]	–	–	–	–
3 [80]	8 [4]	8 [4]	15 [7]	15 [7]	15 [7]	15 [7]	27 [12]	27 [12]	27 [12]	27 [12]
4 × 3 [100 × 80]	–	–	15 [7]	15 [7]	15 [7]	15 [7]	–	–	27 [12]	27 [12]
4 [100]	15 [7]	15 [7]	27 [12]	27 [12]	27 [12]	27 [12]	27 [12]	27 [12]	27 [12]	27 [12]
6 × 4 [150 × 100]	15 [7]	15 [7]	27 [12]	27 [12]	27 [12]	27 [12]	27 [12]	27 [12]	–	–
6 [150]	27 [12]	27 [12]	27 [12]	27 [12]	60 [27]	60 [27]	60 [27]	60 [27]	–	–
8 × 6 [200 × 150]	27 [12]	27 [12]	27 [12]	27 [12]	60 [27]	60 [27]	60 [27]	60 [27]	–	–
8 [200]	27 [12]	60 [27]	60 [27]	60 [27]	74 [34]	74 [34]	–	–	–	–
10 × 8 [250 × 200]	27 [12]	60 [27]	60 [27]	60 [27]	74 [34]	74 [34]	–	–	–	–
10 [250]	60 [27]	60 [27]	74 [34]	74 [34]	74 [34]	74 [34]	–	–	–	–
12 × 10 [300 × 250]	60 [27]	60 [27]	74 [34]	74 [34]	74 [34]	74 [34]	–	–	–	–
12 [300]	60 [27]	74 [34]	74 [34]	74 [34]	122 [55]	122 [55]	–	–	–	–
14 [350]	74 [34]	74 [34]	122 [55]	122 [55]	–	–	–	–	–	–
16 [400]	74 [34]	122 [55]	133 [60]	133 [60]	–	–	–	–	–	–

Note: Weights shown are for worm gear actuator, handwheel, and mounting hardware.

Flow Coefficient, C_v [†]

2 [50]	473	429	369		328		328		207
3 × 2 [80 × 50]	–	–	136		136		–		–
3 [80]	1,244	1,055	940		908		818		490
4 × 3 [100 × 80]	–	–	407		406		–		–
4 [100]	2,492	2,158	1,813		1,762		1,598		1,014
6 × 4 [150 × 100]	432	432	552		551		593		414
6 [150]	5,468	5,403	4,590		4,394		4,112		–
8 × 6 [200 × 150]	1,294	1,293	1,642		1,637		1,652		–
8 [200]	10,782	10,293	8,971		8,494		–		–
10 × 8 [250 × 200]	2,843	2,848	3,578		3,569		–		–
10 [250]	17,438	16,892	14,352		13,911		–		–
12 × 10 [300 × 250]	5,195	5,187	6,505		6,454		–		–
12 [300]	16,892	26,892	22,772		21,221		–		–
14 [350]	22,742	22,254	21,507		–		–		–
16 [400]	31,823	31,142	29,902		–		–		–

[†] Flow of water in galUS/min per 1-psi pressure drop across a fully open valve.

Valve torque chart

Ball Valve Torque Chart

Valve Port Size, in [mm]	Pressure Class	Gauge Pressure (P), psi	Break Torque at Max. P, lbf.in	Run Torque at Max. P, lbf.in	Max. Allowable Stem Torque (MAST), lbf.in
2 [50]	150	80–285	256	147	3,818
	300	286–740	613	266	3,818
2 [50], 3 × 2 [75 × 50]	600	741–1,480	898	492	3,818
	900	1,481–2,220	1,146	706	3,818
2 [50]	1500	2,221–3,705	1,904	1,181	8,334
	2500	3,706–6,170	2,496	1,896	8,334
2½ [52.4]	5,000 psi	5,000	2,300	889	8,334
3 [75]	150	0–285	568	329	3,818
	300	286–740	1,238	576	3,818
3 [75], 4 × 3 [100 × 75]	600	741–1,480	2,039	1,094	8,334
	900	1,481–2,220	2,611	1,634	8,334
3 [75]	1500	2,221–3,705	4,399	2,451	13,241
	2500	3,706–6,170	6,368	4,016	13,241
3½ [79.4]	5,000 psi	5,000	5,334	477	13,241
4 [100], 6 × 4 [150 × 100]	150	80–285	1,026	604	8,334
	300	286–740	2,125	1,121	8,334
	600	741–1,480	3,581	2,069	13,241
	900	1,481–2,220	4,575	3,008	13,241
	1500	2,221–3,705	7,328	4,079	18,746
4 [100], 6 × 4 [150 × 100]	2500	3,706–6,170	9,371	6,581	18,746
	5,000 psi	5,000	8,877	791	18,746
6 [150], 8 × 6 [200 × 150]	150	80–285	2,947	1,698	13,241
	300	286–740	4,495	1,988	13,241
	600	741–1,480	7,195	2,846	18,746
6 [150], 8 × 6 [200 × 150]	900	1,481–2,220	11,022	4,534	36,792
	1500	2,221–3,705	15,323	7,510	36,792
	5,000 psi	5,000	18,533	1,578	36,792
7½ × 6 [179.3 × 150]	150	80–285	5,146	2,870	18,746
	300	286–740	9,041	3,458	36,792
	600	741–1,480	13,423	4,631	36,792
8 [200], 10 × 8 [250 × 200]	900	1,481–2,220	21,210	6,021	69,591
	150	80–285	8,480	5,541	36,792
	300	286–740	13,149	6,237	36,792
10 [250], 12 × 10 [300 × 250]	600	741–1,480	23,638	7,295	69,591
	900	1,481–2,220	30,433	8,013	69,591
	150	0–285	11,601	6,311	36,792
12 [300]	300	286–740	21,179	7,430	69,591
	600	741–1,480	31,608	8,405	69,591
	900	1,481–2,220	46,301	10,701	92,606
14 [350]	150	80–285	16,370	10,275	69,591
	300	286–740	26,595	11,555	69,591
	600	741–1,480	45,288	13,634	92,606
16 [400]	150	80–285	21,999	12,447	69,591
	300	286–740	39,436	14,326	92,606
	600	741–1,480	70,917	17,382	173,880

The above values are new valve torque values, where P is the maximum operating gauge pressure in psi of the valve.

The above torque values do not contain service factors.

Soaking effects, particle matter, or both in the valve may cause an increase in the torque.

The reset torque is equal to ~80% of the break torque.

For power operation, multiply all of the above values by a minimum factor of 1.25 or customer-specified factor, whichever is larger.

For operating temperatures between –20 to –50 degF [–29 to –46 degC], multiply these values by 1.20.

Actuator selection should be made on customer experience and appropriate service factors.

Material selection guide

A selection of body, stem, and seat-seal materials for WKM 370D6 ball valves is available. The following list is intended as a guide in the selection of materials for corrosive service. Material suitability is based on ladings at ambient temperatures. Other temperatures may render an inappropriate material-lading combination. No material can be expected to resist all the many ladings found in modern industry. Experience has shown that certain materials can perform satisfactorily within certain limits. The physical properties of a material are affected differently by each corrosive medium. The user must decide which property is of prime importance for the application. Internal moving parts, in contact with the lading, should always carry an "A" rating. Body materials with exposure to corrosive ladings can sometimes carry a "B" rating because metal loss due to corrosion is not as critical. Cameron recommends that tests be run under actual operating conditions to obtain a material's performance ability in any one corrosive medium.

Lading	External Valve Body Material			Seal Code Trim					Internal Valve Trim			
	Std. Body 23	Std. Body 24	Spl. Body 37	Std. YRF	Spl. YFF	Spl. TFF	Spl. PFF	Spl. PLF	Std. Int. 23	Std. Int. 24	Spl. Int. 27	Spl. Int. 37
Acetaldehyde	A	C	C	C	D	D	D	C	A	C	A	C
Acetate solvents	A	A	A		D	D	D		A	A	A	A
Acetic acid (10%)	–	–	–	D	D	A	A	A	–	–	–	–
Acetic acid (glacial)	–	–	–	B	C	C	C	C	–	–	–	–
Acetic acid (concentrated)	–	–	–	D	D	A	A	C	–	–	–	–
Acetic anhydride	B	D	D	D	D	D	D	D	B	D	B	D
Acetone	A	A	A	D	D	D	D	D	A	A	A	A
Acetylene	A	A	A	A	A	A	A	A	A	A	A	A
Acrylonitrile	A	A	A	D	A	A	A	B	A	A	A	A
Alcohol, amyl	A	B	B	B	A	A	A	A	A	B	A	B
Alcohol, butyl	A	B	B	A	A	A	A	A	A	B	A	B
Alcohol, ethyl (ethanol)	A	B	B	A	A	A	A	A	A	B	A	B
Alcohol, methyl (methanol)	A	B	B	B	B	A	A	A	A	B	A	B
Aluminum chloride (dry)	A	B	B	A	A	A	A	A	A	B	A	B
Aluminum sulfate (alum)	A	C	C	A	A	A	A	A	A	C	A	C
Alum	A	C	C	A	A	A	A	B	A	C	A	C
Amines	A	B	B	D	B	B	B	B	A	B	A	B
Amine-based corrosion inhibitor	A	A	A	A	A	A	A	A	A	A	A	A
Amines, rich	A	B	B	D	B	B	B	B	A	B	A	B
Ammonia, aqueous	A	A	A	A	A	A	A	A	A	A	A	A
Ammonia, anhydrous	A	A	A	B	D	D	D	A	A	A	A	A
Ammonia solutions	A	B	B	–	–	–	–	–	A	B	A	B
Ammonium bicarbonate	B	C	C	–	B	A	–	–	B	C	B	C
Ammonium carbonate	B	B	B	D	A	A	A	A	B	B	B	B
Ammonium chloride	C	D	D	B	B	A	A	A	C	D	C	D
Ammonium hydroxide (28%)	B	C	C	D	A	A	A	B	B	C	B	C
Ammonium hydroxide (concentrated)	B	C	C	B	A	A	A	B	B	C	B	C
Ammonium monophosphate	B	D	D	C	B	A	A	–	B	D	B	D
Ammonium nitrate	A	D	D	C	C	A	A	A	A	D	A	D
Ammonium phosphate (dibasic)	B	D	D	C	C	A	A	A	B	D	B	D
Ammonium phosphate (tribasic)	B	D	D	B	B	A	A	B	B	D	B	D
Ammonium sulfate	B	C	C	A	A	A	A	A	B	C	B	C
Amyl acetate	B	C	C	D	B	A	A	C	B	C	B	C
Aniline	B	A	A	C	C	A	D	A	B	A	A	A
Aniline dyes	A	C	C	D	A	A	A	A	A	C	A	C
Antimony trichloride	D	D	D	D	D	A	A	A	D	D	–	D

A: Excellent; B: Good (slightly attacked); C: Fair (modestly attacked); D: Not recommended; –: No data

Lading	External Valve Body Material			Seal Code Trim					Internal Valve Trim			
	Std. Body 23	Std. Body 24	Spl. Body 37	Std. YRF	Spl. YFF	Spl. TFF	Spl. PFF	Spl. PLF	Std. Int. 23	Std. Int. 24	Spl. Int. 27	Spl. Int. 37
Apple juice	B	D	D	A	A	A	—	—	B	D	—	D
Arsenic acid	B	D	D	C	C	A	—	—	B	D	B	D
Asphalt emulsion	A	A	A	A	A	A	A	—	A	A	A	A
Asphalt liquid	A	A	A	B	A	A	A	—	A	A	A	A
Barium carbonate	B	B	B	C	A	A	—	—	B	B	B	B
Barium chloride	C	C	C	A	A	A	A	A	C	C	C	C
Barium hydroxide	B	C	C	A	A	A	A	A	B	C	B	C
Barium sulfate	B	B	B	A	A	A	A	A	B	B	B	B
Barium sulfide	B	B	B	A	A	A	A	A	B	B	B	B
Beer (alcohol industry)	A	C	C	A	A	A	A	A	A	C	—	C
Beer (beverage industry)	A	C	C	A	A	A	A	A	A	C	—	C
Beet sugar liquids	A	B	B	A	A	A	—	—	A	B	A	B
Benzaldehyde	A	A	A	D	A	A	A	B	A	A	A	A
Benzene (benzol)	A	B	B	D	A	A	A	B	A	B	A	B
Benzoic acid	B	D	D	D	D	A	A	A	B	D	B	D
Borax liquors	B	C	C	A	A	A	A	A	B	C	B	C
Boric acid	A	D	D	B	B	A	A	A	A	D	A	D
Brines	B	D	D	A	A	A	A	A	B	D	B	D
Bromine	D	D	D	D	D	A	D	D	D	D	—	D
Bunker oils (fuel oils)	A	B	B	A	A	A	A	B	A	B	A	B
Butadiene	A	B	B	D	C	A	A	B	A	B	A	B
Butane	A	A	A	A	A	A	A	B	A	A	A	A
Buttermilk	A	D	D	A	A	A	A	A	A	D	—	D
Butylene	A	A	A	D	B	A	A	B	A	A	A	A
Butyric acid	B	D	D	C	C	A	A	A	B	D	B	D
Calcium bisulfite	B	D	D	A	A	A	A	A	B	D	B	D
Calcium carbonate	B	D	D	A	A	A	A	A	B	D	B	D
Calcium chloride	B	C	C	A	A	A	A	A	B	C	B	C
Calcium hydroxide (20%)	B	B	B	A	A	A	A	A	B	B	B	B
Calcium hypochlorite	C	D	D	D	D	A	A	A	C	D	—	D
Calcium sulfate	B	C	C	D	D	A	A	—	B	C	B	C
Carbon bisulfide	B	B	B	D	A	A	A	B	B	B	B	B
Carbon dioxide (dry)	A	A	A	A	A	A	A	A	A	A	A	A
Carbon dioxide (wet)	A	C	C	A	A	A	B	B	A	C	B	C
Carbon tetrachloride (dry)	B	A	A	B	A	A	A	B	B	A	B	A
Carbon tetrachloride (wet)	A	B	B	B	A	A	A	B	A	B	B	B
Carbonated water	A	B	B	A	A	A	A	—	A	B	A	B
Carbonic acid	B	D	D	A	A	A	A	A	B	D	B	D
Castor oil	A	B	B	A	A	A	A	A	A	B	A	B
China wood oil (tung)	A	B	B	A	A	A	—	—	A	B	A	B
Chlorinated solvents (dry)	A	A	A	D	B	B	B	B	A	A	A	A
Chlorine (wet)	D	D	D	C	C	A	C	C	D	D	—	D
Chlorine gas (dry)	B	B	B	D	D	A	A	—	B	B	B	B
Chloroacetic acid	C	D	D	D	D	A	A	B	C	D	—	D
Chlorobenzene	A	B	B	D	A	A	A	B	A	B	A	B
Chloroform	A	B	B	D	C	A	A	B	A	B	A	B
Chlorosulfonic acid (dry)	B	B	B	D	D	A	A	D	B	B	B	B
Chlorosulfonic acid (wet)	D	D	N	—	—	—	—	—	D	D	—	N
Chrome alum	A	B	B	A	A	A	A	A	A	B	A	B
Chromic acid	C	D	D	D	D	A	D	D	C	D	—	D
Citrus juices	B	D	D	A	A	A	A	A	B	D	B	D
Coconut oil	B	C	C	A	A	A	A	B	A	C	A	C

A: Excellent; B: Good (slightly attacked); C: Fair (modestly attacked); D: Not recommended; —: No data

Material Selection Guide

Lading	External Valve Body Material			Seal Code Trim					Internal Valve Trim			
	Std. Body 23	Std. Body 24	Spl. Body 37	Std. YRF	Spl. YFF	Spl. TFF	Spl. PFF	Spl. PLF	Std. Int. 23	Std. Int. 24	Spl. Int. 27	Spl. Int. 37
Coffee extracts (hot)	A	C	C	A	A	A	—	—	A	B	A	C
Coke oven gas	A	B	B	D	A	A	—	—	A	B	A	B
Cooking oil	A	B	B	A	A	A	A	—	A	B	A	B
Copper acetate (10%)	B	C	C	—	—	A	A	B	B	C	B	C
Copper chloride	D	D	D	A	A	A	A	A	D	D	—	D
Copper nitrate	B	D	D	D	D	A	A	B	B	D	B	D
Copper sulfate	C	D	D	B	B	A	A	A	C	D	—	D
Corn oil	A	B	B	A	A	A	—	—	A	B	B	B
Corrosion inhibitor, amine based	A	A	A	B	B	A	A	—	A	A	A	A
Cottonseed oil	B	C	C	A	A	A	A	A	B	C	B	C
Creosote oil	B	B	B	A	A	A	A	B	B	B	B	B
Cresylic acid	B	B	B	D	D	A	A	B	B	B	B	B
Crude oil, sour	A	B	B	C	A	A	A	B	A	B	A	B
Crude oil, sweet	A	B	B	B	A	A	A	B	A	B	A	B
Cutting oils, water emulsions	A	B	B	A	A	A	A	A	A	B	A	B
Cyclohexane	A	A	A	A	A	A	A	B	A	A	A	A
Diacetone alcohol	A	A	A	D	A	A	—	—	A	A	A	A
Diesel fuel	A	A	A	A	A	A	A	A	A	A	A	A
Diethanolamine (DEA)	—	—	—	—	—	—	—	—	—	—	—	—
Diethylamine	A	A	A	B	A	D	A	B	A	A	A	A
Diethylene glycol	—	—	—	A	A	A	A	A	—	—	—	—
Dowtherm® A–E	A	B	B	D	A	A	A	B	A	B	A	B
Drilling mud	A	B	B	A	A	A	—	—	A	B	A	B
Drip cocks, gas	A	B	B	—	—	—	—	—	A	B	A	B
Dry cleaning fluids	A	B	B	C	B	A	A	C	A	B	A	B
Epsom salt (magnesium sulfate)	B	C	C	—	A	A	A	A	B	C	B	C
Ethane	A	A	A	A	A	A	A	A	A	A	A	A
Ethanol (ethyl alcohol)	A	B	B	A	A	A	A	A	A	B	A	B
Ethanolamine (MEA)	A	A	A	B	A	A	—	—	A	A	A	A
Ethers	A	B	B	D	A	A	A	D	A	B	A	B
Ethyl acetate	B	B	B	D	B	B	B	D	B	B	B	B
Ethyl acrylate	A	A	A	D	A	A	A	D	A	A	A	A
Ethyl chloride (dry)	A	B	B	A	A	A	A	B	A	B	A	B
Ethyl chloride (wet)	B	B	B	A	A	A	A	B	B	B	B	B
Ethylene (liquid or gas)	A	A	A	B	A	A	A	A	A	A	A	A
Ethylene glycol	B	B	B	A	A	A	A	A	B	B	B	B
Ethylene oxide	B	B	B	D	A	A	A	D	B	B	B	B
Ethylene propylene	A	B	—	—	—	—	—	—	A	B	—	—
Fatty acids	B	D	D	B	A	A	A	A	B	D	B	D
Ferric chloride	D	D	D	A	A	A	B	B	D	D	—	D
Ferric nitrate	B	D	D	A	A	A	A	A	B	D	—	D
Ferric sulfate	B	D	D	A	A	A	A	A	B	D	B	D
Ferrous chloride	D	D	D	C	C	A	A	—	D	D	—	D
Ferrous sulfate	B	D	D	D	D	A	A	A	B	D	B	D
Ferrous sulfate (saturated)	A	C	C	—	—	A	A	—	A	C	S	C
Fertilizer solutions	B	B	B	D	D	D	D	D	B	B	B	B
Fish oils	A	B	B	B	A	A	A	—	A	B	A	B
Fluorine	A	B	B	D	D	D	C	—	A	B	A	B
Fluosilic acid	C	D	D	D	D	A	A	A	C	D	—	D
Food fluids, pastes	A	C	C	B	A	A	—	—	A	C	—	C
Formaldehyde (100%)	A	C	C	B	B	A	A	C	A	C	—	C
Formaldehyde (40%)	A	C	C	B	A	A	A	C	A	C	—	C
Formic acid	B	D	D	D	D	A	B	C	B	D	B	D

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Freon® 12	A	B	B	A	B	B	B	D	A	B	A	B
Fruit juices	A	D	D	A	A	A	A	—	A	D	A	D
Fuel, jet (JP-4)	A	A	A	A	A	A	A	B	A	A	A	A
Fuel, jet (JP-5), 100 degF	A	A	A	A	A	A	A	B	A	A	A	A
Fuel, jet (JP-6), 100 degF	A	A	A	A	A	A	A	B	A	A	A	A
Fuel oil	A	B	B	A	A	A	A	A	A	B	A	B
Fuel (RP-1)	A	A	A	A	A	A	A	A	A	A	A	A
Furfural	B	A	A	D	A	A	A	C	B	A	A	A
Gallic acid	B	D	D	B	A	B	—	—	B	D	B	D
Gas (manufactured)	B	B	B	A	A	A	A	A	B	B	B	B
Gas odorizers	A	B	B	A	A	A	A	A	A	B	A	B
Gas, natural	A	B	B	A	A	A	A	A	A	B	A	B
Gasoline, aviation	A	A	A	A	A	A	A	A	A	A	A	A
Gasoline, sour	A	B	B	C	A	A	A	A	A	B	A	B
Gasoline, leaded, low octane	A	A	A	A	A	A	A	B	A	A	A	A
Gasoline, unleaded, low octane	A	A	A	A	A	A	A	B	A	A	A	A
Gelatin	A	B	B	A	A	A	A	A	A	B	B	B
Glucose	A	B	B	A	A	A	A	A	A	B	A	B
Glue	A	A	A	—	A	A	—	—	A	A	A	A
Glycerine and glycerol	A	B	B	A	A	A	A	A	A	B	A	B
Glycols	B	B	B	A	A	A	A	A	B	B	B	B
Grease	A	A	A	—	A	A	A	B	A	A	A	A
Heptane	A	A	A	A	A	A	A	C	A	A	A	A
Hexane	A	A	A	A	A	A	A	C	A	A	A	A
Hexanol, tertiary	A	A	A	—	A	—	—	—	A	A	A	A
Hydraulic oil, phosphate ester	A	A	A	C	A	A	A	A	A	A	A	A
Hydraulic oil, petroleum base	A	A	A	A	A	A	A	A	A	A	A	A
Hydrobromic acid	D	D	D	D	D	A	C	C	D	D	—	D
Hydrochloric acid, 37% air free	D	D	D	D	D	A	A	B	D	D	—	D
Hydrocyanic acid	B	D	D	B	B	A	A	A	B	D	B	D
Hydrofluoric acid	D	D	D	D	D	A	D	D	D	D	—	D
Hydrofluosilicic acid	C	D	D	D	D	A	—	—	C	D	—	D
Hydrogen gas	A	B	B	A	A	A	A	A	A	B	A	B
Hydrogen peroxide, 30% (diluted)	B	D	D	D	D	A	A	A	B	D	B	D
Hydrogen peroxide	B	D	D	D	D	A	A	A	B	D	B	D
Hydrogen sulfide (dry)	A	A	A	A	A	A	A	A	A	A	A	A
Hydrogen sulfide (wet)	A	D	D	B	A	A	A	A	A	D	B	D
Hypo (sodium thiosulfate)	A	D	D	B	A	A	A	A	A	D	A	D
Hypochlorites, sodium	C	D	D	B	A	A	A	A	C	D	—	D
Illuminating gas (coal gas)	A	A	A	—	—	A	A	—	A	A	A	A
Ink	A	D	D	—	—	—	—	—	A	D	A	D
Iodine	D	D	D	A	A	A	B	B	D	D	—	D
Isobutane (methylpropane)	—	—	—	—	—	A	A	—	—	—	—	—
Isooctane	A	A	A	A	A	A	A	C	A	A	A	A
Isocyanide	A	A	A	—	—	—	—	—	A	A	A	A
Isodoform	B	B	B	—	—	—	—	—	B	B	B	B
Isopropyl alcohol (isopropanol)	B	B	B	B	B	A	A	A	B	B	B	B
Isopropyl ether	A	A	A	B	A	A	A	D	A	A	A	A
Kerosene	A	B	B	A	A	A	A	B	A	B	A	B
Ketchup	A	D	D	A	A	A	A	—	D	A	—	D
Ketones	A	A	A	D	D	D	D	D	A	A	A	A
Lacquers (solvents)	A	C	C	D	A	A	—	D	A	C	A	C
Lactic acid	A	D	D	—	B	A	A	A	B	D	—	D

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Lard oil	A	C	C	A	A	A	A	A	A	C	–	C
Lead acetate	B	C	C	B	B	A	A	D	B	D	–	C
Linoleic acid	A	B	B	C	C	A	A	A	A	B	A	B
Linseed oil	A	A	A	A	A	A	A	A	A	A	A	A
Liquefied petroleum gas (LPG)	A	B	B	A	A	A	A	B	A	B	A	B
Lithium bromide	A	D	D	–	–	A	B	A	A	D	–	D
Lubricating oil	A	A	A	A	A	A	A	A	A	A	A	A
Magnesium bisulfate	A	C	C	–	A	–	–	–	A	C	–	C
Magnesium chloride	D	C	C	A	A	A	A	A	D	C	–	C
Magnesium hydroxide	A	B	B	B	B	A	A	A	A	B	A	B
Magnesium sulfate (epsom salt)	B	B	B	–	A	A	A	A	B	B	–	B
Maleic acid	C	B	B	D	A	A	A	A	C	B	B	B
Maleic anhydride	A	D	D	–	–	A	A	A	A	D	–	D
Malic acid	A	D	D	A	A	A	A	A	A	D	–	D
Mayonnaise	A	D	D	–	A	A	A	–	A	D	–	D
Mercaptans	A	A	A	A	A	A	–	–	A	A	A	A
Mercuric chloride	D	D	D	D	D	A	A	A	D	D	–	D
Mercuric cyanide (10%)	B	D	D	C	A	B	–	–	B	D	–	D
Mercury	A	A	A	A	A	A	A	A	A	A	A	A
Methane	A	A	A	A	A	A	A	B	A	A	A	A
Methanol (methyl alcohol)	A	B	B	B	A	A	A	D	A	B	A	B
Methyl acetate	A	A	A	D	B	B	B	D	A	A	A	A
Methyl acetone	A	A	A	–	D	D	D	–	A	A	A	A
Methyl cellosolve	B	B	B	C	A	A	–	–	B	B	B	B
Methyl chloride	A	B	B	D	B	A	A	D	A	B	A	B
Methyl ethyl ketone (MEK)	A	A	A	D	B	B	B	D	A	A	A	A
Methyl formate	B	B	B	–	–	A	–	–	B	B	B	B
Methylamine	B	B	B	–	–	A	A	–	B	B	B	B
Methylene chloride	B	B	B	D	C	A	A	–	B	B	B	B
Milk	A	D	D	A	A	A	A	A	A	D	–	D
Mine waters (acid)	B	D	D	–	B	B	–	–	B	D	–	D
Mineral spirits	B	B	B	–	A	A	A	–	B	B	B	B
Mineral oil	A	B	B	A	A	A	A	A	A	B	A	B
Mixed acids (cold)	A	C	C	–	–	–	–	–	A	C	–	C
Molasses, crude	A	A	A	–	A	A	A	–	A	A	A	A
Molasses, edible	A	A	A	–	A	A	A	–	A	A	A	A
Methyl tertiary butyl ether (MTBE), max. 100%	A	B	B	–	–	B	B	B	A	D	B	B
MTBE, max. 40%	A	A	A	C	B	B	B	B	A	B	B	A
Muriatic acid (hydrochloric acid)	D	D	D	–	D	A	A	A	D	D	–	D
Mustard	A	B	B	A	A	A	–	–	A	B	A	B
Naphtha (rubber solvent)	A	B	B	B	A	B	B	B	A	B	A	B
Naphthalene (coal tar distillate)	A	A	A	D	A	A	A	C	A	A	A	A
Nickel ammonium sulfate (20%)	A	D	D	C	A	A	A	A	A	D	–	D
Nickel chloride	B	D	D	A	A	A	A	A	C	D	–	D
Nickel nitrate (30%)	B	D	D	B	B	A	A	–	B	D	–	D
Nickel sulfate	C	D	D	A	A	A	A	A	C	D	–	D
Nicotinic acid	A	B	B	–	–	A	–	–	A	B	A	B
Nitric acid (10%)	A	D	D	D	D	A	B	D	A	D	–	D
Nitric acid (100%)	A	A	A	D	D	A	C	D	A	A	A	A
Nitric acid (30%)	A	D	D	D	D	A	C	D	A	D	–	D
Nitric acid (80%)	D	A	D	D	D	A	C	D	A	D	–	D
Nitric acid, anhydrous or aqueous	A	A	A	D	D	A	B	–	A	A	A	A
Nitrobenzene	B	B	B	B	B	A	A	D	B	B	B	B

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Nitrogen	A	A	A	A	A	A	A	A	A	A	A	A
Nitrous acid (10%)	B	D	D	A	A	A	A	A	B	D	–	D
Nitrous gases	A	B	B	–	A	A	A	–	A	B	A	B
Nitrous oxide	B	A	A	A	A	A	A	–	B	A	B	A
Oil, cottonseed	B	C	C	B	B	A	B	A	B	C	B	C
Oil, petroleum (refined)	A	A	A	A	A	A	A	A	A	A	A	A
Oil, petroleum (sour) H ₂ S and CO ₂	A	A	A	A	A	A	A	A	A	A	A	A
Oil, water mixtures	A	B	B	A	A	A	A	A	A	B	A	B
Oil, animal	A	A	A	A	A	A	A	A	A	A	A	A
Oil, fish	A	B	B	B	A	A	A	B	A	B	A	B
Oil, fuel	A	B	B	A	A	A	A	B	A	B	A	B
Oil, lube	A	A	A	A	A	A	A	A	A	A	A	A
Oil, mineral	A	B	B	A	A	A	A	A	A	B	A	B
Oleic acid	A	B	B	C	A	A	A	C	A	B	A	B
Oleum	B	B	B	B	A	A	A	A	B	B	B	B
Olive oil	A	B	B	A	A	A	A	A	A	B	A	B
Oxalic acid	A	D	D	B	B	A	A	A	A	D	–	D
Oxygen (gas)	A	B	B	D	A	A	A	D	A	B	A	B
Oxygen (liquid)	A	B	B	D	C	C	C	D	A	B	–	B
Ozone	A	C	C	D	A	A	A	D	A	C	A	C
Paints and thinners	A	A	A	D	A	A	A	A	A	A	A	A
Palm oil	B	C	C	D	A	A	A	–	B	C	B	C
Palmitic acid	A	C	C	A	A	A	A	A	A	C	A	C
Paraffin	A	B	B	A	A	A	–	A	A	B	A	B
Paraformaldehyde	B	B	B	A	A	A	A	–	B	B	B	B
Pentane	A	B	B	A	A	A	–	A	A	B	A	B
Perchloroethylene	B	B	B	C	A	A	A	D	B	B	B	B
Petrolatum	B	C	C	A	A	A	–	A	B	C	B	C
Phenol (carbolic acid)	A	B	B	A	A	A	A	A	A	B	A	B
Phosgene (carbonyl chloride)	–	–	–	–	B	A	–	–	–	–	–	–
Phosphoric acid	–	–	–	–	B	A	A	A	–	–	–	–
Phosphoric acid (40%)	–	–	–	–	B	A	A	A	–	–	–	–
Phosphoric acid (>40%)	–	–	–	–	B	A	A	A	–	–	–	–
Phosphoric acid (crude)	–	–	–	–	B	A	A	A	–	–	–	–
Phosphoric acid (molten)	–	–	–	–	B	–	–	–	–	–	–	–
Phosphoric acid (anhydride)	–	–	–	D	B	A	–	–	–	–	–	–
Phthalic acid	B	C	C	C	B	A	A	–	B	C	B	C
Phthalic anhydride	B	C	C	C	A	A	C	C	B	C	B	C
Picric acid	B	C	C	A	A	A	A	–	B	C	B	C
Pine oil	A	B	B	A	A	A	–	–	A	B	A	B
Pineapple juice	A	C	C	A	A	A	–	–	A	C	–	C
Polyester resin	A	B	B	–	A	A	A	–	A	B	A	B
Polyethylene glycol	–	–	–	–	–	A	A	B	–	–	–	–
Polyurethane	A	A	A	–	–	–	–	–	A	A	A	A
Potassium bisulfite (10%)	B	D	D	C	A	A	–	–	B	D	–	D
Potassium bromide	B	D	D	C	A	A	A	–	B	D	–	D
Potassium carbonate	A	C	C	–	A	A	A	–	A	C	–	C
Potassium chlorate	A	B	B	–	C	A	A	A	A	C	–	B
Potassium chloride	A	C	C	A	A	A	A	A	A	C	–	C
Potassium cyanide	B	B	B	A	A	A	–	–	B	B	B	B
Potassium dichromate	A	B	B	B	B	A	A	A	A	B	A	B
Potassium diphosphate	A	A	A	–	–	–	–	–	A	A	A	A
Potassium ferricyanide	A	B	B	C	B	A	A	C	B	B	B	B

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Potassium ferrocyanide	A	B	B	B	B	A	A	—	A	B	A	B
Potassium hydroxide (70%)	A	A	A	C	C	A	A	B	A	A	A	A
Potassium hydroxide (diluted)	B	B	B	—	A	A	A	A	B	B	B	B
Potassium iodide	B	C	C	C	A	A	—	—	B	C	B	C
Potassium nitrate	A	B	B	B	B	A	A	A	A	B	A	B
Potassium permanganate	A	A	A	D	D	A	A	—	A	A	A	A
Potassium sulfate	A	B	B	A	A	A	A	A	A	B	A	B
Potassium sulfide	B	C	C	A	A	A	C	—	B	C	B	C
Potassium sulfite	A	D	D	A	A	A	—	A	A	D	—	D
Producer gas	A	B	B	A	A	A	A	A	A	B	A	B
Propane	A	A	A	A	A	A	A	A	A	A	A	A
Propylene	A	B	B	C	A	A	A	A	A	B	—	B
Propyl alcohol (propanol)	A	A	A	A	A	A	A	A	A	A	A	A
Propylene glycol	A	A	A	C	A	A	A	A	A	A	A	A
Pyrogalllic acid	B	B	B	B	A	A	D	—	B	B	B	B
Quench oil (water soluble)	A	A	A	B	B	A	A	—	A	A	A	A
Resins and and rosins	A	C	C	B	A	A	A	—	A	C	—	C
Rubber latex emulsions	A	B	B	A	A	A	A	—	A	B	A	B
Salad oil	B	C	C	A	A	A	A	—	B	C	—	C
Salicylic acid	A	D	D	B	A	A	A	A	A	D	A	D
Salt brine (saturated)	B	C	C	A	A	A	A	A	B	C	A	C
Seawater	A	D	D	A	A	A	A	A	A	D	A	D
Shellac (bleached)	A	A	A	C	A	A	A	—	A	A	A	A
Shellac (orange)	A	A	A	C	A	A	A	—	A	A	A	A
Silicone oils	A	A	A	A	A	A	A	A	A	A	A	A
Silver nitrate	B	D	D	B	A	A	A	A	B	D	—	D
Soap solutions (stearates)	A	A	A	A	A	A	A	A	A	A	A	A
Sodium acetate	B	B	B	B	B	A	A	B	B	B	B	B
Sodium aluminate	A	C	C	C	A	A	A	—	A	C	—	C
Sodium bicarbonate	B	C	C	A	A	A	A	A	B	C	—	C
Sodium bisulfate	A	D	D	A	A	A	A	A	A	D	—	D
Sodium bisulfite	D	D	D	A	A	A	A	A	D	D	—	D
Sodium borate (borax)	B	C	C	A	A	A	A	A	A	C	B	C
Sodium bromide	B	C	C	C	B	A	A	—	B	C	B	C
Sodium carbonate	B	B	B	A	A	A	A	A	B	B	B	B
Sodium chlorate	B	C	C	C	A	A	A	C	B	C	B	C
Sodium chloride	B	C	C	A	A	A	A	A	B	C	B	C
Sodium chromate	B	B	B	C	C	A	A	—	B	B	B	B
Sodium cyanide	A	A	A	A	A	A	A	A	A	A	A	A
Sodium fluoride	C	D	D	C	B	A	A	—	C	D	—	D
Sodium hydroxide (20%)	A	A	A	—	A	A	A	A	A	A	A	A
Sodium hydroxide (50%)	B	B	B	—	A	A	A	A	B	B	B	B
Sodium hydroxide (80%)	B	B	B	—	B	A	A	A	B	B	B	B
Sodium hypochloride	C	D	D	—	D	A	A	—	C	D	—	D
Sodium metaphosphate	A	D	D	A	A	A	A	A	A	D	—	D
Sodium metasilicate	A	C	C	C	A	A	A	—	A	C	A	C
Sodium nitrate	A	B	B	—	A	A	A	A	A	B	B	B
Sodium perborate	B	C	C	B	B	A	A	A	B	C	B	C
Sodium peroxide	B	C	C	B	A	A	A	A	B	C	B	C
Sodium phosphate (dibasic)	B	B	B	A	A	A	A	A	B	B	B	B
Sodium phosphate (tribasic)	B	B	B	B	B	A	A	A	B	B	B	B
Sodium silicate	A	A	A	A	A	A	A	A	A	A	A	A
Sodium sulfate	A	B	B	A	A	A	A	A	A	B	A	B

A: Excellent; B: Good (slightly attacked); C: Fair (modestly attacked); D: Not recommended; —: No data

Lading	External Valve Body Material			Seal Code Trim					Internal Valve Trim			
	Std. Body 23	Std. Body 24	Spl. Body 37	Std. YRF	Spl. YFF	Spl. TFF	Spl. PFF	Spl. PLF	Std. Int. 23	Std. Int. 24	Spl. Int. 27	Spl. Int. 37
Sodium sulfide	B	B	B	B	B	A	A	—	B	B	B	B
Sodium thiosulfate	A	D	D	B	B	A	A	—	A	D	—	D
Sour gas and oil	A	A	A	—	—	—	—	—	A	A	—	A
Soybean oil	A	B	B	A	A	A	A	A	A	B	B	B
Stannic chloride	D	D	D	B	B	A	A	A	D	D	D	D
Stannous chloride	C	D	D	C	C	A	A	A	C	D	—	D
Starch	A	A	A	A	A	A	A	A	A	A	A	A
Steam (212 degF)	A	B	B	D	C	A	A	A	A	B	A	B
Stearic acid	A	C	C	B	A	A	A	A	A	C	—	C
Stoddard solvent	B	B	B	A	A	A	A	B	B	B	B	B
Styrene	A	A	A	—	A	A	A	B	A	A	A	A
Sugar liquids	A	B	B	—	A	A	A	—	A	B	A	B
Sulfate, black liquors	B	C	C	—	B	A	—	—	B	C	—	C
Sulfate, green liquors	B	C	C	—	B	A	—	—	B	C	—	C
Sulfate, white liquors	B	D	D	—	B	A	—	—	B	D	—	D
Sulfuric acid (0%–7%)	A	B	B	—	C	A	A	B	A	B	A	B
Sulfuric acid (10%–100%)	D	D	D	—	D	A	D	B	D	D	—	D
Sulfurous acid	D	D	D	D	D	A	A	A	D	D	—	D
Sulfur	A	B	B	—	A	A	A	—	A	B	A	B
Sulfur dioxide (dry)	A	B	B	—	A	A	A	B	A	B	A	B
Sulfur trioxide (dry)	B	B	B	—	A	A	A	B	B	B	B	B
Synthesis gas	B	B	B	—	A	A	A	—	B	B	B	B
Tall oil	B	B	B	—	A	A	A	—	B	B	B	B
Tannic acid	B	B	B	A	A	A	A	A	B	B	B	B
Tar and tar oil	A	A	A	B	A	A	A	A	A	A	A	A
Tartaric acid	A	D	D	B	B	A	A	A	A	D	C	D
Tetraethyl lead	B	C	C	B	B	A	A	C	B	C	—	C
Titanium tetrachloride	—	—	—	B	A	A	—	—	—	—	—	—
Titanium trichloride	—	—	—	B	A	A	—	—	—	—	—	—
Toluene and toluol	A	A	A	C	A	A	A	D	A	A	A	A
Tomato juice	A	C	C	—	A	A	A	—	A	C	—	C
Transformer oil	A	A	A	A	A	A	A	A	A	A	A	A
Tributyl phosphate	A	A	A	D	D	A	—	—	A	A	A	A
Trichloroethylene	B	B	B	C	B	A	A	D	B	B	B	B
Tung oil (China wood oil)	A	B	B	A	A	A	A	A	A	B	A	B
Turpentine	A	B	B	B	B	A	A	A	A	B	A	B
Urea	B	C	C	—	—	—	—	—	B	C	—	C
Varnish	A	C	C	B	A	A	A	B	A	C	—	C
Vegetable oil, edible	A	B	B	A	A	A	A	A	A	B	—	B
Vegetable oil, nonedible	A	B	B	A	A	A	A	A	A	B	A	B
Vinegar	A	D	D	B	A	A	A	A	A	D	—	D
Water, distilled	A	D	D	A	A	A	A	A	A	D	A	D
Water, fresh	A	C	C	A	A	A	A	A	A	C	A	C
Water, salt	A	D	D	A	A	A	A	A	A	D	A	D
Wax, emulsions	A	A	A	—	A	A	A	—	A	A	A	A
Waxes	A	A	A	—	A	A	A	—	A	A	A	A
Whiskey and wine	A	D	D	A	A	A	A	A	A	D	—	D
Xylene	A	A	A	D	A	A	A	D	A	A	A	A
Zinc chloride	D	D	D	C	C	A	A	A	D	D	—	D
Zinc hydrosulfite	A	A	A	C	A	A	—	—	A	A	A	A
Zinc sulfate	B	D	D	A	A	A	A	A	B	D	B	D

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