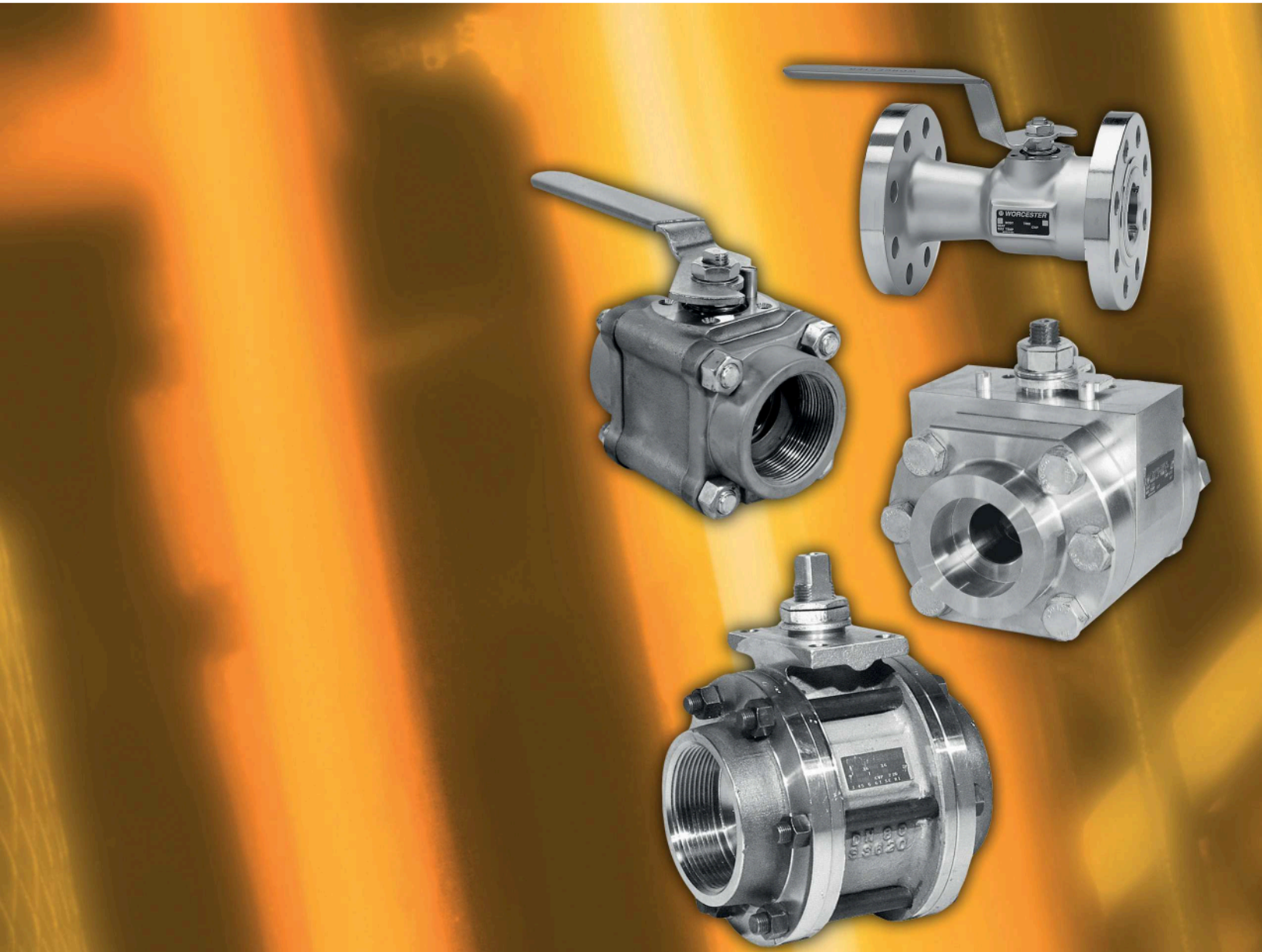
FLOWSERVE

Worcester Controls High Pressure and High Temperature Ball Valves

Series 4, Series H44, High-per Mizer, H71 Hydromizer



Experience In Motion

Series 4 High-Pressure Ball Valves

Lubetal™ seated high-performance ball valves capable of pressures to 3000 psi, temperatures to 180°F

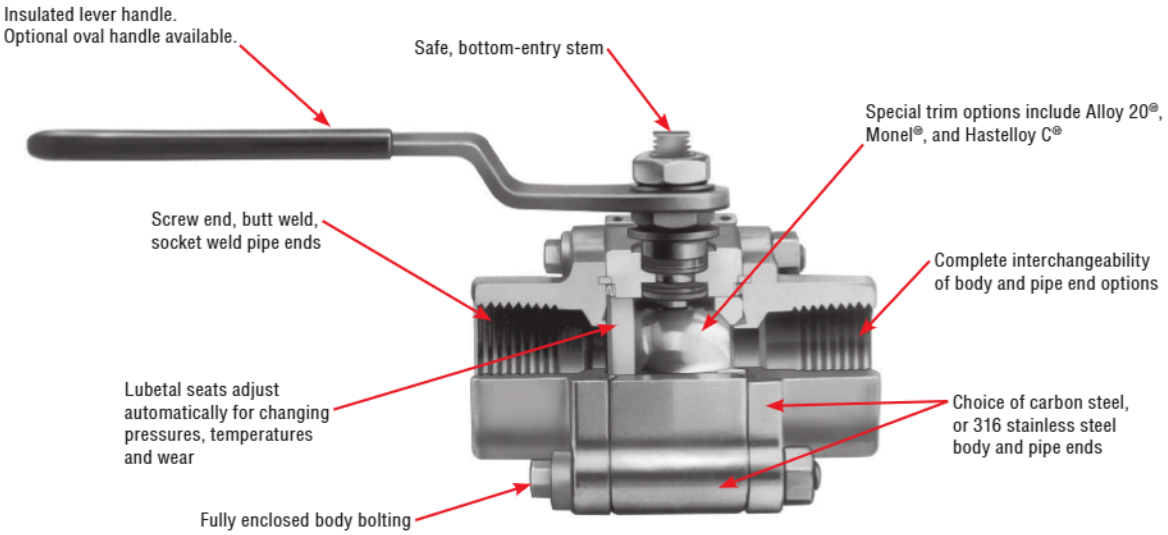
Worcester Controls Series 4 is a rugged, three-piece valve designed to handle high-pressure applications beyond the capabilities of the Series 44 ball valve line, i.e., above ANSI Class 600. The unique seat design assures bi-directional tight shutoff and adjusts automatically for changing pressure and temperature variations and wear.

Available through a nationwide network of distributors, Series 4 quarter-turn ball valves and replacement parts are stocked and ready to be adapted to each application. Features that make this tough, reliable ball valve so unique include tight shutoff; smooth, two-way flow; Lubetal seats; a variety of interchangeable end connections; swing-away three-piece construction; and a design based on automation.

Automation

Where automation is required, Series 4 valves can be electrically or pneumatically automated for on/off applications.

Worcester Controls unique stem seal package for the Series 4 is ideal for high-cycle, on/off applications. The control stem assembly greatly increases stem seal cycle life. For torque curves refer to the Actuator Sizing Manual.



Specifications

Valve Sizes	¼", ⅜", ½", ¾", 1", 1¼", 1½", 2"
Valve Pressure Ratings	From 20 micron absolute to:
	¼"–¾" – 3000 psi
	1" – 2500 psi
	1¼"–2" – 2000 psi
Body and Pipe End Materials	Carbon Steel, Stainless Steel
Ball/Stem	Stainless Steel, Monel, Alloy 20, Hastelloy C
Seats	Lubetal (Delrin®)-Maximum temperature 180°F. Lubetal will handle the full range of pressure within the valves rating.
Thrust Bearing	Delrin
Stem Seals	Polyfill® and PEEK
Body Seals	Buna, Viton®, EPR, Neoprene
Valve Temperature Range	-20°F to 180°F
Seat/Seal Leakage	All valves 100% tested to bubbletight standards.
Design Specifications	ANSI B16.25 – Butt weld ends
	ANSI B16.11 – Screw and socket weld end, socket diameter, depth and length only.
	ANSI BI.20.1 – NPT pipe threads
	MSS SP25 – Valve marking
	NACE – MRO 1-75 1984 Rev. Category 3

Note: For dimensions refer to brochure no. WCABR1008.

Flow Coefficient

Size	C_v	Equivalent length of Sched. 40 pipe (feet)
¼", ⅜"	8	0.9
½"	8	3.1
¾"	12	6.3
1"	32	3.1
1¼"	46	6.3
1½"	82	4.3
2"	120	7.5

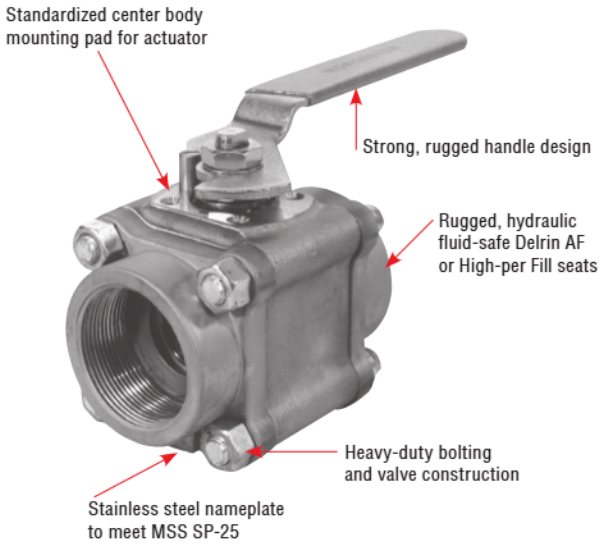
Series H44 Dyn-O-Miser® for Higher P/T

Resilient-seated high-performance ball valves capable of pressures to 5000 psi and temperatures to 450°F

Series H44, an advanced-design ball valve that can take the stress of hydraulic and other high-pressure systems.

Worcester Series H44 three-piece ball valve continues to be one of the most respected ball valve designs in the industry. With advanced sealing technology and top-mount actuator bracket design, this ball valve is very durable and can handle pressures to 5000 psi and temperatures to 450°F.

H44 Series valves feature two seat materials. One is Delrin® AF, a high-pressure material by Dupont, composed of an Acetal homopolomer filled with fluoropolymer and glass fiber. The other is High-per Fill®, made of PolyEtherEtherKetone (PEEK) filled with glass and graphite, recommended for high pressure systems with temperatures above 180°F.



Top-Mounted Actuator Design

Actuators for Worcester's Series H44 three-piece valves are mounted on rigid, precisely machined, box style brackets bolted to the valve center section. This brings a number of advantages to the valve user:

- Actuator loads are on the valve body.
- Actuators and brackets can be removed for service without affecting valve or piping integrity.
- Easy access to stem seal adjustment.

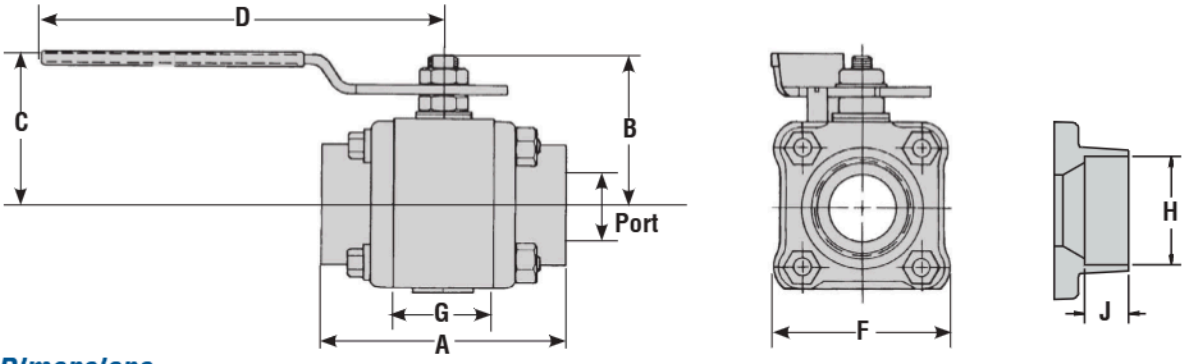
Maximum Operating Pressure Body Rating (non-shock)

Valve Size	Valve and Pipe End Material	Maximum Pressure Rating
¼", ⅜", ½"	Carbon and Stainless Steel	Up to 5000 psi
¾", 1"	Carbon and Stainless Steel	Up to 4500 psi
1¼", 1½", 2"	Carbon and Stainless Steel	Up to 4000 psi

Specifications

Sizes	¼", ⅜", ½", ¾", 1", 1¼", 1½", 2".
Style	Three-piece – Series H44.
Ratings	Body and seat/seal ratings shown opposite.
Body/Pipe End Materials	Carbon steel or stainless steel.
Ends	Screwed or socket weld.
Operation	Manual lever handle. Electric or pneumatic actuators available.

Seats	**Delrin AF**		**High-per Fill**	
Maximum Temp.	180°F		450°F	
Maximum Temp. of Body Seals	**Seal**	**Temp.**	**Seal**	**Temp.**
	Buna	300°F	Viton	450°F
	EPR	350°F	TFE	400°F
	Viton	450°F	UHMWPE	200°F
	Neoprene	250°F		
	UHMWPE	200°F		
	TFE	400°F		
Leakage Rate	Bubbletight		Bubbletight	
Thrust Bearing	Delrin		PEEK	
Stem Seal	Reinforced TFE		Reinforced TFE	



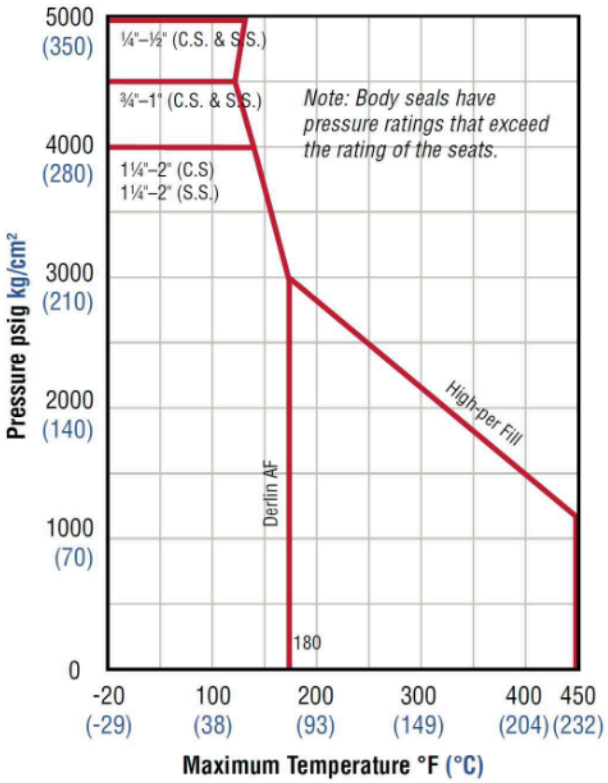
Dimensions

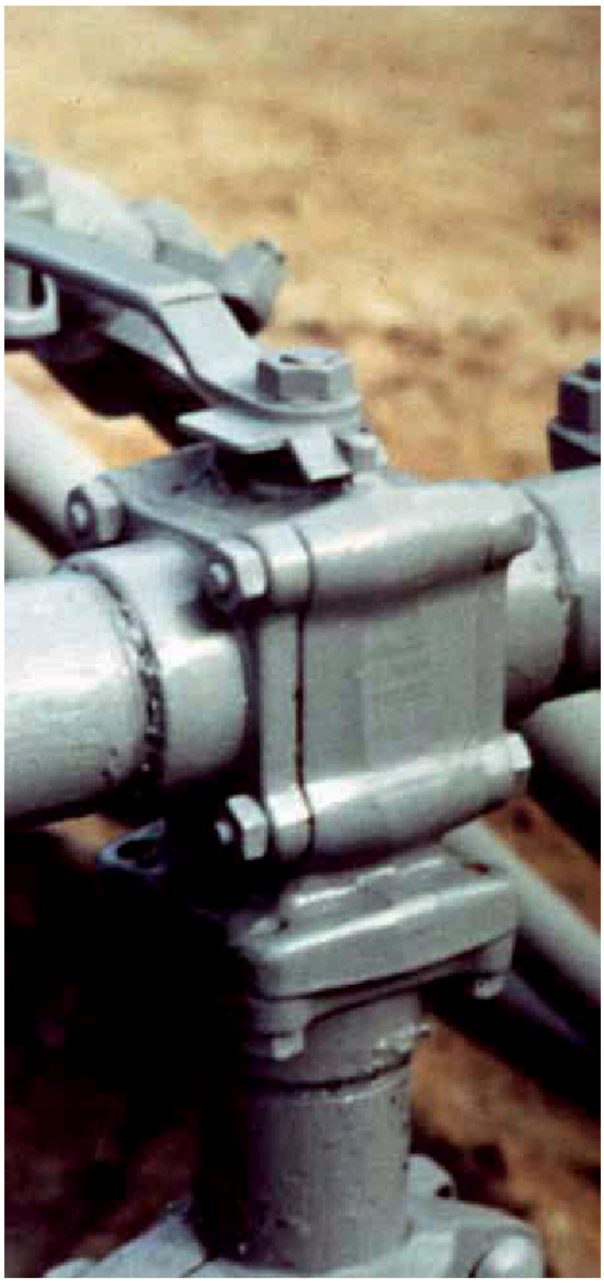
***inches** / millimeters*

Valve Size	A	B	C	D	F	G	Socket Weld SW		Port	Approx. Weight lb. / kg
							H	J		
¼"	2.54	1.55	1.76	5.53	1.75	.813	.555	.44	.44	1.10
	64.5	39.4	44.7	140	44.5	20.7	14.1	11.2	11.2	.50
⅜"	2.54	1.55	1.76	5.53	1.75	.813	.690	.44	.44	1.10
	64.5	39.4	44.7	140	44.5	20.7	17.5	11.2	11.2	.50
½"	2.54	1.55	1.76	5.53	1.75	.813	.855	.44	.44	1.10
	64.5	39.4	44.7	140	44.5	20.7	21.7	11.2	11.2	.50
¾"	2.76	1.64	1.86	5.53	2.00	.969	1.065	.56	.56	1.75
	70.1	41.7	47.2	140	50.8	24.6	27.1	14.2	14.2	.79
1"	3.66	2.19	2.28	6.53	2.38	1.25	1.330	.72	.81	3.10
	93.0	55.6	57.9	166	60.5	31.8	33.8	18.3	20.6	2.04
1¼"	4.16	2.38	2.47	6.53	2.70	1.63	1.675	.72	1.00	4.50
	105	60.5	62.7	166	68.6	41.3	42.5	18.3	25.4	2.82
1½"	4.50	2.88	2.83	8.03	3.16	1.91	1.915	.72	1.25	6.20
	114	73.2	71.9	204	80.3	48.4	48.6	18.3	31.8	2.04
2"	4.94	3.06	3.02	8.03	3.56	2.22	2.406	.84	1.50	9.50
	126	77.7	76.7	204	90.4	56.3	61.1	21.3	38.1	4.31

Series H44 Dyn-O-Miser® for higher P/T

Pressure/Temperature Ratings





Flow Coefficient

C_V Values (USGPM)

Valve Size	C_v
¼"	8
⅜"	8
½"	8
¾"	12
1"	32
1¼"	46
1½"	82
2"	120

High-Per Mizer

A High-Durability Ball Valve for Superheated Steam, High-Temperature and Abrasive Fluid Applications

High-Per Mizer advantages include:

- Ability to handle pressure and temperature shock.
- Ability to withstand high pressure drops.
- Ability to handle slurries, resist abrasion and wear.
- Bubbletight sealing to 600°F.
- Bubbletight sealing to 1440 psi.
- Ability to handle superheated steam.
- Offers leaktight integrity on thermal fluid services.
- Ability to handle a wide range of corrosives.
- Long-life operation.

Metal-Seated Versions

Metal-seated versions feature a unique and patented seat sealing design, which incorporates an alloy stainless steel seat impregnated with self-lubricating fillers. The rigid metal seat construction is strong, highly wear and corrosion resistant, and eliminates fracturing common to graphite-based seats.

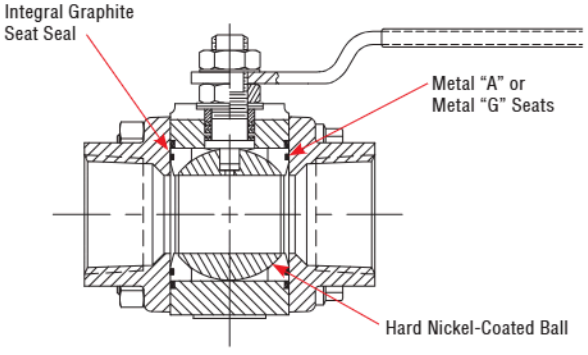
The 316 stainless steel ball is nickel-coated. The coating makes the ball surface harder, as well as acting as a lubricant to prevent the metal seats and ball from galling as they cycle.

Metal "A" seated versions feature a TFE impregnated stainless steel seat with integral graphite seat seal and offer temperature capability to 600°F and pressures to 1000 psi.

Metal "G" seated versions feature a graphite impregnated stainless steel seat with integral graphite seat seal and offer temperature capability to 650°F and 1000 psi.

For temperatures between 650°F and 800°F, refer to Series 94, brochure WCABR1023. For temperatures to 1000°F consult Flowserve.

PT44



Metal-Seated Version

Resilient-Seated Versions

Resilient-seated versions feature High-Per Fill® seat. Proprietary to Flowserve Worcester Controls, High-Per Fill is a blend of polyetheretherketone, glass and graphite fillers. This blend strengthens, provides thermal resistance even at high pressures, prolongs cycle life and reduces operating torque. High-Per Fill is chemically inert, has a broad corrosion compatibility and is a non-halogen (no TFE) material.

High-Per Fill can be used in certain food, drug, tobacco and radiation services where TFE is inappropriate. The radiation resistance of High-Per Fill is 2 x 109 rads.

High-Per Fill will handle up to 500 psi saturated steam, temperatures to 600°F and pressure to 1440 psi, while offering bubbletight sealing.

Automation

Flowserve Worcester Controls offers a complete line of pneumatic and electric automation packages for the High-Per Mizer Valve. Refer to Brochure WCABR1014 for Series 75 Electric Actuators and Brochure WCABR1003 for Series 39 Pneumatic Actuators.

Electric Control

Pneumatic Control

Flow Coefficient

PT44 and PT59

Valve Size	C_v		Equivalent length of Schedule 40 pipe (feet)	
	PT44	PT59	PT44	PT59
¼" – ⅜"	8	8	0.9	0.9
½"	8	32	3.1	1.4
¾"	12	54	6.3	1.0
1"	32	105	3.1	1.9
1¼"	46	170	6.3	2.1
1½"	82	275	4.3	2.1
2"	120	460	7.5	2.1
3"		1330		3.0
4"		2420		2.7

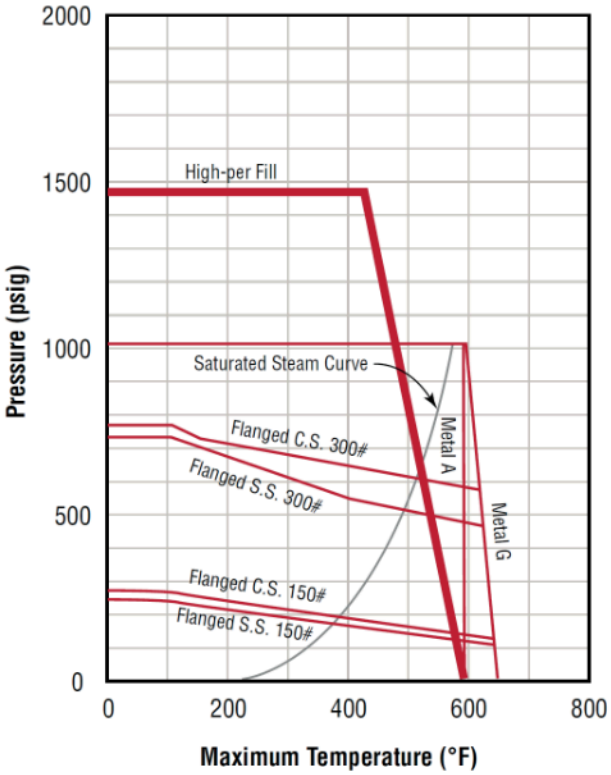
PT45

Valve Size	C_v	Equivalent length of Schedule 40 pipe (feet)
2½"	240	5.0
3"	320	8.3
4"	580	10.4
6"	1020	20.4

PT51/52 and PT44 151/301

Valve Size	C_v	Equivalent length of Schedule 40 pipe (feet)
½"	8	3.9
¾"	12	8.7
1"	32	3.6
1½"	82	3.7
2"	120	6.5
3"	350	7.1
4"	720	6.9
6"	1020	20.4

Pressure/Temperature Ratings



High-Per Mizer Resilient Seat

Specifications

PT44/PT59
¼"-2"

PT51/PT52
½"-2"

PT51/PT52
3"-6"

PT44 151/301
3"-6"

PT45 2½"-6"
PT59 2"-4"

Sizes	¼"–6" (depending on style)
Styles	Three-piece – Series PT44
	¼", ⅜", ½", ¾", 1", 1¼", 1½", 2"
	Three-piece – Series PT45
	2½", 3", 4", 6"
	Three-piece – Full-Port Series PT59
	¼", ⅜", ½", ¾", 1", 1¼", 1½", 2", 3", 4"
	Flanged – Series PT51 and PT52
	½", ¾", 1", 1½", 2", 3", 4", 6"
	Wafer – Series PT44 151/301
	3", 4", 6"
***Body**	Series PT44–1440 psi Class 600 ANSI
	Series PT59–1440 psi ¼"–2"; Class 300 – 3" and 4"
	Series PT51–Class 150 ANSI
	Series PT52–Class 300 ANSI
	Series PT44 151–Class 150 ANSI
	Series PT44 301–Class 300 ANSI
	Series PT45–Class 300

Ends	Screwed, Socket Weld, Flanged ANSI 150#
	Flanged ANSI 300#, between 150# or 300# flanges
Body	Carbon Steel, 316 Stainless Steel
Stem	¼"–2" 17-4 pH Stainless Steel
	3"–6" 316 Stainless Steel
Standards	For fire-safe versions, refer to brochure WCABR1029.
	SE valves meet ANSI B1.20.1
	Flanged valves meet ANSI B16.5, B16.10
	Flanged and ¼"–2" three-piece valves meet ANSI B16.34 (600# class) when hydro test is specified.
Operation	Manual lever handle. Electric or pneumatic actuator available.
Dimensions	Refer to individual product catalogs; WCABR1009, WCABR1010, WCABR1011, WCABR1013, WCABR1041, or dimensional sheets WCASS0013-0016.

	Metal-Seated	**Metal-Seated**	**Resilient-Seated**
Seats:	**Metal "A"**	**Metal "G"**	**High-Per Fill "X"**
	TFE impregnated stainless steel with integral graphite seat seal	Graphite impregnated stainless steel with integral graphite seat seal	Proprietary blend of PolyEtherEther-Ketone, glass and graphite fillers
Body Seals:	Refer to How to Order Table	Refer to How to Order Table	Refer to How to Order Table
Stem Seal(s):	Polyfill®/PEEK	Polyfill/PEEK	Graphite/PEEK
Thrust Bearing:	Polyfill/PEEK	Polyfill/PEEK	PEEK
Ball:	316 Stainless Steel Nickel-coated	316 Stainless Steel Nickel-coated	316 Stainless Steel
Max. Temp:	600°F	650°F	600°F
	1000 psi	1000 psi	1440 psi
Leakage Rate:	Bubbletight	ANSI Class VI	Bubbletight
Steam Service:	For steam service, refer to Worcester Controls Steam Service Data Sheet for ratings. This data sheet is found in the Engineering section of the general catalog binder.		
High-Temp:	For applications to 1000°F, contact Flowserve.		

**Refer to body ratings, seat and seal ratings and pressure/temperature ratings to determine maximum safe pressure and temperature for the High-Per Mizer valve.*

NOTE: *Standard Worcester Controls valves are assembled with silicone-based break-in lubricant. For other options consult your distributor or Flowserve.*

Series H71 Ball Valves

Exceeding the High-Pressure Technology Requirements of Deep Sea Oil Production, Hydraulic and Compressed Natural Gas Processes.

Worcester Controls Series H71 is a line of safe, durable ballvalves for high pressure fluids to 6000 psi. The three-piecedesign is compact with low torque quarter-turn operation,blowout proof stem and easy repair and maintenance.SeriesH71 is built for harsh environments, from seabed systems to corrosive chemicals.

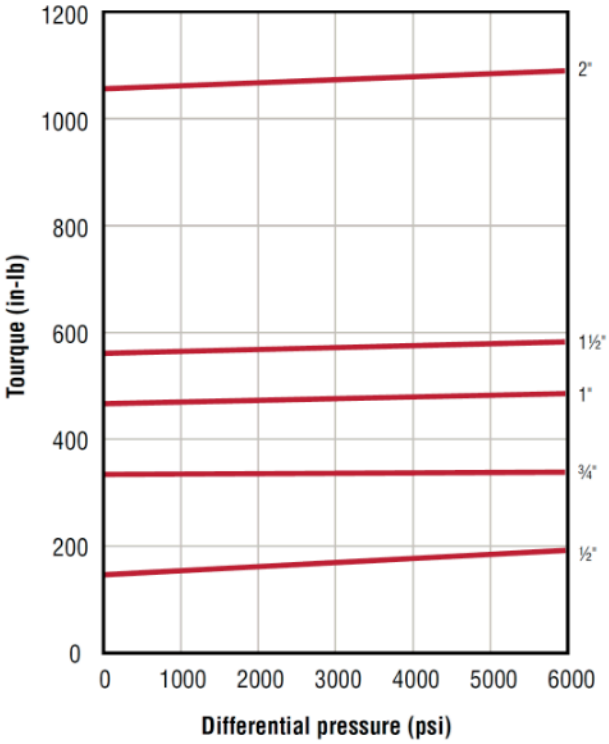
Applications

- High-pressure liquids, gasses, chemicals
- CO2/H2O injection
- Subsea hydraulic systems
- Production manifolds
- Chemical injections
- CNG storage and distribution
- Flare gas isolation
- Deepwater accumulator
- Shutoff and flushing operations

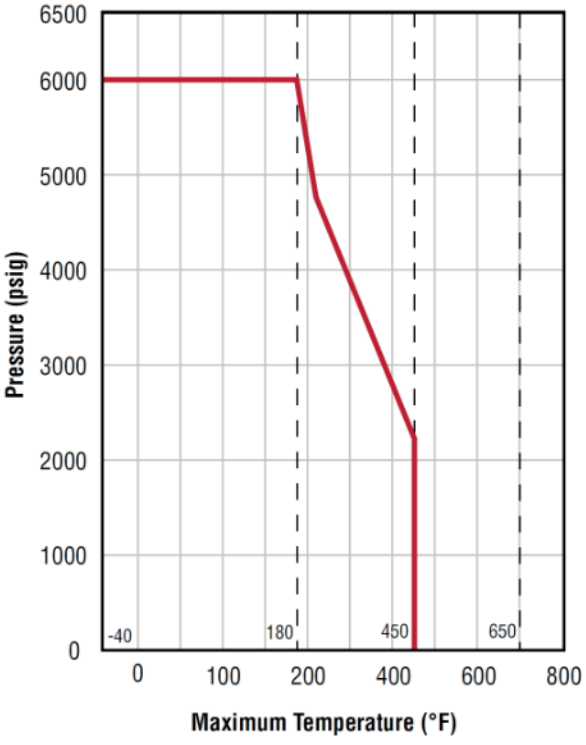
Specifications

Sizes	½", ¾", 1", 1½", 2"
	½" and ¾" are ANSI B16.34 Class 2500
	1"–2" are ANSI B16.34 Class 1500 (Class 2500 available)
	All are rated to 6000 psi
Material	Carbon steel, stainless steel
Port	Full-port design to schedule 160 pipe
Ends	N.P.T. screwed ends, socket weld, schedule 160 butt weld, SAE screwed ends (SAE J514F)
Valve Temperature Rating	-40°F to 450°F
Documentation	CMTRs for pressure retaining parts upon request
Standards	ANSI B16.34, NACE construction
Completely enclosed body seal allows external pressures to 5000 psi	
Flow Coefficient C_V	½"-23
	¾"-61
	1"-73
	1½"-82
	2"-150

Pressure Torque Curves



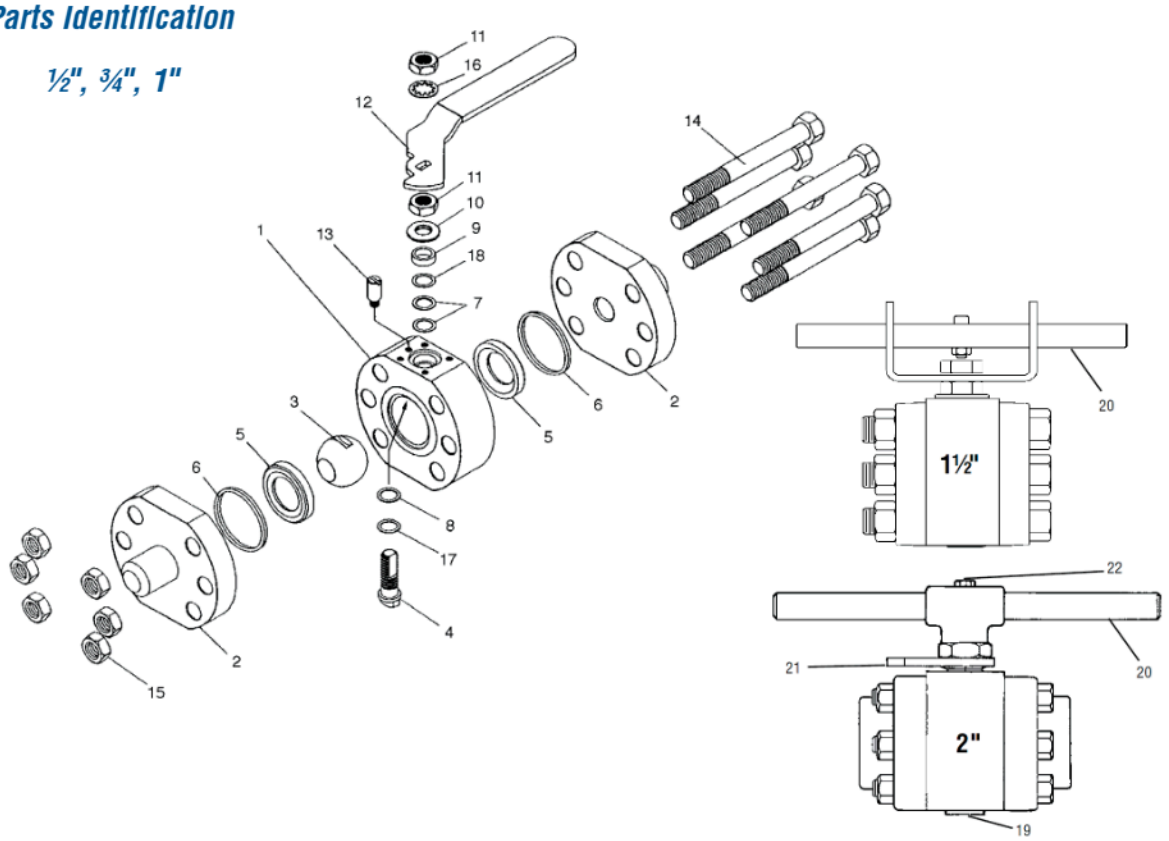
Pressure/Temperature Ratings



Note: For temperatures below -20°F use stainless steel valves.

Parts Identification

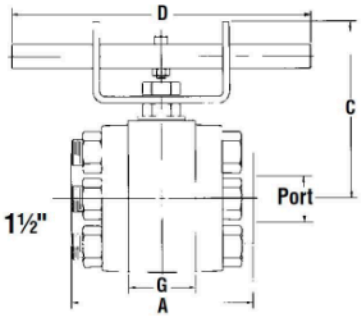
½", ¾", 1"

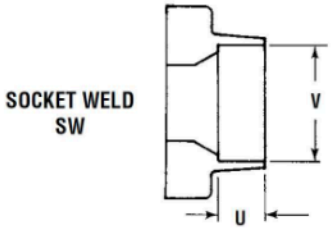


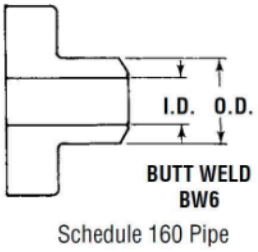
Part	Description	Qty.	Material
1	Body	1	Carbon Steel ASTM-A105 or A108 Stainless Steel ASTM A479-316 or ASTM A182-F316
2	Pipe End	2	Carbon Steel ASTM-A105 or A108 Stainless Steel ASTM A479-316L or ASTM A182-F316L
3	Ball	1	Stainless Steel ASTM A479-316 Cond. A Electroless Nickel-Coated
4	Stem	1	Stainless Steel 17-4PH H11 50M ASTM A564 Type 630 Cond. A
5	Seat	2	(Filled PEEK) High-per Fill®
6	Body Seal	2	TFE, Viton®
7	Stem Seal	2	½"–1½" Polyfill®
		3	2" Polyfill®
8	Thrust Bearing	1	PEEK
9	Follower	1	Stainless Steel ASTM A276-316 Cond A
10	Belleville Washer (None on 2")	2	Carbon or Stainless Steel

Part	Description	Qty.	Material
11	Handle/ Retaining Nut	1 or 2	Carbon or Stainless Steel AISI 303 Zinc-Plated
12	Handle Assembly	1	Carbon or Stainless Steel Vinyl-Covered (½"–1")
13	Stop Pin	1 or 2	Carbon or Stainless Steel 300 Series
14	Body Bolt	6	Carbon Steel ASTM A193 GR B7 Zinc-Plated Stainless Steel ASTM A193 GR B8 Zinc-Plated
15	Body Nut	6	Carbon Steel ASTM A194 GR 2H Zinc-Plated Stainless Steel ASTM A194 GR 8
16	Lockwasher	1	Carbon or Stainless Steel AISI 300 Series
17	Thrust Bearing	1	PEEK (½" to 1½" only)
18	Seal Protector	1	PEEK
19	Nameplate	1	Stainless Steel AISI 304
20	Handle Assembly	1	Carbon or Stainless Steel (1½", 2" only)
21	Stop	1	Carbon or Stainless Steel (2" only)
22	Handle Assembly Bolt	1	Stainless Steel (2" only)

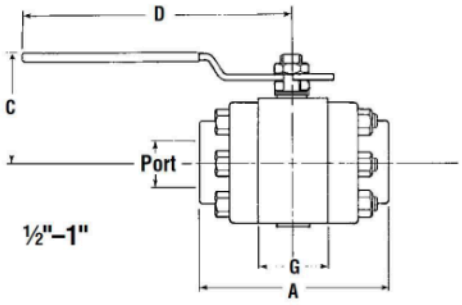
Dimensions

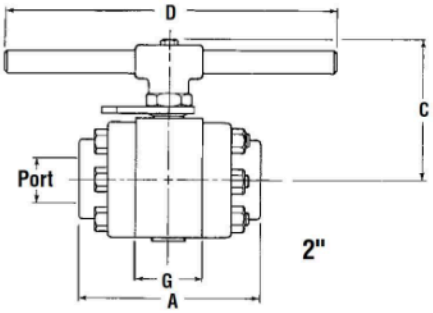


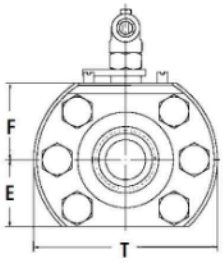




Schedule 160 Pipe







***inches** / millimeters*

Valve Size	A	C	D	E	F	G	T	Socket Weld - SW		Butt Weld - BW6		Port Dia.	Valve Weight
	SE, SW, BW, SAE							U	V	I.D.	O.D.		lb. / kg
½"	4.25	2.18	6.53	1.16	1.26	1.25	3.08	.44	.860	.466	.840	.47	5.3
	108	55.4	166	29.5	32	31.8	78.2	11.2	21.8	11.8	21.3	11.9	2.4
¾"	4.75	2.52	6.53	1.56	1.50	1.25	4.08	.56	1.07	.614	1.050	.61	10.9
	121	64	166	39.6	38.1	31.8	104	14.2	27.2	15.6	26.7	15.6	4.9
1"	4.62	2.98	8.03	1.56	1.94	1.62	4.09	.72	1.34	.815	1.315	.81	10.6
	117.3	75.7	204	40.0	49.3	41.2	104	18.3	34.0	20.7	33.4	20.7	4.8
1½"	5.14	4.98	18.0	2.08	2.20	1.90	5.38	.72	1.92	1.338	1.900	1.10	21.5
	131	127	457	52.8	55.9	48.3	137	18.3	48.8	34.0	48.3	27.9	9.8
2"	9.56	5.80	22.0	2.50	2.88	2.90	6.87	.84	2.41	1.689	2.375	1.50	49
	243	147	559	63.5	73.2	73.7	175	21.3	61.2	42.9	60.3	38.1	22.2

How to Order

Series PT44 High-Per Mizer

1½"	PT44	6	6	G	G	SE**
Size	**Series**	**Body & Pipe Ends**	**Ball & Stem**	***Seats**	***Body Seals**	**End Type**
¼"–2"	PT 44- three-piece	4 - Carbon Steel 6 - 316 S.S.	6 - Stainless Steel	G - Metal "G"	G - Graphite 316 S.S. "S" gasket	SE - Screw End Carbon Steel, 316 S.S. SW - Socket Weld Carbon Steel, 316L S.S.
¼"–1½"	PT 59 - Full-port three-piece			A - Metal "A" X - High-Per Fill	G - Graphite-coated 316 S.S. "S" gasket M - TFE-coated 316 S.S. "S" gasket	
½"–2"	PT 51/PT52-Flanged 150#/300#	4 - Carbon Steel 6 - 316 S.S.	6 - Stainless Steel	A - Metal "A"	M - TFE-coated 316 S.S. "S" gasket	150 - ANSI 150# flanges 300 - ANSI 300# flanges
				G - Metal "G" X - High-Per Fill	G - Graphite-coated 316 S.S. "S" gasket	
2"	PT 59 - Full-port three-piece	4 - Carbon Steel 6 - 316 S.S.	6 - Stainless Steel	A - Metal "A" G - Metal "G" X - High-Per Fill	Z - Graphite (4 bolt R3)	SE - Screw End Carbon Steel, 316 S.S. SW - Socket Weld Carbon Steel, 316L S.S.
3"–4" 2½"–6"	PT 59 - Full-port three-piece PT 45 - three-piece	4 - Carbon Steel 6 - 316 S.S.	6 - Stainless Steel	A - Metal "A" G - Metal "G" X - High-Per Fill	G - Graphite-laminated 316 S.S. gasket	SE - Screw End Carbon Steel, 316 S.S. SW - Socket Weld Carbon Steel, 316L S.S.
3"–6"	PT 44 - 151/301	4 - Carbon Steel 6 - 316 S.S.	6 - Stainless Steel	A - Metal "A" G - Metal "G" X - High-Per Fill	T - TFE (PT44 with "A" seat only) Z - Graphite	151 - For use between 150# ANSI flanges 301 - For use between 300# ANSI flanges
3"–6"	PT51/PT52- Flanged 150#/300#					150 - ANSI 150# flanges 300 - ANSI 300# flanges

***Variations (V–Numbered Options) are noted at the end of the order number if needed. Leave blank if no variations. See list below for details.*

Variations (V-numbers): Listing of V-Number Descriptions

Leave blank if no variations.

V 3* - Upstream Relief Hole

V 5 - Hydrostatic Testing

V 6 - Source Inspection

V14 - Handleless Valve

V32 - Oval Handle

V36 - Cert. of Compliance

V37 - Cert of Comp. and Hydro Testing

V46 - Silicon-Free Lubricant (not used with Metal "A" or "G" seats)

V48 - Extended Lever Handle
¼"–2" PT 44, PT 51/52
¼"–1½" PT 59 only

V51* - High Cycle Stem Build

V58* - B16.34 Compliance

V59 - Extended Oval Handle
¼"–2" PT 44, PT 51/52
¼"–1½" PT 59 only

V60 - OSHA Lockout
¼"–2" PT 44
¼"–1½" PT 59 only

V66 - Cert. of Compliance European Valve Orders

V67*- Weld in-place Valves (3-piece valve only)

VARIATION NOTES:

V3 - Not used with Metal "A" or "G" Seats.

V51 - Not used on ¼"–2" PT 44, ½"–2" PT 51/PT 52, ¼"–1½" PT 59, or 3"–6" PT 44, PT 51/PT 52 valves with metal "G" seats, or 2"– 6" three-piece valves with "G" or "X" seats.

V58 - Not offered on 2"–4" PT 59, PT 45, or PT 44 151/301 valves.

V67 - Not used on 2"–4" PT 59 and 2½"–6" PT 45 with "X" seats.

S7 - Complete S.S. trim option for 3"–6" PT 44, PT 51/PT52 only. Wrench block and extension, hexhead bolt, retaining nut, stop, stop screw and Belleville washer(s) or spacer if used.

Ordering Example: 1½" High-Per Mizer with Stainless Steel body, Screw ends, Ball and Stem, Metal "G" Seats and Graphite-coated Stainless Steel "S" gasket.

****NOTE:** AM Seat and Seal combination available for screw end only in sizes ¼"–2" three-piece valves.*

How to Order

Series 4

1½"	4	66	66	Y	V	SE
Size	**Series**	**Body & Pipe Ends**	**Ball & Stem**	**Seats**	**Body Seals**	**End Type**
¼" ⅜" ½" ¾" 1" 1¼" 1½" 2"	4	4 – Carbon Steel 6* – 316 S.S.	6 – 316 Stainless Steel 7 – Monel C – Hastelloy C A – Alloy 20	Y – Lubetal	B – Buna E – EPR V – Viton N – Neoprene	SE – Screwed Pipe Ends (NPT) Any Sch. Pipe † Carbon Steel Stainless Steel Butt Weld Ends BW4 – Carbon Steel, Sch. 40 BW4 – Stainless Steel, Sch. 40 BW5 – Stainless Steel, Sch. 50 (½"–2" only) BW8 – Stainless Steel, Sch. 80 SW – Socket Weld Ends, Any Sch. Pipe † Carbon Steel Stainless Steel SWO – Socket Weld Ends, O.D. Tube (not available in ¼" and ⅜" sizes). Stainless Steel

***Variations (V–Numbered Options) are noted at the end of the order number if needed. Leave blank if no variations. See list below for details.*

† All IPS schedules of stainless, carbon and alloy steel pipe.

Example: 1½" Series 4 with 316 stainless steel body, 316 S.S. ball and stem, Lubetal seats, Viton body seals and screwed pipe ends.

Externals, including handles, are normally constructed of zinc-plated carbon steel. Handles are vinyl-coated. When required, the body bolts, nuts, adjusting nut and handle nut, lock washer, stop pin and handle are also available in stainless steel by special order (S-7 suffix in order code), and come standard when ordering a 466 valve.

To order a Series 4 for use with:

Series 34 or 36 actuators, use prefix ordering code "A". Example: 1" A 446 YBSE

Series 39 or 75 actuators, use prefix ordering code "B".

Variations (V-numbers): Listing of V-Number Descriptions

(V-numbered options to be added to the end of part numbers)

Blank	No Variations
V3	Upstream Relief Hole
V5	Hydrostatic Testing
V6	Source Inspection
V32	Oval Handle
V36	Certificate of Compliance
V37	Certificate of Compliance and Hydro Testing
V38	Assemble without Lubricant
V46	Silicon-Free Lubricant
V48	Extended Lever Handle
V59	Extended Oval Handle
V60	OSHA Lockout
V66	Certificate of Compliance, European Valve Orders

Series H71

1"		H71	66	66	X	V	SW
Size	**Options**	**Series**	**Body & Pipe Ends**	**Ball & Stem**	**Seats**	**Body Seals**	**End Types**
½" ¾" 1" 1½" 2"	Blank – Built with lever or "T" handle E – No handle. Valve built for automation. G – Stem grounding spring	H71	4 – Carbon Steel 6 – 316 Stainless Steel	6 – Stainless Steel ball and stem	X – Filled PEEK	T – TFE V – Viton	SE – Screwed End SW – Socket Weld BW6 – Butt Weld (Sch. 160) SAE – Screwed End NP – No Pipe Ends

***Variations (V–Numbered Options) are noted at the end of the order number if needed. Leave blank if no variations. See list below for details.*

Note: *Standard Worcester Controls valves are assembled with break-in lubricant. For other options, consult your distributor or Flowserve.*

Variations (V-numbers): Listing of V-Number Descriptions

Blank – No Variations

V6 – Source Inspection

V36 – Cert. of Compliance

V46 – Silicone-Free Lubricant

V66 – Cert. of Comp. European Valve orders

⚠ **CAUTION:** Ball valves can retain pressurized media in the body cavity when closed. Use care when disassembling. Always open valve to relieve pressure prior to disassembly. Due to continuous development of our product range, we reserve the right to alter the product specifications and information contained in this brochure as required.

Series H44 Dyn-O-Miser

1"		H44	4	6	Y	B	SE**
Size	**Options**	**Series**	**Body & Pipe Ends**	**Ball & Stem**	**Seats**	**Body Seals**	**End Type**
¼" ⅜" ½" ¾" 1" 1¼" 1½" 2"	Blank – Lever Handle E – No handle, valve built for automation G – Stem grounding	H44	4 – Carbon Steel 6* – 316 S.S.	6 – Stainless Steel Ball – 316 S.S. Stem – 17-4ph S.S.	Y – Delrin AF	B – Buna E – EPR N – Neoprene T – TFE U – UHMWPE V – Viton	SE – Screw End SW – Socket Weld
					X – High-per Fill	T – TFE U – UHMWPE V – Viton	

***Variations (V–Numbered Options) are noted at the end of the order number if needed. Leave blank if no variations. See list below for details.*

**Socket weld pipe ends of stainless steel are 316L.*

Ordering example above: 1" Dyn-O-Miser with lever handle, carbon steel body and pipe ends, stainless ball and stem, Delrin AF seats, Buna body seals and screwed end connections.

NOTE: For high-pressure medias that are highly flammable, explosive, or toxic, consult Flowserve. Standard Worcester valves are assembled with silicon based break-in lubricant. For other options, consult your distributor or Flowserve.

Variations (V-numbers): Listing of V-Number Descriptions

Blank – No Variations

V3 – Upstream Relief Hole

V5 – Hydrostatic Testing

V6 – Source Inspection

V32 – Oval Handle

V36 – Cert. of Compliance

V37 – Cert. of Compliance & Hydro Testing

V46 – Silicon Free Lubricant

V48 – Extended Lever Handle

V59 – Extended Oval Handle

V60 – OSHA Lockout

V66 – Cert. of Compliance for European Valve Orders

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