



*Durco® Microfinish™ and General Purpose  
Threaded Ball Valves*



*Ball Valves To Suit All Needs*

# Rugged ANSI B16.34 Design For Severe Service

**D**urco Microfinish ball valves take stem seal performance and durability to a new standard. The unique stem sealing system significantly enhances life cycle capability while reducing turning torque. With the quality and performance you expect from Flowserve, these valves are becoming the standard of the CPI.

**Lockout Device**  
Standard on all valves.

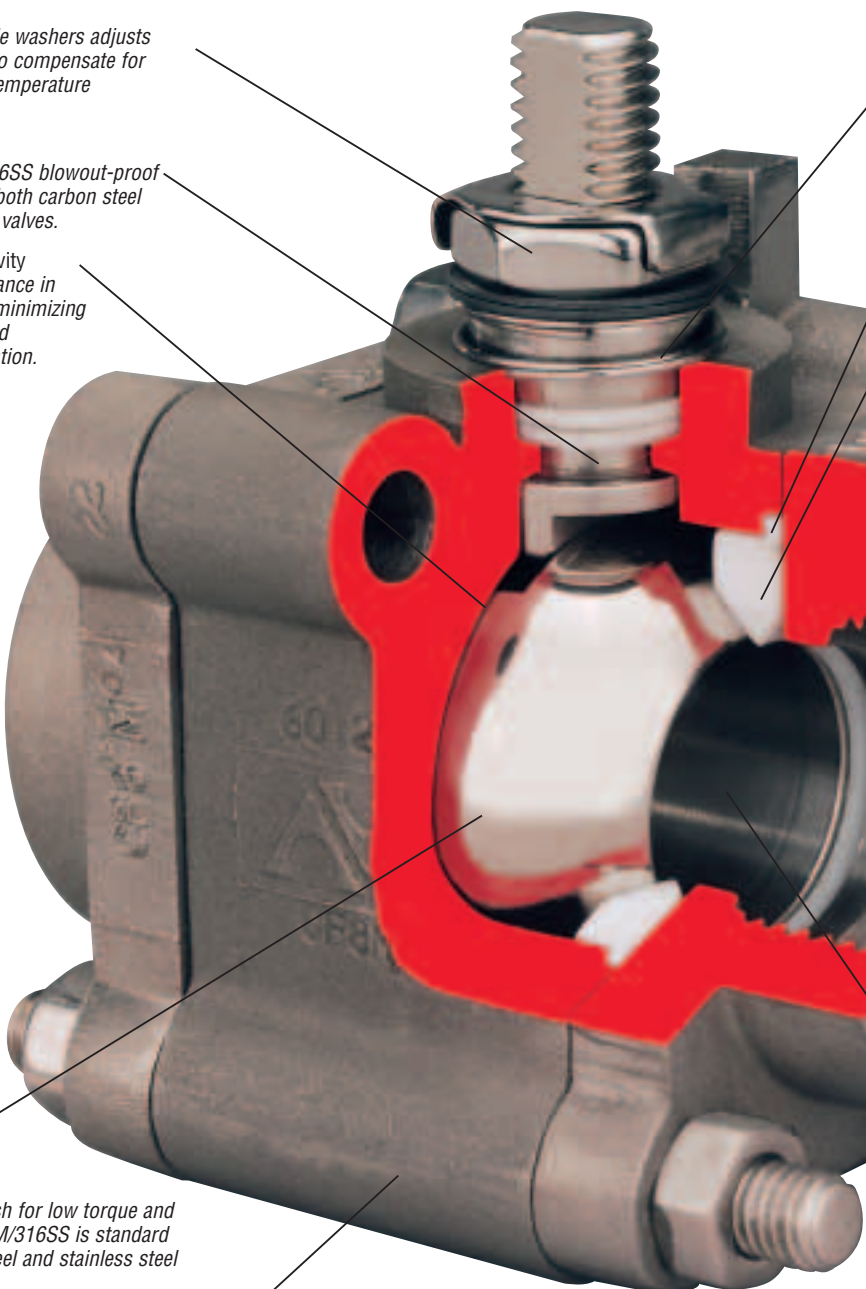
**Gland Nut**  
Along with belleville washers adjusts packing pressure to compensate for normal wear and temperature fluctuations.

**Stem**  
Large diameter, 316SS blowout-proof stem standard on both carbon steel and stainless steel valves.

**Minimum Body Cavity**  
Enhances performance in many services by minimizing media retention and process contamination.

**Ball**  
Super smooth finish for low torque and long seat life. CF8M/316SS is standard for both carbon steel and stainless steel valves.

**Three-Piece Body**  
Valve shell and seats tested per ANSI B16.34 criteria. Standard materials include WCB and CF8M. ANSI Class 800 lb designs. Body design confines seats to minimize seat deformation at elevated temperature.

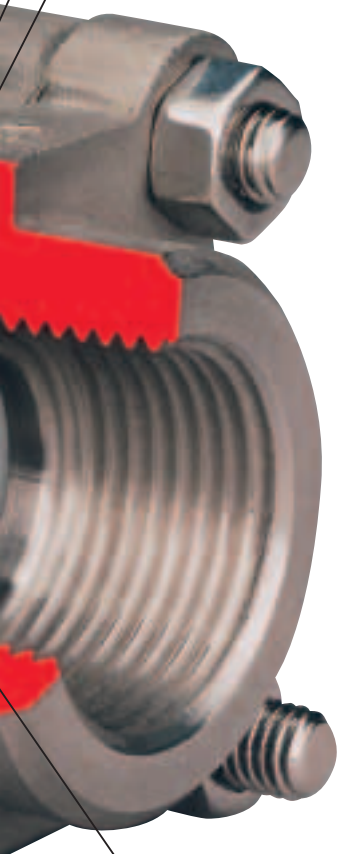


# The Best Standard Packing System In The Industry

Stem And Body  
Are continuously grounded to eliminate static discharge.

Body Gasket  
PTFE standard. Grafoil® used for fire-sealed applications.

Seats  
Glass reinforced PTFE standard for higher pressure and temperature applications. Optional virgin PTFE or carbon reinforced PTFE.



Large Port Openings  
Maximize flow rates to meet or exceed competitive designs.

Removable Handle  
Increases flexibility, simplicity and security.

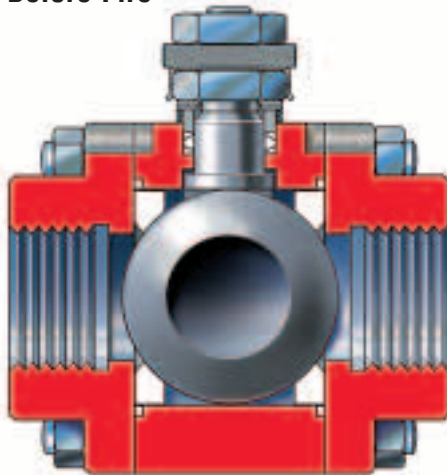
®Grafoil is a registered trademark of Union Carbide Corporation



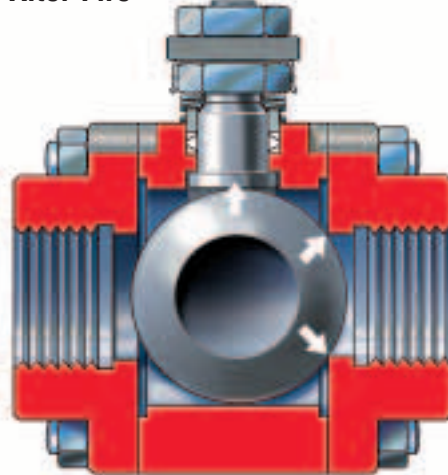
## Positive stem seal even after extended cycles

- PTFE cup and cone packing for unsurpassed seal life and cyclability.
- Smooth stem finish reduces torque and increases stem seal life
- Glass filled PTFE thrust washer aids sealing while reducing torque
- Belleville washers maintain constant load on cup and cone packing
- Stainless gland nut maintains packing compression through maximum operating temperature
- Double "D" stem positively indicates open or shut position

Before Fire



After Fire



## Fire-sealed design meets API 607, Fourth Edition criteria

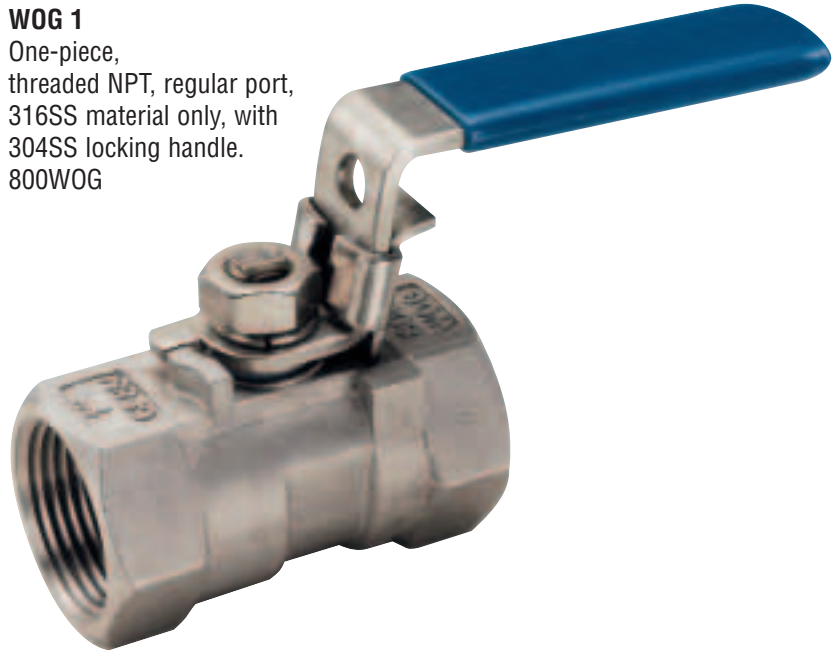
- Metal seat at the port opening provides line seal in the event the PTFE seat burns away in a fire
- Stem moves up to make a metal-to-metal seal

- Ball moves downstream to seal on metal seat
- Grafoil gasket forms the body seal
- Grafoil stem packing is standard for superior fire-sealed stem seal

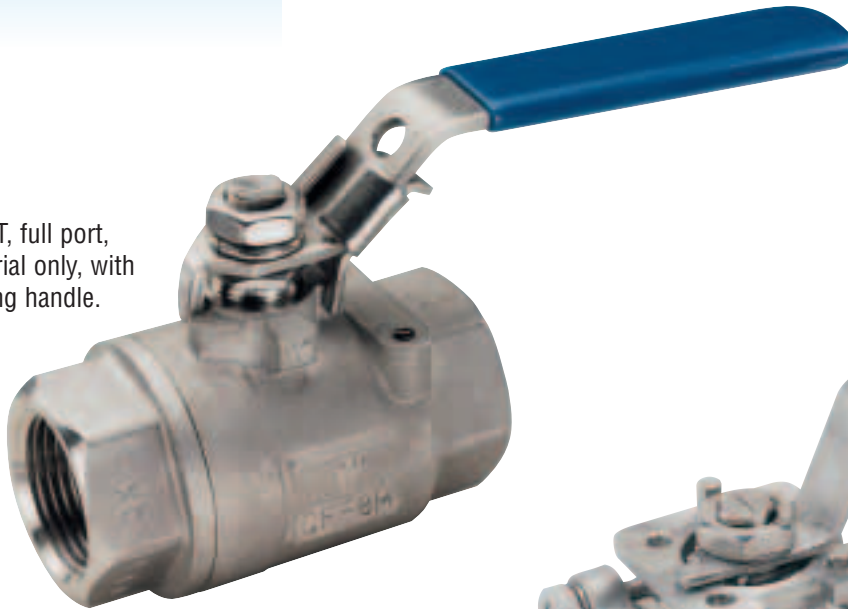
# Durco General Purpose WOG Threaded End Valves

**W**hen a WOG valve is required, choose the style that best meets your service and application needs.

**WOG 1**  
One-piece,  
threaded NPT, regular port,  
316SS material only, with  
304SS locking handle.  
800WOG



**WOG 2**  
Two-piece,  
threaded NPT, full port,  
316SS material only, with  
304SS locking handle.  
1000WOG

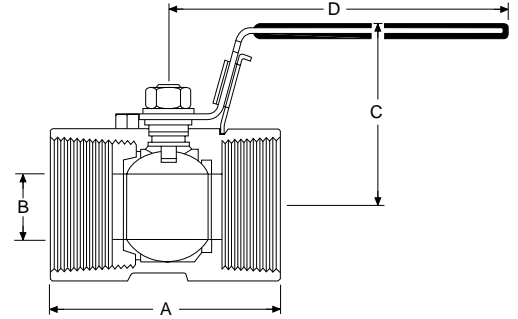


**WOG 3**  
Three-piece,  
threaded NPT, full port,  
316SS material only, with  
304SS locking handle.  
1000WOG. Socket weld configuration  
available.



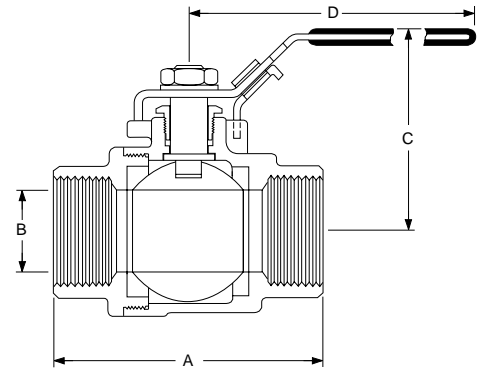
**WOG 1**

Valve Size in (mm)	A in (mm)	B in (mm)	C in (mm)	D in (mm)	Weight lbs (kgs)
1/4 (8)	1.54 (39)	0.20 (5)	1.28 (33)	2.76 (70)	0.1 (0.1)
3/8 (10)	1.73 (44)	0.28 (7)	1.36 (35)	2.76 (70)	0.2 (0.1)
1/2 (15)	2.22 (57)	0.36 (9)	1.71 (44)	3.54 (90)	0.4 (0.2)
3/4 (20)	2.28 (58)	0.49 (13)	1.85 (47)	3.54 (90)	0.6 (0.3)
1 (25)	2.80 (71)	0.59 (15)	2.17 (55)	4.33 (110)	0.9 (0.4)
1-1/4 (30)	3.07 (78)	0.79 (20)	2.38 (61)	4.33 (110)	1.6 (0.7)
1-1/2 (40)	3.27 (83)	0.98 (25)	2.93 (75)	5.51 (140)	1.8 (0.8)
2 (50)	3.94 (100)	1.26 (32)	3.17 (81)	5.51 (140)	4.3 (2.0)



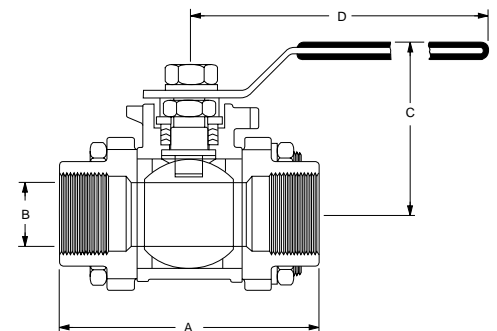
**WOG 2**

Valve Size in (mm)	A in (mm)	B in (mm)	C in (mm)	D in (mm)	Weight lbs (kgs)
1/4 (8)	2.17 (55)	0.46 (12)	1.97 (50)	3.78 (96)	0.6 (0.3)
3/8 (10)	2.17 (55)	0.50 (13)	1.97 (50)	3.78 (96)	0.6 (0.3)
1/2 (15)	2.56 (65)	0.59 (15)	2.09 (53)	3.78 (96)	0.9 (0.4)
3/4 (20)	3.03 (77)	0.79 (20)	2.52 (64)	4.92 (125)	1.4 (0.7)
1 (25)	3.54 (90)	0.98 (25)	2.60 (66)	4.92 (125)	2.0 (0.9)
1-1/4 (30)	4.02 (102)	1.26 (32)	3.11 (79)	6.69 (170)	3.3 (1.5)
1-1/2 (40)	4.25 (108)	1.50 (38)	3.27 (83)	6.69 (170)	4.7 (2.2)
2 (50)	4.92 (125)	2.00 (51)	3.70 (94)	7.48 (190)	7.4 (3.4)

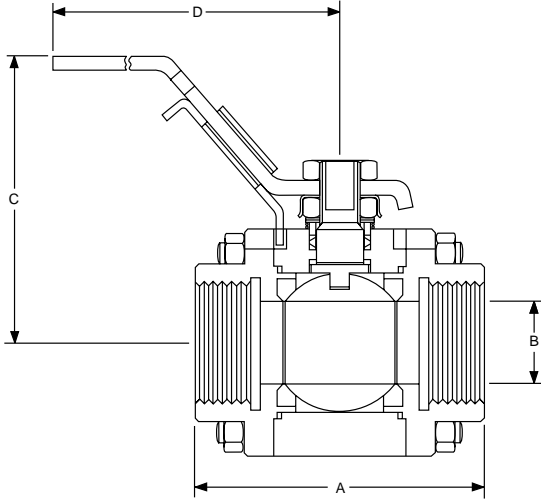


**WOG 3**

Valve Size in (mm)	A in (mm)	B in (mm)	C in (mm)	D in (mm)	Weight lbs (kgs)
1/4 (8)	2.36 (60)	0.46 (12)	2.24 (57)	4.41 (112)	0.8 (0.4)
3/8 (10)	2.36 (60)	0.50 (13)	2.24 (57)	4.41 (112)	0.8 (0.4)
1/2 (15)	2.95 (75)	0.63 (16)	2.68 (68)	4.41 (112)	1.4 (0.6)
3/4 (20)	3.15 (80)	0.81 (21)	2.76 (70)	5.16 (131)	1.9 (0.9)
1 (25)	3.54 (90)	1.00 (25)	3.15 (80)	5.16 (131)	2.9 (1.3)
1-1/4 (30)	4.33 (110)	1.25 (32)	3.31 (84)	7.32 (186)	4.6 (2.1)
1-1/2 (40)	4.72 (120)	1.50 (38)	3.66 (93)	7.32 (186)	6.6 (3.0)
2 (50)	5.51 (140)	2.00 (51)	3.94 (100)	7.32 (186)	9.5 (4.3)



# Dimensions & Pressure/Temperature Ratings



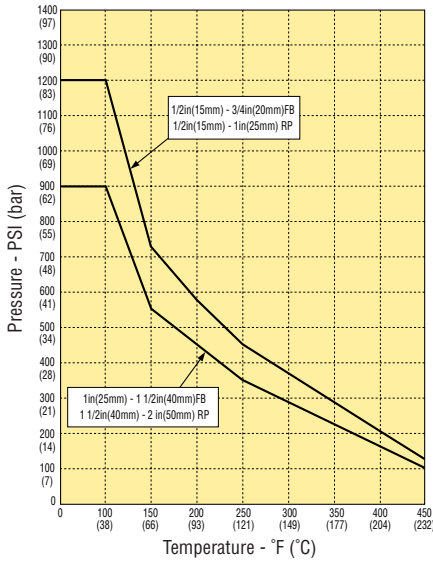
**Durco High Performance Microfinish Ball Valve**  
Threaded 3-Piece Full Port ANSI Class 800 Dimensions  
(Available on application only)

Valve Size in (mm)	A in (mm)	B in (mm)	C in (mm)	D in (mm)	Weight lbs (kgs)
1/2 (15)	2.83 (72)	0.51 (13)	2.32 (59)	5.51 (140)	1.7 (0.8)
3/4 (20)	3.31 (84)	0.75 (19)	4.06 (103)	6.89 (175)	2.9 (1.3)
1 (25)	3.54 (90)	0.98 (25)	4.21 (107)	6.89 (175)	4.2 (1.9)
1-1/2 (40)	4.49 (114)	1.50 (38)	4.80 (122)	7.24 (184)	9.0 (4.1)

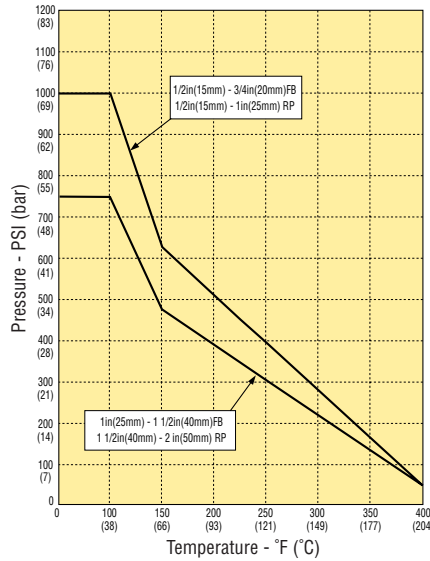
**Durco High Performance Microfinish Ball Valve**  
Threaded 3-Piece Regular Port ANSI Class 800 Dimensions

Valve Size in (mm)	A in (mm)	B in (mm)	C in (mm)	D in (mm)	Weight lbs (kgs)
1/2 (15)	2.83 (72)	0.37 (9.5)	2.32 (59)	5.51 (140)	1.5 (0.7)
3/4 (20)	2.83 (72)	0.51 (13)	2.32 (59)	5.51 (140)	1.7 (0.8)
1 (25)	3.54 (90)	0.75 (19)	4.06 (103)	6.89 (175)	3.3 (1.5)
1-1/2 (40)	4.49 (114)	1.26 (32)	4.69 (119)	7.24 (184)	6.8 (3.1)
2 (50)	5.12 (130)	1.50 (38)	4.80 (122)	7.24 (184)	9.5 (4.3)

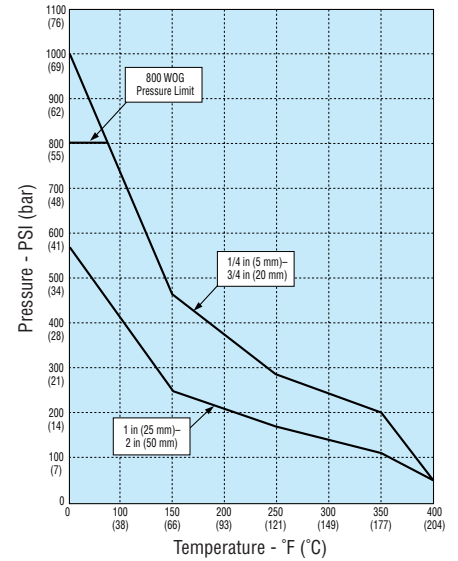
**High Performance ANSI Class 800 Glass Filled PTFE Seats**



**High Performance ANSI Class 800 PTFE Seats**

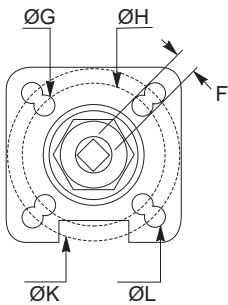
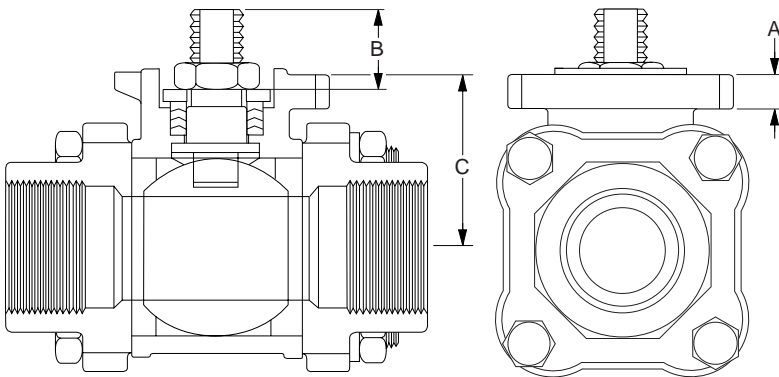


**General Purpose 800 WOG & 1000 WOG Glass Filled Seats**



All dimensions are approximate and for illustration purposes only. For exact dimensions request certified dimensional prints.

# Mounting Flange Dimensions

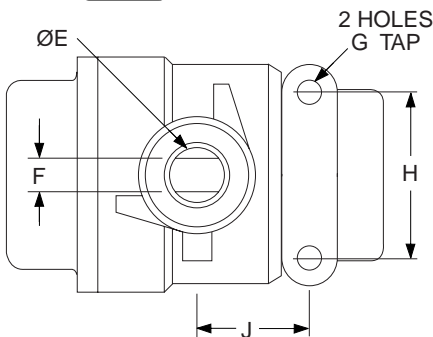
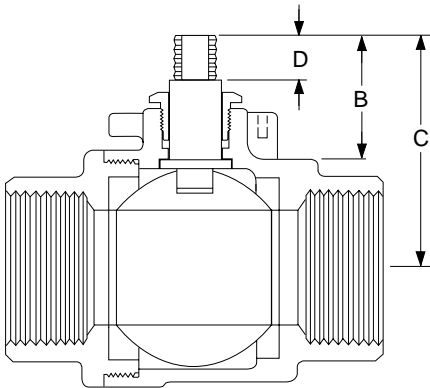


## ISO 5211 Mounting Flange

### WOG 3 Valves

Threaded 3-piece 1000 WOG Design

Valve Size in (mm)	ISO Flange	A in (mm)	B in (mm)	C in (mm)	F in (mm)	ØG in (mm)	ØH in (mm)	ØK in (mm)	ØL in (mm)
1/4 (8)	F03	0.22 (5.7)	0.30 (7.5)	1.28 (32.5)	0.35 (9)	0.22 (5.5)	1.42 (36)	-	-
3/8 (10)	F03/F04	0.22 (5.7)	0.30 (7.5)	1.28 (32.5)	0.35 (9)	0.22 (5.5)	1.42 (36)	1.65 (42)	0.22 (5.5)
1/2 (15)	F03/F04	0.22 (5.7)	0.33 (8.5)	1.42 (36)	0.35 (9)	0.22 (5.5)	1.42 (36)	1.65 (42)	0.22 (5.5)
3/4 (20)	F04/F05	0.25 (6.4)	0.45 (11.5)	1.63 (41.3)	0.43 (11)	0.22 (5.5)	1.65 (42)	1.97 (50)	0.26 (6.5)
1 (25)	F04/F05	0.25 (6.4)	0.49 (12.5)	1.75 (44.5)	0.43 (11)	0.22 (5.5)	1.65 (42)	1.97 (50)	0.26 (6.5)
1-1/4 (30)	F04/F05	0.25 (6.4)	0.49 (12.5)	1.95 (49.5)	0.43 (11)	0.22 (5.5)	1.65 (42)	1.97 (50)	0.26 (6.5)
1-1/2 (40)	F04/F05	0.25 (6.4)	0.49 (12.5)	2.17 (55)	0.43 (11)	0.22 (5.5)	1.65 (42)	1.97 (50)	0.26 (6.5)
2 (50)	F05/F07	0.25 (6.4)	0.59 (15)	2.62 (66.5)	0.55 (14)	0.26 (6.5)	1.97 (50)	2.76 (70)	0.33 (8.5)



## WOG 2 Valves

Threaded Full Port 1000 WOG Design

Valve Size in (mm)	B in (mm)	C in (mm)	D in (mm)	ØE in (mm)	F in (mm)	G TAP	H in (mm)	J in (mm)
1/4 (8)	0.98 (25)	1.50 (38)	0.43 (11)	0.375 (9.5)	0.24 (6.0)	10x24	1.12 (28.5)	0.50 (12.7)
3/8 (10)	0.98 (25)	1.50 (38)	0.43 (11)	0.375 (9.5)	0.24 (6.0)	10x24	1.12 (28.5)	0.50 (12.7)
1/2 (15)	0.94 (24)	1.57 (40)	0.43 (11)	0.375 (9.5)	0.24 (6.0)	10x24	1.12 (28.5)	0.50 (12.7)
3/4 (20)	1.22 (31)	1.97 (50)	0.57 (14.5)	0.437 (11)	0.25 (6.3)	10x24	1.38 (35)	0.88 (22.4)
1 (25)	1.26 (32)	2.16 (55)	0.57 (14.5)	0.437 (11)	0.25 (6.3)	10x24	1.38 (35)	0.88 (22.4)
1-1/4 (30)	1.53 (39)	2.64 (67)	0.59 (15)	0.437 (11)	0.37 (9.5)	1/4x20	1.50 (38.1)	1.00 (25.4)
1-1/2 (40)	1.53 (39)	2.83 (72)	0.59 (15)	0.437 (11)	0.37 (9.5)	1/4x20	1.50 (38.1)	1.00 (25.4)
2 (50)	1.50 (38)	3.35 (85)	0.69 (17.5)	0.437 (11)	0.37 (9.5)	1/4x20	1.50 (38.1)	1.00 (25.4)

All dimensions are approximate and for illustration purposes only.  
For exact dimensions request certified dimensional prints.

# Technical Data

## Durco High Performance Microfinish and General Purpose Threaded/Socket End Ball Valves Actuator Sizing Torques at Maximum Rated Pressure - Glass Filled TFE Seats

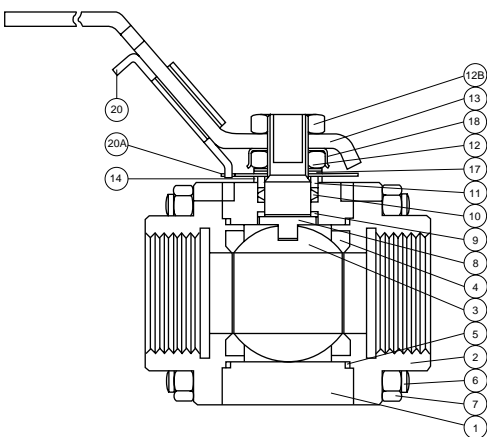
Valve Size in (mm)	Port Size	Class 800 3-Piece		800 WOG 1-Piece		1000 WOG 2-Piece		1000 WOG 3-Piece	
		In-lbs	Nm	In-lbs	Nm	In-lbs	Nm	In-lbs	Nm
1/4 (8)	FB	–	–	–	–	43	5	49	6
	RP	–	–	43	5	–	–	–	–
3/8 (10)	FB	–	–	–	–	43	5	49	6
	RP	–	–	43	5	–	–	–	–
1/2 (15)	FB	68	8	–	–	55	6	79	9
	RP	68	8	43	5	–	–	–	–
3/4 (20)	FB	135	15	–	–	85	10	105	12
	RP	68	8	55	6	–	–	–	–
1 (25)	FB	225	25	–	–	115	13	164	19
	RP	135	15	85	10	–	–	–	–
1-1/4 (30)	FB	–	–	–	–	170	19	255	29
	RP	–	–	115	13	–	–	–	–
1-1/2 (40)	FB	506	56	–	–	219	25	316	36
	RP	383	43	170	19	–	–	–	–
2 (50)	FB	–	–	–	–	340	38	365	41
	RP	506	56	219	25	–	–	–	–

### Port Diameter & Flow Coefficient

Valve Size in (mm)	ANSI Class 800 3-Piece				800 WOG 1-Piece		1000 WOG 2-Piece		1000 WOG 3-Piece	
	Regular Port		Full Port		Regular Port		Full Port		Full Port	
	Port Dia.	C <sub>v</sub>	Port Dia.	C <sub>v</sub>	Port Dia.	C <sub>v</sub>	Port Dia.	C <sub>v</sub>	Port Dia.	C <sub>v</sub>
1/4 (8)	–	–	–	–	.20 (5)	2.5	.46 (12)	8	.46 (12)	8
3/8 (10)	–	–	–	–	.28 (7)	3.2	.50 (13)	10	.50 (13)	10
1/2 (15)	.38 (9.5)	8	.50 (13)	20	.36 (9)	7	.59 (15)	23	.63 (16)	23
3/4 (20)	.50 (13)	15	.75 (19)	40	.50 (13)	15	.79 (20)	45	.81 (20)	45
1 (25)	.75 (19)	34	1.0 (25)	90	.60 (15)	20	1.0 (25)	90	1.0 (25)	90
1-1/4 (30)	–	–	–	–	.79 (20)	32	1.25 (32)	165	1.25 (32)	165
1-1/2 (40)	1.25 (32)	120	1.5 (38)	230	1.0 (25)	50	1.5 (38)	230	1.5 (38)	230
2 (50)	1.5 (38)	140	2.0 (50)	450	1.26 (32)	78	2.0 (50)	450	2.0 (50)	450

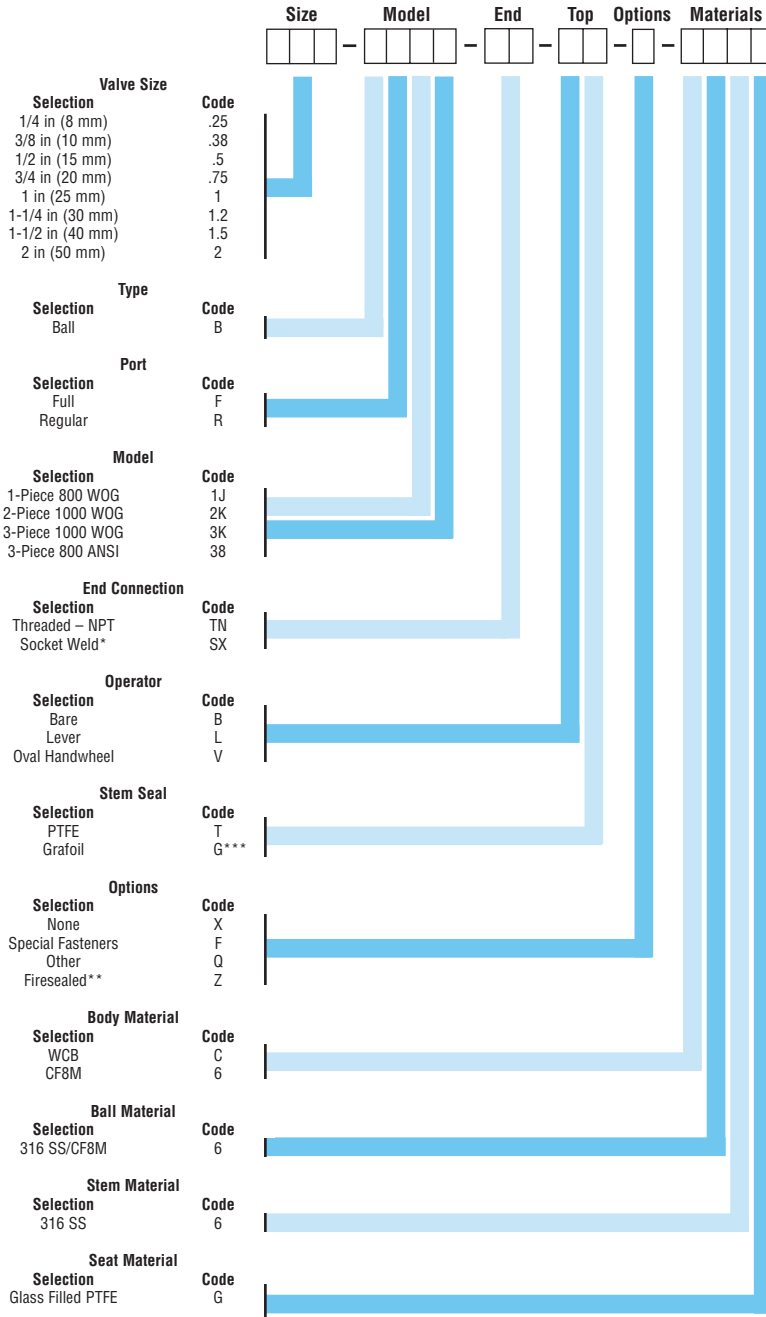
C<sub>v</sub> values are estimated. Consult Durco Technical Manual for accurate values. To obtain K<sub>v</sub> values:  $K_v = \frac{C_v}{1.163}$

### Durco Microfinish Ball Valve 3-Piece Design, ANSI Class 800 1/2 in (15mm) - 2 in (50mm)



Item No.	Part Description	Valve Alloy		Remarks
		Stainless Steel	Carbon-Stainless Steel	
1	Body	CF8M	WCB	Grafoil for Firesealed
2	Tailpiece	CF8M	WCB	
3	Ball	CF8M/316 SS	CF8M/316 SS	
4	Seat	Glass Filled TFE	Glass Filled TFE	
5	Body Seal	Virgin TFE	Virgin TFE	
6	Body Stud	Grade B8 Class 2	Grade B7	
7	Body Nut	Grade 8	Grade 2H	
8	Stem	316 SS	316 SS	
9	Stem Washer	Glass Filled TFE	Glass Filled TFE	
10	Stem Seal	Virgin TFE	Virgin TFE	
11	Gland	316 SS	316 SS	
12	Gland Nut	304 SS	304 SS	
12B	Lever Nut	304 SS	Carbon Steel Plated	
13	Lever	Carbon Steel	Carbon Steel	
14	Antistatic			
	Body Spring	304 SS	304 SS	
17	Spring Disc	304 SS	Carbon Steel	
18	Lock Strip	304 SS	304 SS	
20	Locking Plate	202 SS	202 SS	

# How To Specify Durco Threaded Ball Valves



\* Socket Weld available in 3-piece 1000 WOG design only

\*\* Firesealed available in 3-piece 800 ANSI design only

\*\*\* Firesafe only

## Selection, Installation, Operation and Maintenance

Although Flowserve can, and often does, provide general guidelines, it is obviously not possible to provide application specific data and warnings for all conceivable applications. The purchaser/end user must therefore assume the ultimate responsibility for the proper selection, installation, operation and maintenance of the products. Read the appropriate IOM available from Cookeville, TN 38501 before installing, operating or repairing any valve. The purchasers/end user should train its employees and/or contractors in the safe use of the Durco products in connection with the purchaser's manufacturing processes.

## Design Changes

In order to follow Flowserve's commitment to continuous improvement, we reserve the right to change product and performance specifications without notice.



# Flowserve has the answer to your corrosion resistant, quarter-turn valving needs.

*Clockwise from top right.*

## **Durco® BTV-2000**

PTFE or UHMWPE lined chemical service valve

## **Atomac®**

Lined ball valves

- ANSI/ISO, standard and full port
- Specialty valves
- Valve products and accessories

## **Durco® SleeveLine®**

Non-lubricated, PTFE-sleeved plug valves

- G4 Isolation
- G4E – DIN Mounting Pad
- G4 Marathon™
- TSG4 Severe Service

## **Durco® T-Line®**

Non-lubricated, PTFE-lined plug valves

## **Big Max® Butterfly**

High performance valves

## **Durco® Microfinish™**

Alloy ball valves

## **Automax®**

Valve automation systems

- Actuators
- Controls with smart technology
- Accessories

*For more information, contact:*



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Cookeville, Tennessee 38501  
Phone: 931 432 4021  
Fax: 931 432 3105  
[www.flowserve.com](http://www.flowserve.com)



Or Consult Your Local Stocking Distributor

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Germany  
Phone: +49 2561 686-0  
Fax: +49 2561 686-39

Flowserve Pte. Ltd.  
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