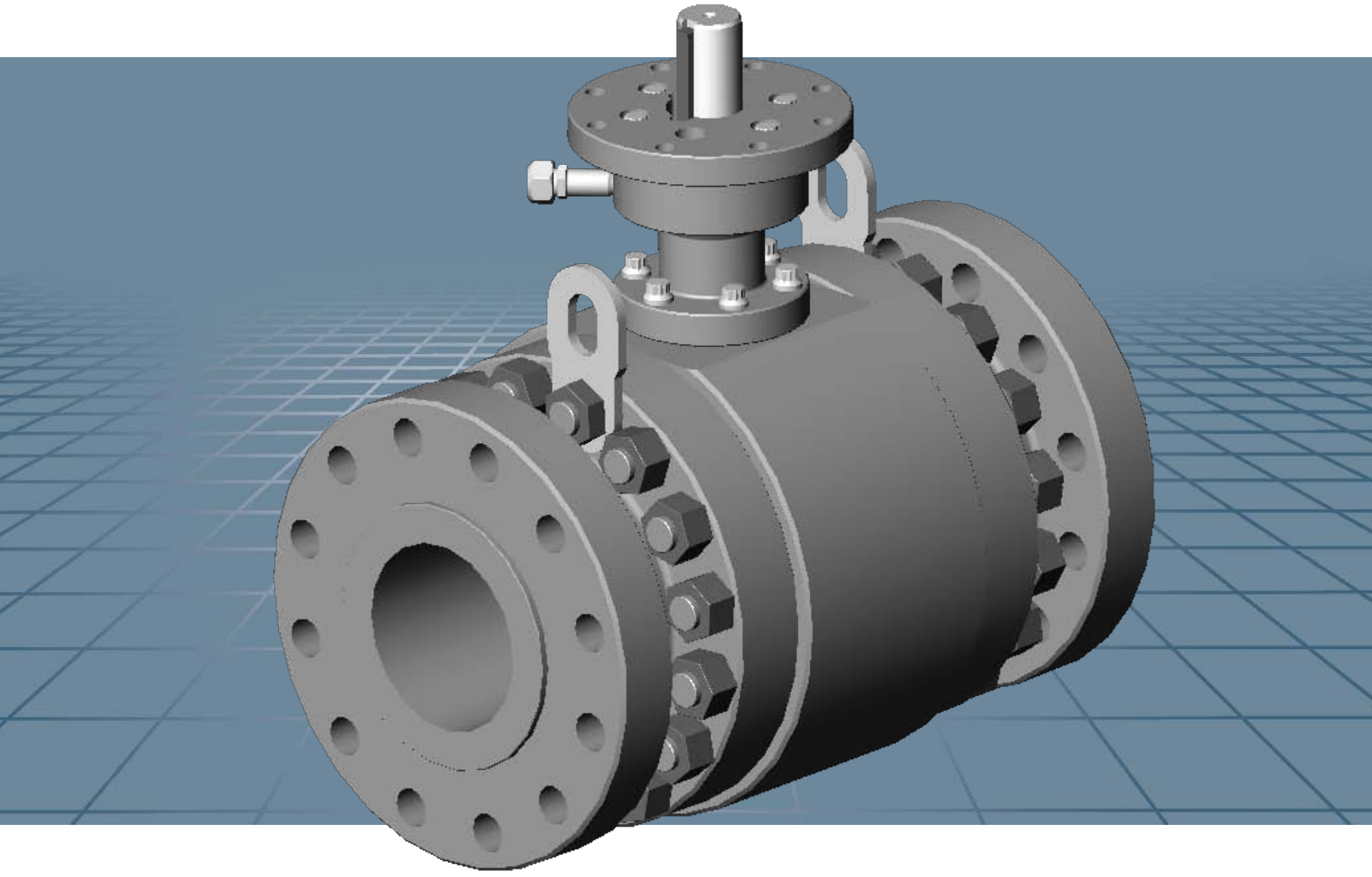
NUTRON® Metal Seated Valves for Heavy Oil, High Temperature Steam and Abrasive Slurry Applications

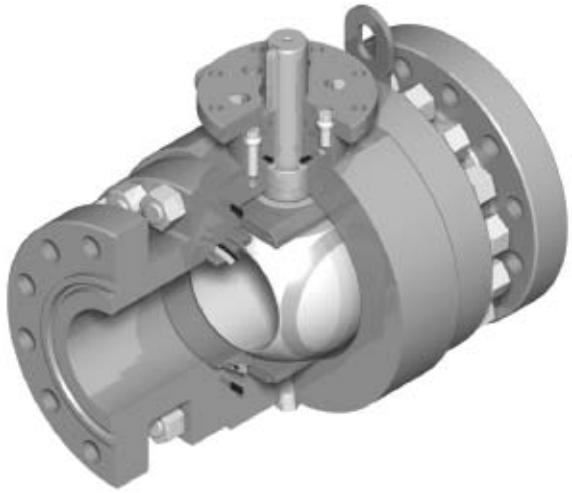


NUTRON®

NUTRON MODEL TM METAL SEATED TRUNNION MOUNTED BALL VALVES

COMPLIANCE AND SPECIFICATIONS

- ISO 9001-2000 Registered Quality System
- API 6D
- API 608
- API 598
- API 607 5th Edition and API 6FA Fire Tested
- ASME B16.34
- ASME Section VIII Division 1 Boiler and Pressure Vessel Code
- CSA Z245.15 Steel Valves
- NACE MR0175 / ISO 15156 Compliance
- Canadian Registered
- Double-Block-&-Bleed
- Bi-Directional Sealing to Class V (Class VI available)
- Redundant Seals
- Extended Bonnet Available for High Temperature Service



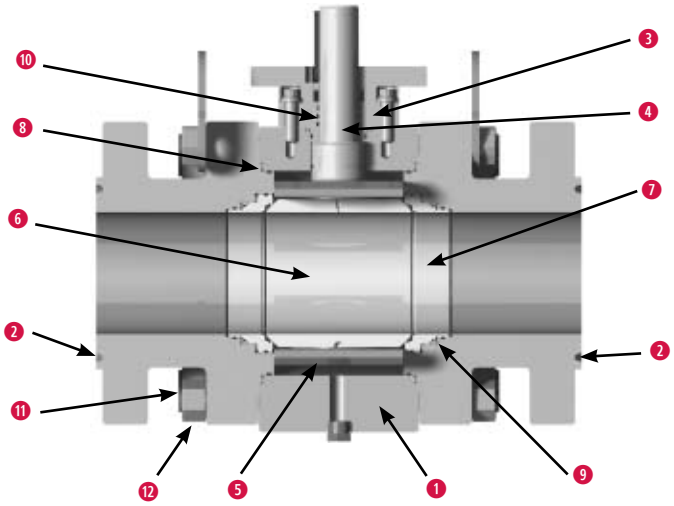
SIZES AND TRIMS

Full Port sizes

- 2 inch through 12 inch (50 mm through 300 mm)
- ASME Class 150 / 300 / 600 / 900 / 1500 / 2500 (PN 20 / 50 / 100 / 150 / 250 / 420)

Reduced Port sizes

- 3 inch through 16 inch (80 mm through 400 mm).
- ASME Class 150 / 300 / 600 / 900 / 1500 / 2500 (PN 20 / 50 / 100 / 150 / 250 / 420)



	ITEM	PART	HT SERVICE (SOUR) -50°F to 662°F (-46°C to 350°C)	ABRASIVE SLURRY SERVICE (SOUR) -50°F to 400°F (-46°C to 204°C)
	1	Body	ASTM A350 LF2[3]	ASTM A350 LF2 w / Coating
	2	End Caps	ASTM A350 LF2[3]	ASTM A350 LF2 w / Coating
	3	Bonnet	ASTM A350 LF2[3]	ASTM A350 LF2 w / Coating
[1]	4	Stem	ASTM A322 4130 w / ENC	ASTM A322 4130 w / ENC
	5	Bearing Plate	ASTM A350 LF2	ASTM A350 LF2
[1,4]	6	Ball	ASTM A182 F6A w / Chromium Carbide	ASTM A182 F6A w / Chromium Carbide
[1,2,4]	7	Seat Assembly	ASTM A564 17-4 w / Chromium Carbide	ASTM A564 17-4 w / Chromium Carbide
[1,2]	8	Body Seals	Flexiseal & Metallic	O-Ring & Metallic
[1,2]	9	Seat Seal	Delta Seal	Delta Seal
[1,2]	10	Stem Seals	Flexiseal & Packing	O-Rings & Packing
	11	Body Studs	ASTM A320 L7M	ASTM A320 L7M
	12	Body Nuts	ASTM A194 L7M	ASTM A194 L7M

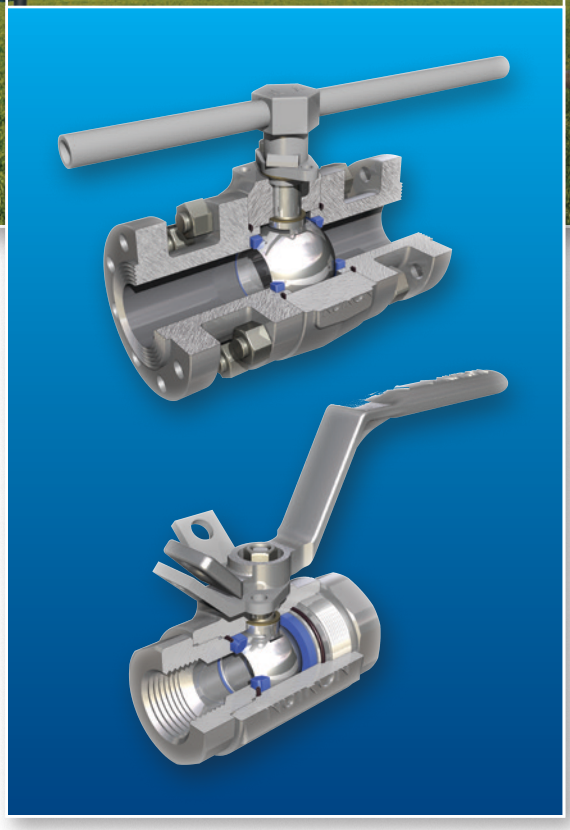
1 Major Repair Kit.
2 Minor Repair Kit.
3 Optional Coatings Available.
4 Other Coatings Available to suit application.

Cameron's Valves & Measurement Group reserves the right to substitute materials listed in the chart with alternate materials for the designated service.

VALVES & MEASUREMENT
3250 Briarpark Drive, Suite 300
Houston, TX 77042
USA Toll 800 323 9160

For the most current contact and location information go to: www.c-a-m.com

CAMERON
A Schlumberger Company



NUTRON Ball Valves—Models T3 and B3

Forged-steel floating ball valves for heavy-duty, reduced-maintenance performance

Content

Sizes, Specifications, and Compliance

Model T3 three-piece threaded floating ball valves

- Full-port sizes: ½–3 in [15–80 mm]
- Reduced-port sizes: ¾–4 in [20–100 mm]
- ASME Classes 150–2500 [PN 20–420] (see page 5)
- Water, oil, gas (WOG) pressure 1,000–6,000 psi (see page 5)
- End connections: threaded, flanged, socket weld, and butt weld

Model B3 three-piece bolted floating ball valves

- Full-port sizes: 1½–4 in [40–100 mm]
- Reduced-port sizes: 2–6 in [50–150 mm]
- ASME Classes 150–1500 [PN 20–250] (see page 19)
- WOG pressure: 2,000–4000 psi (see page 19)
- End connections: flanged, threaded, and butt weld

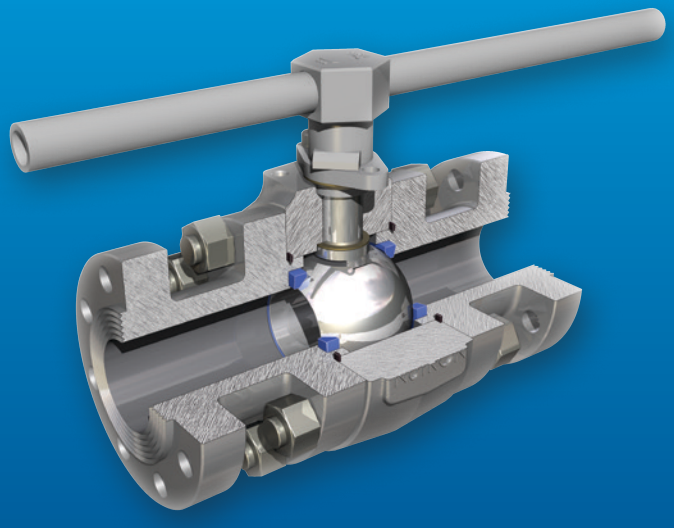
Materials and actuation

- Materials: carbon steel, stainless steel, and special alloys
- Operator: manual lever handle
- Actuation: consult Cameron for information on various types of actuators, including gear operators (B3), pneumatic, hydropneumatic, electric, electropneumatic, and hydraulic actuators

Compliance to standards and specifications

- ISO 9001:2000 registered quality system
- ASME B16.34
- API 598 and API 607 4th Edition (fire safe)
- CE Mark Number 0038
- ASME Section VIII, Division 1 boiler and pressure vessel code
- CSA Z245.15 steel valves
- NACE MR0175 (Rev. 2002)
- Canadian Registration Number (CRN)
- API 603 (conduit factory) Model B3E

NUTRON Model T3 ball valve.



NUTRON Model B3 ball valve.

Model T3 Standard Features

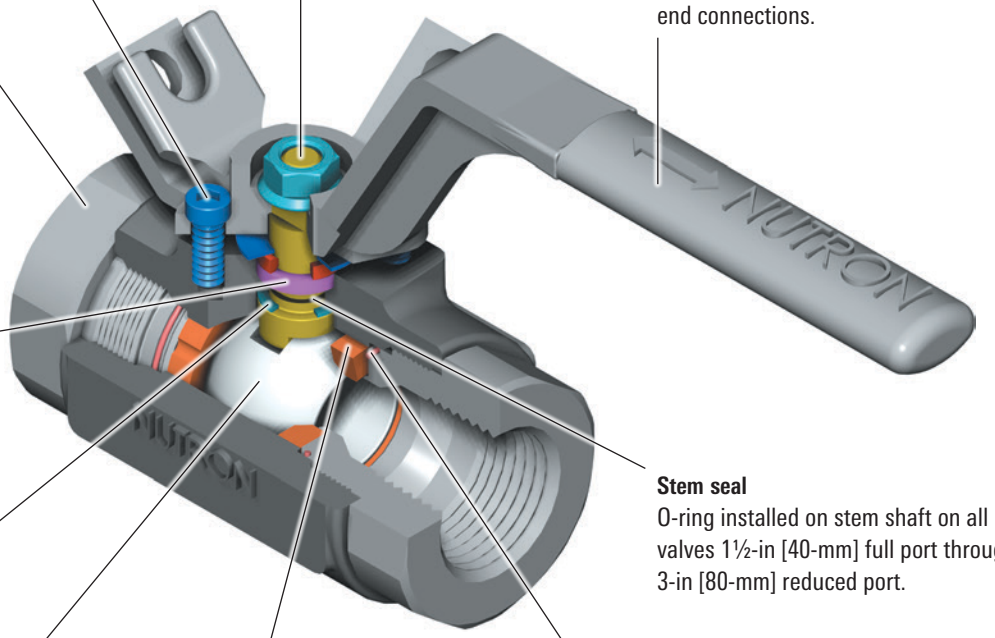
Capscrew
Dual purpose, which allows for easy stem packing adjustment without handle removal while providing a stop for the handle.

Body construction
Forged-steel, three-piece threaded construction. A machined pad area is drilled and tapped for actuation as a standard. Threaded construction enables combinations of end connections.

Packing
Self adjusting by means of a Belleville washer. Allows for long service life before manual packing adjustment is necessary.

Thrust washer
Design that acts as a bearing between the body and stem.

Ball
Floating ball design allows positive shutoff in either flow direction. Includes pressure equalization hole to prevent trapping of pressure in the body cavity.



Stem
Blowout-proof stem that is backseated through the valve body.

Seats
Available in Teflon®, Delrin®, polyetheretherketone (PEEK), and Devlon® materials.

Handle
Rugged cast handle that indicates flow position. When the handle is positioned in line with the pipe, the valve is open. When the handle is positioned perpendicular to the pipe, the valve is closed. Locking handle is standard for all 2-in [50-mm] reduced-port and smaller valves with either socket weld or FNPT end connections.

Stem seal
O-ring installed on stem shaft on all valves 1½-in [40-mm] full port through 3-in [80-mm] reduced port.

Body seals
O-rings placed ahead of the body cap threads to protect the threads from the flow media.

Available Sizes

Sizes, in [mm]	ASME Class [PN]					
	150 [20]	**300 [50]**	**600 [100]**	**900 [150]**	**1500 [250]**	**2500 [420]**
Full port minus 1 in [25 mm]	½–3 [15–80]	½–3 [15–80]	½–2 [15–50]	½–2 [15–50]	½–2 [15–50]	½–2 [15–50]
Reduced port minus 1½ in [40 mm]	¾–4 [20–100]	¾–4 [20–100]	¾–3 [20–80]	¾–3 [20–80]	¾–3 [20–80]	¾–3 [20–80]
Sizes, in [mm]	**WOG Pressure, psi**					
	–	**1,000**	**2,000**	**3,000**	**4,000**	**6,000**
Full port, threaded	–	3 [80]	¼–3 [8–80]	¼–2 [8–50]	¼–2 [8–50]	¼–2 [8–50]
Reduced port, threaded	–	4 [100]	¾–3 [20–80]	¾–3 [20–80]	¾–3 [20–80]	¾–3 [20–80]
Full port, socket weld	–	–	½–2 [15–50]	½–2 [15–50]	½–2 [15–50]	½–2 [15–50]
Reduced port, socket weld	–	–	¾–3 [20–80]	¾–3 [20–80]	¾–3 [20–80]	¾–3 [20–80]

How to Order

T3-F07S20SZ: Model T3, full port, ¾ in [20 mm], FNPT, 2,000-psi WOG, sour valve, fire safe

Example

T3 - F 07 S 20 S Z

Model · Bore · Size · Pressure · Style† · Fire safe

Model	
T3	Three-piece, threaded

Bore	
F	Full port
R	Reduced port

Size, in [mm]	
02	¼ [8]
03	⅜ [10]
05	½ [15]
07	¾ [20]
10	1 [25]
12	1¼ [32]
15	1½ [40]
20	2 [50]
25	2½ [65]
30	3 [80]
40	4 [100]

End Connection	
A	Raised face (RF) smooth face
B	Butt weld (BW) Sch. 40
C	BW Sch. 80
D	BW Sch. 160
E	BW Sch. XXH
F	Female NPT (FNPT) × Male NPT (MNPT)
G	FNPT × RF
H	FNPT × ring-type joint (RTJ)
J	RTJ
M	MNPT
R	Raised face
S	FNPT
TS	FNPT × socket weld
WS	Socket weld

Pressure	
10	1,000-psi WOG
20	2,000-psi WOG
30	3,000-psi WOG
40	4,000-psi WOG
60	6,000-psi WOG
01	150 ASME
03	300 ASME
06	600 ASME
09	900 ASME
15	1500 ASME
25	2500 ASME

Style†		Temp. Rating, degF [degC]
A	Stainless steel	–50 [–46]
B	Standard	
D	Full stainless steel	–150 [–100]
G	Steam high-temperature sour	600 [315]
H	High-temperature sour	500 [260]
L	Low-temperature sour	–50 [–46]
N	MONEL® alloy steel	–150 [–100]
Q	Duplex steel	–60 [–51]
S	Sour	–20 [–29]

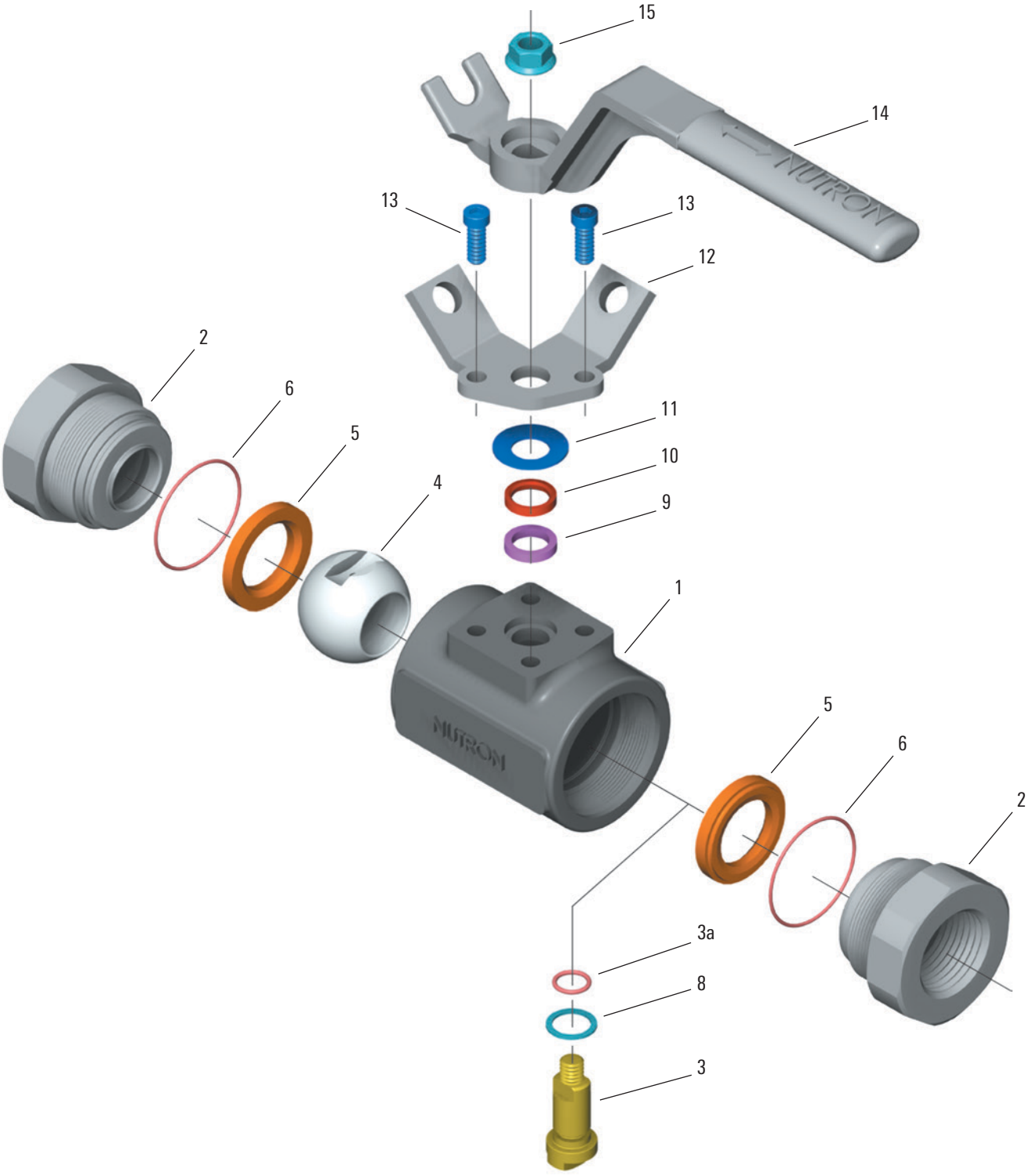
Fire Safe	
Z	Fire safe

Common Options†
Antistatic spring
Bleeder hole
Bleeder valve
Car seal close
Car seal open
Delrin material seats
Devlon material seats
Electroless nickel plating (ENP)
Extended stem
Gear operator
Graphite packing
Highly satured nitrile (HSN) O-rings
ZPEX® coating
Locking handle
Nitrile O-rings
PEEK seats
Seal injection
Teflon material O-rings
Viton material O-rings

† Consult Cameron for detailed valve style descriptions, full range of options, materials, actuation packages, or for a particular special valve service application.

Valve Details and Materials Lists

Model T3—Threaded End Connections



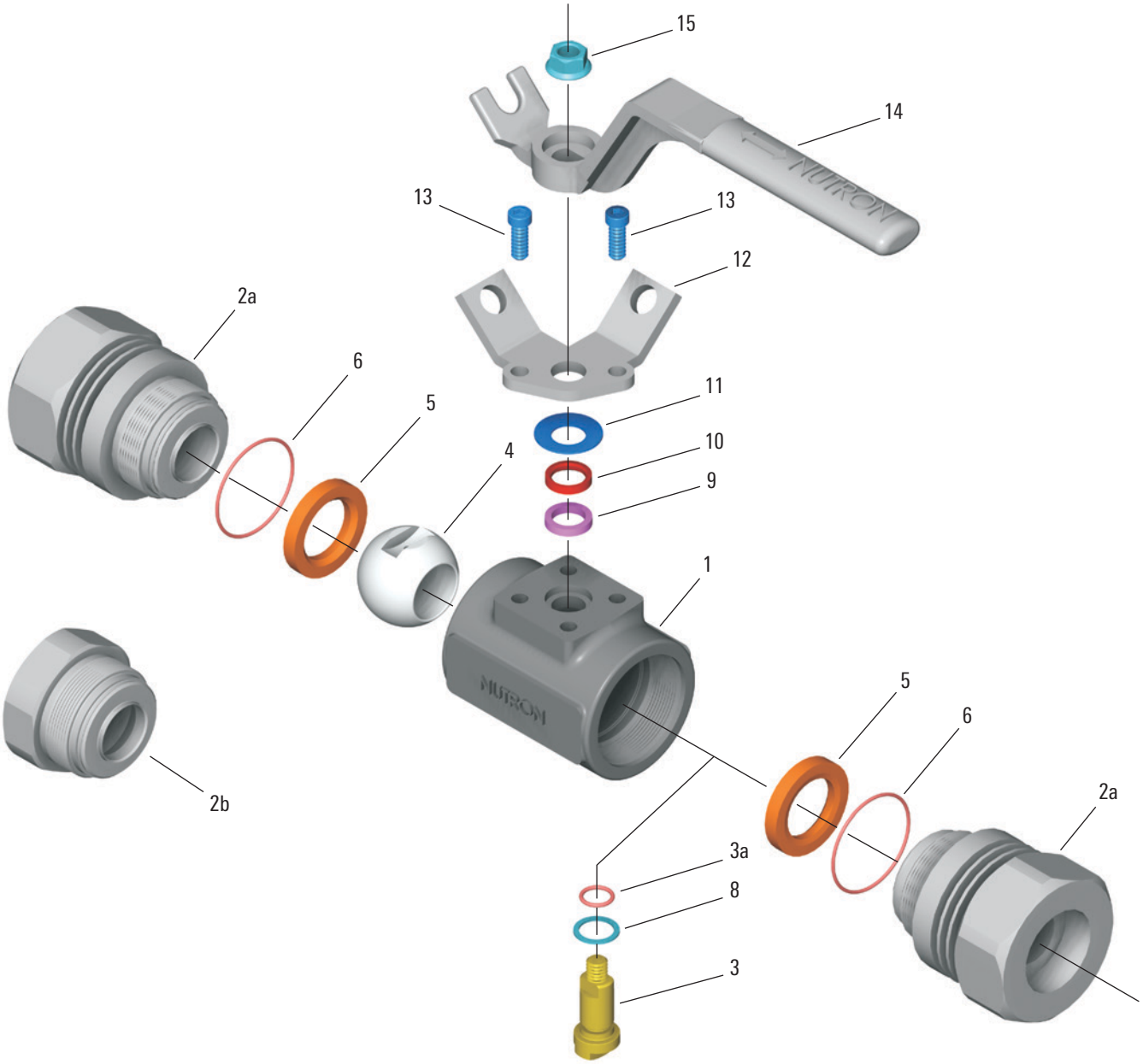
Materials Lists

	Item	Part	Working Pressure, psi	Standard –20 degF [–29 degC]	Sour –20 degF [–29 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
	2	End caps	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
■	3	Stem	150, 300, 600, and 900	ASTM A108, plated	ASTM A564 17-4PH stainless steel
			1,500 and 2,500	ASTM A564 17-4PH® stainless steel	ASTM A564 17-4PH stainless steel
■●	3a†	Stem O-ring	All	Nitrile rubber	HSN
■	4	Ball	150–1,500	Carbon steel, chrome plated	ASTM A351 Grade CF8M
			2,500	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel
■●	5	Seats	150, 300, and 600	Teflon material	Teflon material
			900 and 1,500	Delrin material	Delrin material
			2,500	PEEK	PEEK
■●	6	Body O-rings	All	Nitrile rubber	HSN
■●	8	Thrust washer	150, 300, and 600	Teflon material	Teflon material
			900 and 1,500	Delrin material	Delrin material
			2,500	PEEK	PEEK
■●	9	Packing	All	Teflon material	Teflon material
	10	Packing follower	All	Carbon steel, plated	Stainless steel
	11	Belleville washer	All	Carbon steel	Stainless steel
	12	Gland flange‡	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Carbon steel	Stainless steel
	14	Handle	All	Carbon steel	Carbon steel
	15	Handle nut	All	Carbon steel, plated	Carbon steel, plated

	Item	Part	Working Pressure, psi	Low-Temperature Sour –50 degF [–46 degC]	Stainless Steel –50 degF [–46 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A479 316
	2	End caps	All	ASTM A350 Grade LF2	ASTM A479 316
■	3	Stem	All	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel with nitriding
			All	HSN	
■●	3a†	Stem O-ring	2,000	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M
■	4	Ball	3,000 and 4,000	ASTM A351 Grade CF8M	ASTM A564 17-4PH stainless steel
			6,000	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel
■●	5	Seats	2,000	Teflon material	Teflon material
			3,000 and 4,000	Delrin material	PEEK
			6,000	PEEK	PEEK
■●	6	Body O-rings	All	HSN	Teflon material
■●	8	Thrust washer	2,000	Teflon material	Teflon material
			3,000 and 4,000	Delrin material	PEEK
			6,000	PEEK	PEEK
■●	9	Packing	All	Teflon material	Teflon material
	10	Packing follower	All	Stainless steel	Stainless steel
	11	Belleville washer	All	Stainless steel	Stainless steel
	12	Gland flange‡	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Stainless steel	Stainless steel
	14	Handle	All	Carbon steel	Carbon steel
	15	Handle nut	All	Carbon steel, plated	Carbon steel, plated

■ Major repair kit.
● Minor repair kit.
† Only available on sizes 1½-in [40-mm] full-port through 3-in [80-mm] reduced-port valves.
‡ Locking device is standard on ¼-in [8-mm] full-port through 2-in [50-mm] reduced-port valves.
Fire-safe trim offered as standard whenever possible. Consult Cameron for fire-safe trim.

Model T3—Socket Weld and Threaded × Socket Weld End Connections



Materials Lists

	Item	Part	Working Pressure, psi	Standard –20 degF [–29 degC]	Sour –20 degF [–29 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
	2a	End caps—socket weld (SW)	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
	2b	End caps—NPT	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
■	3	Stem	2,000 and 3,000	ASTM A108, plated	ASTM A564 17-4PH stainless steel
			4,000 and 6,000	ASTM A564 17-4PH	ASTM A564 17-4PH stainless steel
■●	3a†	Stem O-ring	All	Viton material	Viton material
■	4	Ball	2,000	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M
			3,000, 4,000, and 6000	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH
■●	5	Seats	2,000	Teflon material	Teflon material
			3,000, 4,000, and 6000	PEEK	PEEK
■●	6	Body O-rings	All	Viton material	Viton material
■●	8	Thrust washer	2,000	Teflon material	Teflon material
			3,000, 4,000, and 6,000	PEEK	PEEK
■●	9	Packing	All	Teflon material	Teflon material
	10	Packing follower	All	Carbon steel, plated	Stainless steel
	11	Belleville washer	All	Carbon steel	Stainless steel
	12	Gland flange‡	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Carbon steel	Stainless steel
	14	Handle	All	Carbon steel	Carbon steel
	15	Handle nut	All	Carbon steel, plated	Carbon steel, plated

	Item	Part	Working Pressure, psi	Low-Temperature Sour –50 degF [–46 degC]	Stainless Steel –50 degF [–46 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A479 Type 316
	2a	End caps—SW	All	ASTM A350 Grade LF2	ASTM A479 Type 316 L
	2b	End caps—NPT	All	ASTM A350 Grade LF2	ASTM A479 Type 316
■	3	Stem	All	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel with nitriding
■●	3a†	Stem O-ring	All	Viton material	Viton material
■	4	Ball	2,000	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M
			3,000, 4,000, and 6,000	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel
■●	5	Seats	2,000	Teflon material	Teflon material
			3,000, 4,000, and 6,000	PEEK	PEEK
■●	6	Body O-rings	All	Viton material	Viton material
■●	8	Thrust washer	2,000	Teflon material	Teflon material
			3,000, 4,000, and 6,000	PEEK	PEEK
■●	9	Packing	All	Teflon material	Teflon material
	10	Packing follower	All	Stainless steel	Stainless steel
	11	Belleville washer	All	Stainless steel	Stainless steel
	12	Gland flange‡	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Stainless steel	Stainless steel
	14	Handle	All	Carbon steel	Carbon steel
	15	Handle nut	All	Carbon steel, plated	Carbon steel, plated

■ Major repair kit.

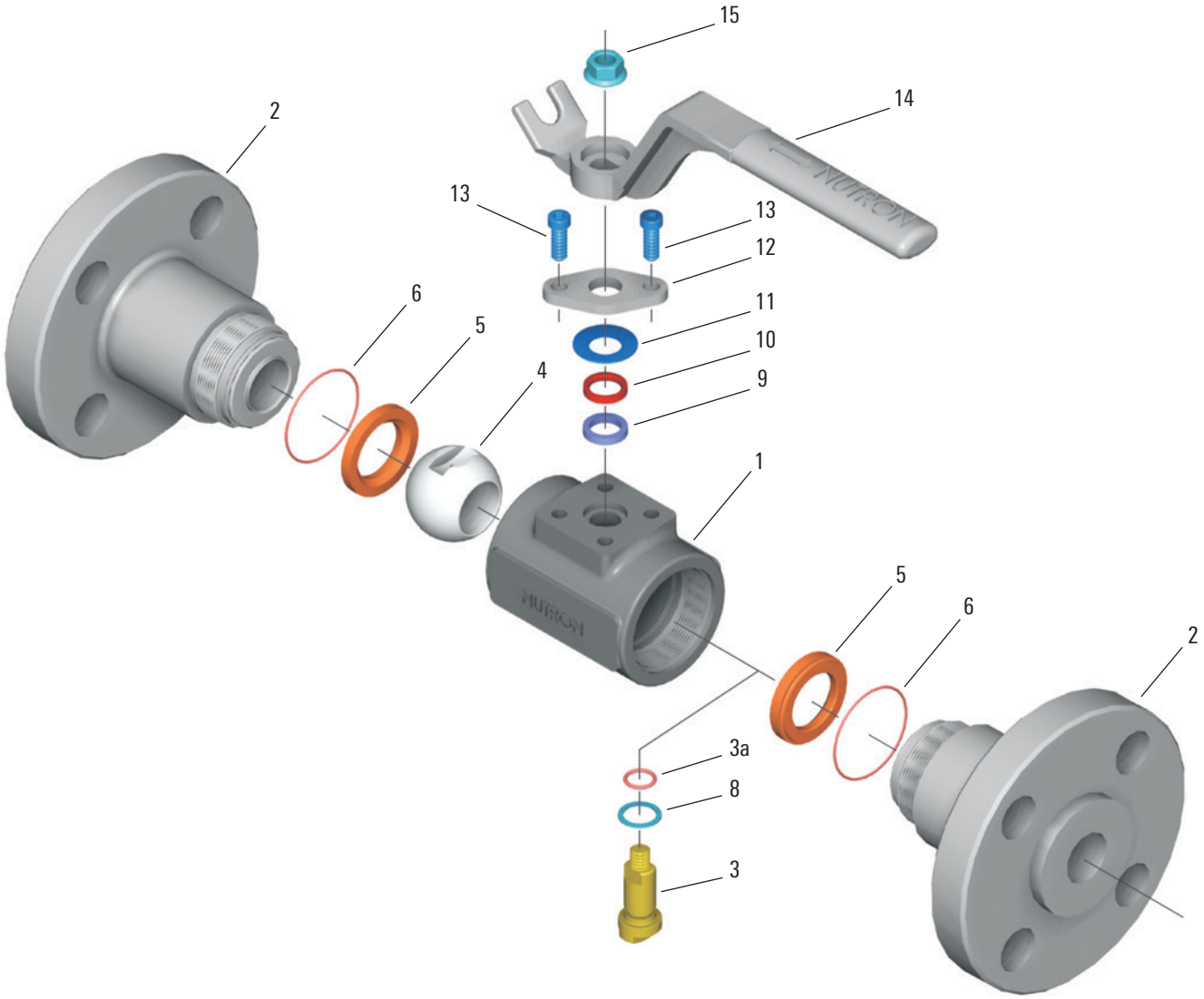
● Minor repair kit.

† Only available on sizes 1½-in [40-mm] full-port through 3-in [80-mm] reduced-port valves.

‡ Locking device is standard on ¼-in [8-mm] full-port through 2-in [50-mm] reduced-port valves.

Fire-safe trim offered as standard whenever possible. Consult Cameron for fire-safe trim.

Model T3—Flanged End Connections
ASME Classes 150–2500 [PN 20–420]



Materials Lists

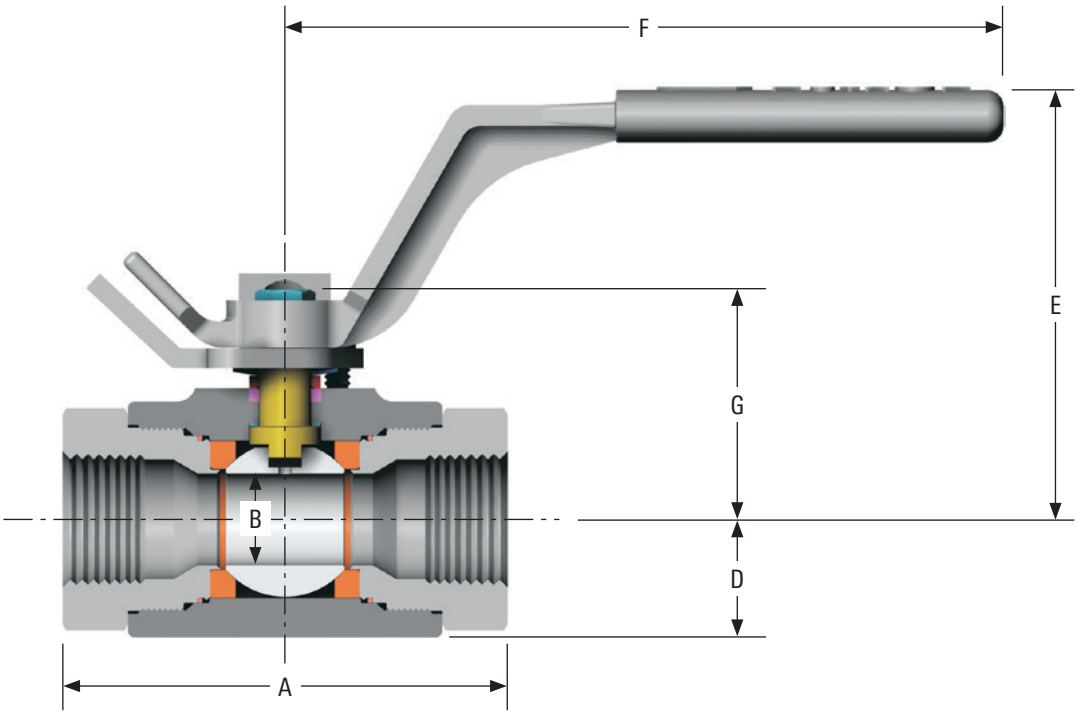
	Item	Part	Working Pressure, psi	Standard –20 degF [–29 degC]	Sour –20 degF [–29 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
	2	End caps	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
■	3	Stem	150, 300, 600, and 900	ASTM A108, plated	ASTM A564 17-4PH stainless steel
			1,500 and 2,500	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel
■●	3a†	Stem O-ring	All	Nitrile rubber	HSN
■	4	Ball	150 through 1,500	Carbon steel, chrome plated	ASTM A351 Grade CF8M
			2,500	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel
■●	5	Seats	150, 300, and 600	Teflon material	Teflon material
			900 and 1,500	Delrin material	Delrin material
			2,500	PEEK	PEEK
■●	6	Body O-rings	All	Nitrile rubber	HSN
■●	8	Thrust washer	150, 300, and 600	Teflon material	Teflon material
			900 and 1,500	Delrin material	Delrin material
			2,500	PEEK	PEEK
■●	9	Packing	All	Teflon material	Teflon material
	10	Packing follower	All	Carbon steel, plated	Stainless steel
	11	Belleville washer	All	Carbon steel	Stainless steel
	12	Gland flange	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Carbon steel	Stainless steel
	14	Handle	All	Carbon steel	Carbon steel
	15	Handle nut	All	Carbon steel, plated	Carbon steel, plated

	Item	Part	Working Pressure	Low-Temperature Sour –50 degF [–46 degC]	Stainless Steel –50 degF [–46 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A479 316
	2	End caps	All	ASTM A350 Grade LF2	ASTM A479 316
■	3	Stem	All	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel with nitriding
■●	3a†	Stem O-ring	All	HSN	HSN
■	4	Ball	150, 300, and 600	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M
			900 and 1,500	ASTM A351 Grade CF8M	–
			2,500	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel
■●	5	Seats	150, 300, and 600	Teflon material	Teflon material
			900 and 1,500	Delrin material	PEEK
			2,500	PEEK	PEEK
■●	6	Body O-rings	All	HSN	Teflon material
■●	8	Thrust washer	150, 300, and 600	Teflon material	Teflon material
			900 and 1,500	Delrin material	PEEK
			2,500	PEEK	PEEK
■●	9	Packing	All	Teflon material	Teflon material
	10	Packing follower	All	Stainless steel	Stainless steel
	11	Belleville washer	All	Stainless steel	Stainless steel
	12	Gland flange	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Stainless steel	Stainless steel
	14	Handle	All	Carbon steel	Carbon steel
	15	Handle nut	All	Carbon steel, plated	Carbon steel, plated

■ Major repair kit.
● Minor repair kit.
† Only available on sizes 1½-in [40-mm] full-port through 3-in [80-mm] reduced-port valves.
Fire-safe trim offered as standard whenever possible. Consult Cameron for fire-safe trim.

Valve Assemblies and Dimensions Tables

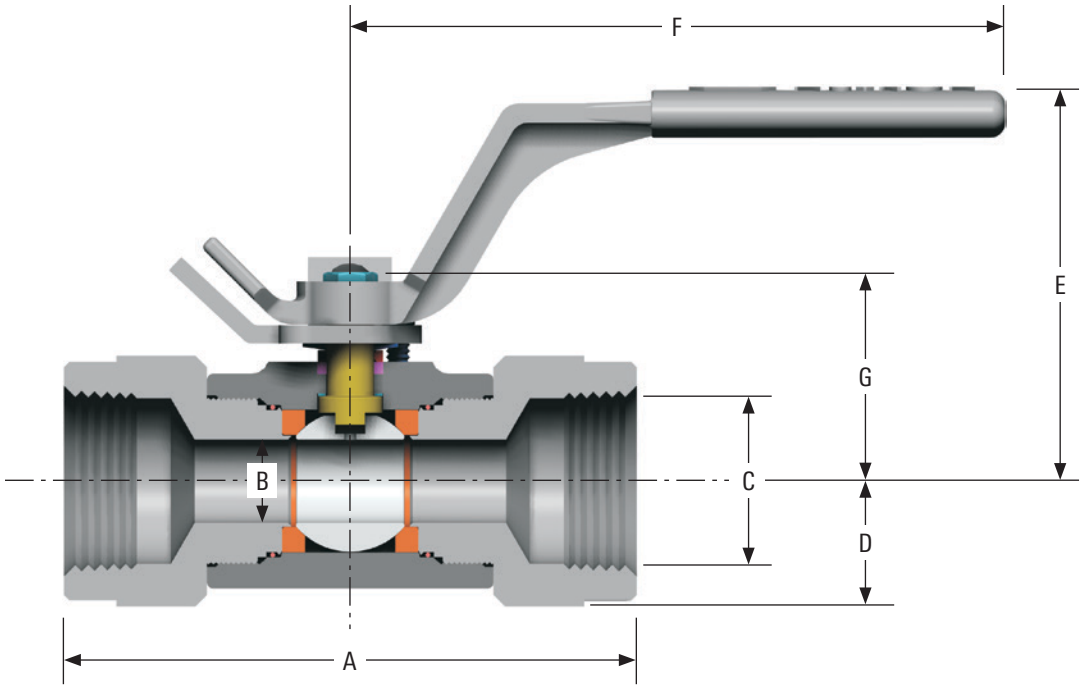
Model T3 — Full-Port Threaded



Dimensions									
Size, in [mm]	**WOG, psi**	**A**	**B**	**D**	**E**	**F**	**G**	**C_v**	**Weight, lbm [kg]**
¼ [8]	2,000	3.88 [98]	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	9	2.5 [1.1]
	3,000	3.88 [98]	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	9	2.5 [1.1]
	4,000	3.88 [98]	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	9	2.5 [1.1]
	6,000	3.88 [98]	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	9	2.5 [1.1]
⅜ [10]	2,000	3.88 [98]	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	9	2.4 [1.0]
	3,000	3.88 [98]	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	9	2.4 [1.0]
	4,000	3.88 [98]	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	9	2.4 [1.0]
	6,000	3.88 [98]	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	9	2.4 [1.0]
½ [15]	2,000	3.88 [98]†	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	26	2.2 [0.9]
	3,000	3.88 [98]†	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	26	2.2 [0.9]
	4,000	3.88 [98]†	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	26	2.2 [0.9]
	6,000	4.38 [111]	0.50 [13]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	26	2.2 [0.9]
¾ [20]	2,000	4.25 [108]	0.88 [22]	1.12 [29]	4.40 [112]	6.75 [172]	2.16 [55]	50	4.8 [2.1]
	3,000	4.25 [108]	0.88 [22]	1.12 [29]	4.40 [112]	6.75 [172]	2.16 [55]	50	4.8 [2.1]
	4,000	4.25 [108]	0.88 [22]	1.12 [29]	4.40 [112]	6.75 [172]	2.16 [55]	50	4.8 [2.1]
	6,000	4.25 [108]	0.88 [22]	1.50 [38]	4.40 [112]	6.75 [172]	2.16 [55]	50	6.5 [2.9]
1½ [40]	2,000	6.25 [159]	1.50 [38]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	260	18.0 [8.1]
	3,000	6.25 [159]	1.50 [38]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	260	18.0 [8.1]
	4,000	6.25 [159]	1.50 [38]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	260	18.0 [8.1]
	6,000	6.25 [159]	1.50 [38]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	260	18.0 [8.1]
2 [50]	2,000	6.25 [159]	2.00 [51]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	30.0 [13.6]
	3,000	6.25 [159]	2.00 [51]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	30.0 [13.6]
	4,000	6.25 [159]	2.00 [51]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	30.0 [13.6]
	6,000	6.25 [159]	2.00 [51]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	30.0 [13.6]
3 [80]	1,000	9.70 [246]	3.00 [76]	3.50 [89]	8.26 [210]	23.88 [607]	5.37 [137]	1,300	67.0 [30.4]
	2,000	9.70 [246]	3.00 [76]	3.50 [89]	8.26 [210]	23.88 [607]	5.37 [137]	1,300	67.0 [30.4]

† 4.38 in [111 mm] for stainless steel valves.
"A" dimension to be within ± 0.062 in [1.5 mm].

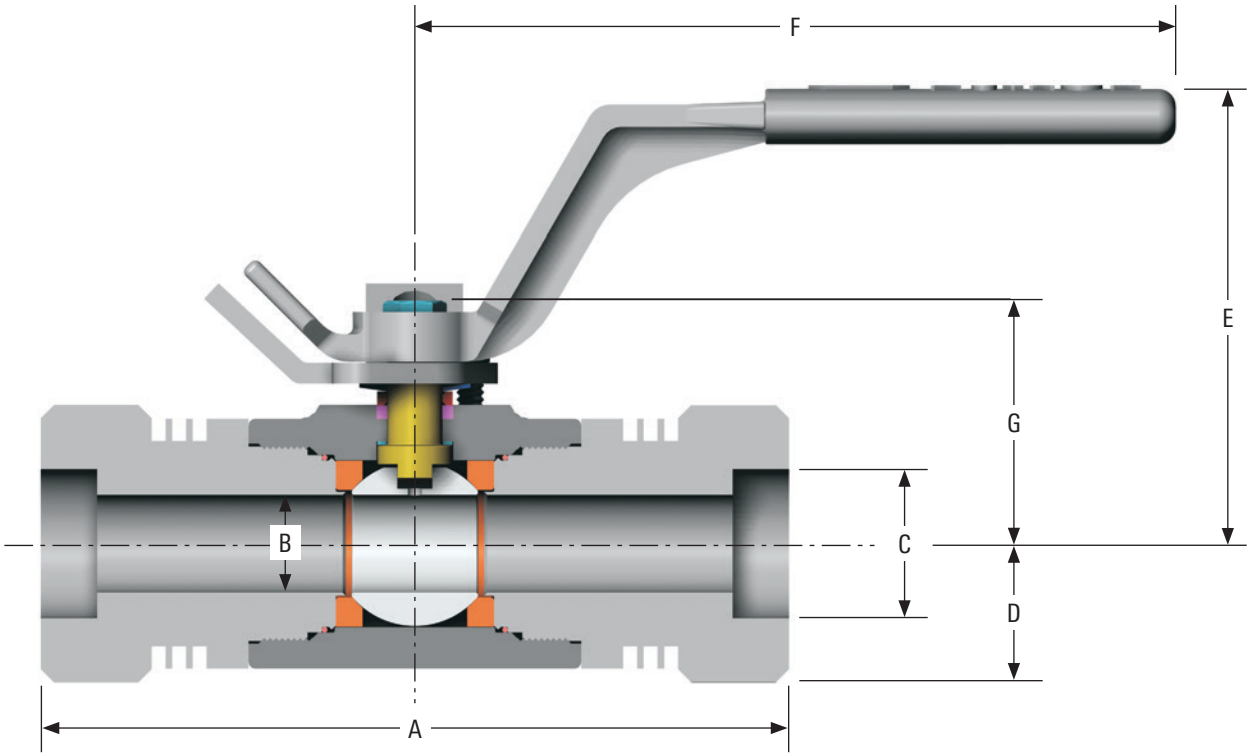
Model T3 — Reduced-Port Threaded



Dimensions										
Size, in [mm]	**WOG, psi**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**C_v**	**Weight, lbm [kg]**
¾ [20]	2,000	4.38 [111]	0.50 [13]	0.75 [19]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	14	2.5 [1.1]
	3,000	4.38 [111]	0.50 [13]	0.75 [19]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	14	2.5 [1.1]
	4,000	4.38 [111]	0.50 [13]	0.75 [19]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	14	2.5 [1.1]
	6,000	4.38 [111]	0.50 [13]	0.75 [19]	0.82 [21]	3.29 [83]	4.82 [122]	1.73 [44]	14	2.5 [1.1]
1 [25]	2,000	4.25 [108]	0.88 [22]	1.00 [25]	1.12 [28]	4.40 [112]	6.75 [172]	2.16 [55]	35	4.5 [2.0]
	3,000	4.25 [108]	0.88 [22]	1.00 [25]	1.12 [28]	4.40 [112]	6.75 [172]	2.16 [55]	35	4.5 [2.0]
	4,000	4.25 [108]	0.88 [22]	1.00 [25]	1.12 [28]	4.40 [112]	6.75 [172]	2.16 [55]	35	4.5 [2.0]
	6,000	5.25 [133]	0.88 [22]	1.00 [25]	1.50 [38]	4.40 [112]	6.75 [172]	2.16 [55]	35	7.5 [3.4]
1¼ [32]	2,000	6.00 [152]	0.88 [22]	1.25 [32]	1.30 [33]	4.40 [112]	6.75 [172]	2.16 [55]	35	8.0 [3.6]
	3,000	6.00 [152]	0.88 [22]	1.25 [32]	1.30 [33]	4.40 [112]	6.75 [172]	2.16 [55]	35	8.0 [3.6]
2 [50]	2,000	6.25 [159]	1.50 [38]	2.00 [51]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	100	17.5 [7.9]
	3,000	6.25 [159]	1.50 [38]	2.00 [51]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	100	17.5 [7.9]
	4,000	6.25 [159]	1.50 [38]	2.00 [51]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	100	17.5 [7.9]
	6,000	7.25 [184]	1.50 [38]	2.00 [51]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	100	21.0 [9.5]
3 [80]	2,000	10.0 [254]	2.00 [51]	3.00 [76]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	39.0 [17.6]
	3,000	10.0 [254]	2.00 [51]	3.00 [76]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	39.0 [17.6]
	4,000	10.0 [254]	2.00 [51]	3.00 [76]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	39.0 [17.6]
	6,000	10.0 [254]	2.00 [51]	3.00 [76]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	48.0 [21.8]
4 [100]	1,000	9.5 [241]	3.00 [76]	4.00 [102]	3.50 [89]	8.26 [210]	23.88 [607]	5.37 [137]	770	80.0 [36.3]

"A" dimension to be within ±0.062 in [1.5 mm].

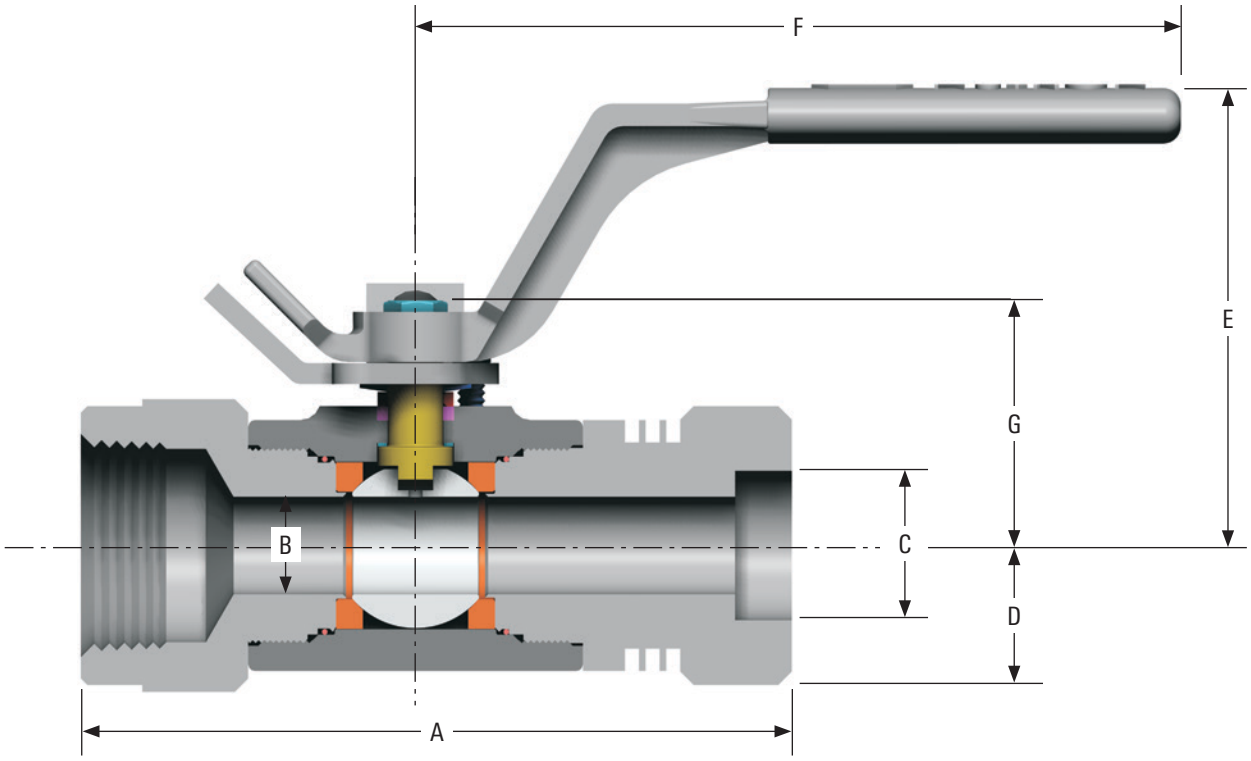
Model T3 — Full-Port Socket Weld and Threaded × Socket Weld



Dimensions													
Size, in [mm]	WOG, psi	A		B	C		D	E	F	G	C_v	Weight, lbm [kg]	
		FNPT × SW	SW		FNPT × SW	SW						FNPT × SW	SW
½ [15]	2,000	4.44 [113]†	5.00 [127]	0.50 [13]	0.50 [13]	0.86 [22]	0.94 [24]	3.29 [83]	4.82 [122]	1.73 [44]	26	3.5 [1.5]	4.8 [2.1]
	3,000	4.44 [113]†	5.00 [127]	0.50 [13]	0.50 [13]	0.86 [22]	0.94 [24]	3.29 [83]	4.82 [122]	1.73 [44]	26	3.5 [1.5]	4.8 [2.1]
	4,000	4.44 [113]†	5.00 [127]	0.50 [13]	0.50 [13]	0.86 [22]	0.94 [24]	3.29 [83]	4.82 [122]	1.73 [44]	26	3.5 [1.5]	4.8 [2.1]
	6,000	4.69 [119]	5.00 [127]	0.50 [13]	0.50 [13]	0.86 [22]	0.94 [24]	3.29 [83]	4.82 [122]	1.73 [44]	26	3.5 [1.5]	4.8 [2.1]
¾ [20]	2,000	5.50 [140]	6.75 [172]	0.88 [22]	0.75 [19]	1.07 [27]	1.25 [32]	4.40 [112]	6.75 [172]	2.16 [55]	50	5.7 [2.5]	6.4 [2.9]
	3,000	5.50 [140]	6.75 [172]	0.88 [22]	0.75 [19]	1.07 [27]	1.25 [32]	4.40 [112]	6.75 [172]	2.16 [55]	50	5.7 [2.5]	6.4 [2.9]
	4,000	5.50 [140]	6.75 [172]	0.88 [22]	0.75 [19]	1.07 [27]	1.25 [32]	4.40 [112]	6.75 [172]	2.16 [55]	50	5.7 [2.5]	6.4 [2.9]
	6,000	5.50 [140]	6.75 [172]	0.88 [22]	0.75 [19]	1.07 [27]	1.50 [38]	4.40 [112]	6.75 [172]	2.16 [55]	50	8.6 [3.9]	9.2 [4.1]
1½ [40]	2,000	7.40 [188]	8.54 [217]	1.50 [38]	1.50 [38]	1.92 [49]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	260	21.9 [9.9]	25.7 [11.6]
	3,000	7.40 [188]	8.54 [217]	1.50 [38]	1.50 [38]	1.92 [49]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	260	21.9 [9.9]	25.7 [11.6]
	4,000	7.40 [188]	8.54 [217]	1.50 [38]	1.50 [38]	1.92 [49]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	260	21.9 [9.9]	25.7 [11.6]
	6,000	7.40 [188]	8.54 [217]	1.50 [38]	1.50 [38]	1.92 [49]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	260	21.9 [9.9]	25.7 [11.6]
2 [50]	2,000	9.50 [241]	12.75 [324]	2.00 [51]	2.00 [51]	2.41 [61]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	38.3 [17]	46.5 [21.0]
	3,000	9.50 [241]	12.75 [324]	2.00 [51]	2.00 [51]	2.41 [61]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	38.3 [17]	46.5 [21.0]
	4,000	9.50 [241]	12.75 [324]	2.00 [51]	2.00 [51]	2.41 [61]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	38.3 [17]	46.5 [21.0]
	6,000	9.50 [241]	12.75 [324]	2.00 [51]	2.00 [51]	2.41 [61]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	38.3 [17]	46.5 [21.0]

† 4.69 in [119 mm] for stainless steel valves.
"A" dimension to be within ± 0.062 in [1.5 mm].

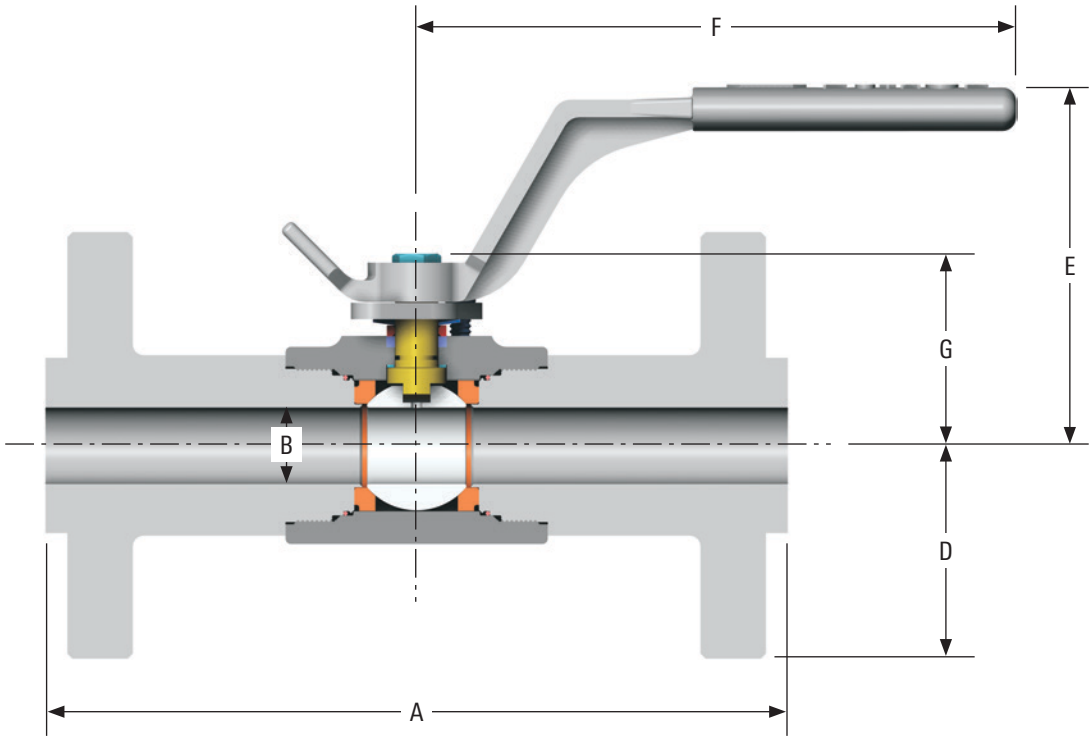
Model T3—Reduced-Port Socket Weld and Threaded × Socket Weld



Dimensions													
Size, in [mm]	**WOG, psi**	**A**		**B**	**C**		**D**	**E**	**F**	**G**	**C_v**	**Weight, lbm [kg]**	
		FNPT × SW	**SW**		**FNPT × SW**	**SW**						**FNPT × SW**	**SW**
¾ [20]	2,000	5.56 [141]	6.75 [172]	0.50 [13]	0.75 [19]	1.07 [27]	1.19 [30]	3.29 [83]	4.82 [122]	1.73 [44]	14	3.5 [1.5]	4.4 [1.9]
	3,000	5.56 [141]	6.75 [172]	0.50 [13]	0.75 [19]	1.07 [27]	1.19 [30]	3.29 [83]	4.82 [122]	1.73 [44]	14	3.5 [1.5]	4.4 [1.9]
	4,000	5.56 [141]	6.75 [172]	0.50 [13]	0.75 [19]	1.07 [27]	1.19 [30]	3.29 [83]	4.82 [122]	1.73 [44]	14	3.5 [1.5]	4.4 [1.9]
	6,000	5.56 [141]	6.75 [172]	0.50 [13]	0.75 [19]	1.07 [27]	1.19 [30]	3.29 [83]	4.82 [122]	1.73 [44]	14	3.5 [1.5]	4.4 [1.9]
1 [25]	2,000	5.50 [140]†	6.75 [172]	0.88 [22]	1.00 [25]	1.34 [34]	1.25 [32]	4.40 [112]	6.75 [172]	2.16 [55]	35	5.4 [2.4]	6.2 [2.8]
	3,000	5.50 [140]†	6.75 [172]	0.88 [22]	1.00 [25]	1.34 [34]	1.25 [32]	4.40 [112]	6.75 [172]	2.16 [55]	35	5.4 [2.4]	6.2 [2.8]
	4,000	5.50 [140]†	6.75 [172]	0.88 [22]	1.00 [25]	1.34 [34]	1.25 [32]	4.40 [112]	6.75 [172]	2.16 [55]	35	5.4 [2.4]	6.2 [2.8]
	6,000	6.00 [152]	6.75 [172]	0.88 [22]	1.00 [25]	1.34 [34]	1.50 [38]	4.40 [112]	6.75 [172]	2.16 [55]	35	8.3 [3.7]	9.0 [4.0]
2 [50]	2,000	7.40 [188]	8.55 [217]	1.50 [38]	2.00 [51]	2.42 [62]	2.50 [64]	5.62 [143]	11.00 [280]	3.52 [90]	100	22.5 [10.2]	26.0 [11.7]
	3,000	7.40 [188]	8.55 [217]	1.50 [38]	2.00 [51]	2.42 [62]	2.50 [64]	5.62 [143]	11.00 [280]	3.52 [90]	100	22.5 [10.2]	26.0 [11.7]
	4,000	7.40 [188]	8.55 [217]	1.50 [38]	2.00 [51]	2.42 [62]	2.50 [64]	5.62 [143]	11.00 [280]	3.52 [90]	100	22.5 [10.2]	26.0 [11.7]
	6,000	7.90 [201]	8.55 [217]	1.50 [38]	2.00 [51]	2.42 [62]	2.50 [64]	5.62 [143]	11.00 [280]	3.52 [90]	100	22.5 [10.2]	26.0 [11.7]
3 [80]	2,000	11.38 [289]	12.75 [324]	2.00 [51]	3.00 [76]	3.55 [90]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	49.0 [22.2]	60.0 [27.2]
	3,000	11.38 [289]	12.75 [324]	2.00 [51]	3.00 [76]	3.55 [90]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	49.0 [22.2]	60.0 [27.2]
	4,000	11.38 [289]	12.75 [324]	2.00 [51]	3.00 [76]	3.55 [90]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	49.0 [22.2]	60.0 [27.2]

†6 in [152 mm] for stainless steel valves.
"A" dimension to be within ±0.062 in [1.5 mm].

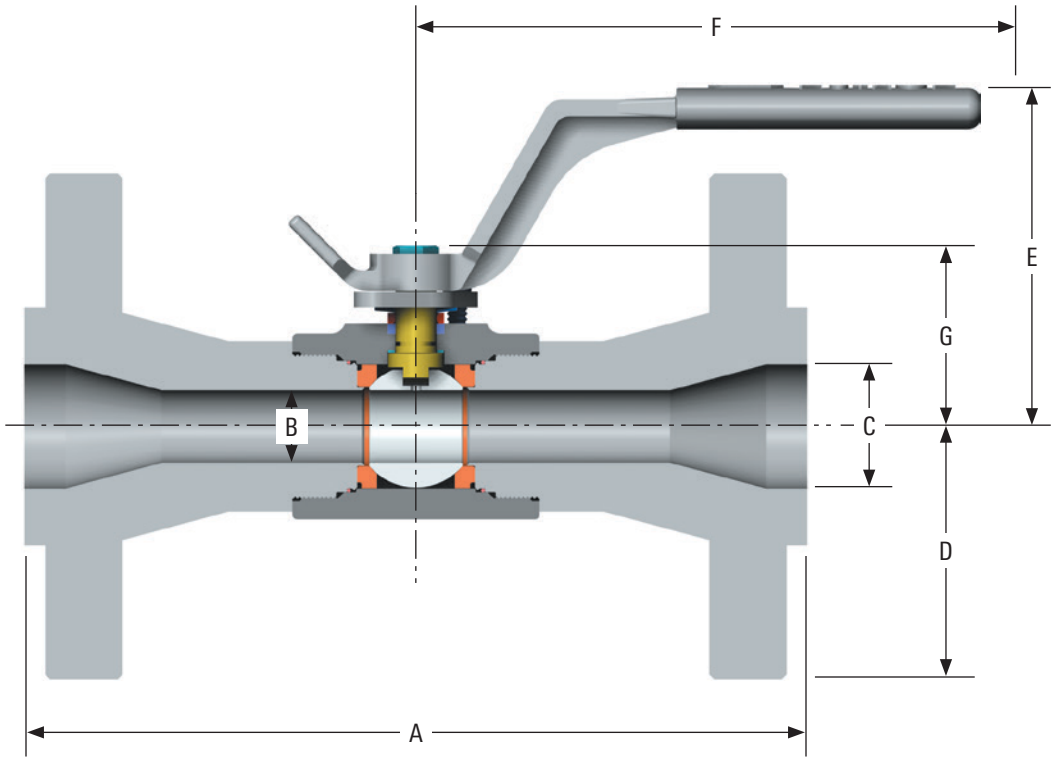
Model T3—Full-Port Flanged



Dimensions										
Size, in [mm]	**ASME Class [PN]**	**A**		**B**	**D**	**E**	**F**	**G**	**C_v**	**Weight, lbm [kg]**
		RF	**RTJ**							
½ [15]	150 [20]	4.25 [108]	–	0.50 [13]	1.75 [45]	3.29 [83]	4.82 [122]	1.73 [44]	26	4.0 [1.8]
	300 [50]	5.50 [140]	5.94 [151]	0.50 [13]	1.87 [48]	3.29 [83]	4.82 [122]	1.73 [44]	26	4.4 [1.9]
	600 [100]	6.50 [165]	6.50 [165]	0.50 [13]	1.87 [48]	3.29 [83]	4.82 [122]	1.73 [44]	26	5.5 [2.4]
	900 or 1500 [150 or 250]	8.50 [216]	8.50 [216]	0.50 [13]	2.37 [60]	5.73 [146]	8.00 [203]	1.73 [44]	26	11.0 [4.9]
	2500 [420]	10.37 [264]	10.37 [264]	0.50 [13]	2.63 [67]	5.73 [146]	8.00 [203]	1.73 [44]	26	17.5 [7.9]
¾ [20]	150 [20]	6.00 [152]†	–	0.88 [22]	1.94 [49]	4.40 [112]	6.75 [172]	2.16 [55]	50	10.3 [4.6]
	300 [50]	6.00 [152]	6.50 [165]	0.88 [22]	2.31 [59]	4.40 [112]	6.75 [172]	2.16 [55]	50	10.3 [4.6]
	600 [100]	7.50 [191]	7.50 [191]	0.88 [22]	2.31 [59]	4.40 [112]	6.75 [172]	2.16 [55]	50	13.3 [6.0]
	900 or 1500 [150 or 250]	9.00 [229]	9.00 [229]	0.88 [22]	2.56 [65]	4.40 [112]	6.75 [172]	2.16 [55]	50	16.3 [7.3]
	2500 [420]	10.75 [273]	10.75 [273]	0.88 [22]	2.75 [70]	6.20 [158]	8.12 [206]	2.16 [55]	50	22.8 [10.3]
1½ [40]	150 [20]	6.50 [165]	7.00 [178]	1.50 [38]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	260	21.0 [9.5]
	300 [50]	7.50 [191]	8.00 [203]	1.50 [38]	3.06 [78]	5.62 [143]	11.00 [279]	3.52 [89]	260	29.0 [13.1]
	600 [100]	9.50 [241]	9.50 [241]	1.50 [38]	3.06 [78]	5.62 [143]	11.00 [279]	3.52 [89]	260	32.5 [14.7]
	900 or 1500 [150 or 250]	12.00 [305]	12.00 [305]	1.50 [38]	3.50 [89]	5.62 [143]	11.00 [279]	3.52 [89]	260	46.0 [20.8]
	2500 [420]	15.12 [384]	15.25 [387]	1.50 [38]	4.00 [102]	5.62 [143]	11.00 [279]	3.52 [89]	260	74.0 [33.5]
2 [50]	150 [20]	7.00 [178]	7.50 [191]	2.00 [51]	3.00 [76]	6.96 [177]	11.88 [302]	4.83 [123]	480	36.2 [16.4]
	300 [50]	8.50 [216]	9.12 [232]	2.00 [51]	3.25 [83]	6.96 [177]	11.88 [302]	4.83 [123]	480	43.3 [19.6]
	600 [100]	11.50 [292]	11.62 [295]	2.00 [51]	3.25 [83]	6.96 [177]	11.88 [302]	4.83 [123]	480	51.5 [23.3]
	900 or 1500 [150 or 250]	14.50 [368]	14.62 [371]	2.00 [51]	4.25 [108]	6.96 [177]	11.88 [302]	4.83 [123]	480	81.0 [36.7]
	2500 [420]	17.75 [451]	17.87 [454]	2.00 [51]	4.62 [118]	6.96 [177]	11.88 [302]	4.83 [123]	480	121.0 [54.8]
3 [80]	150 [20]	8.00 [203]	8.50 [216]	3.00 [76]	3.75 [95]	8.26 [210]	23.89 [607]	5.37 [137]	1,300	58.0 [26.3]
	300 [50]	11.12 [282]	11.75 [299]	3.00 [76]	4.12 [105]	8.26 [210]	23.89 [607]	5.37 [137]	1,300	77.5 [35.1]

Nonstandard length.
"A" dimension to be within ±0.062 in [1.5 mm].

Model T3—Reduced-Port Flanged



Dimensions											
Size, in [mm]	ASME Class [PN]	A		B	C	D	E	F	G	C_v	Weight, lbm [kg]
		RF	RTJ								
¾ [20]	150 [20]	4.63 [118]	–	0.50 [13]	0.75 [19]	1.94 [49]	3.29 [83]	4.82 [122]	1.73 [44]	14	5.0 [2.2]
	300 [50]	6.00 [152]	6.50 [165]	0.50 [13]	0.75 [19]	2.31 [59]	3.29 [83]	4.82 [122]	1.73 [44]	14	7.0 [3.1]
	600 [100]	7.50 [191]	7.50 [191]	0.50 [13]	0.75 [19]	2.31 [59]	3.29 [83]	4.82 [122]	1.73 [44]	14	9.0 [4.0]
	900 or 1500 [150 or 250]	9.00 [229]	9.00 [229]	0.50 [13]	0.75 [19]	2.56 [65]	5.73 [146]	8.00 [203]	1.73 [44]	14	14.0 [6.3]
	2500 [420]	10.75 [273]	10.75 [273]	0.50 [13]	0.75 [19]	2.75 [70]	5.73 [146]	8.00 [203]	1.73 [44]	14	20.5 [9.2]
1 [25]	150 [20]	5.00 [127]	5.50 [140]	0.88 [22]	1.00 [25]	2.12 [54]	4.40 [112]	6.75 [172]	2.16 [55]	35	8.0 [3.6]
	300 [50]	6.50 [165]	7.00 [178]	0.88 [22]	1.00 [25]	2.44 [62]	4.40 [112]	6.75 [172]	2.16 [55]	35	11.5 [5.2]
	600 [100]	8.50 [216]	8.50 [216]	0.88 [22]	1.00 [25]	2.44 [62]	4.40 [112]	6.75 [172]	2.16 [55]	35	13.8 [6.2]
	900 or 1500 [150 or 250]	10.00 [254]	10.00 [254]	0.88 [22]	1.00 [25]	2.94 [75]	4.40 [112]	6.75 [172]	2.16 [55]	35	23.0 [10.4]
	2500 [420]	12.12 [308]	12.12 [308]	0.88 [22]	1.00 [25]	3.13 [79]	6.20 [158]	8.12 [206]	2.16 [55]	35	32.0 [14.5]
2 [50]	150 [20]	7.00 [178]	7.50 [191]	1.50 [38]	2.00 [51]	3.00 [76]	5.62 [143]	11.00 [279]	3.52 [89]	100	27.0 [12.2]
	300 [50]	8.50 [216]	9.12 [232]	1.50 [38]	2.00 [51]	3.25 [83]	5.62 [143]	11.00 [279]	3.52 [89]	100	32.0 [14.5]
	600 [100]	11.50 [292]	11.62 [295]	1.50 [38]	2.00 [51]	3.25 [83]	5.62 [143]	11.00 [279]	3.52 [89]	100	38.0 [17.2]
	900 or 1500 [150 or 250]	14.50 [368]	14.62 [371]	1.50 [38]	2.00 [51]	4.25 [108]	5.62 [143]	11.00 [279]	3.52 [89]	100	72.0 [32.6]
	2500 [420]	17.75 [451]	17.87 [454]	1.50 [38]	2.00 [51]	4.62 [118]	5.62 [143]	11.00 [279]	3.52 [89]	100	107.5 [48.7]
3 [80]	150 [20]	8.00 [203]	8.50 [216]	2.00 [51]	3.00 [76]	3.75 [95]	6.96 [177]	11.88 [302]	4.83 [123]	420	50.0 [22.6]
	300 [50]	11.12 [282]	11.75 [299]	2.00 [51]	3.00 [76]	4.12 [105]	6.96 [177]	11.88 [302]	4.83 [123]	420	63.2 [28.6]
	600 [100]	14.00 [356]	14.12 [359]	2.00 [51]	3.00 [76]	4.12 [105]	6.96 [177]	11.88 [302]	4.83 [123]	420	76.0 [34.4]
	900 [150]	15.00 [381]	15.12 [384]	2.00 [51]	3.00 [76]	4.75 [121]	6.96 [177]	11.88 [302]	4.83 [123]	420	97.0 [43.9]
	1500 [250]	18.50 [470]	18.62 [473]	2.00 [51]	3.00 [76]	5.25 [133]	6.96 [177]	11.88 [302]	4.83 [123]	420	134.0 [60.7]
	2500 [420]	22.75 [578]	23.00 [584]	2.00 [51]	3.00 [76]	6.00 [152]	7.77 [197]	23.89 [607]	4.83 [123]	420	223.0 [101.1]
4 [100]	150 [20]	9.00 [229]	9.50 [241]	3.00 [76]	4.00 [102]	4.50 [114]	8.26 [210]	23.89 [607]	5.37 [137]	770	72.5 [32.8]
	300 [50]	12.00 [305]	12.63 [321]	3.00 [76]	4.00 [102]	5.00 [127]	8.26 [210]	23.89 [607]	5.37 [137]	770	99.0 [44.9]

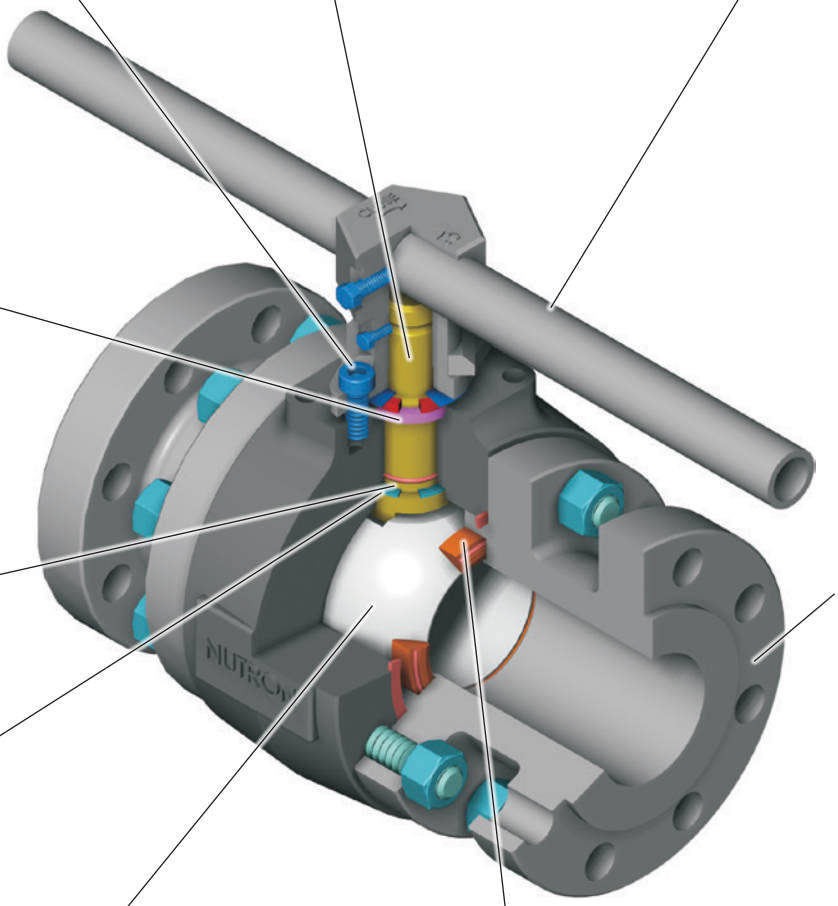
"A" dimension to be within ±0.062 in [1.5 mm].

Model B3 Standard Features

Capscrews
Dual purpose, which allows for easy stem packing adjustment without handle removal while providing a stop for the handle.

Stem
Blowout-proof stem that is backseated through the valve body.

Handle
Rugged adjustable pipe handle that indicates flow position. When the handle is positioned in line with the pipe, the valve is open. When the handle is positioned perpendicular to the pipe, the valve is closed.



Packing
Self adjusting by means of a Belleville washer. Allows for long service life before manual packing adjustment is necessary.

Thrust washer
Design that acts as a bearing between the body and stem.

Stem seal
O-ring installed on stem shaft.

Body construction
Forged-steel bolted construction. A machined pad area is drilled and tapped for actuation as a standard. Bolted construction allows for combinations of end connections.

Ball
Floating ball design allows positive shutoff in either flow direction. Includes pressure equalization hole to prevent trapping of pressure in the body cavity.

Seats
Available Teflon, Delrin, PEEK, and Devlon materials.

Available Sizes

Sizes, in [mm]	ASME Class [PN]				
	150 [20]	**300 [50]**	**600 [100]**	**900 [150]**	**1500 [250]**
Full port	2–4 [50–100]	2–4 [50–100]	1½–3 [40–80]	1½–3 [40–80]	1½–3 [40–80]
Reduced port	3–6 [80–150]	3–6 [80–150]	2–4 [50–100]	2–4 [50–100]	2–4 [50–100]
Sizes, in [mm]	**WOG, psi**				
	–	–	**2,000**	–	**4,000**
Full port	–	–	3 [80]	–	3 [80]
Reduced port	–	–	4 [100]	–	–

How to Order

B3-F30R06LZ: Model B3, full port, 3 in [80 mm], raised face flanges, 600 ASME [PN 100], sour low-temperature valve, fire safe

Example

B3 - F 30 R 06 L Z

Model	
B3	Three-piece, bolted

Bore	
F	Full port
R	Reduced port

Size, in [mm]	
15	1½ [40]
20	2 [50]
30	3 [80]
40	4 [100]
60	6 [150]

End Connection	
A	RF smooth face
B	BW Sch. 40
C	BW Sch. 80
D	BW Sch. 160
E	BW Sch. XXH
J	RTJ
R	RF
S	FNPT
W	Socket weld

Pressure	
10	1000 WOG
20	2000 WOG
01	150 ASME [PN 20]
03	300 ASME [PN 50]
06	600 ASME [PN 100]
09	900 ASME [PN 150]
15	1500 ASME [PN 250]

Style†		**Temperature Rating, degF [degC]**
A	Stainless steel	–50 [–46]
B	Standard	
D	Full stainless steel	–150 [–100]
G	Steam high-temperature sour	600 [315]
H	High-temperature sour	500 [260]
L	Low-temperature sour	–50 [–46]
N	MONEL alloy steel	–150 [–100]
Q	Duplex steel	–60 [–51]
S	Sour	–20 [–29]

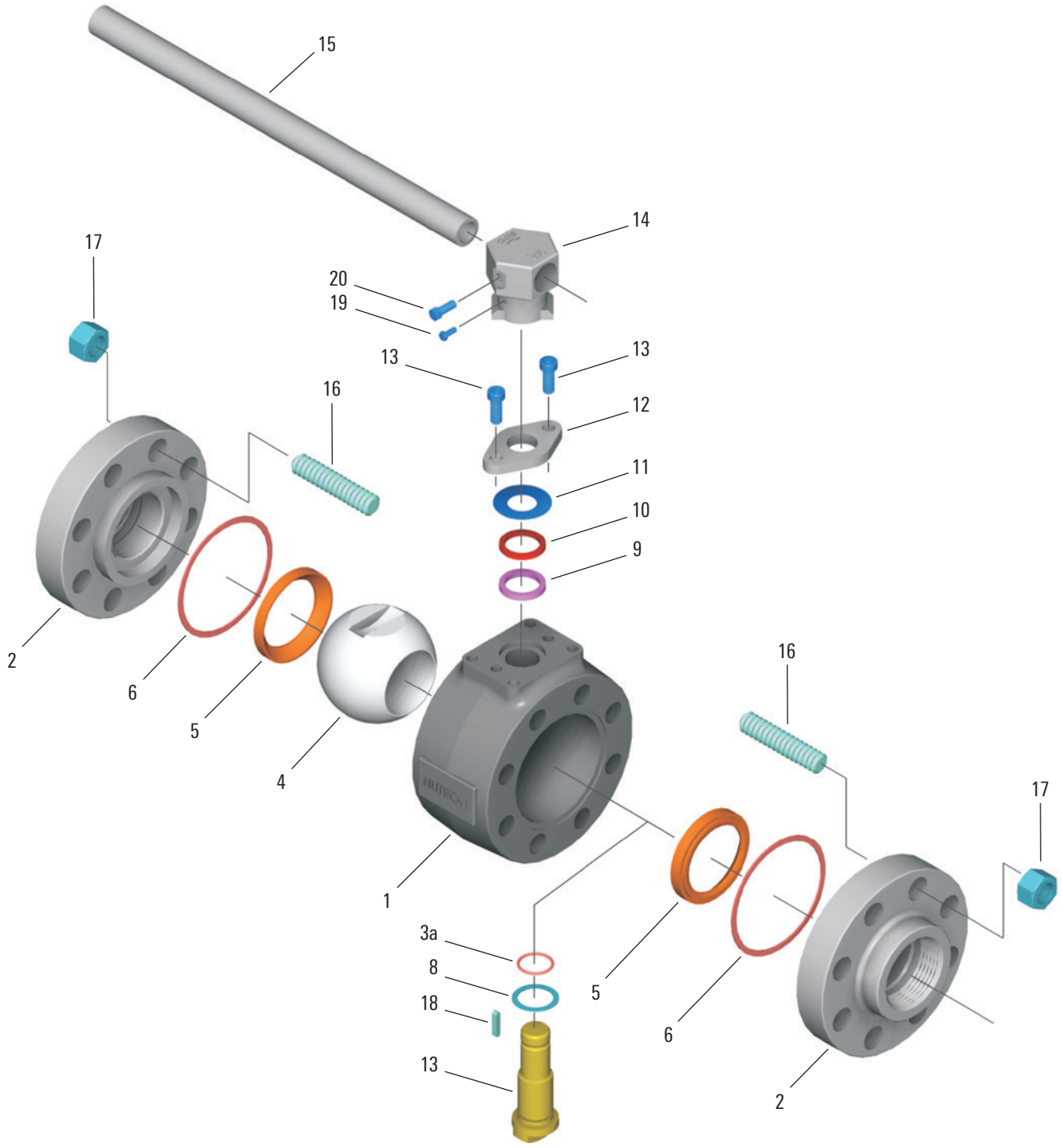
Fire Safe	
Z	Fire safe

Common Options†
Antistatic spring
Bleeder hole
Bleeder valve
Car seal close
Car seal open
Delrin material seats
Devlon material seats
ENP
Extended stem
Gear operator
Graphite packing
HSN O-rings
ZPEX coating
Locking handle
Nitrile O-rings
PEEK seats
Seal injection
Teflon material O-rings
Viton material O-rings

† Consult Cameron for detailed valve style descriptions, full range of options, materials, actuation packages, or for a particular special valve service application.

Valve Details and Materials Lists

Model B3 — Threaded End Connections



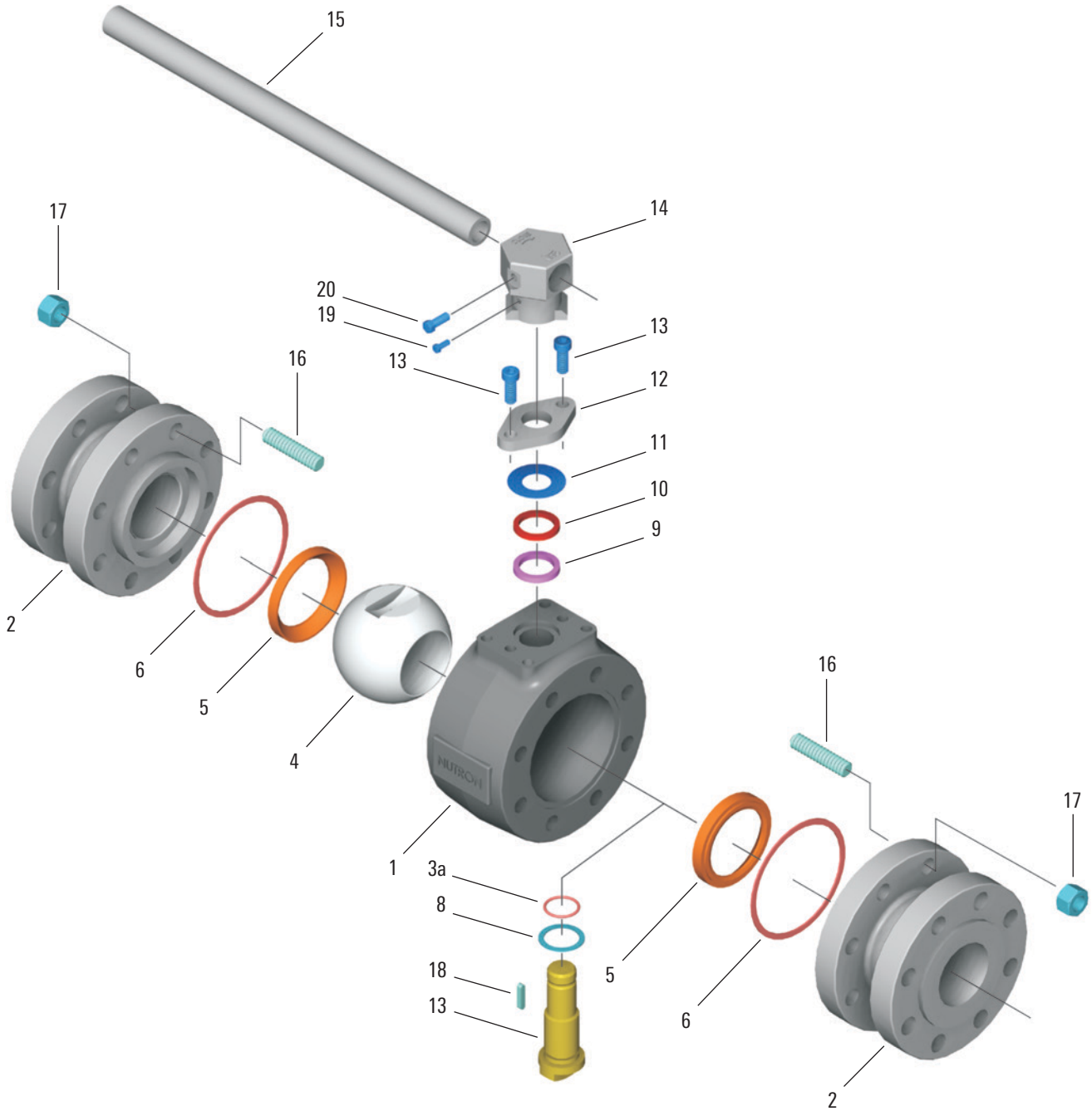
Materials Lists

	Item	Part	Working Pressure, psi	Standard –20 degF [–29 degC]	Sour –20 degF [–29 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
	2	End caps	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
■	3	Stem	All	ASTM A322 Grade 4130, plated	ASTM A564 17-4PH stainless steel
■ ●	3a	Stem O-ring	All	HSN	HSN
■	4	Ball	All	Carbon steel, chrome plated	ASTM A351 Grade CF8M
■ ●	5	Seats	2,000	Teflon material	Teflon material
			4,000	Delrin material	Delrin material
■ ●	6	Body seals	All	Spiral-wound gasket	Spiral-wound gasket
■ ●	8	Thrust washer	2,000	Teflon material	Teflon material
			4,000	Delrin material	Delrin material
■ ●	9	Packing	2,000 or 4,000	Graphite or Teflon material	Graphite or Teflon material
	10	Packing follower	All	Carbon steel, plated	Stainless steel
	11	Belleville washer	All	Carbon steel	Stainless steel
	12	Gland flange	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Carbon steel	Stainless steel
	14	Handle nut	All	Carbon steel	Carbon steel
	15	Pipe	All	Carbon steel	Carbon steel
	16	Studs	All	ASTM A193 B7	ASTM A193 B7M
	17	Nuts	All	ASTM A194 2H	ASTM A194 2HM
	18	Key	All	Carbon steel	Carbon steel
	19	Screw	All	Carbon steel, plated	Carbon steel, plated
	20	Screw	All	Carbon steel, plated	Carbon steel, plated

	Item	Part	Working Pressure, psi	Low-Temperature Sour –50 degF [–46 degC]	Stainless Steel –50 degF [–46 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A479 Type 316
	2	End caps	All	ASTM A350 Grade LF2	ASTM A479 Type 316
■	3	Stem	All	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel with nitriding
■ ●	3a	Stem O-ring	All	HSN	HSN
■	4	Ball	All	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M
■ ●	5	Seats	2,000	Teflon material	Teflon material
			4,000	Delrin material	PEEK
■ ●	6	Body seals	All	Spiral-wound gasket	Spiral-wound gasket
■ ●	8	Thrust washer	2,000	Teflon material	Teflon material
			4,000	Delrin material	PEEK
■ ●	9	Packing	2,000 or 4,000	Graphite or Teflon material	Graphite or Teflon material
	10	Packing follower	All	Stainless steel	Stainless steel
	11	Belleville washer	All	Stainless steel	Stainless steel
	12	Gland flange	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Stainless steel	Stainless steel
	14	Handle nut	All	Carbon steel	Carbon steel
	15	Pipe	All	Carbon steel	Carbon steel
	16	Studs	All	ASTM A320 L7M	ASTM A320 L7M, coated
	17	Nuts	All	ASTM A194 L7M	ASTM A194 L7M, coated
	18	Key	All	Carbon steel	Carbon steel
	19	Screw	All	Carbon steel, plated	Carbon steel, plated
	20	Screw	All	Carbon steel, plated	Carbon steel, plated

■ Major repair kit.
● Minor repair kit.

Model B3—Flanged End Connections
3-in Full Port and 4-in Reduced Port
ASME Classes 600, 900, and 1500 [PN 100, 150, and 250]



Materials Lists

	Item	Part	Working Pressure, psi	Standard –20 degF [–29 degC]	Sour –20 degF [–29 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
	2	End caps	600, 900, and 1,500	ASTM A350 Grade LF2	ASTM A350 Grade LF2
■	3	Stem	All	ASTM A322 Grade 4130, plated	ASTM A564 17-4PH stainless steel
■●	3a	Stem O-ring	All	HSN	HSN
■	4	Ball	All	ASTM A675 chrome plated	ASTM A351 Grade CF8M
■●	5	Seats	600	Teflon material	Teflon material
			900 and 1,500	Delrin material	Delrin material
■●	6	Body seals	All	Spiral-wound gasket	Spiral-wound gasket
■●	8	Thrust washer	600	Teflon material	Teflon material
			900 and 1,500	Delrin material	Delrin material
■●	9	Packing	All	Graphite	Graphite
	10	Packing follower	All	Carbon steel, plated	Stainless steel
	11	Belleville washer	All	Carbon steel	Stainless steel
	12	Gland flange	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Carbon steel	Stainless steel
	14	Handle nut	All	Carbon steel	Carbon steel
	15	Pipe	All	Carbon steel	Carbon steel
	16	Studs	All	ASTM A193 B7	ASTM A193 B7M
	17	Nuts	All	ASTM A194 2H	ASTM A194 2HM
	18	Key	All	Carbon steel	Carbon steel
	19	Screw	All	Carbon steel, plated	Carbon steel, plated
	20	Screw	All	Carbon steel, plated	Carbon steel, plated

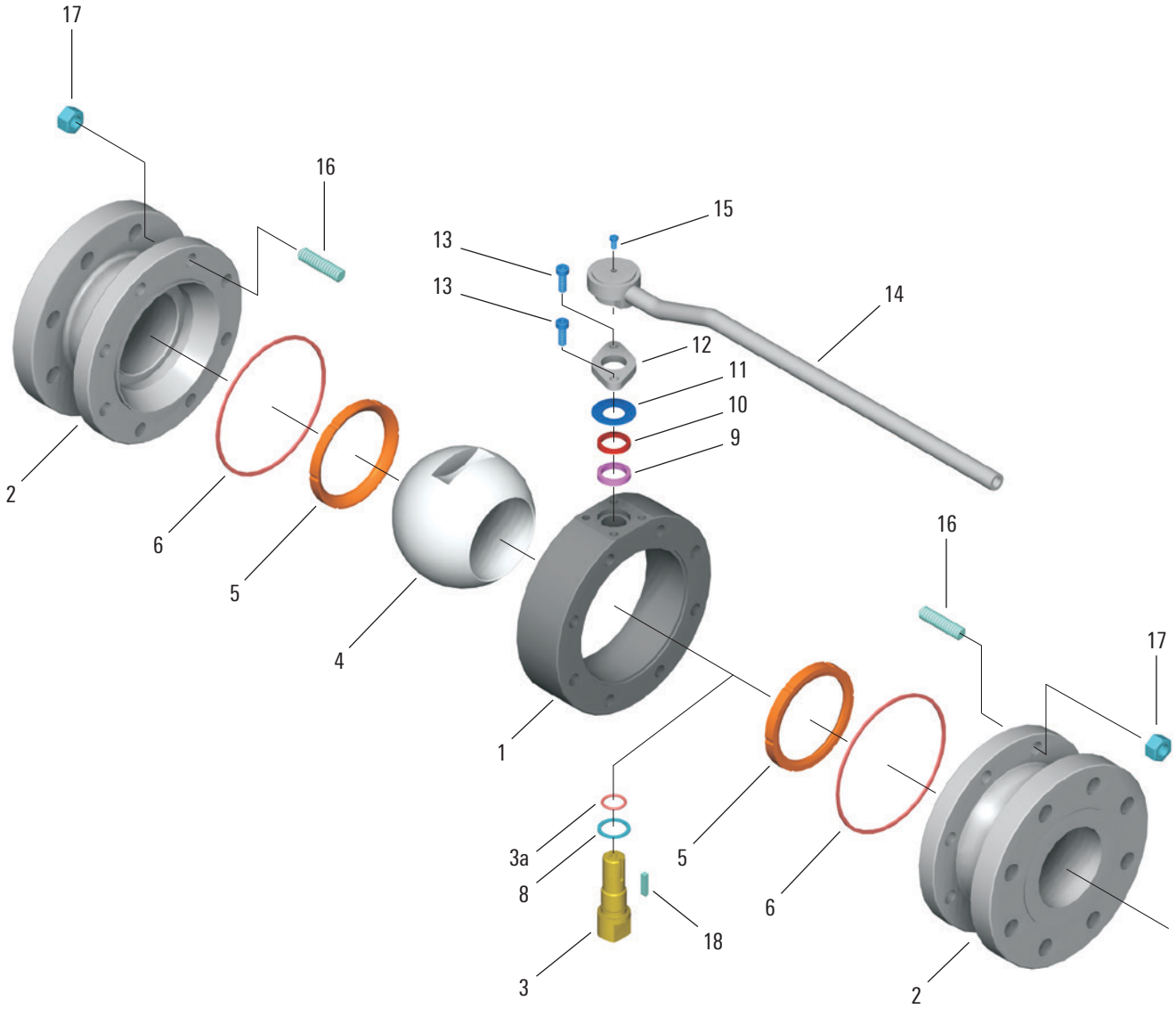
	Item	Part	Working Pressure, psi	Low-Temperature Sour –50 degF [–46 degC]	Stainless Steel –50 degF [–46 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A479 Type 316
	2	End caps	All	ASTM A350 Grade LF2	ASTM A479 Type 316
■	3	Stem	All	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel with nitriding
■●	3a	Stem O-ring	All	HSN	HSN
■	4	Ball	All	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M
■●	5	Seats	600	Teflon material	Teflon material
			900 and 1,500	Delrin material	PEEK
■●	6	Body seals	All	Spiral-wound gasket	Spiral-wound gasket
■●	8	Thrust washer	600	Teflon material	Teflon material
			900 and 1,500	Delrin material	PEEK
■●	9	Packing	All	Graphite	Graphite
	10	Packing follower	All	Stainless steel	Stainless steel
	11	Belleville washer	All	Stainless steel	Stainless steel
	12	Gland flange	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Stainless steel	Stainless steel
	14	Handle nut	All	Carbon steel	Carbon steel
	15	Pipe	All	Carbon steel	Carbon steel
	16	Studs	All	ASTM A320 L7M	ASTM A320 L7M, coated
	17	Nuts	All	ASTM A194 L7M	ASTM A194 L7M, coated
	18	Key	All	Carbon steel	Carbon steel
	19	Screw	All	Carbon steel, plated	Carbon steel, plated
	20	Screw	All	Carbon steel, plated	Carbon steel, plated

■ Major repair kit.

● Minor repair kit.

Fire-safe trim offered as standard whenever possible. Consult Cameron for fire-safe trim.

Model B3—Flanged End Connections
4-in Full Port and 6-in Reduced Port
ASME Classes 150 and 300 [PN 20 and 50]



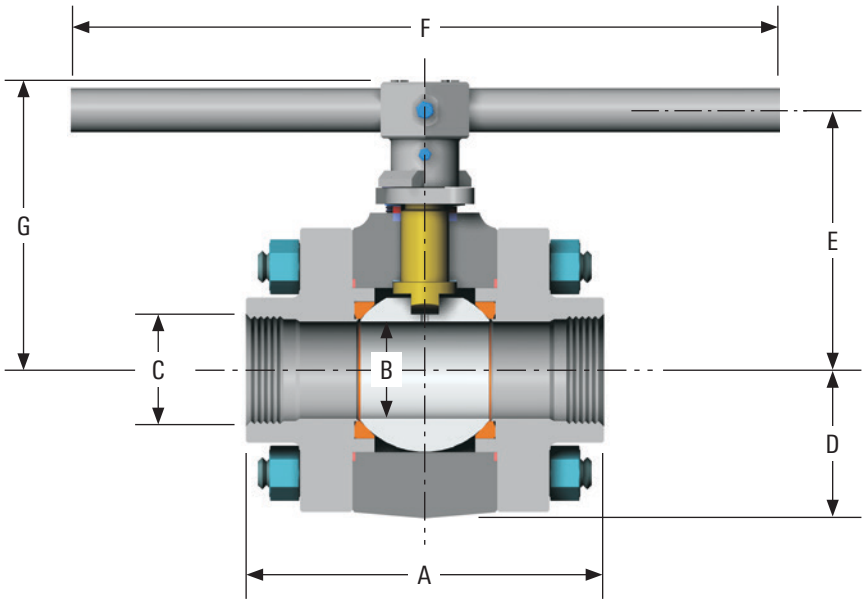
Materials Lists

	Item	Part	Sour –20 degF [–29 degC]	Low-Temperature Sour –50 degF [–46 degC]	Stainless Steel –50 degF [–46 degC]
	1	Body	ASTM A350 Grade LF2	ASTM A350 Grade LF2	ASTM A479 Type 316
	2	End caps	ASTM A350 Grade LF2	ASTM A350 Grade LF2	ASTM A479 Type 316
■	3	Stem	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel with nitriding
■ ●	3a	Stem O-ring	HSN	HSN	HSN
■	4	Ball	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M
■ ●	5	Seats	Teflon material	Teflon material	Teflon material
■ ●	6	Body O-rings	Viton material	Viton material	Teflon material
■ ●	8	Thrust washer	Teflon material	Teflon material	Teflon material
■ ●	9	Packing	Graphite	Graphite	Graphite
	10	Packing follower	Stainless steel	Stainless steel	Stainless steel
	11	Belleville washer	Stainless steel	Stainless steel	Stainless steel
	12	Gland flange	Carbon steel, plated	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	Stainless steel	Stainless steel	Stainless steel
	14	Handle	Carbon steel	Carbon steel	Carbon steel
	15	Capscrew, hex head	Carbon steel	Carbon steel	Carbon steel
	16	Studs	ASTM A193 B7M	ASTM A320 L7M	ASTM A320 L7M, coated
	17	Nuts	ASTM A194 2HM	ASTM A194 L7M	ASTM A194 L7M, coated
	18	Key	Carbon steel	Carbon steel	Carbon steel

■ Major repair kit.
● Minor repair kit.

Valve Assemblies and Dimensions Tables

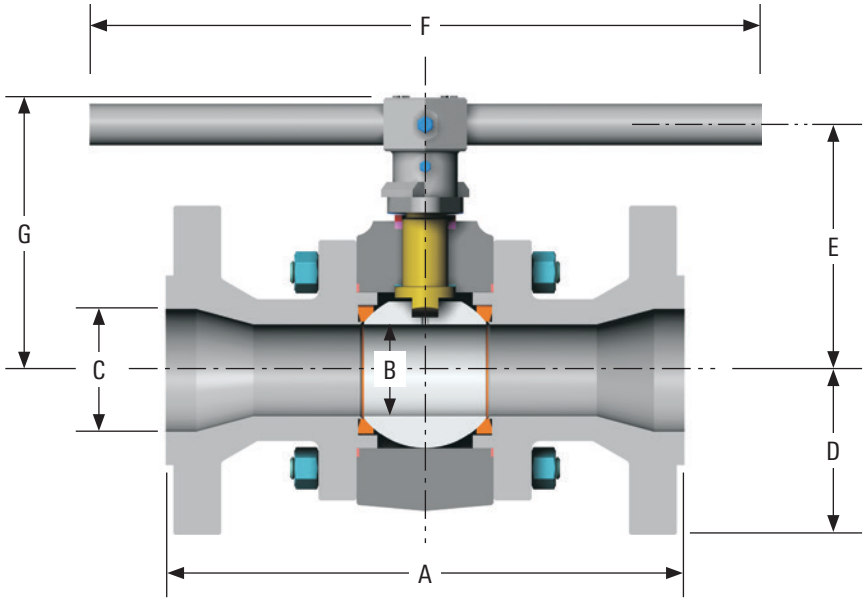
Model B3—Threaded 3-in Full Port and 4-in Reduced Port



Dimensions										
Size, in [mm]	**WOG, psi**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**C_v**	**Weight, lbm [kg]**
3 FP [80 FP]	2,000	10.0 [254]	3.0 [76]	3.0 [76]	4.45 [113]	8.00 [203]	22.0 [559]	8.90 [226]	1,300	131.0 [59.4]
	4,000	10.0 [254]	3.0 [76]	3.0 [76]	4.45 [113]	8.00 [203]	22.0 [559]	8.90 [226]	1,300	131.0 [59.4]
4 RP [100 RP]	2,000	12.0 [305]	3.0 [76]	4.0 [102]	4.45 [113]	8.00 [203]	22.0 [559]	8.90 [226]	770	145.0 [65.7]

"A" dimension to be within ±0.062 in [1.5 mm].

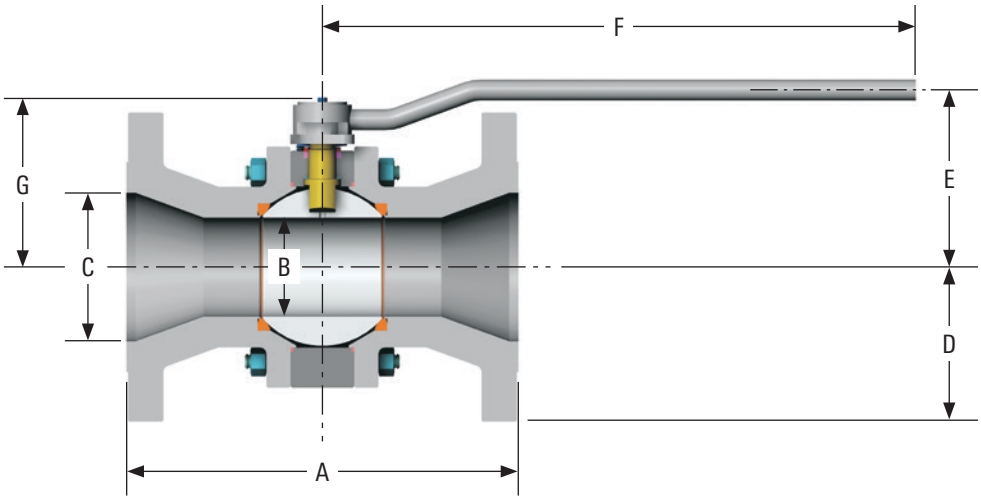
Model B3—Flanged 3 in Full Port and 4 in Reduced Port



Dimensions											
Size, in [mm]	**ASME Class [PN]**	**A**		**B**	**C**	**D**	**E**	**F**	**G**	**C_v**	**Weight, lbm [kg]**
		RF	**RTJ**								
3 FP [80 FP]	600 [100]	14.0 [356]	14.12 [359]	3.0 [76]	3.0 [76]	4.12 [105]	8.00 [203]	22.0 [559]	8.90 [226]	1,300	161.0 [73.0]
	900 [150]	15.0 [381]	15.12 [384]	3.0 [76]	3.0 [76]	4.75 [121]	8.00 [203]	22.0 [559]	8.90 [226]	1,300	191.0 [86.6]
	1500 [250]	18.5 [470]	18.62 [473]	3.0 [76]	3.0 [76]	5.25 [133]	8.00 [203]	22.0 [559]	8.90 [226]	1,300	239.0 [108.4]
4 RP [100 RP]	600 [100]	17.0 [432]	17.12 [435]	3.0 [76]	4.0 [102]	5.37 [136]	8.00 [203]	22.0 [559]	8.90 [226]	770	211.0 [95.7]
	900 [150]	18.0 [457]	18.12 [460]	3.0 [76]	4.0 [102]	5.75 [146]	8.00 [203]	22.0 [559]	8.90 [226]	770	242.0 [109.7]
	1500 [250]	21.5 [546]	21.62 [549]	3.0 [76]	4.0 [102]	6.12 [155]	8.00 [203]	22.0 [559]	8.90 [226]	770	292.0 [132.4]

"A" dimension to be within ±0.062 in [1.5 mm].

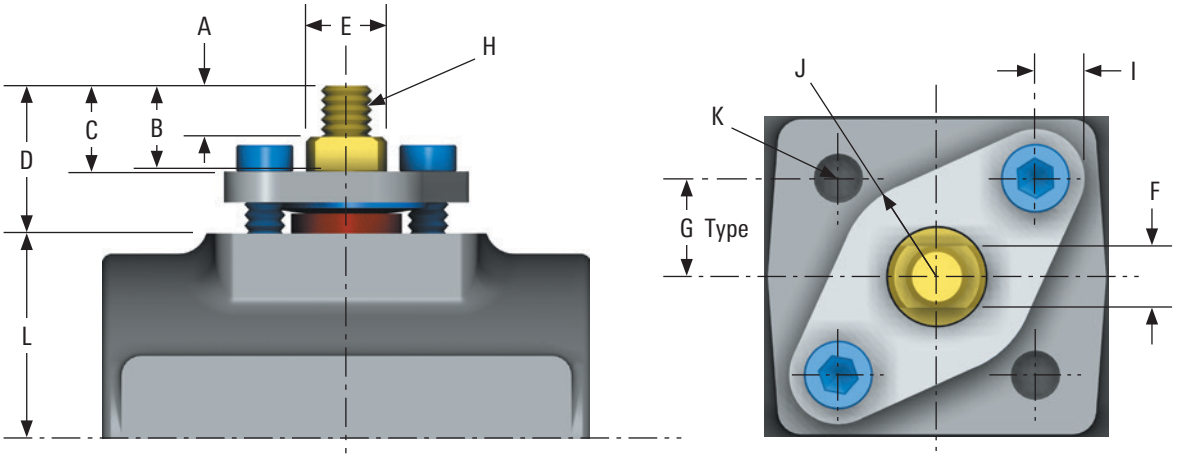
Model B3—Flanged 4-in Full Port and 6-in Reduced Port



Dimensions										
Size, in [mm]	**ASME Class [PN]**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**C_v**	**Weight, lbm [kg]**
4 FP [100 FP]	150 [20]	9.00 [229]	4.00 [102]	4.00 [102]	4.50 [114]	7.60 [193]	24.00 [610]	6.65 [169]	2,300	101 [45.8]
	300 [50]	12.00 [305]	4.00 [102]	4.00 [102]	5.00 [127]	7.60 [193]	24.00 [610]	6.65 [169]	2,300	143 [64.8]
6 RP [150 RP]	150 [20]	10.50 [267]	4.00 [102]	6.00 [152]	5.50 [140]	7.60 [193]	24.00 [610]	6.65 [169]	1,800	128 [58.0]
	300 [50]	15.88 [403]	4.00 [102]	6.00 [152]	6.25 [160]	7.60 [193]	24.00 [610]	6.65 [169]	1,800	143 [64.8]

Actuator Mounting Dimensions

Model T3



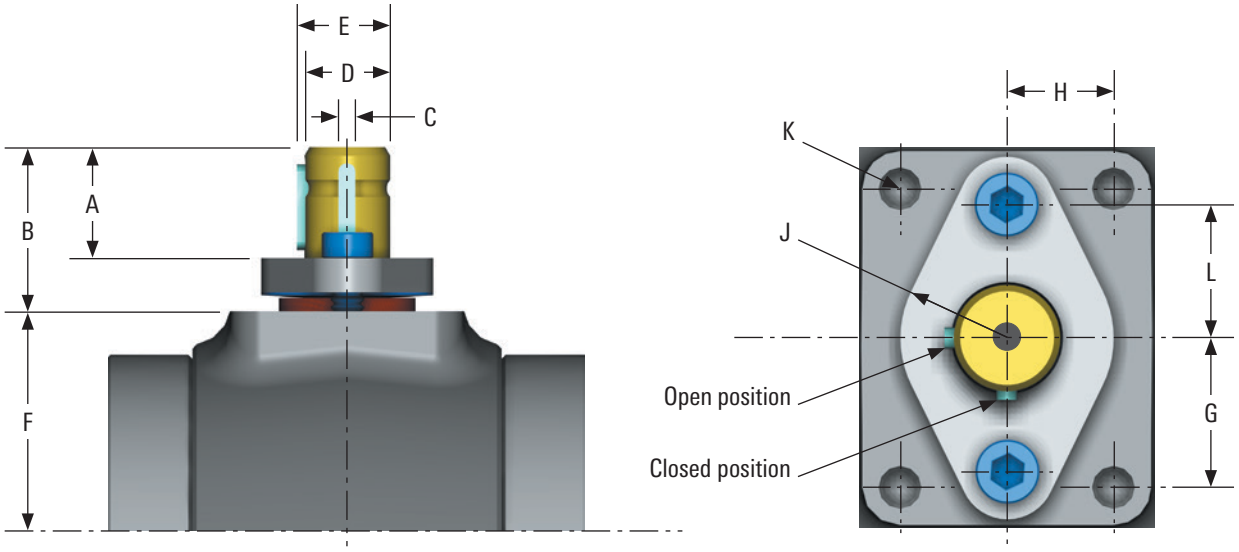
Dimensions												
Size, in [mm]	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**
¼ [8] FP	0.300 [7.6]	0.440 [11.1]	0.500 [12.7]	0.725 [18.4]	0.464 [11.8]	0.253 [6.4]	0.468 [11.9]	0.250-20 UNC [6.35-20 UNC]	0.23 [5.8]	0.50 [12.7]	#10-32 UNF-2B × 0.31 DP [#10-32 UNF-2B × 7.9 DP]	1.002 [25.5]
⅜ [10] FP	0.300 [7.6]	0.440 [11.1]	0.500 [12.7]	0.725 [18.4]	0.464 [11.8]	0.253 [6.4]	0.468 [11.9]	0.250-20 UNC [6.35-20 UNC]	0.23 [5.8]	0.50 [12.7]	#10-32 UNF-2B × 0.31 DP [#10-32 UNF-2B × 7.9 DP]	1.002 [25.5]
½ [15] FP and ¾ [20] RP	0.300 [7.6]	0.440 [11.1]	0.500 [12.7]	0.725 [18.4]	0.464 [11.8]	0.253 [6.4]	0.468 [11.9]	0.250-20 UNC [6.35-20 UNC]	0.23 [5.8]	0.50 [12.7]	#10-32 UNF-2B × 0.31 DP [#10-32 UNF-2B × 7.9 DP]	1.002 [25.5]
¾ [20] FP and 1 [25] RP	0.312 [7.9]	0.515 [13.1]	0.560 [14.2]	0.905 [23.0]	0.496 [12.6]	0.314 [7.9]	0.498 [12.6]	0.312-18 UNC [7.92-18 UNC]	0.25 [6.4]	0.50 [12.7]	0.25-28 UNF-2B × 0.30 DP [6.35-28 UNF-2B × 7.6 DP]	1.250 [31.8]
1½ [40] FP and 2 [50] RP[†]	0.475 [12.1]	0.826 [21.0]	0.900 [22.9]	1.270 [32.3]	0.749 [19.0]	0.441 [11.2]	0.737 [18.7]	0.438-14 UNC [11.1-14 UNC]	0.40 [10.2]	0.75 [19.1]	0.312-24 UNF-2B × 0.437 DP [7.92-24 UNF-2B × 11.1 DP]	2.250 [57.2]
2 [50] FP and 3 [80] RP[‡]	0.690 [17.5]	1.180 [30.0]	1.225 [31.1]	1.821 [46.3]	1.000 [25.4]	0.628 [16.0]	0.875 [22.2]	0.625-11 UNC [15.9-11 UNC]	0.41 [10.4]	1.00 [25.4]	0.375-24 UNF-2B × 0.50 DP [9.53-24 UNF-2B × 12.7 DP]	3.000 [76.2]
3 [80] FP and 4 [100] RP[§]	0.690 [17.5]	1.180 [30.0]	1.225 [31.1]	1.821 [46.3]	1.000 [25.4]	0.628 [16.0]	0.875 [22.2]	0.625-11 UNC [15.9-11 UNC]	0.41 [10.4]	1.00 [25.4]	0.375-24 UNF-2B × 0.50 DP [9.53-24 UNF-2B × 12.7 DP]	3.500 [88.9]

[†] Applies to B3 1½-in [40-mm] full port and 2-in [50-mm] reduced port ASME Classes 600, 900, and 1500 valves.

[‡] Applies to B3 2-in [50-mm] full port and 3-in [80-mm] reduced port ASME Classes 600, 900, and 1500 valves.

[§] Applies to B3 3-in [80-mm] full port and 4-in [100-mm] reduced port ASME Classes 150 and 300 valves.

Model B3
3-in Full Port and 4-in Reduced Port



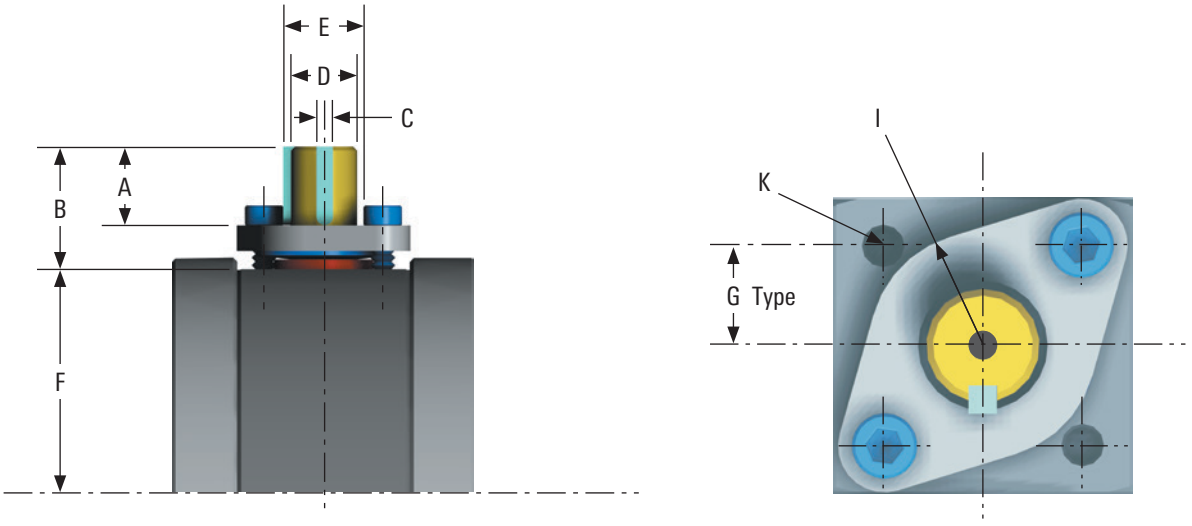
Dimensions

Size, in [mm]	A	B	C	D	E	F	G	H	I	K	L
3 [80] FP and 4 [100] RP	1.64 [41.7]	2.395 [60.8]	0.25 [6.4]	1.248 [31.7]	1.362 [34.6]	4.875 [123.8]	1.75 [44.4]	1.25 [31.8]	1.25R [31.8R]	0.5-13 UNC-2B × 0.62 DP [12.7-13 UNC-2B × 15.7 DP]	1.566 [39.8]

ASME Classes 600 through 1500, WOG 2,000 through 4,000 psi.

For B3 1½-, 2-, 3- and 4-in [40-, 50-, 80- and 100-mm] valves, see footnote on page 28.

Model B3
4 in Full Port and 6 in Reduced Port

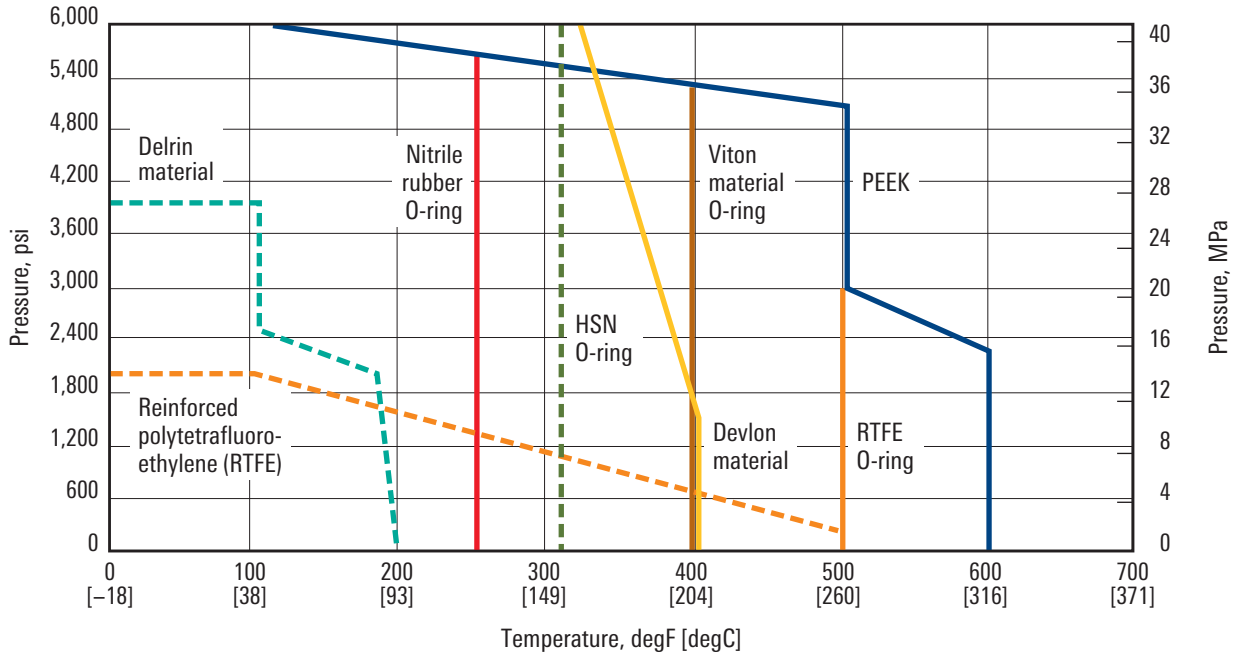


Dimensions

Size, in [mm]	A	B	C	D	E	F	G	I	K
4 [100] FP and 6 [150] RP	1.255 [31.9]	1.85 [47.0]	0.25 [6.4]	1.00 [25.4]	1.11 [28.2]	4.688 [119.1]	0.877 [22.3]	1.00 [25.4]	0.375-24 UNF-2B × 0.5 deep [9.5-24 UNF-2B × 12.7 deep]

ASME Classes 150 and 300.

Pressure and Temperature Ratings (Seats and Seals)



Consult ASME B16.34 for body and adapter material pressure and temperature ratings.

Breakaway Torque Data

Torque, in.lbf													
Bore size, in [DN]	**ASME Class [PN]**	**–**	**150 [20]**	**300 [50]**	**–**	**600 [100]**	**–**	**900 [150]**	**–**	**1500 [250]**	**–**	**–**	**2500 [420]**
	Pressure, psi	**0**	**285**	**740**	**1,000**	**1,480**	**2,000**	**2,220**	**3,000**	**3,705**	**4,000**	**5,000**	**6,000**
	Seat Material												
½ [15]	PEEK	72	84	96	108	120	132	144	156	180	192	216	240
	Devlon material	72	84	96	108	120	132	144	156	180	192	216	240
	Delrin material	60	72	84	96	108	120	132	144	168	180	–	–
	Teflon material	60	72	84	96	108	120	–	–	–	–	–	–
⅞ [22]	PEEK	276	276	276	276	276	300	324	360	420	444	540	660
	Devlon material	96	108	120	132	144	156	168	180	192	204	240	300
	Delrin material	96	108	120	132	144	156	168	180	192	204	–	–
	Teflon material	96	108	120	132	144	156	–	–	–	–	–	–
1-½ [40]	PEEK	600	648	696	744	792	840	864	936	1,020	1,080	1,200	1,500
	Devlon material	360	420	480	576	660	720	792	900	960	1,020	1,080	1,260
	Delrin material	336	396	480	576	660	720	792	900	960	1,020	–	–
	Teflon material	336	360	396	420	456	504	–	–	–	–	–	–
2 [50]	PEEK	840	1,080	1,440	1,680	1,920	2,100	2,280	2,700	3,120	3,300	3,600	4,200
	Devlon material	600	720	900	1,080	1,200	1,500	1,680	1,920	2,160	2,400	2,400	2,880
	Delrin material	600	720	900	1,080	1,320	1,560	1,740	2,040	2,280	2,520	–	–
	Teflon material	600	636	816	936	1,128	1,344	–	–	–	–	–	–
3 [80]	PEEK	960	1,440	2,760	3,840	4,800	5,760	6,480	7,200	8,400	9,000	–	–
	Devlon material	720	1,200	1,920	2,400	2,880	3,360	3,600	4,080	4,800	5,760	–	–
	Delrin material	840	1,380	2,280	2,640	3,000	3,600	3,900	4,200	4,800	5,760	–	–
	Teflon material	720	1,320	1,920	2,400	2,880	3,600	–	–	–	–	–	–
4 [100]	PEEK	1,440	2,400	3,840	–	–	–	–	–	–	–	–	–
	Devlon material	1,200	2,040	3,120	–	–	–	–	–	–	–	–	–
	Teflon material	1,080	1,944	2,820	–	–	–	–	–	–	–	–	–

Torque values shown are to be used as a guide for actuator selection. All above torque values are based upon clean liquid service. Additional factors such as media characteristics, number of cycles, and temperature may require an additional safety factor. Please contact Cameron for these factors.

Services for Valves and Actuation

Cameron is well positioned to quickly and efficiently deliver total aftermarket support with unmatched OEM expertise. Our highly skilled engineers and technicians are available around the clock to respond to customer queries, troubleshoot problems, and offer reliable solutions.

Easily accessible parts and spare valves

- OEM spare valves, actuators, and parts (including non-Cameron brands)
- Handling, storage, packaging, and delivery
- Dedicated stocking program

Comprehensive aftermarket services portfolio

- Parts and spare valves
- Repair
- Field services
- Preventative maintenance
- Equipment testing and diagnostics
- Remanufacturing
- Asset preservation
- Customer property management
- Training and recertification services
- Warranty

Customized total valve care programs

- Engineering consultancy
- Site management
- Flange management
- Startup and commissioning
- Spare parts and asset management
- Operational support

NUTRON Ball Valves—Models T3 and B3

products.slb.com/valves

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A Schlumberger Company

NUTRON Ball Valves Model T3

Forged-steel floating ball valves for heavy-duty, reduced-maintenance performance

Contents

NUTRON* Ball Valves Model T3

Sizes, Specifications, and Compliance

Model T3 three-piece threaded floating ball valves

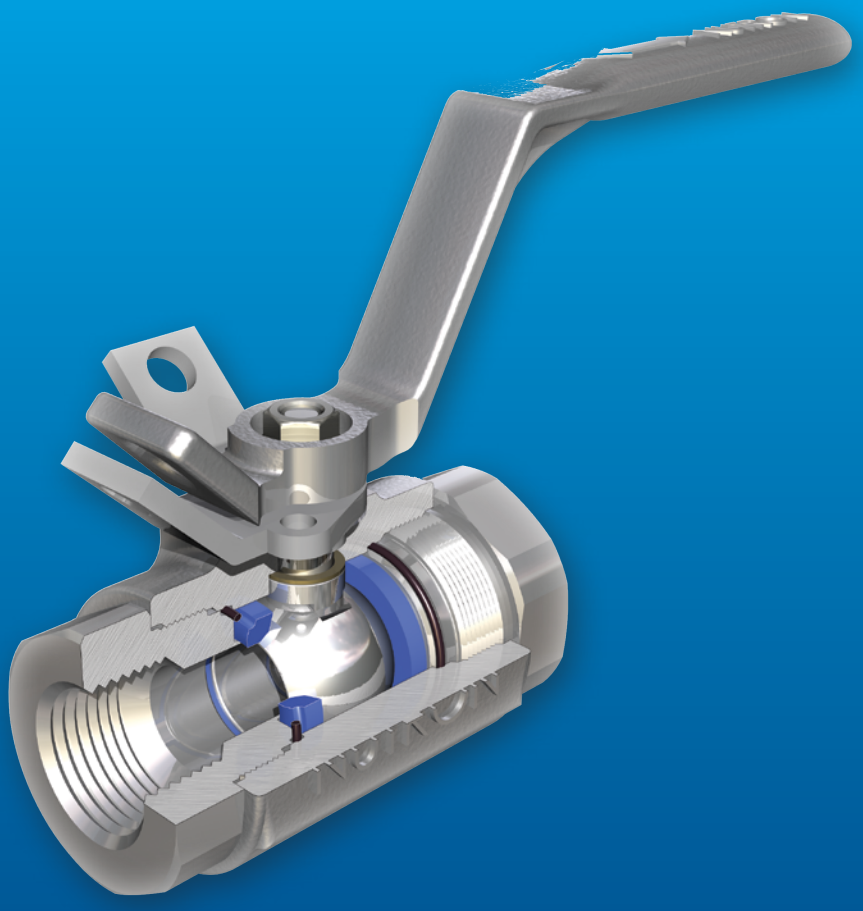
- Full-port sizes: ½–3 in [13–76 mm]
- Reduced-port sizes: ¾–4 in [19–102 mm]
- ASME Classes 150–2500 [PN 20–420] (see page 5)
- Water, oil, gas (WOG) pressure 1,000–6,000 psi (see page 5)
- End connections: threaded, socket weld, and butt weld

Materials and actuation

- Materials: carbon steel, stainless steel, and special alloys
- Operator: manual lever handle
- Actuation: Consult Cameron for information on various types of actuators, including gear operators, pneumatic, hydropneumatic, electric, electropneumatic, and hydraulic actuators.

Compliance to standards and specifications

- ISO 9001:2000 registered quality system
- ASME B16.34
- API 607 4th Edition (fire safe)
- API 598
- CE Mark Number 0038
- ASME Section VIII, Division 1 boiler and pressure vessel code
- CSA Z245.15 steel valves
- NACE MR0175 (Rev. 2002)
- CRN



NUTRON ball valve model T3.

Standard Features

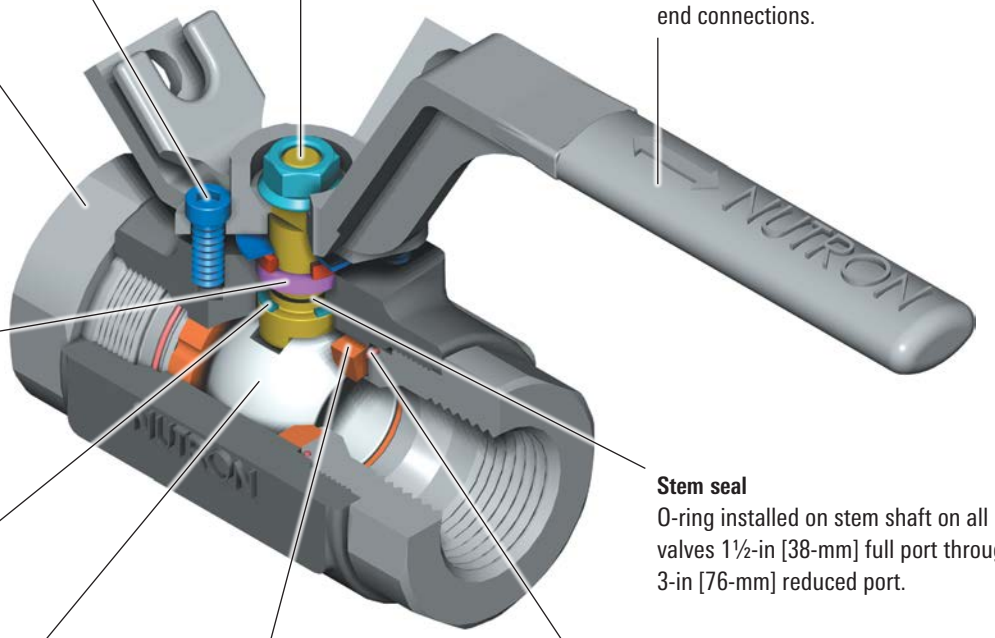
Capscrew
Dual purpose, which allows easy adjustment of the stem packing without handle removal while providing a stop for the handle.

Body construction
Forged-steel, three-piece threaded construction. A machined pad area is drilled and tapped for actuation as a standard. Threaded construction enables combinations of end connections.

Packing
Self-adjusting by means of a Belleville washer. This enables long service life before manual packing adjustment is necessary.

Thrust washer
Design that acts as a bearing between the body and stem.

Ball
Floating ball design for positive shutoff in either flow direction. The pressure equalization hole prevents trapping of pressure in the body cavity.



Stem
Blowout-proof stem that is backseated through the valve body.

Seats
Available in Teflon®, Delrin®, polyetheretherketone (PEEK), and Devlon® materials.

Handle
Rugged cast handle that indicates flow position. When the handle is positioned in line with the pipe, the valve is open. When the handle is positioned perpendicular to the pipe, the valve is closed. Locking handle is standard for all 2-in [51-mm] reduced-port and smaller valves with either socket weld or FNPT end connections.

Stem seal
O-ring installed on stem shaft on all valves 1½-in [38-mm] full port through 3-in [76-mm] reduced port.

Body seals
O-rings placed ahead of the body cap threads to protect the threads from the flow media.

Available Sizes

Sizes, in [mm]	WOG Pressure, psi				
	1,000	2,000	3,000	4,000	6,000
Full port, threaded	3 [76]	¼–3 [6–76]	¼–2 [6–51]	¼–2 [6–51]	¼–2 [6–51]
Reduced port, threaded	4 [102]	¾–3 [19–76]	¾–3 [19–76]	¾–3 [19–76]	¾–3 [19–76]
Full port, socket weld	–	½–2 [13–51]	½–2 [13–51]	½–2 [13–51]	½–2 [13–51]
Reduced port, socket weld	–	¾–3 [19–76]	¾–3 [19–76]	¾–3 [19–76]	¾–3 [19–76]

How to Order

T3-F07S20SZ: Model T3, full port, ¾ in [19 mm], FNPT, 2,000-psi WOG, sour valve, fire safe

Example

T3 - F 07 S 20 S Z

Model
Bore
Size
Pressure
Style†
Fire safe

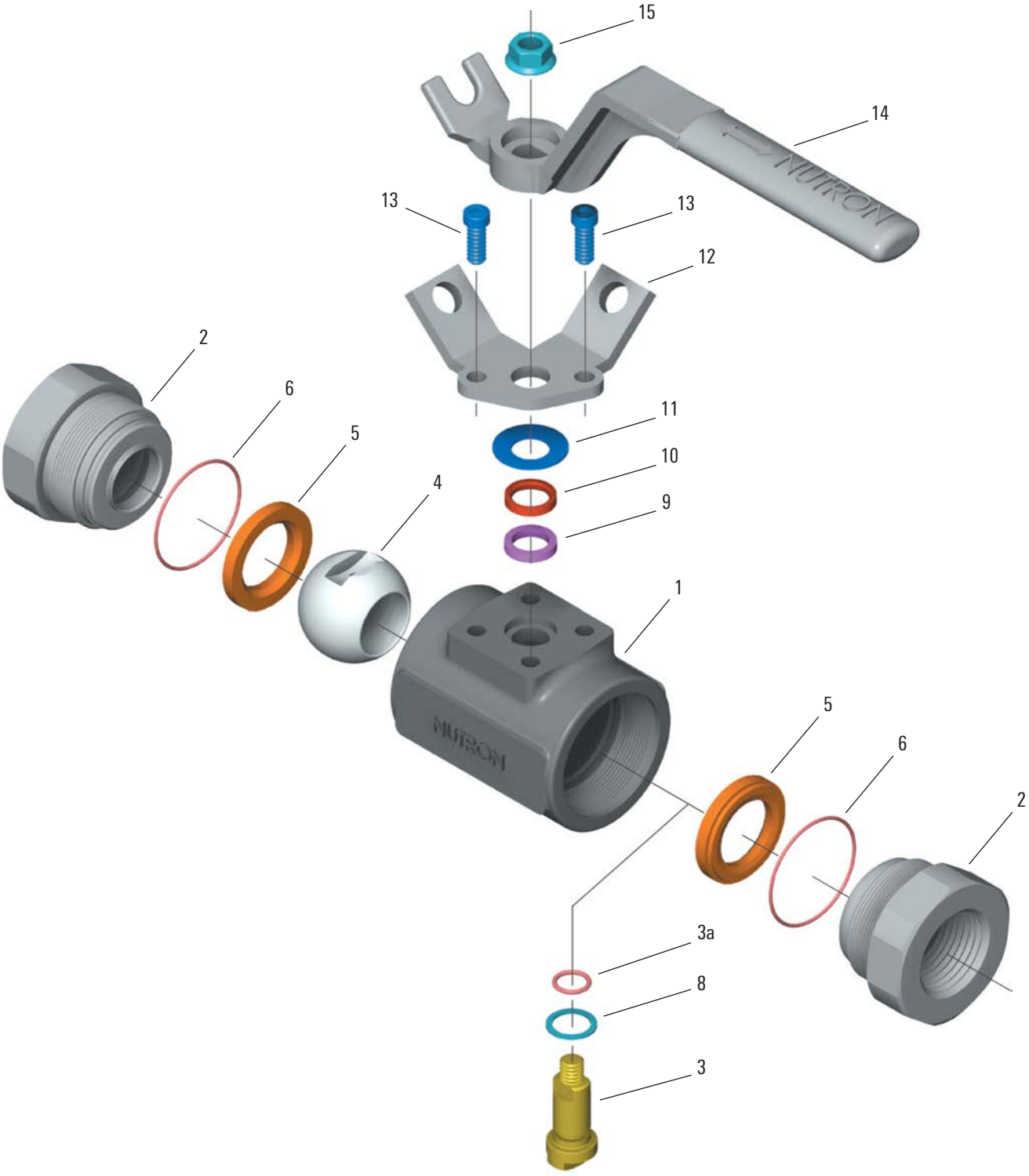
Model		Bore		Size, in [mm]		End Connection		Pressure		Style†		Temp. Rating, degF [degC]	Fire Safe	
T3	Three-piece, threaded	F	Full port	02	¼ [6]	B	Butt weld (BW) Schedule 40	10	1,000-psi WOG	A	Stainless steel	–50 [–46]	Z	Fire safe
		R	Reduced port	03	⅜ [10]	C	BW Schedule 80	20	2,000-psi WOG	B	Standard			
				05	½ [13]	D	BW Schedule 160	30	3,000-psi WOG	H	High-temperature sour	500 [260]		
				07	¾ [19]	E	BW Schedule XXH	40	4,000-psi WOG	L	Low-temperature sour	–50 [–46]		
				10	1 [25]	F	Female NPT (FNPT) × male NPT (MNPT)	60	6,000-psi WOG	N	MONEL® alloy steel	–50 [–46]		
				12	1¼ [32]	M	MNPT			Q	Duplex steel	–50 [–46]		
				15	1½ [40]	S	FNPT			S	Sour	–20 [–29]		
				20	2 [51]	TS	FNPT × socket weld							
				25	2½ [64]	WS	Socket weld							
				30	3 [76]									
				40	4 [102]									

Common Options†
Antistatic spring
Car seal close
Car seal open
Delrin material seats
Electroless nickel plating (ENP)
Gear operator
Graphite packing
Highly satured nitrile (HSN) O-rings
ZPEX® coating
Locking handle
Nitrile O-rings
PEEK seats
Teflon material O-rings
Viton material O-rings

† Consult Cameron for detailed valve style descriptions, full range of options, materials, actuation packages, or a particular special valve service application.

Valve Details and Materials Lists

Threaded End Connections



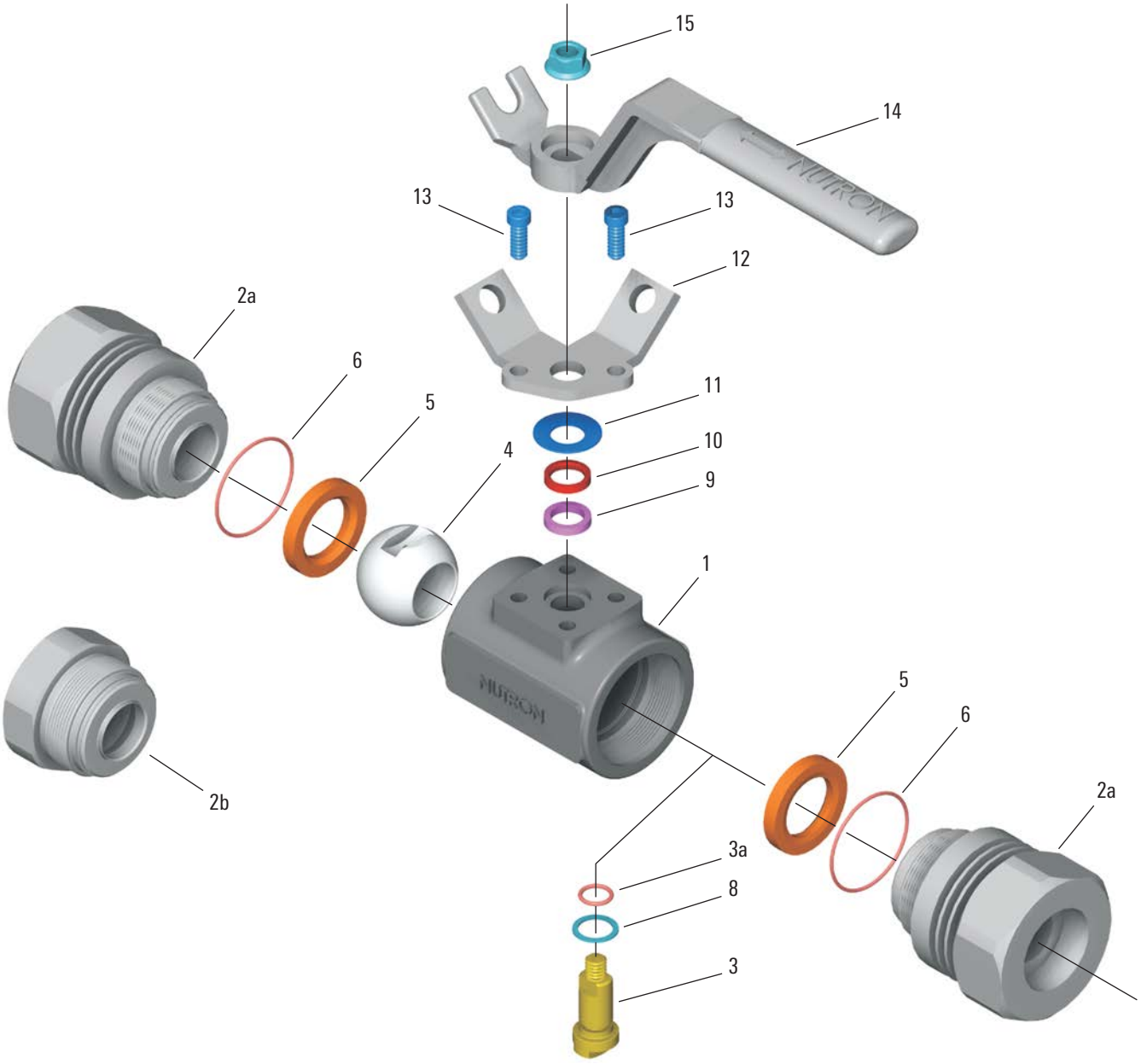
Materials Lists

	Item	Part	Working Pressure, psi	Standard –20 degF [–29 degC]	Sour –20 degF [–29 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
	2	End caps	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
■	3	Stem	150, 300, 600, and 900	ASTM A108, plated	ASTM A564 17-4PH stainless steel
			1,500 and 2,500	ASTM A564 17-4PH® stainless steel	ASTM A564 17-4PH stainless steel
■●	3a†	Stem O-ring	All	Nitrile rubber	HSN
■	4	Ball	150–1,500	Carbon steel, chrome plated	ASTM A351 Grade CF8M
			2,500	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel
■●	5	Seats	150, 300, and 600	Teflon material	Teflon material
			900 and 1,500	Delrin material	Delrin material
			2,500	PEEK	PEEK
■●	6	Body O-rings	All	Nitrile rubber	HSN
■●	8	Thrust washer	150, 300, and 600	Teflon material	Teflon material
			900 and 1,500	Delrin material	Delrin material
			2,500	PEEK	PEEK
■●	9	Packing	All	Teflon material	Teflon material
	10	Packing follower	All	Carbon steel, plated	Stainless steel
	11	Belleville washer	All	Carbon steel	Stainless steel
	12	Gland flange‡	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Carbon steel	Stainless steel
	14	Handle	All	Carbon steel	Carbon steel
	15	Handle nut	All	Carbon steel, plated	Carbon steel, plated

	Item	Part	Working Pressure, psi	Low-Temperature Sour –50 degF [–46 degC]	Stainless Steel –50 degF [–46 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A479 316
	2	End caps	All	ASTM A350 Grade LF2	ASTM A479 316
■	3	Stem	All	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel with nitriding
■●	3a†	Stem O-ring	All	HSN	
■	4	Ball	2,000	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M
			3,000 and 4,000	ASTM A351 Grade CF8M	ASTM A564 17-4PH stainless steel
			6,000	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel
■●	5	Seats	2,000	Teflon material	Teflon material
			3,000 and 4,000	Delrin material	PEEK
			6,000	PEEK	PEEK
■●	6	Body O-rings	All	HSN	Teflon material
■●	8	Thrust washer	2,000	Teflon material	Teflon material
			3,000 and 4,000	Delrin material	PEEK
			6,000	PEEK	PEEK
■●	9	Packing	All	Teflon material	Teflon material
	10	Packing follower	All	Stainless steel	Stainless steel
	11	Belleville washer	All	Stainless steel	Stainless steel
	12	Gland flange‡	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Stainless steel	Stainless steel
	14	Handle	All	Carbon steel	Carbon steel
	15	Handle nut	All	Carbon steel, plated	Carbon steel, plated

■ Major repair kit.
● Minor repair kit.
† Only available on sizes 1½-in [38-mm] full-port through 3-in [76-mm] reduced-port valves.
‡ Locking device is standard on ¼-in [6-mm] full-port through 2-in [51-mm] reduced-port valves.
Fire-safe trim offered as standard whenever possible. Consult Cameron for fire-safe trim.

Socket Weld and Threaded × Socket Weld End Connections



Materials Lists

	Item	Part	Working Pressure, psi	Standard –20 degF [–29 degC]	Sour –20 degF [–29 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
	2a	End caps—socket weld (SW)	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
	2b	End caps—NPT	All	ASTM A350 Grade LF2	ASTM A350 Grade LF2
■	3	Stem	2,000 and 3,000	ASTM A108, plated	ASTM A564 17-4PH stainless steel
			4,000 and 6,000	ASTM A564 17-4PH	ASTM A564 17-4PH stainless steel
■●	3a†	Stem O-ring	All	Viton material	Viton material
■	4	Ball	2,000	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M
			3,000, 4,000, and 6000	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH
■●	5	Seats	2,000	Teflon material	Teflon material
			3,000, 4,000, and 6000	PEEK	PEEK
■●	6	Body O-rings	All	Viton material	Viton material
■●	8	Thrust washer	2,000	Teflon material	Teflon material
			3,000, 4,000, and 6,000	PEEK	PEEK
■●	9	Packing	All	Teflon material	Teflon material
	10	Packing follower	All	Carbon steel, plated	Stainless steel
	11	Belleville washer	All	Carbon steel	Stainless steel
	12	Gland flange‡	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Carbon steel	Stainless steel
	14	Handle	All	Carbon steel	Carbon steel
	15	Handle nut	All	Carbon steel, plated	Carbon steel, plated

	Item	Part	Working Pressure, psi	Low-Temperature Sour –50 degF [–46 degC]	Stainless Steel –50 degF [–46 degC]
	1	Body	All	ASTM A350 Grade LF2	ASTM A479 Type 316
	2a	End caps—SW	All	ASTM A350 Grade LF2	ASTM A479 Type 316 L
	2b	End caps—NPT	All	ASTM A350 Grade LF2	ASTM A479 Type 316
■	3	Stem	All	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel with nitriding
■●	3a†	Stem O-ring	All	Viton material	Viton material
■	4	Ball	2,000	ASTM A351 Grade CF8M	ASTM A351 Grade CF8M
			3,000, 4,000, and 6,000	ASTM A564 17-4PH stainless steel	ASTM A564 17-4PH stainless steel
■●	5	Seats	2,000	Teflon material	Teflon material
			3,000, 4,000, and 6,000	PEEK	PEEK
■●	6	Body O-rings	All	Viton material	Viton material
■●	8	Thrust washer	2,000	Teflon material	Teflon material
			3,000, 4,000, and 6,000	PEEK	PEEK
■●	9	Packing	All	Teflon material	Teflon material
	10	Packing follower	All	Stainless steel	Stainless steel
	11	Belleville washer	All	Stainless steel	Stainless steel
	12	Gland flange‡	All	Carbon steel, plated	Carbon steel, plated
	13	Capscrews	All	Stainless steel	Stainless steel
	14	Handle	All	Carbon steel	Carbon steel
	15	Handle nut	All	Carbon steel, plated	Carbon steel, plated

■ Major repair kit.

● Minor repair kit.

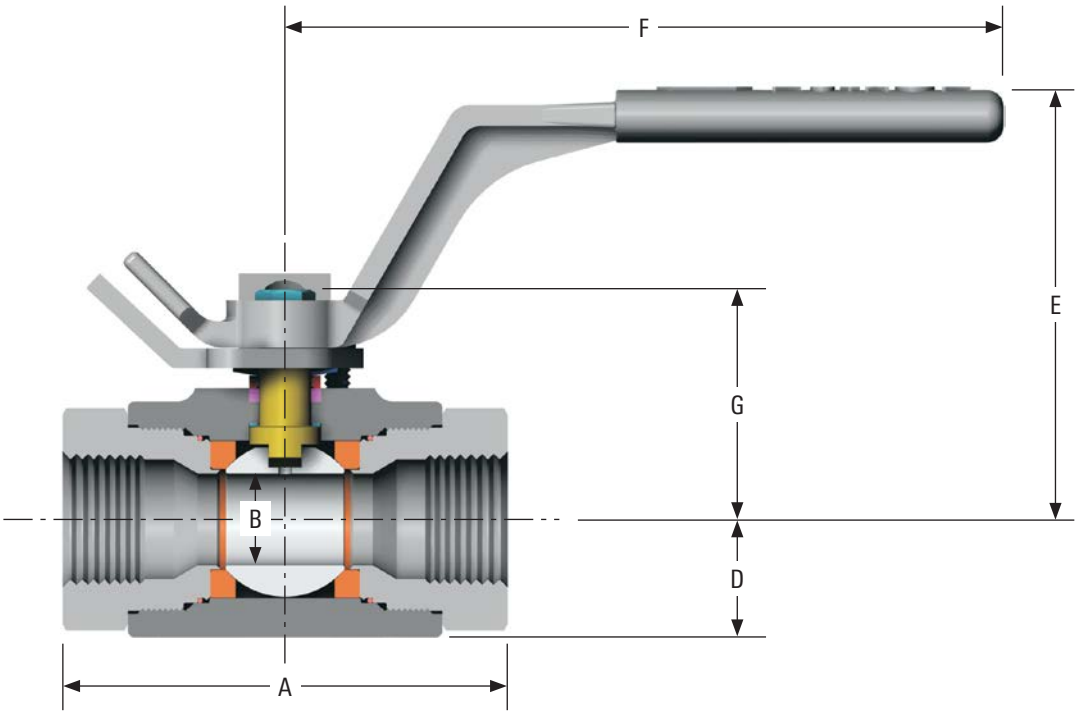
† Only available on sizes 1½-in [38-mm] full-port through 3-in [76-mm] reduced-port valves.

‡ Locking device is standard on ¼-in [6-mm] full-port through 2-in [51-mm] reduced-port valves.

Fire-safe trim offered as standard whenever possible. Consult Cameron for fire-safe trim.

Valve Assemblies and Dimensions Tables

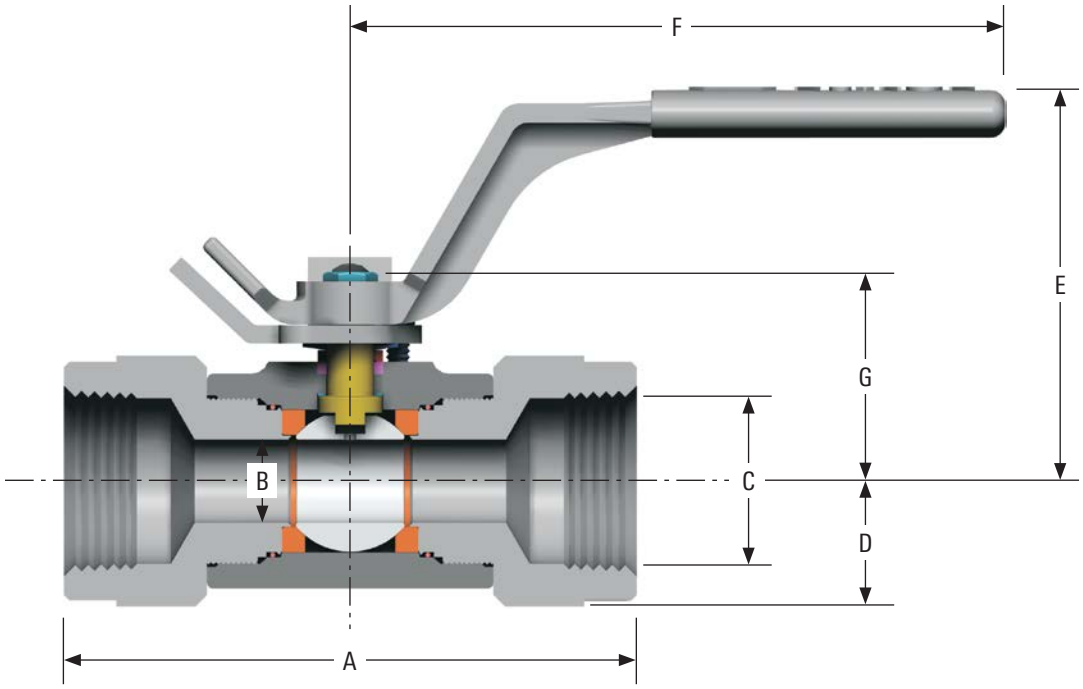
Full-Port Threaded



Dimensions									
Size, in [mm]	**WOG, psi**	**A**	**B**	**D**	**E**	**F**	**G**	**Flow Coefficient (C_v)**	**Weight, lbm [kg]**
¼ [6]	2,000	3.88 [99]	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	9	2.5 [1.1]
	3,000	3.88 [99]	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	9	2.5 [1.1]
	4,000	3.88 [99]	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	9	2.5 [1.1]
	6,000	3.88 [99]	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	9	2.5 [1.1]
⅜ [10]	2,000	3.88 [99]	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	9	2.4 [1.1]
	3,000	3.88 [99]	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	9	2.4 [1.1]
	4,000	3.88 [99]	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	9	2.4 [1.1]
	6,000	3.88 [99]	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	9	2.4 [1.1]
½ [13]	2,000	3.88 [99]†	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	26	2.2 [1.0]
	3,000	3.88 [99]†	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	26	2.2 [1.0]
	4,000	3.88 [99]†	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	26	2.2 [1.0]
	6,000	4.38 [111]	0.50 [13]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	26	2.2 [1.0]
¾ [19]	2,000	4.25 [108]	0.88 [22]	1.12 [28]	4.40 [112]	6.75 [171]	2.16 [55]	50	4.8 [2.2]
	3,000	4.25 [108]	0.88 [22]	1.12 [28]	4.40 [112]	6.75 [171]	2.16 [55]	50	4.8 [2.2]
	4,000	4.25 [108]	0.88 [22]	1.12 [28]	4.40 [112]	6.75 [171]	2.16 [55]	50	4.8 [2.2]
	6,000	4.25 [108]	0.88 [22]	1.50 [38]	4.40 [112]	6.75 [171]	2.16 [55]	50	6.5 [2.9]
1½ [38]	2,000	6.25 [159]	1.50 [38]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	260	18.0 [8.2]
	3,000	6.25 [159]	1.50 [38]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	260	18.0 [8.2]
	4,000	6.25 [159]	1.50 [38]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	260	18.0 [8.2]
	6,000	6.25 [159]	1.50 [38]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	260	18.0 [8.2]
2 [51]	2,000	6.25 [159]	2.00 [51]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	30.0 [13.6]
	3,000	6.25 [159]	2.00 [51]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	30.0 [13.6]
	4,000	6.25 [159]	2.00 [51]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	30.0 [13.6]
	6,000	6.25 [159]	2.00 [51]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	30.0 [13.6]
3 [76]	1,000	9.70 [246]	3.00 [76]	3.50 [89]	8.26 [210]	23.88 [607]	5.37 [136]	1,300	67.0 [30.4]
	2,000	9.70 [246]	3.00 [76]	3.50 [89]	8.26 [210]	23.88 [607]	5.37 [136]	1,300	67.0 [30.4]

† 4.38 in [111 mm] for stainless steel valves.
"A" dimension to be within ±0.062 in [±1.6 mm].

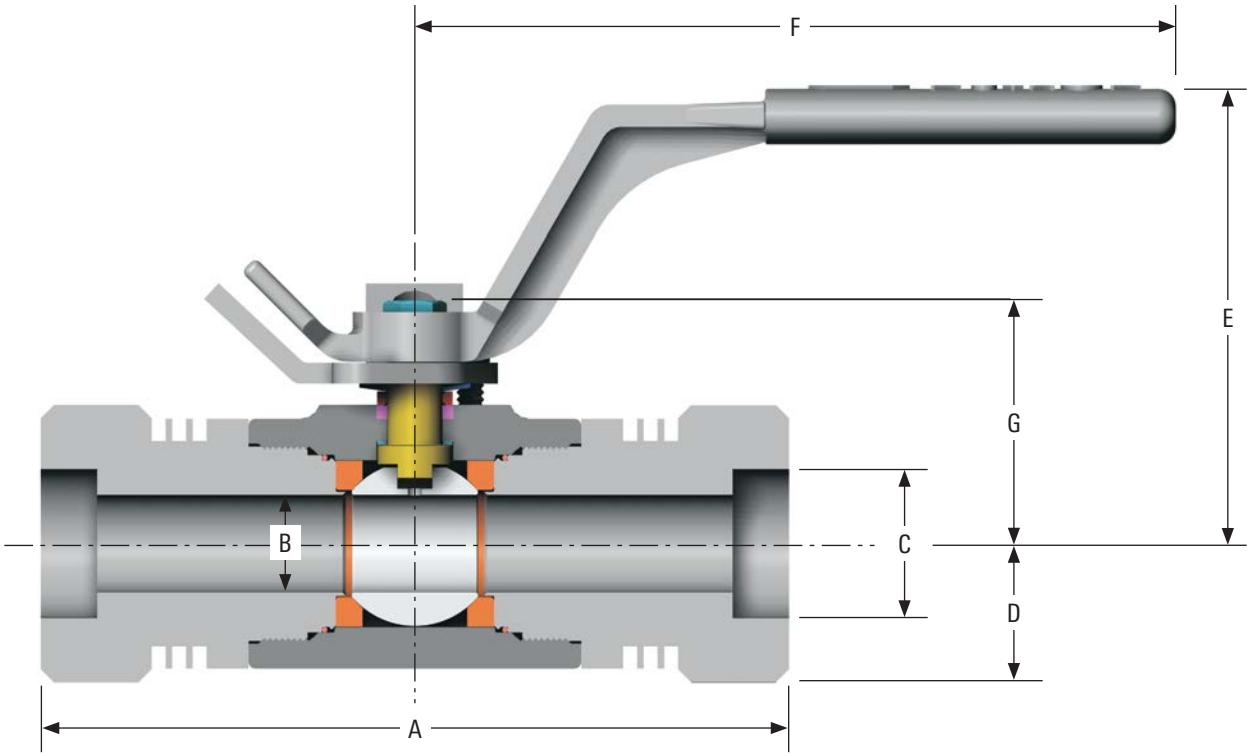
Reduced-Port Threaded



Dimensions										
Size, in [mm]	**WOG, psi**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**C_v**	**Weight, lbm [kg]**
¾ [19]	2,000	4.38 [111]	0.50 [13]	0.75 [19]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	14	2.5 [1.1]
	3,000	4.38 [111]	0.50 [13]	0.75 [19]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	14	2.5 [1.1]
	4,000	4.38 [111]	0.50 [13]	0.75 [19]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	14	2.5 [1.1]
	6,000	4.38 [111]	0.50 [13]	0.75 [19]	0.82 [21]	3.29 [84]	4.82 [122]	1.73 [44]	14	2.5 [1.1]
1 [25]	2,000	4.25 [108]	0.88 [22]	1.00 [25]	1.12 [28]	4.40 [112]	6.75 [171]	2.16 [55]	35	4.5 [2.0]
	3,000	4.25 [108]	0.88 [22]	1.00 [25]	1.12 [28]	4.40 [112]	6.75 [171]	2.16 [55]	35	4.5 [2.0]
	4,000	4.25 [108]	0.88 [22]	1.00 [25]	1.12 [28]	4.40 [112]	6.75 [171]	2.16 [55]	35	4.5 [2.0]
	6,000	5.25 [133]	0.88 [22]	1.00 [25]	1.50 [38]	4.40 [112]	6.75 [171]	2.16 [55]	35	7.5 [3.4]
1¼ [32]	2,000	6.00 [152]	0.88 [22]	1.25 [32]	1.30 [33]	4.40 [112]	6.75 [171]	2.16 [55]	35	8.0 [3.6]
	3,000	6.00 [152]	0.88 [22]	1.25 [32]	1.30 [33]	4.40 [112]	6.75 [171]	2.16 [55]	35	8.0 [3.6]
2 [51]	2,000	6.25 [159]	1.50 [38]	2.00 [51]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	100	17.5 [7.9]
	3,000	6.25 [159]	1.50 [38]	2.00 [51]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	100	17.5 [7.9]
	4,000	6.25 [159]	1.50 [38]	2.00 [51]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	100	17.5 [7.9]
	6,000	7.25 [184]	1.50 [38]	2.00 [51]	1.98 [50]	5.62 [143]	11.00 [279]	3.52 [89]	100	21.0 [9.5]
3 [76]	2,000	10.0 [254]	2.00 [51]	3.00 [76]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	39.0 [17.7]
	3,000	10.0 [254]	2.00 [51]	3.00 [76]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	39.0 [17.7]
	4,000	10.0 [254]	2.00 [51]	3.00 [76]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	39.0 [17.7]
	6,000	10.0 [254]	2.00 [51]	3.00 [76]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	48.0 [21.8]
4 [102]	1,000	9.5 [241]	3.00 [76]	4.00 [102]	3.50 [89]	8.26 [210]	23.88 [607]	5.37 [136]	770	80.0 [36.3]

"A" dimension to be within ±0.062 in [±1.6 mm].

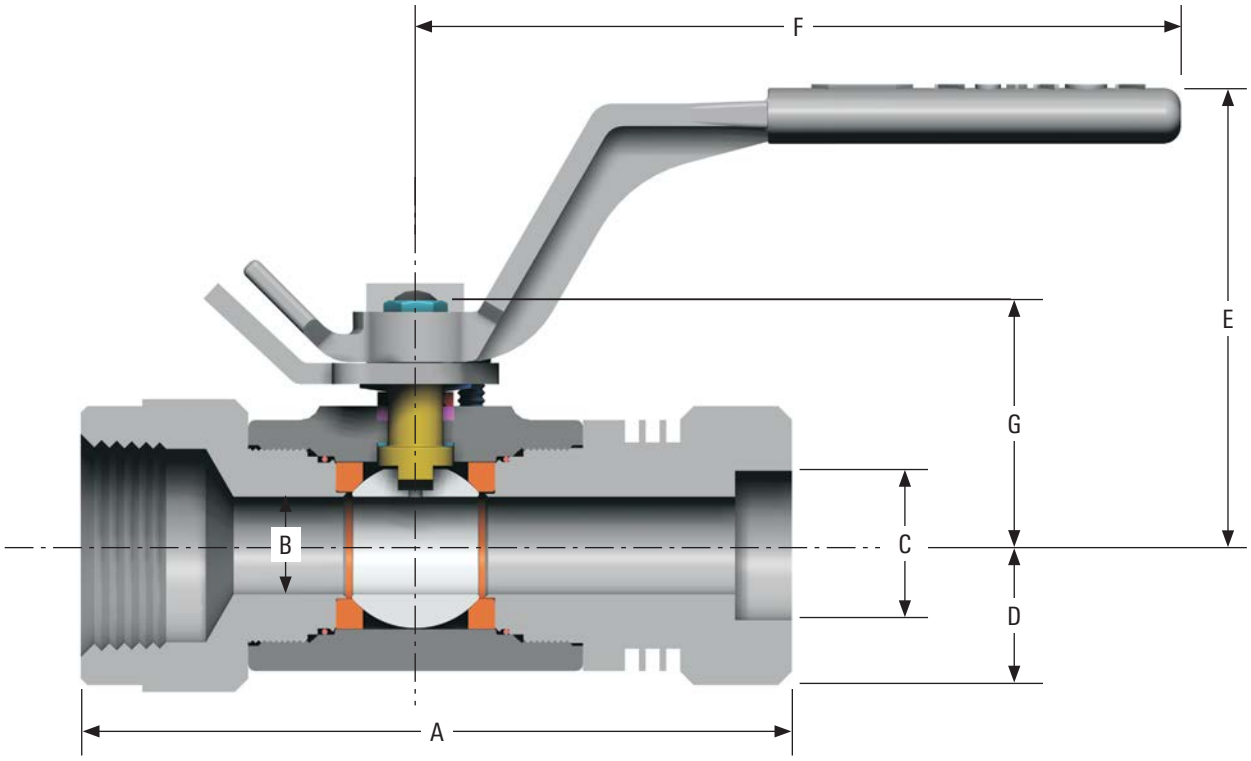
Full-Port Socket Weld and Threaded × Socket Weld



Dimensions													
Size, in [mm]	WOG, psi	A		B	C		D	E	F	G	C_v	Weight, lbm [kg]	
		FNPT × SW	SW		FNPT × SW	SW						FNPT × SW	SW
½ [13]	2,000	4.44 [113]†	5.00 [127]	0.50 [13]	0.50 [13]	0.86 [22]	0.94 [24]	3.29 [83]	4.82 [122]	1.73 [44]	26	3.5 [1.5]	4.8 [2.1]
	3,000	4.44 [113]†	5.00 [127]	0.50 [13]	0.50 [13]	0.86 [22]	0.94 [24]	3.29 [83]	4.82 [122]	1.73 [44]	26	3.5 [1.5]	4.8 [2.1]
	4,000	4.44 [113]†	5.00 [127]	0.50 [13]	0.50 [13]	0.86 [22]	0.94 [24]	3.29 [83]	4.82 [122]	1.73 [44]	26	3.5 [1.5]	4.8 [2.1]
	6,000	4.69 [119]	5.00 [127]	0.50 [13]	0.50 [13]	0.86 [22]	0.94 [24]	3.29 [83]	4.82 [122]	1.73 [44]	26	3.5 [1.5]	4.8 [2.1]
¾ [19]	2,000	5.50 [140]	6.75 [171]	0.88 [22]	0.75 [19]	1.07 [27]	1.25 [32]	4.40 [112]	6.75 [172]	2.16 [55]	50	5.7 [2.5]	6.4 [2.9]
	3,000	5.50 [140]	6.75 [171]	0.88 [22]	0.75 [19]	1.07 [27]	1.25 [32]	4.40 [112]	6.75 [172]	2.16 [55]	50	5.7 [2.5]	6.4 [2.9]
	4,000	5.50 [140]	6.75 [171]	0.88 [22]	0.75 [19]	1.07 [27]	1.25 [32]	4.40 [112]	6.75 [172]	2.16 [55]	50	5.7 [2.5]	6.4 [2.9]
	6,000	5.50 [140]	6.75 [171]	0.88 [22]	0.75 [19]	1.07 [27]	1.50 [38]	4.40 [112]	6.75 [172]	2.16 [55]	50	8.6 [3.9]	9.2 [4.1]
1½ [38]	2,000	7.40 [188]	8.54 [217]	1.50 [38]	1.50 [38]	1.92 [49]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	260	21.9 [9.9]	25.7 [11.6]
	3,000	7.40 [188]	8.54 [217]	1.50 [38]	1.50 [38]	1.92 [49]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	260	21.9 [9.9]	25.7 [11.6]
	4,000	7.40 [188]	8.54 [217]	1.50 [38]	1.50 [38]	1.92 [49]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	260	21.9 [9.9]	25.7 [11.6]
	6,000	7.40 [188]	8.54 [217]	1.50 [38]	1.50 [38]	1.92 [49]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	260	21.9 [9.9]	25.7 [11.6]
2 [51]	2,000	9.50 [241]	12.75 [324]	2.00 [51]	2.00 [51]	2.41 [61]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	38.3 [17]	46.5 [21.0]
	3,000	9.50 [241]	12.75 [324]	2.00 [51]	2.00 [51]	2.41 [61]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	38.3 [17]	46.5 [21.0]
	4,000	9.50 [241]	12.75 [324]	2.00 [51]	2.00 [51]	2.41 [61]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	38.3 [17]	46.5 [21.0]
	6,000	9.50 [241]	12.75 [324]	2.00 [51]	2.00 [51]	2.41 [61]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	480	38.3 [17]	46.5 [21.0]

† 4.69 in [119 mm] for stainless steel valves.
"A" dimension to be within ±0.062 in [±1.6 mm].

Reduced-Port Socket Weld and Threaded × Socket Weld

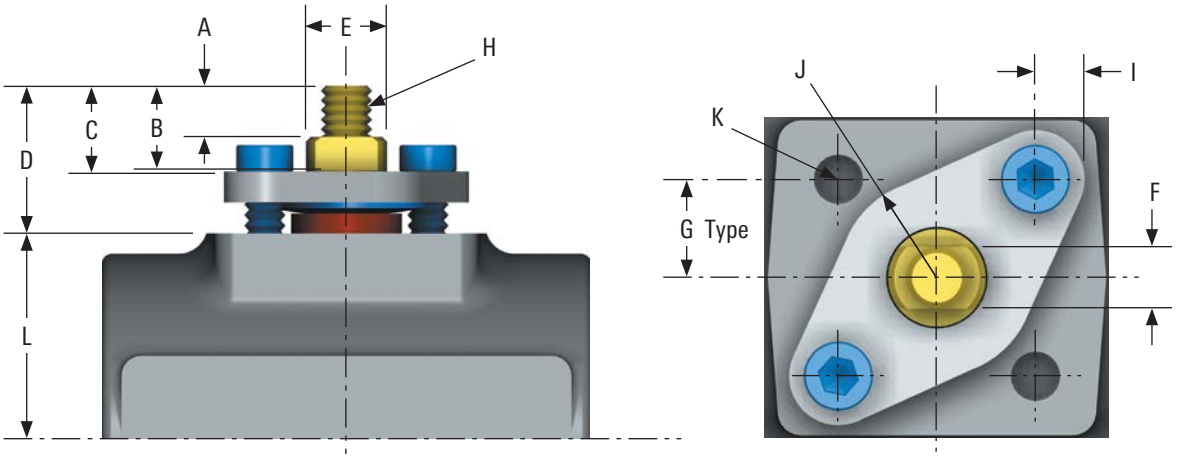


Dimensions													
Size, in [mm]	WOG, psi	A		B	C		D	E	F	G	C_v	Weight, lbm [kg]	
		FNPT × SW	SW		FNPT × SW	SW						FNPT × SW	SW
¾ [19]	2,000	5.56 [141]	6.75 [171]	0.50 [13]	0.75 [19]	1.07 [27]	1.19 [30]	3.29 [84]	4.82 [122]	1.73 [44]	14	3.5 [1.6]	4.4 [2.0]
	3,000	5.56 [141]	6.75 [171]	0.50 [13]	0.75 [19]	1.07 [27]	1.19 [30]	3.29 [84]	4.82 [122]	1.73 [44]	14	3.5 [1.6]	4.4 [2.0]
	4,000	5.56 [141]	6.75 [171]	0.50 [13]	0.75 [19]	1.07 [27]	1.19 [30]	3.29 [84]	4.82 [122]	1.73 [44]	14	3.5 [1.6]	4.4 [2.0]
	6,000	5.56 [141]	6.75 [171]	0.50 [13]	0.75 [19]	1.07 [27]	1.19 [30]	3.29 [84]	4.82 [122]	1.73 [44]	14	3.5 [1.6]	4.4 [2.0]
1 [25]	2,000	5.50 [140]†	6.75 [171]	0.88 [22]	1.00 [25]	1.34 [34]	1.25 [32]	4.40 [112]	6.75 [171]	2.16 [55]	35	5.4 [2.4]	6.2 [2.8]
	3,000	5.50 [140]†	6.75 [171]	0.88 [22]	1.00 [25]	1.34 [34]	1.25 [32]	4.40 [112]	6.75 [171]	2.16 [55]	35	5.4 [2.4]	6.2 [2.8]
	4,000	5.50 [140]†	6.75 [171]	0.88 [22]	1.00 [25]	1.34 [34]	1.25 [32]	4.40 [112]	6.75 [171]	2.16 [55]	35	5.4 [2.4]	6.2 [2.8]
	6,000	6.00 [152]	6.75 [171]	0.88 [22]	1.00 [25]	1.34 [34]	1.50 [38]	4.40 [112]	6.75 [171]	2.16 [55]	35	8.3 [3.8]	9.0 [4.1]
2 [51]	2,000	7.40 [188]	8.55 [217]	1.50 [38]	2.00 [51]	2.42 [61]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	100	22.5 [10.2]	26.0 [11.8]
	3,000	7.40 [188]	8.55 [217]	1.50 [38]	2.00 [51]	2.42 [61]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	100	22.5 [10.2]	26.0 [11.8]
	4,000	7.40 [188]	8.55 [217]	1.50 [38]	2.00 [51]	2.42 [61]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	100	22.5 [10.2]	26.0 [11.8]
	6,000	7.90 [201]	8.55 [217]	1.50 [38]	2.00 [51]	2.42 [61]	2.50 [64]	5.62 [143]	11.00 [279]	3.52 [89]	100	22.5 [10.2]	26.0 [11.8]
3 [76]	2,000	11.38 [289]	12.75 [324]	2.00 [51]	3.00 [76]	3.55 [90]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	49.0 [22.2]	60.0 [27.2]
	3,000	11.38 [289]	12.75 [324]	2.00 [51]	3.00 [76]	3.55 [90]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	49.0 [22.2]	60.0 [27.2]
	4,000	11.38 [289]	12.75 [324]	2.00 [51]	3.00 [76]	3.55 [90]	2.53 [64]	6.96 [177]	11.88 [302]	4.83 [123]	420	49.0 [22.2]	60.0 [27.2]

† 6 in [152 mm] for stainless steel valves.

"A" dimension to be within ±0.062 in [±1.6 mm].

Actuator Mounting Dimensions



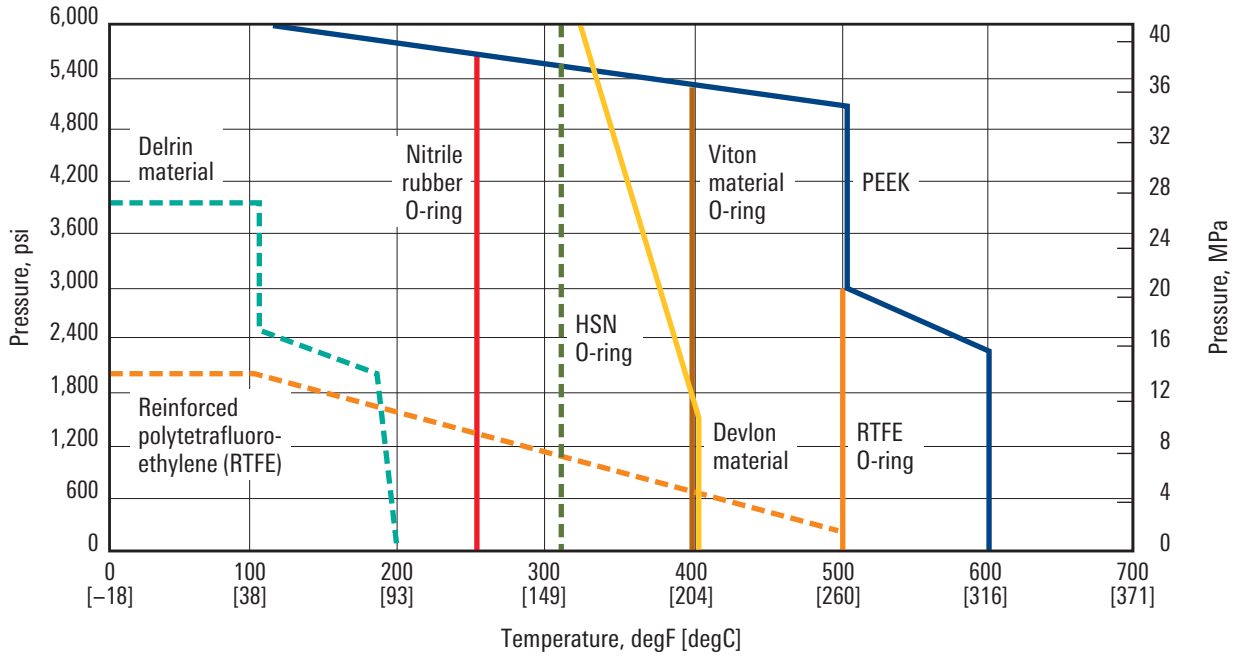
Dimensions												
Size, in [mm]	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**
¼ [6] FP	0.300 [7.6]	0.440 [11.2]	0.500 [12.7]	0.725 [18.4]	0.464 [11.8]	0.253 [6.4]	0.468 [11.9]	0.250-20 UNC [6.35-20 UNC]	0.23 [5.8]	0.50 [12.7]	#10-32 UNF-2B × 0.31 DP [#10-32 UNF-2B × 7.9 DP]	1.002 [25.5]
⅜ [10] FP	0.300 [7.6]	0.440 [11.2]	0.500 [12.7]	0.725 [18.4]	0.464 [11.8]	0.253 [6.4]	0.468 [11.9]	0.250-20 UNC [6.35-20 UNC]	0.23 [5.8]	0.50 [12.7]	#10-32 UNF-2B × 0.31 DP [#10-32 UNF-2B × 7.9 DP]	1.002 [25.5]
½ [13] FP and ¾ [19] RP	0.300 [7.6]	0.440 [11.2]	0.500 [12.7]	0.725 [18.4]	0.464 [11.8]	0.253 [6.4]	0.468 [11.9]	0.250-20 UNC [6.35-20 UNC]	0.23 [5.8]	0.50 [12.7]	#10-32 UNF-2B × 0.31 DP [#10-32 UNF-2B × 7.9 DP]	1.002 [25.5]
¾ [19] FP and 1 [25] RP	0.312 [7.9]	0.515 [13.1]	0.560 [14.2]	0.905 [23.0]	0.496 [12.6]	0.314 [8.0]	0.498 [12.6]	0.312-18 UNC [7.92-18 UNC]	0.25 [6.4]	0.50 [12.7]	0.25-28 UNF-2B × 0.30 DP [6.35-28 UNF-2B × 7.6 DP]	1.250 [31.8]
1½ [38] FP and 2 [51] RP†	0.475 [12.1]	0.826 [21.0]	0.900 [22.9]	1.270 [32.3]	0.749 [19.0]	0.441 [11.2]	0.737 [18.7]	0.438-14 UNC [11.1-14 UNC]	0.40 [10.2]	0.75 [19.1]	0.312-24 UNF-2B × 0.437 DP [7.92-24 UNF-2B × 11.1 DP]	2.250 [57.2]
2 [51] FP and 3 [76] RP‡	0.690 [17.5]	1.180 [30.0]	1.225 [31.1]	1.821 [46.3]	1.000 [25.4]	0.628 [16.0]	0.875 [22.2]	0.625-11 UNC [15.9-11 UNC]	0.41 [10.4]	1.00 [25.4]	0.375-24 UNF-2B × 0.50 DP [9.53-24 UNF-2B × 12.7 DP]	3.000 [76.2]
3 [76] FP and 4 [102] RP§	0.690 [17.5]	1.180 [30.0]	1.225 [31.1]	1.821 [46.3]	1.000 [25.4]	0.628 [16.0]	0.875 [22.2]	0.625-11 UNC [15.9-11 UNC]	0.41 [10.4]	1.00 [25.4]	0.375-24 UNF-2B × 0.50 DP [9.53-24 UNF-2B × 12.7 DP]	3.500 [88.9]

† Applies to B3 1½-in [38-mm] full port and 2-in [51-mm] reduced port ASME Classes 600, 900, and 1500 valves.

‡ Applies to B3 2-in [51-mm] full port and 3-in [76-mm] reduced port ASME Classes 600, 900, and 1500 valves.

§ Applies to B3 3-in [76-mm] full port and 4-in [102-mm] reduced port ASME Classes 150 and 300 valves.

Pressure and Temperature Ratings (Seats and Seals)



Consult ASME B16.34 for body and adapter material pressure and temperature ratings.

Breakaway Torque Data

Torque, lbf.in

Bore size, in [DN]	Pressure, psi	0	285	740	1,000	1,480	2,000	2,220	3,000	3,705	4,000	5,000	6,000
	Seat Material												
½ [13]	PEEK	72	84	96	108	120	132	144	156	180	192	216	240
	Devlon material	72	84	96	108	120	132	144	156	180	192	216	240
	Delrin material	60	72	84	96	108	120	132	144	168	180	–	–
	Teflon material	60	72	84	96	108	120	–	–	–	–	–	–
⅞ [22]	PEEK	276	276	276	276	276	300	324	360	420	444	540	660
	Devlon material	96	108	120	132	144	156	168	180	192	204	240	300
	Delrin material	96	108	120	132	144	156	168	180	192	204	–	–
	Teflon material	96	108	120	132	144	156	–	–	–	–	–	–
1½ [38]	PEEK	600	648	696	744	792	840	864	936	1,020	1,080	1,200	1,500
	Devlon material	360	420	480	576	660	720	792	900	960	1,020	1,080	1,260
	Delrin material	336	396	480	576	660	720	792	900	960	1,020	–	–
	Teflon material	336	360	396	420	456	504	–	–	–	–	–	–
2 [51]	PEEK	840	1,080	1,440	1,680	1,920	2,100	2,280	2,700	3,120	3,300	3,600	4,200
	Devlon material	600	720	900	1,080	1,200	1,500	1,680	1,920	2,160	2,400	2,400	2,880
	Delrin material	600	720	900	1,080	1,320	1,560	1,740	2,040	2,280	2,520	–	–
	Teflon material	600	636	816	936	1,128	1,344	–	–	–	–	–	–
3 [76]	PEEK	960	1,440	2,760	3,840	4,800	5,760	6,480	7,200	8,400	9,000	–	–
	Devlon material	720	1,200	1,920	2,400	2,880	3,360	3,600	4,080	4,800	5,760	–	–
	Delrin material	840	1,380	2,280	2,640	3,000	3,600	3,900	4,200	4,800	5,760	–	–
	Teflon material	720	1,320	1,920	2,400	2,880	3,600	–	–	–	–	–	–
4 [102]	PEEK	1,440	2,400	3,840	–	–	–	–	–	–	–	–	–
	Devlon material	1,200	2,040	3,120	–	–	–	–	–	–	–	–	–
	Teflon material	1,080	1,944	2,820	–	–	–	–	–	–	–	–	–

Torque values shown are to be used as a guide for actuator selection. All above torque values are based upon clean liquid service. Additional factors such as media characteristics, number of cycles, and temperature may require an additional safety factor. Please contact Cameron for these factors.

NUTRON Ball Valves Model T3

slb.com/valves

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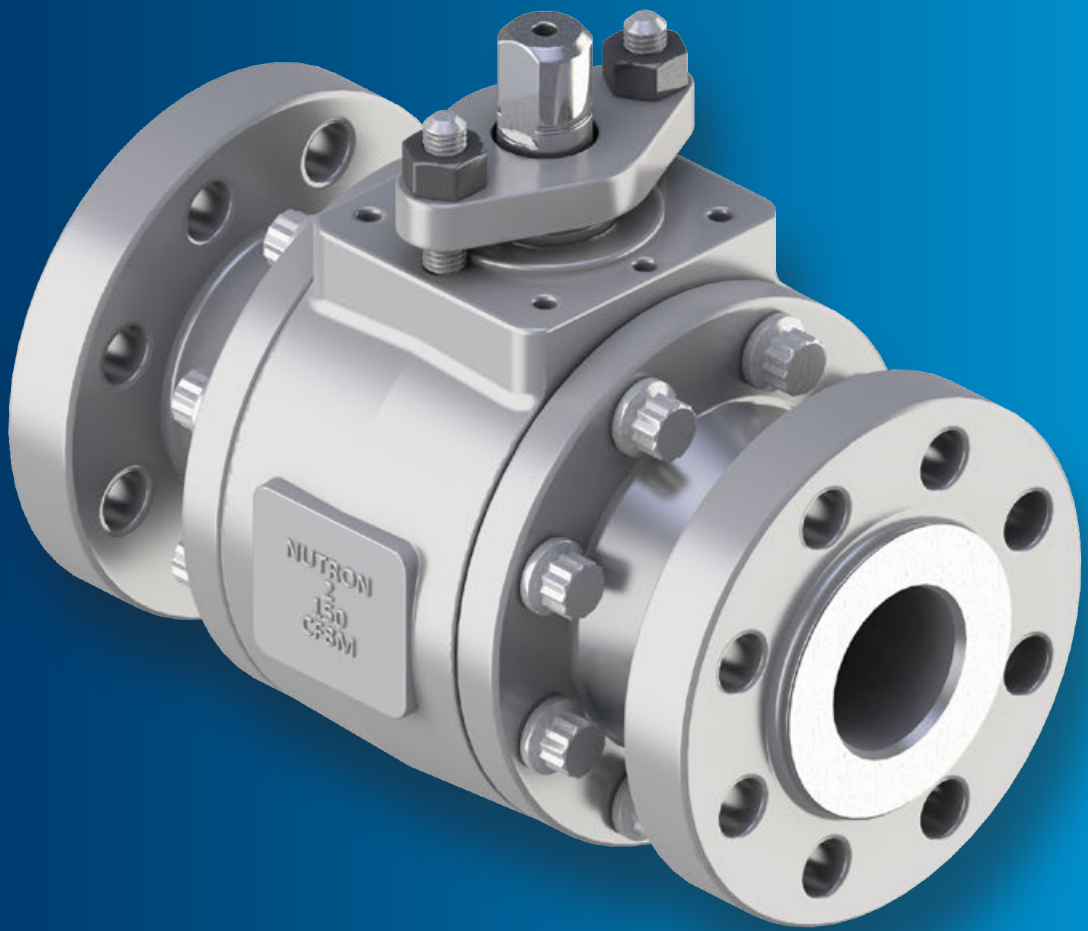
NUTRON 320F3/B3

Forged floating ball valves



Contents

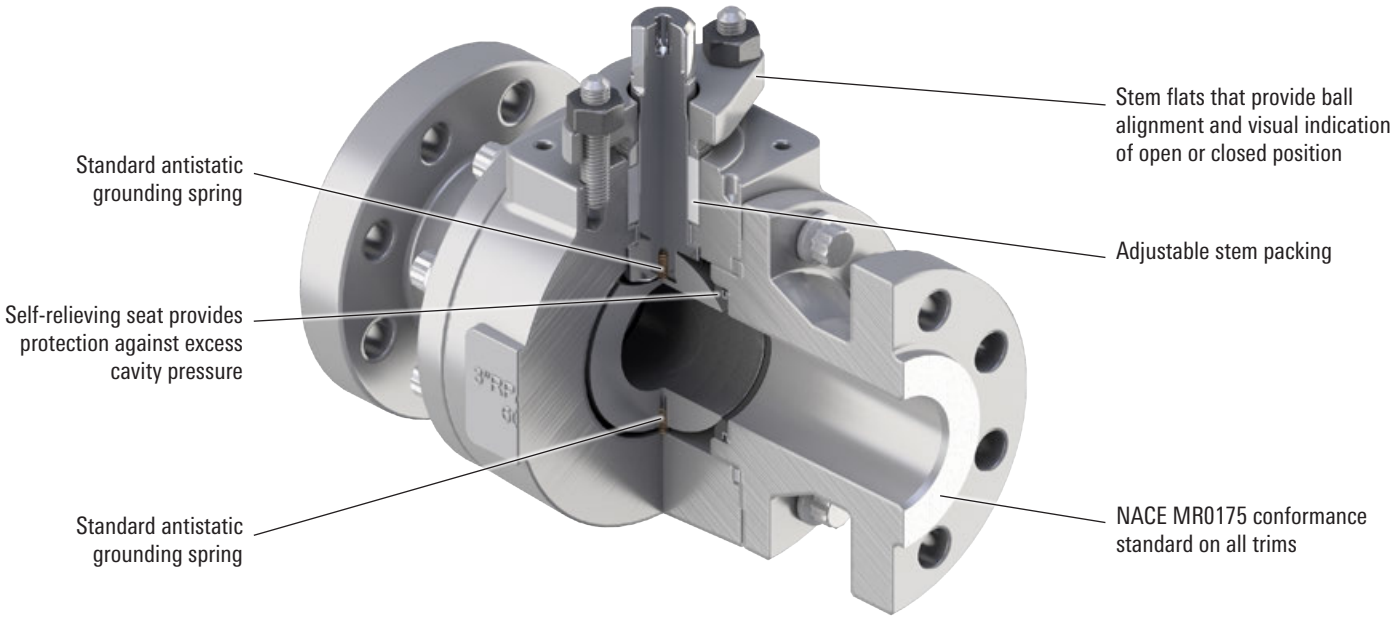
NUTRON 320F3 and 320B3 Forged Floating Ball Valves

Features and Benefits

NUTRON* 320F3/B3 forged floating ball valves satisfy a wide range of applications. Available in a variety of standard and optional materials, the valves are engineered for heavy-duty, maintenance-free performance and serve a variety of applications in virtually any industry.

ASME Classes 600 to 2500

½-in full port through 8-in reduced port
NACE MR0175/ISO 15156



The handle can be correctly installed only in alignment with the ball port. The valve is open when the handle is aligned with piping and is closed when the handle is perpendicular to piping.

Low-temperature service
Standard trims accommodate temperatures to –20 degF [–29 degC], and temperature trims are available to –50 degF [–46 degC].

Maintenance-free performance
Under most conditions, the NUTRON 320F3/B3 ball valve will provide years of trouble-free service with no maintenance required. In some severe applications, such as handling extremely abrasive slurries at high temperature, it may be necessary to replace the seats occasionally. Seat and seal kits are available, and replacement can be done easily with ordinary tools.

Sour oil and gas service
NUTRON valves have served for years in gathering lines, manifolds, and field processing units in sour oil and gas fields. All trim combinations conform with NACE MR0175/ISO 15156.

Features and Benefits

Self-relieving seats
A patent-pending seat design provides automatic cavity relief without requiring a vented ball or external relief valve. API Spec 6D monogram is available upon request.

Actuation friendly
A variety of actuator types, including pneumatic, hydraulic, diaphragm, vane, electromechanical, and electrohydraulic, can be easily installed.

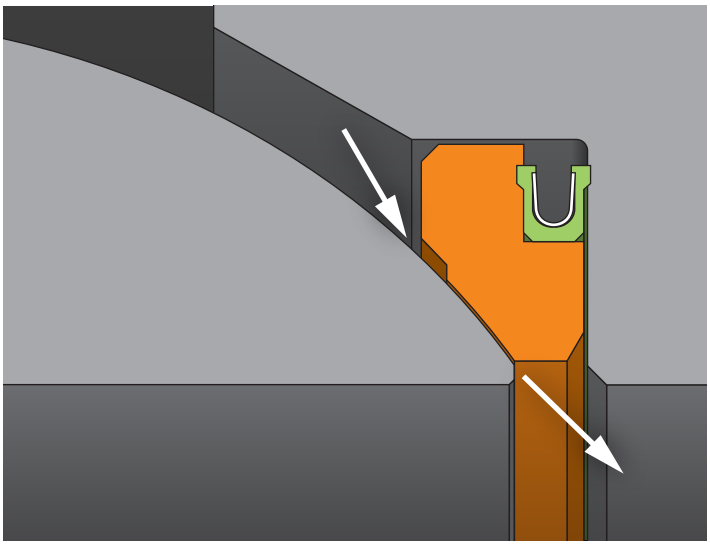
Fire tested for safety
All NUTRON 320F3/B3 ball valves are qualified under API Standard 607 7th Ed. The seat and locked-in stem design contributes to its fire-tested characteristics. Should the soft seats be destroyed by fire, the ball floats downstream, providing a tight metal-to-metal seal against the lip of the seat pocket. If the tailpiece seals are destroyed, the metal-to-metal tailpiece-to-body connection retards external leakage.

Adjustable, replaceable packing
The inline valve stem packing options consist of PTFE or graphite. The packing is field adjustable and virtually never requires lubrication.

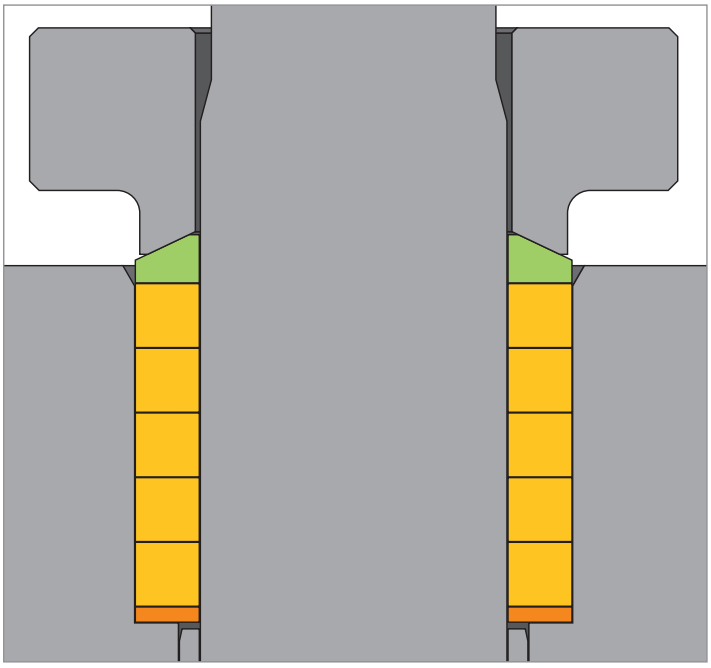
Fugitive emissions
NUTRON 320F3/B3 ball valves can be supplied and certified to meet the requirements of fugitive emissions (FE) as regulated by ISO and API.

Positively retained stem
The stem is positively retained and cannot be removed with the valve in service.

Tight-sealing floating ball design
The ground, polished ball is free to float and mates perfectly with the conical seats for a positive, leak-proof seal. Self-cleaning and self-adjusting, the ball also is pressure activated—the higher the line pressure, the tighter the seal.



Seat that relieves excess cavity pressure to the upstream side of the valve.



Fugitive-emissions packing arrangement.

Specifications

ASME Classes 600 to 2500

Operating temperatures

- From –50 to 500 degF [–46 to 260 degC]

Standard material

- Body
  - Carbon steel and stainless steel
  - Optional materials available upon request
- Ball and stem
  - Stainless steel
  - Optional materials available upon request

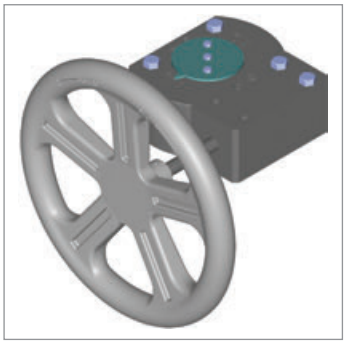
Industry compliance

- American Society of Mechanical Engineers (ASME) Standards B16.5 and B16.34
- Manufacturers Standardization Society Specifications (MSS) SP-25, 55, and 72
- API Spec 607 7th Ed. fire-test specification
- Canadian Registration Number (CRN)
- API Spec 608
- NACE MR0175
- ANSI Standard B16.34
- API Spec 6D upon request
- ISO or API fugitive emissions upon request
- European Pressure Equipment Directive (PED/CE)

Bill of Materials

Part No.	Quantity	Description
101	1	Body
102	2	Tailpiece
152	–†	Body bolt
190	2	Spiral-wound (SW) gasket, body to tail
211	1	Ball
222	2	Seat
223	2	Seat lip seal
241	1	Stem
261	1	Packing set (PTFE or graphite)
301	2	Stem thrust washer
302	1	Stem bearing
311	1	Packing compression ring
312	1	Packing plate
313	2	Packing stud
314	2	Packing nut
331	1	Lever
352	1	Ground spring, stem to ball
353	1	Grounding plunger, ball to body

†Quantities depend on size and pressure class.



Gear operator option.

How to Order 320F3

320F3 Forged Assembly Parts Number Sorting Code (three-piece forged)

Example

2424764 4 1 2 1 1 2 3

Assembly base number
Pressure class
End connections
Body and Tailpiece Material
Seat insert material
Packing and gasket material
Trim material
Actuation

Assembly Base Number

Size, in	Port	Base Number	
½	FP	2424760	
¾	RP	2424761	
	FP	2424762	
1	RP	2424763	
	FP	2424764	
1½	RP	2424765	
	FP	2424766	
2	RP	2424767	
	FP	2424768	Cl600, Cl900, and Cl1500 only
3	RP	2424769	Cl600, Cl900, and Cl1500 only
	FP	2424795	Cl600 only
4	RP	2424796	Cl600 only
	FP	2424797	Cl600 only
6	RP	2424798	Cl600 only
	FP	2424799	Cl600 only
8	RP	2424800	Cl600 only

Pressure Class

3	Class 600
4	Class 900
5	Class 1,500
6	Class 2,500

End Connection

1	RF flanged
5	RTJ flanged

Body and Tailpiece Material

2	Stainless steel (SS) (23)
3	Low-temperature carbon steel (37)
5	Lt carbon steel with ZPEX® (38)
9	Stainless steel with SS bolting (33)
D	Duplex stainless steel (51)
N	INCONEL® 625
S	Super duplex (55)

Seat Insert Material

1	Delrin® (L) self-relieving
3	PEEK® (P) self-relieving
C	High Performance Teflon
5	Metal (M) tungsten carbide
6	Metal (N) chrome carbide

Packing and Gasket Material

1	PTFE (T)
2	Graphite (G)

Actuation

1	Bare stem (BS)
2	Wrench (WR)
3	Gear operated with lock device (WG)
4	Less gear, including WG mounting bracket (LG)
5	Wrench head (WH)
6	Wrench head with pipe (WHP)

Trim Material

2	Stainless steel (23)
3	Low-temperature steel (37)
5	Duplex stainless steel (51)
6	INCONEL 718 (71)
7	Super duplex stainless steel (55)
8	410 stainless steel (41)

Trim Codes

Example

2 320F3 600 RF × RF 37 P G F 23 LG

Size, in [mm]
Model
Pressure Class
End connections
Body group
Packing group
Fire tested
Internal group
Actuation

Size, in [mm]

½ to 8 × 6 [50 to 200 × 150]

Model

320F3

Pressure Class

600
900
1500
2500

End Connections

RF × RF
RJ × RJ

Body Group

23	Stainless steel NACE
37	Carbon low-temperature NACE
51	Duplex stainless
71	INCONEL 625

Seat Group

L	Delrin
C	High-performance PTFE
M	Metal TCC
P	PEEK

Packing Group

T	PTFE
G	Graphite

Fire tested

F

Internal Group

23	Stainless steel NACE
51	Duplex Stainless
71	INCONEL 718

Actuation

LG	Less gear
WG	Worm gear
WH	Wrench head
BS	Bare stem
WHP	Wrench head with pipe

Note: Delrin and High Performance Teflon seat options - Cl600 only.

How to Order 320B3

320B3 Forged Assembly Parts Number Sorting Code (three-piece forged)

Example

2464774 4 1 2 1 1 2 3

Assembly base number
Pressure class
End connections
Seat insert material
Packing and gasket material
Trim material
Actuation

Assembly Base Number

Size, in	Port	Base Number	
½	FP	2464770	
¾	RP	2464771	
	FP	2464772	
1	RP	2464773	
	FP	2464774	
1½	RP	2464775	
	FP	2464776	
2	RP	2464777	
	FP	2464778	Cl800 and Cl1500 only
3	RP	2464779	Cl800 and Cl1500 only
	FP	2464789	Cl800 only
4	RP	2464790	Cl800 only

Pressure Class

4	Class 800
5	Class 1500
6	Class 2500

End Connection

1	Threaded, FNPT
3	Socket weld, SW
4	SW × FNPT

Body and Tailpiece Material

2	Stainless steel (23)
3	Low-temperature carbon steel (37)
5	Lt carbon steel with ZPEX (38)
9	Stainless steel with SS bolting (33)
D	Duplex stainless steel (51)
N	INCONEL 625 (71)
S	Super duplex (55)

Seat Insert Material

1	Delrin (L) self-relieving
3	PEEK (P) self-relieving
4	High performance RTFE (C)
5	Metal (M) tungsten carbide
6	Metal (N) chrome carbide

Packing and Gasket Material

1	PTFE (T)
2	Graphite (G)
3	FE packing (E)

Actuation

1	Bare stem (BS)
2	Wrench (WR)
3	Gear operated with lock device (WG)
4	Less gear, including WG mounting bracket (LG)
5	Wrench head (WH)
6	Wrench head with pipe (WHP)

Trim Material

2	Stainless steel (23)
3	Low-temperature steel (37)
5	Duplex stainless steel (51)
6	INCONEL 718 (71)
7	Super duplex stainless steel (55)
8	410 stainless steel (41)

Trim Codes

Example

2 320B3 800 NPT × NPT 37 P G F 23 LG

Size, in [mm]
Model
Pressure Class
End connections
Body group
Packing group
Fire tested
Internal group
Actuation

Size, in [mm]

½ to 4 × 3 [50 to 100 × 80]

Model

320B3

Pressure Class

150
600
800
1500
2500

End Connections

FNPT
Socket weld
MNPT

Body Group

23	Stainless steel NACE
37	Carbon low-temperature NACE
51	Duplex F51

Seat Group

L	Delrin
M	Metal
P	PEEK

Packing Group

T	PTFE
G	Graphite

Fire tested

F

Internal Group

23	Stainless steel NACE
51	Duplex F51

Actuation

LG	Less gear
WG	Worm gear
WH	Wrench head
BS	Bare stem
WHP	Wrench head with pipe

Materials List

Body Group Trim Number			
Part	**Carbon Steel Low Temperature with Coating (NACE) 37**	**Stainless Steel (NACE) 23**	**Carbon Steel Low Temperature with Coating (NACE) 38**
Body	A350–LF2 low-temperature	A182 Grade 316	A350–LF2 low temperature, ZPEX coating
Tailpiece	A350–LF2 low-temperature	A182 Grade 316	A350–LF2 low temperature, ZPEX coating
Bonnet cap	Low alloy CS zinc plated	Low alloy CS zinc plated	Low alloy CS zinc plated
Cap screws	A320 Grade L7M zinc plated	A320 Grade L7M zinc plated	A320 Grade L7M zinc plated†
Packing studs	A320 Grade L7M zinc plated	A320 Grade L7M zinc plated	A320 Grade L7M zinc plated
Packing nuts	A194 Grade 7M zinc plated	A194 Grade 7M zinc plated	A194 Grade 7M zinc plated

NACE indicates compliance with NACE MR0175/ISO 15156.

† ZPEX coating on studs and nuts available on request.

Internal Group Trim Number			
Ball	–†	A351 CF8M or 316 SS	–
Stem	–†	316 SS	–
Ground spring	–†	INCONEL	–
Compression ring	–†	316 SS	–
Thrust washer	–†	SS and TFE	–

† 320F3/B3 model requires 23 stainless internal group.

Seal Group Trim Code			
Part	**LTF**	**CGF**	**PGF**
Temperature limits	–20 to 220 degF [–29 to 104 degC]	–50 to 500 degF [–46 to 260 degC]	–50 to 500 degF [–46 to 260 degC]
Seat	Delrin material	High-performance PTFE	PEEK
Packing	PTFE	Graphite	Graphite
Body seal	Spiral-wound gasket Grafoil® and SS	Spiral-wound gasket Grafoil and SS	Spiral-wound gasket Grafoil and SS

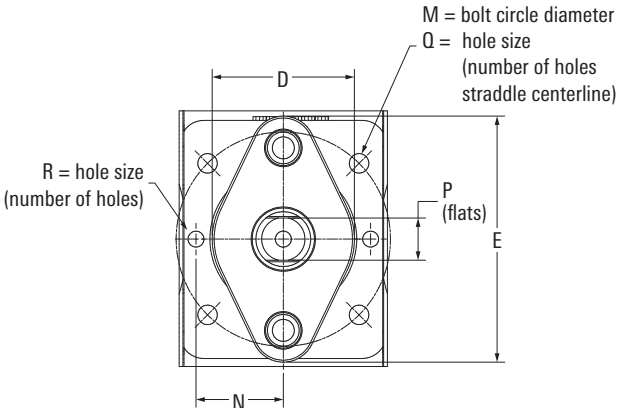
Actuator Trim Codes

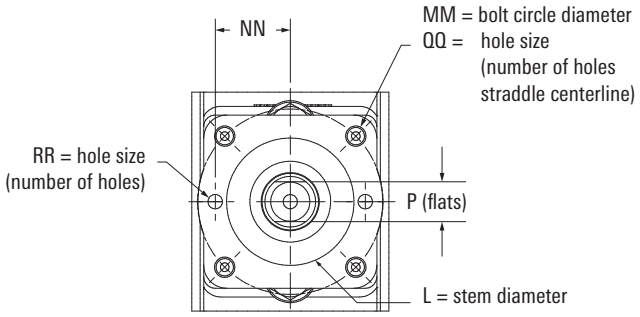
Actuator Codes	
Part (Body)	**Worm Gear—For All Body Material Codes**
Mounting bracket	Carbon steel
Bolting	Carbon steel
Set screw	Carbon steel
Stem adapter	Carbon steel
Actuator	As selected
Handwheel	Carbon steel

Actuator Codes (Wrenches)	
Part (Body)	**Wrench—For All Body Material Codes**
Wrench head	Carbon steel
Wrench handle	Carbon steel
Wrench handle pin	Carbon steel
Cap screw	Alloy steel
Stop plate	Carbon steel

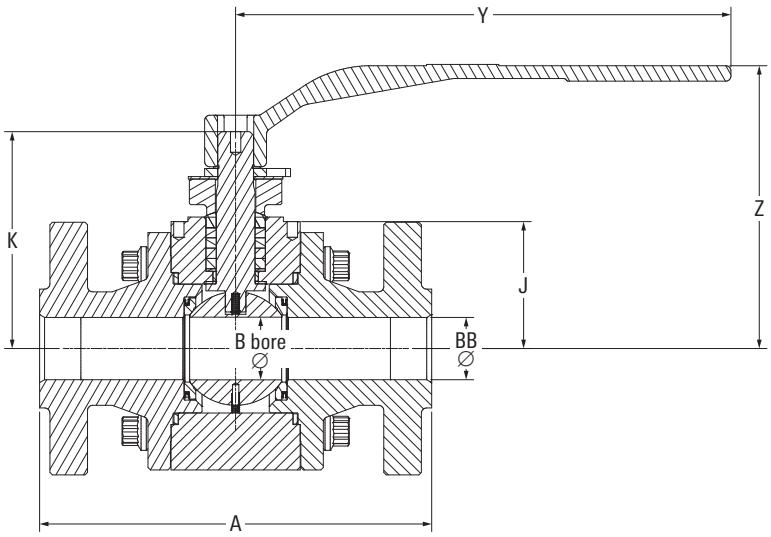
Dimensional Data—½-in Full Port Through 8-in × 6-in Reduced Port 320F3

ASME Classes 600 to 2500

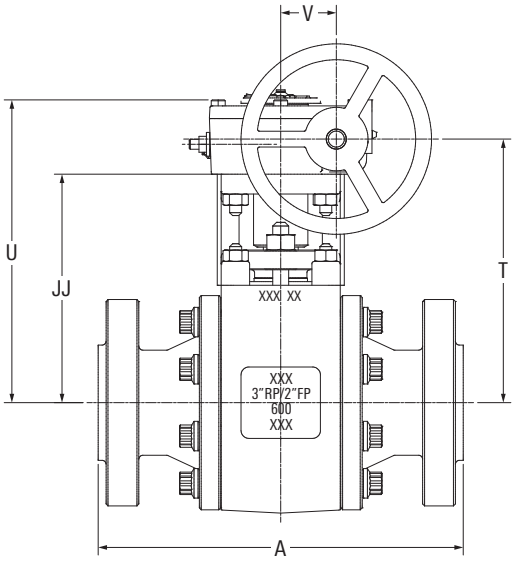




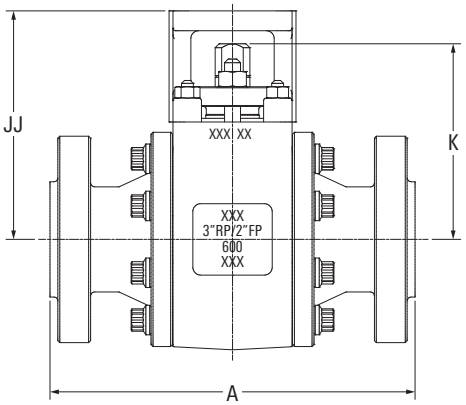
1.5-in × 2-in 2500 above with bracket.

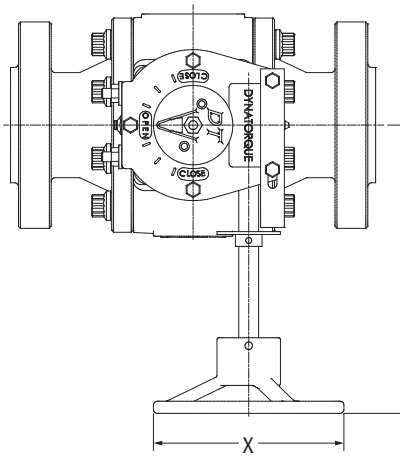


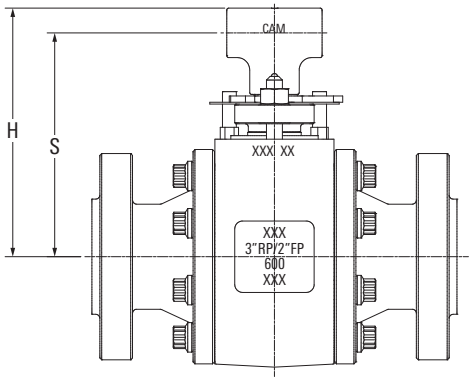
Valve with wrench (lever).



Valve with gear.







Valve with wrench hand.

Dimensions 320F3

NUTRON 320F3 Valve Class 600 Dimensions

Size, in [mm]	A		B	BB	D	E	J	JJ	K	ØL	ØM	MM	N	NN	P	ØQ	ØQQ	ØR	ØRR	S	T	U	V	W	ØX	Y	Z
	RF	RJ													FLATS												
½ [13]	6.5 [165.1]	6.5 [165.1]	0.51 [13]	0.51 [13]	1.12 [28.4]	2.35 [59.7]	1.51 [38.4]	–	2.66 [67.6]	0.47 [11.9]	1.88 [47.6]	–	0.69 [17.5]	–	0.35 [8.9]	10-24 unc (4) 0.38 dp	–	0.13-(2) 0.19 dp	–		–	–	–	–	–	6 [152]	3.53 [89.7]
¾ × ½ [19 × 13]	7.5 [190.5]	7.5 [190.5]	0.51 [13]	0.76 [19.3]	1.12 [28.4]	2.35 [59.7]	1.51 [38.4]	–	2.66 [67.6]	0.47 [11.9]	1.88 [47.6]	–	0.69 [17.5]	–	0.35 [8.9]	10-24 unc (4) 0.38 dp	–	0.13-(2) 0.19 dp	–		–	–	–	–	–	6 [152]	3.53 [89.7]
¾ × ¾ [19 × 19]	7.5 [190.5]	7.5 [190.5]	0.76 [19.3]	0.76 [19.3]	1.25 [31.8]	2.66 [67.6]	1.8 [45.7]	–	3.34 [84.8]	0.55 [13.9]	2.13 [54.1]	–	0.81 [20.6]	–	0.43 [10.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–		–	–	–	–	–	8 [203]	4.45 [113]
1 × ¾ [25 × 19]	8.5 [215.9]	8.5 [215.9]	0.76 [19.3]	1.01 [25.7]	1.25 [31.8]	2.66 [67.6]	1.8 [45.7]	–	3.34 [84.8]	0.55 [13.9]	2.13 [54.1]	–	0.81 [20.6]	–	0.43 [10.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–		–	–	–	–	–	8 [203]	4.45 [113]
1 [25]	8.5 [215.9]	8.5 [215.9]	1.01 [25.7]	1.01 [25.7]	1.76 [44.7]	3.37 [85.6]	2.39 [60.7]	–	4.1 [104.1]	0.71 [17.9]	2.76 [70.1]	–	1.21 [20.6]	–	0.55 [13.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–		–	–	–	–	–	10 [254]	5.48 [139]
1½ [38]	9.5 [241.3]	9.5 [241.3]	1.51 [38.4]	1.51 [38.4]	2.24 [56.9]	3.88 [98.6]	3.08 [78.1]	–	5.26 [133.6]	0.86 [21.9]	3.38 [85.9]	–	1.38 [30.7]	–	0.67 [16.9]	0.38-16 unc (4) 0.63 dp	–	0.25-(2) 0.38 dp	–		–	–	–	–	–	12 [305]	6.85 [174]
2 × 1½ [50 × 38]	11.5 [292.4]	11.63 [295.4]	1.51 [38.4]	2.03 [51.6]	2.24 [56.9]	3.88 [98.6]	3.08 [78.1]	–	5.26 [133.6]	0.86 [21.9]	3.38 [85.9]	–	1.38 [34.9]	–	0.67 [16.9]	0.38-16 unc (4) 0.63 dp	–	0.25-(2) 0.38 dp	–		–	–	–	–	–	12 [305]	6.85 [174]
2 [50]	11.5 [292.1]	11.62 [295.1]	2.03 [51.6]	2.03 [51.6]	2.5 [63.5]	4.38 [111.3]	3.7 [94]	7.2 [182.9]	6.16 [156.5]	1.1 [27.9]	4.02 [102.1]	4.02 [102.1]	1.63 [41.3]	1.63 [41.3]	0.86 [21.9]	0.38-16 unc (4) 0.63 dp	0.44-(4) thru	0.31-(2) 0.38 dp	0.31-(2) 0.53 dp		8 [211]	9.54 [242]	1.75 [44]	9.08 [231]	6 [152]	16 [406]	7.56 [192]
3 × 2 [80 × 50]	14 [355.6]	14.13 [358.9]	2.03 [51.6]	3.03 [77]	2.5 [63.5]	4.38 [111.3]	3.7 [94]	–	6.16 [156.5]	1.1 [27.9]	4.02 [102.1]	–	1.63 [41.3]	–	0.86 [21.9]	0.38-16 unc (4) 0.63 dp	–	0.31-(2) 0.38 dp	–		–	–	–	–	–	–	7.56 [185]
3 [80]	14 [355.6]	14.12 [358.9]	3.03 [77]	3.03 [77]	3 [76.2]	5.38 [136.7]	5.14 [130.5]	9.76 [247.9]	8.57 [217.7]	1.41 [35.9]	4.92 [125]	4.92 [125]	1.94 [49.3]	1.94 [49.3]	1.06 [26.9]	0.5-13 unc (4) 0.75 dp	0.56-(4) thru	0.44-(2) 0.63 dp	0.44-(2) 0.63 dp		11 [283]	12.48 [317]	2.51 [64]	12.2 [310]	12 [305]	24 [610]	10.62 [270]
4 × 3 [100 × 80]	17 [431.8]	17.12 [434.8]	3.03 [77]	4.03 [102.4]	3 [76.2]	5.38 [136.7]	5.14 [130.5]	9.76 [247.9]	8.57 [217.7]	1.41 [35.9]	4.92 [125]	4.92 [125]	1.94 [49.3]	1.94 [49.3]	1.06 [26.9]	0.5-13 unc (4) 0.75 dp	0.56-(4) thru	0.44-(2) 0.63 dp	0.44-(2) 0.63 dp		11 [283]	12.48 [317]	2.51 [64]	12.2 [310]	12 [305]	24 [610]	10.62 [270]
4 [100]	17 [432]	17.1 [435]	4.03 [102]	4.03 [102]	3.5 [88.9]	6.25 [159]	6.22 [158]	12.2 [310]	10.8 [275]	1.89 [48]	5.51 [140]	6.5 [165]	2.38 [60]	2.38 [60]	1.41 [36]	0.63-(4) 1 dp	0.81-(4) thru	0.63-(2) 0.75 dp	0.31-(2) 0.81 dp	12.1 [306]	13.7 [348]	15.5 [393]	3 [76.2]	11.6 [294]	14 [356]	–	–
6 × 4 [150 × 100]	22 [355.6]	22.1 [358.9]	4.03 [51.6]	6 [77]	3.5 [63.5]	6.25 [111.3]	6.22 [158]	12.2 [310]	10.8 [275]	1.89 [48]	5.51 [140]	6.5 [165]	2.38 [60]	2.38 [60]	1.41 [36]	0.63-(4) 1 dp	0.81-(4) thru	0.63-(2) 0.75 dp	0.63-(2) 0.81 dp	12.1 [306]	13.7 [348]	15.5 [393]	3 [76.2]	11.6 [294]	14 [356]	–	–
6 [150]	22 [559]	22.13 [562]	6 [152]	6 [152]	4.25 [108]	7.75 [197]	15.4 [392]	15.4 [392]	14.1 [358]	2.36 [60]	6.5 [165]	6.5 [165]	3 [76]	3 [76]	–	0.75-(4) 0.81 dp	0.81-(4) thru	0.75-(2) 1 dp	0.75-(2) 1.06 dp	–	17 [433]	18.98 [492]	3.63 [92.1]	13.2 [336]	20 [508]	–	–
8 × 6 [200 × 150]	26 [431.8]	–	6 [152]	6 [152]	4.25 [108]	7.75 [197]	15.4 [392]	15.4 [392]	14.1 [358]	2.36 [60]	6.5 [165]	6.5 [165]	3 [76]	3 [76]	–	0.75-(4) 0.81 dp	0.81-(4) thru	0.75-(2) 1 dp	0.75-(2) 1.06 dp	–	17 [433]	18.98 [492]	3.63 [92.1]	13.2 [336]	20 [508]	–	–

NUTRON 320F3 Valve Class 900/1500 Dimensions

Size, in [mm]	A		B	BB	D	E	J	JJ	K	ØL	ØM	MM	N	NN	P	ØQ	ØQQ	ØR	ØRR	S	T	U	V	W	ØX	Y	Z
	RF	RJ													FLATS												
½ [13]	8.5 [215.9]	8.5 [215.9]	0.51 [13]	0.51 [13]	1.25 [31.8]	2.66 [67.6]	1.45 [36.9]	–	2.80 [71.1]	0.55 [13.9]	2.13 [54.1]	–	0.81 [20.6]	–	0.43 [10.9]	0.25-20 unc (4) 0.38 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	–	8 [203]	4.07 [103.4]
¾ × ½ [19 × 13]	9 [228.6]	9 [228.6]	0.51 [13]	0.76 [19.3]	1.25 [31.8]	2.66 [67.6]	1.45 [36.9]	–	2.80 [71.1]	0.55 [13.9]	2.13 [54.1]	–	0.81 [20.6]	–	0.43 [10.9]	0.25-20 unc (4) 0.38 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	–	8 [203]	4.07 [103.4]
¾ × ¾ [19 × 19]	9 [228.6]	9 [228.6]	0.76 [19.3]	0.76 [19.3]	1.76 [44.7]	3.37 [85.6]	2.01 [51.1]	–	3.62 [91.9]	0.71 [17.9]	2.76 [70.1]	–	1.21 [30.7]	–	0.55 [13.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	–	10 [254]	5.11 [130]
1 × ¾ [25 × 19]	10 [254]	10 [254]	0.76 [19.3]	1.01 [25.7]	1.76 [44.7]	3.37 [85.6]	2.01 [51.1]	–	3.62 [91.9]	0.71 [17.9]	2.76 [70.1]	–	1.21 [30.7]	–	0.55 [13.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	–	10 [254]	5.11 [130]
1 [25]	10 [254]	10 [254]	1.01 [25.7]	1.01 [25.7]	2.24 [56.9]	3.88 [98.6]	2.45 [62.2]	–	4.43 [112.5]	0.86 [21.9]	3.38 [85.9]	–	1.38 [34.9]	–	0.67 [16.9]	0.38-16 unc (4) 0.63 dp	–	0.25-(2) 0.38 dp	–	–	–	–	–	–	–	12 [305]	6.27 [159]
1½ [38]	12 [304.8]	12 [304.8]	1.51 [38.4]	1.51 [38.4]	2.5 [63.5]	4.38 [111.3]	2.92 [74.1]	–	5.16 [131.1]	1.1 [27.9]	4.02 [102.1]	–	1.63 [41.3]	–	0.86 [21.9]	0.38-16 unc (4) 0.63 dp	–	0.31-(2) 0.38 dp	–	–	–	–	–	–	–	16 [406]	6.77 [172]
2 × 1½ [50 × 38]	14.5 [368.3]	14.62 [371.3]	1.51 [38.4]	2.03 [51.6]	2.5 [63.5]	4.38 [111.3]	2.92 [74.1]	–	5.16 [131.1]	1.1 [27.9]	4.02 [102.1]	–	1.63 [41.3]	–	0.86 [21.9]	0.38-16 unc (4) 0.63 dp	–	0.31-(2) 0.38 dp	–	–	–	–	–	–	–	16 [406]	6.77 [172]
2 [50]	14.5 [368.3]	14.62 [371.3]	2.03 [51.6]	2.03 [51.6]	3 [76.2]	5.38 [136.7]	4.01 [101.9]	8.64 [219.5]	6.79 [172.5]	1.41 [35.9]	4.92 [125]	4.92 [125]	1.94 [49.3]	1.94 [49.3]	1.06 [26.9]	0.5-13 unc (4) 0.63 dp	0.56-(4) thru	0.44-(2) 0.63 dp	0.44-(2) 0.63 dp	–	10.14 [258]	11.74 [298]	1.94 [49.3]	11.19 [284]	12 [305]	24 [610]	9.47 [240.5]
Class 900 3 × 2 [80 × 50]	14.5 [368.3]	15.12 [384]	2.03 [51.6]	3.03 [77]	3 [76.2]	5.38 [136.7]	4.02 [102.1]	8.64 [219.5]	6.79 [172.5]	1.41 [35.9]	4.92 [125]	4.92 [125]	1.94 [49.3]	1.94 [49.3]	1.06 [26.9]	0.5-13 unc (4) 0.63 dp	0.56-(4) thru	0.44-(2) 0.63 dp	0.44-(2) 0.63 dp	–	10.14 [258]	11.74 [298]	1.94 [49.3]	11.19 [284]	12 [305]	24 [610]	9.47 [240.5]
Class 1500 3 × 2 [80 × 50]	18.5 [469.9]	18.62 [472.9]	2.03 [51.6]	3.03 [77]	3 [76.2]	5.38 [136.7]	4.01 [101.9]	8.64 [219.5]	6.79 [172.5]	1.41 [35.9]	4.92 [125]	4.92 [125]	1.94 [49.3]	1.94 [49.3]	1.06 [26.9]	0.5-13 unc (4) 0.63 dp	0.56-(4) thru	0.44-(2) 0.63 dp	0.44-(2) 0.63 dp	–	10.14 [258]	11.74 [298]	1.94 [49.3]	11.19 [284]	12 [305]	24 [610]	9.47 [240.5]

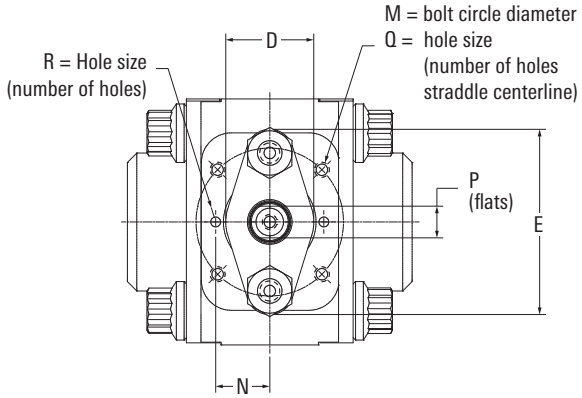
Dimensions 320F3

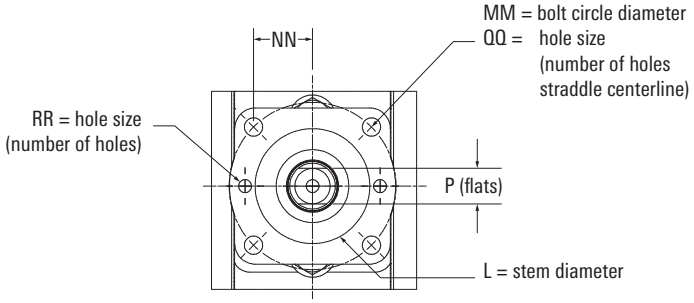
NUTRON 320F3 Valve Class 2500 Dimensions

Size, in [mm]	A		B	BB	D	E	J	JJ	K	ØL	ØM	MM	N	NN	P	ØQ	ØQQ	ØR	ØRR	S	T	U	V	W	ØX	Y	Z
	RF	RJ													FLATS												
½ [13]	10.38 [263.7]	10.38 [263.7]	0.51 [13.0]	0.51 [13.0]	1.25 [31.8]	2.66 [67.6]	1.45 [36.9]	–	2.8 [71.1]	0.55 [13.9]	2.13 [54.1]	–	0.81 [20.6]	–	0.43 [10.9]	0.25-20 unc (4) 0.38 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	–	8 [203]	4.07 [103.4]
¾ × ½ [19 × 13]	10.75 [273.1]	10.75 [273.1]	0.51 [13]	0.76 [19.3]	1.25 [31.8]	2.66 [67.6]	1.45 [36.9]	–	2.8 [71.1]	0.55 [13.9]	2.13 [54.1]	–	0.81 [20.6]	–	0.43 [10.9]	0.25-20 unc (4) 0.38 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	–	8 [203]	4.07 [103.4]
¾ × ¾ [19 × 19]	10.75 [273.1]	10.75 [273.1]	0.76 [19.3]	0.76 [19.3]	1.76 [44.7]	3.37 [85.6]	2.01 [51.1]	–	3.62 [91.9]	0.71 [17.9]	2.76 [70.1]	–	1.21 [30.7]	–	0.55 [13.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	–	10 [254]	5.11 [130]
1 × ¾ [25 × 19]	12.13 [308.1]	12.13 [308.1]	0.76 [19.3]	1.01 [25.7]	1.76 [44.7]	3.37 [85.6]	2.01 [51.1]	–	3.62 [91.9]	0.71 [17.9]	2.76 [70.1]	–	1.21 [30.7]	–	0.55 [13.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	–	10 [254]	5.11 [130]
1 [25]	12.13 [308.1]	12.13 [308.1]	1.01 [25.7]	1.01 [25.7]	2.24 [56.9]	3.88 [98.6]	2.49 [63.2]	–	4.43 [112.5]	0.86 [21.9]	3.38 [85.9]	–	1.38 [34.9]	–	0.67 [16.9]	0.38-16 unc (4) 0.63 dp	–	0.25-(2) 0.38 dp	–	–	–	–	–	–	–	12 [305]	6.27 [159]
1½ [38]	15.13 [384.3]	15.13 [384.3]	1.51 [38.4]	1.51 [38.4]	2.50 [63.5]	4.38 [111.3]	2.92 [74.1]	6.42 [163.1]	5.16 [131.1]	1.1 [27.9]	4.02 [102.1]	4.02 [102.1]	1.63 [41.3]	1.63 [41.3]	0.86 [21.9]	0.38-16 (4) 0.63 dp	0.44-(4) thru	0.31-(2) 0.38 dp	0.31-(2) 0.53 dp	–	7.5 [191]	8.76 [222]	1.75 [44.5]	9.08 [231]	6 [152]	16 [406]	6.77 [172]
2 × 1½ [50 × 38]	17.75 [453.9]	17.87 [453.9]	1.51 [38.4]	1.76 [44.7]	2.50 [63.5]	4.38 [111.3]	2.92 [74.1]	6.42 [163.1]	5.16 [131.1]	1.1 [27.9]	4.02 [102.1]	4.02 [102.1]	1.63 [41.3]	1.63 [41.3]	0.86 [21.9]	0.38-16 (4) 0.63 dp	0.44-(4) thru	0.31-(2) 0.38 dp	0.31-(2) 0.53 dp	–	7.5 [191]	8.76 [222]	1.75 [44.5]	9.08 [231]	6 [152]	16 [406]	6.77 [172]

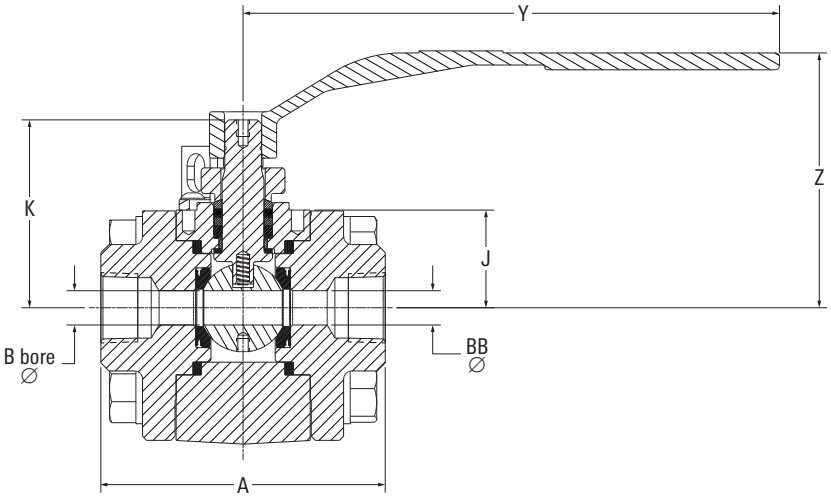
Dimensional Data—½-in Full Port Through 8-in × 4-in Reduced Port 320B3

ASME Classes 800 to 2500

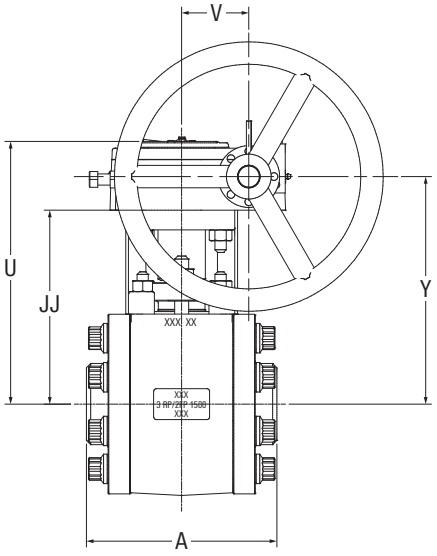




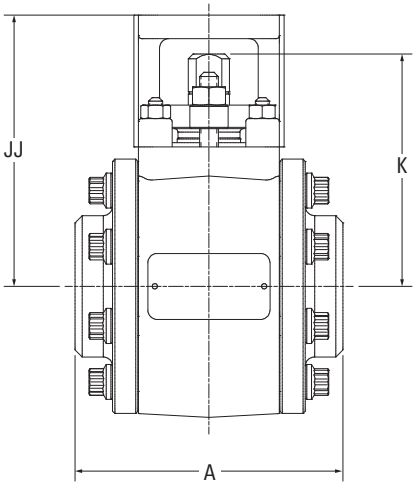
1.5-in × 2-in 2500 above with bracket.

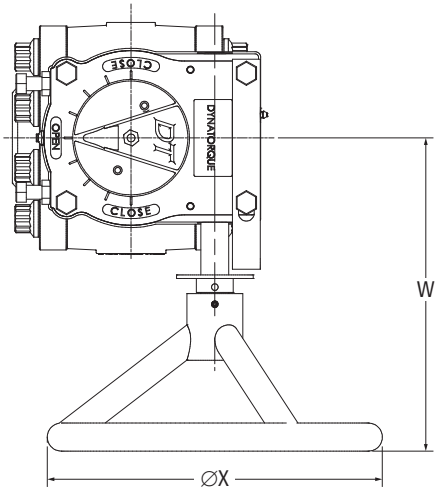


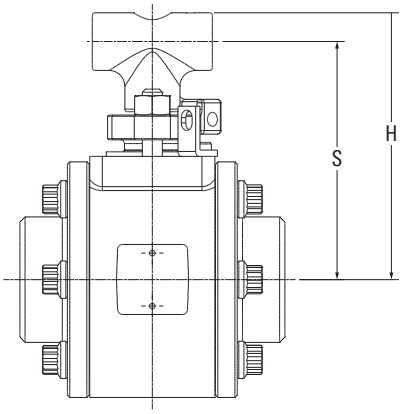
Valve with wrench (lever).



Valve with gear.







Valve with wrench hand.

Dimensions 320B3

NUTRON 320B3 Valve Class 800 Dimensions

Size, in [mm]	A	B	BB	D	E	J	JJ	K	ØL	ØM	MM	N	NN	P	ØQ	ØQQ	ØR	ØRR	T	U	V	W	ØX	Y	Z
½ [13]	3.6 [91.9]	0.5 [13]	0.5 [13]	1.1 [28.4]	2.4 [59.7]	1.5 [38.4]	–	2.7 [67.6]	0.5 [11.9]	1.9 [47.6]	–	0.7 [17.5]	–	0.4 [8.9]	10-24 unc (4) 0.38 dp	–	0.13-(2) 0.19 dp	–	–	–	–	–	–	6 [152.4]	3.5 [89.7]
¾ × ½ [19 × 13]	4.2 [107.7]	0.5 [13]	0.8 [19.3]	1.1 [28.4]	2.4 [59.7]	1.5 [38.4]	–	2.7 [67.6]	0.5 [11.9]	1.9 [47.6]	–	0.7 [17.5]	–	0.4 [8.9]	10-24 unc (4) 0.38 dp	–	0.13-(2) 0.19 dp	–	–	–	–	–	–	6 [152.4]	3.5 [89.7]
¾ × ¾ [19 × 19]	4.2 [107.7]	0.8 [19.3]	0.8 [19.3]	1.3 [31.8]	2.7 [67.6]	1.8 [45.7]	–	3.3 [84.8]	0.5 [13.9]	2.1 [54.1]	–	0.8 [20.6]	–	0.4 [10.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	8 [203.2]	4.5 [113]
1 × ¾ [25 × 19]	5 [127]	0.8 [19.3]	1 [25.7]	1.3 [31.8]	2.7 [67.6]	1.8 [45.7]	–	3.3 [84.8]	0.5 [13.9]	2.1 [54.1]	–	0.8 [20.6]	–	0.4 [10.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	8.0 [203.2]	4.5 [113]
1 [25]	5 [127]	1 [25.7]	1 [25.7]	1.8 [44.7]	3.4 [85.6]	2.4 [60.7]	–	4.1 [104.1]	0.7 [17.9]	2.8 [70.1]	–	1.2 [30.7]	–	0.5 [13.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	10 [254]	5.5 [139.2]
1½ [38]	6.6 [168.4]	1.5 [38.4]	1.5 [38.4]	2.2 [56.9]	3.9 [98.6]	3.1 [78.1]	–	5.3 [133.6]	0.9 [21.9]	3.4 [85.9]	–	1.4 [34.9]	–	0.7 [16.9]	0.38-16 unc (4) 0.63 dp	–	0.25-(2) 0.38 dp	–	–	–	–	–	–	12 [304.8]	6.9 [174]
2 × 1½ [50 × 38]	7.6 [193.8]	1.5 [38.4]	2 [51.6]	2.2 [56.9]	3.9 [98.6]	3.1 [78.1]	–	5.3 [133.6]	0.9 [21.9]	3.4 [85.9]	–	1.4 [34.9]	–	0.7 [16.9]	0.38-16 unc (4) 0.63 dp	–	0.25-(2) 0.38 dp	–	–	–	–	–	–	12 [304.8]	6.9 [174]
2 [50]	7.1 [181.1]	2.0 [51.6]	2 [51.6]	2.5 [63.5]	4.4 [111.3]	3.7 [94]	7.2 [182.9]	6.2 [156.5]	1.1 [27.9]	4 [102.1]	4 [102.1]	1.6 [41.3]	1.6 [41.3]	0.9 [21.9]	0.38-16 unc (4) 0.63 dp	0.44-(4) thru	0.31-(2) 0.38 dp	0.31-(2) 0.38 dp	8.3 [210.8]	9.5 [242.3]	1.8 [44.5]	9.1 [230.6]	6 [152.4]	16 [406.4]	7.6 [192]
3 × 2 [80 × 50]	9.3 [235]	2 [51.6]	3 [77]	2.5 [63.5]	4.4 [111.3]	3.7 [94]	–	6.2 [156.5]	1.1 [27.9]	4 [102.1]	–	1.6 [41.3]	–	0.9 [21.9]	0.38-16 unc (4) 0.63 dp	–	0.31-(2) 0.38 dp	–	–	–	–	–	–	–	7.6 [184.6]
3 [80]	9.6 [244.3]	3 [77]	3 [77]	3 [76.2]	5.4 [136.7]	5.1 [130.5]	9.8 [247.9]	8.6 [217.7]	1.4 [35.9]	4.9 [125]	4.9 [125]	1.9 [49.3]	1.9 [49.3]	1.1 [26.9]	0.5-13 unc (4) 0.75 dp	0.56-(4) thru	0.44-(2) 0.63 dp	0.43-(2) 0.63 dp	11.1 [282.7]	12.5 [316.9]	2.5 [63.8]	12.2 [309.9]	12 [304.8]	24 [609.6]	10.6 [269.7]
4 × 3 [100 × 80]	11.4 [289.1]	3 [77]	4 [102.4]	3 [76.2]	5.4 [136.7]	5.1 [130.5]	9.8 [247.9]	8.6 [217.7]	1.4 [35.9]	4.9 [125]	4.9 [125]	1.9 [49.3]	1.9 [49.3]	1.1 [26.9]	0.5-13 unc (4) 0.75 dp	0.56-(4) thru	0.44-(2) 0.63 dp	0.43-(2) 0.63 dp	11.1 [282.7]	12.5 [316.9]	2.5 [63.8]	12.2 [309.9]	12 [304.8]	24 [609.6]	10.6 [269.7]

NUTRON 320B3 Valve Class 900/1500 Dimensions

Size, in [mm]	A	B	BB	D	E	J	JJ	K	ØL	ØM	MM	N	NN	P	ØQ	ØQQ	ØR	ØRR	T	U	V	W	ØX	Y	Z
½ [13]	4.3 [108]	0.5 [13]	0.5 [13.0]	1.3 [31.8]	2.7 [67.6]	1.5 [36.9]	–	2.8 [71.1]	0.5 [13.9]	2.1 [54.1]	–	0.8 [20.6]	–	0.4 10.9	0.25-20 unc (4) 0.38 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	8 [203.2]	4.1 [103.4]
¾ × ½ [19 × 13]	4.3 [108]	0.5 [1]	0.8 [19.3]	1.3 [31.8]	2.7 [67.6]	1.5 [36.9]	–	2.8 [71.1]	0.5 [13.9]	2.1 [54.1]	–	0.8 [20.6]	–	0.4 [10.9]	0.25-20 unc (4) 0.38 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	8 [203.2]	4.1 [103.4]
¾ × ¾ [19 × 19]	5 [127]	0.8 [19.3]	0.8 [19.3]	1.8 [44.7]	3.4 [85.6]	2 [51.1]	–	3.6 [91.9]	0.7 [17.9]	2.8 [70.1]	–	1.2 [30.7]	–	0.5 [13.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	10 [254]	5.1 [129.8]
1 × ¾ [25 × 19]	5 [127]	0.8 [19.3]	1 [25.7]	1.8 [44.7]	3.4 [85.6]	2 [51.1]	–	3.6 [91.9]	0.7 [17.9]	2.8 [70.1]	–	1.2 [30.7]	–	0.5 [13.9]	0.25-20 unc (4) 0.44 dp	–	0.19-(2) 0.31 dp	–	–	–	–	–	–	10 [254]	5.1 [129.8]
1 [25]	6.1 [153.9]	1 [25.7]	1 [25.7]	2.2 [56.9]	3.9 [98.6]	2.4 [62.2]	–	4.4 [112.5]	0.9 [21.9]	3.4 [85.9]	–	1.4 [34.9]	–	0.7 [16.9]	0.38-16 unc (4) 0.63 dp	–	0.25-(2) 0.38 dp	–	–	–	–	–	–	12 [304.8]	6.3 [159.5]
1½ [38]	7.3 [184.2]	1.5 [38.4]	1.5 [38.4]	2.5 [63.5]	4.4 [111.3]	2.9 [74.1]	–	5.2 [131.1]	1.1 [27.9]	4 [102.1]	–	1.6 [41.3]	–	0.9 [21.9]	0.38-16 unc (4) 0.63 dp	–	0.31-(2) 0.38 dp	–	–	–	–	–	–	16 [406.4]	6.7 [170.7]
2 × 1½ [50 × 38]	7.3 [184.2]	1.5 [38.4]	2 [51.6]	2.5 [63.5]	4.4 [111.3]	2.9 [74.1]	–	5.2 [131.1]	1.1 [27.9]	4 [102.1]	–	1.6 [41.3]	–	0.9 [21.9]	0.38-16 unc (4) 0.63 dp	–	0.31-(2) 0.38 dp	–	–	–	–	–	–	16 [406.4]	6.7 [170.7]
2 [50]	8.5 [215.9]	2 [51.6]	2 [51.6]	3 [76.2]	5.4 [136.7]	4 [101.9]	8.6 [219.5]	6.8 [172.5]	1.4 [35.9]	4.9 [125]	4.9 [125]	1.9 [49.3]	1.9 [49.3]	1.1 [26.9]	0.5-13 unc (4) 0.63 dp	0.56-(4) thru	0.49-(2) 0.63 dp	0.44-(2) 0.63 dp	10.1 [257.6]	11.7 [298.1]	1.9 [49.3]	11.2 [284.2]	12 [304.8]	24 [609.6]	9.5 [240.5]
3 × 2 [80 × 50]	10.8 [274.6]	2 [51.6]	3 [77]	3 [76.2]	5.4 [136.7]	4 [101.9]	8.6 [219.5]	6.8 [172.5]	1.4 [35.9]	4.9 [125]	4.9 [125]	1.9 [49.3]	1.9 [49.3]	1.1 [26.9]	0.5-13 unc (4) 0.63 dp	0.56-(4) thru	0.49-(2) 0.63 dp	0.44-(2) 0.63 dp	10.1 [257.6]	11.7 [298.1]	1.9 [49.3]	11.2 [284.2]	12 [304.8]	24 [609.6]	9.5 [240.5]

Dimensions 320B3

NUTRON 320B3 Valve Class 2500 Dimensions

Size, in [mm]	A	B	BB	D	E	J	JJ	K	ØL	ØM	MM	N	NN	P	ØQ	ØQQ	ØR	ØRR	T	U	V	W	ØX	Y	Z
½ [13]	4.3 [108]	0.5 [13]	0.5 [13]	1.3 [31.8]	2.7 [67.6]	1.5 [36.9]	–	2.8 [71.1]	0.5 [13.9]	2.1 [54.1]	–	0.8 [20.6]	–	0.4 [10.9]	0.25-20 unc (4) 0.38 dp	–	0.19 (2) 0.31 dp	–	–	–	–	–	–	8 [203.2]	4.1 [103.4]
¾ × ½ [19 × 13]	4.3 [108]	0.5 [13]	0.8 [19.3]	1.3 [31.8]	2.7 [67.6]	1.5 [36.9]	–	2.8 [71.1]	0.5 [13.9]	2.1 [54.1]	–	0.8 [20.6]	–	0.4 [10.9]	0.25-20 unc (4) 0.38 dp	–	0.19 (2) 0.31 dp	–	–	–	–	–	–	8 [203.2]	4.1 [103.4]
¾ × ¾ [19 × 19]	5.3 [138]	0.8 [19.3]	0.8 [19.3]	1.8 [44.7]	3.4 [85.6]	2 [51.1]	–	3.6 [91.9]	0.7 [17.9]	2.8 [70.1]	–	1.2 [30.7]	–	0.5 [13.9]	0.25-20 unc (4) 0.44 dp	–	0.19 (2) 0.31 dp	–	–	–	–	–	–	10 [254]	5.1 [129.8]
1 × ¾ [25 × 19]	5.5 [140]	0.8 [19.3]	1 [25.7]	1.8 [44.7]	3.4 [85.6]	2 [51.1]	–	3.6 [91.9]	0.7 [17.9]	2.8 [70.1]	–	1.2 [30.7]	–	0.5 [13.9]	0.25-20 unc (4) 0.44 dp	–	0.19 (2) 0.31 dp	–	–	–	–	–	–	10 [254]	5.1 [129.8]
1 [25]	6.3 [159]	1 [25.7]	1 [25.7]	2.2 [56.9]	3.9 [98.6]	2.5 [63.2]	–	4.4 [112.5]	0.9 [21.9]	3.4 [85.9]	–	1.4 [34.9]	–	0.7 [16.9]	0.38-16 unc (4) 0.63 dp	–	0.25 (2) 0.38 dp	–	–	–	–	–	–	12 [304.8]	6.3 [159.3]
1½ [38]	7.5 [191]	1.5 [38.4]	1.5 [38.4]	2.5 [63.5]	4.4 [111.3]	2.9 [74.1]	6.4 [163.1]	5.2 [131.1]	1.1 [27.9]	4 [102.1]	4 [102.1]	1.6 [41.3]	1.6 41.3	0.9 [21.9]	0.38-16 (4) 0.63 dp	0.44-(4) thru	0.31 (2) 0.38 dp	0.31 (2) 0.53 dp	7.5 [191.1]	8.8 [222.5]	1.8 [44.5]	9.1 [230.6]	6 [152.4]	16 [406.4]	6.8 [172]
2 × 1½ [50 × 38]	7.8 [197]	1.5 [38.4]	1.8 [44.7]	2.5 [63.5]	4.4 [111.3]	2.9 [74.1]	6.4 1[63.1]	5.2 [131.1]	1.1 [27.9]	4 [102.1]	4 [102.1]	1.6 [41.3]	1.6 41.3	0.9 [21.9]	0.38-16 (4) 0.63 dp	0.44-(4) thru	0.31 (2) 0.38 dp	0.31 (2) 0.53 dp	7.5 [191.1]	8.8 [222.5]	1.8 [44.5]	9.1 [230.6]	6 [152.4]	16 [406.4]	6.8 [172]

Torque Estimation and Maximum Allowable Stem Torque (MAST)

Size, in [mm]	Class	Gauge Pressure	Valve Torque PEEK® Seat, Graphite Packing		MAST for 36K yield
			Break	Run	
1 × 1 [25 × 25]	600	741–1,480	343	202	881.0
1 × 1 [25 × 25]	800	80–2,000	381	210	881.0
1 × 1 [25 × 25]	900	1,481–2,220	488	286	1,548.5
1 × 1 [25 × 25]	1500	2,221–3,705	609	325	1,548.5
1 × 1 [25 × 25]	2500	3,706–6,170	897	499	1,548.5
1.5 × 1.5 [40 × 40]	600	741–1,480	860	437	1,548.5
1.5 × 1.5 [40 × 40]	800	80–2,000	969	457	1,548.5
1.5 × 1.5 [40 × 40]	900	1,481–2,220	1,090	506	3,290.4
1.5 × 1.5 [40 × 40]	1500	2,221–3,705	1,404	584	3,290.4
1.5 × 1.5 [40 × 40]	2500	3,706–6,170	2,035	884	3,290.4
2 × 2 [50 × 50]	600	741–1,480	1,639	742	3,290.4
2 × 2 [50 × 50]	800	80–2,000	1,867	781	3,290.4
2 × 2 [50 × 50]	900	1,481–2,220	2,259	1,014	6,943.6
2 × 2 [50 × 50]	1500	2,221–3,705	2,921	1,174	6,943.6
3 × 3 [80 × 80]	600	741–1,480	4,254	1,596	6,943.6
3 × 3 [80 × 80]	800	80–2,000	4,912	1,694	6,943.6
4 × 4 [100 × 100]	600	741–1,480	8,608	3,018	16,747.0
6 × 6 [150 × 150]	600	741–1,480	22,752	6,598	40,040.0

Weights 320F3

320F3 Weights	Bare Stem, lbm [kg]					
Size, in [mm]	600 RF	600 RJ	1500 RF	1500 RJ	2500 RF	2500 RJ
½ [13]	10.0 [4.5]	11.0 [5]	19.9 [9]	21.7 [9.8]	28.0 [12.7]	30.3 [13.7]
¾ × ½ [19 × 13]	13.3 [6.1]	15.0 [6.8]	22.7 [10.3]	24.8 [11.2]	30.2 [13.7]	32.7 [14.8]
¾ × ¾ [19 × 19]	16.6 [7.5]	18.2 [8.3]	29.6 [13.4]	31.6 [14.3]	37.5 [17]	40.0 [18.1]
1 × ¾ [25 × 19]	19.3 [8.8]	21.1 [9.6]	35.7 [16.2	38.4 [17.4]	45.0 [20.4]	48.1 [21.8]
1 [25]	28.7 [13]	30.4 [13.8]	45.6 [20.7]	48.1 [21.8]	65.4 [29.6]	68.6 [31.1]
1½ [38]	49.9 [22.6]	52.3 [23.7]	76.6 [34.7]	80.2 [36.4]	120.6 [54.7]	127.0 [57.6]
2 × 1½ [50 × 38]	56.1 [25.4]	59.3 [26.9]	102.9 [46.7]	108.0 [49]	152.6 [69.2]	160.7 [72.9]
2 [50]	74.9 [34]	77.9 [35.3]	148.0 [67.1]	154.6 [70.1]	–	–
3 × 2 [80 × 50]	98.0 [44.4]	102.7 [46.6]	195.9 [88.8]	205.5 [93.2]	–	–
3 [80]	150.9 [68.5]	155.5 [70.5]	–	–	–	–
4 × 3 [100 × 80]	205.3 [93.1]	214.4 [97.3]	–	–	–	–

320F3 Weights	Wrench, lbm [kg]					
Size, in [mm]	600 RF	600 RJ	1500 RF	1500 RJ	2500 RF	2500 RJ
½ [13]	10.3 [4.7]	11.4 [5.2]	20.5 [9.3]	22.3 [10.1]	28.6 [13]	30.9 [14]
¾ × ½ [19 × 13]	13.7 [6.2]	15.3 [7]	23.3 [10.6]	25.4 [11.5]	30.8 [14]	33.3 [15.1]
¾ × ¾ [19 × 19]	17.2 [7.8]	18.8 [8.5]	30.6 [13.9]	32.7 [14.8]	38.6 [17.5]	41.1 [18.6]
1 × ¾ [25 × 19]	19.9 [9]	21.7 [9.8]	36.8 [16.7]	39.5 [17.9]	46.0 [20.9]	49.2 [22.3]
1 [25]	29.7 [13.5]	31.5 [14.3]	47.6 [21.6]	50.1 [22.7]	67.4 [30.6]	70.6 [32]
1½ [38]	51.9 [23.6]	54.2 [24.6]	79.4 [36]	83.1 [37.7]	123.5 [56]	129.8 [58.9]
2 × 1½ [50 × 38]	58.1 [26.4]	61.3 [27.8]	105.7 [47.9]	110.9 [50.3]	155.4 [70.5]	163.5 [74.2]
2 [50]	77.7 [35.3]	80.7 [36.6]	154.7 [70.2]	161.4 [73.2]	–	–
3 × 2 [80 × 50]	100.8 [45.7]	105.5 [47.9]	202.6 [91.9]	212.2 [96.2]	–	–
3 [80]	157.7 [71.5]	162.2 [73.6]	–	–	–	–
4 × 3 [100 × 80]	212.0 [96.2]	221.2 [100.3]	–	–	–	–

320F3 Weights	Less Gear, lbm [kg]					
Size, in [mm]	600 RF	600 RJ	1500 RF	1500 RJ	2500 RF	2500 RJ
1½ [38]	–	–	–	–	125 [56.7]	131.3 [59.6]
2 × 1½ [50 × 38]	–	–	–	–	156.9 [71.2]	165 [74.8]
2 [50]	79.2 [35.9]	82.2 [37.3]	157.9 [71.6]	164.5 [74.6]	–	–
3 × 2 [80 × 50]	–	–	205.7 [93.3]	215.3 [97.7]	–	–
3 [80]	160.8 [72.9]	165.4 [75]	–	–	–	–
4 × 3 [100 × 80]	215.1 [97.6]	224.3 [101.7]	–	–	–	–

320F3 Weights	Worm Gear, lbm [kg]					
Size, in [mm]	600 RF	600 RJ	1500 RF	1500 RJ	2500 RF	2500 RJ
1½ [38]	–	–	–	–	136.6 [69]	142.9 [64.8]
2 × 1½ [50 × 38]	–	–	–	–	168.5 [76.4]	176.6 [80.1]
2 [50]	90.8 [41.2]	93.8 [42.5]	193.3 [87.7]	199.9 [90.7]	–	–
3 × 2 [80 × 50]	–	–	241.1 [109.4]	250.7 [113.7]	–	–
3 [80]	183.7 [83.3]	188.2 [85.4]	–	–	–	–
4 × 3 [100 × 80]	243.8 [110.6]	253.3 [114.9]	–	–	–	–

Weights 320B3

320B3 Weights	Bare Stem, lbm [kg]		
Size, in [mm]	800	1500	2500
½ [13]	6.2 [2.81]	10.8 [4.9]	12.6 [5.7]
¾ × ½ [19 × 13]	6.6 [2.99]	10.6 [4.8]	12.5 [5.7]
¾ × ¾ [19 × 19]	10.1 [4.6]	17.8 [8.06]	19.9 [9]
1 × ¾ [25 × 19]	10.6 [4.8]	17.5 [7.9]	19.7 [8.9]
1 [25]	20.5 [9.3]	29.2 [13.2]	41.7 [18.9]
1½ [38]	35.9 [16.3]	50.8 [23]	50.8 [23]
2 × 1½ [50 × 38]	38.3 [17.3]	50.7 [23]	69.2 [31.3]
2 [50]	55.0 [24.9]	96.7 [43.8]	–
3 × 2 [80 × 50]	59.5 [27.0]	105.6 [47.8]	–
3 [80]	119.0 [53.9]	–	–
4 × 3 [100 × 80]	122.9 [55.7]	–	–

320B3 Weights	Wrench, lbm [kg]		
Size, in [mm]	800	1500	2500
½ [13]	6.6 [3]	11.4 [5.2]	13.2 [6]
¾ × ½ [19 × 13]	6.6 [3]	11.2 [5.1]	11.2 [5.1]
¾ × ¾ [19 × 19]	10.7 [4.8]	18.8 [8.5]	21.0 [9.5]
1 × ¾ [25 × 19]	11.2 [5.1]	18.5 [8.4]	20.8 [9.4]
1 [25]	21.6 [9.8]	31.2 [14.1]	43.7 [19.8]
1½ [38]	37.9 [17.2]	53.7 [24.3]	72.3 [32.8]
2 × 1½ [50 × 38]	40.3 [18.3]	53.6 [24.3]	72.0 [32.6]
2 [50]	57.8 [26.2]	103.5 [46.9]	–
3 × 2 [80 × 50]	62.3 [28.2]	112.3 [50.9]	–
3 [80]	125.7 [56.9]	–	–
4 × 3 [100 × 80]	129.6 [58.7]	–	–

320B3 Weights	Wrench Head, lbm [kg]		
	800	1500	2500
3 [80]	125.8 [57]	–	–
4 × 3 [100 × 80]	134.8 [61.1]	–	–

320B3 Weights	Less Gear, lbm [kg]		
	800	1500	2500
1½ [38]	–	–	125 [56.6]
2 × 1½ [50 × 38]	–	–	157.1 [71.2]
2 [50]	–	157.9 [71.5]	–
3 × 2 [80 × 50]	–	115.5 [52.3]	–
3 [80]	151.7 [68.7]	–	–
4 × 3 [100 × 80]	132.8 [60.2]	–	–

320B3 Weights	Worm Gear, lbm [kg]		
	800	1500	2500
1½ [38]	–	–	85.3 [38.6]
2 × 1½ [50 × 38]	–	–	168.6 [76.4]
2 [50]	–	193.3 [87.6]	–
3 × 2 [80 × 50]	–	150.8 [68.3]	–
3 [80]	151.7 [68.7]	–	–
4 × 3 [100 × 80]	155.6 [70.5]	–	–

NUTRON 320F3/B3 forged floating ball valves

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