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MINING | WATER & WASTEWATER | OIL & GAS | POWER GENERATION



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Headquartered in the greater Toronto area, NCI Canada Inc. is an innovative, privately owned company that specializes in the development, manufacturing and distribution of high-quality valves, fittings, strainers and gauges. With over 20 years of industry experience, NCI Canada is recognized as one of Canada's leading master distributors of high-quality valves, fittings, strainers and gauges, and are proud to service wholesale, retail and OEM customers.

All NCI Canada high-quality valves, fittings, strainers and gauges are sold and supported through its network of authorized distributors and warehouses across Canada. NCI Canada stocks over 25,000 products within 150,000 sq feet of warehouse area in both central and western Canada.

With a large selection of high-quality valves, fittings, strainers and gauges products, NCI Canada services the

commercial construction, fire protection, HVAC, irrigation, pulp & paper, mining, water & wastewater, oil & gas, and power generation industries.

Our success in the high-quality valves, fittings, strainers and gauges industry is attributed primarily to our customer-centric team of sales personnel, service engineers and trained service staff that are collectively committed to providing quality products at a service and price you will come to love.

Contact NCI Canada today and discover the many ways we can help you and your organization with your high-quality valves, fittings, strainers and gauges needs.

Learn more at www.NCICanada.com

Commercial Ball Valves

| | |
|--|---|
| Commercial Ball Valve Code Index | 4 |
|--|---|

Brass Ball Valves

| | |
|--|----|
| 600FP-T/S-LF Two-Piece, Lead Free | 5 |
| 600FP-T/S-SS-LF Two-Piece, Lead Free | 6 |
| 600FP-T/S Two-Piece | 7 |
| 600FP-T-LL Two-Piece | 8 |
| (T/S)FP601(SS) Two-Piece, SS Option | 9 |
| 600FP-T/S-SD Two-Piece, Side Drain | 10 |
| (T/S)FP600-SDWH Two-Piece, Side Drain, Wing Handle | 11 |

Bronze Ball Valves

| | |
|---|----|
| (T/S)FP620 Two-Piece | 12 |
| (T/S)FP620-SS Two-Piece, SS Ball & Stem | 13 |
| (T/S)FP620-LF(SS) Two-Piece, Lead Free, SS Option | 14 |
| (T/S)FP630 Three-Piece | 15 |
| (T/S)FP600-HC Two-Piece, Side Drain | 16 |

B Series Industrial Ball Valves

| | |
|---|----|
| B Series Industrial Ball Valve Code Index | 17 |
|---|----|

Stainless Steel Ball Valves

| | |
|------------------------------|----|
| B01 Two-Piece | 18 |
| B02 Two-Piece | 19 |
| B03 Two-Piece | 20 |
| B04(S) Three-Piece | 21 |
| B05(S) Three-Piece | 22 |
| B05TC Three-Piece | 23 |
| B05TO Three-Piece | 24 |
| B07L/T Three-Way | 25 |

Carbon Steel Ball Valves

| | |
|--|----|
| B06 One-Piece | 26 |
| B11 Two-Piece | 27 |
| BT3/BT6 Low-Temperature Sour | 28 |

Z Series Industrial Ball Valve

| | |
|---|----|
| Z Series Industrial Ball Valve Code Index | 29 |
|---|----|

Carbon and Stainless Steel Ball Valves

| | |
|---|----|
| ZF1 Stainless Steel, L or T-Port | 30 |
| ZF1 Stainless Steel, Direct Mount | 31 |
| ZF1 Stainless Steel, Non-Direct Mount | 32 |
| ZF1 Carbon Steel (WCB, LCC), Two-Piece, Lever | 33 |
| ZF1 Carbon Steel (WCB, LCC), Two-Piece, Gear | 34 |
| ZF3 Stainless/Carbon Steel (WCB, LCC), Two-Piece, Lever | 35 |
| ZF3 Stainless/Carbon Steel (WCB, LCC), Two-Piece, Gear | 36 |
| ZF6 Carbon Steel (WCB, LCC), Two-Piece, Lever | 37 |
| ZR1 Carbon Steel (WCB, LCC), One-Piece, Lever | 38 |
| ZR3 Carbon Steel (WCB, LCC), One-Piece, Lever | 39 |
| ZR6 Carbon Steel (WCB, LCC), Two-Piece, Lever | 40 |
| ZR6 Carbon Steel (WCB, LCC), Two-Piece, Gear | 41 |



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Commercial Ball Valve Index

Brass Body



600FP-T/S-LF



600FP-T/S-SS-LF



600FP-T/S



600FP-T-LL



(T/S)FP601



(T/S)FP601-SS



600FP-T/S-SD



(T/S)FP600-SDWH

Bronze Body



(T/S)FP620



(T/S)FP620-SS



(T/S)FP620-LF-SS



(T/S)FP630



(T/S)FP600-HC

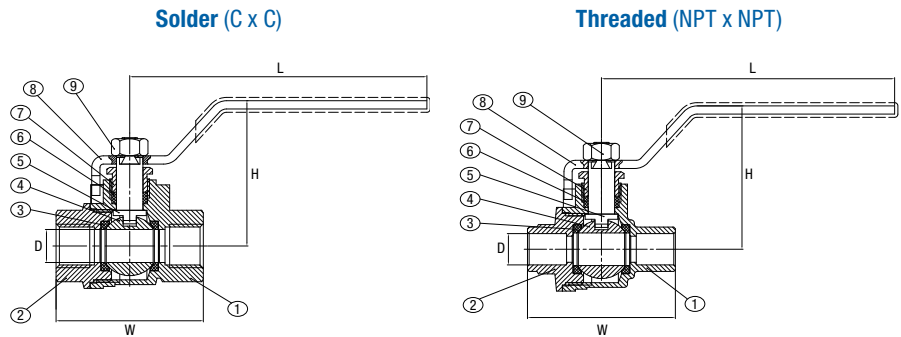
Code Index

TFP | 600 | LF | SS | 1"

1 | 2 | 3 | 4 | 5

- | | |
|---|--|
| <p>1 Port & End Connection Design TFP - Full Port with Threaded Ends SFP - Full Port with Solder Ends</p> <p>2 Body Style 600 - 2PC Forged Brass body, Reg. Packing Design 601 - 2PC Forged Brass body, Double 'O' ring Packing 620 - 2PC Bronze body, Reg. Packing Design 630 - 3PC Bronze body, Reg. Packing Design</p> | <p>3 Lead Free LF - Certified to NSF-61 Annex G NSF / ANSI 372</p> <p>4 Options SS - Stainless Trim; LL - Locking Lever; SD - Side Drain; WH - Wing Handle; HC - Hose End Cap & Chain; MS - Memory Stop; EHK - Extended Handle Kit</p> <p>5 Size 1/4", 3/8", 1/2", 3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2", 3", 4"</p> |
|---|--|

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600FP-T/S-LF Product Description

Lead-free 2-piece body multi-purpose brass ball valve for use in engineered hot and cold water systems, gas applications, compressed air services, and fire protection.

Working Pressure

- 600 PSI Non-Shock Cold Working Pressure (CWP)
- 150 PSI Steam Working Pressure (SWP)

End Connection

- Solder
- Threaded (NPT)

Options

- Extended Handle Kit (for TFP600 legacy model)

Product Standards

- **Conforms to:** MSS SP-110.
- **cULus Approval (NPT Only):** (1/4" to 2") VQGU7 Trim and Drain.
- **UL Approval (NPT Only):** (1/4" to 2") UL1477 (YQNZ) Compressed Gas Shut-off Valves, UL842 (YRBX) Flammable Liquid Shut-off Valves, UL842 (YRPV) Gas Shut-off Valves, UL125 (YSDT) LP Gas Shut-off Valves, UL842 (MHKZ) Manual Valves.
- **FM Approval:** (1/4" to 2").
- **NSF/ANSI 61 NSF/ANSI 372 Approval (lead free)**
- **cUPC Approval**
- **CSA Approval (NPT only):** ANSI Z21.15/CGA 9.1, ASME B16.44, CGA CR 91-002, CAN/CGA 3.16, ASME B16.33 and ASME B16.38.

| SIZE DN | DIMENSIONS | | | | | | | |
|------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|
| | L | | D | | H | | W | |
| | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS |
| inch | inch | inch | inch | inch | inch | inch | inch | inch |
| 1/4" | 3.543 | 3.543 | 0.394 | 0.315 | 1.732 | 1.732 | 1.756 | 1.787 |
| 3/8" | 3.543 | 3.543 | 0.394 | 0.394 | 1.732 | 1.732 | 1.756 | 1.866 |
| 1/2" | 3.543 | 3.543 | 0.583 | 0.583 | 1.941 | 1.839 | 2.047 | 2.102 |
| 3/4" | 3.780 | 3.780 | 0.748 | 0.748 | 2.106 | 1.996 | 2.362 | 2.807 |
| 1" | 4.528 | 4.528 | 0.945 | 0.945 | 2.579 | 2.449 | 2.756 | 3.307 |
| 1 1/4" | 4.528 | 4.528 | 1.260 | 1.260 | 2.961 | 2.862 | 3.307 | 3.819 |
| 1 1/2" | 5.512 | 5.512 | 1.575 | 1.575 | 3.366 | 3.169 | 3.661 | 4.433 |
| 2" | 5.512 | 5.512 | 1.969 | 1.969 | 3.701 | 3.449 | 4.181 | 5.315 |
| 2 1/2" | 8.661 | 8.661 | 2.520 | 2.520 | 4.803 | 4.803 | 5.378 | 6.283 |
| 3" | 8.661 | 8.661 | 2.937 | 2.937 | 5.118 | 5.118 | 6.039 | 7.150 |
| 4" | 9.606 | 9.606 | 3.937 | 3.937 | 6.055 | 6.055 | 7.386 | 9.276 |

| MATERIAL SPECIFICATIONS | | |
|-------------------------|--------------|----------------------|
| NO. | PART NAME | MATERIAL |
| 1 | Body | Lead-Free Brass |
| 2 | End Cap | Lead-Free Brass |
| 3 | Ball Seat | PTFE |
| 4 | Ball | Lead-Free Brass |
| 5 | Stem | Brass |
| 6 | Stem Packing | PTFE |
| 7 | Packing Nut | Brass |
| 8 | Lever Handle | Chrome Plating Steel |
| 9 | Stem Nut | Nickel Plating Steel |



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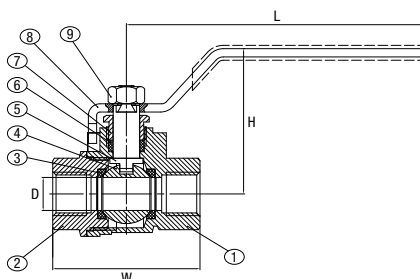
600FP-T/S-SS-LF

600 Series | Brass Ball Valve

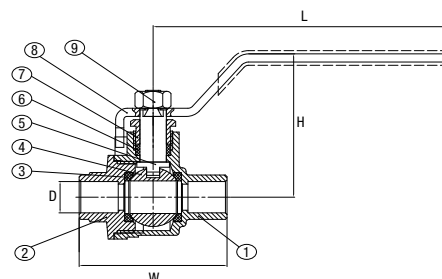
Forged Brass Body | Full Port | Two-Piece | Lead-Free | S.S. Trim



Solder (C x C)



Threaded (NPT x NPT)



600FP-T/S-SS-LF Product Description

Lead-free 2-piece body multi-purpose brass ball valve with stainless steel ball and stem for use in engineered hot and cold water systems, gas applications, compressed air services, and fire protection.

Working Pressure

- 600 PSI Non-Shock Cold Working Pressure (CWP)
- 150 PSI Steam Working Pressure (SWP)

End Connection

- Solder
- Threaded (NPT)

Options

- Extended Handle Kit (for TFP600 legacy model)

Product Standards

- **Conforms to:** MSS SP-110.
- **cULus Approval (NPT Only):** (1/4" to 2") VQGU7 Trim and Drain.
- **UL Approval (NPT Only):** (1/4" to 2") UL1477 (YQNZ) Compressed Gas Shut-off Valves, UL842 (YRBX) Flammable Liquid Shut-off Valves, UL842 (YRPV) Gas Shut-off Valves, UL125 (YSDT) LP Gas Shut-off Valves, UL842 (MHKZ) Manual Valves.
- **FM Approval:** (1/4" to 2").
- **NSF/ANSI 61 NSF/ANSI 372 Approval (lead free)**
- **cUPC Approval**
- **CSA Approval (NPT only):** ANSI Z21.15/CGA 9.1, ASME B16.44, CGA CR 91-002, CAN/CGA 3.16, ASME B16.33 and ASME B16.38.

| SIZE DN | DIMENSIONS | | | | | | | |
|------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|
| | L | | D | | H | | W | |
| | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS |
| inch | inch | inch | inch | inch | inch | inch | inch | inch |
| 1/4" | 3.543 | 3.543 | 0.394 | 0.315 | 1.732 | 1.732 | 1.756 | 1.787 |
| 3/8" | 3.543 | 3.543 | 0.394 | 0.394 | 1.732 | 1.732 | 1.756 | 1.866 |
| 1/2" | 3.543 | 3.543 | 0.583 | 0.583 | 1.941 | 1.839 | 2.047 | 2.102 |
| 3/4" | 3.780 | 3.780 | 0.748 | 0.748 | 2.106 | 1.996 | 2.362 | 2.807 |
| 1" | 4.528 | 4.528 | 0.945 | 0.945 | 2.579 | 2.449 | 2.756 | 3.307 |
| 1 1/4" | 4.528 | 4.528 | 1.260 | 1.260 | 2.961 | 2.862 | 3.307 | 3.819 |
| 1 1/2" | 5.512 | 5.512 | 1.575 | 1.575 | 3.366 | 3.169 | 3.661 | 4.433 |
| 2" | 5.512 | 5.512 | 1.969 | 1.969 | 3.701 | 3.449 | 4.181 | 5.315 |

| MATERIAL SPECIFICATIONS | | |
|-------------------------|--------------|----------------------|
| NO. | PART NAME | MATERIAL |
| 1 | Body | Lead-Free Brass |
| 2 | End Cap | Lead-Free Brass |
| 3 | Ball Seat | PTFE |
| 4 | Ball* | Stainless Steel |
| 5 | Stem | Stainless Steel |
| 6 | Stem Packing | PTFE |
| 7 | Packing Nut | Brass |
| 8 | Lever Handle | Chrome Plating Steel |
| 9 | Stem Nut | Nickel Plating Steel |

* Ball (1/4" through 1" is Solid Type
(1 1/4" through 2" is Shell Type)



CRN



cULus



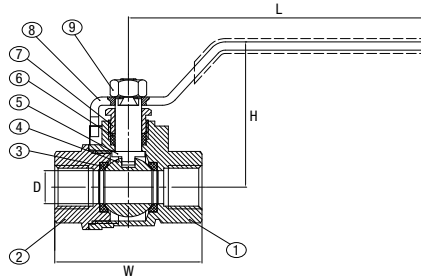
NSF



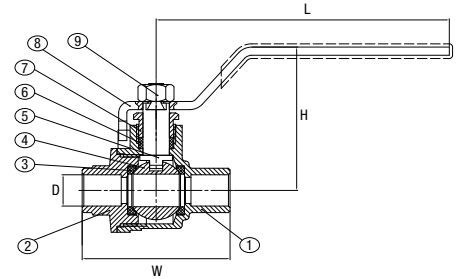
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Solder (C x C)



Threaded (NPT x NPT)



600FP-T/S-(LL) Product Description

2-piece body multi-purpose brass ball valve for use in engineered hot and cold water systems, gas applications, compressed air services, and fire protection.

Working Pressure

- ¼"–2": 600 PSI Non-Shock Cold Working Pressure (CWP)
- 2½"–4": 400 PSI Non-Shock Cold Working Pressure (CWP)
- 150 PSI Steam Working Pressure (SWP)

End Connection

- Solder
- Threaded (NPT)

Options

- Extended Handle Kit (for TFP600 legacy model)

Product Standards

- **Conforms to:** MSS SP-110.
- **cULus Approval (NPT Only):** (¼" to 2") VQGU7 Trim and Drain.
- **UL Approval (NPT Only):** (¼" to 2") UL1477 (YQNZ) Compressed Gas Shut-off Valves, UL842 (YRBX) Flammable Liquid Shut-off Valves, UL842 (YRPV) Gas Shut-off Valves, UL125 (YSDT) LP Gas Shut-off Valves, UL842 (MHKZ) Manual Valves.

- **FM Approval:** (¼" to 2").

- **NSF/ANSI 61**

- **CSA Approval (NPT only):** ANSI Z21.15/CGA 9.1, ASME B16.44, CGA CR 91-002, CAN/CGA 3.16, ASME B16.33 and ASME B16.38.

| SIZE DN | DIMENSIONS | | | | | | | |
|------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|
| | L | | D | | H | | W | |
| | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS |
| inch | inch | inch | inch | inch | inch | inch | inch | inch |
| 1/4" | 3.543 | 3.543 | 0.394 | 0.315 | 1.732 | 1.732 | 1.756 | 1.787 |
| 3/8" | 3.543 | 3.543 | 0.394 | 0.394 | 1.732 | 1.732 | 1.756 | 1.866 |
| 1/2" | 3.543 | 3.543 | 0.583 | 0.583 | 1.941 | 1.839 | 2.047 | 2.102 |
| 3/4" | 3.780 | 3.780 | 0.748 | 0.748 | 2.106 | 1.996 | 2.362 | 2.807 |
| 1" | 4.528 | 4.528 | 0.945 | 0.945 | 2.579 | 2.449 | 2.756 | 3.307 |
| 1¼" | 4.528 | 4.528 | 1.260 | 1.260 | 2.961 | 2.862 | 3.307 | 3.819 |
| 1½" | 5.512 | 5.512 | 1.575 | 1.575 | 3.366 | 3.169 | 3.661 | 4.433 |
| 2" | 5.512 | 5.512 | 1.969 | 1.969 | 3.701 | 3.449 | 4.181 | 5.315 |
| 2½" | 8.661 | 8.661 | 2.520 | 2.520 | 4.803 | 4.803 | 5.378 | 6.283 |
| 3" | 8.661 | 8.661 | 2.937 | 2.937 | 5.118 | 5.118 | 6.039 | 7.150 |
| 4" | 9.606 | 9.606 | 3.937 | 3.937 | 6.055 | 6.055 | 7.386 | 9.276 |

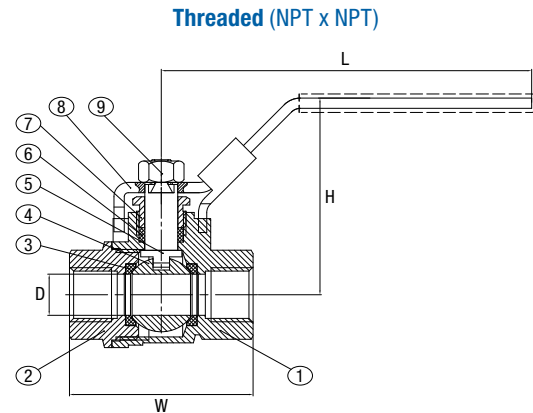
| MATERIAL SPECIFICATIONS | | |
|-------------------------|--------------|----------------------|
| NO. | PART NAME | MATERIAL |
| 1 | Body | Brass |
| 2 | End Cap | Brass |
| 3 | Ball Seat | PTFE |
| 4 | Ball | Brass |
| 5 | Stem | Brass |
| 6 | Stem Packing | PTFE |
| 7 | Packing Nut | Brass |
| 8 | Lever Handle | Chrome Plating Steel |
| 9 | Stem Nut | Nickel Plating Steel |



CRN



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600FP-T-LL Product Description

2-piece body multi-purpose brass ball valve with locking lever for use in engineered hot and cold water systems, gas applications, compressed air services, and fire protection.

Working Pressure

- ¼"–2": 600 PSI Non-Shock Cold Working Pressure (CWP)
- 150 PSI Steam Working Pressure (SWP)

End Connection

- Threaded (NPT)

Product Standards

- **Conforms to:** MSS SP-110.
- **cULus Approval (NPT Only):** (¼" to 2") VQGU7 Trim and Drain.
- **UL Approval (NPT Only):** (¼" to 2") UL1477 (YQNZ) Compressed Gas Shut-off Valves, UL842 (YRBX) Flammable Liquid Shut-off Valves, UL842 (YRPV) Gas Shut-off Valves, UL125 (YSDT) LP Gas Shut-off Valves, UL842 (MHKZ) Manual Valves.

- **FM Approval:** (¼" to 2").
- **CSA Approval (NPT only):** ANSI Z21.15/CGA 9.1, ASME B16.44, CGA CR 91-002, CAN/CGA 3.16, ASME B16.33 and ASME B16.38.
- **NSF 61 / ANSI 61**

| DIMENSIONS | | | | | | | | |
|------------|---------------|-------|---------------|-------|---------------|-------|---------------|-------|
| SIZE DN | L | | D | | H | | W | |
| | THREADED ENDS | | THREADED ENDS | | THREADED ENDS | | THREADED ENDS | |
| inch | mm | inch | mm | inch | mm | inch | mm | inch |
| 1/4" | 3.543 | 0.139 | 0.394 | 0.016 | 1.882 | 0.074 | 1.756 | 0.069 |
| 3/8" | 3.543 | 0.139 | 0.394 | 0.016 | 1.882 | 0.074 | 1.756 | 0.069 |
| 1/2" | 3.543 | 0.139 | 0.583 | 0.023 | 2.091 | 0.082 | 2.047 | 0.081 |
| 3/4" | 3.780 | 0.149 | 0.748 | 0.029 | 2.236 | 0.088 | 2.362 | 0.093 |
| 1" | 4.528 | 0.178 | 0.945 | 0.037 | 2.669 | 0.105 | 2.756 | 0.109 |
| 1 1/4" | 4.528 | 0.178 | 1.280 | 0.050 | 3.051 | 0.120 | 3.307 | 0.130 |
| 1 1/2" | 5.514 | 0.217 | 1.575 | 0.062 | 3.484 | 0.137 | 3.661 | 0.144 |
| 2" | 5.512 | 0.217 | 1.969 | 0.078 | 3.300 | 0.130 | 4.181 | 0.165 |

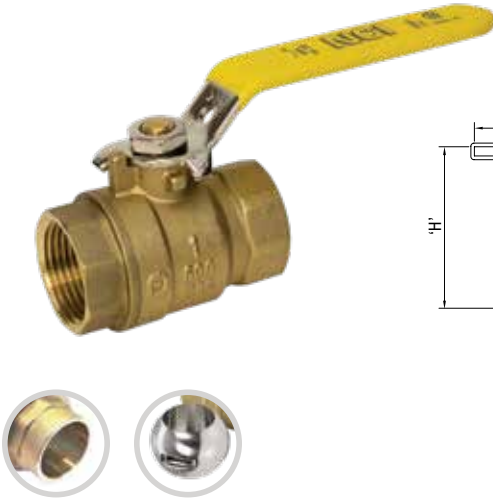
| MATERIAL SPECIFICATIONS | | |
|-------------------------|--------------|----------------------|
| NO. | PART NAME | MATERIAL |
| 1 | Body | Brass |
| 2 | End Cap | Brass |
| 3 | Seat | PTFE |
| 4 | Ball | Brass |
| 5 | Stem | Brass |
| 6 | Stem Packing | PTFE |
| 7 | Packing Nut | Brass |
| 8 | Lever Handle | Chrome Plating Steel |
| 9 | Stem Nut | Nickel Plating Steel |



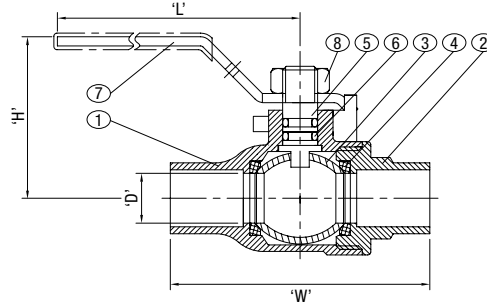
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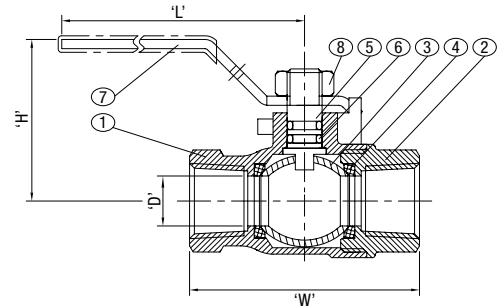
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Solder (C x C)



Threaded (NPT x NPT)



(T/S)FP601 Product Description

2-piece body multi-purpose brass ball valve for use in engineered hot and cold water systems, gas applications, and compressed air services.

Working Pressure

• ¼"–2": 600 PSI Non-Shock Cold Working Pressure (CWP)

End Connection

• Solder
• Threaded (NPT)

Standard

• Conforms to MSS SP-110

Options

• Stainless Steel Trim
• Wing Handle

Product Standards

CAN/CGAC 3.16 (1/2" through 2") 125 psig, AGA3-88 / CGA CR91-002 (1/4" through 2") 5 psig, 150 WSP, NSF 61 Approval

• **CSA Approval (Threaded only):** Pilot Adjustable National Standard of Canada. Class 3371- 08 Requirement Can1-91, Gas Lever Non Lubricated

Shut-off Valve. Class 3371-10 Requirement CGA-3.16, Manual Gas Valves on Piping Systems. Class 3371-12. Requirement CGA CR-9102, General Gas Valve US Standard. Class 3371-88. Requirement ANSI Z21.15, Gas Manual Valve House Piping System. Class 3371.92 Requirement IAS US Regulations

3.88, Manual Gas Valve Metallic in Piping System US Standards. Class 3371-94 Requirements ANSI/ASME B16.33. -20/150F.

| SIZE DN | DIMENSIONS | | | | | | | |
|------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|
| | L | | D | | H | | W | |
| | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS |
| inch | inch | inch | inch | inch | inch | inch | inch | inch |
| 1/4" | 3.23 | - | 0.31 | - | 1.11 | - | 1.49 | - |
| 3/8" | 3.23 | - | 0.31 | - | 1.11 | - | 1.63 | - |
| 1/2" | 3.23 | 3.23 | 0.44 | 0.44 | 1.13 | 1.13 | 1.98 | 1.89 |
| 3/4" | 3.94 | 3.94 | 0.69 | 0.69 | 1.58 | 1.58 | 2.29 | 2.67 |
| 1" | 4.72 | 4.72 | 0.94 | 0.94 | 1.96 | 1.96 | 2.80 | 3.30 |
| 1 1/4" | 4.72 | 4.72 | 1.19 | 1.19 | 2.14 | 2.14 | 3.19 | 3.78 |
| 1 1/2" | 7.09 | 7.09 | 1.44 | 1.44 | 2.54 | 2.54 | 3.45 | 4.30 |
| 2" | 7.09 | 7.09 | 1.94 | 1.94 | 2.89 | 2.89 | 4.03 | 5.33 |

| MATERIAL SPECIFICATIONS | | | |
|-------------------------|-----------------|-----------------------------|---------------|
| NO. | PART NAME | MATERIAL | STANDARD |
| 1 | Body | Forged Brass | ASTM C37700 |
| 2 | End Cap | Forged Brass | ASTM C37700 |
| 3 | Ball | Copper Alloy, Chrome Plated | - |
| | Ball (SS Model) | Stainless Steel | A276 Type 316 |
| 4 | Seat | PTFE | - |
| 5 | Stem | Copper Alloy | - |
| | Stem (SS Model) | Brass | A276 Type 316 |
| 6 | O-Ring (2) | Viton | - |
| 7 | Handle | Carbon Steel Plated | - |
| 8 | Nut | Carbon Steel Plated | - |



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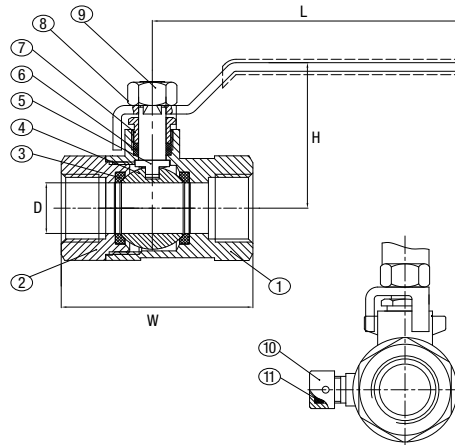
600FP-T/S-SD

600 Series | Brass Ball Valve

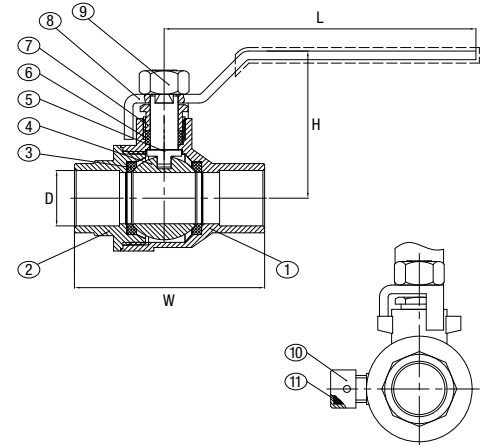
Forged Brass Body | Full Port | Two-Piece | Side Drain



Solder (C x C)



Threaded (NPT x NPT)



600FP-S/T-SD Product Description

2-piece body multi-purpose brass ball valve with side drain for use in engineered hot and cold water systems, gas applications, compressed air services, and fire protection.

Working Pressure

- 600 PSI Non-Shock Cold Working Pressure (CWP)
- 150 PSI Steam Working Pressure (SWP)

End Connection

- Solder
- Threaded (NPT)

Standard

- Conforms to MSS SP-110
- NSF61 Approval

| SIZE DN | DIMENSIONS | | | | | | | |
|------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|
| | L | | D | | H | | W | |
| | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS | THREADED ENDS | SOLDER ENDS |
| inch | inch | inch | inch | inch | inch | inch | inch | inch |
| 1/4" | 3.543 | 3.543 | 0.583 | 0.583 | 1.673 | 1.673 | 2.205 | 2.161 |
| 3/8" | 4.469 | 4.469 | 0.748 | 0.748 | 2.138 | 2.028 | 2.480 | 2.846 |
| 4" | 4.469 | 4.469 | 0.945 | 0.945 | 2.374 | 2.244 | 2.854 | 3.461 |

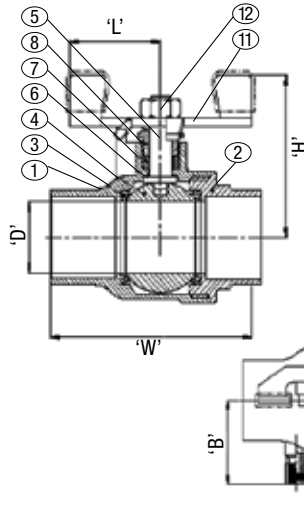
| MATERIAL SPECIFICATIONS | | |
|-------------------------|---------------|----------------------|
| NO. | PART NAME | MATERIAL |
| 1 | Body | Brass |
| 2 | End Cap | Brass |
| 3 | Ball Seat | PTFE |
| 4 | Ball | Brass |
| 5 | Stem | Brass |
| 6 | Stem Packing | PTFE |
| 7 | Packing Nut | Brass |
| 8 | Lever Handle | Nickel Plating Steel |
| 9 | Stem Nut | Nickel Plating Steel |
| 10 | Drainable Nut | Brass |
| 11 | Rubber Seat | Rubber |



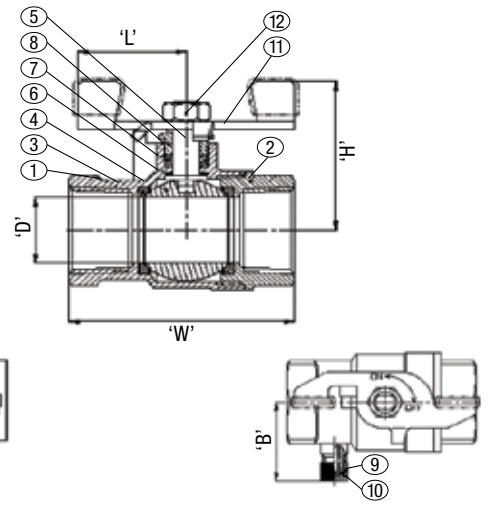
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Solder (C x C)



Threaded (NPT x NPT)



(T/S)FP600-SDWH Product Description

2-piece body multi-purpose brass ball valve for use in engineered hot and cold water systems, compressed air services, and fire protection.

Working Pressure

- 600 PSI Non-Shock Cold Working Pressure (CWP)
- 150 PSI Steam Working Pressure (SWP)

End Connection

- Solder
- Threaded (NPT)

Standard

- Conforms to MSS SP-110

DIMENSIONS

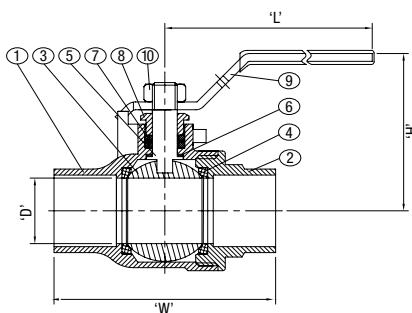
| SIZE DN | | D | | W | | | | H | | L | | Z | | | | B | |
|------------|------|------|------|------------------|------|----------------|------|------|-------|------|-------|------------------|-------|----------------|-------|------|------|
| | | | | THREADED ENDS | | SOLDER ENDS | | | | | | THREADED ENDS | | SOLDER ENDS | | | |
| mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch |
| 15 | 1/2" | 12.7 | 0.50 | 59 | 2.32 | 59 | 1.32 | 37 | 1.457 | 27.5 | 1.083 | 16.5 | 0.649 | 15.2 | 0.598 | 26.2 | 1.03 |
| 20 | 3/4" | 19 | 0.75 | 64.8 | 2.55 | 64.8 | 2.55 | 50 | 1.970 | 32.5 | 1.280 | 16.9 | 0.665 | 22 | 0.866 | 31.2 | 1.22 |
| 25 | 1" | 25 | 0.98 | 78.2 | 3.07 | 78.2 | 3.08 | 56.6 | 2.228 | 37.5 | 1.476 | 20 | 0.787 | 26 | 1.023 | 35.7 | 1.40 |

MATERIAL SPECIFICATIONS

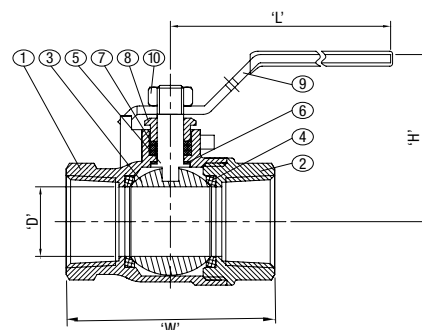
| NO. | PART NAME | MATERIAL | STANDARD |
|-----|---------------|---------------------|----------|
| 1 | Body | Forged Brass | - |
| 2 | End Cap | Forged Brass | - |
| 3 | Seat | PTFE | - |
| 4 | Ball | Copper Alloy | - |
| 5 | Stem | Copper Alloy | - |
| 6 | Thrust Washer | PTFE | - |
| 7 | Packing | PTFE | - |
| 8 | Gland | Copper Alloy | - |
| 9 | Handle | Carbon Steel Plated | - |
| 10 | Nut | Stainless Steel | SS41 |
| 11 | Packing | Rubber | - |
| 12 | Cap | Copper Alloy | - |



Solder (C x C)



Threaded (NPT x NPT)

**(T/S)FP620 Product Description**

2-piece body multi-purpose bronze ball valve for use in engineered hot and cold water systems, and compressed air services.

Working Pressure

- 600 PSI Non-Shock Cold Working Pressure (CWP)

End Connection

- Solder
- Threaded (NPT)

Standard

- Conforms to MSS SP-110

Options

- Locking Lever

DIMENSIONS

| SIZE DN | | D | | W | | | | H | | L | |
|------------|--------|------|------|------------------|------|-------------|------|------|------|-------|------|
| | | | | THREADED ENDS | | SOLDER ENDS | | | | | |
| mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch |
| 8 | 1/4" | 9.5 | 0.37 | 47.5 | 1.87 | 40 | 1.57 | 37 | 1.46 | 80 | 3.15 |
| 10 | 3/8" | 9.5 | 0.37 | 47.5 | 1.87 | 40 | 1.57 | 37 | 1.46 | 80 | 3.15 |
| 15 | 1/2" | 12.7 | 0.50 | 54.7 | 2.15 | 53 | 2.09 | 50 | 1.96 | 92.5 | 3.64 |
| 20 | 3/4" | 19 | 0.75 | 61.6 | 2.43 | 72 | 2.83 | 54 | 2.13 | 92.5 | 3.64 |
| 25 | 1" | 25 | 0.98 | 74.6 | 2.94 | 87.6 | 3.45 | 63.6 | 2.50 | 111.5 | 4.39 |
| 32 | 1 1/4" | 30.5 | 1.20 | 84.8 | 3.32 | 98.2 | 3.87 | 67.6 | 2.66 | 111.5 | 4.39 |
| 40 | 1 1/2" | 38 | 1.50 | 92.2 | 3.64 | 113.2 | 4.46 | 79.8 | 3.14 | 155 | 6.10 |
| 50 | 2" | 50 | 1.07 | 106.1 | 4.18 | 140 | 5.51 | 89.4 | 3.52 | 155 | 6.10 |

MATERIAL SPECIFICATIONS

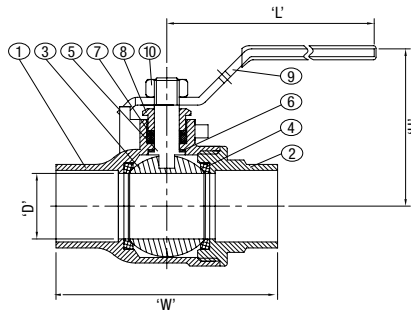
| NO. | PART NAME | MATERIAL | STANDARD |
|-----|---------------|-----------------------------|------------------|
| 1 | Body | Bronze | ASTM B584 C84400 |
| 2 | End Cap | Bronze | ASTM B584 C84400 |
| 3 | Ball | Copper Alloy | - |
| 4 | Seat | PTFE | - |
| 5 | Stem | Copper Alloy, Chrome Plated | - |
| 6 | Thrust Washer | PTFE | - |
| 7 | Stem Packing | PTFE | - |
| 8 | Gland | Copper Alloy | - |
| 9 | Handle | Carbon Steel Plated | - |
| 10 | Nut | Carbon Steel Plated | - |

CRN

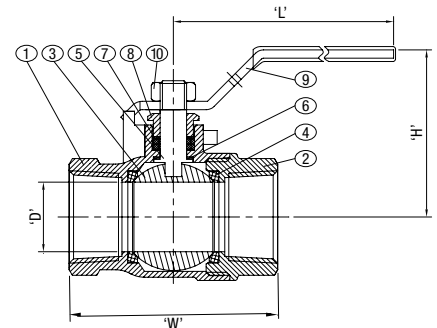
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Solder (C x C)



Threaded (NPT x NPT)

**(T/S)FP620-SS Product Description**

2-piece body multi-purpose bronze ball valve for use in engineered hot and cold water systems.

Working Pressure

- 600 PSI Non-Shock Cold Working Pressure (CWP)

End Connection

- Solder
- Threaded (NPT)

Standard

- Conforms to MSS SP-110

Options

- Locking Lever

DIMENSIONS

| SIZE DN | | D | | W | | | | H | | L | |
|------------|------|------|------|------------------|------|-------------|------|------|------|-------|------|
| | | | | THREADED ENDS | | SOLDER ENDS | | | | | |
| mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch |
| 8 | 1/4" | 9.5 | 0.37 | 47.5 | 1.87 | 40 | 1.57 | 37 | 1.46 | 80 | 3.15 |
| 10 | 3/8" | 9.5 | 0.37 | 47.5 | 1.87 | 40 | 1.57 | 37 | 1.46 | 80 | 3.15 |
| 15 | 1/2" | 12.7 | 0.50 | 54.7 | 2.15 | 53 | 2.09 | 50 | 1.96 | 92.5 | 3.64 |
| 20 | 3/4" | 19 | 0.75 | 61.6 | 2.43 | 72 | 2.83 | 54 | 2.13 | 92.5 | 3.64 |
| 25 | 1" | 25 | 0.98 | 74.6 | 2.94 | 87.6 | 3.45 | 63.6 | 2.50 | 111.5 | 4.39 |
| 32 | 1¼" | 30.5 | 1.20 | 84.8 | 3.32 | 98.2 | 3.87 | 67.6 | 2.66 | 111.5 | 4.39 |
| 40 | 1½" | 38 | 1.50 | 92.2 | 3.64 | 113.2 | 4.46 | 79.8 | 3.14 | 155 | 6.10 |
| 50 | 2" | 50 | 1.07 | 106.1 | 4.18 | 140 | 5.51 | 89.4 | 3.52 | 155 | 6.10 |

MATERIAL SPECIFICATIONS

| NO. | PART NAME | MATERIAL | STANDARD |
|-----|---------------|---------------------|--------------------|
| 1 | Body | Bronze | ASTM B584 C84400 |
| 2 | End Cap | Bronze | ASTM B584 C84400 |
| 3 | Ball | Stainless Steel | ASTM A276 TYPE 316 |
| 4 | Seat | PTFE | - |
| 5 | Stem | Stainless Steel | ASTM A276 TYPE 316 |
| 6 | Thrust Washer | PTFE | - |
| 7 | Stem Packing | PTFE | - |
| 8 | Gland | Copper Alloy | - |
| 9 | Handle | Carbon Steel Plated | - |
| 10 | Nut | Carbon Steel Plated | - |

CRN

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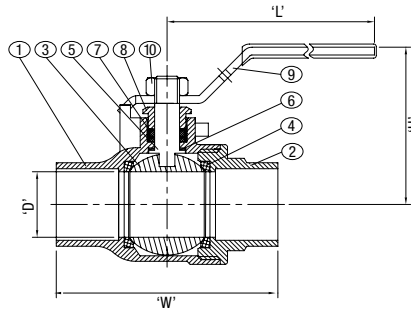
(T/S)FP620-LF(SS)

620 Series | Bronze Ball Valve

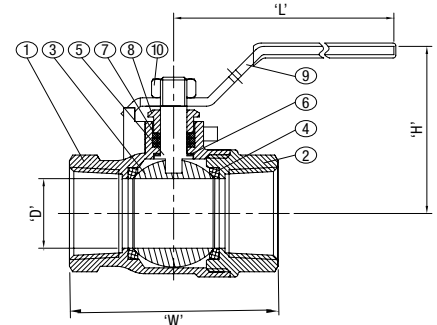
Bronze Body | Full Port | Two-Piece | SS Ball & Stem | Lead-Free



Solder (C x C)



Threaded (NPT x NPT)



(T/S)FP620-LF(SS) Product Description

Lead-free 2-piece body multi-purpose bronze ball valve for use in engineered hot and cold water systems.

Working Pressure

- 600 PSI Non-Shock Cold Working Pressure (CWP)

End Connection

- Solder
- Threaded (NPT)

Standard

- Conforms to MSS SP-110

DIMENSIONS

| SIZE DN | | D | | W | | | | H | | L | |
|------------|------|------|------|------------------|------|-------------|------|------|------|-------|------|
| | | | | THREADED ENDS | | SOLDER ENDS | | | | | |
| mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch |
| 8 | 1/4" | 9.5 | 0.37 | 47.5 | 1.87 | 40 | 1.57 | 37 | 1.46 | 80 | 3.15 |
| 10 | 3/8" | 9.5 | 0.37 | 47.5 | 1.87 | 40 | 1.57 | 37 | 1.46 | 80 | 3.15 |
| 15 | 1/2" | 12.7 | 0.50 | 54.7 | 2.15 | 53 | 2.09 | 50 | 1.96 | 92.5 | 3.64 |
| 20 | 3/4" | 19 | 0.75 | 61.6 | 2.43 | 72 | 2.83 | 54 | 2.13 | 92.5 | 3.64 |
| 25 | 1" | 25 | 0.98 | 74.6 | 2.94 | 87.6 | 3.45 | 63.6 | 2.50 | 111.5 | 4.39 |
| 32 | 1¼" | 30.5 | 1.20 | 84.8 | 3.32 | 98.2 | 3.87 | 67.6 | 2.66 | 111.5 | 4.39 |
| 40 | 1½" | 38 | 1.50 | 92.2 | 3.64 | 113.2 | 4.46 | 79.8 | 3.14 | 155 | 6.10 |
| 50 | 2" | 50 | 1.07 | 106.1 | 4.18 | 140 | 5.51 | 89.4 | 3.52 | 155 | 6.10 |

MATERIAL SPECIFICATIONS

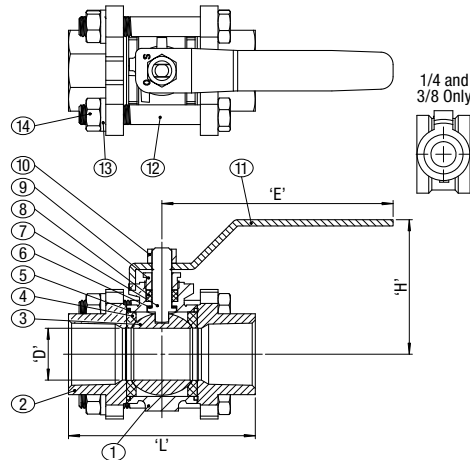
| NO. | PART NAME | MATERIAL | STANDARD |
|-----|---------------|---------------------|--------------------|
| 1 | Body | Bronze | ASTM B584 C84400 |
| 2 | End Cap | Bronze | ASTM B584 C84400 |
| 3 | Ball | Stainless Steel | ASTM A276 TYPE 316 |
| 4 | Seat | PTFE | - |
| 5 | Stem | Stainless Steel | ASTM A276 TYPE 316 |
| 6 | Thrust Washer | PTFE | - |
| 7 | Stem Packing | PTFE | - |
| 8 | Gland | Copper Alloy | - |
| 9 | Handle | Carbon Steel Plated | - |
| 10 | Nut | Carbon Steel Plated | - |



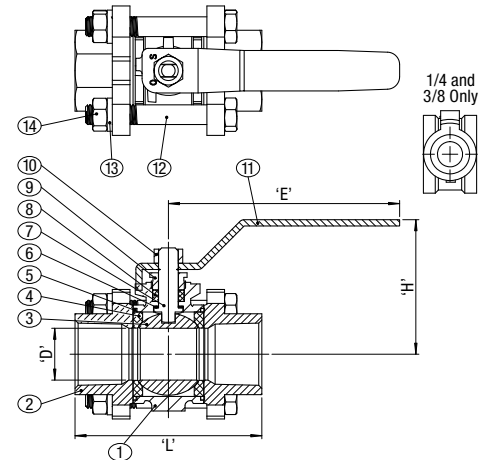
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Solder (C x C)



Threaded (NPT x NPT)



(T/S)FP630 Product Description

3-piece body multi-purpose bronze ball valve for use in engineered hot and cold water systems, and compressed air services.

Working Pressure

- 600 PSI Non-Shock Cold Working Pressure (CWP)

End Connection

- Solder
- Threaded (NPT)

Standard

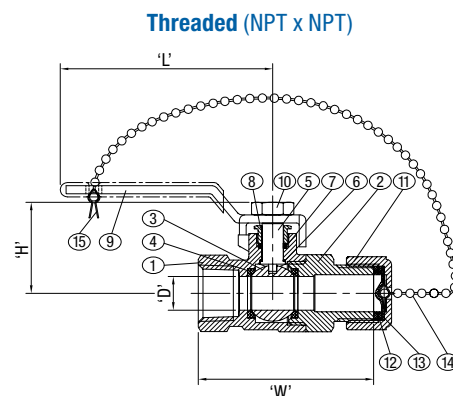
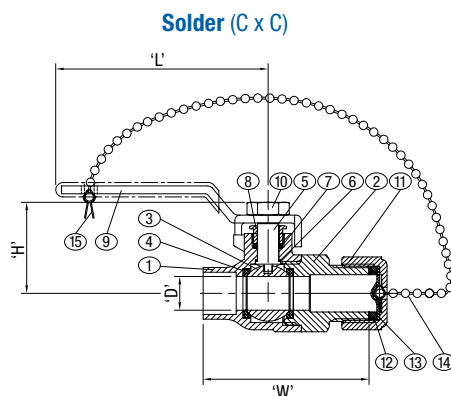
- Conforms to MSS SP-110

| DIMENSIONS | | | | | | | | | | | |
|------------|------|------|------|------------------|------|-------------|------|------|------|-------|------|
| SIZE DN | | D | | W | | | | H | | L | |
| | | | | THREADED ENDS | | SOLDER ENDS | | | | | |
| mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch |
| 8 | 1/4" | 9.5 | 0.37 | 47.5 | 1.87 | 40 | 1.57 | 37 | 1.46 | 80 | 3.15 |
| 10 | 3/8" | 9.5 | 0.37 | 47.5 | 1.87 | 40 | 1.57 | 37 | 1.46 | 80 | 3.15 |
| 15 | 1/2" | 12.7 | 0.50 | 54.7 | 2.15 | 53 | 2.09 | 50 | 1.96 | 92.5 | 3.64 |
| 20 | 3/4" | 19 | 0.75 | 61.6 | 2.43 | 72 | 2.83 | 54 | 2.13 | 92.5 | 3.64 |
| 25 | 1" | 25 | 0.98 | 74.6 | 2.94 | 87.6 | 3.45 | 63.6 | 2.50 | 111.5 | 4.39 |
| 32 | 1¼" | 30.5 | 1.20 | 84.8 | 3.32 | 98.2 | 3.87 | 67.6 | 2.66 | 111.5 | 4.39 |
| 40 | 1½" | 38 | 1.50 | 92.2 | 3.64 | 113.2 | 4.46 | 79.8 | 3.14 | 155 | 6.10 |
| 50 | 2" | 50 | 1.07 | 106.1 | 4.18 | 140 | 5.51 | 89.4 | 3.52 | 155 | 6.10 |

| MATERIAL SPECIFICATIONS | | | |
|-------------------------|---------------|--------------------------------|------------------|
| NO. | PART NAME | MATERIAL | STANDARD |
| 1 | Body | Bronze | ASTM B584 C84400 |
| 2 | End Cap | Bronze | ASTM B584 C84400 |
| 3 | Ball | Copper Alloy, Chrome Plated | - |
| 4 | Seat | PTFE | - |
| 5 | Gasket | PTFE | - |
| 6 | Thrust Washer | PTFE | - |
| 7 | Stem | Copper Alloy | - |
| 8 | Packing | PTFE | - |
| 9 | Gland | Copper Alloy | - |
| 10 | Handle Nut | Carbon Steel Plated | - |
| 11 | Handle | Carbon Steel Plated | - |
| 12 | Bolt | Carbon Steel Plated | - |
| 13 | Bolt Washer | Carbon Steel | - |
| 14 | Bolt Nut | Carbon Steel | - |

CRN

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(T/S)FP600-HC Product Description

2-piece body multi-purpose bronze ball valve for use in engineered hot and cold water systems.

Working Pressure

- 600 PSI Non-Shock Cold Working Pressure (CWP)
- 150 PSI Steam Working Pressure (SWP)

End Connection

- Solder
- Threaded (NPT)

Standard

- Conforms to MSS SP-110

| DIMENSIONS | | | | | | | | | | | |
|------------|------|------|------|------------------|------|-------------|------|------|------|------|------|
| SIZE DN | | D | | W | | | | H | | L | |
| | | | | THREADED ENDS | | SOLDER ENDS | | | | | |
| mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch |
| 15 | 1/2" | 12.7 | 0.50 | 66.0 | 2.60 | 62.5 | 2.46 | 34.3 | 1.35 | 80.0 | 3.15 |
| 20 | 3/4" | 19.0 | 0.75 | 75.5 | 2.97 | 79.1 | 3.11 | 40.9 | 1.61 | 92.5 | 3.65 |

| MATERIAL SPECIFICATIONS | | | |
|-------------------------|---------------|---------------------|------------------|
| NO. | PART NAME | MATERIAL | STANDARD |
| 1 | Body | Bronze | ASTM B584 C84400 |
| 2 | Cap | Forged Brass | - |
| 3 | Ball | Copper Alloy | - |
| 4 | Seat | PTFE | - |
| 5 | Stem | Copper Alloy | - |
| 6 | Thrust Washer | PTFE | - |
| 7 | Packing | PTFE | - |
| 8 | Gland | Copper Alloy | - |
| 9 | Handle | Carbon Steel Plated | - |
| 10 | Nut | Carbon Steel Plated | - |
| 11 | Cap | Forged Brass | - |
| 12 | Packing | NBR | - |
| 13 | Packing | NBR | - |
| 14 | Chain | Carbon Steel Plated | - |
| 15 | Fastener | Carbon Steel Plated | - |

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B Series Industrial Ball Valve Index

B Series Stainless Steel



B01



B02



B03



B04(S)



B05



B05TC



B05TO



B07L/T

B Series Carbon Steel



B06



B11



BT3/6

Code Index

02 | B01

1

2

1 Size

02 - 1/4"; **03** - 3/8"; **05** - 1/2"; **07** - 3/4";
10 - 1"; **12** - 1 1/4"; **15** - 1 1/2"; **20** - 2";
25 - 2 1/2"; **30** - 3"; **40** - 4"

2 Valve Series

B01 - 2 Piece, 1000 PSI, 316SS

B02 - 2 PC, 2000/1500 WOG, 316SS

B03 - 2 PC, 1000 WOG, 316SS,
Direct Mount

B04 - 3 PC, 1000 WOG, 316SS,
Screwed Ends

B04S - 3 PC, 1000 WOG, 316SS,
Socket Weld Ends

B05 - 3 PC, 1000 WOG, 316SS,
Direct Mount, Screwed Ends

B05S - 3 PC, 1000 WOG, 316SS,
Direct Mount, Socket Weld Ends

B05TC - 3 PC, 1000 WOG, 316SS,
Direct Mount, Tri-Clamps Ends

B05TO - 3 PC, 1000 WOG, 316SS,
Direct Mount, Tube Ends

B07L - 3 PC, 1000 WOG, 316SS,
3-way, L-Port

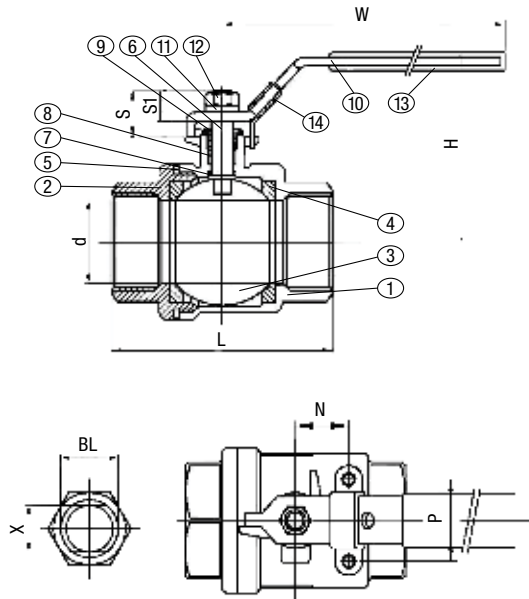
B07T - 3 PC, 1000 WOG, 316SS,
3-way, T-Port

B11 - 2 PC, 2000/1500 WOG,
Carbon Steel

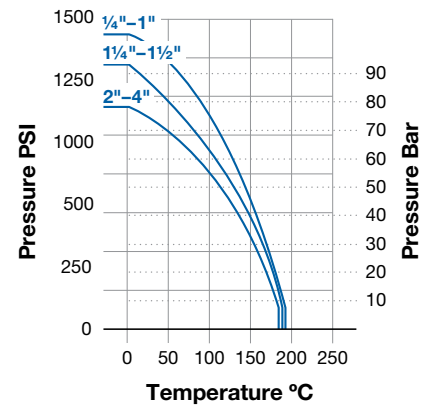
BT3 - 3 PC, 3000 PSI, Carbon Steel

BT6 - 3 PC, 6000 PSI, Carbon Steel

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Pressure To Temperature Rating
(1/4"–4")



B01 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• 1000 WOG

End Connection

• Threaded (NPT)

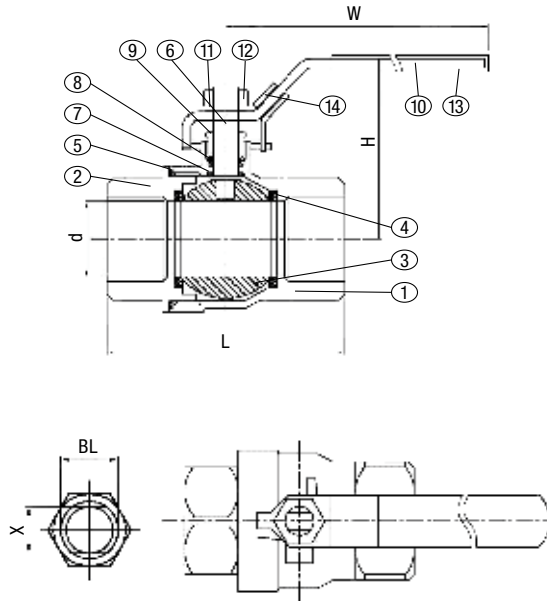
Standard

• ASTM A351-CF8M
• NACE MR0175

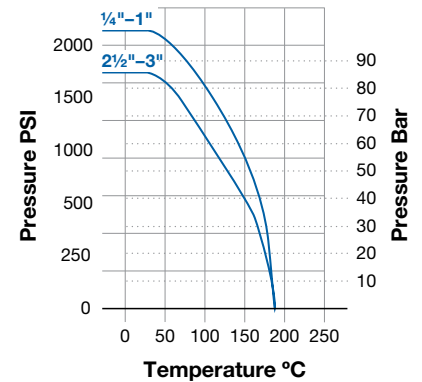
| DIMENSIONS | | | | | | | | | | | | | |
|------------|------|-----|----|-----|------|------|-----|------|------|------|--------|-----------|--------|
| SIZE | DIA. | L | H | W | S | S1 | X | N | P | BL | TORQUE | CV FACTOR | WEIGHT |
| inch | mm | mm | mm | mm | mm | mm | mm | mm | mm | inch | lbs | gpm | kg |
| 1/4" | 11.6 | 50 | 48 | 91 | 16.5 | 10.2 | 5 | 12.5 | 28.5 | 5/16 | 35 | 7 | 0.21 |
| 3/8" | 12.5 | 50 | 48 | 91 | 16.5 | 10.2 | 5 | 12.5 | 28.5 | 5/16 | 35 | 7 | 0.22 |
| 1/2" | 15 | 60 | 52 | 91 | 16.5 | 10.2 | 5 | 12.5 | 28.5 | 5/16 | 47 | 15 | 0.29 |
| 3/4" | 20 | 65 | 61 | 111 | 20 | 13.5 | 6.5 | 21 | 34.8 | 3/8 | 64 | 45 | 0.42 |
| 1" | 25 | 80 | 65 | 111 | 23.5 | 16 | 8 | 22.5 | 34.8 | 7/16 | 90 | 65 | 0.71 |
| 1 1/4" | 32 | 92 | 79 | 154 | 23.5 | 16 | 8 | 23.5 | 38.1 | 7/16 | 117 | 125 | 1.06 |
| 1 1/2" | 38 | 105 | 83 | 154 | 25.5 | 17 | 9 | 23.5 | 38.1 | 1/2 | 156 | 175 | 1.68 |
| 2" | 50 | 125 | 97 | 192 | 25.5 | 17 | 9 | 23.5 | 38.1 | 1/2 | 217 | 380 | 2.71 |

| MATERIAL SPECIFICATIONS | | | |
|-------------------------|------------------|-----------------|----------------|
| NO. | PART NAME | MATERIAL | STANDARD |
| 1 | Body | Stainless Steel | ASTM-CF8M-A351 |
| 2 | Ends | Stainless Steel | ASTM-CF8M-A351 |
| 3 | Ball | Stainless Steel | ASTM-CF8M-A351 |
| 4 | Ball Seat (2) | 15% R-PTFE | - |
| 5 | Joint Gasket | PTFE | - |
| 6 | Stem | Stainless Steel | AISI 316 |
| 7 | Thrust Washer | PTFE | - |
| 8 | Stem Packing (2) | PTFE | - |
| 9 | Gland Nut | Stainless Steel | AISI 304 |
| 10 | Handle | Stainless Steel | AISI 304 |
| 11 | Spring Washer | Stainless Steel | AISI 304 |
| 12 | Stem Nut | Stainless Steel | AISI 304 |
| 13 | Handle Sleeve | Vinyl Grip | - |
| 14 | Lock Device | Stainless Steel | AISI 430 |

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Pressure To Temperature Rating
(1/4"–3")



B02 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• 2000 WOG

End Connection

• Threaded (NPT)

Standard

• ASTM A351-CF8M
• NACE MR0175

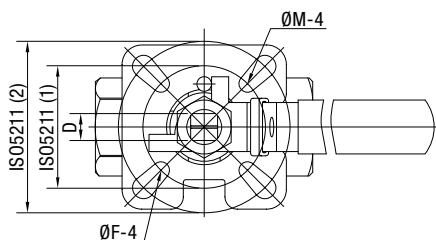
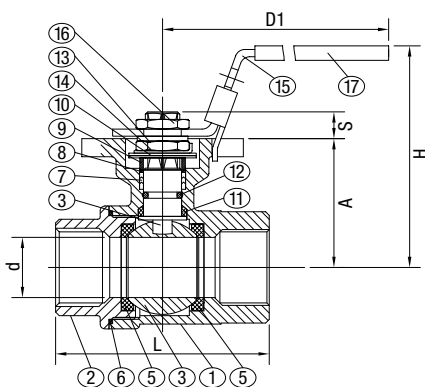
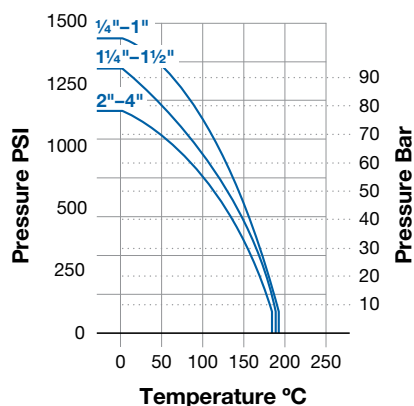
| DIMENSIONS | | | | | | | | | |
|------------|------|------|-------|-----|-----|------|--------|-----------|--------|
| SIZE | DIA. | L | H | W | X | BL | TORQUE | CV FACTOR | WEIGHT |
| inch | mm | mm | mm | mm | mm | inch | lbs | gpm | kg |
| 1/4" | 11.6 | 44.5 | 51 | 95 | 5 | 5/16 | 35 | 6.6 | 0.194 |
| 3/8" | 12.7 | 44.5 | 51 | 95 | 5 | 5/16 | 35 | 7.9 | 0.205 |
| 1/2" | 15 | 57 | 53 | 95 | 5 | 5/16 | 47 | 11.2 | 0.285 |
| 3/4" | 20 | 65 | 59.5 | 110 | 6.5 | 3/8 | 64 | 21 | 0.456 |
| 1" | 25 | 76 | 73 | 135 | 8 | 7/16 | 90 | 35 | 0.764 |
| 1 1/4" | 32 | 87.5 | 79 | 135 | 8 | 7/16 | 117 | 57 | 1.163 |
| 1 1/2" | 38 | 102 | 90.5 | 165 | 9 | 1/2 | 156 | 80 | 1.870 |
| 2" | 50 | 123 | 98.8 | 165 | 9 | 1/2 | 217 | 148 | 3.126 |
| 3" | 80 | 184 | 142.5 | 215 | 12 | 3/4 | 651 | 415 | 9.79 |

| MATERIAL SPECIFICATIONS | | | |
|-------------------------|------------------|-----------------|----------------|
| NO. | PART NAME | MATERIAL | STANDARD |
| 1 | Body | Stainless Steel | ASTM-CF8M-A351 |
| 2 | Ends | Stainless Steel | ASTM-CF8M-A351 |
| 3 | Ball | Stainless Steel | ASTM-CF8M-A351 |
| 4 | Ball Seat (2) | 15% R-PTFE | - |
| 5 | Joint Gasket | PTFE | - |
| 6 | Stem | Stainless Steel | AISI 316 |
| 7 | Thrust Washer | PTFE | - |
| 8 | Stem Packing (2) | PTFE | - |
| 9 | Gland Nut | Stainless Steel | AISI 304 |
| 10 | Handle | Stainless Steel | AISI 304 |
| 11 | Spring Washer | Stainless Steel | AISI 304 |
| 12 | Stem Nut | Stainless Steel | AISI 304 |
| 13 | Handle Sleeve | Vinyl Grip | - |
| 14 | Lock Device | Stainless Steel | AISI 404 |

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Pressure To Temperature Rating
(1/4"–4")



MATERIAL SPECIFICATIONS

| NO. | PART NAME | MATERIAL | STANDARD |
|-----|-------------------|------------------|--------------------|
| 1 | Body | Stainless Steel | ASTM-A351 Gr. CF8M |
| 2 | Ends | Stainless Steel | ASTM-A351 Gr. CF8M |
| 3 | Ball | Stainless Steel | ASTM-A351 Gr. CF8M |
| 4 | Stem | Stainless Steel | 316SS |
| 5 | Ball Seat | 15% RTFE | - |
| 6 | Gasket | 15% RTFE | - |
| 7 | Stem Packing | 15% RTFE | - |
| 8 | Thrust Washer | 15% RTFE | - |
| 9 | Stem Packing | Stainless Steel | 304SS |
| 10 | Belleville Washer | Stainless Steel | SUS 304-USP |
| 11 | Thrust Washer | PTFE +25% Carbon | - |
| 12 | O-Ring | Viton | - |
| 13 | Locking Washer | Stainless Steel | 304SS |
| 14 | Stem Nut | Stainless Steel | 304SS |
| 15 | Handle | Stainless Steel | 304SS |
| 16 | Handle Nut | Stainless Steel | 304SS |
| 17 | Handle Cover | Vinyl Grip | - |

B03 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• 1000 WOG

End Connection

• Threaded (NPT)

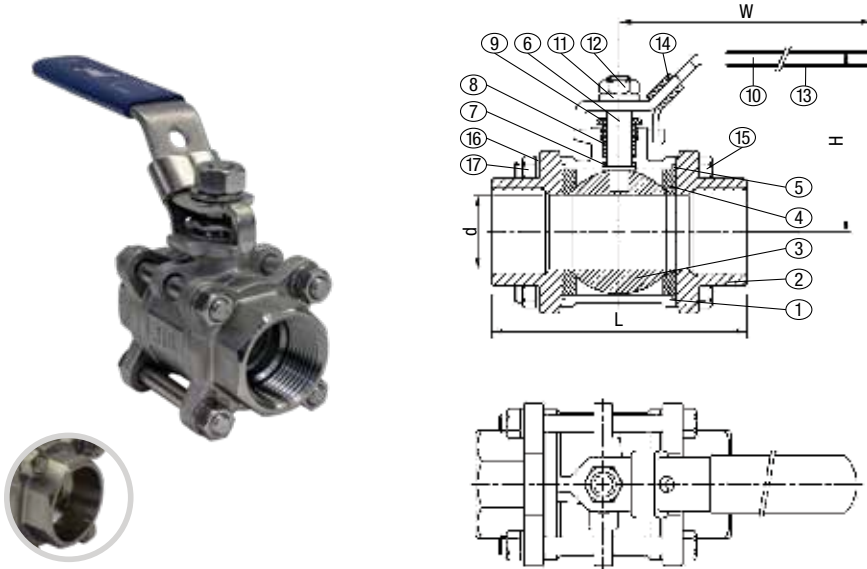
Standard

• ASTM A351-CF8M
• NACE MR0175
• Direct mounting pad for ISO Std 5211

DIMENSIONS

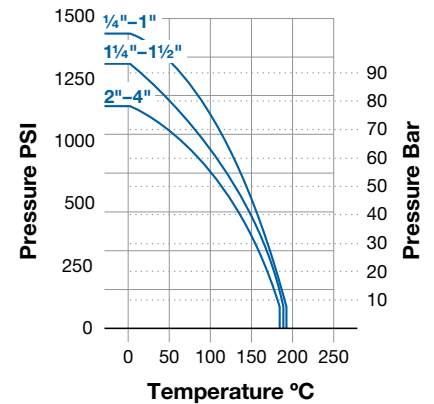
| SIZE | DIA. | L | F | M | D | H | D1 | S | A | ISO 5211 | TORQUE | CV FACTOR | WEIGHT |
|--------|------|-------|-----|-----|----|-------|-------|------|-------|----------|--------|-----------|--------|
| inch | mm | mm | mm | mm | mm | mm | mm | mm | mm | - | lbs | gpm | kg |
| 1/2" | 15 | 65.3 | 6 | 7.5 | 9 | 72.85 | 112 | 8.5 | 36.95 | F04–F05 | 85 | 15 | 0.46 |
| 3/4" | 20 | 77.3 | 7.5 | 9.5 | 9 | 81.8 | 112 | 8.5 | 45 | F05–F07 | 110 | 45 | 0.81 |
| 1" | 25 | 88.7 | 7.5 | 9.5 | 11 | 90.45 | 136 | 11.4 | 53.45 | F05–F07 | 180 | 65 | 0.96 |
| 1 1/2" | 38 | 109 | 7.5 | 9.5 | 14 | 114.7 | 197.9 | 14 | 74.75 | F05–F07 | 315 | 175 | 2.3 |
| 2" | 50 | 125.3 | 9.5 | 11 | 14 | 124.0 | 197.9 | 13.7 | 83.5 | F07–F10 | 450 | 380 | 2.3 |

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Pressure To Temperature Rating

(1/4"–4")



B04(S) Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

- 1000 WOG

End Connection

- Threaded (NPT)
- Socket Weld

Standard

- ASTM A351-CF8M
- NACE MR0175

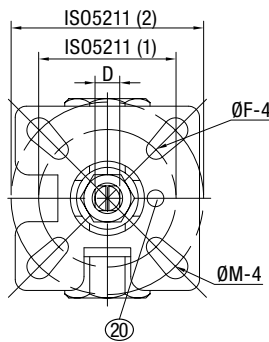
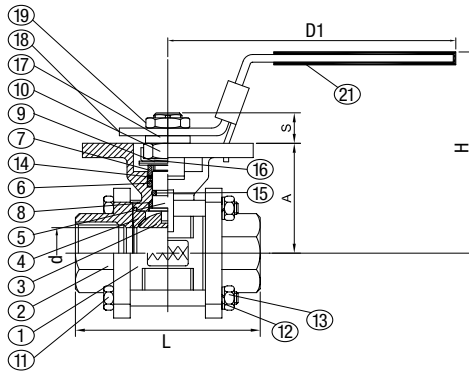
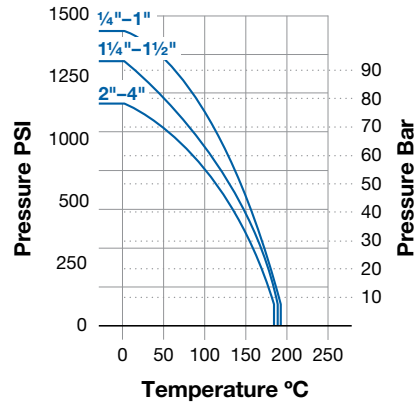
| DIMENSIONS | | | | | | | | | |
|------------|------|-------|------|-----|-------|------|-------|-----------|--------|
| SIZE | DIA. | L | H | W | B | D | S | CV FACTOR | WEIGHT |
| inch | mm | mm | mm | mm | mm | mm | mm | gpm | kg |
| 1/4" | 11.6 | 54 | 51 | 84 | 12 | 18 | 14.1 | 10 | 0.34 |
| 3/8" | 12.7 | 54 | 51 | 84 | 12.5 | 18 | 17.6 | 10 | 0.34 |
| 1/2" | 15 | 61.5 | 55 | 84 | 15.8 | 22 | 21.7 | 26 | 0.46 |
| 3/4" | 20 | 71 | 58.5 | 110 | 20.9 | 28 | 27.2 | 50 | 0.62 |
| 1" | 25 | 83.5 | 73 | 135 | 26.6 | 34 | 33.9 | 68 | 1.96 |
| 1 1/4" | 32 | 97 | 78.5 | 135 | 35.05 | 44 | 42.6 | 120 | 1.49 |
| 1 1/2" | 38 | 110.5 | 90.5 | 165 | 40.9 | 50 | 48.7 | 170 | 2 |
| 2" | 50 | 129 | 99 | 165 | 52.5 | 61.5 | 61.1 | 360 | 3.12 |
| 2 1/2" | 65 | 171.5 | 127 | 215 | 69 | 76 | 76.9 | 510 | 6.5 |
| 3" | 80 | 200 | 136 | 215 | 82 | 90 | 89.8 | 900 | 10.4 |
| 4" | 100 | 252 | 172 | 325 | 106 | 115 | 115.4 | 1250 | 20.2 |

| MATERIAL SPECIFICATIONS | | | |
|-------------------------|----------------------|-----------------|----------------|
| NO. | PART NAME | MATERIAL | STANDARD |
| 1 | Body | Stainless Steel | ASTM-CF8M-A351 |
| 2 | Ends | Stainless Steel | ASTM-CF8M-A351 |
| 3 | Ball | Stainless Steel | ASTM-CF8M-A351 |
| 4 | Ball Seat (2) | 15% RTFE | |
| 5 | Joint Gasket | 15% RTFE | |
| 6 | Stem | Stainless Steel | AISI 316 |
| 7 | Thrust Washer | PTFE | - |
| 8 | Stem Packing (2) | PTFE | - |
| 9 | Gland Nut | Stainless Steel | AISI 304 |
| 10 | Handle | Stainless Steel | AISI 304 |
| 11 | Stem Washer | Stainless Steel | AISI 304 |
| 12 | Stem Nut | Stainless Steel | AISI 304 |
| 13 | Handle Sleeve | Vinyl Grip | - |
| 14 | Lock Device | Stainless Steel | AISI 304 |
| 15 | Bolt (4-6) | Stainless Steel | AISI 304 |
| 16 | Spring Washer (4-12) | Stainless Steel | AISI 304 |
| 17 | Hex Nut (4-12) | Stainless Steel | AISI 304 |

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Pressure To Temperature Rating
(1/4"–4")



MATERIAL SPECIFICATIONS

| NO. | PART NAME | MATERIAL | STANDARD |
|-----|-------------------|------------------|------------------------------------|
| 1 | Body | Stainless Steel | ASTM-A351 Gr. CF8M |
| 2 | Ends (2) | Stainless Steel | ASTM-A351 Gr. CF8M *CF3M for SW |
| 3 | Ball | Stainless Steel | ASTM-A351 Gr. CF8M |
| 4 | Stem | Stainless Steel | 316SS |
| 5 | Seat (2) | 15% RTFE | - |
| 6 | Stem Packing | 25% CTFE | - |
| 7 | Washer | Stainless Steel | 304SS |
| 8 | Thrust Washer | PTFE +25% Carbon | - |
| 9 | Belleville Washer | Stainless Steel | SUS 304-CSP |
| 10 | Stem Nut | Stainless Steel | 304SS |
| 11 | Bolts | Stainless Steel | 304SS |
| 12 | Spring Washer | Stainless Steel | 304SS |
| 13 | Bolt Nuts | Stainless Steel | 304SS |
| 14 | Stem Ring | PTFE +25% Carbon | - |
| 15 | O-Ring | Viton | - |
| 16 | Stopper Washer | Stainless Steel | 304SS |
| 17 | Square | Stainless Steel | 304SS |
| 18 | Handle | Stainless Steel | 304SS |
| 19 | Handle Nut | Stainless Steel | 304SS |
| 20 | Stopper Pin | Stainless Steel | 304SS |
| 21 | Handle Sleeve | Vinyl | - |

B05(S) Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

- 1000 WOG

End Connection

- Threaded (NPT)
- Socket Weld

Standard

- ASTM A351-CF8M
- Direct mounting pad for ISO Std 5211

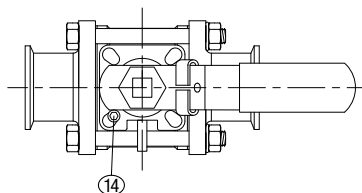
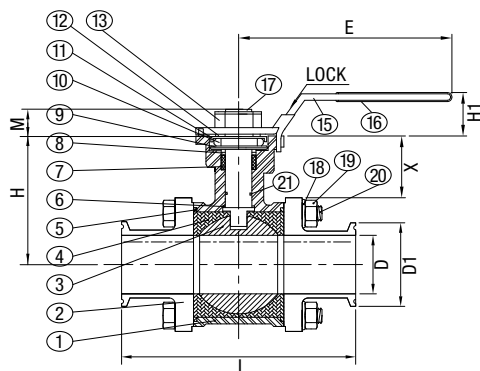
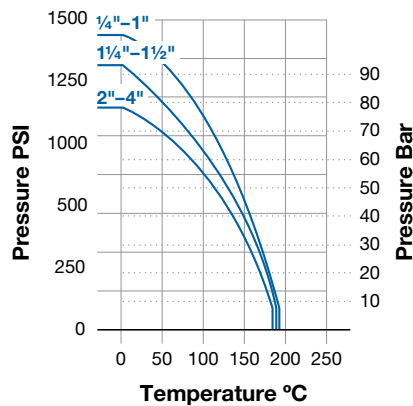
DIMENSIONS

| SIZE | DIA. | L | F | M | D | H | D1 | S | A | ISO 5211 | TORQUE | CV FACTOR | WEIGHT |
|--------|------|-------|-----|------|----|--------|-------|------|--------|----------|--------|-----------|--------|
| inch | mm | mm | mm | mm | mm | mm | mm | mm | mm | - | lbs | gpm | kg |
| 1/2" | 15 | 63.5 | 6 | 7.5 | 9 | 72.95 | 112 | 8.5 | 36.95 | F04-F05 | 85 | 26 | 0.6 |
| 3/4" | 20 | 72.5 | 7.5 | 9.5 | 9 | 80.8 | 112 | 8.5 | 45 | F05-F07 | 110 | 50 | 0.7 |
| 1" | 25 | 81 | 7.5 | 9.5 | 11 | 90.45 | 136 | 11.4 | 53.45 | F05-F07 | 180 | 68 | 1.03 |
| 1 1/2" | 38 | 108 | 7.5 | 9.5 | 14 | 115.25 | 197.9 | 14 | 74.75 | F05-F07 | 315 | 170 | 2.5 |
| 2" | 50 | 121.5 | 9.5 | 11 | 14 | 124.0 | 197.9 | 13.7 | 83.5 | F07-F10 | 450 | 360 | 3.4 |
| 3" | 80 | 190 | 11 | 14.3 | 17 | 208.5 | 264 | 18 | 118.25 | F10-F12 | 680 | 900 | 11.2 |
| 4" | 100 | 225 | 11 | 14.3 | 22 | 216.7 | 325 | 23 | 153.75 | F10-F12 | 1190 | 1250 | 22 |

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Pressure To Temperature Rating
(1/4"–4")



MATERIAL SPECIFICATIONS

| NO. | PART NAME | MATERIAL | STANDARD |
|-----|-------------------|------------------|--------------------|
| 1 | Body | Stainless Steel | ASTM-A351 Gr. CF8M |
| 2 | Ends (2) | Stainless Steel | ASTM-A351 Gr. CF8M |
| 3 | Ball | Stainless Steel | ASTM-A351 Gr. CF8M |
| 4 | Stem | Stainless Steel | 316SS |
| 5 | Seat (2) | 15% RTFE | - |
| 6 | Stem Packing | 25% CTFE | - |
| 7 | Washer | Stainless Steel | 304SS |
| 8 | Thrust Washer | PTFE +25% Carbon | - |
| 9 | Belleville Washer | Stainless Steel | SUS 304-CSP |
| 10 | Stem Nut | Stainless Steel | 304SS |
| 11 | Bolts | Stainless Steel | 304SS |
| 12 | Spring Washer | Stainless Steel | 304SS |
| 13 | Bolt Nuts | Stainless Steel | 304SS |
| 14 | Stem Ring | PTFE +25% Carbon | - |
| 15 | O-Ring | Viton | - |
| 16 | Stopper Washer | Stainless Steel | 304SS |
| 17 | Square | Stainless Steel | 304SS |
| 18 | Handle | Stainless Steel | 304SS |
| 19 | Handle Nut | Stainless Steel | 304SS |
| 20 | Stopper Pin | Stainless Steel | 304SS |
| 21 | Handle Sleeve | Vinyl | - |

B05TC Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• 1000 WOG

End Connection

• Tri-Clamp

Standard

• ASTM A351-CF8M
• Direct mounting pad for ISO Std 5211

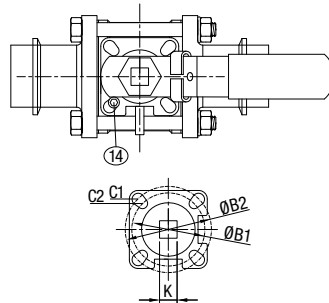
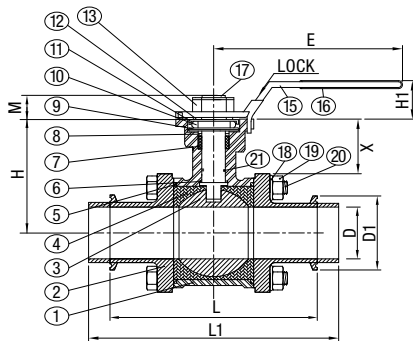
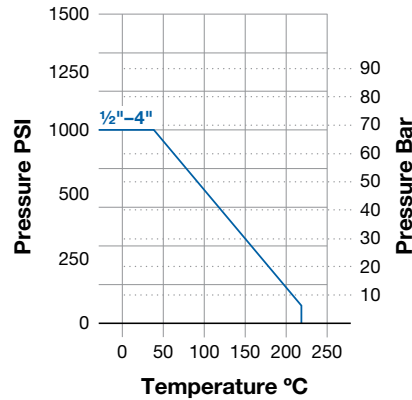
DIMENSIONS

| SIZE | DIA. | L | F | M | D | H | D1 | S | A | ISO 5211 | TORQUE | CV FACTOR | WEIGHT |
|--------|------|-------|-----|------|----|--------|-------|------|--------|----------|--------|-----------|--------|
| inch | mm | mm | mm | mm | mm | mm | mm | mm | mm | - | lbs | gpm | kg |
| 1/2" | 15 | 63.5 | 6 | 7.5 | 9 | 72.95 | 112 | 8.5 | 36.95 | F04-F05 | 85 | 26 | 0.6 |
| 3/4" | 20 | 72.5 | 7.5 | 9.5 | 9 | 80.8 | 112 | 8.5 | 45 | F05-F07 | 110 | 50 | 0.7 |
| 1" | 25 | 81 | 7.5 | 9.5 | 11 | 90.45 | 136 | 11.4 | 53.45 | F05-F07 | 180 | 68 | 1.03 |
| 1 1/2" | 38 | 108 | 7.5 | 9.5 | 14 | 115.25 | 197.9 | 14 | 74.75 | F05-F07 | 315 | 170 | 2.5 |
| 2" | 50 | 121.5 | 9.5 | 11 | 14 | 124.0 | 197.9 | 13.7 | 83.5 | F07-F10 | 450 | 360 | 3.4 |
| 3" | 80 | 190 | 11 | 14.3 | 17 | 208.5 | 264 | 18 | 118.25 | F10-F12 | 680 | 900 | 11.2 |
| 4" | 100 | 225 | 11 | 14.3 | 22 | 216.7 | 325 | 23 | 153.75 | F10-F12 | 1190 | 1250 | 22 |

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Pressure To Temperature Rating
(1/2"–4")



MATERIAL SPECIFICATIONS

| NO. | PART NAME | MATERIAL | STANDARD |
|-----|-------------------|-----------------|-------------------|
| 1 | Body | Stainless Steel | AISI 304/316/316L |
| 2 | Ends | Stainless Steel | AISI 304/316/316L |
| 3 | Ball | Stainless Steel | AISI 304/316/316L |
| 4 | Seat | PTFE/TFM 1600 | - |
| 5 | Gasket | PTFE | - |
| 6 | Thrust Packing | PTFE | - |
| 7 | Stem Packing | PTFE | - |
| 8 | Ring | Stainless Steel | AISI 304 |
| 9 | Belleville Washer | Stainless Steel | AISI 304 |
| 10 | Stem Nut | Stainless Steel | AISI 304 |
| 11 | Lock Washer | Stainless Steel | AISI 304 |
| 12 | Ring | Stainless Steel | AISI 304 |
| 13 | Handle Nut | Stainless Steel | AISI 304 |
| 14 | Stop Pin | Stainless Steel | AISI 304 |
| 15 | Handle | Stainless Steel | AISI 304 |
| 16 | Handle Sleeve | Plastic | Plastic |
| 17 | Stem | Stainless Steel | AISI 316 |
| 18 | Spring Washer | Stainless Steel | AISI 304 |
| 19 | Bolt Nut | Stainless Steel | AISI 304 |
| 20 | Bolt | Stainless Steel | AISI 304 |
| 21 | O-Ring | Viton | - |

B05T0 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• 1000 WOG

End Connection

• Tube ends

Standard

• ASTM A351-CF8M
• Direct mounting pad for ISO Std 5211

DIMENSIONS

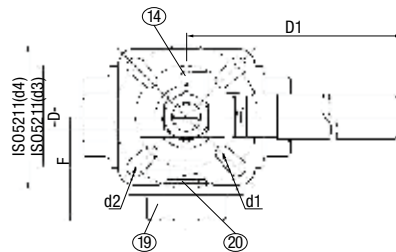
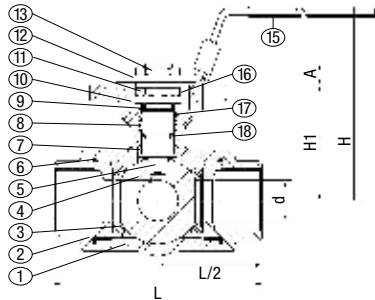
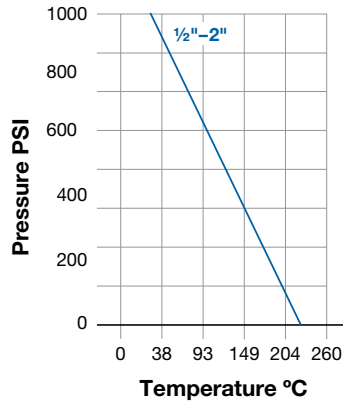
| SIZE | DIA. | D | L | H | M | B1 | B2 | K | D1 | E | D2 | H1 | A | C1 | C2 | TORQUE | X | A1 | L1 | ISO |
|------|------|------|-----|-------|----|-----|-----|----|-------|-----|-------|----|----|----|----|--------|------|------|-----|---------|
| inch | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | - |
| 1/2" | 15 | 9.5 | 89 | 37.0 | 9 | 36 | 42 | 9 | 25.4 | 143 | 12.7 | 26 | 18 | 6 | 6 | 90 | 15.5 | 42 | 137 | F03–F04 |
| 3/4" | 20 | 15.9 | 101 | 47.0 | 9 | 36 | 42 | 9 | 25.4 | 143 | 19.1 | 26 | 21 | 6 | 6 | 100 | 20.6 | 44 | 147 | F03–F04 |
| 1" | 25 | 22.2 | 114 | 57.2 | 11 | 42 | 50 | 11 | 50.4 | 160 | 25.4 | 34 | 25 | 6 | 8 | 140 | 29.0 | 52 | 168 | F04–F05 |
| 1½" | 4 | 35.0 | 140 | 78.2 | 14 | 50 | 70 | 14 | 50.4 | 187 | 38.2 | 43 | 28 | 8 | 10 | 240 | 39.0 | 51 | 186 | F05–F07 |
| 2" | 50 | 47.6 | 156 | 86.2 | 14 | 50 | 70 | 14 | 63.8 | 187 | 50.8 | 43 | 25 | 8 | 10 | 480 | 42.0 | 58.5 | 223 | F05–F07 |
| 2½" | 65 | 60.3 | 197 | 109.2 | 17 | 70 | 102 | 17 | 77.6 | 310 | 63.5 | 53 | 35 | 10 | 12 | 650 | 48.0 | - | - | F07–F10 |
| 3" | 80 | 73.0 | 229 | 117.7 | 17 | 70 | 102 | 17 | 91.0 | 310 | 76.2 | 53 | 43 | 10 | 12 | 1150 | 48.7 | - | - | F07–F10 |
| 4" | 100 | 97.4 | 241 | 141.2 | 22 | 102 | 125 | 22 | 119.0 | 400 | 100.6 | 56 | 37 | 12 | 14 | 1400 | 34.0 | - | - | F10–F12 |

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Pressure To Temperature Rating

(1/2"–2")



MATERIAL SPECIFICATIONS

| NO. | PART NAME | MATERIAL | STANDARD |
|-----|-------------------|------------------|--------------------|
| 1 | Body | Stainless Steel | ASTM-A351 Gr. CF8M |
| 2 | Ends | Stainless Steel | ASTM-A351 Gr. CF8M |
| 3 | Seat | Stainless Steel | 15% RTFE |
| 4 | Ball | Stainless Steel | ASTM-A351 Gr. CF8M |
| 5 | Stem | Stainless Steel | 316SS |
| 6 | Gasket | 15% RTFE | - |
| 7 | Thrust Washer | PTFE +25% Carbon | - |
| 8 | Stem Packing | 15% RTFE | - |
| 9 | Gland | Stainless Steel | 304SS |
| 10 | Belleville Washer | Stainless Steel | SUS 304-CSP |
| 11 | Stem Nut | Stainless Steel | 304SS |
| 12 | Handle | Stainless Steel | 304SS |
| 13 | Handle Nut | Stainless Steel | 304SS |
| 14 | Gasket | 15% RTFE | - |
| 15 | Handle Sleeve | Vinyl | - |
| 16 | Locking Washer | Stainless Steel | SUS 304-CSP |
| 17 | Thrust Washer | PTFE +25% Carbon | - |
| 18 | End Cap | Stainless Steel | ASTM-A351 Gr. CF8M |
| 19 | O-Ring | Viton | Viton |

Flow Pattern

| PORT TYPE | 1 | 2 | 3 | 4 |
|-----------|-------|-------|-------|-------|
| L | 1 2 3 | 1 2 3 | 1 2 3 | 1 2 3 |
| T | 1 2 3 | 1 2 3 | 1 2 3 | 1 2 3 |

B07L/T Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• 1000 WOG

End Connection

• Threaded (NPT)

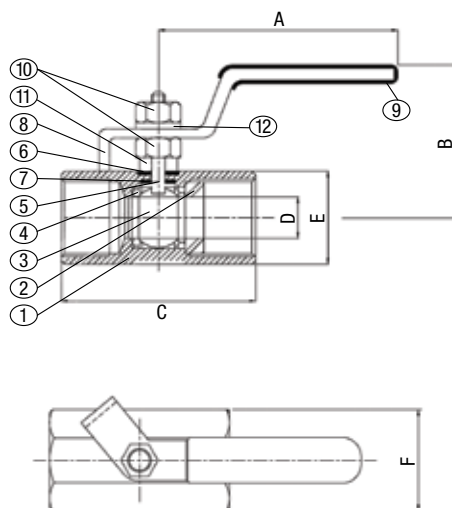
Standard

• ASTM A351-CF8M
• Direct mounting pad for ISO Std 5211

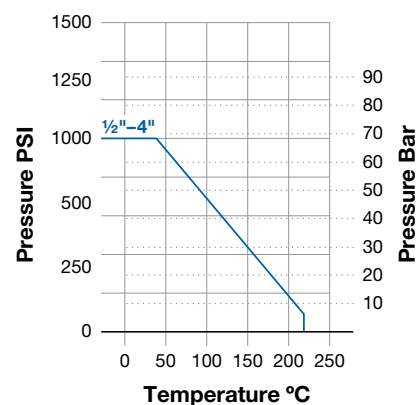
DIMENSIONS

| SIZE | DIA. | L | F | D | H | D1 | A | C | D1 | D2 | H1 | ISO 5211 | TORQUE | WEIGHT | CV FACTOR |
|--------|------|-------|-------|----|--------|-------|------|------|-----|-----|-------|----------|--------|--------|-----------|
| inch | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | - | lbs | kg | gpm |
| 1/2" | 12.7 | 75.7 | 37.25 | 9 | 77.45 | 112 | 8.5 | 12 | 6 | 7.5 | 40.65 | F04–F05 | 85 | 0.67 | 6 |
| 3/4" | 16.0 | 86.6 | 44.7 | 9 | 82 | 112 | 8.5 | 12 | 7.5 | 9.5 | 45.2 | F05–F07 | 110 | 1.07 | 8 |
| 1" | 20.0 | 102.4 | 51.4 | 11 | 93.7 | 136.5 | 11.4 | 15.8 | 7.5 | 9.5 | 56.5 | F05–F07 | 180 | 1.68 | 11 |
| 1 1/2" | 32.0 | 125.8 | 62.7 | 14 | 120.25 | 197.5 | 14 | 20.8 | 7.5 | 9.5 | 73.5 | F05–F07 | 315 | 3.6 | 65 |
| 2" | 38.1 | 149 | 74.6 | 14 | 129.85 | 197.5 | 13.7 | 20.8 | 9.5 | 11 | 87.35 | F07–F10 | 450 | 5.8 | 112 |

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Pressure To Temperature Rating
(1/2"–4")



B06 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• 2000 WOG

End Connection

• Threaded (NPT)

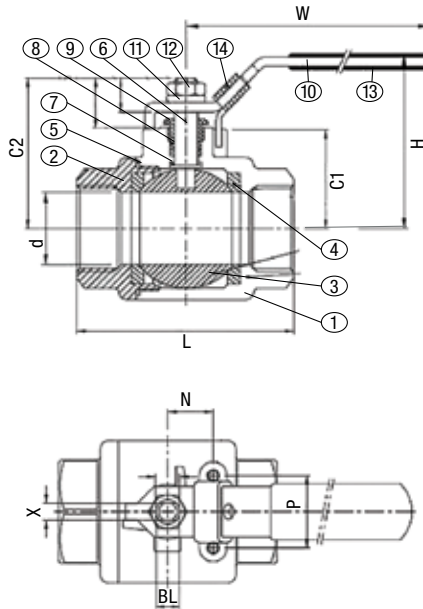
Standard

• ASTM A105N
• NACE MR0175

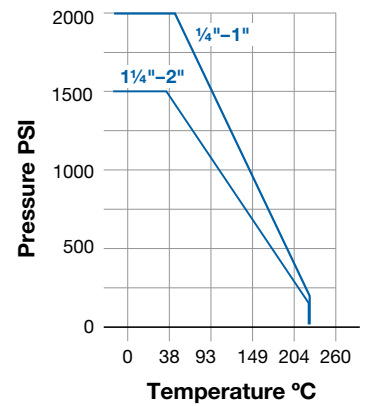
| DIMENSIONS | | | | | | | | |
|------------|-----|------|-------|------|------|------|-----------|--------|
| SIZE | A | B | C | D | E | F | CV FACTOR | WEIGHT |
| inch | mm | mm | mm | mm | mm | mm | gpm | kg |
| 1/4" | 61 | 29.5 | 41.3 | 5 | 21 | 24.1 | 1.5 | 0.21 |
| 3/8" | 79 | 34.5 | 44 | 7.2 | 23 | 26.4 | 3.5 | 0.22 |
| 1/2" | 108 | 63 | 57.2 | 9 | 29 | 33.3 | 5.7 | 0.29 |
| 3/4" | 110 | 65 | 65.1 | 12.5 | 35 | 40.3 | 10 | 0.42 |
| 1" | 122 | 68 | 71 | 15 | 41 | 47.2 | 16 | 0.71 |
| 1 1/4" | 145 | 79.5 | 92.1 | 20 | 55 | 63.4 | 25 | 1.06 |
| 1 1/2" | 148 | 84 | 98.4 | 25 | 57 | 65.7 | 40 | 1.68 |
| 2" | 148 | 92.5 | 114.3 | 32 | 73.5 | 84.7 | 62 | 2.71 |

| MATERIAL SPECIFICATIONS | | | |
|-------------------------|---------------|-----------------|----------|
| NO. | PART NAME | MATERIAL | STANDARD |
| 1 | Body | Carbon Steel | A108 |
| 2 | Insert | Carbon Steel | A108 |
| 3 | Ball | Stainless Steel | AISI 316 |
| 4 | Seat | PTFE +15% G/F | - |
| 5 | Stem | Stainless Steel | AISI 316 |
| 6 | Thrust Washer | PTFE | - |
| 7 | Stem Seal | PTFE | - |
| 8 | Handle | Stainless Steel | AISI 304 |
| 9 | Handle Sleeve | Vinyl | - |
| 10 | Nut | Stainless Steel | 304SS |
| 11 | Washer | Steel | WCB |
| 12 | Spring Washer | Stainless Steel | 304SS |

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Pressure To Temperature Rating
(1/4"-3")



B011 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

- 1/4"-2": 2000 WOG
- 3": 1500 WOG

End Connection

- Threaded (NPT)

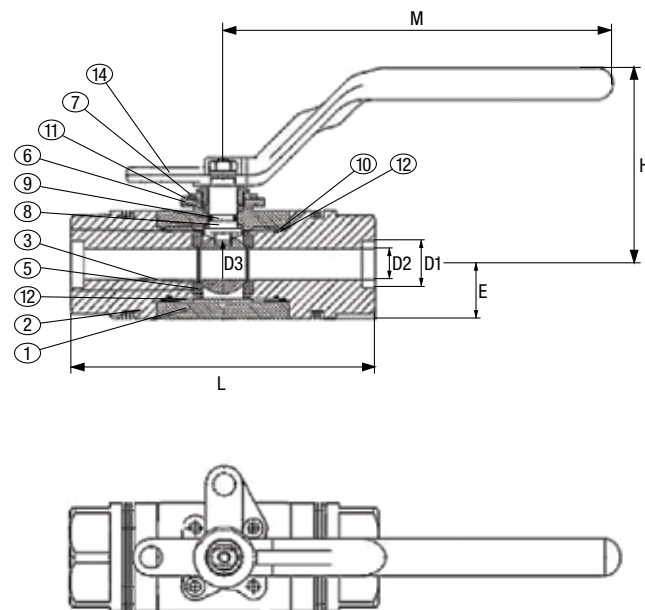
Standard

- ASTM A216-WCB
- NACE MR0175

| DIMENSIONS | | | | | | | | | |
|------------|------|------|-------|-----|-----|-------|-----------|--------|--------|
| SIZE | DIA. | L | H | W | X | BL | CV FACTOR | TORQUE | WEIGHT |
| inch | mm | mm | mm | mm | mm | mm | gpm | lbs | kg |
| 1/4" | 11.6 | 44.5 | 51 | 95 | 5 | 5/16" | 6.6 | 35 | 0.194 |
| 3/8" | 12.7 | 44.5 | 51 | 95 | 5 | 5/16" | 7.9 | 35 | 0.205 |
| 1/2" | 15 | 57 | 53 | 95 | 5 | 5/16" | 11.2 | 47 | 0.285 |
| 3/4" | 20 | 65 | 59.5 | 100 | 6.5 | 3/8" | 21 | 64 | 0.456 |
| 1" | 25 | 76 | 73 | 135 | 8 | 7/16" | 35 | 90 | 0.764 |
| 1 1/4" | 32 | 87.5 | 79 | 135 | 8 | 7/16" | 57 | 117 | 1.163 |
| 1 1/2" | 38 | 102 | 90.5 | 165 | 9 | 1/2" | 80 | 156 | 1.870 |
| 2" | 50 | 123 | 98.8 | 165 | 9 | 1/2" | 148 | 217 | 3.126 |
| 3" | 80 | 184 | 142.5 | 215 | 12 | 3/4" | 415 | 615 | 9.79 |

| MATERIAL SPECIFICATIONS | | | |
|-------------------------|---------------|-----------------|----------------|
| NO. | PART NAME | MATERIAL | STANDARD |
| 1 | Body | Carbon Steel | ASTM-A216-WCB |
| 2 | Ends | Carbon Steel | ASTM-A216-WCB |
| 3 | Ball | Stainless Steel | ASTM-CF8M-A351 |
| 4 | Ball Seat | 15% R-PTFE | - |
| 5 | Joint Gasket | PTFE | - |
| 6 | Stem | Stainless Steel | AISI 316 |
| 7 | Thrust Washer | PTFE | - |
| 8 | Stem Packing | PTFE | - |
| 9 | Gland Nut | Stainless Steel | AISI 304 |
| 10 | Handle | Stainless Steel | AISI 304 |
| 11 | Spring Washer | Stainless Steel | AISI 304 |
| 12 | Stem Nut | Stainless Steel | AISI 304 |
| 13 | Handle Sleeve | Vinyl | - |
| 14 | Lock Device | Stainless Steel | AISI 304 |

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BT3/BT6 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

- BT3: 3000 WOG
- BT6: 6000 WOG

End Connection

- Threaded (NPT)
- Socket Weld

Standard

- Tested to API 598
- API 607 Fire-safe
- NACE MR0175

| DIMENSIONS | | | | | | | | | | |
|-------------|-----|-----|----------|----|-----|------|------|------|-----|--------|
| SIZE | L | | | E | H | D1 | D2 | D3 | M | TORQUE |
| | NPT | SW | NPT X SW | | | | | | | |
| inch | mm | mm | mm | mm | mm | mm | mm | mm | mm | lbs |
| 1/2" FP-BT3 | 98 | 127 | 113 | 19 | 83 | 21.8 | 12.7 | 12.7 | 160 | 156 |
| 1/2" FP-BT6 | 98 | 127 | 119 | 19 | 83 | 21.8 | 12.7 | 12.7 | 160 | 214 |
| 3/4" FP | 108 | 172 | 140 | 24 | 90 | 27.8 | 19 | 19 | 160 | 358 |
| 3/4" RP | 111 | 172 | 140 | 19 | 83 | 27.8 | 19 | 12.7 | 160 | 156 |
| 1" FP | 108 | 172 | 152 | 27 | 94 | 48.8 | 25 | 25 | 200 | 441 |
| 1" RP-BT3 | 108 | 172 | 140 | 24 | 90 | 48.8 | 25 | 19 | 160 | 358 |
| 1" RP-BT6 | 108 | 172 | 152 | 24 | 90 | 48.8 | 25 | 19 | 160 | 560 |
| 1½" FP | 159 | 217 | 188 | 37 | 122 | 33.9 | 38.1 | 38.1 | 250 | 885 |
| 1½" RP-BT3 | 159 | 217 | 188 | 27 | 94 | 33.9 | 38.1 | 25 | 200 | 441 |
| 1½" RP-BT6 | 159 | 217 | 201 | 27 | 94 | 33.9 | 38.1 | 25 | 200 | 841 |
| 2" FP | 159 | 324 | 241 | 43 | 150 | 61.2 | 50 | 50 | 325 | 2847 |
| 2" RP-BT3 | 159 | 217 | 188 | 37 | 122 | 61.2 | 50 | 38.1 | 250 | 885 |
| 2" RP-BT6 | 159 | 217 | 201 | 37 | 122 | 61.2 | 50 | 38.1 | 250 | 1290 |

| MATERIAL SPECIFICATIONS | | | |
|-------------------------|---------------------|-----------------|------------------------------|
| NO. | PART NAME | MATERIAL | STANDARD |
| 1 | Body | Carbon Steel | A350 LF2 |
| 2 | Cap | Carbon Steel | A350 LF2 |
| 3 | Ball | Stainless Steel | CF8M / 316SS / 17/4 PH |
| 4 | Stern | Stainless Steel | 316SS / A564 Gr. 630 17/4 PH |
| 5 | Seat *NPT valves | PEEK | - |
| 6 | Packing Ring | Stainless Steel | 304SS |
| 7 | Gland | Carbon Steel | - |
| 8 | Thrust Washer | PEEK | - |
| 9 | Packing | Graphite | - |
| 10 | O-Ring | Viton-B | - |
| 11 | O-Ring | Viton-B | - |
| 12 | Gasket | Graphite | - |
| 13 | Belleville Washer | Stainless Steel | 302SS |
| 14 | Handle | Steel | A216 WCB |

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Z Series Industrial Ball Valve Index

Z Series



Code Index

ZR1 | **050** | **A** | **1** | **F** | **1** | **P** | **H** | **00**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Code and Class

ZR1 - Reduced port class 150
ZR3 - Reduced port class 300
ZR6 - Reduced port class 600
ZF1 - Full port class 150
ZF3 - Full port class 300
ZF6 - Full port class 600

② Size

050 - 1/2"; **075** - 3/4"; **001** - 1";
150 - 1½"; **002** - 2"; **250** - 2½";
003 - 3"; **004** - 4"; **006** - 6";
008 - 8"

③ Type

A - Floating ball split body
B - Floating ball uni-body
L - 3-Way L port
T - 3-Way T port

④ Type

1 - ASTM A216 WCB
2 - ASTM A325 LCC
3 - ASTM A351 CF8M
4 - A105N
5 - A50 LF2

⑤ End Connection

F - Raised face flanged*
R - Ring joint flanged ends
B - Butt-welded ends

⑥ Trim Material

1 - Body + 3ENC
2 - 304SS
3 - 316SS*

⑦ Seat Material

P - PTFE
R - RTFE*
N - Nylon
K - PEEK
D - Devlon

⑧ Operator

H - Handle/Lever
G - GearOperator
B - Bare Stem

⑨ Special Requirements

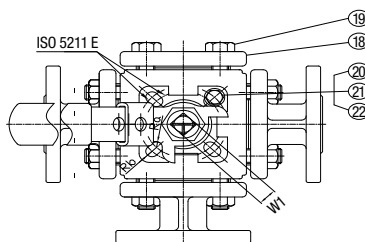
00 - Standard Requirement

*Denotes standard stock trim.



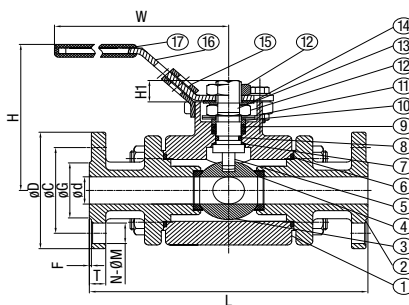
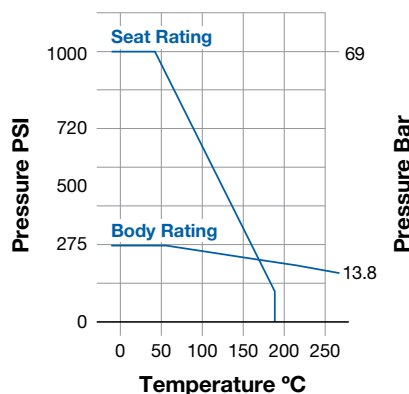
Flow Pattern

| PORT TYPE | 1 | 2 | 3 | 4 |
|-----------|---|---|---|---|
| L | | | | |
| T | | | | |



Pressure To Temperature Rating

(1/2"–8")



MATERIAL SPECIFICATIONS

| NO. | PART NAME | MATERIAL | STANDARD |
|-----|----------------|-----------------|----------|
| 1 | Body | Stainless Steel | CF8M |
| 2 | Cap | Stainless Steel | CF8M |
| 3 | Ball | Stainless Steel | CF8M |
| 4 | Seat | R-PTFE | - |
| 5 | Stem | Stainless Steel | SUS316 |
| 6 | Gasket | R-PTFE | - |
| 7 | Thrust Washer | Stainless Steel | TFM4215 |
| 8 | O-Ring | Viton | - |
| 9 | Packing | R-PTFE | - |
| 10 | Gland | Stainless Steel | SUS304 |
| 11 | Spring Washer | Stainless Steel | SUS301 |
| 12 | Stem Nut | Stainless Steel | SUS304 |
| 13 | Stop Washer | Stainless Steel | SUS304 |
| 14 | Handle Washer | Stainless Steel | SUS304 |
| 15 | Locking Device | Stainless Steel | SUS304 |
| 16 | Handle | Stainless Steel | SUS304 |
| 17 | Plastic Cover | Plastic | - |
| 18 | CAP-A | Stainless Steel | CF8M |
| 19 | Bolt | Stainless Steel | SUS304 |
| 20 | Stop Pin | Stainless Steel | SUS304 |
| 21 | Bolt | Stainless Steel | SUS304 |
| 22 | Nut | Stainless Steel | SUS304 |

ZF1 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

- Class 150
- 450 PSI (Water)
- 85 PSI (Air)

End Connection

- Flanged

Standard

- ASME/ANSI Class 150-B16.34
- Markings per MSS-SP25

DIMENSIONS

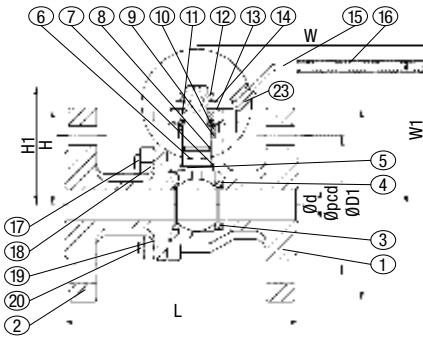
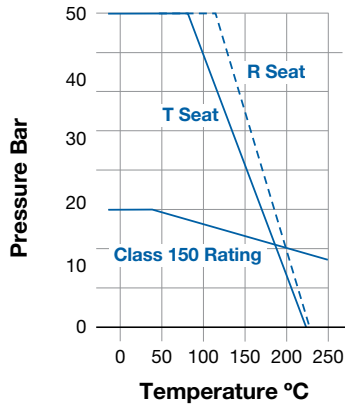
| Size | | d | D | C | G | T | f | N | M | L | H | W | E | H1 | W1 | Ma | Ra | Rb | ISO 5211 |
|------|------|-----|-----|-------|-----|------|-----|----|----|-----|-----|------|-------|----|----|----|----|------|----------|
| DN | NPS | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | - | - | - |
| 15 | 1/2" | 15 | 89 | 60.5 | 35 | 11.1 | 1.6 | 4 | 16 | 148 | 80 | 123 | 36-42 | 9 | 9 | - | R3 | R3 | F03-F04 |
| 20 | 3/4" | 20 | 98 | 70.0 | 43 | 11.1 | 1.6 | 4 | 16 | 153 | 84 | 123 | 36-42 | 9 | 9 | - | R3 | R3 | F03-F04 |
| 25 | 1" | 25 | 108 | 79.5 | 51 | 11.1 | 1.6 | 4 | 16 | 168 | 96 | 153 | 42-50 | 11 | 11 | - | R3 | R3.5 | F04-F05 |
| 4 | 1½" | 40 | 127 | 98.5 | 73 | 14.3 | 1.6 | 4 | 16 | 221 | 171 | 403 | 70 | 19 | 17 | 10 | - | - | F07 |
| 50 | 2" | 50 | 152 | 120.5 | 92 | 15.9 | 1.6 | 4 | 19 | 254 | 176 | 403 | 70 | 19 | 17 | 10 | - | - | F07 |
| 65 | 2½" | 65 | 178 | 139.5 | 105 | 17.5 | 1.6 | 4 | 19 | 300 | 208 | 504 | 102 | 24 | 22 | 12 | - | - | F10 |
| 80 | 3" | 76 | 190 | 152.5 | 127 | 19.1 | 1.6 | 4 | 19 | 305 | 216 | 504 | 102 | 24 | 22 | 12 | - | - | F10 |
| 100 | 4" | 96 | 229 | 190.5 | 157 | 23.9 | 1.6 | 8 | 19 | 369 | 236 | 654 | 102 | 24 | 22 | 12 | - | - | F10 |
| 150 | 6" | 148 | 279 | 241.5 | 216 | 25.4 | 1.6 | 8 | 22 | 480 | 329 | 800 | 140 | 38 | 36 | 18 | - | - | F14 |
| 200 | 8" | 200 | 343 | 298.5 | 270 | 28.6 | 1.6 | 8 | 22 | 630 | 354 | 1000 | 140 | 40 | 36 | 18 | - | - | F14 |

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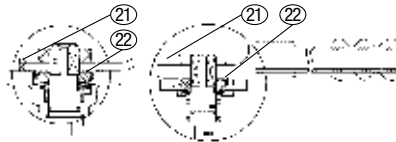
Pressure To Temperature Rating

(1/2"–6")



2½"–4"

5"–6" (No lock device)



MATERIAL SPECIFICATIONS

| NO. | PART NAME | MATERIAL | STANDARD |
|-----|-------------------|------------------|----------|
| 1 | Body | Stainless Steel | CF8M |
| 2 | Cap | Stainless Steel | CF8M |
| 3 | Ball | Stainless Steel | CF8M |
| 4 | Ball Seat (2) | 15% R-PTFE | - |
| 5 | Joint Gasket | PTFE +25% Carbon | - |
| 6 | Stem | Stainless Steel | AISI 316 |
| 7 | Thrust Washer | PTFE +25% Carbon | - |
| 8 | O-Ring | Viton | - |
| 9 | Stem Packing | PTFE +25% Carbon | - |
| 10 | Stem Ring | Stainless Steel | AISI 304 |
| 11 | Belleville Washer | Stainless Steel | AISI 304 |
| 12 | Stem Nut (2) | Stainless Steel | AISI 304 |
| 13 | Stopper (2) | Stainless Steel | AISI 304 |
| 14 | Spring Washer | Stainless Steel | AISI 304 |
| 15 | Handle | Stainless Steel | AISI 304 |
| 16 | Plastic Cover | Plastic | - |
| 17 | Nut 1 | Stainless Steel | AISI 304 |
| 18 | Stud Bolt 1 | Stainless Steel | AISI 304 |
| 19 | Nut 2 | Stainless Steel | AISI 304 |
| 20 | Stud Bolt 2 | Stainless Steel | AISI 304 |
| 21 | Stopper Pin | Stainless Steel | AISI 304 |
| 22 | Lock Washer | Stainless Steel | AISI 304 |
| 23 | Lock Device | Stainless Steel | AISI 304 |

ZF1 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• Class 150

End Connection

• Flanged

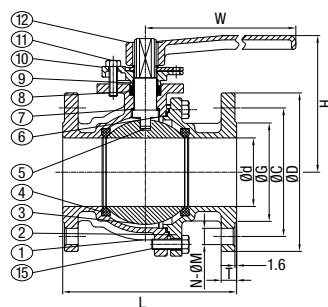
Standard

• ASME/ANSI Class 150 B16.34
• NACE MR0175

DIMENSIONS

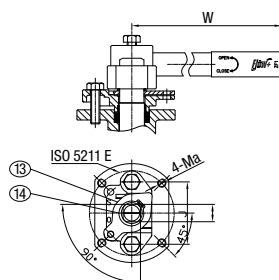
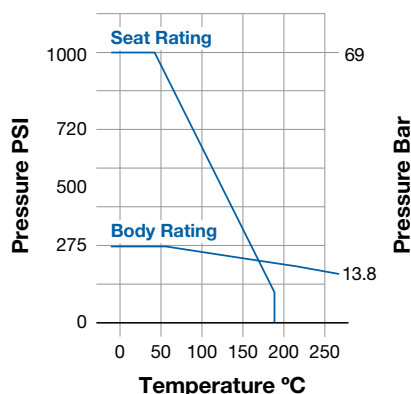
| SIZE | D | D1 | PCD | L | H | H1 | W | W1 | V | V1 | X | X1 | STEM DIA. | TORQUE | WEIGHT | CV FACTOR |
|----------------|-------------|--------------|---------------|-------------|---------------|---------------|----------------|---------------|-------------|---------------|--------------|---------------|-------------|-----------------------|-------------------|-----------|
| 1/4" 12 mm | 0.59 15 | 3.5 89 | 2.38 60.5 | 4.25 108 | 1.83 46.5 | 2.20 56 | 4.3 110 | 3.50 89 | 1.65 42 | 0.24 6 | 1.97 50 | 0.28 7 | 0.35 9 | 85 lbs 9.6 Nm | 3.6 lbs 1.6 kg | 27 |
| 3/4" 20 mm | 0.79 20 | 3.875 98 | 2.75 70 | 4.6 117 | 2.03 51.5 | 2.40 61 | 4.3 110 | 3.70 94 | 1.97 50 | 0.3 7.6 | 2.76 70 | 0.38 9.6 | 0.35 9 | 110 lbs 12.4 Nm | 4.5 lbs 2 kg | 50 |
| 1" 25 mm | 0.98 25 | 4.25 108 | 3.125 79.5 | 5 127 | 2.26 57.5 | 2.64 67 | 5.35 136 | 3.74 95 | 1.97 50 | 0.3 7.6 | 2.76 70 | 0.38 9.6 | 0.43 11 | 180 lbs 20.3 Nm | 7 lbs 3.2 kg | 95 |
| 1½" 38 mm | 1.57 40 | 5 127 | 3.875 98.5 | 6.5 165 | 3.01 76.5 | 3.62 92 | 8 203 | 4.36 110.7 | 2.76 70 | 0.38 9.6 | 4.02 102 | 0.44 11.2 | 0.55 14 | 315 lbs 35.6 Nm | 14 lbs 6.4 kg | 280 |
| 2" 50.8 mm | 1.97 50 | 6 152.4 | 4.75 120.5 | 7 178 | 3.29 83.5 | 3.90 99 | 8 203 | 4.63 117.7 | 2.76 70 | 0.38 9.6 | 4.02 102 | 0.44 11.2 | 0.55 14 | 450 in lbs 50.8 Nm | 21 lbs 9.5 kg | 490 |
| 2½" 63.5 mm | 2.56 65 | 7.01 178 | 5.49 139.5 | 7.48 190 | 4.57 118.5 | 5.39 137 | 10.93 277.5 | 6.12 155.5 | 4.02 102 | 0.44 11.2 | 4.92 125 | 0.56 14.3 | 0.67 17 | 565 lbs 63.8 Nm | 36 lbs 16.3 kg | 750 |
| 3" 75 mm | 3.14 80 | 7.5 190.5 | 6 152.5 | 8 203 | 5.10 129.5 | 5.83 148 | 10.93 277.5 | 6.56 166.5 | 4.02 102 | 0.44 11.2 | 4.92 125 | 0.56 14.3 | 0.67 17 | 680 lbs 76.8 Nm | 48 lbs 22 kg | 1160 |
| 4" 100 mm | 3.94 100 | 9 229 | 7.5 190.5 | 9.06 230 | 5.71 145 | 6.44 163.5 | 14.86 377.5 | 7.17 182 | 4.02 102 | 0.44 11.2 | 4.92 125 | 0.56 14.3 | 0.87 22 | 1190 lbs 134.5 Nm | 79 lbs 36 kg | 2200 |
| 6" 150 mm | 5.9 150 | 15.51 394 | 9.5 241.5 | 9.06 230 | 6.89 175 | 8.61 218.6 | 21.65 550 | 7.17 182 | 4.92 125 | 0.56" 14.3 | 5.51" 140 | 0.73" 18.6 | 1.06" 27 | 2850 lbs 322 Nm | 207 lbs 94 kg | 5100 |

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Pressure To Temperature Rating

(1/2"–12")



MATERIAL SPECIFICATIONS

| NO. | PART NAME | MATERIAL | STANDARD |
|-----|---------------|-----------------|----------|
| 1 | Body | Stainless Steel | CF8M |
| 2 | Cap | Stainless Steel | CF8M |
| 3 | Ball | Stainless Steel | CF8M |
| 4 | Seat | R-PTFE | - |
| 5 | Stem | | SUS316 |
| 6 | Gasket | PTFE | |
| 7 | Thrust Washer | PEEK + PTFE | - |
| 8 | Gland Packing | PTFE | - |
| 9 | Stem Bushing | PTFE | - |
| 10 | Gland | Stainless Steel | CF8 |
| 11 | Gland Bolt | Stainless Steel | B8 |
| 12 | Handle | Ductile Iron | FCD |
| 13 | Stopper | Stainless Steel | SUS304 |
| 14 | Snap Ring | Stainless Steel | SUS304 |
| 15 | Bolt | Stainless Steel | B8 |

ZF1 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

- Class 150

End Connection

- Flanged

Standard

- ASME/ANSI Class 150 B16.5/10
- NACE MR0175

DIMENSIONS

| SIZE | d | D | C | G | T | L | H | W | W1 | J | ISO 5211 | TORQUE |
|--------|-----|-----|-------|-----|------|-----|-----|------|----|-----|----------|--------|
| inch | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | - | lbs |
| 1/2" | 15 | 89 | 60.5 | 35 | 11.1 | 108 | 92 | 160 | 12 | 50 | F04 | 14 |
| 3/4" | 20 | 98 | 70.0 | 43 | 11.1 | 117 | 98 | 160 | 12 | 50 | F04 | 22 |
| 1" | 25 | 108 | 79.5 | 51 | 11.1 | 127 | 103 | 160 | 12 | 50 | F05 | 22 |
| 1 1/4" | 32 | 117 | 89.5 | 64 | 12.7 | 140 | 107 | 160 | 12 | 50 | F05 | 25 |
| 1 1/2" | 40 | 127 | 98.5 | 73 | 14.3 | 165 | 112 | 230 | 17 | 62 | F07 | 29 |
| 2" | 50 | 152 | 120.5 | 92 | 15.9 | 178 | 122 | 230 | 17 | 62 | F07 | 34 |
| 2 1/2" | 65 | 178 | 139.5 | 105 | 17.5 | 190 | 151 | 350 | 21 | 75 | F07 | 50 |
| 3" | 80 | 190 | 152.5 | 127 | 19.1 | 203 | 161 | 350 | 21 | 75 | F10 | 75 |
| 4" | 100 | 229 | 190.5 | 157 | 23.9 | 229 | 175 | 350 | 21 | 75 | F10 | 100 |
| 5" | 125 | 254 | 216.0 | 186 | 23.9 | 356 | 224 | 750 | 24 | 89 | F12 | 170 |
| 6" | 150 | 279 | 241.5 | 216 | 25.4 | 394 | 247 | 750 | 24 | 89 | F12 | 270 |
| 8" | 200 | 343 | 298.5 | 270 | 28.6 | 457 | 305 | 1000 | 32 | 100 | F12 | 380 |
| 10" | 250 | 406 | 362.0 | 324 | 30.2 | 533 | 327 | 1000 | 32 | 100 | F14 | 500 |
| 12" | 300 | 483 | 432.0 | 381 | 31.8 | 610 | 355 | 1000 | 32 | 100 | F14 | 600 |

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ZF1 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

- Class 150

End Connection

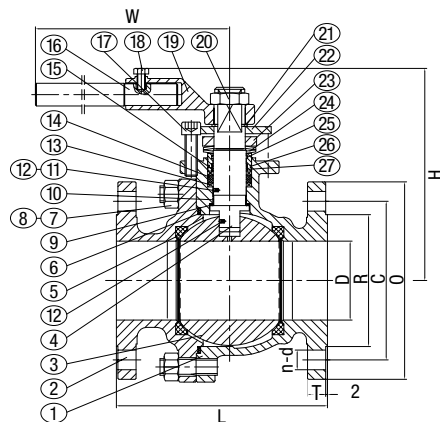
- Flanged

Standard

- ASME/ANSI Class 150 B16.34
- NACE MR0175
- Fire-safe to API-607, latest Ed.



Lever



LEVER OPERATED MATERIAL SPECIFICATIONS

| NO. | PART NAME | CARBON STEEL (WCB) MATERIALS | LOW-TEMP CAL (LCC) MATERIALS |
|-----|-------------------------|------------------------------|------------------------------|
| 1 | Body | A216 WCB | A352 LCC |
| 2 | End | A216 WCB | A352 LCC |
| 3 | Ball | A182 F316 | A182 F316 |
| 4 | Stem | A182 F316 | A182 F316 |
| 5 | Seat | Nylon | R-PTFE |
| 6 | Body Gasket | 304 Graphite Spiral Wound | 304 Graphite Spiral Wound |
| 7 | Nut | A194-2HM | A194-2HM |
| 8 | Full-threaded Bolt | A193-B7M | A320 L7M |
| 9 | Stem Gasket | PTFE | PTFE |
| 10 | Stem Bearing | PTFE | PTFE |
| 11 | Stem Ball | A276 304 | A276 304 |
| 12 | Anti-static Spring | A276 304 | A276 304 |
| 13 | Stem Firesafe Gasket I | Flexible Graphite + 316 | Flexible Graphite + 316 |
| 14 | Stem Firesafe Gasket II | Flexible Graphite | Flexible Graphite |
| 15 | Packing Gland Bearing | PTFE | PTFE |
| 16 | Lever | AISI 1020 | AISI 1020 |
| 17 | Screw | A193-B7M | A320 L7M |
| 18 | Hex Bolt | A193-B7M | SS |
| 19 | Joint | A216 WCB | A352 LCC |
| 20 | Nut | AISI 1020 | AISI 1020 |
| 21 | Axial Retaining Ring | AISI 1566 | AISI 1566 |
| 22 | Limit Block | A36 | A36 |
| 23 | Nut | AISI 1020 | AISI 1020 |
| 24 | Belleville Washer | A276 304 | A276 304 |
| 25 | O-Ring | Viton | Viton |
| 26 | O-Ring | Viton | Viton |
| 27 | Packing Bushing | A276 316 | A276 316 |

DIMENSIONS

| Size | L | D | R | C | O | n-d | T | W | H | WT | Torque | | CV |
|--------|-------|------|--------|-------|--------|--------|-------|-------|-------|-----------|----------|-----------|--------|
| | | | | | | | | | | | 150 PSI | 285 PSI | |
| 2" | 4.25 | 0.51 | 1.375 | 2.375 | 3.5 | 0.625 | 0.438 | 5.91 | 3.19 | 4.85 lbs | 71 lbs | 107 lbs | 24 |
| 12.7 | 108 | 13 | 34.93 | 60.33 | 88.9 | 4-62 | 11.11 | 150 | 81 | 2.2 kg | 8 Nm | 12 Nm | |
| 3/4" | 4.61 | 0.75 | 1.6875 | 2.75 | 3.875 | 0.625 | 0.5 | 5.91 | 3.35 | 5.95 lbs | 80 lbs | 124 lbs | 53 |
| 19.05 | 117 | 19 | 42.86 | 69.85 | 98.43 | 4-62 | 12.7 | 150 | 85 | 2.7 kg | 9 Nm | 14 Nm | |
| 1" | 5.0 | 0.98 | 2 | 3.125 | 4.25 | 0.625 | 0.56 | 7.09 | 3.86 | 9.92 lbs | 142 lbs | 239 lbs | 92 |
| 25.4 | 127 | 25 | 50.8 | 79.38 | 107.98 | 4-62 | 14.29 | 180 | 98 | 4.5 kg | 16 Nm | 27 Nm | |
| 1 1/2" | 6.5 | 1.50 | 2.875 | 3.875 | 5 | 0.625 | 0.69 | 11.02 | 5.24 | 15.43 lbs | 292 lbs | 487 lbs | 211 |
| 38.1 | 165 | 38 | 73.03 | 98.43 | 127 | 4-62 | 17.46 | 280 | 133 | 7 kg | 33 Nm | 55 Nm | |
| 2" | 7 | 1.97 | 3.625 | 4.75 | 5.9 | 4.75 | 0.562 | 9.53 | 6.14 | 22 lbs | 372 lbs | 620 lbs | 450 |
| 50.8 | 178 | 50 | 92.1 | 120.7 | 150 | 4-19 | 14.3 | 242 | 156 | 9.8 kg | 42 Nm | 70 Nm | |
| 3" | 8 | 2.95 | 5 | 6 | 7.48 | 4.75 | 0.69 | 13.78 | 8.07 | 44 lbs | 797 lbs | 1328 lbs | 1100 |
| 76.2 | 203 | 75 | 127 | 152.4 | 190 | 4-19 | 17.5 | 350 | 205 | 20 kg | 90 Nm | 150 Nm | |
| 4" | 9.02 | 3.98 | 6.19 | 7.5 | 9.05 | 8.75 | 0.88 | 18.11 | 8.858 | 77 lbs | 1328 lbs | 2168 lbs | 2200 |
| 101.6 | 229 | 101 | 157.2 | 190.5 | 230 | 8-19 | 22.3 | 460 | 225 | 35 kg | 150 Nm | 245 Nm | |
| 6" | 15.51 | 5.94 | 8.5 | 9.5 | 11.02 | 8.885 | 0.94 | 29.53 | 12.48 | 211 lbs | 3009 lbs | 4956 lbs | 5200 |
| 152.4 | 394 | 151 | 215.9 | 241.3 | 280 | 8-22.5 | 23.9 | 750 | 317 | 96 kg | 340 Nm | 560 Nm | |
| 8" | 18 | 7.95 | 10.625 | 11.75 | 13.58 | 8.885 | 1.06 | - | - | 364 lbs | 7213 lbs | 12001 lbs | 10,000 |
| 203.2 | 457 | 202 | 269.9 | 298.5 | 345 | 8-22.5 | 27 | - | - | 165 kg | 815 Nm | 1356 Nm | |

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ZF1 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

- Class 150

End Connection

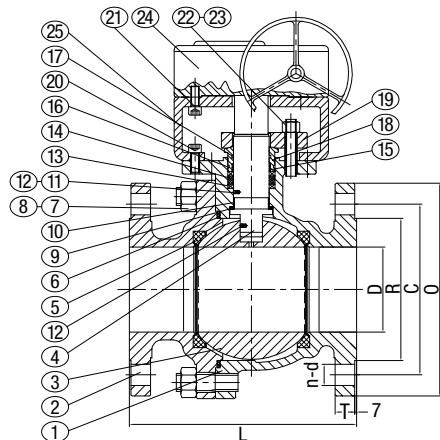
- Flanged

Standard

- ASME/ANSI Class 150 B16.34
- NACE MR0175
- Fire-safe to API-607, latest Ed.



Gear
(available on 8")



GEAR OPERATED MATERIAL SPECIFICATIONS

| NO. | PART NAME | CARBON STEEL (WCB) MATERIALS | LOW-TEMP CARBON STEEL (LCC) MATERIALS |
|-----|-------------------------|------------------------------|---------------------------------------|
| 1 | Body | A216 WCB | A352 LCC |
| 2 | End | A216 WCB | A352 LCC |
| 3 | Ball | A182 F316 | A182 F316 |
| 4 | Stem | A182 F316 | A182 F316 |
| 5 | Seat | Nylon | R-PTFE |
| 6 | Body Gasket | 304 Graphite Spiral Wound | 304 Graphite Spiral Wound |
| 7 | Nut | A194-2HM | A194-2HM |
| 8 | Full-threaded Bolt | A193-B7M | A320 L7M |
| 9 | Stem Gasket | PTFE | PTFE |
| 10 | Stem Bearing | PTFE | PTFE |
| 11 | Stem Ball | A276 304 | A276 304 |
| 12 | Anti-static Spring | A276 304 | A276 304 |
| 13 | Stem Firesafe Gasket I | Flexible Graphite + 316 | Flexible Graphite + 316 |
| 14 | Stem Firesafe Gasket II | Flexible Graphite | Flexible Graphite |
| 15 | Packing Gland Bearing | PTFE | PTFE |
| 16 | O-Ring | Viton | Viton |
| 17 | O-Ring | Viton | Viton |
| 18 | Packing Bushing | A276 316 | A276 316 |
| 19 | Packing Plate | A216 WCB | A352 LCC |
| 20 | Inner Hex Screw | A193-B7M | A320-L7M |
| 21 | Inner Hex Screw | A193-B7M | A320-L7M |
| 22 | Nut | A193-B7M | A194 7M |
| 23 | Bolt | A193-B7M | A320-L7M |
| 24 | Actuator | Component | Component |
| 25 | Yokes | A36 | A36 |

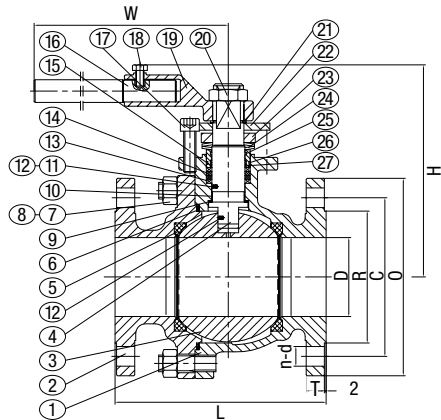
DIMENSIONS

| Size | L | D | R | C | O | n-d | T | W | H | WT | Torque | | CV |
|--------|-------|------|--------|-------|--------|--------|-------|-------|-------|-----------|----------|-----------|--------|
| | | | | | | | | | | | 150 PSI | 285 PSI | |
| 2" | 4.25 | 0.51 | 1.375 | 2.375 | 3.5 | 0.625 | 0.438 | 5.91 | 3.19 | 4.85 lbs | 71 lbs | 107 lbs | 24 |
| 12.7 | 108 | 13 | 34.93 | 60.33 | 88.9 | 4-62 | 11.11 | 150 | 81 | 2.2 kg | 8 Nm | 12 Nm | |
| 3/4" | 4.61 | 0.75 | 1.6875 | 2.75 | 3.875 | 0.625 | 0.5 | 5.91 | 3.35 | 5.95 lbs | 80 lbs | 124 lbs | 53 |
| 19.05 | 117 | 19 | 42.86 | 69.85 | 98.43 | 4-62 | 12.7 | 150 | 85 | 2.7 kg | 9 Nm | 14 Nm | |
| 1" | 5.0 | 0.98 | 2 | 3.125 | 4.25 | 0.625 | 0.56 | 7.09 | 3.86 | 9.92 lbs | 142 lbs | 239 lbs | 92 |
| 25.4 | 127 | 25 | 50.8 | 79.38 | 107.98 | 4-62 | 14.29 | 180 | 98 | 4.5 kg | 16 Nm | 27 Nm | |
| 1 1/2" | 6.5 | 1.50 | 2.875 | 3.875 | 5 | 0.625 | 0.69 | 11.02 | 5.24 | 15.43 lbs | 292 lbs | 487 lbs | 211 |
| 38.1 | 165 | 38 | 73.03 | 98.43 | 127 | 4-62 | 17.46 | 280 | 133 | 7 kg | 33 Nm | 55 Nm | |
| 2" | 7 | 1.97 | 3.625 | 4.75 | 5.9 | 4.75 | 0.562 | 9.53 | 6.14 | 22 lbs | 372 lbs | 620 lbs | 450 |
| 50.8 | 178 | 50 | 92.1 | 120.7 | 150 | 4-19 | 14.3 | 242 | 156 | 9.8 kg | 42 Nm | 70 Nm | |
| 3" | 8 | 2.95 | 5 | 6 | 7.48 | 4.75 | 0.69 | 13.78 | 8.07 | 44 lbs | 797 lbs | 1328 lbs | 1100 |
| 76.2 | 203 | 75 | 127 | 152.4 | 190 | 4-19 | 17.5 | 350 | 205 | 20 kg | 90 Nm | 150 Nm | |
| 4" | 9.02 | 3.98 | 6.19 | 7.5 | 9.05 | 8.75 | 0.88 | 18.11 | 8.858 | 77 lbs | 1328 lbs | 2168 lbs | 2200 |
| 101.6 | 229 | 101 | 157.2 | 190.5 | 230 | 8-19 | 22.3 | 460 | 225 | 35 kg | 150 Nm | 246 Nm | |
| 6" | 15.51 | 5.94 | 8.5 | 9.5 | 11.02 | 8.885 | 0.94 | 29.53 | 12.48 | 211 lbs | 3009 lbs | 4956 lbs | 5200 |
| 152.4 | 394 | 151 | 215.9 | 241.3 | 280 | 8-22.5 | 23.9 | 750 | 317 | 96 kg | 340 Nm | 560 Nm | |
| 8" | 18 | 7.95 | 10.625 | 11.75 | 13.58 | 8.885 | 1.06 | - | - | 364 lbs | 7213 lbs | 12001 lbs | 10,000 |
| 203.2 | 457 | 202 | 269.9 | 298.5 | 345 | 8-22.5 | 27 | - | - | 165 kg | 815 Nm | 1356 Nm | |

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Lever



LEVER OPERATED MATERIAL SPECIFICATIONS

| NO. | PART NAME | CARBON STEEL (WCB) MATERIALS | LOW-TEMP (LCC) MATERIALS | STAINLESS STEEL (316SS) MATERIALS |
|-----|-------------------------|------------------------------|---------------------------|-----------------------------------|
| 1 | Body | A216 WCB | A352 LCC | A351 CF8M |
| 2 | End | A216 WCB | A352 LCC | A351 CF8M |
| 3 | Ball | A182 F316 | A182 F316 | A182 F316 |
| 4 | Stem | A182 F316 | A182 F316 | A182 F316 |
| 5 | Seat | Nylon | R-PTFE | R-PTFE |
| 6 | Body Gasket | 304 Graphite Spiral Wound | 304 Graphite Spiral Wound | 304 Graphite Spiral Wound |
| 7 | Nut | A194-2HM | A194-2HM | A194-8M |
| 8 | Full-threaded Bolt | A193-B7M | A320 L7M | A320 B8M |
| 9 | Stem Gasket | PTFE | PTFE | PTFE |
| 10 | Stem Bearing | PTFE | PTFE | PTFE |
| 11 | Stem Ball | A276 304 | A276 304 | A276 304 |
| 12 | Anti-static Spring | A276 304 | A276 304 | A276 304 |
| 13 | Stem Firesafe Gasket I | Flexible Graphite + 316 | Flexible Graphite + 316 | Flexible Graphite + 316 |
| 14 | Stem Firesafe Gasket II | Flexible Graphite | Flexible Graphite | Flexible Graphite |
| 15 | Packing Gland Bearing | PTFE | PTFE | PTFE |
| 16 | Lever | AISI 1020 | AISI 1020 | AISI 1020 + Zn |
| 17 | Screw | A193-B7M | A320 L7M | A193B8M |
| 18 | Hex Bolt | A193-B7M | SS | SS |
| 19 | Joint | A216 WCB | A352 LCC | A216 WCB + Zn |
| 20 | Nut | AISI 1020 | AISI 1020 | SS |
| 21 | Axial Retaining Ring | AISI 1566 | AISI 1566 | AISI 1566 |
| 22 | Limit Block | A36 | A36 | A36 |
| 23 | Nut | AISI 1020 | AISI 1020 | SS |
| 24 | Bellefonte Washer | A276 304 | A276 304 | A276 304 |
| 25 | O-Ring | Viton | Viton | Viton |
| 26 | O-Ring | Viton | Viton | Viton |
| 27 | Packing Bushing | A276 316 | A276 316 | A276 316 |

ZF3 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• Class 300

End Connection

• Flanged

Standard

• ASME/ANSI Class 150 B16.34
• NACE MR0175
• Fire-safe to API-607, latest Ed.

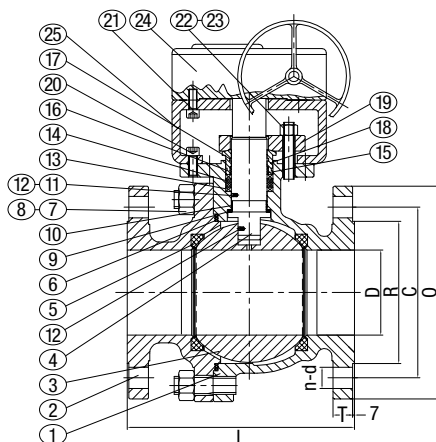
DIMENSIONS

| Size | L | D | R | C | O | n-d | T | W | H | WT | Torque | | CV |
|------|-------|-------|--------|--------|-------|----------|-------|-------|--------|--------|-----------|-----------|--------|
| | | | | | | | | | | | 150 PSI | 285 PSI | |
| 2" | 8.5 | 1.97 | 3.625 | 5 | 6.5 | 8-0.75 | 0.814 | 9.53 | 6.34" | 35 lb | 664 lbs | 974 lbs | 450 |
| 50 | 216 | 50 | 92.1 | 127 | 165 | 8-19 | 20.7 | 242 | 161 | 16 kg | 75 Nm | 100 Nm | |
| 3" | 11.1 | 2.95 | 5 | 6.62 | 8.26 | 8-0.885 | 1.06 | 13.78 | 8.07" | 79 lb | 1416 lbs | 2478 lbs | 1100 |
| 76 | 283 | 75 | 127 | 168.3 | 210 | 8-22.5 | 27 | 350 | 205 | 36 kg | 160 Nm | 280 Nm | |
| 4" | 12 | 3.98" | 6.19 | 7.87 | 10.04 | 8-0.885 | 1.19 | 18.11 | 8.86" | 132 lb | 2301 lbs | 3540 lbs | 2200 |
| 102 | 305 | 101 | 157.2 | 200 | 255 | 8-22.5 | 30.2 | 460 | 225 | 60 kg | 260 Nm | 400 Nm | |
| 6" | 15.87 | 5.94 | 8.5 | 10.625 | 12.6 | 12-0.885 | 1.38 | 29.53 | 12.48" | 260 lb | 4426 lbs | 8496 lbs | 5200 |
| 152 | 403 | 151 | 215.9 | 269.9 | 320 | 12-22.5 | 35 | 750 | 317 | 118 kg | 500 Nm | 960 Nm | |
| 8" | 19.76 | 7.95 | 10.625 | 13 | 14.96 | 12-1 | 1.56 | - | - | 520 lb | 12611 lbs | 13718 lbs | 10,000 |
| 203 | 502 | 202 | 269.9 | 330.2 | 380 | 12-25.5 | 39.7 | - | - | 236 kg | 1425 Nm | 1550 Nm | |

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Gear
(available on 8")



GEAR OPERATED MATERIAL SPECIFICATIONS

| NO. | PART NAME | CARBON STEEL (WCB) MATERIALS | LOW-TEMP (LCC) MATERIALS | STAINLESS STEEL (316SS) MATERIALS |
|-----|-------------------------|------------------------------|---------------------------|-----------------------------------|
| 1 | Body | A216 WCB | A352 LCC | A351 CF8M |
| 2 | End | A216 WCB | A352 LCC | A351 CF8M |
| 3 | Ball | A182 F316 | A182 F316 | A182 F316 |
| 4 | Stem | A182 F316 | A182 F316 | A182 F316 |
| 5 | Seat | R-PTFE | R-PTFE | R-PTFE |
| 6 | Body Gasket | 304 Graphite Spiral Wound | 304 Graphite Spiral Wound | 304 Graphite Spiral Wound |
| 7 | Nut | A194-2HM | A194-2HM | A194-8M |
| 8 | Full-threaded Bolt | A193-B7M | A320 L7M | A320 B8M |
| 9 | Stem Gasket | PTFE | PTFE | PTFE |
| 10 | Stem Bearing | PTFE | PTFE | PTFE |
| 11 | Stem Ball | A276 304 | A276 304 | A276 304 |
| 12 | Anti-static Spring | A276 304 | A276 304 | A276 304 |
| 13 | Stem Firesafe Gasket I | Flexible Graphite + 316 | Flexible Graphite + 316 | Flexible Graphite + 316 |
| 14 | Stem Firesafe Gasket II | Flexible Graphite | Flexible Graphite | Flexible Graphite |
| 15 | Packing Gland Bearing | PTFE | PTFE | PTFE |
| 16 | O-Ring | Viton | Viton | Viton |
| 17 | O-Ring | Viton | Viton | Viton |
| 18 | Packing Bushing | A276 316 | A276 316 | A276 316 |
| 19 | Packing Plate | A216 WCB | A352 LCC | A216 WCB + Zn |
| 20 | Inner Hex Screw | A193-B7M | A320-L7M | A320 L8M |
| 21 | Inner Hex Screw | A193-B7M | A320-L7M | A320 L8M |
| 22 | Nut | A193-B7M | A194-B7 | A194-8M |
| 23 | Bolt | A193-B7M | A320-L7M | A320 B8M |
| 24 | Actuator | Component | Component | Component |
| 25 | Yokes | A36 | A36 | A36 |

ZF3 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• Class 300

End Connection

• Flanged

Standard

- ASME/ANSI Class 150 B16.34
- NACE MR0175
- Fire-safe to API-607, latest Ed.

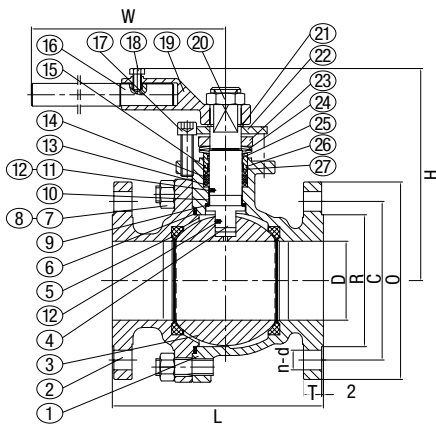
DIMENSIONS

| Size | L | D | R | C | O | n-d | T | W | H | WT | Torque | | CV |
|------|-------|-------|--------|--------|-------|----------|-------|-------|--------|--------|-----------|-----------|--------|
| | | | | | | | | | | | 150 PSI | 285 PSI | |
| 2" | 8.5 | 1.97 | 3.625 | 5 | 6.5 | 8-0.75 | 0.814 | 9.53 | 6.34" | 35 lb | 664 lbs | 974 lbs | 450 |
| 50 | 216 | 50 | 92.1 | 127 | 165 | 8-19 | 20.7 | 242 | 161 | 16 kg | 75 Nm | 100 Nm | |
| 3" | 11.1 | 2.95 | 5 | 6.62 | 8.26 | 8-0.885 | 1.06 | 13.78 | 8.07" | 79 lb | 1416 lbs | 2478 lbs | 1100 |
| 76 | 283 | 75 | 127 | 168.3 | 210 | 8-22.5 | 27 | 350 | 205 | 36 kg | 160 Nm | 280 Nm | |
| 4" | 12 | 3.98" | 6.19 | 7.87 | 10.04 | 8-0.885 | 1.19 | 18.11 | 8.86" | 132 lb | 2301 lbs | 3540 lbs | 2200 |
| 102 | 305 | 101 | 157.2 | 200 | 255 | 8-22.5 | 30.2 | 460 | 225 | 60 kg | 260 Nm | 400 Nm | |
| 6" | 15.87 | 5.94 | 8.5 | 10.625 | 12.6 | 12-0.885 | 1.38 | 29.53 | 12.48" | 260 lb | 4426 lbs | 8496 lbs | 5200 |
| 152 | 403 | 151 | 215.9 | 269.9 | 320 | 12-22.5 | 35 | 750 | 317 | 118 kg | 500 Nm | 960 Nm | |
| 8" | 19.76 | 7.95 | 10.625 | 13 | 14.96 | 12-1 | 1.56 | - | - | 520 lb | 12611 lbs | 13718 lbs | 10,000 |
| 203 | 502 | 202 | 269.9 | 330.2 | 380 | 12-25.5 | 39.7 | - | - | 236 kg | 1425 Nm | 1550 Nm | |

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Lever



LEVER OPERATED MATERIAL SPECIFICATIONS

| NO. | PART NAME | CARBON STEEL (WCB) MATERIALS | LOW-TEMP CAL (LCC) MATERIALS |
|-----|-------------------------|------------------------------|------------------------------|
| 1 | Body | A352 LCC | A352 LCC |
| 2 | End | A352 LCC | A352 LCC |
| 3 | Ball | A182 F316 | A182 F316 |
| 4 | Stem | A182 F316 | A182 F316 |
| 5 | Seat | Nylon | R-PTFE |
| 6 | Body Gasket | 304 Graphite Spiral Wound | 304 Graphite Spiral Wound |
| 7 | Nut | A194-2HM | A194-2HM |
| 8 | Full-threaded Bolt | A320 L7M | A320 L7M |
| 9 | Stem Gasket | PTFE | PTFE |
| 10 | Stem Bearing | PTFE | PTFE |
| 11 | Stem Ball | A276 304 | A276 304 |
| 12 | Anti-static Spring | A276 304 | A276 304 |
| 13 | Stem Firesafe Gasket I | Flexible Graphite + 316 | Flexible Graphite + 316 |
| 14 | Stem Firesafe Gasket II | Flexible Graphite | Flexible Graphite |
| 15 | Packing Bushing Bearing | PTFE | PTFE |
| 16 | Lever | AISI 1020 | AISI 1020 |
| 17 | Screw | A320 L7M | A320 L7M |
| 18 | Hex Bolt | CS | SS |
| 19 | Joint | A216 LCC | A352 LCC |
| 20 | Nut | SS | AISI 1020 |
| 21 | Axial Retaining Ring | AISI 1566 | AISI 1566 |
| 22 | Limit Block | A36 | A36 |
| 23 | Nut | AISI 1020 | AISI 1020 |
| 24 | Belleville Washer | A276 304 | A276 304 |
| 25 | O-Ring | Viton | Viton |
| 26 | O-Ring | Viton | Viton |
| 27 | Packing Bushing | A276 316 | A276 316 |

ZF6 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• Class 600

End Connection

• Flanged

Standard

- ASME/ANSI Class 150 B16.34
- NACE MR0175
- Fire-safe to API-607, latest Ed.

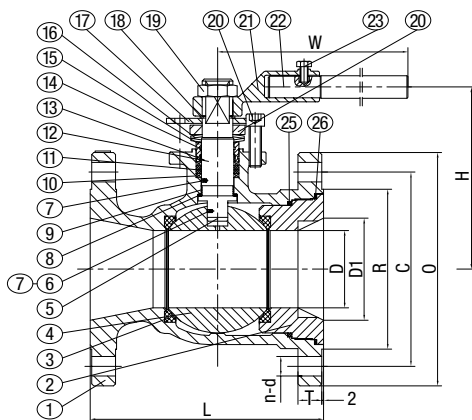
DIMENSIONS

| Size | L | D | R | C | O | n-d | T | W | H | WT | Torque | | CV |
|------|------|------|-------|-------|-------|---------|-------|-------|------|--------|----------|----------|------|
| | | | | | | | | | | | 600 PSI | 1440 PSI | |
| 2" | 8.5 | 1.97 | 3.625 | 5 | 6.5 | 8-0.75 | 0.814 | 9.53 | 6.34 | 35 lb | 664 lbs | 974 lbs | 450 |
| 50 | 216 | 50 | 92.1 | 127 | 165 | 8-19 | 20.7 | 242 | 161 | 16 kg | 75 Nm | 100 Nm | |
| 3" | 11.1 | 2.95 | 5 | 6.62 | 8.26 | 8-0.885 | 1.06 | 13.78 | 8.07 | 79 lb | 1416 lbs | 2478 lbs | 1100 |
| 76 | 283 | 75 | 127 | 168.3 | 210 | 8-22.5 | 27 | 350 | 205 | 36 kg | 160 Nm | 280 Nm | |
| 4" | 12 | 3.98 | 6.19 | 7.87 | 10.04 | 8-0.885 | 1.19 | 18.11 | 8.86 | 132 lb | 2301 lbs | 3540 lbs | 2200 |
| 102 | 305 | 101 | 157.2 | 200 | 255 | 8-22.5 | 30.2 | 460 | 225 | 60 kg | 260 Nm | 400 Nm | |

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Lever



LEVER OPERATED MATERIAL SPECIFICATIONS

| NO. | PART NAME | CARBON STEEL (WCB) MATERIALS | LOW-TEMP CAL (LCC) MATERIALS |
|-----|-------------------------|------------------------------|------------------------------|
| 1 | Body | A216 WCB | A352 LCC |
| 2 | End | A216 WCB | A352 LCC |
| 3 | Seat | R-PTFE | R-PTFE |
| 4 | Ball | A182 F316 | A182 F316 |
| 5 | Stem | A182 F316 | A182 F316 |
| 6 | Stem Steel Ball | A276 304 | A276 304 |
| 7 | Spring | A276 304 | A276 304 |
| 8 | Stem Gasket | PTFE | PTFE |
| 9 | Stem Bearing | PTFE | PTFE |
| 10 | Stem Firesafe Gasket I | Flexible Graphite + 316 | Flexible Graphite + 316 |
| 11 | Stem Firesafe Gasket II | Flexible Graphite | Flexible Graphite |
| 12 | Packing Bushing Bearing | PTFE | PTFE |
| 13 | O-Ring | Viton | Viton |
| 14 | O-Ring | Viton | Viton |
| 15 | Packing Bushing | A276 316 | A276 316 |
| 16 | Belleville Washer | A276 304 | A276 304 |
| 17 | Limit Block | A36 | A36 |
| 18 | Axial Retaining Ring | AISI 1566 | AISI 1566 |
| 19 | Nut | SS | SS |
| 20 | Screw | A193 B7M | AZ320 L7M |
| 21 | Joint | A216 WCB | A216 LCC |
| 22 | Lever | AISI 1020 | AISI 1020 |
| 23 | Hex Bolt | CS | CS |
| 24 | Nut | SS | SS |
| 25 | Gasket | PTFE | PTFE |
| 26 | Gasket | Flexible Graphite + 316 | Flexible Graphite + 316 |

ZR1 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• Class 150

End Connection

• Flanged

Standard

• ASME/ANSI Class 150 B16.34
• NACE MR0175
• Fire-safe to API-607, latest Ed.

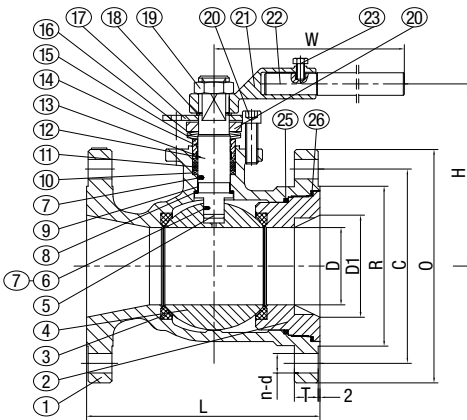
DIMENSIONS

| Size | L | D | D1 | R | C | O | n-d | T | W | H | WT | Torque | | CV |
|-----------|-------|-------|-------|---------|--------|--------|----------|--------|--------|--------|--------|------------|------------|------|
| | | | | | | | | | | | | 150 PSI | 285 PSI | |
| 2" x 1½" | 7" | 1.46" | 1.97" | 3.625" | 4.75" | 5.9" | 4-0.75" | 0.562" | 9.53" | 5.4" | 22 lb | 221 in lb | 487 in lb | 130 |
| 50 x 38 | 178 | 37 | 50 | 92.1 | 120.7 | 150 | 4-19 | 14.3 | 14.3 | 137 | 9.7 kg | 25 Nm | 55 Nm | |
| 3" x 2" | 8" | 1.97" | 2.95" | 5" | 6" | 7.48" | 4-0.75" | 0.69" | 9.35" | 6.575" | 40 lb | 372 in lb | 620 in lb | 350 |
| 76 x 50 | 203 | 50 | 75 | 127 | 152.4 | 190 | 4-19 | 17.5 | 242 | 167 | 18 kg | 42 Nm | 70 Nm | |
| 4" x 3" | 9.02" | 2.95" | 3.98" | 6.19" | 7.5" | 9.05" | 4-0.75" | 0.88" | 13.78" | 8.07" | 77 lb | 797 in lb | 1328 in lb | 720 |
| 102 x 76 | 229 | 75 | 101 | 157.2 | 190.5 | 230 | 8-19 | 22.3 | 350 | 205 | 35 kg | 90 Nm | 150 Nm | |
| 6" x 4" | 10.5" | 3.98" | 5.94" | 8.5" | 9.5" | 11.02" | 4-0.885" | 0.94" | 18.11" | 8.66" | 132 lb | 1328 in lb | 2168 in lb | 1020 |
| 152 x 102 | 267 | 101 | 151 | 215.9 | 241.3 | 280 | 8-22.5 | 23.9 | 460 | 220 | 60 kg | 150 Nm | 245 Nm | |
| 8" x 6" | 11.5" | 5.94" | 7.95" | 10.625" | 11.75" | 13.58" | 4-0.885" | 1.06" | 29.52" | 12.32" | 265 lb | 3009 in lb | 4956 in lb | 1800 |
| 203 x 152 | 292 | 151 | 202 | 269.9 | 298.5 | 345 | 8-22.5 | 27 | 750 | 313 | 120 kg | 340 Nm | 560 Nm | |

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Lever



LEVER OPERATED MATERIAL SPECIFICATIONS

| NO. | PART NAME | CARBON STEEL (WCB) MATERIALS | LOW-TEMP CAL (LCC) MATERIALS |
|-----|-------------------------|------------------------------|------------------------------|
| 1 | Body | A216 WCB | A352 LCC |
| 2 | End | A216 WCB | A352 LCC |
| 3 | Seat | R-PFTE | R-PFTE |
| 4 | Ball | A182 F316 | A182 F316 |
| 5 | Stem | A182 F316 | A182 F316 |
| 6 | Stem Steel Ball | A276 304 | A276 304 |
| 7 | Spring | A276 304 | A276 304 |
| 8 | Stem Gasket | PTFE | PTFE |
| 9 | Stem Bearing | PTFE | PTFE |
| 10 | Stem Firesafe Gasket I | Flexible Graphite + 316 | Flexible Graphite + 316 |
| 11 | Stem Firesafe Gasket II | Flexible Graphite | Flexible Graphite |
| 12 | Packing Bushing Bearing | PTFE | PTFE |
| 13 | O-Ring | Viton | Viton |
| 14 | O-Ring | Viton | Viton |
| 15 | Packing Bushing | A276 316 | A276 316 |
| 16 | Belleville Washer | A276 316 | A276 316 |
| 17 | Limit Block | A36 | A36 |
| 18 | Axial Retaining Ring | AISI 1566 | AISI 1566 |
| 19 | Nut | SS | SS |
| 20 | Screw | A193 B7M | AZ320 L7M |
| 21 | Joint | A216 WCB | A216 LCC |
| 22 | Lever | AISI 1020 | AISI 1020 |
| 23 | Hex Bolt | CS | CS |
| 24 | Nut | SS | SS |
| 25 | Gasket | PTFE | PTFE |
| 26 | Gasket | Flexible Graphite + 316 | Flexible Graphite + 316 |

ZR3 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

- Class 300

End Connection

- Flanged

Standard

- ASME/ANSI Class 150 B16.34
- NACE MR0175
- Fire-safe to API-607, latest Ed.

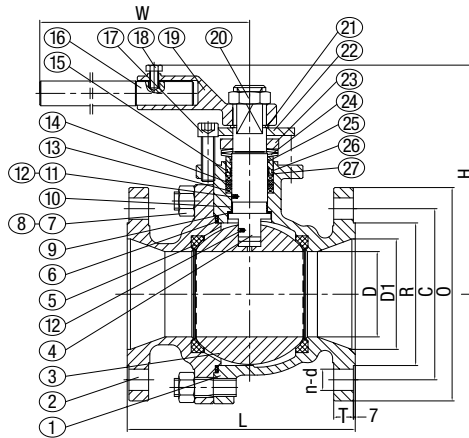
DIMENSIONS

| Size | L | D | D1 | R | C | O | n-d | T | W | H | WT | Torque | | CV |
|-----------|-------|------|------|-------|--------|-------|----------|--------|-------|-------|---------|----------|----------|------|
| | | | | | | | | | | | | 300 PSI | 740 PSI | |
| 2" x 1½" | 8.5 | 1.46 | 1.97 | 3.625 | 5 | 6.5 | 8-0.75 | 0.814" | 9.53 | 5.4 | 33 lbs | 575 lbs | 841 lbs | 130 |
| 50 x 38 | 216 | 37 | 50 | 92.1 | 127 | 165 | 8-19 | 20.7 | 242 | 137 | 15 kg | 65 Nm | 95 Nm | |
| 3" x 2" | 11.1 | 1.97 | 2.95 | 5 | 6.62 | 8.26 | 8-0.885 | 1.06" | 9.53 | 6.575 | 69 lbs | 664 lbs | 974 lbs | 350 |
| 76 x 50 | 283 | 50 | 75 | 127 | 168.3 | 210 | 8-22.5 | 27 | 242 | 167 | 31.2 kg | 75 Nm | 110 Nm | |
| 4" x 3" | 12 | 2.95 | 3.98 | 6.19 | 7.87 | 10.04 | 8-0.885 | 1.19" | 13.78 | 8.07 | 126 lbs | 1415 lbs | 2478 lbs | 720 |
| 102 x 76 | 305 | 75 | 101 | 157.2 | 200 | 255 | 8-22.5 | 30.2 | 350 | 205 | 57 kg | 160 Nm | 280 Nm | |
| 6" x 4" | 15.87 | 3.98 | 5.94 | 8.5 | 10.625 | 12.6 | 12-0.885 | 1.38" | 18.11 | 8.66 | 183 lbs | 2301 lbs | 3540 lbs | 1020 |
| 152 x 102 | 403 | 101 | 151 | 215.9 | 269.9 | 320 | 12-22.5 | 35 | 460 | 220 | 83 kg | 260 Nm | 400 Nm | |

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Lever



LEVER OPERATED MATERIAL SPECIFICATIONS

| NO. | PART NAME | CARBON STEEL (WCB) MATERIALS | LOW-TEMP CAL (LCC) MATERIALS |
|-----|-------------------------|------------------------------|------------------------------|
| 1 | Body | A216 WCB | A352 LCC |
| 2 | End | A216 WCB | A352 LCC |
| 3 | Ball | A182 F316 | A182 F316 |
| 4 | Stem | A182 F316 | A182 F316 |
| 5 | Seat | Nylon | Nylon |
| 6 | Body Gasket | 304 Graphite Spiral Wound | 304 Graphite Spiral Wound |
| 7 | Nut | A194-2HM | A194-2HM |
| 8 | Full-Threaded Bolt | A193-B7M | A320 L7M |
| 9 | Stem Gasket | PTFE | PTFE |
| 10 | Stem Bearing | PTFE | PTFE |
| 11 | Steel Ball | A276 304 | A276 304 |
| 12 | Anti-Static Spring | A276 304 | A276 304 |
| 13 | Stem Firesafe Gasket I | Flexible Graphite + 316 | Flexible Graphite + 316 |
| 14 | Stem Firesafe Gasket II | Flexible Graphite | Flexible Graphite |
| 15 | Packing Gland Bearing | PTFE | PTFE |
| 16 | Lever | AISI 1020 | AISI 1020 |
| 17 | Screw | A193-B7M | A320 L7M |
| 18 | Hex Bolt | A193-B7M | SS |
| 19 | Joint | A216 WCB | A352 LCC |
| 20 | Nut | AISI 1020 | AISI 1020 |
| 21 | Axial Retaining Ring | AISI 1566 | AISI 1566 |
| 22 | Limit Block | A36 | A36 |
| 23 | Nut | AISI 1020 | AISI 1020 |
| 24 | Belleville Washer | A276 304 | A276 304 |
| 25 | O-Ring | Viton | Viton |
| 26 | O-Ring | Viton | Viton |
| 27 | Packing Bushing | A276 316 | A276 316 |

ZR6 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

- Class 600

End Connection

- Flanged

Standard

- ASME/ANSI Class 150 B16.34
- NACE MR0175
- Fire-safe to API-607, latest Ed.

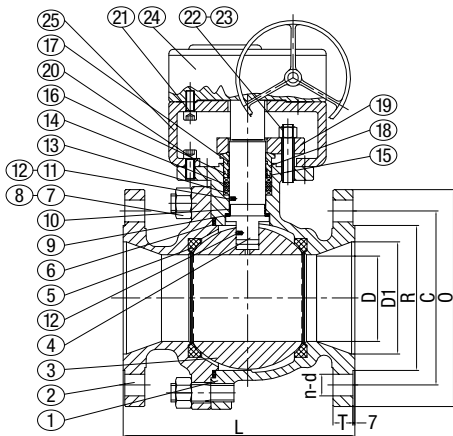
DIMENSIONS

| Size | L | D | D1 | R | C | O | n-d | T | W | H | WT | Torque | | CV |
|-----------|------|------|------|-------|-------|-------|---------|------|-------|------|---------|----------|----------|------|
| | | | | | | | | | | | | 300 PSI | 740 PSI | |
| 2" x 1½" | 11.5 | 1.46 | 1.97 | 3.625 | 5 | 6.5 | 8-0.75 | 1 | 9.53 | 5.4 | 40 lbs | 664 lbs | 1328 lbs | 130 |
| 50 x 38 | 292 | 37 | 50 | 92.1 | 127 | 165 | 8-19 | 25.4 | 242 | 137 | 18.2 kg | 75 Nm | 150 Nm | |
| 3" x 2" | 14 | 1.97 | 2.95 | 5 | 6.62 | 8.26 | 8-0.885 | 1.25 | 13.78 | 7.56 | 77 lbs | 841 lbs | 1682 lbs | 350 |
| 76 x 50 | 356 | 50 | 75 | 127 | 168.3 | 210 | 8-22.5 | 31.8 | 350 | 192 | 35 kg | 95 Nm | 190 Nm | |
| 4" x 3" | 17 | 2.95 | 3.98 | 6.19 | 8.5 | 10.82 | 8-1 | 1.5 | 21.65 | 8.2 | 165 lbs | 2080 lbs | 4071 lbs | 720 |
| 102 x 76 | 432 | 75 | 101 | 157.2 | 215.9 | 275 | 8-25.5 | 38.1 | 550 | 205 | 75 kg | 235 Nm | 460 Nm | |
| 6" x 4" | 22 | 3.98 | 5.94 | 8.5 | 11.5 | 13.98 | 12-1.12 | 1.88 | - | - | 342 lbs | 2567 lbs | 5089 lbs | 1020 |
| 152 x 102 | 559 | 101 | 151 | 215.9 | 292.1 | 355 | 12-28.5 | 47.7 | - | - | 155 kg | 290 Nm | 575 Nm | |

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Gear
(available on 6"x4")



GEAR OPERATED MATERIAL SPECIFICATIONS

| NO. | PART NAME | CARBON STEEL (WCB) MATERIALS | LOW-TEMP CAL (LCC) MATERIALS |
|-----|-------------------------|------------------------------|------------------------------|
| 1 | Body | A216 WCB | A352 LCC |
| 2 | End | A216 WCB | A352 LCC |
| 3 | Ball | A182 F316 | A182 F316 |
| 4 | Stem | A182 F316 | A182 F316 |
| 5 | Seat | Nylon | Nylon |
| 6 | Body Gasket | 304 Graphite Spiral Wound | 304 Graphite Spiral Wound |
| 7 | Nut | A194-2HM | A194-2HM |
| 8 | Full-Threaded Bolt | A193-B7M | A320 L7M |
| 9 | Stem Gasket | PTFE | PTFE |
| 10 | Stem Bearing | PTFE | PTFE |
| 11 | Steel Ball | A276 304 | A276 304 |
| 12 | Anti-Static Spring | A276 304 | A276 304 |
| 13 | Stem Firesafe Gasket I | Flexible Graphite + 316 | Flexible Graphite + 316 |
| 14 | Stem Firesafe Gasket II | Flexible Graphite | Flexible Graphite |
| 15 | Packing Gland Bearing | PTFE | PTFE |
| 16 | O-Ring | Viton | Viton |
| 17 | O-Ring | Viton | Viton |
| 18 | Packing Bushing | A276 316 | A276 316 |
| 19 | Packing Plate | A216 WCB | A352 LCC |
| 20 | Inner Hex Screw | A193-B7M | A320-L7M |
| 21 | Inner Hex Screw | A193-B7M | A320-L7M |
| 22 | Nut | A193-B7M | A194-B7 |
| 23 | Bolt | A193-B7M | A320-L7M |
| 24 | Actuator | Component | Component |
| 25 | Yokes | A36 | A36 |

ZR6 Product Description

Suitable for a full range of water, gas, steam, petrochemical and general use/utility services and applications.

Working Pressure

• Class 600

End Connection

• Flanged

Standard

- ASME/ANSI Class 150 B16.34
- NACE MR0175
- Fire-safe to API-607, latest Ed.

DIMENSIONS

| Size | L | D | D1 | R | C | O | n-d | T | W | H | WT | Torque | | CV |
|-----------|------|------|------|-------|-------|-------|---------|------|-------|------|---------|----------|----------|------|
| | | | | | | | | | | | | 300 PSI | 740 PSI | |
| 2" x 1½" | 11.5 | 1.46 | 1.97 | 3.625 | 5 | 6.5 | 8-0.75 | 1 | 9.53 | 5.4 | 40 lbs | 664 lbs | 1328 lbs | 130 |
| 50 x 38 | 292 | 37 | 50 | 92.1 | 127 | 165 | 8-19 | 25.4 | 242 | 137 | 18.2 kg | 75 Nm | 150 Nm | |
| 3" x 2" | 14 | 1.97 | 2.95 | 5 | 6.62 | 8.26 | 8-0.885 | 1.25 | 13.78 | 7.56 | 77 lbs | 841 lbs | 1682 lbs | 350 |
| 76 x 50 | 356 | 50 | 75 | 127 | 168.3 | 210 | 8-22.5 | 31.8 | 350 | 192 | 35 kg | 95 Nm | 190 Nm | |
| 4" x 3" | 17 | 2.95 | 3.98 | 6.19 | 8.5 | 10.82 | 8-1 | 1.5 | 21.65 | 8.2 | 165 lbs | 2080 lbs | 4071 lbs | 720 |
| 102 x 76 | 432 | 75 | 101 | 157.2 | 215.9 | 275 | 8-25.5 | 38.1 | 550 | 205 | 75 kg | 235 Nm | 460 Nm | |
| 6" x 4" | 22 | 3.98 | 5.94 | 8.5 | 11.5 | 13.98 | 12-1.12 | 1.88 | - | - | 342 lbs | 2567 lbs | 5089 lbs | 1020 |
| 152 x 102 | 559 | 101 | 151 | 215.9 | 292.1 | 355 | 12-28.5 | 47.7 | - | - | 155 kg | 290 Nm | 575 Nm | |

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Notes

Quality Products by NCI Canada Inc.

Fire Protection Valves

- FP. Brass and Bronze Ball Valves
- FP. Bronze Gate, Globe and Check valves
- FP. Iron Gate Valves and Indicator Posts
- FP. Resilient Seat Gate Valves
- FP. Butterfly Valves
- FP. Check valves



Metal Fittings

- Grooved Couplings and Fittings
- Press System
- H.P. Copper Fittings for ACR applications
- Schedule 40, 80 and XXH Seamless Steel Nipples
- Schedule 40 Welded Steel Nipples
- Bronze Fittings and Brass Nipples
- Weld Outlets



Commercial and Industrial Valves

- Brass and Bronze Ball Valves
- Bronze Gate, Globe and Check Valves
- Cast Iron Gate, Globe and Check valves
- Commercial Butterfly Valves
- Gas Ball Valves
- Carbon Steel and Stainless Steel Ball Valves
- Carbon Steel and Stainless Steel Gate, Globe and Check Valves
- Double Door and Silent Check valves
- Y-Strainers and Basket Strainers



Plastic Pipe, Valves and Fittings

- ABS Fittings
- PVC Schedule 40 & 80 Valves and Fittings
- CPVC-CTS Pipe and Fittings
- CPVC Schedule 80 Valves and Fittings
- PP Schedule 80 Pipe, Valves and Fittings
- PVDF Schedule 80 Pipe, Valves and Fittings
- Flexible Couplings and Connectors
- PVC & Nylon Insert Fittings



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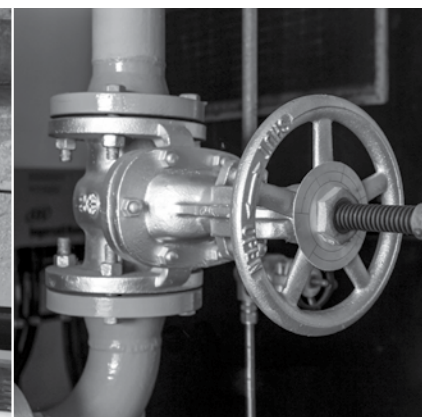
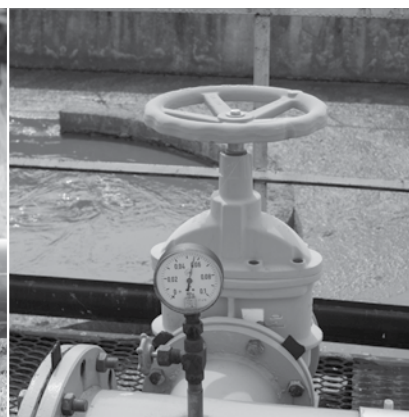
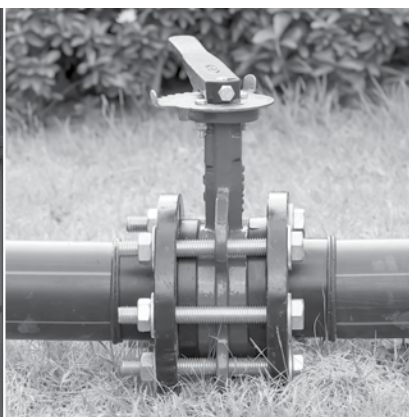
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