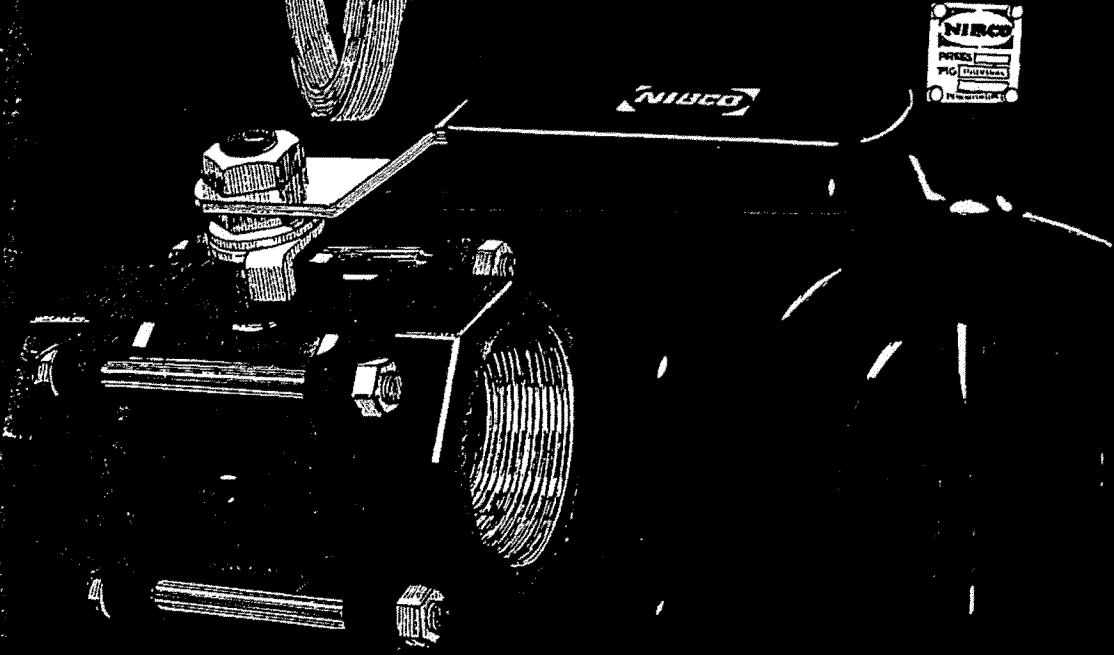
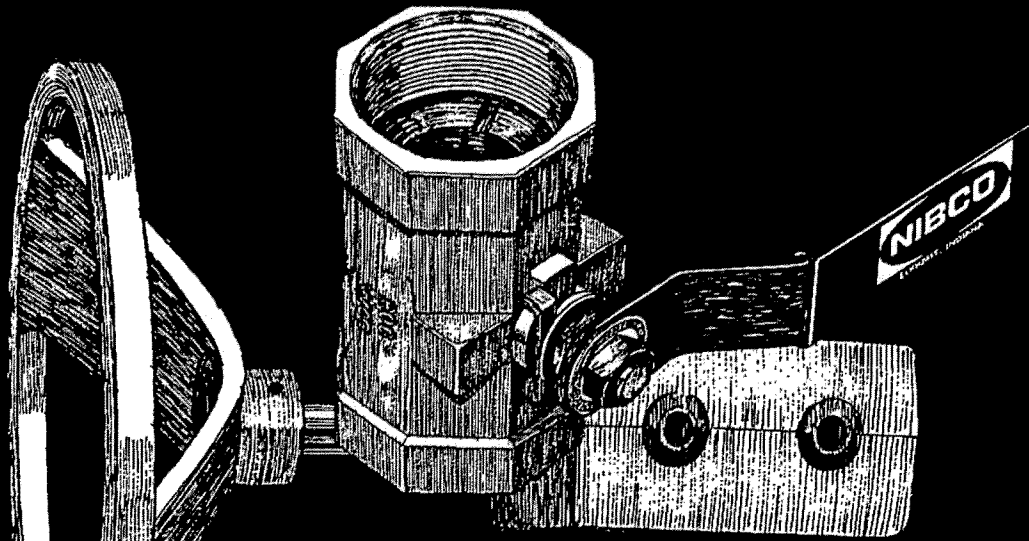




NIBCO THE LEADER IN PIPING PRODUCTS

NIBCO INC. ONE-YEAR LIMITED WARRANTY **Applicable to NIBCO INC. Pressure Rated Ductile Iron,** **Industrial Ball & Butterfly, Alloy Iron, and** **Cast Steel Valves**

NIBCO INC. warrants each NIBCO pressure rated Ductile Iron, Industrial Ball & Butterfly, Alloy Iron, and Cast Steel valve to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase under normal use and service within limitations recommended by it.

In the event any defect occurs which the owner believes is covered by this Warranty, the owner should immediately contact NIBCO INC., either in writing or by collect telephone call, *Attention: Valve Product Manager*. The owner will be instructed to return said valve, at the owner's expense, to NIBCO INC. or an authorized NIBCO INC. representative for inspection. In the event said inspection discloses to NIBCO INC.'s satisfaction that said valve is defective, it will be replaced or repaired at NIBCO INC.'s expense. Replacements shall be shipped free of charge to the owner.

THIS WARRANTY SPECIFICALLY EXCLUDES INCIDENTAL AND CONSEQUENTIAL DAMAGES OF EVERY TYPE AND DESCRIPTION RESULTING FROM ANY CLAIMED DEFECT IN MATERIAL OR WORKMANSHIP, INCLUDING BUT NOT LIMITED TO, PERSONAL INJURIES AND PROPERTY DAMAGES. Some states do not allow the exclusion or limitations of incidental or consequential damages so these limitations may not apply to you.

TO THE EXTENT PERMITTED BY LAW, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO ONE (1) YEAR FROM THE TIME OF PURCHASE OF SAID VALVE. Some states do not allow limitations in how long an implied warranty lasts, so the above limitations may not apply to you.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



NIBCO INC.
P.O. BOX 1167
ELKHART, IN 46535

how to order

State quantity, figure number and size for each valve you wish to order. See individual valve catalog pages for specific or special product designations.

HOW MANY TO ORDER —

NIBCO valves are decimal packed for your convenience in handling, shipping and stock-keeping. Number in master carton varies with item.

POLICY ON RETURNS TO FACTORY —

No NIBCO valves are to be returned without prior

written agreement. Transportation must be prepaid. A 20% charge will be made to cover cost of rehandling and reinspection.

TECHNICAL ASSISTANCE —

Engineers, contractors, wholesalers or manufacturers may obtain special or technical assistance from any factory representative of NIBCO. Write, wire or phone NIBCO Inc., Elkhart, Ind., for information regarding the sales representative for your area.

The information presented in this catalog is correct at time of printing. NIBCO Inc. reserves the right to change design and/or material specifications without notice.



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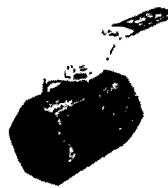
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One Piece Ball Valve
up to 2000 lb. W.O.G.



T-560-BR, CS, S6
Sizes 1/2"-2"
Threaded Ends

One Piece Bar Stock
Ball Valve up to
2000 lb. W.O.G.



T-570-CS
Sizes 1/2"-2"
Threaded Ends

Two Piece Bronze
Ball Valve
400 lb. W.O.G.



T- or S-580
Sizes 1/2"-2"
T- or S-585
Sizes 1/2"-1"
Threaded or Solder Ends

Two Piece Bronze
Ball Valve
600 lb. W.O.G.



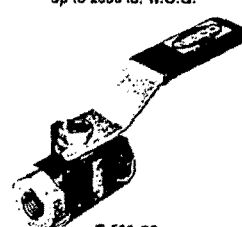
T- or S-580-BR
Sizes 1/2"-2"
Threaded or Solder Ends

Two Piece Carbon Steel
Ball Valve
up to 2000 lb. W.O.G.



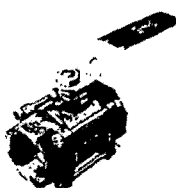
T-580-CS
Sizes 1/2"-2"
Threaded Ends

Two Piece Stainless
Steel Ball Valve
up to 2000 lb. W.O.G.



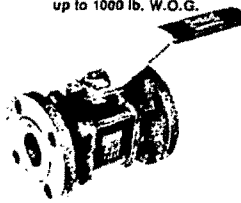
T-580-S6
Sizes 1/2"-2"
Threaded Ends

Three Piece Bronze
Ball Valve
600 W.O.G.



T- or S-590
Sizes 1 1/2"-3"
T- or S-595
Sizes 1/2"-2 1/2"
Threaded or Solder Ends

Three Piece Carbon Steel
Ball Valve
up to 1000 lb. W.O.G.



T-, K-, or F-590-CS
Sizes 1 1/2"-2"
T-595-CS
Sizes 1/2"-2"
Threaded, Socket Weld,
or Flanged End

Three Piece Stainless
Steel Ball Valve
up to 1000 lb. W.O.G.



T-, K-, or F-590-S6
Sizes 1 1/2"-2"
T-595-S6
Sizes 1/2"-2"
Threaded, Socket Weld,
or Flanged End

Key to Ball Valve Figure Number System*

1	2,3,4	5,6	7	8,9
End	Valve Designation	Basic Material	Seat Material	Trim
F — Flanged	560 — One Piece Body Casting	BR — Bronze	Y — Virgin TFE	20 — Bronze
K — Socket Weld	570 — One Piece Body Barstock	CS — Carbon Steel	R — Reinforced TFE	25 — Carbon Steel
S — Solder	580/585 — Two Piece Body	S6 — 316 SS	B — Bronze-Moly	66 — Stainless Steel
T — Threaded	590/595 — Three Piece Body			70 — Bronze/Chrome Plated Ball

* This key is a guide only and is not intended to infer that every valve will be produced that is contained in the key.

NIBCO INC., ELKHART, INDIANA

NIBCO000790

NIBCO

560 SERIES

One-piece ball valves

NIBCO designed the T-560 line after intensive discussions with engineers in processing, refining, and manufacturing plants. We asked what they considered most important in a one-piece ball valve, and what features they wanted. We got the answers. Now you've got the right ball valve for the job. And best of all, it's backed with NIBCO's unbeatable reputation for quality, with on-time delivery and attractive pricing.

Three body materials. To match your application needs, NIBCO offers the T-560 in three body materials—bronze, carbon steel, and stainless steel. Bronze is ideal for service up to 600 psi; carbon and stainless steel

will withstand pressures to 2000 psi in sizes 1/4" through 2".

Two seat materials. Glass reinforced TFE seats are standard on the carbon and stainless steel ball valves, for temperatures to 400°F at the valve's pressure rating. Virgin TFE seats, with 600 psi and 366°F rating are standard on the bronze ball valves and offer excellent sealing with low line pressure.

One-piece body. The one-piece construction of the T-560 gives you

an important safety advantage: it eliminates the chance of accidental disassembly when downstream piping is being turned. Of course, it also greatly reduces the chances of a leak.

Standard features. A hole drilled in the ball stem slot allows the pressure to equalize between the body cavity and the ball bore when the valve is in the full open position. This eliminates the possibility of damaging or blowing out the seat should entrapped fluid expand rapidly.

A stainless steel spring washer grounds the stem to the valve body to prevent static electric discharge on all T-560 valves.

No stem leakage, even when handle is removed while valve is in service. Separate steel nuts secure both the packing and the handle.

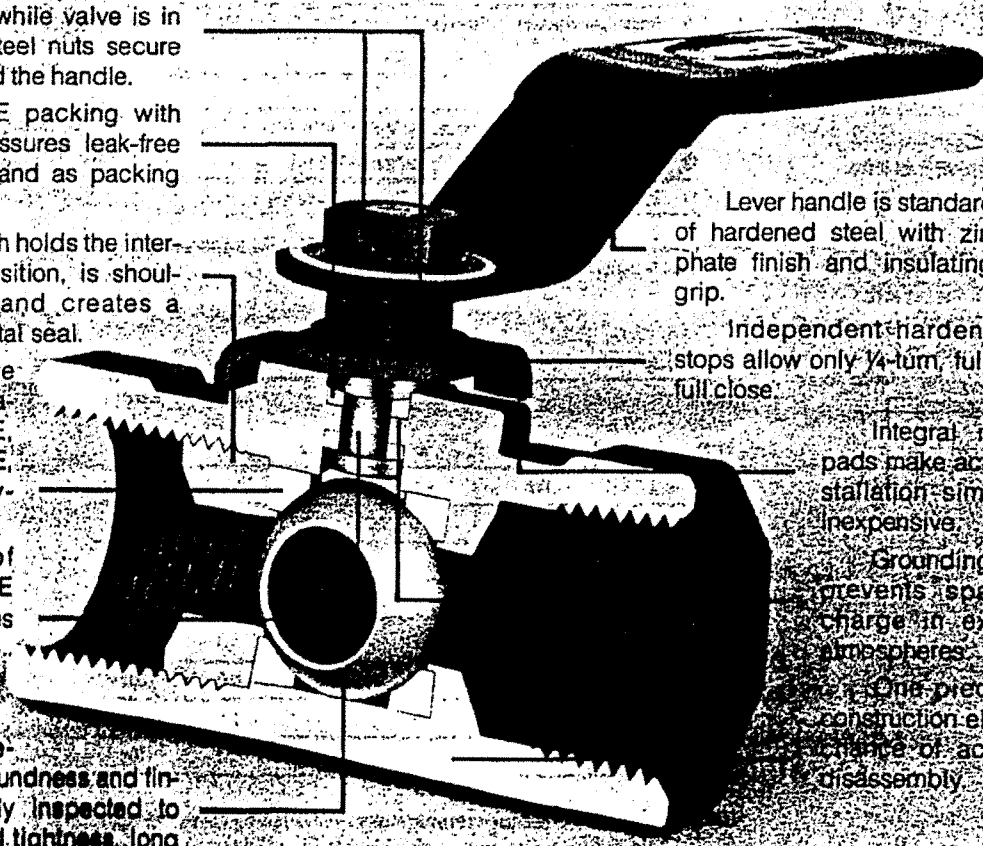
Reinforced TFE packing with Belleville washer assures leak-free seal on cool-down and as packing wears.

The insert, which holds the internal assembly in position, is shouldered into place and creates a positive metal-to-metal seal.

Seat rings are available in three materials: virgin TFE, glass-reinforced TFE, and bronze-moly-filled TFE.

Blowout-proof stem. Reinforced TFE thrust washer creates an internal seal that improves as pressure increases.

Balls are carefully machined for roundness and finish, and individually inspected to assure optimum seal tightness, long seat life, and low torque.



Lever handle is standard—made of hardened steel with zinc phosphate finish and insulating plastic grip.

Independent hardened-steel stops allow only 1/4-turn, full open to full close.

Integral mounting pads make actuator installation simple and inexpensive.

Grounding washer prevents spark discharge in explosive atmospheres.

One-piece body construction eliminates chance of accidental disassembly.



bronze ball valves

One Piece Body • Blowout-Proof Stem • Bronze Trim
600 lb. WOG

Federal Specifications: WW-V-35, Type II, Class A, Style 3

MATERIAL LIST

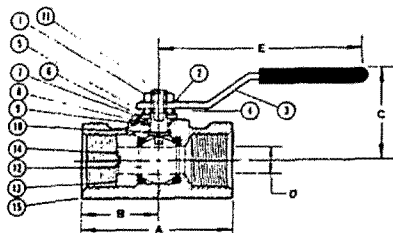
PART	SPECIFICATION
1. Handwheel Nut	Zinc Plated Steel
2. Identification Plate	Aluminum
3. Handle	Zinc Plated Steel, Plastisol Coated
4. Packing Nut	Zinc Plated Steel
5. Belleville Washer	Zinc Plated Steel
6. Travel Stop	Zinc Plated Steel
7. Pack Gland	Brass, ASTM B-16
8. Packing	Reinforced TFE
9. Grounding Washer	Stainless Steel, ASTM A-167 Type 304
10. Thrust Washer	Reinforced TFE
11. Stem	Bronze, ASTM B-371 Alloy 694
12. Ball*	Bronze, ASTM B-584 Alloy 844
13. Seat Ring (2)	TFE (Y); Reinforced TFE (R)
14. Body Insert	Bronze, ASTM B-584 Alloy 844
15. Body	Bronze, ASTM B-584 Alloy 844

*Ball Material on 1/4", 3/8", 1/2", and 3/4" sizes is ASTM B-16.

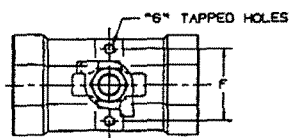


T-560-BR-Y-20
threaded
TFE Seats and Seals
with Bronze trim

T-560-BR-R-20
threaded
Reinforced TFE Seats
and Seals
with Bronze trim



T-560-BR Series
NPT x NPT



DIMENSIONS — WEIGHTS — QUANTITIES

Size	A	B	C	D	E	F	G	Approx. Net Wt. Lb.	Master Carton Qty.
1/4	2 3/8	1 11/32	1 5/8	3/8	4	1 7/32	10-24	.6	50
3/8	2 5/8	1 11/32	1 5/8	3/8	4	1 7/32	10-24	.6	50
1/2	2 9/32	1 11/32	1 5/8	3/8	4	1 7/32	10-24	.6	50
3/4	2 27/32	1 7/16	1 23/32	1/2	4	1 7/32	10-24	.8	50
1	3 3/32	1 23/32	2	5/8	4 11/16	1 11/32	1/4-20	1.3	30
1 1/4	3 27/32	1 5/16	2 1/16	13/16	4 11/16	1 1/2	1/4-20	2.0	20
1 1/2	4	2 1/16	2 3/16	1	6 3/4	1 5/8	1/4-20	2.8	20
2	4 9/16	2 9/32	2 3/4	1 1/4	6 3/4	2 1/16	1/4-20	4.3	10

NOTE: For specific pressure/temperature relationships refer to page 67.



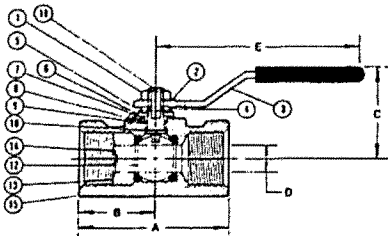
bronze ball valves

One Piece Body • Blowout-Proof Stem • 316 S.S. Trim
600 lb. WOG

Federal Specifications: WW-V-35, Type II, Class A, Style 3

MATERIAL LIST

PART	SPECIFICATION
1. Handwheel Nut	Zinc Plated Steel
2. Identification Plate	Aluminum
3. Handle	Zinc Plated Steel, Plastisol Coated
4. Packing Nut	Zinc Plated Steel
5. Belleville Washer	Zinc Plated Steel
6. Travel Stop	Zinc Plated Steel
7. Pack Gland	Stainless Steel, ASTM A-276 Type 316
8. Packing	Reinforced TFE
9. Grounding Washer	Stainless Steel, ASTM A-167 Type 304
10. Thrust Washer	Reinforced TFE
11. Stem	Stainless Steel, ASTM A-276 Type 316
12. Ball	Stainless Steel, ASTM A-276 Type 316
13. Seat Ring (2)	TFE (Y); Reinforced TFE (R)
14. Body Insert	Bronze, ASTM B-584 Alloy 844
15. Body	Bronze, ASTM B-584 Alloy 844



T-560-BR Series
NPT x NPT

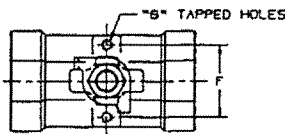


T-560-BR-Y-66
threaded
TFE Seats and Seals
with S.S trim

T-560-BR-R-66
threaded
Reinforced TFE Seats
and Seals
with S.S trim

DIMENSIONS — WEIGHTS — QUANTITIES

Size	A	B	C	D	E	F	G	Approx. Net WL Lb.	Master Carton Qty.
1/4	2 3/8	1 11/32	1 5/8	3/8	4	1 7/32	10-24	.6	50
3/8	2 3/8	1 11/32	1 5/8	3/8	4	1 7/32	10-24	.6	50
1/2	2 9/32	1 11/32	1 5/8	3/8	4	1 7/32	10-24	.6	50
3/4	2 21/32	1 7/16	1 23/32	1/2	4	1 7/32	10-24	.8	50
1	3 9/32	1 23/32	2	5/8	4 11/16	1 11/32	1/4-20	1.3	30
1 1/4	3 7/32	1 15/16	2 1/16	13/16	4 11/16	1 1/2	1/4-20	2.0	20
1 1/2	4	2 1/16	2 9/16	1	6 3/4	1 5/8	1/4-20	2.8	20
2	4 7/16	2 9/32	2 3/4	1 1/4	6 3/4	2 1/16	1/4-20	4.3	10



NOTE: For specific pressure/temperature relationships refer to page 67.

NIBCO INC., ELKHART, INDIANA



carbon steel ball valves

One Piece Body • Blowout-Proof Stem • C.S. Trim
Up to 2000 lb. WOG

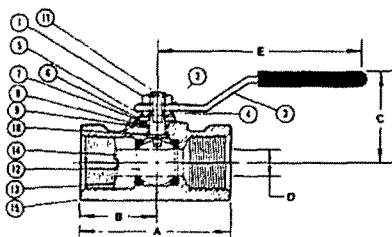
Federal Specifications: WW-V-35, Type II, Class D, Style 3

MATERIAL LIST

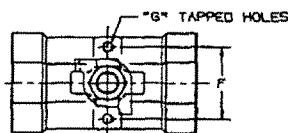
PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Identification Plate	Aluminum
3. Handle	Zinc Plated Steel, Plastisol Coated
4. Packing Nut	Zinc Plated Steel
5. Belleville Washer	Zinc Plated Steel
6. Travel Stop	Zinc Plated Steel
7. Pack Gland	Stainless Steel, ASTM A-276 Type 316
8. Packing	Reinforced TFE
9. Grounding Washer	Stainless Steel, ASTM A-167 Type 304
10. Thrust Washer	Reinforced TFE
11. Stem	Carbon Steel, ASTM A-108 Type 12L14, Hard Chrome Plated
12. Ball	Carbon Steel, ASTM A-108 Type 12L14, Hard Chrome Plated
13. Seat Ring (2)	Reinforced TFE
14. Body Insert	Carbon Steel, ASTM A-108 Type 12L14, Phosphate Coated
15. Body	Carbon Steel, A-216 GR WCB, Phosphate Coated



T-560-CS-R-25
threaded
Reinforced TFE Seats and Seals
with C.S. trim



T-560-CS Series
NPT x NPT



DIMENSIONS — WEIGHTS — QUANTITIES

Size	A	B	C	D	E	F	G	Approx. Net Wt. Lb.	Master Carton Qty.
1/4	2 5/8	1 11/32	1 5/8	3/8	4	1 7/32	10-24	.6	50
3/8	2 5/8	1 11/32	1 5/8	3/8	4	1 7/32	10-24	.6	50
1/2	2 11/16	1 13/32	1 5/8	3/8	4	1 7/32	10-24	.6	50
3/4	2 15/16	1 1/2	1 23/32	1/2	4	1 7/32	10-24	.8	50
1	3 3/8	1 23/32	2	5/8	4 11/16	1 11/32	1/4-20	1.3	30
1 1/4	3 15/16	1 31/32	2 1/16	13/16	4 11/16	1 1/2	1/4-20	2.0	20
1 1/2	4 1/8	2 1/8	2 3/16	1	6 3/4	1 5/8	1/4-20	2.8	20
2	4 23/32	2 7/16	2 3/4	1 1/4	6 3/4	2 1/16	1/4-20	4.3	10

NOTE: For specific pressure/temperature relationships refer to page 67.



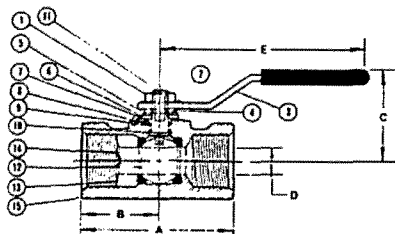
carbon steel ball valves

One Piece Body • Blowout-Proof Stem • 316 S.S. Trim
Up to 2000 lb. WOG

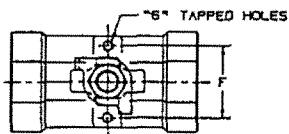
Federal Specifications: WW-V-35, Type II, Class D, Style 3

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Identification Plate	Aluminum
3. Handle	Zinc Plated Steel, Plastisol Coated
4. Packing Nut	Zinc Plated Steel
5. Belleville Washer	Zinc Plated Steel
6. Travel Stop	Zinc Plated Steel
7. Pack Gland	Stainless Steel, ASTM A-276 Type 316
8. Packing	Reinforced TFE
9. Grounding Washer	Stainless Steel, ASTM A-167 Type 304
10. Thrust Washer	Reinforced TFE
11. Stem	Stainless Steel, ASTM A-276 Type 316
12. Ball	Stainless Steel, ASTM A-276 Type 316
13. Seat Ring (2)	Reinforced TFE
14. Body Insert	Carbon Steel, ASTM A-108 Type 12L14, Phosphate Coated
15. Body	Carbon Steel, ASTM A-216 GR WCB, Phosphate Coated



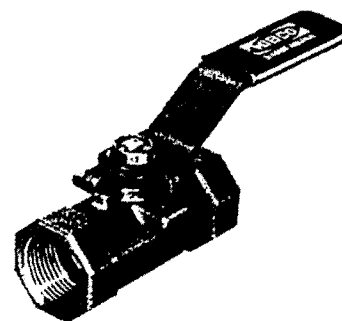
T-560-CS Series
NPT x NPT



DIMENSIONS — WEIGHTS — QUANTITIES

Size	A	B	C	D	E	F	G	Approx. Net WL Lb.	Master Carton Qty.
1/4	2 3/8	1 11/32	1 3/8	3/8	4	1 1/32	10-24	.6	50
3/8	2 5/8	1 11/32	1 3/8	3/8	4	1 1/32	10-24	.6	50
1/2	2 11/16	1 13/32	1 3/8	3/8	4	1 1/32	10-24	.6	50
3/4	2 15/16	1 1/2	1 23/32	1/2	4	1 1/32	10-24	.8	50
1	3 1/8	1 23/32	2	5/8	4 11/16	1 11/32	1/4-20	1.3	30
1 1/2	3 15/16	1 31/32	2 1/16	9/16	4 11/16	1 1/2	1/4-20	2.0	20
1 3/4	4 1/4	2 1/8	2 9/16	1	6 3/4	1 3/8	1/4-20	2.8	20
2	4 23/32	2 7/16	2 3/4	1 1/4	6 7/8	2 1/16	1/4-20	4.3	10

NOTE: For specific pressure/temperature relationships refer
to page 67.



T-560-CS-R-66
threaded

Reinforced TFE Seats and Seals
with S.S. trim



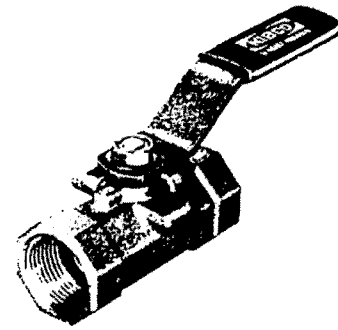
stainless steel ball valves

One Piece Body • Blowout-Proof Stem • 316 S.S. Trim
2000 lb. WOG

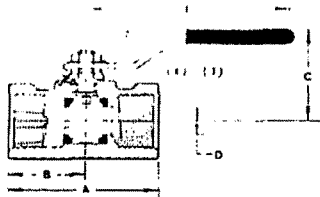
Federal Specifications: WW-V-35, Type II, Class C, Style 3

MATERIAL LIST

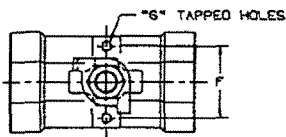
PART	SPECIFICATION
1. Handle Nut	Stainless Steel, ASTM A194 GR8 (304)
2. Identification Plate	Aluminum
Handle	Stainless Steel, ASTM A-167 Type 304, Plastisol Coated
3. Packing Nut	Stainless Steel, ASTM A194 GR8 (304)
4. Belleville Washer	Stainless Steel, ASTM A-167 Type 304
5. Travel Stop	Stainless Steel, ASTM A-167 Type 304
6. Pack Gland	Stainless Steel, ASTM A-276 Type 316
7. Packing	Reinforced TFE
8. Grounding Washer	Stainless Steel, ASTM A-167 Type 304
9. Thrust Washer	Reinforced TFE
10. Stem	Stainless Steel, ASTM A-276 Type 316
11. Ball	Stainless Steel, ASTM A-276 Type 316
12. Seat Ring (2)	Reinforced TFE
13. Body Insert	Stainless Steel, ASTM A-276 Type 316
14. Body	Stainless Steel, ASTM A-351 Gr. CF8M or ASTM A-743 Gr. CF16F



T-560-S6-R-66
threaded
Reinforced TFE Seats and Seals
with S.S. trim



T-560-S6 Series
NPT x NPT



DIMENSIONS — WEIGHTS — QUANTITIES

Size	A	B	C	D	E	F	G	Approx. Net Wt. Lb.	Master Carton Qty.
1/4	2 5/8	1 11/32	1 5/8	3/8	4	1 1/32	10-24	.6	50
3/8	2 5/8	1 11/32	1 5/8	3/8	4	1 1/32	10-24	.6	50
1/2	2 11/16	1 13/32	1 5/8	3/8	4	1 1/32	10-24	.6	50
3/4	2 15/16	1 1/2	1 23/32	1/2	4	1 1/32	10-24	.8	50
1	3 3/8	1 23/32	2	5/8	4 11/16	1 11/32	1/4-20	1.3	30
1 1/4	3 15/16	1 31/32	2 1/16	3/4	4 11/16	1 1/2	1/4-20	2.0	20
1 1/2	4 1/8	2 1/8	2 3/16	1	5 1/4	1 3/4	1/4-20	2.8	20
2	4 23/32	2 7/16	2 1/4	1 1/4	6 1/4	2 1/16	1/4-20	4.3	10

NOTE: For specific pressure-temperature relationships refer to page 67



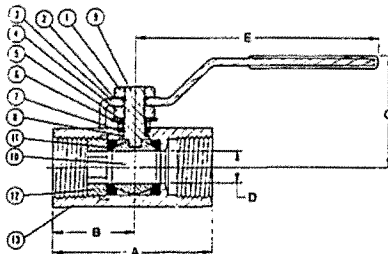
carbon steel ball valves

One Piece Barstock Body • Blowout-Proof Stem • C.S. Trim
 1/2"-1" 2000 lb. WOG
 1 1/4"-2" 1500 lb. WOG

Federal Specifications: WW-V-35, Type II, Class D, Style 3

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Identification Plate	Aluminum
3. Handle	Zinc Plated Steel, Plastisol Coated
4. Packing Nut	Zinc Plated Steel
5. Belleville Washer	Zinc Plated Steel
6. Pack Gland	Stainless Steel ASTM A-276 Type 304
7. Packing	Reinforced TFE
8. Thrust Washer	Reinforced TFE
9. Stem	Carbon Steel ASTM A-108 Type 12L14, Nickel Plated
10. Ball	Carbon Steel ASTM A-108 Type 12L14, Hard Chrome Plated
11. Seat Ring (2)	Reinforced TFE
12. Body Insert	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
13. Body	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated



T-570-CS Series
NPT x NPT



T-570-CS-R-25
 threaded
 Reinforced TFE Seats and Seals
 with C.S. trim

DIMENSIONS — WEIGHTS — QUANTITIES

Size	A	B	C	D	E	Approx. Net Wt. Lb.	Master Carton Qty.
1/2	2 3/16	1 1/8	1 1/8	1 1/32	3 9/16	.5	80
3/4	2 5/8	1 1/16	1 1/4	1 1/32	3 11/16	.8	80
1	3 1/8	1 9/32	2 1/8	1 1/16	5 1/8	1.4	40
1 1/4	3 3/8	1 1/8	2 5/16	1 1/8	5 1/2	2.4	8
1 1/2	4	2	2 3/4	1	6 1/2	3.3	8
2	4 1/2	2 1/4	3	1 1/4	6 1/2	5.3	8

NOTE: For specific pressure/temperature relationships refer to page 67.



carbon steel ball valves

One Piece Barstock Body • Blowout-Proof Stem • 316 S.S. Trim

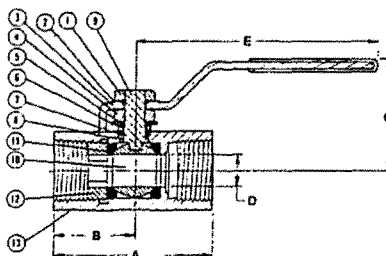
1/2"-1" 2000 lb. WOG

1 1/4"-2" 1500 lb. WOG

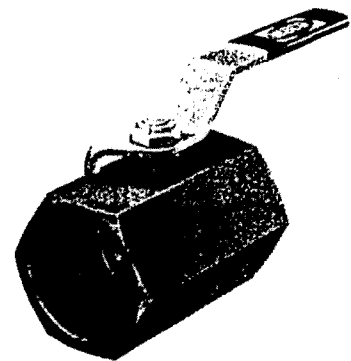
Federal Specifications: WW-V-35, Type II, Class D, Style 3

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Identification Plate	Aluminum
3. Handle	Zinc Plated Steel, Plastisol Coated
4. Packing Nut	Zinc Plated Steel
5. Belleville Washer	Zinc Plated Steel
6. Pack Gland	Stainless Steel, ASTM A-276 Type 304
7. Packing	Reinforced TFE
8. Thrust Washer	Reinforced TFE
9. Stem	Stainless Steel, ASTM A-276 Type 316
10. Ball	Stainless Steel, ASTM A-276 Type 316
11. Seat Ring (2)	Reinforced TFE
12. Body Insert	Carbon Steel, ASTM A-108 Type 12L14, Phosphate Coated
13. Body	Carbon Steel, ASTM A-108 Type 12L14, Phosphate Coated



T-570-CS Series
NPT x NPT



T-570-CS-R-66
threaded
Reinforced TFE Seats and Seals
with S.S. trim

DIMENSIONS — WEIGHTS — QUANTITIES

Size	A	B	C	D	E	Approx. Net WL Lb.	Master Carton Qty.
1/2	2 1/16	1 1/8	1 1/8	1 1/32	3 1/16	.5	80
3/4	2 3/8	1 3/16	1 3/8	1 1/32	3 9/16	.8	80
1	3 1/8	1 9/32	2 1/8	1 1/16	5 1/8	1.4	40
1 1/4	3 3/8	1 7/8	2 7/16	1 1/8	5 1/2	2.4	8
1 1/2	4	2	2 3/4	1	6 1/2	3.3	8
2	4 1/2	2 1/4	3	1 1/4	6 1/2	5.3	8

NOTE: For specific pressure/temperature relationships refer to page 67.

NIBCO

580 SERIES

Two-piece ball valves

NIBCO's product philosophy is to design, produce, and market the right valve for the application intended. In doing this, NIBCO's customers enjoy long-term dependable service at pricing that is realistic and very competitive. NIBCO's figure number 580 and 585 bronze valves are consistent in conforming to this view.

The result is a bronze two-piece, end-entry ball valve that has a proven history of quality performance in a wide range of residential, commercial, and industrial applications.

In order to accommodate the consumer or engineer, NIBCO offers

three port sizes and three pressure ratings.

Full port. The 585, rated at 150 SWP/400 WOG in sizes from 1/4" through 1", has a full port, for those applications with critical flow requirements.

Standard port. The 580-BR line is a heavier duty, ruggedly constructed bronze body with blow-out proof stem and chrome plated ball. These valves are rated at 150 SWP/600

WOG in sizes 1/4" through 2".

Conventional port. The 580 line, offered in sizes from 1/2" through 2" and rated at 125 SWP/400 WOG, has a conventional port that will accommodate the majority of ball valve applications.

Federal Specification compliance. NIBCO ball valves meet Federal Specification WW-V-35, and are available with either threaded or solder ends.

The valves that do the job—the lightweight 580, 580-BR and 585. Check the features below and see why NIBCO offers you more value.

Zinc chromate-finished, hardened-steel lever handle with comfortable plastisol grip standard.

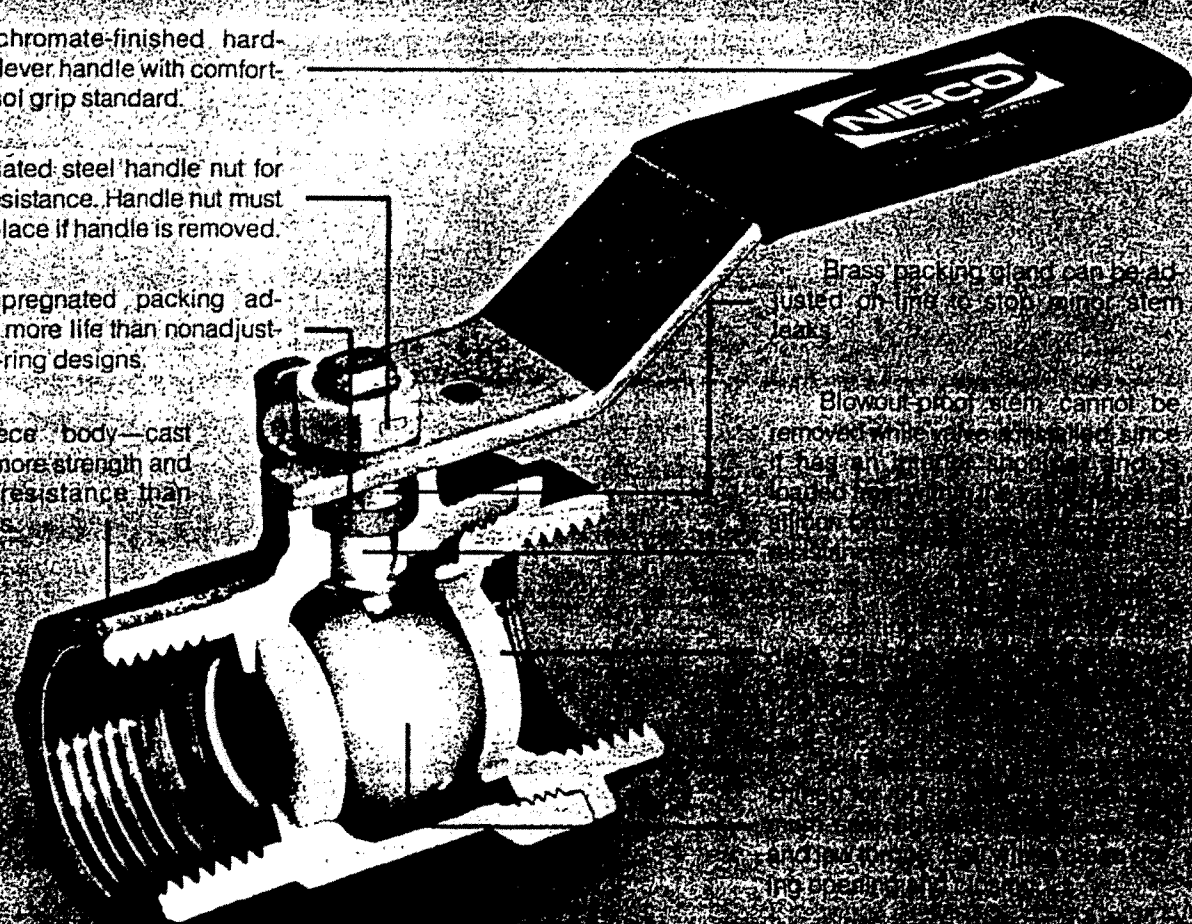
Zinc-plated steel handle nut for corrosion resistance. Handle nut must be held in place if handle is removed.

TFE-impregnated packing adjustable for more life than nonadjustable TFE O-ring designs.

Two-piece body—cast bronze for more strength and corrosion resistance than forged brass.

Brass packing gland can be adjusted on line to stop minor stem leaks.

Blowout-proof stem cannot be removed while valve is installed since it has an internal knurled end which is locked in place by the packing gland.





bronze ball valves

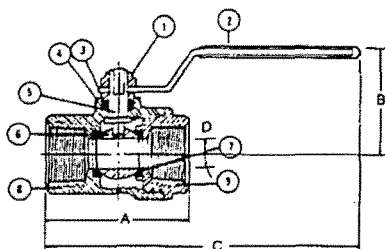
Two-Piece Body • Conventional Port • Bronze Trim • Blowout-Proof Stem
125 PSI Saturated Steam
400 PSI Non-Shock Cold Water, Oil or Gas

Federal Specifications: WW-V-35, Type II, Class A, Style 3

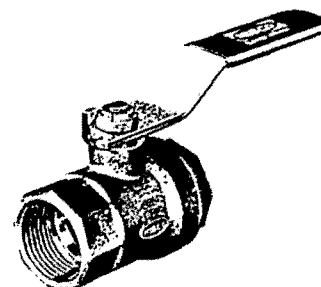
MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Gland	Brass ASTM B-16
4. Packing	TFE Impregnated Asbestos
5. Stem	Silicon Bronze ASTM B-371 Alloy 694
6. Ball*	Cast Red Bronze ASTM B-584 Alloy 845
7. Seat Ring (2)	TFE
8. Body	Cast Red Bronze ASTM B-584 Alloy 845
9. Body End Piece	Cast Red Bronze ASTM B-584 Alloy 845

*Ball Material on 1/2" and 3/4" sizes is ASTM B-16.



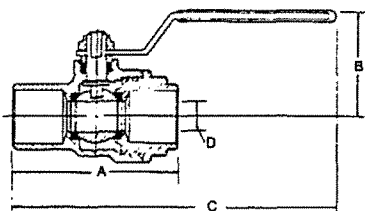
T-580 NPT x NPT



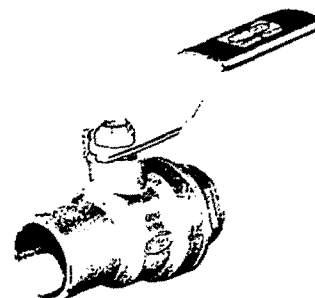
T-580
threaded
TFE Seats and Seals

DIMENSIONS — WEIGHTS — QUANTITIES

Size	Dim. A		Dim. B	Dim. C		Dim. D	Approx. Net WL		Master Ctn Qty.
	T-580	S-580		T-580	S-580		T-580	S-580	
1/2	2	1 ¹⁵ / ₁₆	1 ¹ / ₁₆	4 ¹ / ₄	4 ²⁷ / ₃₂	3 ¹ / ₄	.5	.5	100
3/4	2 ⁹ / ₃₂	2 ³ / ₄	1 ²³ / ₃₂	5	5 ⁷ / ₁₆	1/2	.7	.7	100
1	2 ¹ / ₂	3 ¹ / ₃₂	2 ¹ / ₁₆	6 ¹ / ₁₆	6 ⁹ / ₃₂	3/4	1.3	1.3	50
1 ¹ / ₄	3 ¹⁷ / ₃₂	3 ¹¹ / ₁₆	2 ³ / ₁₆	6 ¹¹ / ₃₂	6 ⁹ / ₁₆	1	1.9	1.8	25
1 ¹ / ₂	3 ³ / ₄	4 ¹ / ₄	2 ¹³ / ₁₆	8 ⁹ / ₁₆	8 ¹³ / ₁₆	1 ¹ / ₄	2.9	3.0	10
2	4 ⁷ / ₁₆	5 ⁷ / ₃₂	3 ¹ / ₁₆	8 ⁷ / ₈	9 ¹ / ₄	1 ¹ / ₂	4.5	4.8	10



† S-580 Copper x Copper



† **S-580**
solder
TFE Seats and Seals

† Designed to be soft soldered into lines using solders with the melting point not exceeding 450°F. Higher temperature solders will damage the seat material.

NOTE: For specific pressure/temperature relationship refer to page 67.



bronze ball valves

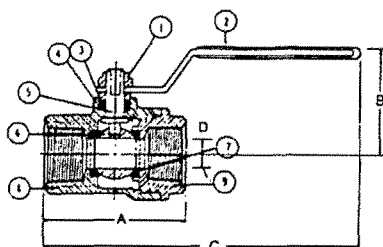
Two-Piece Body • Conventional Port • 316 S.S. Trim • Blowout-Proof Stem
 125 PSI Saturated Steam
 400 PSI Non-Shock Cold Water, Oil or Gas

Federal Specifications: WW-V-35, Type II, Class A, Style 3

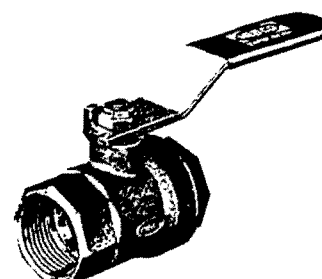
MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Gland	Brass ASTM B-16
4. Packing	TFE Impregnated Asbestos
5. Stem	Silicon Bronze ASTM B-371 Alloy 694
6. Ball*	Cast Red Bronze ASTM B-584 Alloy 845
7. Seat Ring (2)	TFE
8. Body	Cast Red Bronze ASTM B-584 Alloy 845
9. Body End Piece	Cast Red Bronze ASTM B-584 Alloy 845

*Ball Material on 1/2" and 3/4" sizes is ASTM B-16.



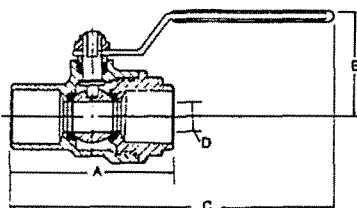
T-580 NPT x NPT



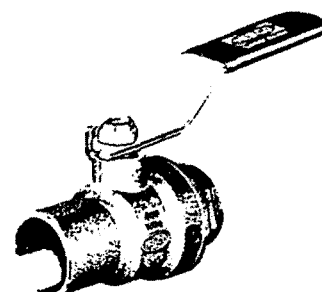
T-580-66
 threaded
 TFE Seats and Seals
 with S.S. trim

DIMENSIONS — WEIGHTS — QUANTITIES

	Dim. A		Dim. B	Dim. C		Dim. D	Approx. Net Wt.		Master Ctn. Qty.
Size	T-580	S-580	B	T-580	S-580	Port	T-580	S-580	
1/2	2	1 15/16	1 15/16	4 1/4	4 27/32	3/8	.5	.5	100
3/4	2 9/32	2 3/8	1 23/32	5	5 7/16	1/2	.7	.7	100
1	2 7/8	3 7/32	2 1/16	6 1/16	6 7/32	3/4	1.3	1.3	50
1 1/4	3 13/32	3 9/16	2 5/16	6 11/32	6 1/16	1	1.9	1.8	25
1 1/2	3 3/4	4 1/4	2 13/16	8 9/16	8 13/16	1 1/4	2.9	3.0	10
2	4 7/16	5 7/32	3 1/16	8 7/8	9 1/4	1 1/2	4.5	4.8	10



† S-580 Copper x Copper



† S-580-66
 solder
 TFE Seats and Seals
 with S.S. trim

† Designed to be soft soldered into lines using solders with the melting point not exceeding 450°F. Higher temperature solders will damage the seat material.

NOTE: For specific pressure/temperature relationship refer to page 67.



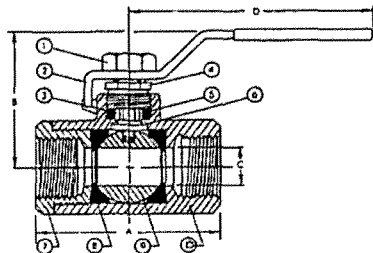
bronze ball valves

Two-Piece Body • Standard Port • Bronze Trim
 Chrome Plated Ball • Blowout-Proof Stem
 150 PSI Saturated Steam
 600 PSI Non-Shock Cold Water, Oil or Gas

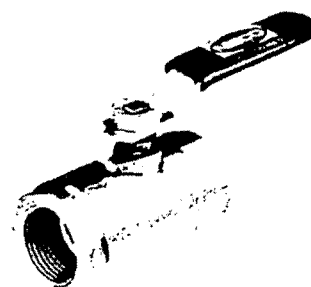
Federal Specifications: WW-V-35, Type II, Class A, Style 3

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Stem	Brass, ASTM B-16
4. Packing Gland	Brass, ASTM B-16
5. Packing	TFE
6. Thrust Washer	Reinforced TFE
7. Body End Piece	1/4"-1/2" Brass, ASTM B-16 3/4"-2" Cast Bronze, ASTM B-584 Alloy 844
8. Seat Ring (2)	Reinforced TFE
9. Ball	Brass, ASTM B-16, Hard Chrome Plated
10. Body	Cast Bronze, ASTM B-584 Alloy 844



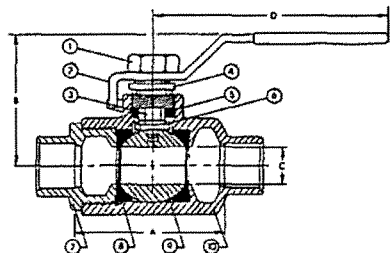
T-580-BR
NPT x NPT



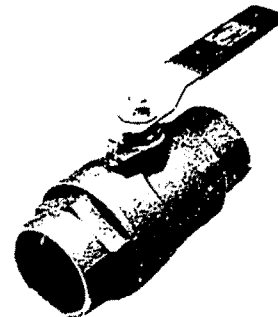
T-580-BR-R-70
threaded
Reinforced TFE
Seats and Seals with
Chrome Plated Ball

DIMENSIONS — WEIGHTS — QUANTITIES

	Dim. A		Dim.	Dim.	Dim.	Approx. Net Wt.		Master Ctn. Qty.	
Size	T-580-BR	S-580-BR	B	C	D	T-580-BR	S-580-BR	T-580-BR	S-580-BR
1/4	2 3/4	—	1 11/16	3/8	3	.50	—	120	—
3/8	2 3/4	—	1 11/16	3/8	3	.46	—	120	—
1/2	2 9/16	1 3/32	1 3/4	1/2	3	.60	.63	90	80
3/4	2 31/32	2 2/32	2 1/32	11/16	3 3/4	1.25	1.32	30	30
1	3 3/8	3	2 3/32	7/8	3 3/4	1.72	1.80	30	15
1 1/4	3 15/16	2 11/16	2 21/32	1	5 1/2	3.08	3.17	15	12
1 1/2	4 1/8	2 7/8	2 7/8	1 1/4	5 1/2	4.00	3.91	15	9
2	4 23/32	3 3/8	3 1/32	1 1/2	5 1/2	5.76	5.44	6	6



† S-580-BR
Copper x Copper



† **S-580-BR-R-70**
solder
Reinforced TFE
Seats and Seals with
Chrome Plated Ball

† Designed to be soft soldered into lines using solders with the melting point not exceeding 450°F. Higher temperature solders will damage the seat material.

NOTE: For specific pressure/temperature relationship refer to page 67.



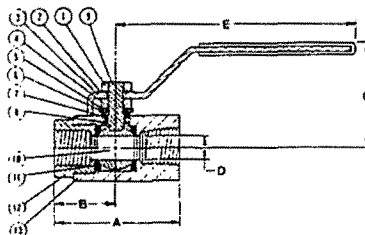
carbon steel ball valves

Two Piece Barstock Body • Blowout-Proof Stem • C.S. Trim
 1/4"-1" 2000 lb. WOG
 1 1/4"-2" 1500 lb. WOG

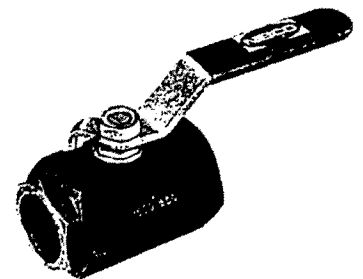
Federal Specifications: WW-V-35, Type II, Class D, Style 3

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Identification Plate	Aluminum
3. Handle	Zinc Plated Steel, Plastisol Coated
4. Packing Nut	Zinc Plated Steel
5. Belleville Washer	Zinc Plated Steel
6. Pack Gland	Stainless Steel ASTM A-276 Type 304
7. Packing	Reinforced TFE
8. Thrust Washer	Reinforced TFE
9. Stem	Carbon Steel ASTM A-108 Type 12L14, Nickel Plated
10. Ball	Carbon Steel ASTM A-108 Type 12L14, Hard Chrome Plated
11. Seat Ring (2)	Reinforced TFE
12. Body End Piece	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
13. Body	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated



T-580-CS Series
NPT x NPT



T-580-CS-R-25
 threaded
 Reinforced TFE
 Seats and Seals
 with C.S trim

DIMENSIONS — WEIGHTS — QUANTITIES

Size	A	B	C	D	E	Approx. Net Wt. Lb.	Master Carton Qty.
1/4	2	1	1 1/8	1 1/2	3 3/32	.5	80
3/8	2	1	1 1/8	1 1/2	3 3/32	.5	80
1/2	2 1/4	1 1/8	1 3/4	1 1/2	3 9/16	.8	80
3/4	2 3/16	1 13/32	2 1/8	1 1/4	5 1/8	1.4	40
1	3 7/16	1 3/8	2 1/8	1 1/2	5 1/8	2.4	8
1 1/4	3 3/4	1 7/8	2 3/4	1	6 1/2	3.3	8
1 1/2	4 1/2	2 1/4	3	1 1/4	6 1/2	5.3	8
2	4 7/32	2 7/16	3 1/8	1 1/2	7 1/16	7.9	8

NOTE: For specific pressure/temperature relationships refer to page 67.



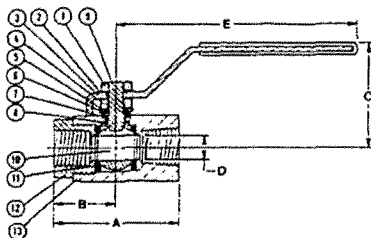
carbon steel ball valves

Two Piece Barstock Body • Blowout-Proof Stem • 316 S.S. Trim
 1/4"-1" 2000 lb. WOG
 1 1/4"-2" 1500 lb. WOG

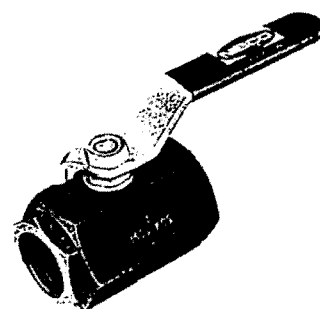
Federal Specifications: WW-V-35, Type II, Class D, Style 3

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Identification Plate	Aluminum
3. Handle	Zinc Plated Steel, Plastisol Coated
4. Packing Nut	Zinc Plated Steel
5. Belleville Washer	Zinc Plated Steel
6. Pack Gland	Stainless Steel ASTM A-276 Type 304
7. Packing	Reinforced TFE
8. Thrust Washer	Reinforced TFE
9. Stem	Stainless Steel ASTM A-276 Type 316
10. Ball	Stainless Steel ASTM A-276 Type 316
11. Seat Ring (2)	Reinforced TFE
12. Body End Piece	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
13. Body	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated



T-580-CS Series
NPT x NPT



T-580-CS-R-66
 threaded
 Reinforced TFE
 Seats and Seals
 with S.S. trim

DIMENSIONS — WEIGHTS — QUANTITIES

Size	A	B	C	D	E	Approx. Net Wt. Lb.	Master Carton Qty.
1/4	2	1	1 1/8	1 1/32	3 3/32	.5	80
3/8	2	1	1 1/8	1 1/32	3 7/32	.5	80
1/2	2 1/4	1 1/8	1 3/4	1 1/32	3 13/16	.8	80
3/4	2 9/16	1 13/32	2 1/8	1 1/16	5 1/8	1.4	40
1	3 7/16	1 3/8	2 5/16	1 1/4	5 1/8	2.4	8
1 1/4	3 3/4	1 3/4	2 3/4	1	6 1/2	3.3	8
1 1/2	4 1/2	2 1/4	3	1 1/4	6 1/2	5.3	8
2	4 7/32	2 7/16	3 3/4	1 1/2	7 9/16	7.9	8

NOTE: For specific pressure/temperature relationships refer to page 67.



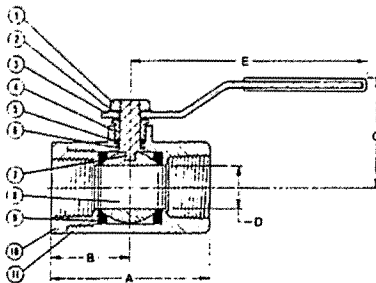
stainless steel ball valves

Two Piece Body • Blowout-Proof Stem • 316 S.S. Trim
 1/4"-1" 2000 lb. WOG
 1 1/4"-2" 1500 lb. WOG

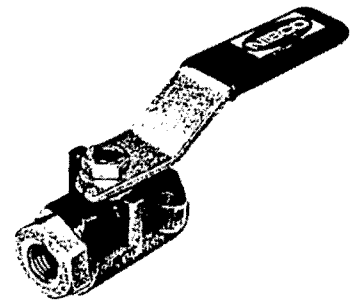
Federal Specifications: WW-V-35, Type II, Class C, Style 3

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Stainless Steel, ASTM A194 GR8 (304)
2. Identification Plate	Aluminum
3. Handle	Stainless Steel, ASTM A-167 Type 304, Plastisol Coated
4. Packing Gland	Stainless Steel, ASTM A-276 Type 316
5. Packing	Reinforced TFE
6. Thrust Washer	Reinforced TFE
7. Stem	Stainless Steel, ASTM A-276 Type 316
8. Ball	Stainless Steel, ASTM A-276 Type 316
9. Seat Ring (2)	Reinforced TFE
10. Body End Piece	Stainless Steel, ASTM A-276 Type 316 (1/4"-1") Stainless Steel, ASTM A-351 Gr. CF8M (1 1/4"-2")
11. Body	Stainless Steel, ASTM A-351 GR. CF8M



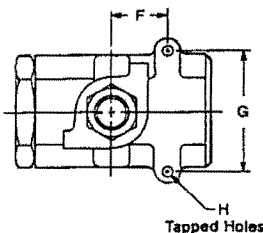
T-580-S6 Series
NPT x NPT



T-580-S6-R-66
 threaded
 Reinforced TFE
 Seats and Seals
 with S.S. trim

DIMENSIONS — WEIGHTS — QUANTITIES

Size	A	B	C	D	E	F	G	H	Approx. Net Wt. Lb.	Master Carton Qty.
1/4	2	1	1 1/8	13/32	3 13/32	1/2	1 1/8	10-24	.5	80
3/8	2	1	1 1/8	13/32	3 13/32	1/2	1 1/8	10-24	.5	80
1/2	2 1/4	1 1/8	1 7/32	17/32	3 13/32	1/2	1 1/8	10-24	.8	80
3/4	2 7/32	1 13/32	2 1/32	1 1/16	4 11/16	5/8	1 3/8	10-24	1.4	40
1	3 7/32	1 5/8	2 1/4	7/8	4 11/16	5/8	1 3/8	10-24	2.4	8
1 1/4	3 11/16	1 7/8	2 3/4	1	6 11/16	15/16	1 1/2	1/4-20	3.3	8
1 1/2	4 1/2	2 1/32	2 15/16	1 1/4	6 11/16	15/16	1 1/2	1/4-20	5.3	8
2	4 7/32	2 1/16	3 1/8	1 1/2	6 11/16	15/16	1 1/2	1/4-20	7.9	8



NOTE: For specific pressure/temperature relationships refer to page 67.



bronze ball valves

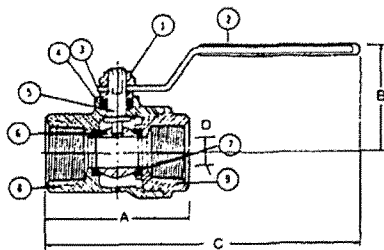
Two-Piece Body • Full Port • Bronze Trim • Blowout-Proof Stem
 150 PSI Saturated Steam
 400 PSI Non-Shock Cold Water, Oil or Gas

Federal Specifications: WW-V-35, Type II, Class A, Style 3

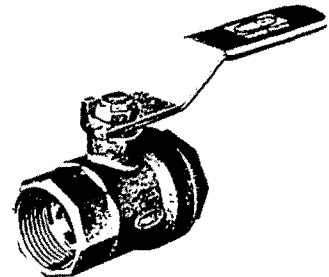
MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Gland	Brass ASTM B-16
4. Packing	TFE Impregnated Asbestos
5. Stem	Silicon Bronze ASTM B-371 Alloy 694
6. Ball*	Cast Red Bronze, ASTM B-584 Alloy 845
7. Seat Ring (2)	TFE
8. Body	Cast Red Bronze ASTM B-584 Alloy 845
9. Body End Piece	Cast Red Bronze ASTM B-584 Alloy 845

*Ball material on 1/4", 3/8", and 1/2" sizes is ASTM B-16.



T-580 NPT x NPT

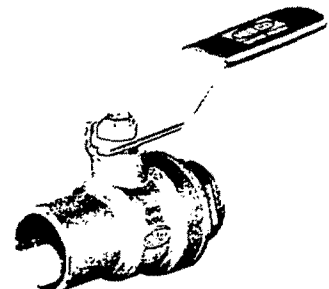


T-585
 threaded
 TFE Seats and Seals

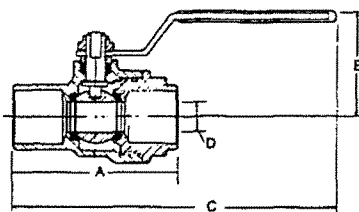
DIMENSIONS — WEIGHTS — QUANTITIES

Size	Dim. A		Dim. B	Dim. C		Dim. D	Approx. Net Wt.		Master Ctn. Qty.
	T-585	S-585		T-585	S-585		T-585	S-585	
1/4	2	1 1/8	1 1/16	4 1/8	4 1/4	3/8*	.6	.5	100
3/8	2	1 1/8	1 1/16	4 1/8	4 1/4	3/8	.6	.5	100
1/2	2 1/4	2 1/4	1 3/8	5	5	1/2	.6	.6	100
3/4	2 3/8	3	2 1/16	6	6 1/16	3/4	.9	.9	50
1	3 1/2	3 1/16	2 1/4	6 1/2	6 3/4	1	1.8	1.6	50

*3/16 on S-585



† **S-585**
 solder
 TFE Seats and Seals



† S-580 Copper x Copper

†Designed to be soft soldered into lines using solders with the melting point not exceeding 450°F. Higher temperature solders will damage the seat material.

NOTE: For specific pressure/temperature relationship refer to page 67.



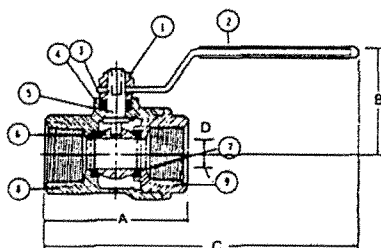
bronze ball valves

Two-Piece Body • Full Port • Blowout-Proof Stem • 316 S.S. Trim
 150 PSI Saturated Steam
 400 PSI Non-Shock Cold Water, Oil or Gas

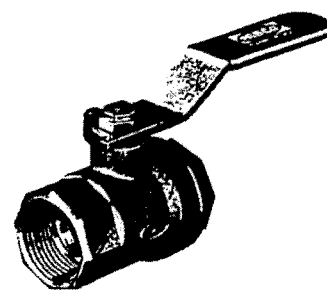
Federal Specifications: WW-V-35, Type II, Class A, Style 3

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Platisol Coated
3. Packing Gland	Brass ASTM B-16
4. Packing	TFE Impregnated Asbestos
5. Stem	Stainless Steel, ASTM A-276 Type 316
6. Ball	Stainless Steel, ASTM A-276 Type 316
7. Seat Ring (2)	TFE
8. Body	Cast Red Bronze, Copper Alloy 845
9. Body End Piece	Cast Red Bronze, Copper Alloy 845



T-580 NPT x NPT

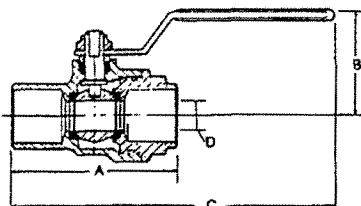


T-585-66
 threaded
 TFE Seats and Seals
 with S.S. trim

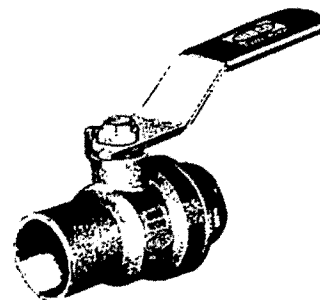
DIMENSIONS — WEIGHTS — QUANTITIES

Size	Dim. A		Dim. B	Dim. C		Dim. D	Approx. Net Wt.		Master Ctn. Qty.
	T-585	S-585		T-585	S-585		T-585	S-585	
1/4	2	1 1/4	1 1/4	4 1/4	4 1/4	3/8"	.6	.5	100
3/8	2	1 1/4	1 1/4	4 1/4	4 1/4	3/8	.6	.5	100
1/2	2 1/4	2 1/4	1 1/4	5	5	1/2	.6	.6	100
3/4	2 3/4	3	2 1/4	6	6 1/4	3/4	.9	.9	50
1	3 1/2	3 3/4	2 1/4	6 1/2	6 3/4	1	1.8	1.6	50

*3/16 on S-585



† S-580 Copper x Copper



† **S-585-66**
 solder
 TFE Seats and Seals
 with S.S. trim

† Designed to be soft soldered into lines using solders with the melting point not exceeding 450°F. Higher temperature solders will damage the seat material.

NOTE: For specific pressure/temperature relationship refer to page 67.

NIBCO

590 SERIES

Three-piece ball valves

The NIBCO 590 and 595 Series Ball Valves are based on a proven, versatile three-piece design that combines superior performance characteristics with fast, economical in-line maintenance. These valves offer swing-out accessibility that makes them ideal for commercial and industrial installations where frequent cleaning and seal replacement are necessary.

The 590 Series has a conventional port in both threaded and solder ends. They are available in sizes from 1 1/4" through 3".

For full flow, specify the 595 Series, with full port. Available in sizes from 1/4" through 2 1/2", these valves offer unobstructed flow for applications

that require optimum flow conditions.

Both valves meet the requirements of Federal Specification WW-V-35, and are rated up to 1,500 psi.

Swing out design. The swing-out three-piece body construction allows for easy in-line valve disassembly to clean, service, or replace seals without the high labor costs involved in tearing down and remaking pipe connections.

During installation, the swing-out design allows the ends to be threaded

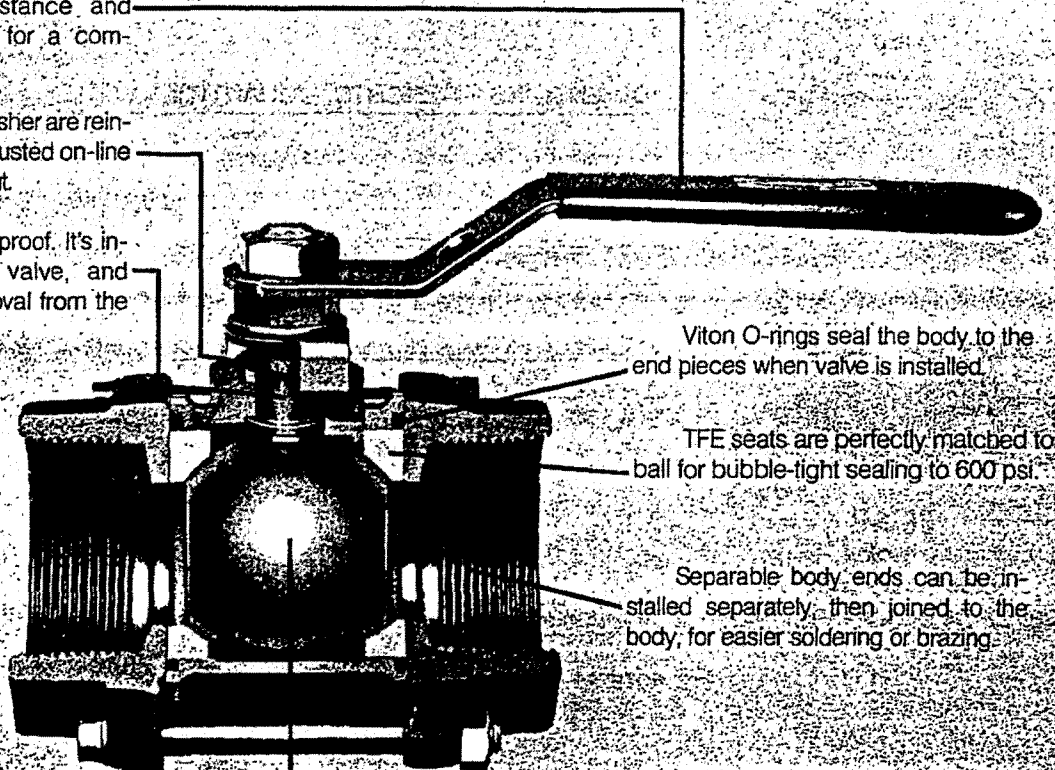
or soldered into place separately, with the center section installed later. This prevents any damage to the TFE seats that might occur during soldering, brazing or welding. The body can be pivoted to the most convenient position.

Interchangeable ends. NIBCO 590 and 595 parts in sizes 1" and larger are interchangeable. By interchanging valve ends, for example, you can make a valve that reduces or increases pipe size through the valve. A 1 1/4" end can be substituted for a 1 1/2" end, thus making a 1 1/4" x 1 1/2" valve. A small part inventory gives you a complete selection of conventional and full port parts and bodies in both threaded and solder ends.

Handle is zinc chromate-plated steel for corrosion resistance and strength, Platisol-coated for a comfortable grip.

Packing and thrust washer are reinforced TFE and can be adjusted on-line simply by tightening the nut.

The stem is blowout-proof. It's inserted from within the valve, and shoulder prevents its removal from the outside.



Viton O-rings seal the body to the end pieces when valve is installed.

TFE seats are perfectly matched to ball for bubble-tight sealing to 600 psi.

Separable body ends can be installed separately, then joined to the body, for easier soldering or brazing.

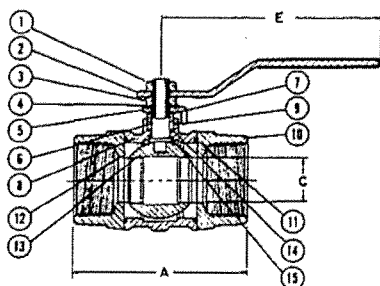
Ball is precision machined and finish is individually inspected to assure easy operation and long wear.



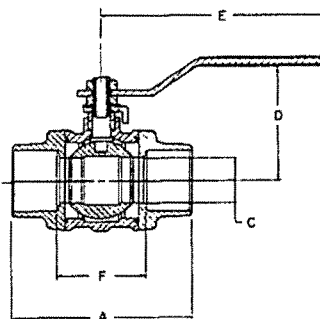
bronze ball valves

Three Piece Body • Blowout-Proof Stem
Conventional Port • Bronze Trim
150 PSI Saturated Steam
600 PSI Non-Shock Cold Water, Oil, or Gas

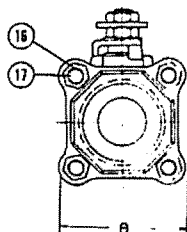
Federal Specifications: WW-V-35, Type II, Class A, Style 1



T-590-Y NPT x NPT

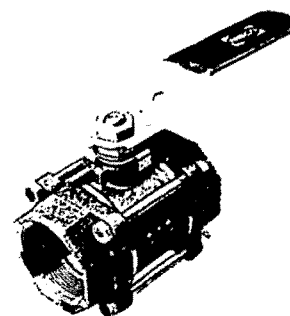


S-590-Y Copper x Copper

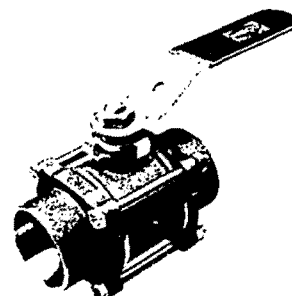


MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Nut	Zinc Plated Steel
4. Belleville Washer	Zinc Plated Steel
5. Travel Stop	Zinc Plated Steel
6. Stem	Silicon Bronze ASTM B-371 Alloy 694
7. Pack Gland	Brass ASTM B-16
8. Body	Bronze ASTM B-584 Alloy 844
9. Packing	Reinforced TFE
10. Body Ends	Cast Bronze ASTM B-584 Alloy 844
11. O-Ring Seal (2)	Fluorocarbon Rubber
12. Seat Ring (2)	TFE
13. Ball	Cast Bronze ASTM B-584 Alloy 844
14. Ground Device	Stainless Steel, 316 SS
15. Thrust Washer	Reinforced TFE
16. Body Bolts	Zinc Plated Steel
17. Body Nuts	Zinc Plated Steel



T-590-Y
threaded
TFE Seats
with Bronze trim



S-590-Y
solder
TFE Seats
with Bronze trim

DIMENSIONS — WEIGHTS — QUANTITIES

Nom. Size	Dim. A Threaded	Dim. A Solder	Dimensions B, C, D, and E same for solder and threaded ends				Dim. F Solder	Approx. Weight Threaded	Approx. Weight Solder	Ctn. Qty.
			B	C	D	E				
1 1/4	3 1/16	3 7/32	2 1/2	1	2 1/2	4 7/32	1 7/32	3.2	2.9	10
1 1/2	4 1/16	4 1/4	2 11/16	1 1/4	3 1/8	6 11/16	2 1/16	4.5	3.9	10
2	4 11/16	5 1/4	3	1 1/2	3 11/32	6 11/16	2 1/16	6.4	5.7	6
2 1/2	6 7/16	6 3/4	4	2	3 11/16	6 11/16	3 1/16	11.8	10.2	5
3	6 7/16	7 1/16	5	2 1/2	4 11/16	8	4 1/8	18.0	16.0	4

NOTE: For specific pressure/temperature relationships refer to page 67.



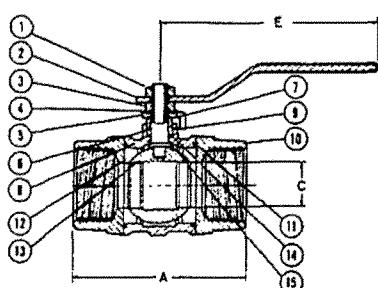
bronze ball valves

Three Piece Body • Blowout-Proof Stem
Conventional Port • 316 S.S. Trim
150 PSI Saturated Steam
600 PSI Non-Shock Cold Water, Oil, or Gas

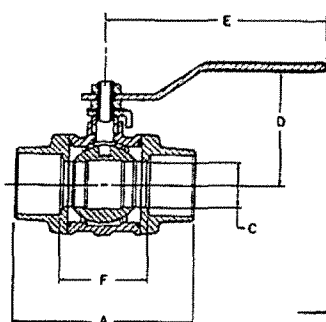
Federal Specifications: WW-V-35, Type II, Class A, Style 1

MATERIAL LIST

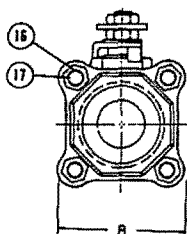
PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Nut	Zinc Plated Steel
4. Belleville Washer	Zinc Plated Steel
5. Travel Stop	Zinc Plated Steel
6. Stem	Stainless Steel ASTM A-276 Type 316
7. Pack Gland	Brass ASTM B-16
8. Body	Bronze ASTM B-584 Alloy 844
9. Packing	Reinforced TFE
10. Body Ends	Cast Bronze ASTM B-584 Alloy 844
11. O-Ring Seal (2)	Fluorocarbon Rubber
12. Seat Ring (2)	TFE
13. Ball	Stainless Steel ASTM A-276 Type 316
14. Ground Device	Stainless Steel, 316 SS
15. Thrust Washer	Reinforced TFE
16. Body Bolts	Zinc Plated Steel
17. Body Nuts	Zinc Plated Steel



T-590-Y NPT x NPT



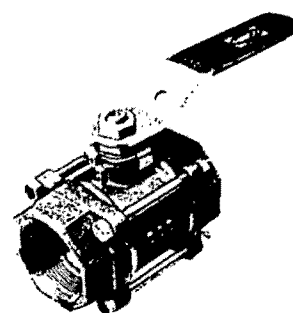
S-590-Y Copper x Copper



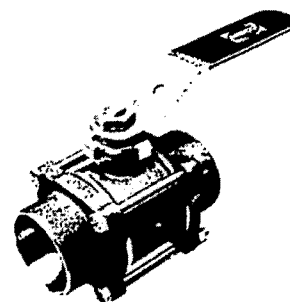
DIMENSIONS — WEIGHTS — QUANTITIES

Nom. Size	Dim. A Threaded	Dim. A Solder	Dimensions B, C, D, and E same for solder and threaded ends				Dim. F Solder	Approx. Weight Threaded	Approx. Weight Solder	Ctn. Qty.
			B	C	D	E				
1 1/4	3 11/16	3 21/32	2 1/2	1	2 1/2	4 21/32	1 29/32	3.2	2.9	10
1 1/2	4 3/32	4 1/4	2 11/16	1 1/4	3 1/8	6 11/16	2 1/16	4.5	3.9	10
2	4 7/16	5 1/4	3	1 1/2	3 11/32	6 11/16	2 5/16	6.4	5.7	6
2 1/2	6 3/32	6 5/8	4	2	3 11/16	6 11/16	3 3/16	11.8	10.2	5
3	6 27/32	7 1/16	5	2 1/2	4 11/16	8	4 3/8	18.0	16.0	4

NOTE: For specific pressure/temperature relationships refer to page 67.



T-590-Y-66
threaded
TFE Seats with S.S. trim



S-590-Y-66
solder
TFE Seats with S.S. trim



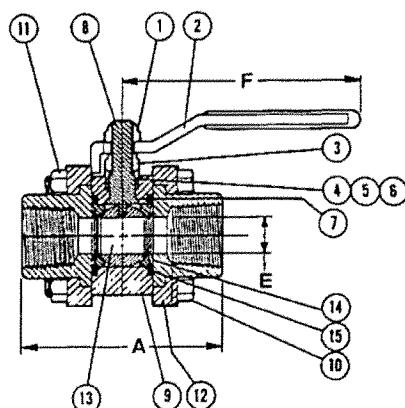
carbon steel ball valves

Three Piece Body • Blowout-Proof Stem
Conventional Port • C.S. Trim
1500 lb. WOG

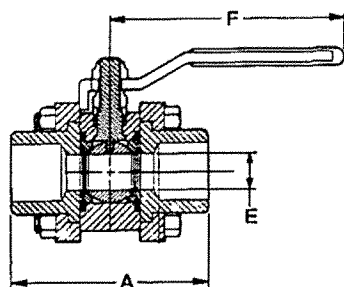
Federal Specifications: WW-V-35, Type II, Class D, Style 1

MATERIAL LIST

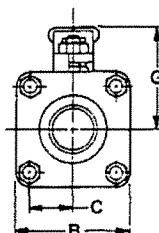
PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Nut	Zinc Plated Steel
4. Belleville Washer	Zinc Plated Steel
5. Pack Gland	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
6. Packing	Reinforced TFE
7. Thrust Washer	Reinforced TFE
8. Stem	Carbon Steel ASTM A-108 Type 12L14, Nickel Plated
9. Body	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
10. Body Bolts	Carbon Steel ASTM A-449 GR 5, Zinc Plated
11. Body Nuts	Zinc Plated Steel
12. Body Ends	Carbon Steel ASTM A-105
13. Ball	Carbon Steel ASTM A-108 Type 12L14, Nickel Plated
14. Seat Ring (2)	Reinforced TFE
15. O-Ring Seal (2)	TFE



T-590-CS Series
NPT x NPT



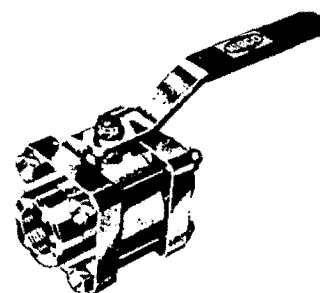
K-590-CS Series
SOC x SOC



DIMENSIONS - WEIGHTS

Size	A	B	C	E	F	G	Net Wt.
1/2	2 3/4	2	2 1/2	7/16	5 1/4	2 5/32	1.6
3/4	2 15/16	2 1/4	2 5/32	9/16	6 5/8	2 5/16	2.5
1	3 23/32	2 1/2	2 9/32	1 3/16	6 3/8	2 9/16	4.3
1 1/4	4 1/2	3	1 1/16	1	8 1/2	3 3/8	7.4
1 1/2	5 5/16	3 1/2	1 3/16	1 1/4	8 1/2	4 13/32	11.2
2	5 11/32	4	1 3/8	1 1/2	8 1/2	4 9/16	15.0

NOTE: For specific pressure/temperature relationships refer to page 67.



T-590-CS-R-25
threaded
Reinforced TFE
Seats and Seals
with C.S. trim

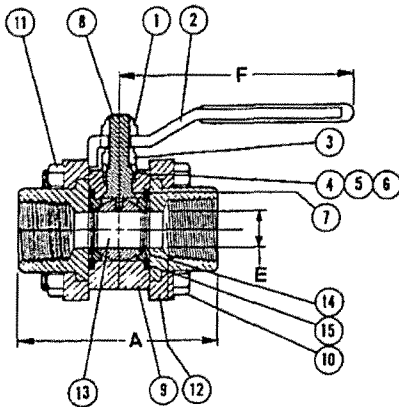
K-590-CS-R-25
socket-weld ends
Reinforced TFE
Seats and Seals
with C.S. trim



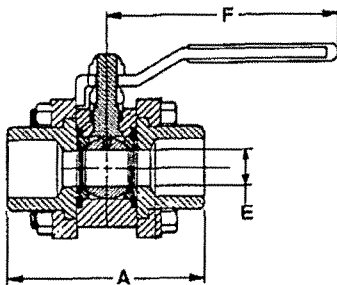
carbon steel ball valves

Three-Piece Body • Blowout-Proof Stem
Conventional Port • 316 S.S. Trim
1500 lb. WOG

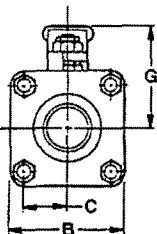
Federal Specifications: WW-V-35, Type II, Class D, Style 1



T-590-CS Series
NPT x NPT



K-590-CS Series
SOC x SOC



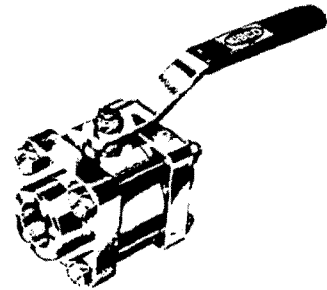
MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Nut	Zinc Plated Steel
4. Belleville Washer	Zinc Plated Steel
5. Pack Gland	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
6. Packing	Reinforced TFE
7. Thrust Washer	Reinforced TFE
8. Stem	Stainless Steel ASTM A-276 Type 316
9. Body	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
10. Body Bolts	Carbon Steel ASTM A-449 GR 5, Zinc Plated
11. Body Nuts	Zinc Plated Steel
12. Body Ends	Carbon Steel ASTM A-105
13. Ball	Stainless Steel ASTM A-276 Type 316
14. Seat Ring (2)	Reinforced TFE
15. O-Ring Seal (2)	TFE

DIMENSIONS - WEIGHTS

Size	A	B	C	E	F	G	Net Wt.
1/2	2 3/4	2	2 1/32	7/16	5 1/4	2 5/32	1.6
3/4	2 15/16	2 1/4	2 5/32	9/16	6 5/8	2 5/16	2.5
1	3 23/32	2 1/2	2 9/32	1 1/16	6 5/8	2 9/16	4.3
1 1/4	4 1/2	3	1 1/16	1	8 1/2	3 7/8	7.4
1 1/2	5 5/16	3 1/2	1 1/16	1 1/4	8 1/2	4 13/32	11.2
2	5 19/32	4	1 3/8	1 1/2	8 1/2	4 9/16	15.0

NOTE: For specific pressure/temperature relationships refer to page 67.



T-590-CS-R-66
threaded
Reinforced TFE
Seats and Seals
with S.S. trim

K-590-CS-R-66
socket-weld ends
Reinforced TFE
Seats and Seals
with S.S. trim



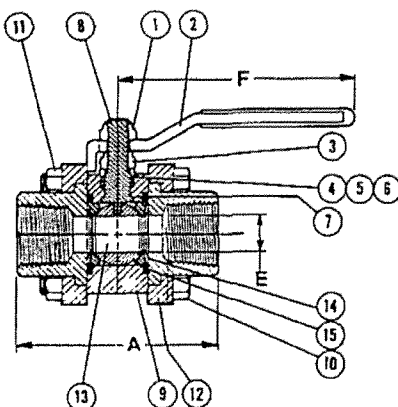
stainless steel ball valves

Three Piece Body • Blowout-Proof Stem
Conventional Port • 316 S.S. Trim
1500 lb. WOG

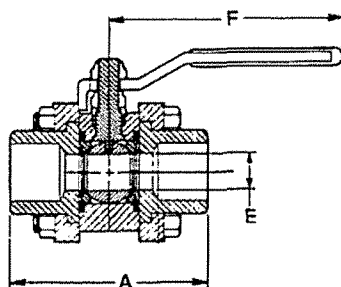
Federal Specifications: WW-V-35, Type II, Class C, Style 1

MATERIAL LIST

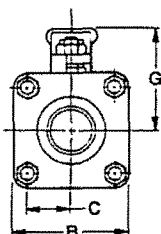
PART	SPECIFICATION
1. Handle Nut	Stainless Steel, ASTM A194 GR 8 (304)
2. Handle	Stainless Steel, ASTM A-167 Type 304, Plastisol Coated
3. Packing Nut	Stainless Steel, ASTM A194 GR 8 (304)
4. Belleville Washer	Stainless Steel, ASTM A-167 Type 304
5. Pack Gland	Stainless Steel, ASTM A-276 Type 316
6. Packing	Reinforced TFE
7. Thrust Washer	Reinforced TFE
8. Stem	Stainless Steel, ASTM A-276 Type 316
9. Body	Stainless Steel, ASTM A-276 Type 316 (1/2"-3/4") Stainless Steel, ASTM A351 GR CF8M (1"-2")
10. Body Bolts	Stainless Steel, ASTM B193 GR B 8 Type 304
11. Body Nuts	Stainless Steel, ASTM B194 GR 8, (304)
12. Body Ends	Stainless Steel, ASTM A-351 Grade CF3M
13. Ball	Stainless Steel, ASTM A-276 Type 316
14. Seat Ring (2)	Reinforced TFE
15. O-Ring Seal (2)	TFE



T-590-S6 Series
NPT x NPT



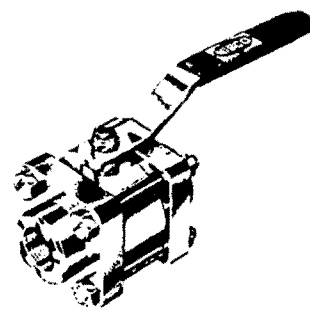
K-590-S6 Series
SOC x SOC



DIMENSIONS - WEIGHTS

Size	A	B	C	E	F	G	Net Wt.
1/2	2 3/4	2	2 1/32	7/16	5 1/4	2 5/32	1.6
3/4	2 15/16	2 1/4	2 5/32	9/16	6 5/8	2 9/16	2.5
1	3 23/32	2 1/2	2 9/32	1 1/16	6 3/8	2 9/16	4.3
1 1/4	4 1/2	3	1 1/16	1	8 1/2	3 7/8	7.4
1 1/2	5 5/16	3 1/2	1 3/16	1 1/4	8 1/2	4 13/32	11.2
2	5 13/32	4	1 3/8	1 1/2	8 1/2	4 9/16	15.0

NOTE: For specific pressure/temperature relationships refer to page 67.



T-590-S6-R-66
threaded
Reinforced TFE
Seats and Seals
with S.S. trim

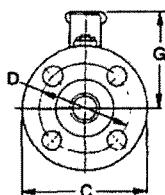
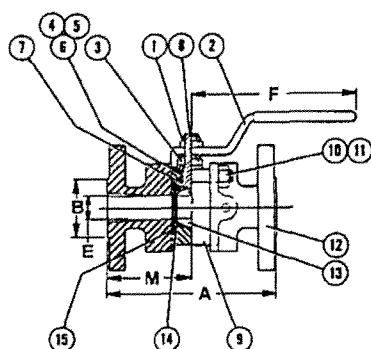
K-590-S6-R-66
socket-weld ends
Reinforced TFE
Seats and Seals
with S.S. trim



carbon steel ball valves

Three Piece Body • Blowout-Proof Stem • C.S. Trim
Conventional Port • Class 150

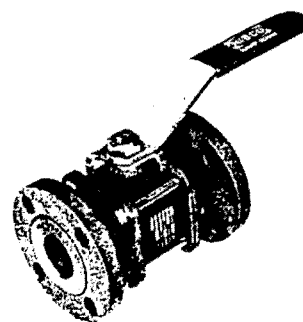
Federal Specifications: WW-V-35, Type II, Class D, Style 1



F-590-CS Series

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Nut	Zinc Plated Steel
4. Belleville Washer	Zinc Plated Steel
5. Pack Gland	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
6. Packing	Reinforced TFE
7. Thrust Washer	Reinforced TFE
8. Stem	Carbon Steel ASTM A-108 Type 12L14, Nickel Plated
9. Body	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
10. Body Bolts	Carbon Steel ASTM A-449 GR 5, Zinc Plated
11. Body Nuts	Zinc Plated Steel
12. Body Ends	Carbon Steel ASTM A-105
13. Ball	Carbon Steel ASTM A-108 Type 12L14, Nickel Plated
14. Seat Ring (2)	Reinforced TFE
15. O-Ring Seal (2)	TFE



F-590-CS-R-25
flanged ends
Reinforced TFE
Seats and Seals
with C.S. trim

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	M	Net Wt
1/2	4 1/4	1 3/8	3 1/2	2 3/8	7/16	4 3/4	3	2 1/8	3.5
3/4	4 3/4	1 11/16	3 7/8	2 3/4	9/16	5 1/4	3 1/4	2 11/16	5.5
1	5	2	4 1/4	3 3/8	11/16	5 7/8	3 3/8	2 1/2	7.3
1 1/4	5 1/2	2 1/2	4 3/4	3 1/2	1	8 1/2	3 3/8	2 3/4	11.0
1 1/2	6 1/2	2 3/4	5	3 3/8	1 1/4	8 1/2	4	3 1/4	15.0
2	7	3 3/4	6	4 1/4	1 1/2	8 1/2	4	3 3/8	20.0

NOTE: For specific pressure/temperature relationships refer to page 67.



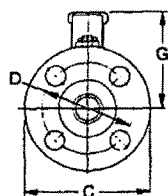
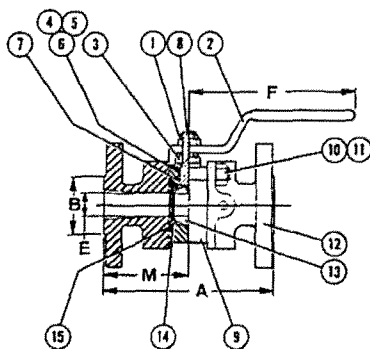
carbon steel ball valves

Three Piece Body • Blowout-Proof Stem • 316 S.S. Trim
Conventional Port • Class 150

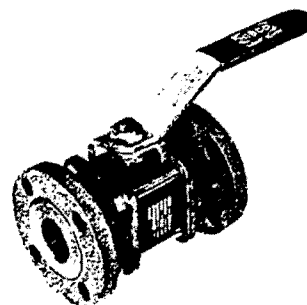
Federal Specifications: WW-V-35, Type II, Class D, Style 1

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Nut	Zinc Plated Steel
4. Belleville Washer	Zinc Plated Steel
5. Pack Gland	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
6. Packing	Reinforced TFE
7. Thrust Washer	Reinforced TFE
8. Stem	Stainless Steel ASTM A-276 Type 316
9. Body	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
10. Body Bolts	Carbon Steel ASTM A-449 GR 5, Zinc Plated
11. Body Nuts	Zinc Plated Steel
12. Body Ends	Carbon Steel ASTM A-105
13. Ball	Stainless Steel ASTM A-276 Type 316
14. Seat Ring (2)	Reinforced TFE
15. O-Ring Seal (2)	TFE



F-590-CS Series



F-590-CS-R-66
flanged ends
Reinforced TFE
Seats and Seals
with S.S. trim

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	M	Net Wt.
1/2	4 1/4	1 1/8	3 1/2	2 3/4	7/16	4 1/4	3	2 1/8	3.5
3/4	4 3/8	1 1/16	3 3/8	2 3/4	7/16	5 1/8	3 3/4	2 9/16	5.5
1	5	2	4 1/4	3 3/8	9/16	5 3/8	3 3/8	2 1/2	7.3
1 1/4	5 1/2	2 1/2	4 3/8	3 1/2	1	8 1/2	3 3/8	2 3/4	11.0
1 1/2	6 1/2	2 3/8	5	3 3/8	1 1/4	8 1/2	4	3 3/4	15.0
2	7	3 3/8	6	4 1/4	1 1/2	8 1/2	4	3 1/2	20.0

NOTE: For specific pressure/temperature relationships refer to page 67.



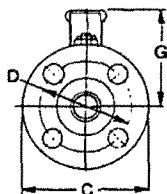
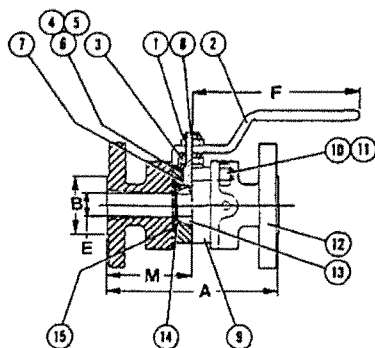
stainless steel ball valves

Three Piece Body • Blowout-Proof Stem • 316 S.S. Trim
Conventional Port • Class 150

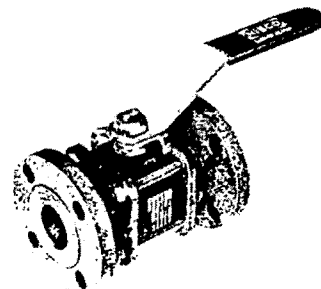
Federal Specifications: WW-V-35, Type II, Class C, Style 1

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Stainless Steel ASTM A194 GR 8 (304)
2. Handle	Stainless Steel ASTM A-167 Type 304, Platisol Coated
3. Packing Nut	Stainless Steel ASTM A194 GR 8 (304)
4. Belleville Washer	Stainless Steel ASTM A-167 Type 304
5. Pack Gland	Stainless Steel ASTM A-276 Type 316
6. Packing	Reinforced TFE
7. Thrust Washer	Reinforced TFE
8. Stem	Stainless Steel ASTM A-276 Type 316
9. Body	Stainless Steel ASTM A-276 Type 316 (1/2"-3/4") Stainless Steel ASTM A351 GR CF8M (1"-2")
10. Body Bolts	Stainless Steel ASTM B193 GR B 8 Type 304
11. Body Nuts	Stainless Steel ASTM B-194 GR 8,(304)
12. Body Ends	Stainless Steel ASTM A-351 Grade CF8M
13. Ball	Stainless Steel ASTM A-276 Type 316
14. Seat Ring (2)	Reinforced TFE
15. O-Ring Seal (2)	TFE



F-590-S6 Series



F-590-S6-R-66
flanged ends
Reinforced TFE
Seats and Seals
with S.S. trim

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	M	Net WL
1/2	4 1/4	1 1/8	3 1/2	2 3/8	7/16	4 3/4	3	2 1/4	3.5
3/4	4 5/8	1 1/16	3 7/8	2 1/2	9/16	5 1/8	3 1/4	2 5/16	5.5
1	5	2	4 1/4	3 3/8	13/16	5 7/8	3 3/8	2 1/2	7.3
1 1/4	5 1/2	2 1/2	4 3/4	3 1/2	1	8 1/2	3 7/8	2 3/4	11.0
1 1/2	6 1/2	2 3/4	5	3 3/4	1 1/4	8 1/2	4	3 1/4	15.0
2	7	3 3/4	6	4 1/4	1 1/2	10 3/8	4	3 1/2	20.0

NOTE: For specific pressure/temperature relationships refer to page 67.



bronze ball valves

Three Piece Body • Blowout-Proof Stem
Full Port • Bronze Trim
150 PSI Saturated Steam
600 PSI Non-Shock Cold Water, Oil, or Gas

Federal Specifications: WW-V-35, Type II, Class A, Style 1

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Nut	Zinc Plated Steel
4. Belleville Washer	Zinc Plated Steel
5. Travel Stop	Zinc Plated Steel
6. Stem	Silicon Bronze ASTM B-371 Alloy 694
7. Pack Gland	Brass ASTM B-16
8. Body	Bronze ASTM B-584 Alloy 844
9. Packing	Reinforced TFE
10. Body Ends	Cast Bronze ASTM B-584 Alloy 844
11. O-Ring Seal (2)	Fluorocarbon Rubber
12. Seat Ring (2)	TFE
13. Ball*	Cast Bronze ASTM B-584 Alloy 844
14. Ground Device	Stainless Steel, 316 SS
15. Thrust Washer	Reinforced TFE
16. Body Bolts	Zinc Plated Steel
17. Body Nuts	Zinc Plated Steel

*Ball Material on 1/4", 3/8" and 1/2" is Brass, ASTM B-16.

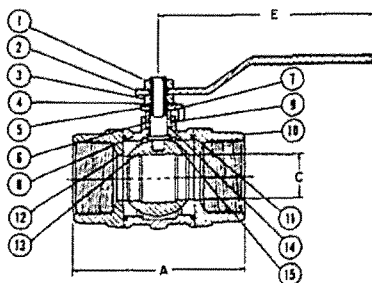
DIMENSIONS — WEIGHTS — QUANTITIES

Nom. Size	Dim. A Threaded	Dim. A Solder	Dimensions B, C, D, and E same for solder and threaded ends				Dim. F Solder	Approx. Weight Threaded	Approx. Weight Solder	Ctn. Qty.
			B	C	D	E				
1/4	1 1/2	1 1/16	1 1/16	1/2	2 1/32	3 29/32	1 1/16	0.6	0.6	50
3/8	2 1/2	1 13/16	1 1/16	1/2	2 1/32	3 29/32	1 1/16	0.7	0.7	50
1/2	2 1/2	2 1/16	1 13/16	1/2	2 1/32	3 29/32	1 1/16	0.8	0.8	50
3/4	3 1/16	2 15/16	1 13/16	3/4	2 1/32	4 1/32	1 1/16	1.4	1.2	30
1	3 11/16	3 1/32	2 1/2	1	2 1/2	4 1/32	1 27/32	3.0	2.9	10
1 1/4	4	3 29/32	2 11/16	1 1/4	3 3/4	6 11/16	1 31/32	4.0	3.9	10
1 1/2	4 9/16	4 19/32	3	1 1/2	3 11/32	6 11/16	2 13/32	6.0	5.6	6
2	6 1/32	5 25/32	4	2	3 11/16	6 11/16	3 1/32	10.1	9.9	5
2 1/2	6 27/32	6 19/16	5	2 1/2	4 11/16	8	4	17.0	15.0	4

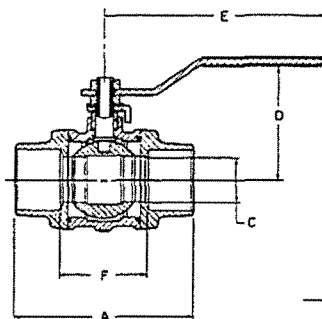
NOTE: For specific pressure/temperature relationships refer to page 67.

NIBCO INC., ELKHART, INDIANA

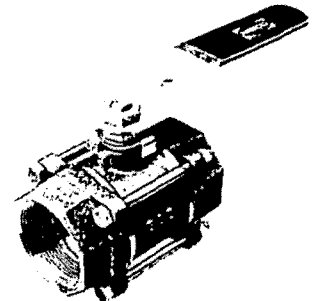
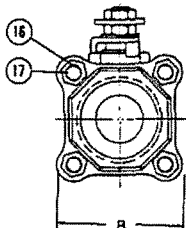
31



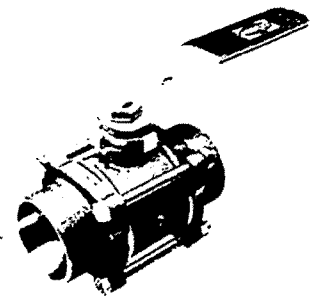
T-595-Y NPT x NPT



S-595-Y Copper x Copper



T-595-Y
threaded
TFE Seats
with Bronze trim



S-595-Y
solder
TFE Seats
with Bronze trim



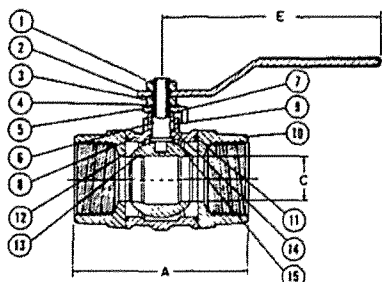
bronze ball valves

Three Piece Body • Blowout-Proof Stem
Full Port • 316 S.S. Trim
150 PSI Saturated Steam
600 PSI Non-Shock Cold Water, Oil, or Gas

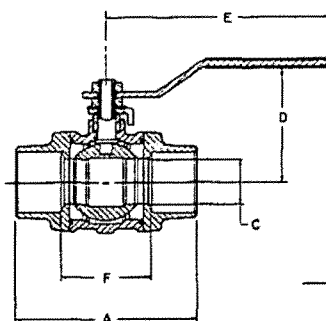
Federal Specifications: WW-V-35, Type II, Class A, Style 1

MATERIAL LIST

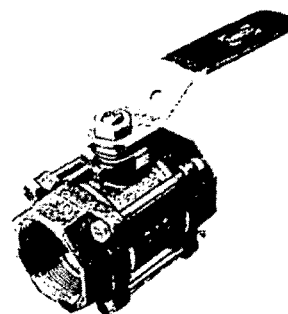
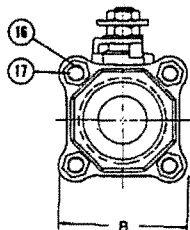
PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Nut	Zinc Plated Steel
4. Belleville Washer	Zinc Plated Steel
5. Travel Stop	Zinc Plated Steel
6. Stem	Stainless Steel ASTM A-276 Type 316
7. Pack Gland	Brass ASTM B-16
8. Body	Bronze ASTM B-584 Alloy 844
9. Packing	Reinforced TFE
10. Body Ends	Cast Bronze ASTM B-584 Alloy 844
11. O-Ring Seal (2)	Fluorocarbon Rubber
12. Seat Ring (2)	TFE
13. Ball	Cast Bronze ASTM A-276 Type 316
14. Ground Device	Stainless Steel, 316 SS
15. Thrust Washer	Reinforced TFE
16. Body Bolts	Zinc Plated Steel (not shown)
17. Body Nuts	Zinc Plated Steel (not shown)



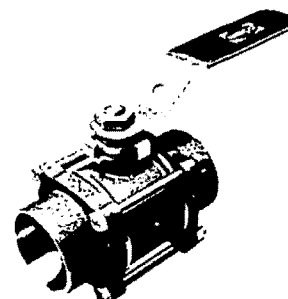
T-595-Y NPT x NPT



S-595-Y Copper x Copper



T-595-Y-66
threaded
TFE Seats with S.S. trim



S-595-Y-66
solder
TFE Seats with S.S. trim

DIMENSIONS — WEIGHTS — QUANTITIES

Nom. Size	Dim. A Threaded	Dim. A Solder	Dimensions B, C, D, and E same for solder and threaded ends				Dim. F Solder	Approx. Weight Threaded	Approx. Weight Solder	Ctn. Qty.
			B	C	D	E				
1/4	2 1/2	1 23/32	1 13/16	1/2	2 1/32	3 29/32	1 7/32	0.6	0.6	50
3/8	2 1/2	1 23/32	1 13/16	1/2	2 1/32	3 29/32	1 7/32	0.7	0.7	50
1/2	2 1/2	1 23/32	1 13/16	1/2	2 1/32	3 29/32	1 7/32	0.8	0.8	50
3/4	3 1/4	2 15/16	1 15/16	3/4	2 9/32	4 21/32	1 11/16	1.4	1.2	30
1	3 11/16	3 1/32	2 1/2	1	2 1/2	4 21/32	1 27/32	3.0	2.9	10
1 1/4	4	3 29/32	2 11/16	1 1/4	3 3/8	6 11/16	1 31/32	4.0	3.9	10
1 1/2	4 9/16	2 29/32	3	1 1/2	3 11/32	6 11/16	2 1/32	6.0	5.6	6
2	6 3/32	5 29/32	4	2	3 11/16	6 11/16	3 3/32	10.1	9.9	5
2 1/2	6 21/32	6 9/16	5	2 1/2	4 11/16	8	4	17.0	15.0	4

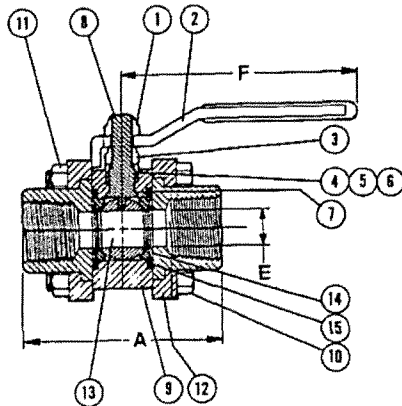
NOTE: For specific pressure/temperature relationships refer to page 67.



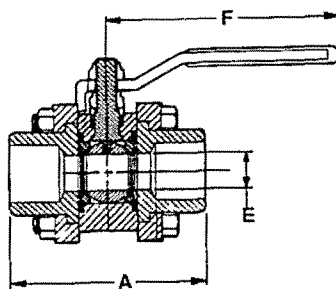
carbon steel ball valves

Three Piece Body • Blowout-Proof Stem • C.S. Trim
Full Port
1500 lb. WOG

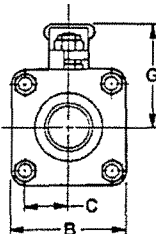
Federal Specifications: WW-V-35, Type II, Class D, Style 1



T-595-CS Series
NPT x NPT



K-595-CS Series
SOC x SOC



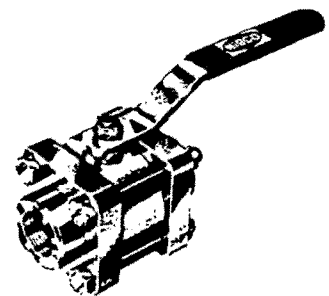
MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Platisol Coated
3. Packing Nut	Zinc Plated Steel
4. Belleville Washer	Zinc Plated Steel
5. Pack Gland	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
6. Packing	Reinforced TFE
7. Thrust Washer	Reinforced TFE
8. Stem	Carbon Steel ASTM A-108 Type 12L14, Nickel Plated
9. Body	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
10. Body Bolts	Carbon Steel ASTM A-449 GR 5, Zinc Plated
11. Body Nuts	Zinc Plated Steel
12. Body Ends	Carbon Steel ASTM A-105
13. Ball	Carbon Steel ASTM A-108 Type 12L14, Nickel Plated
14. Seat Ring (2)	Reinforced TFE
15. O-Ring Seal (2)	TFE

DIMENSIONS - WEIGHTS

Size	A	B	C	E	F	G	Net Wt.
1/4	2 3/4	2	2 1/32	7/16	5 1/4	2 5/32	1.6
3/8	2 3/4	2	2 1/32	7/16	5 1/4	2 5/32	1.6
1/2	2 15/16	2 1/4	2 5/32	9/16	6 5/8	2 5/16	2.5
3/4	3 23/32	2 1/2	2 29/32	1 13/16	6 5/8	2 9/16	4.3
1	4 1/2	3	1 1/16	1	8 1/2	3 3/8	7.4
1 1/4	5 5/16	3 1/2	1 3/16	1 1/4	8 1/2	4 13/32	11.2
1 1/2	5 13/32	4	1 3/8	1 1/2	8 1/2	4 7/16	15.0
2	5 19/32	4 15/16	1 19/32	2	8 1/2	4 7/8	15.5

NOTE: For specific pressure/temperature relationships refer to page 67.



T-595-CS-R-25
threaded ends
Reinforced TFE
Seats and Seals
with C.S. trim

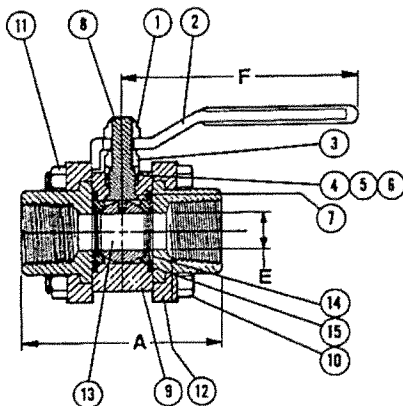
K-595-CS-R-25
socket-weld ends
Reinforced TFE
Seats and Seals
with C.S. trim



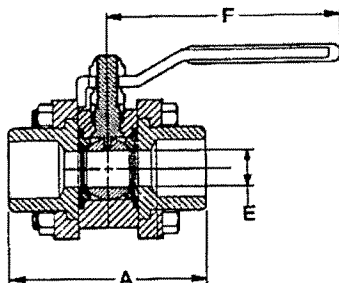
carbon steel ball valves

Three Piece Body • Blowout-Proof Stem • 316 S.S. Trim
Full Port
1500 lb. WOG

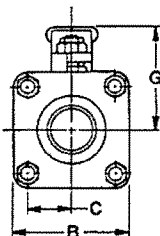
Federal Specifications: WW-V-35, Type II, Class D, Style 1



T-595-CS Series
NPT x NPT

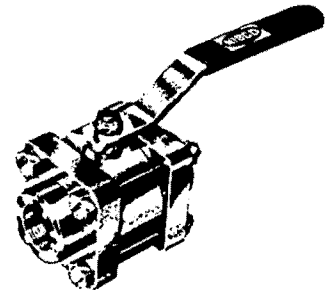


K-595-CS Series
SOC x SOC



MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Handle	Zinc Plated Steel, Plastisol Coated
3. Packing Nut	Zinc Plated Steel
4. Belleville Washer	Zinc Plated Steel
5. Pack Gland	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
6. Packing	Reinforced TFE
7. Thrust Washer	Reinforced TFE
8. Stem	Stainless Steel ASTM A-276 Type 316
9. Body	Carbon Steel ASTM A-108 Type 12L14, Phosphate Coated
10. Body Bolts	Carbon Steel ASTM A-449 GR 5, Zinc Plated
11. Body Nuts	Zinc Plated Steel
12. Body Ends	Carbon Steel ASTM A-105
13. Ball	Carbon Steel ASTM A-276 Type 316
14. Seat Ring (2)	Reinforced TFE
15. O-Ring Seal (2)	TFE



T-595-CS-R-66
threaded ends
Reinforced TFE
Seats and Seals
with S.S. trim

DIMENSIONS - WEIGHTS

Size	A	B	C	E	F	G	Net Wt.
1/4	2 3/4	2	2 1/32	7/16	5 1/4	2 3/32	1.6
3/8	2 3/4	2	2 1/32	7/16	5 1/4	2 3/32	1.6
1/2	2 15/16	2 1/4	2 5/32	9/16	6 5/8	2 9/16	2.5
3/4	3 23/32	2 1/2	2 9/32	1 1/16	6 5/8	2 9/16	4.3
1	4 1/2	3	1 1/16	1	8 1/2	3 5/8	7.4
1 1/4	5 5/16	3 1/2	1 3/16	1 1/4	8 1/2	4 13/32	11.2
1 1/2	5 13/32	4	1 3/8	1 1/2	8 1/2	4 9/16	15.0
2	5 19/32	4 15/16	1 9/32	2	8 1/2	4 7/8	15.5

K-595-CS-R-66
socket-weld ends
Reinforced TFE
Seats and Seals
with S.S. trim



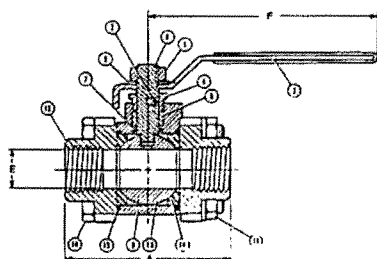
stainless steel ball valves

Three Piece Body • Blowout-Proof Stem • 316 S.S. Trim
Full Port
800 lb. WOG

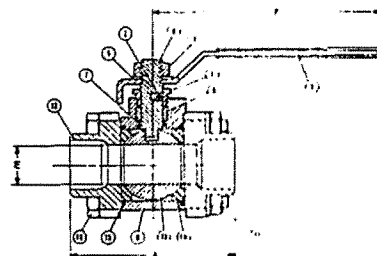
Federal Specifications: WW-V-35, Type II, Class C, Style 1

MATERIAL LIST

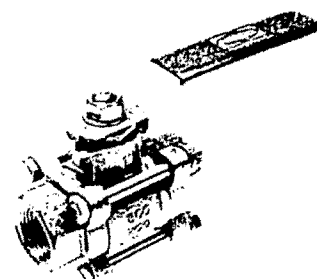
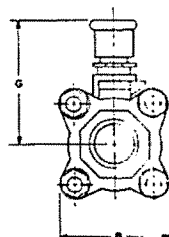
PART	SPECIFICATION
1. Handle Nut	Stainless Steel ASTM A-492 Type 304
2. Ground Device	Stainless Steel 316 SS
3. Handle	Stainless Steel ASTM A-167 Type 304, Plastisol Coated
4. Packing Nut	Stainless Steel ASTM A-194 GR 8 (304)
5. Belleville Washer	Stainless Steel ASTM A-167 Type 304
6. Pack Gland	Stainless Steel ASTM A-276 Type 316
7. Packing	Reinforced TFE
8. Thrust Washer	Reinforced TFE
9. Stem	Stainless Steel ASTM A-276 Type 316
10. Body	Stainless Steel, ASTM A-351 Grade CF8M
11. Body Bolts	Stainless Steel ASTM A-493 Type 304
12. Body Nuts	Stainless Steel ASTM A-493 Type 304
13. Body Ends	Stainless Steel, ASTM A-351 Grade CF8M
14. Ball	Stainless Steel ASTM A-276 Type 316
15. Seat Ring (2)	Reinforced TFE
16. O-Ring Seal (2)	Reinforced TFE



T-595-S6 Series
NPT x NPT



K-595-S6 Series
SOC x SOC



T-595-S6-R-66
threaded ends
Reinforced TFE
Seats and Seals
with S.S. trim

K-595-S6-R-66
socket-weld ends
Reinforced TFE
Seats and Seals
with S.S. trim

DIMENSIONS - WEIGHTS

Size	A	B	C	E	F	G	Net Wt.
1/4	2 1/2	1 5/8	7/16	7/16	3 3/4	1 7/8	.94
3/8	2 1/2	1 5/8	7/16	1/2	3 3/4	1 7/8	.88
1/2	2 15/16	1 5/16	1 1/16	5/8	4 13/16	2 1/8	1.44
3/4	3 11/32	2 1/8	3/4	13/16	4 13/16	2 1/4	2.00
1	3 13/16	2 11/32	15/16	1	5 5/8	2 1/2	2.88
1 1/4	4 1/4	2 27/32	1 1/16	1 1/4	5 5/8	2 3/4	4.88
1 1/2	5 1/4	3 3/32	1 1/32	1 1/2	8 1/4	3 3/8	7.38
2	6 1/8	4 15/16	2 7/32	2	8 1/4	3 3/8	13.10

NOTE: For specific pressure/temperature relationships refer to page 67.

NIBCO INC., ELKHART, INDIANA

35

NIBCO000821



butterfly valves

illustrated index

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Ductile Iron Body
200 PSI
Wafer Style Butterfly Valve



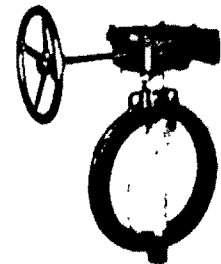
WD 2000
Sizes 2"-12"
Molded-in Liner
Aluminum Bronze Disc

Ductile Iron Body
250 PSI
Wafer Style Butterfly Valve



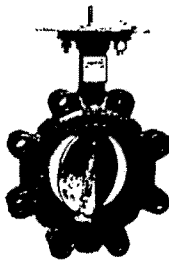
WD 3111
Sizes 2"-12"
Molded-in Liner
Ductile Iron Disc

Ductile Iron Body
150 PSI
Wafer Style Butterfly Valve



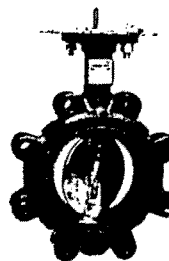
WD 0011
Sizes 14"-24"
Molded-in Liner
Angle-Disc Design

Ductile Iron Body
200 PSI
Lug Style Butterfly Valve



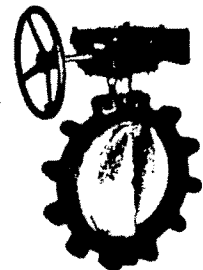
LD 2000
Sizes 2"-12"
Molded-in Liner
Aluminum Bronze Disc

Ductile Iron Body
250 PSI
Lug Style Butterfly Valve



LD 3111
Sizes 2"-12"
Molded-in Liner
Ductile Iron Disc

Ductile Iron Body
150 PSI
Lug Style Butterfly Valve



LD 0011
Sizes 14"-24"
Molded-in Liner
Angle-Disc Design

Key to NIBCO Butterfly Valve Figure Number Positions*

1	2	3	4	5	6	7
Body Type	Body Material	Pressure Rating	Liner Material	Disc Material	Stem & Bushing Combination Upper & Lower	Collar
W — Wafer L — Lug	D — Ductile Iron	0 — 150 PSI 1 — 175 PSI 2 — 200 PSI 3 — 250 PSI	0 — EPDM 1 — Nitrile (BUNA-N) 2 — Fluoro-carbon (VITON®) 3 — Hypalon ¹ 4 — Neoprene	0 — Alum. Bronze ² 1 — Ductile Iron ³ 2 — CF8M 3 — CN7M 4 — Monel	0 — 416 S.S. 1 — 416 S.S. 2 — 17-4PH S.S. ⁴ 3 — Alloy 20 S.S. 4 — Monel	Brass 316 S.S. 316 S.S. Alloy 20 S.S. Monel
						Brass 316 S.S. Alloy 20 S.S. Monel
						Operating Mechanism
						0 — None 1 — Square Neck 3 — Lever Lock 5 — Gear Operator 7 — Electric Actuator 9 — Pneumatic Actuator

* This key is a guide only and is not intended to infer that any valve that is contained in the key will be made.

1. Trademark of E. I. DuPont Co. 2. Valve rated at 200 PSI when supplied with an aluminum bronze disc.

3. Electro nickel plated 4. Trademark of ARMCO Steel Co.

NOTE: 14"-24" carry a 150 PSI rating only.



HPR 2000 butterfly valves

Field removable*
threaded collar
bushing.

Body and stem
O-ring seals of
EPDM or Viton.

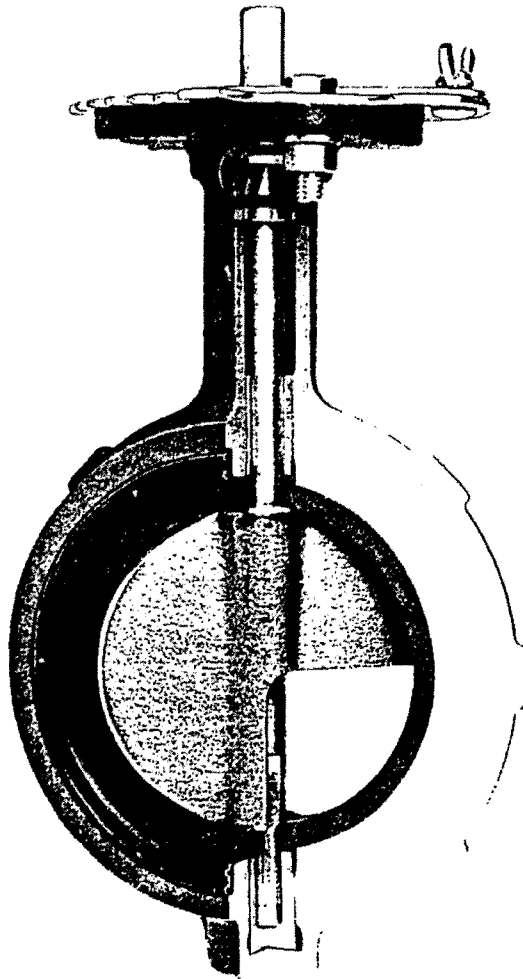
Extended neck for
insulation up to 2".

Molded-in liner fully
supported by valve
body at flange seals.
Eliminates leakage
between body and
liner as in cartridge
or boot type liners.
Best for dead-end
service without the
need for a flange
on the downstream
side. Liners are
color-coded for easy
material identification.

* Do not remove
collar bushing with
valve under pressure.

A HIGH-PERFORMANCE RESILIENT-SEATED BUTTERFLY VALVE FEATURING:

- Pressure Rating to 250 PSI
- Wide choice of materials to suit customer's application
- Bubble-tight shutoff at full pressure rating
- Dead-end service at 200 PSI



High-strength stem
materials with one-
piece thru-disc stem
design.

Integrally cast
operator/actuator
mounting pad.

Upper and lower
bushings are
standard for smooth
valve operation.

Streamlined spherical
disc with high flow
capacity.

Internal stem/disc
drive eliminates the
need for pins or bolts
which create addi-
tional leak paths and
turbulence in the
waterway that
reduces flow.

Ductile iron body
reduces cracking due
to abuse.

"Blind-hole" lower
bushing prevents
leakage.

Sizes Available

2", 2½", 3", 4", 5", 6", 8", 10", 12"

Operation

Bare shaft, lever-lock flow control handle, worm gear operator, electric and pneumatic actuators

Body Styles

Tapped full lug or wafer

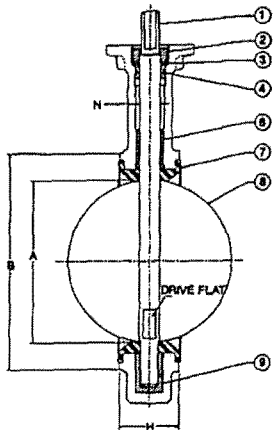


200 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive
Molded-in Seat Liner • Lug and Wafer Type

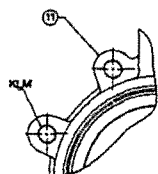
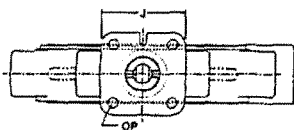
Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



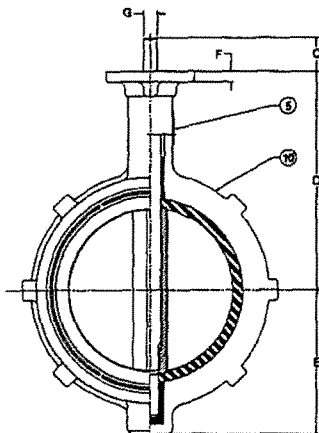
MATERIAL LIST

Part	Specification
1. Stem	Stainless Steel, ASTM A-582 Type 416
2. Collar Bushing	Brass, ASTM B-16
3. Stem Seal	EPDM Rubber
4. Body Seat	EPDM Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Brass, ASTM B-16
7. Liner	EPDM Rubber
8. Disc	Al. Bronze, ASTM B-148 Alloy 954
9. Lower Bushing	Brass, ASTM B-16
10. Body (Wafer)	Ductile Iron, ASTM A-536
11. Body (Lug)	Ductile Iron, ASTM A-536

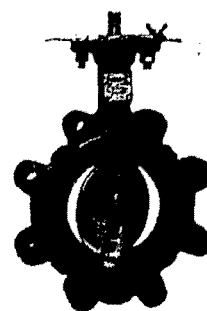


DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.062	2.188	3.25
5	5.15	7.62	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75



Size	Capscrew Data/Stud Data						Lug		Wafer	
	N	O B.C.	P Dia.	K No.	L Dia.	Water Length	Lug Length	M B.C.	Approx. Net Wt. (lbs.)	Approx. Net Wt. (lbs.)
2	.500	3.25	.437	4	½-11unc	4	1¼	4¼	7	6
2½	.562	3.25	.437	4	½-11unc	4¼	1½	5½	9	8
3	.562	3.25	.437	4	½-11unc	4¼	1½	6	9½	8½
4	.625	3.25	.437	8	½-11unc	5	1¼	7½	15	12
5	.750	3.25	.437	8	½-10unc	5¼	1¼	8¼	19	15
6	.750	3.25	.437	8	½-10unc	5¼	2	9½	24	18
8	.875	3.25	.437	8	½-10unc	5¾	2¼	11¼	35	29
10	1.125	5.00	.562	12	¾-9unc	6¼	2¼	14¼	56½	45½
12	1.250	5.00	.562	12	¾-9unc	6¾	2¼	17	87	72



LD 2000
lug style
With EPDM
Liner and
Aluminum
Bronze Disc



WD 2000
wafer style
With EPDM
Liner and
Aluminum
Bronze Disc

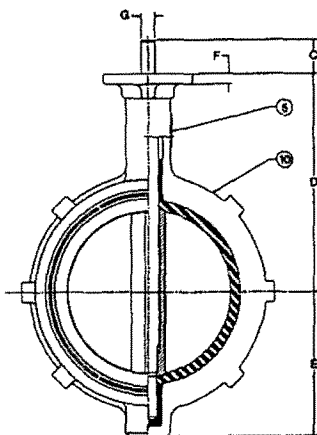
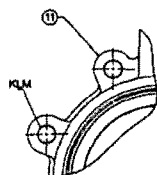
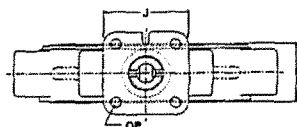
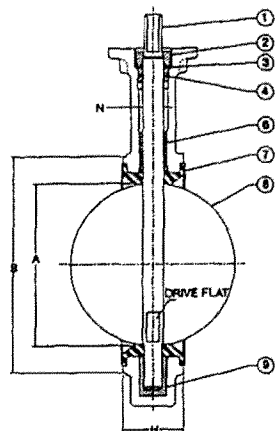


200 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive
Molded-in Seat Liner • Lug and Wafer Type

Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



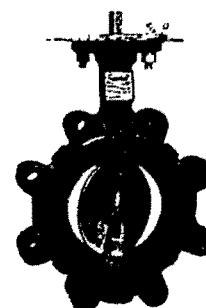
MATERIAL LIST

Part	Specification
1. Stem	Stainless Steel ASTM A-582 Type 416
2. Collar Bushing	Brass ASTM B-16
3. Stem Seal	EPDM Rubber
4. Body Seal	EPDM Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Stainless Steel ASTM A-276 Type 316
7. Liner	EPDM Rubber
8. Disc	Al. Bronze ASTM B-148 Alloy 954
9. Lower Bushing	Stainless Steel ASTM A-276 Type 316
10. Body Wafer	Ductile Iron ASTM A-536
11. Body Lug	Ductile Iron ASTM A-536

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.062	2.188	3.25
5	5.15	7.82	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75

Size	N	O B.C.	P Dia.	K No.	L Dia.	Capscrew Data/Stud Data		M B.C.	Lug Length	Wafer Length	Lug Length	Lug B.C.	Lug Approx. Net Wt. (lbs.)	Water Approx. Net Wt. (lbs.)
						Length	Length							
2	.500	3.25	.437	4	¾-11unc	4	1¼	4¼	7	6				
2½	.562	3.25	.437	4	¾-11unc	4¼	1½	5½	9	8				
3	.562	3.25	.437	4	¾-11unc	4¼	1½	6	9½	8½				
4	.625	3.25	.437	8	¾-11unc	5	1¾	7½	15	12				
5	.750	3.25	.437	8	¾-10unc	5¼	1¾	8½	19	15				
6	.750	3.25	.437	8	¾-10unc	5¼	2	9½	24	18				
8	.875	3.25	.437	8	¾-10unc	5¼	2¼	11¼	35	29				
10	1.125	5.00	.562	12	¾-9unc	6¼	2¼	14¼	56½	45½				
12	1.250	5.00	.562	12	¾-9unc	6¼	2¼	17	87	72				



LD 2001
lug style
With EPDM Liner
and Aluminum
Bronze Disc



WD 2001
water style
With EPDM Liner
and Aluminum
Bronze Disc

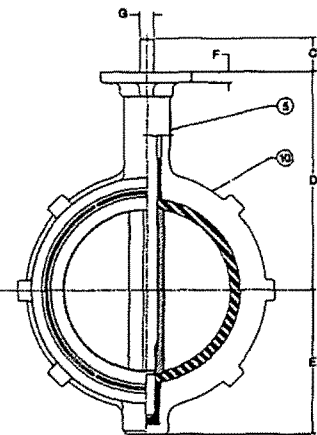
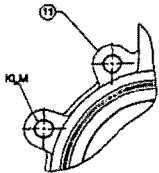
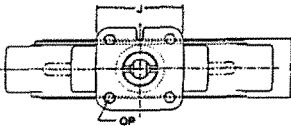
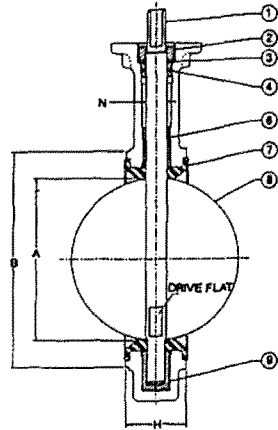


200 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive
Molded-in Seat Liner • Lug and Wafer

Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



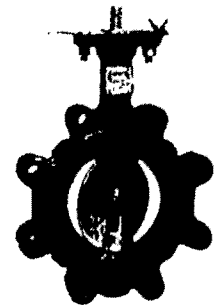
MATERIAL LIST

Part	Specification
1. Stem	Stainless Steel ASTM A-582 Type 416
2. Collar Bushing	Brass ASTM B-16
3. Stem Seal	Fluorocarbon Rubber
4. Body Seal	Fluorocarbon Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Brass ASTM B-16
7. Liner	Nitrile BUNA-N Rubber
8. Disc	Al. Bronze ASTM B-148 Alloy 954
9. Lower Bushing	Brass ASTM B-16
10. Body Wafer	Ductile Iron ASTM A-536
11. Body Lug	Ductile Iron ASTM A-536

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.062	2.188	3.25
5	5.15	7.62	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75

Size	N	O B.C.	P Dia.	Capscrew Data/Stud Data				M B.C.	Lug Length	Wafer Length	Lug Approx. Net Wt. (lbs.)	Wafer Approx. Net Wt. (lbs.)
				K No.	L Dia.	W	W					
2	.500	3.25	.437	4	¼-11unc	4	1¼	4¼	7	6		
2½	.562	3.25	.437	4	¼-11unc	4¼	1½	5½	9	8		
3	.562	3.25	.437	4	¼-11unc	4¼	1½	6	9½	8½		
4	.625	3.25	.437	8	¼-11unc	5	1¾	7½	15	12		
5	.750	3.25	.437	8	¼-10unc	5¼	1¾	8½	19	15		
6	.750	3.25	.437	8	¼-10unc	5¼	2	9½	24	18		
8	.875	3.25	.437	8	¼-10unc	5¼	2¼	11¼	35	29		
10	1.125	5.00	.562	12	½-9unc	6¼	2¼	14¼	56½	45½		
12	1.250	5.00	.562	12	½-9unc	6¼	2½	17	87	72		



LD 2100

lug style
With Nitrile
Liner and
Aluminum
Bronze Disc



WD 2100

wafer style
With Nitrile
Liner and
Aluminum
Bronze Disc

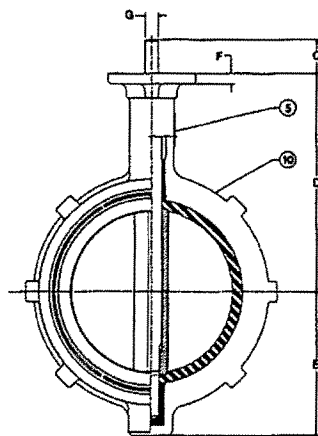
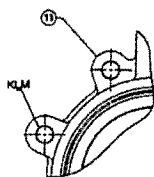
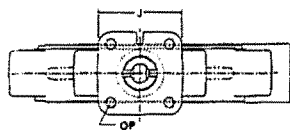
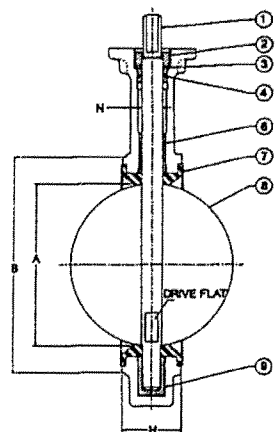


200 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive
Molded-in Seat Liner • Lug and Wafer

Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



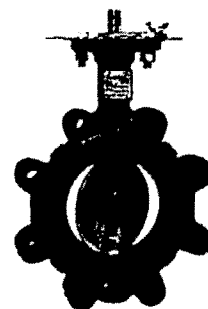
MATERIAL LIST

Part	Specification
1. Stem	Stainless Steel ASTM A-582 Type 416
2. Collar Bushing	Brass ASTM B-16
3. Stem Seal	Fluorocarbon Rubber
4. Body Seal	Fluorocarbon Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Stainless Steel ASTM A-276 Type 316
7. Liner	Nitrile BUNA-N Rubber
8. Disc	Al. Bronze ASTM B-148 Alloy 954
9. Lower Bushing	Stainless Steel ASTM A-276 Type 316
10. Body Wafer	Ductile Iron ASTM A-536
11. Body Lug	Ductile Iron ASTM A-536

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.062	2.188	3.25
5	5.15	7.62	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75

Size	N	O B.C.	P Dia.	Capscrew Data/Stud Data				M B.C.	Lug Approx. Net Wt. (lbs.)	Wafer Approx. Net Wt. (lbs.)
				K No.	L Dia.	Wafer Length	Lug Length			
2	.500	3.25	.437	4	¾-11unc	4	1½	4¾	7	6
2½	.562	3.25	.437	4	¾-11unc	4¾	1½	5½	9	8
3	.562	3.25	.437	4	¾-11unc	4¾	1½	6	9½	8½
4	.625	3.25	.437	8	¾-11unc	5	1¾	7½	15	12
5	.750	3.25	.437	8	¾-10unc	5¾	1¾	8½	19	15
6	.750	3.25	.437	8	¾-10unc	5¾	2	9½	24	18
8	.875	3.25	.437	8	¾-10unc	5¾	2¼	11¾	35	29
10	1.125	5.00	.562	12	¾-9unc	6¾	2¼	14¾	56½	45½
12	1.250	5.00	.562	12	¾-9unc	6¾	2½	17	87	72



LD 2101
lug style
With Nitrile
Liner and
Aluminum
Bronze Disc



WD 2101
wafer style
With Nitrile
Liner and
Aluminum
Bronze Disc

NIBCO INC., ELKHART, INDIANA

41

NIBCO000827

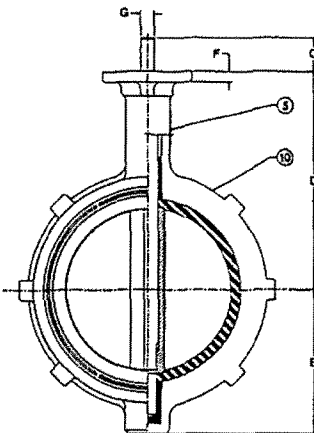
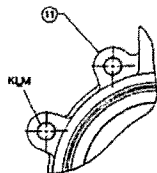
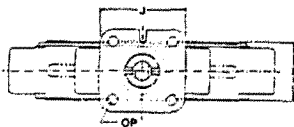
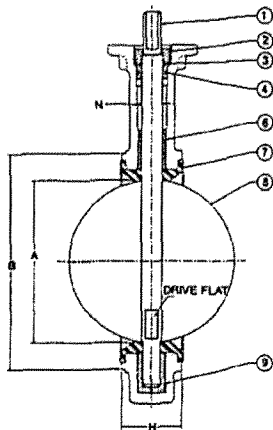


250 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive
Molded-in Seat Liner • Lug and Wafer Type

Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



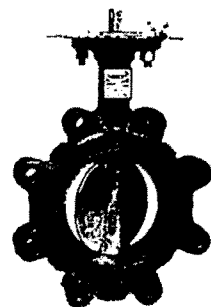
MATERIAL LIST

Part	Specification
1. Stem	Stainless Steel, ASTM A-582 Type 416
2. Collar Bushing	Brass, ASTM B-16
3. Stem Seal	EPDM Rubber
4. Body Seal	EPDM Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Brass, ASTM B-16
7. Liner	EPDM Rubber
8. Disc	Ductile Iron, ASTM A-395 (Plated)
9. Lower Bushing	Brass, ASTM B-16
10. Body (Wafer)	Ductile Iron, ASTM A-536
11. Body (Lug)	Ductile Iron, ASTM A-536

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.062	2.188	3.25
5	5.15	7.62	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75

Size	N	O B.C.	P Dia.	Capscrew Data/Stud Data				M B.C.	Lug Approx. Net Wt. (lbs.)	Wafer Approx. Net Wt. (lbs.)
				K No.	L Dia.	Wafer Length	Lug Length			
2	.500	3.25	.437	4	¾-11unc	4	1¼	4¾	7	6
2½	.562	3.25	.437	4	¾-11unc	4¼	1½	5½	9	8
3	.562	3.25	.437	4	¾-11unc	4¼	1½	6	9½	8½
4	.625	3.25	.437	8	¾-11unc	5	1¾	7½	15	12
5	.750	3.25	.437	8	¾-10unc	5¼	1¾	8½	19	15
6	.750	3.25	.437	8	¾-10unc	5¼	2	9½	24	18
8	.875	3.25	.437	8	¾-10unc	5¾	2¼	11¾	35	29
10	1.125	5.00	.562	12	¾-9unc	6¼	2¼	14¼	56½	45½
12	1.250	5.00	.562	12	¾-9unc	6¾	2½	17	87	72



LD 3010
lug style
With EPDM
Liner and
Ductile Disc



WD 3010
wafer style
With EPDM
Liner and
Ductile Disc

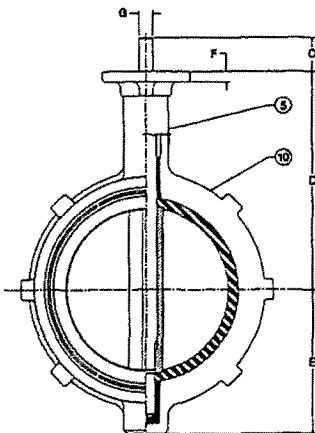
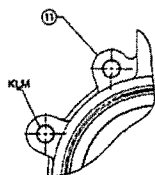
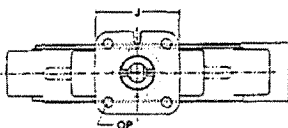
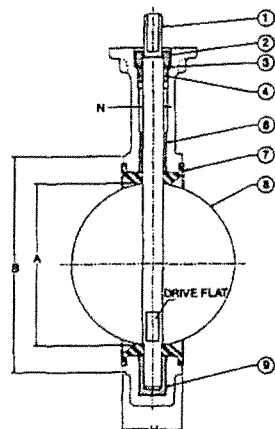


250 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive
Molded-in Seat Liner • Lug and Wafer Type

Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



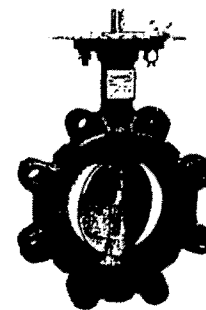
MATERIAL LIST

Part	Specification
1. Stem	Stainless Steel, ASTM A-582 Type 416
2. Collar Bushing	Brass, ASTM B-16
3. Stem Seal	EPDM Rubber
4. Body Seal	EPDM Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Stainless Steel, ASTM A-276 Type 316
7. Liner	EPDM Rubber
8. Disc	Ductile Iron, ASTM A-395 (Plated)
9. Lower Bushing	Stainless Steel, ASTM A-276 Type 316
10. Body (Wafer)	Ductile Iron, ASTM A-536
11. Body (Lug)	Ductile Iron, ASTM A-536

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.062	2.188	3.25
5	5.15	7.62	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75

Size	N	O B.C.	P Dia.	Capscrew Data/Stud Data				M B.C.	Lug Approx. Net Wt. (lbs.)	Wafer Approx. Net Wt. (lbs.)
				K No.	L Dia.	Water Length	Lug Length			
2	.500	3.25	.437	4	¼-11unc	4	1¼	4¼	7	6
2½	.562	3.25	.437	4	¼-11unc	4¼	1½	5½	9	8
3	.562	3.25	.437	4	¼-11unc	4¼	1½	6	9½	8½
4	.625	3.25	.437	8	¼-11unc	5	1¼	7½	15	12
5	.750	3.25	.437	8	¼-10unc	5¼	1¼	8½	19	15
6	.750	3.25	.437	8	¼-10unc	5¼	2	9½	24	18
8	.875	3.25	.437	8	¼-10unc	5¼	2¼	11¼	35	29
10	1.125	5.00	.562	12	¼-9unc	6¼	2¼	14¼	56½	45½
12	1.250	5.00	.562	12	¼-9unc	6¼	2½	17	87	72



LD 3011
lug style
With EPDM
Liner and
Ductile Disc



WD 3011
wafer style
With EPDM
Liner and
Ductile Disc

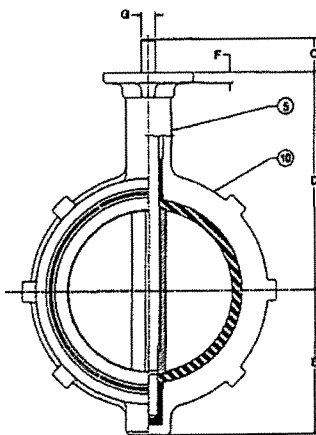
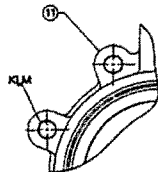
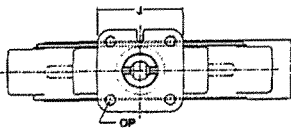
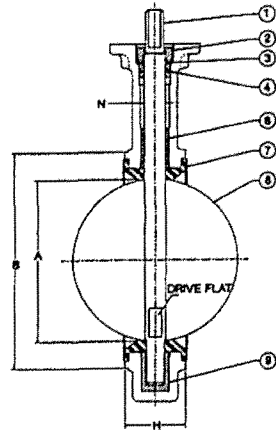


250 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive
Molded-in Seat Liner • Lug and Wafer

Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



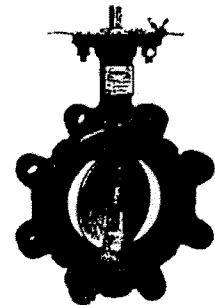
MATERIAL LIST

Part	Specification
1. Stem	Stainless Steel ASTM A-582 Type 416
2. Collar Bushing	Brass ASTM B-16
3. Stem Seal	Fluorocarbon Rubber
4. Body Seal	Fluorocarbon Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Brass ASTM B-16
7. Liner	Nitrile (BUNA-N) Rubber
8. Disc	Ductile Iron ASTM A-395 (Plated)
9. Lower Bushing	Brass ASTM B-16
10. Body Wafer	Ductile Iron ASTM A-536
11. Body Lug	Ductile Iron ASTM A-536

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.052	2.188	3.25
5	5.15	7.62	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75

Size	Capscrew Data/Stud Data						Lug		Wafer	
	N	O B.C.	P Dia.	K No.	L Dia.	Wafer Length	Lug Length	M B.C.	Approx. Net Wt. (lbs.)	Approx. Net Wt. (lbs.)
2	.500	3.25	.437	4	¾-11unc	4	1¼	4¾	7	6
2½	.562	3.25	.437	4	¾-11unc	4¼	1½	5½	9	8
3	.562	3.25	.437	4	¾-11unc	4¼	1½	6	9½	8½
4	.625	3.25	.437	8	¾-11unc	5	1¾	7½	15	12
5	.750	3.25	.437	8	¾-10unc	5¼	1¾	8½	19	15
6	.750	3.25	.437	8	¾-10unc	5¼	2	9½	24	18
8	.875	3.25	.437	8	¾-10unc	5¼	2¼	11¾	35	29
10	1.125	5.00	.562	12	¾-9unc	6¼	2¼	14¼	56½	45½
12	1.250	5.00	.562	12	¾-9unc	6¼	2½	17	87	72



LD 3110
lug style
With Nitrile
Liner and
Ductile Disc



WD 3110
wafer style
With Nitrile
Liner and
Ductile Disc

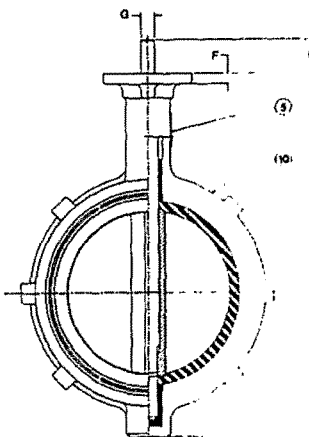
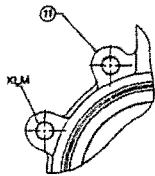
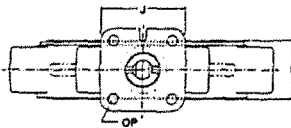
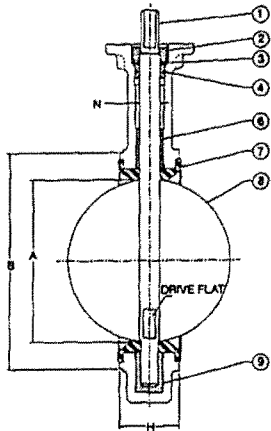


250 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive
Molded-in Seat Liner • Lug and Wafer

Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



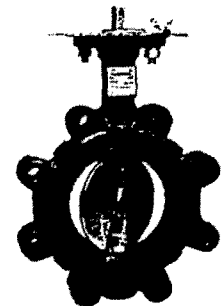
MATERIAL LIST

Part	Specification
1. Stem	Stainless Steel ASTM A-582 Type 416
2. Collar Bushing	Brass ASTM B-16
3. Stem Seal	Fluorocarbon Rubber
4. Body Seal	Fluorocarbon Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Stainless Steel ASTM A-276 Type 316
7. Liner	Nitrile (BUNA-N) Rubber
8. Disc	Ductile Iron ASTM A-395 (Plated)
9. Lower Bushing	Stainless Steel ASTM A-276 Type 316
10. Body Wafer	Ductile Iron ASTM A-536
11. Body Lug	Ductile Iron ASTM A-536

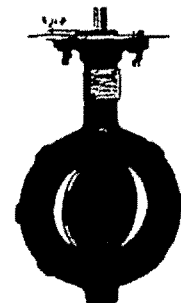
DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.062	2.188	3.25
5	5.15	7.62	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75

Size	N	O B.C.	P Dia.	K No.	Capscrew Data/Stud Data			M B.C.	Lug Approx. Net Wt. (lbs.)	Wafer Approx. Net Wt. (lbs.)
					L Dia.	Wafer Length	Lug Length			
2	500	3.25	.437	4	¾-11unc	4	1¼	4¼	7	6
2½	562	3.25	.437	4	¾-11unc	4¼	1½	5½	9	8
3	562	3.25	.437	4	¾-11unc	4¼	1½	6	9½	8½
4	625	3.25	.437	8	¾-11unc	5	1¼	7½	15	12
5	750	3.25	.437	8	¾-10unc	5¼	1¼	8½	19	15
6	750	3.25	.437	8	¾-10unc	5¼	2	9½	24	18
8	875	3.25	.437	8	¾-10unc	5¼	2¼	11¼	35	29
10	1125	5.00	.562	12	¾-9unc	6¼	2¼	14¼	56½	45½
12	1250	5.00	.562	12	¾-9unc	6¼	2½	17	87	72



LD 3111
lug style
With Nitrile
Liner and
Ductile Disc



WD 3111
wafer style
With Nitrile
Liner and
Ductile Disc

NIBCO INC., ELKHART, INDIANA

45

NIBCO000831

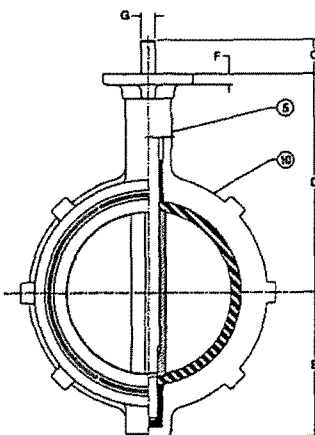
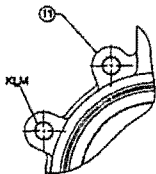
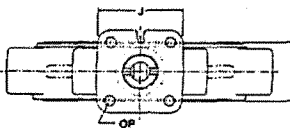
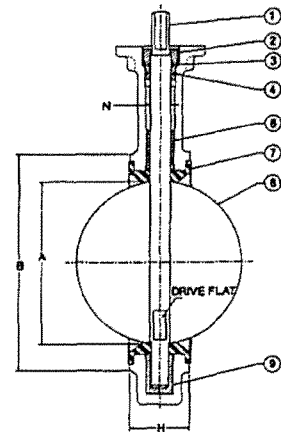


250 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive • 316 S.S. Trim
Molded-in Seat Liner • Lug and Wafer

Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



MATERIAL LIST

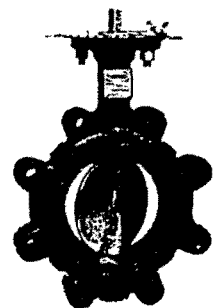
Part	Specification
1. Stem	Stainless Steel ASTM A-564 Type 17-4PH
2. Collar Bushing	Stainless Steel ASTM A-276 Type 316
3. Stem Seal	Fluorocarbon Rubber
4. Body Seal	Fluorocarbon Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Stainless Steel ASTM A-276 Type 316
7. Liner	Options: See Below*
8. Disc	Stainless Steel ASTM A-743 Grade CF8M
9. Lower Bushing	Stainless Steel ASTM A-276 Type 316
10. Body Wafer	Ductile Iron ASTM A-536
11. Body Lug	Ductile Iron ASTM A-536

*Optional Liners:
0 — EPDM
1 — Nitrile (BUNA-N)
2 — Fluorocarbon
3 — Hypalon
4 — Neoprene

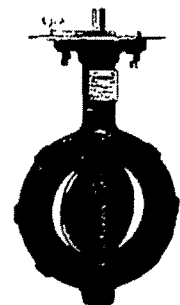
DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.062	2.188	3.25
5	5.15	7.62	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75

Size	N	O B.C.	P Dia.	K No.	Capscrew Data/Stud Data			M B.C.	Lug Approx. Net Wt. (lbs.)	Wafer Approx. Net Wt. (lbs.)
					L Dia.	Wafer Length	Lug Length			
2	.500	3.25	.437	4	¾-11unc	4	1¼	4¾	7	6
2½	.562	3.25	.437	4	¾-11unc	4¼	1½	5½	9	8
3	.562	3.25	.437	4	¾-11unc	4¼	1½	6	9½	8½
4	.625	3.25	.437	8	¾-11unc	5	1¾	7½	15	12
5	.750	3.25	.437	8	¾-10unc	5¼	1¾	8½	19	15
6	.750	3.25	.437	8	¾-10unc	5¼	2	9½	24	18
8	.875	3.25	.437	8	¾-10unc	5¼	2¼	11¾	35	29
10	1.125	5.00	.562	12	¾-9unc	6¼	2¼	14¼	56½	45½
12	1.250	5.00	.562	12	¾-9unc	6¼	2½	17	87	72



LD 3*22
lug style
With Optional
Liner and
CF8M Disc



WD 3*22
wafer style
With Optional
Liner and
CF8M Disc

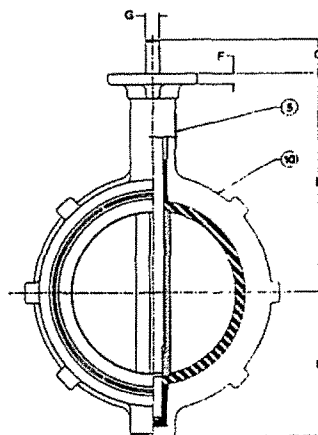
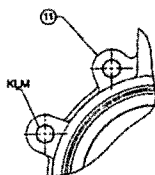
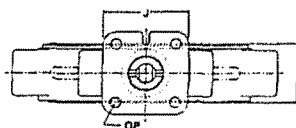
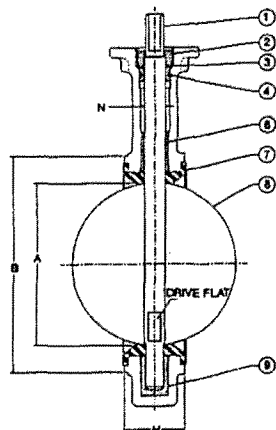


250 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive • Alloy 20 S.S. Trim
Molded-in Seat Liner • Lug and Wafer

Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



MATERIAL LIST

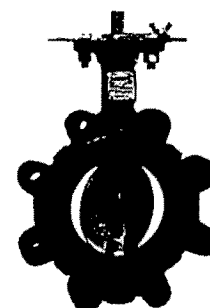
Part	Specification
1. Stem	Stainless Steel ASTM B-473 Alloy 20
2. Collar Bushing	Stainless Steel ASTM B-473 Alloy 20
3. Stem Seal	Fluorocarbon Rubber
4. Body Seal	Fluorocarbon Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Stainless Steel ASTM B-473 Alloy 20
7. Liner	Options: See Below*
8. Disc	Stainless Steel ASTM A-743 Grade CN7M
9. Lower Bushing	Stainless Steel ASTM B-473 Alloy 20
10. Body Wafer	Ductile Iron ASTM A-536
11. Body Lug	Ductile Iron ASTM A-536

*Optional Liners: 0 — EPDM
1 — Nitrile (BUNA-N)
2 — Fluorocarbon
3 — Hypalon
4 — Neoprene

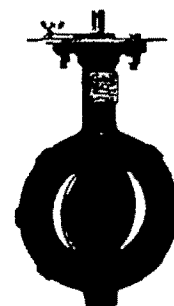
DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.062	2.188	3.25
5	5.15	7.62	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75

Size	N	O B.C.	P Dia.	Capscrew Data/Stud Data				M B.C.	Lug Approx. Net Wt. (lbs.)	Wafer Approx. Net Wt. (lbs.)
				K No.	L Dia.	Wafer Length	Lug Length			
2	.500	3.25	.437	4	¾-11unc	4	1½	4¾	7	6
2½	.562	3.25	.437	4	¾-11unc	4¼	1½	5½	9	8
3	.562	3.25	.437	4	¾-11unc	4¼	1½	6	9½	8½
4	.625	3.25	.437	8	¾-11unc	5	1¾	7½	15	12
5	.750	3.25	.437	8	¾-10unc	5¼	1¾	8½	19	15
6	.750	3.25	.437	8	¾-10unc	5¼	2	9½	24	18
8	.875	3.25	.437	8	¾-10unc	5¾	2¼	11¾	35	29
10	1.125	5.00	.562	12	¾-9unc	6¼	2¼	14¼	56½	45½
12	1.250	5.00	.562	12	¾-9unc	6¼	2½	17	87	72



LD 3*33
lug style
With Optional
Liner and
CN7M Disc



WD 3*33
wafer style
With Optional
Liner and
CN7M Disc

NIBCO INC., ELKHART, INDIANA

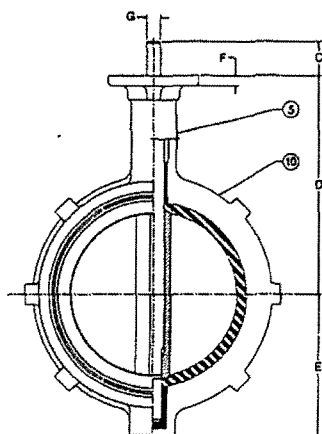
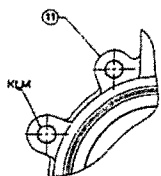
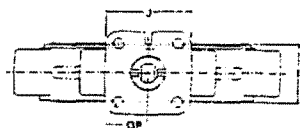
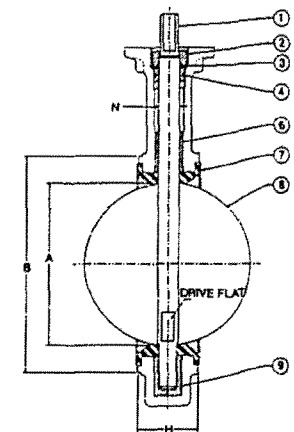


250 psi butterfly valves

Ductile Iron Body • Extended Neck • Geometric Drive • Monel Trim
Molded-in Seat Liner • Lug and Wafer

Sizes 2" through 12"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609



MATERIAL LIST

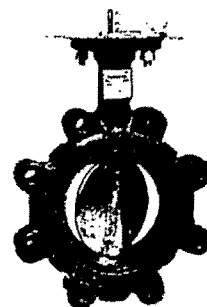
Part	Specification
1. Stem	Monel QQ-N-286
2. Collar Bushing	Monel QQ-N-286
3. Stem Seal	Fluorocarbon Rubber
4. Body Seal	Fluorocarbon Rubber
5. Nameplate	Aluminum
6. Upper Bushing	Monel QQ-N-286
7. Liner	Options: See Below*
8. Disc	Monel (Cast) QQ-N-288 Comp. B
9. Lower Bushing	Monel QQ-N-286
10. Body Wafer	Ductile Iron ASTM A-536
11. Body Lug	Ductile Iron ASTM A-536

*Optional Liners: 0 — EPDM
1 — Nitrile (BUNA-N)
2 — Fluorocarbon
3 — Hypalon
4 — Neoprene

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	Metal H	Rubber I	J Square
2	2.15	4.0	1.25	5.38	2.62	.38	.312	1.688	1.812	3.25
2½	2.65	4.75	1.25	5.88	3.12	.38	.370	1.812	1.938	3.25
3	3.15	5.25	1.25	6.12	3.38	.38	.370	1.812	1.938	3.25
4	4.15	6.75	1.25	6.88	4.00	.38	.403	2.062	2.188	3.25
5	5.15	7.62	1.25	7.38	4.75	.38	.496	2.188	2.312	3.25
6	6.15	8.62	1.25	8.00	5.25	.38	.496	2.188	2.312	3.25
8	8.15	10.87	1.25	9.25	6.50	.50	.560	2.375	2.500	3.25
10	10.15	13.25	1.25	10.50	8.00	.50	.686	2.688	2.812	4.75
12	12.15	16.0	1.25	12.00	9.25	.50	.748	3.000	3.125	4.75

Size	N	O B.C.	P Dia.	Capscrew Data/Stud Data				M B.C.	Lug Approx. Net Wt. (lbs.)	Wafer Approx. Net Wt. (lbs.)
				K No.	L Dia.	Wafer Length	Lug Length			
2	.500	3.25	.437	4	¾-11unc	4	1¼	4¼	7	6
2½	.562	3.25	.437	4	¾-11unc	4¼	1½	5½	9	8
3	.562	3.25	.437	4	¾-11unc	4¼	1½	6	9½	8½
4	.625	3.25	.437	8	¾-11unc	5	1¾	7½	15	12
5	.750	3.25	.437	8	¾-10unc	5¼	1¾	8½	19	15
6	.750	3.25	.437	8	¾-10unc	5¼	2	9½	24	18
8	.875	3.25	.437	8	¾-10unc	5¼	2¼	11¼	35	29
10	1.125	5.00	.562	12	¾-9unc	6¼	2¼	14¼	56½	45½
12	1.250	5.00	.562	12	¾-9unc	6¼	2½	17	87	72



LD 3*44
lug style
With Optional
Liner and
Monel Disc



WD 3*44
wafer style
With Optional
Liner and
Monel Disc

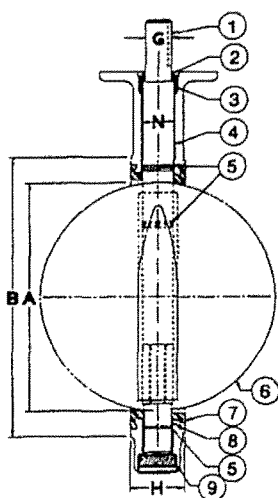


150 psi butterfly valves

Lug Type • Ductile Iron Body • Extended Neck • Geometric Drive
Angle Disc • Molded-in Seat Liner

Sizes 14" thru 24"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609

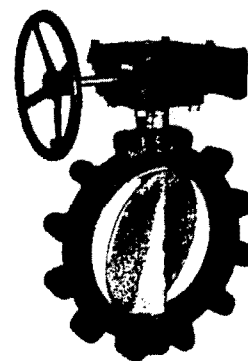


MATERIAL LIST

PART	SPECIFICATION
1. Stem	S41600 (Type 416) Stainless Steel
2. Dust Seal	Nitrile (Buna-N) Rubber
3. Collar Bushing	Bronze
4. Upper Bushing	Stainless Steel
5. Stem Seal (3)	Fluorocarbon Rubber (Viton*)
6. Disc	Ductile Iron ASTM A-395 (Plated)
7. Liner	EPDM Rubber**
8. Lower Bushing	Stainless Steel
9. Plug	Carbon Steel
10. Nameplate	Aluminum
11. Locating Pin	N08020 (Alloy 20) Stainless Steel
12. Body	Ductile Iron, ASTM A-395/A-536

*Trademark E.I. DuPont Co.

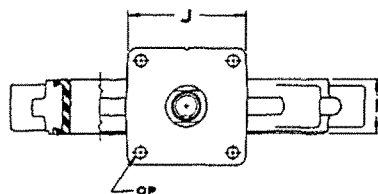
**EPDM not suitable for use with petroleum products (hydrocarbons) and many chlorinated compounds.



LD0011/LD-15E-4D

lug style

With EPDM Liner
and Ductile Disc

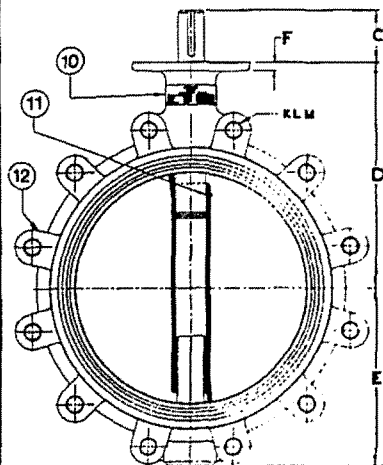


DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	H	Key	Approx. Net WL
14	13 1/4	16 1/4	3	13	10 1/4	1/2	1 1/2	3 1/4	3/8	123
16	15 1/4	18 1/4	3	14 1/4	12	1/2	1 1/4	4	3/8	190
18	17 1/4	20 1/4	3	15	13	1/2	1 1/4	4 1/2	3/8	232
20	19 1/4	22 1/4	3	16 1/4	14	1/2	1 1/4	5	3/8	286
24	23 1/4	26 1/4	3	18 1/4	16 1/4	1/2	2 1/4	6	3/8	477

Capscrew Data

Size	I	J	N	O B.C.	P Dia.	K No.	L Dia.	Length	M B.C.
14	3 1/16	6 3/4	1 1/4	7 1/2	1 1/16	12	1 -8 unc	2 3/4	18 3/4
16	4 1/16	6 3/4	2	7 1/2	1 1/16	16	1 -8 unc	3 1/4	21 1/4
18	4 1/16	6 3/4	2	7 1/2	1 1/16	16	1 1/2-7 unc	3 3/4	22 3/4
20	5 1/16	6 3/4	2	7 1/2	1 1/16	20	1 1/2-7 unc	4	25
24	6 7/16	6 3/4	2 1/2	7 1/2	1 1/16	20	1 1/2-7 unc	4 3/4	29 1/2



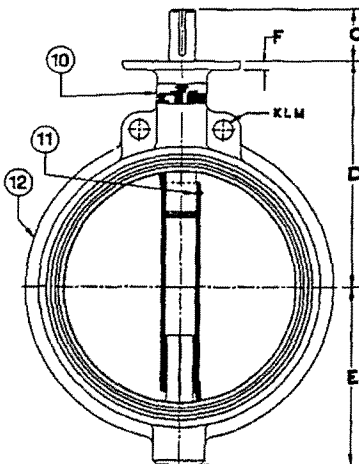
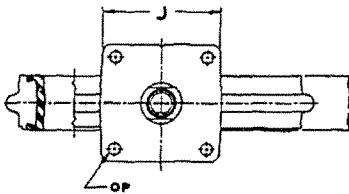
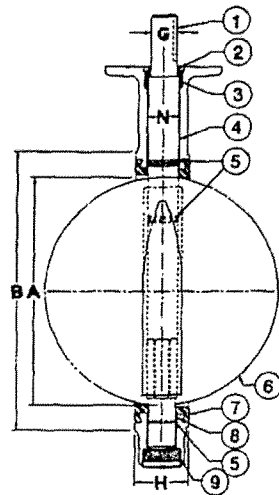


150 psi butterfly valves

Wafer Type • Ductile Iron Body • Extended Neck • Geometric Drive
Angle Disc • Molded-in Seat Liner

Sizes 14" thru 24"

Applicable Specifications: MSS-SP67, MSS-SP25, API-609

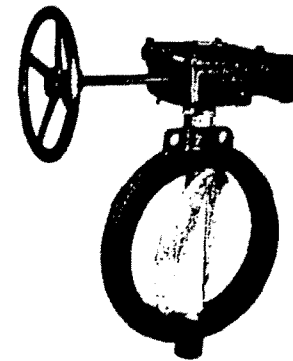


MATERIAL LIST

PART	SPECIFICATION
1. Stem	S41600 (Type 416) Stainless Steel
2. Dust Seal	Nitrile (Buna-N) Rubber
3. Collar Bushing	Bronze
4. Upper Bushing	Stainless Steel
5. Stem Seal (3)	Fluorocarbon Rubber (Viton®)
6. Disc	Ductile Iron ASTM A-395 (Plated)
7. Liner	EPDM Rubber**
8. Lower Bushing	Stainless Steel
9. Plug	Carbon Steel
10. Nameplate	Aluminum
11. Locating Pin	N08020 (Alloy 20) Stainless Steel
12. Body	Ductile Iron, ASTM A-395/A-536

*Trademark E.I. DuPont Co.

**EPDM not suitable for use with petroleum products (hydrocarbons) and many chlorinated compounds.



WD0011/WD-15E-4D
wafer style
With EPDM Liner
and Ductile Disc

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	H	Key	Approx. Net Wt.
14	13 1/4	16 1/4	3	13	10 1/4	1/2	1 1/2	3 1/4	3/8	99
16	15 1/4	18 1/4	3	14 1/4	12	1/2	1 1/4	4	3/8	136
18	17 1/4	20 1/4	3	15	13	1/2	1 1/4	4 1/2	3/8	171
20	19 1/4	22 1/4	3	16 1/4	14	1/2	1 1/4	5	3/8	225
24	23 1/4	26 1/4	3	18 1/4	16 1/4	1/2	2 1/4	6	3/8	362

Flange/Stud Data									
Size	I	J	N	O B.C.	P Dia.	K No.	L Dia.	Length	M B.C.
14	3 1/16	6 1/4	1 1/4	7 1/2	1 1/16	12	1	7 1/2	18 1/4
16	4 1/16	6 3/4	2	7 1/2	1 1/16	16	1	8 1/2	21 1/4
18	4 1/16	6 3/4	2	7 1/2	1 1/16	16	1 1/4	9 1/4	22 1/4
20	5 1/16	6 3/4	2	7 1/2	1 1/16	20	1 1/4	10	25
24	6 3/16	6 3/4	2 1/2	7 1/2	1 1/16	20	1 1/4	11 1/4	29 1/2

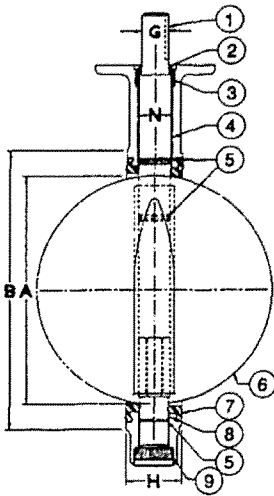


150 psi butterfly valves

Lug Type • Ductile Iron Body • Extended Neck • Geometric Drive
Angle Disc • Molded-in Seat Liner

Sizes 14" thru 24"

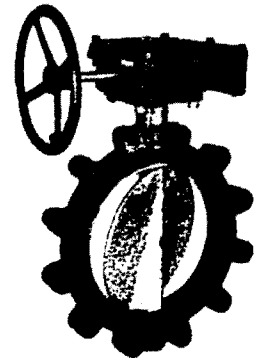
Applicable Specifications: MSS-SP67, MSS-SP25, API-609



MATERIAL LIST

PART	SPECIFICATION
1. Stem	S41600 (Type 416) Stainless Steel
2. Dust Seal	Nitrile (Buna-N) Rubber
3. Collar Bushing	Bronze
4. Upper Bushing	Stainless Steel
5. Stem Seal (3)	Fluorocarbon Rubber (Viton*)
6. Disc	Ductile Iron ASTM A-395 (Plated)
7. Liner	Nitrile (Buna-N) Rubber
8. Lower Bushing	Stainless Steel
9. Plug	Carbon Steel
10. Nameplate	Aluminum
11. Locating Pin	N08020 (Alloy 20) Stainless Steel
12. Body	Ductile Iron, ASTM A-395/A-536

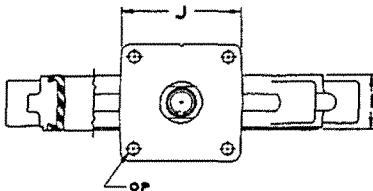
*Trademark E.I. DuPont Co.



LD0111/LD-15B-4D

lug style

With Nitrile Liner
and Ductile Disc

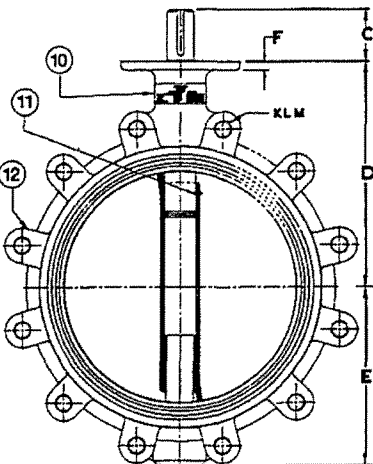


DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	H	Key	Approx. Net Wt.
14	13 1/4	16 1/8	3	13	10 1/4	1/2	1 1/2	3 1/8	3/8	123
16	15 1/8	18 3/8	3	14 1/4	12	1/2	1 3/4	4	3/8	190
18	17 1/8	20 3/8	3	15	13	1/2	1 3/4	4 1/2	3/8	232
20	19 1/8	22 3/8	3	16 1/4	14	1/2	1 3/4	5	3/8	286
24	23 3/8	26 3/8	3	18 1/4	16 1/4	1/2	2 1/4	6	3/8	477

Capscrew Data

Size	I	J	N	O B.C.	P Dia.	K No.	L Dia.	Length	M B.C.
14	3 1/16	6 1/4	1 1/4	7 1/2	1 1/16	12	1 -8 unc	2 1/4	18 1/4
16	4 1/16	6 3/4	2	7 1/2	1 1/8	16	1 -8 unc	3 1/4	21 1/4
18	4 1/16	6 3/4	2	7 1/2	1 1/8	16	1 1/2-7 unc	3 3/4	22 1/4
20	5 1/16	6 3/4	2	7 1/2	1 1/8	20	1 1/2-7 unc	4	25
24	6 1/16	6 3/4	2 1/2	7 1/2	1 1/8	20	1 1/2-7 unc	4 1/4	29 1/2



NIBCO INC., ELKHART, INDIANA

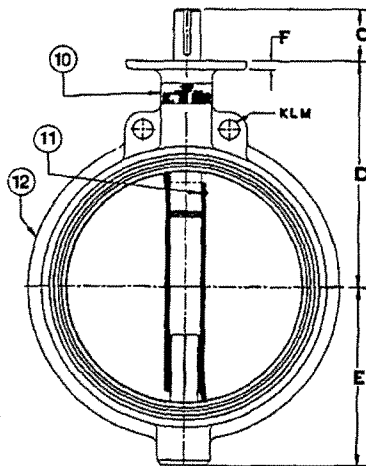
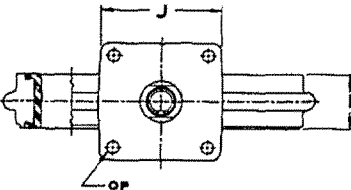
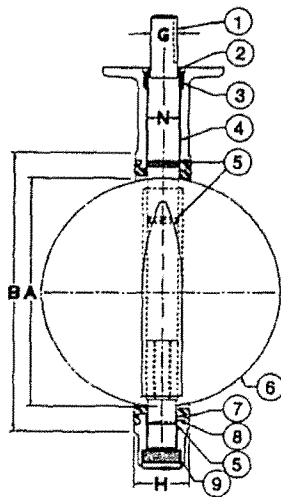


150 psi butterfly valves

Wafer Type • Ductile Iron Body • Extended Neck • Geometric Drive
Angle Disc • Molded-in Seat Liner

Sizes 14" thru 24"

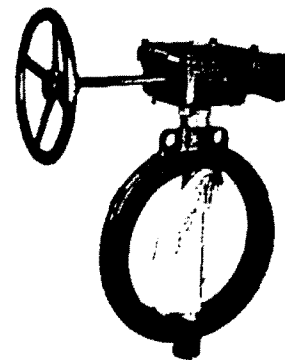
Applicable Specifications: MSS-SP67, MSS-SP25, API-609



MATERIAL LIST

PART	SPECIFICATION
1. Stem	S41600 (Type 416) Stainless Steel
2. Dust Seal	Nitrile (Buna-N) Rubber
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4. Upper Bushing	Stainless Steel
5. Stem Seal (3)	Fluorocarbon Rubber (Viton*)
6. Disc	Ductile Iron ASTM A-395 (Plated)
7. Liner	Nitrile (Buna-N) Rubber
8. Lower Bushing	Stainless Steel
9. Plug	Carbon Steel
10. Nameplate	Aluminum
11. Locating Pin	N08020 (Alloy 20) Stainless Steel
12. Body	Ductile Iron, ASTM A-395/A-536

*Trademark E.I. DuPont Co.



WD0111/WD-15B-4D

wafer style
With Nitrile Liner
and Ductile Disc

DIMENSIONS — WEIGHTS

Size	A	B	C	D	E	F	G	H	Key	Approx. Net Wt.
14	13 1/4	16 1/4	3	13	10 1/4	1/2	1 1/2	3 1/4	3/8	99
16	15 1/4	18 1/4	3	14 1/4	12	1/2	1 3/4	4	3/8	136
18	17 1/4	20 1/4	3	15	13	1/2	1 3/4	4 1/2	3/8	171
20	19 1/4	22 1/4	3	16 1/4	14	1/2	1 3/4	5	3/8	225
24	23 3/8	26 1/4	3	18 1/4	16 1/4	1/2	2 1/4	6	3/8	362

Flange/Stud Data									
Size	I	J	N	O B.C.	P Dia.	K No.	L Dia.	M Length	M B.C.
14	3 1/16	6 3/4	1 1/4	7 1/2	1 1/16	12	1	7 1/2	18 1/4
16	4 1/16	6 3/4	2	7 1/2	1 1/16	16	1	8 1/2	21 1/4
18	4 1/16	6 3/4	2	7 1/2	1 1/16	16	1 1/8	9 1/4	22 3/4
20	5 1/16	6 3/4	2	7 1/2	1 1/16	20	1 1/8	10	25
24	6 1/16	6 3/4	2 1/2	7 1/2	1 1/16	20	1 1/4	11 1/4	29 1/2



options and accessories index

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ball valves options and accessories

Stainless Steel Ball and Stem

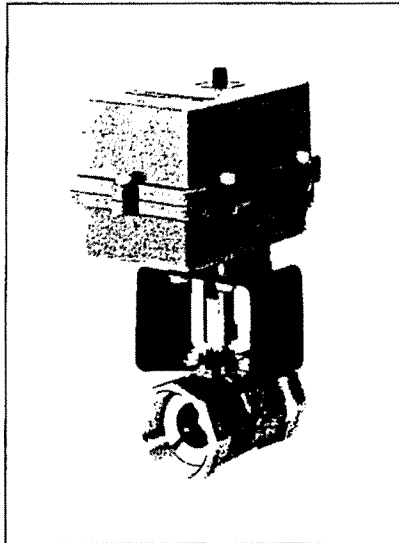
316 stainless steel ball and stem are available on most NIBCO ball valves.

Oxygen Service

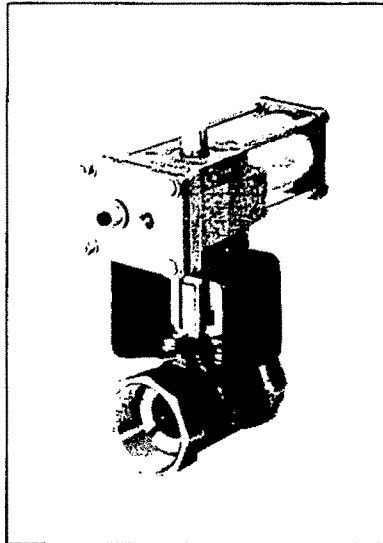
Most NIBCO ball valves are available for oxygen service preparation. Cleaned and packaged in durable heat-sealed plastic bags to avoid contamination. Oxygen cleaned valves are not recommended for pressures exceeding 50 psi.

Electric Actuator/Pneumatic Actuator

Electric or pneumatic actuators can easily be attached to 560, 570, 580, 580BR, 585, 590, and 595 series ball valves.



Electric Actuator



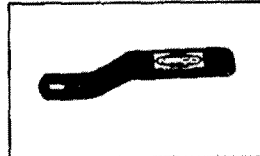
Pneumatic Actuator



ball valves options and accessories

Handle Options

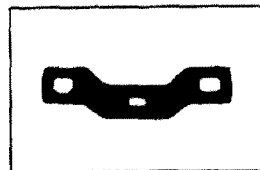
A wide variety of low-carbon steel handles is available to fulfill safety and operational requirements in various processing and manufacturing industries. The lever handle with plastic cover is standard. Other handle options are shown at right. Stainless steel lever handles are available, as an option, also with plastic cover. If an optional handle is desired, please indicate which one when ordering.



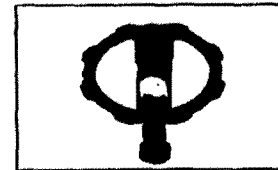
Lever



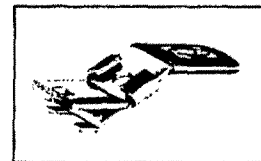
Round



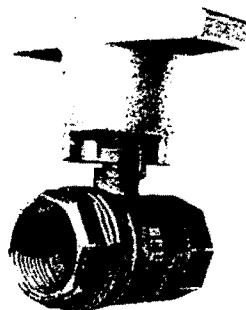
Wing



Round Extended



Locking Handle



Extended Tee Handles

Available for NIBCO ball valves. T-handle provides a full two-inch clearance above piping to allow easy installation of insulation covering.

Open-neck design allows adjustment of stem packing. Memory stop feature allows valve to be closed and reopened to same pre-set position.



Memory Stop

With memory stop the NIBCO ball valve can be opened to the same pre-set position each time. Made of sturdy steel, the memory stop can be supplied with the 580, 585, 590 and 595 series ball valves. Specify by adding -M to figure number, i.e. T-580-M. A kit is available for field installation, which includes pre-tapped handle, screw, and memory plate.

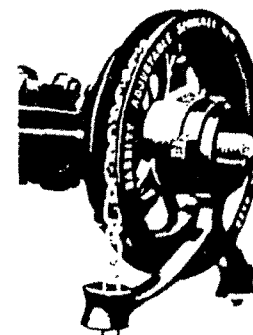


butterfly valve options and accessories

Adjustable Sprocket

Size No.	Dia. of Sprocket Wheel in Inches	Weight in Lbs.	Dia. of Valve Rim Will Fit	Chain Size No.	Chain Weight per 100' in Lbs.
0	4	2	2 to 4	2	10
1	5½	4	4½ to 5½	1/0	17½
1½	7½	5	6 to 7½	1/0	17½
2	9	8	7½ to 9	1/0	17½
2½	12½	15	9½ to 12½	4/0	30
3	15½	21	12½ to 15½	4/0	30
3½	19	25	15½ to 19	4/0	30
4	22	34	19½ to 22	5/0	35

The Babbitt Adjustable Sprocket Rim will provide for remote operation of gate, globe, angle and butterfly valves in high, normally out-of-reach locations. Attaches to valve wheel for instant valve open/close response. Sprocket rim made from cast iron, chain guide is malleable iron. When ordering specify either the sprocket and chain number or the NIBCO valve figure number and size. The chain length must also be specified.



DUCTILE SPROCKET RIM



GUIDE ARM

"HAMMER-BLOW" PLATE

OUTER-RING

Stem Extension

Stem extension for butterfly valves — available in lengths up to 10 feet to provide means of operation at a required distance away from the valve body. Manual or power operated actuators are easily adapted to mounting flange on the extension housing. For stem extension in excess of 10 feet — consult factory.

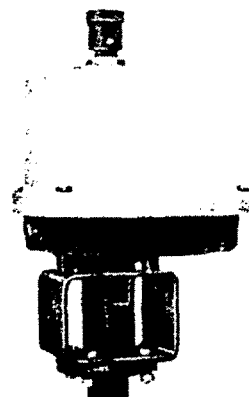


Actuators — Electric & Pneumatic

Electric and pneumatic actuators for on-off control — used whenever automatic or remote control operation is required. Both types are available for the full size of NIBCO Butterfly valves.



Pneumatic — Air to air or spring return designs are available. Options include electric solenoids, switch boxes, positioners, and lighter pressure springs. Air supply of 40 to 120 PSI may be used.



Electric — available in NEMA IV and NEMA VII (explosion proof) enclosures. 120 or 220 volt, single phase, 60 cycle service. Options such as throttling, different cycle times, and special controls are available.



engineering data index

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Pipe Dimensions	70
Specifications	59
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Torque Requirements	68
Resilient Seat Materials	69



specifications

NIBCO Ball and Butterfly valves are designed and manufactured to give maximum performance on recommended service at the lowest possible initial and upkeep cost. They meet or exceed the following specifications developed through years of experience, research and many laboratory tests.

Ball Valves

Federal Specification WW-V-35B

Type: II — Stationary seat ring and floating ball.

Classes: A - Copper Alloy
C - Corrosion Resisting Steel
D - Carbon Steel

Styles:

1. Valve design which permits inspection and repair of seats and seals without removing the valve body from the line.
3. Valve design which requires the valve to be removed from the line for either inspection or repair.

Butterfly Valves

American Petroleum Institute

API 609

Manufacturers Standardization Society
of the Valve and Fitting Industry, Inc.

MSS-SP-67



properties of valve materials

NOMINAL OR MAX. CHEMICAL COMPOSITION											
ALLOY	ASTM NO.	OTHER ALLOY DESIGNATION	AL	CARBON C	CHROME Cr	COBALT Co	COPPER Cu	IRON Fe	LEAD Pb	MANGA- NESE Mn	MOLYB- DENUM Mo
Die Cast Aluminum	B-85	UNS-A03800	87				1.0	1.3		35	
Free Cutting Brass	B-16	UNS-C36000					61.5		3.0		
Navy "M" (Steam Bronze)	B-61	UNS-C92200	.005				88.0	.25	1.5		
Composition Bronze (Ounce Metal)	B-62	UNS-C83600	.005				85.0	.30	5.0		
Copper-Silicon Alloy B	B-98	UNS-C65100					96.0	.8	.05		
Forging Brass	B-124	UNS-C37700					60.0	.3	2.0		
Brass Wire (Red Brass)	B-134	UNS-C23000					85.0	.05	.05		
Leaded Red Brass	B-140	UNS-C31400					89.0	.10	1.9		
Aluminum Bronze (Cast)	B-148	UNS-C95400	11.0				85.0	4.0			
Aluminum Bronze (Rod)	B-150	UNS-C64200	7.0				91.0	.30	.05	.10	
Silicon Red Brass	B-371	UNS-C69400					81.5	.20	.30		
Leaded Semi-Red Brass	B-584	UNS-C84400	.005				81.0	.40	7.0		
Leaded Red Brass		UNS-C84500	.005				78.0	.40	7.0		
Copper Copper (Wrought)	B-75	UNS-C12200					99.9				
Gray Iron	A-126	— Class B									
3% Ni Grey Iron	A-126	— Class B Modified									
Austenitic Grey Iron (Ni Resist)	A-436	— Type 2		3.00	2.0		.5			1.0	
Ductile Iron (Ferritic)	A-395			3.20							
Austenitic Ductile Iron (Ductile) (Ni-Resist)	A-536 A-439-D2C			2.9	.5					2.4	1.0



properties of valve materials

NOMINAL OR MAX. CHEMICAL COMPOSITION								NOMINAL PHYSICAL PROPERTIES			
NICKEL Ni	PHOS P	SILICON Si	SULFUR S	TIN Sn	TITAN- IUM Ti	TUNG- STEN W	ZINC Zn	TENSILE STRENGTH Psi	YIELD STRENGTH Psi	% ELONGATION	HARDNESS
.50		12.0		.15			.50	42,000	19,000	3.5	
							35.5	50,000	20,000	15	75 Rw B
1.0	.05	.005	.05	6.0			4.5	34,000	16,000	22	65 BHN 500 kg
1.0	.05	.005	.08	5.0			5.0	30,000	14,000	20	60 BHN 500 kg
		1.6					1.5	50,000	20,000	11	65 Rw B
							38.0	52,000	20,000	45	80 Rw B
							15.0	56,000			60 Rw B
.7							9.1	50,000	30,000	7	60 Rw B
								75,000	30,000	12	170 BHN 3000 kg
.25		2.0		.20			.50	90,000	45,000	9	80 Rw B
		4.0					14.5	80,000	40,000	15	85 Rw B
	.02	.005	.08	3.0			9.0	29,000	13,000	18	55 BHN 500 kg
1.0	.02	.005	.08	3.0			12.0	29,000	13,000	16	55 BHN 500 kg
	.02							36,000	30,000	25	45 T
	.75		.15					31,000			30,000 kg 195
3.00	.75		.15					31,000			195
20.0		2.0	.12					25,000			118
	.08	2.50						60,000	40,000	18	167
24.0	.08	3.0						58,000	28,000	20	146



properties of valve materials

	ALLOY	ASTM NO.	OTHER ALLOY DESIGNATION	NOMINAL OR MAX. CHEMICAL COMPOSITION							MANGANESE Mn	MOLYBDENUM Mo
				AL	CARBON C	CHROME Cr	COBALT Co	COPPER Cu	IRON Fe	LEAD Pb		
Stainless Steels	Wrot 304	A-167-304	UNS-S30400		.08	19					2	
	Cast 316	A-351-CF8M	UNS-S31600		.08	20					1.5	2.5
	Cast 316	A-743-CF16F			.16	20					1.5	1.5
	Cast 316	A-743-CF8M			.08	20					1.5	2.5
	Wrot 316	A-276-316	UNS-S31600		.08	17					2	2.5
	Cast 410	A-217-CA15			.15	13					1	
	Forged 410	A-182-F6A2			.15	13					1	
	Wrot 410	A-276-410	UNS-S4100		.15	13					1	
	Wrot 416	A-582	UNS-S41600		.15	13					1.25	
	Wrot 420	A-276-420	UNS-S42000		.15	13					1	
	Cast Alloy 20	A-743-CN7M			.07	20		3.5			1.5	2.5
	Wrot Alloy 20	B-473-20C63	UNS-N08020		.07	20		3.5			2	2.5
	Wrot 17-4PH	A-564-630	UNS-S17400		.07	16		3.5			1	
Steels	Forged Carbon Steel	A-105			.35						1	
	Cast Carbon Steel	A-216-WCB			.3						1.1	
	1 1/2 Cast Cr. Moly Steel	A-217-WC6			.2	1.2					7	55
	Cast Cr. Moly Steel	A-217-C5			.2	5					55	55
	Cast Low Carbon Steel	A-352-LCB			.3						1.0	
Trim Steels	Nickel-Low Carbon Steel	A-352-LC2			.25						.65	
	B-7 Alloy Steel Studs	A-193-B7			.4	1					.85	2
	304 S.S. Nuts	A-194-GR8			.08	19					2	
	2-H Alloy Steel Nuts	A-194-2H			.4							
	Reg. Steel Bolting	A-307-Gr. B			.2						.45	
	Steel Bolting	A-449			.4						.6	
	304 S.S. Bolting	A-493-304	UNS-S30400		.08	19					2	
	Eyebolts	A-489			.48						1.0	
	Gland Nuts	A-563-Gr. A			.37	.55		.35			1.0	
	H/W Nuts	A-108-1020	UNS-G10200		.20						.45	
	Swing Bolt Pin	A-108-1212	UNS-G12120		.13						.85	
	Yoke Bushing Caps	A-108-12L14			.15					.25	1.0	
	Seat Ring Base	A-519-1026			.25						.75	
H.F. 1	AWS 5.13 (Trademark Materials like, Stellite 6*, Stoddy 6, and Waflex 6.) *Trademark by Cabot Corp.				1.25	29	55		2.5			
Monel	Cast Monel	QQ-N-288-E		.5	.3			30	3.5		1.5	
	Wrought Monel (K-500)	QQ-N-286-C18		3.0	.1			24	2.0		1.5	



properties of valve materials

NOMINAL OR MAX. CHEMICAL COMPOSITION								NOMINAL PHYSICAL PROPERTIES			
NICKEL Ni	PHOS P	SILICON Si	SULFUR S	TIN Sn	TITAN- IUM Ti	TUNG- STEN W	ZINC Zn	TENSILE STRENGTH Psi	YIELD STRENGTH Psi	% ELONGATION	HARDNESS
9	.045	1.0	.03					75,000	30,000	40	202 BHN
11	.04	2.0	.04					70,000	30,000	25	
11	.04	2.0	.04					70,000	30,000	30	
12	.045	1.0	.03					75,000	30,000	30	
12	.045	1.0	.03					75,000	30,000	30	
1	.04	1.5	.04					90,000	65,000	18	
.5	.04	1.0	.03					85,000	55,000	18	200/225 BHN
	.04	1.0	.03					100,000	80,000	15	
	.06	1.0	.15					114,000	95,000	17	235 BHN
	.04	1.0	.03								250 BHN
28	.04	1.5	.04					62,000	25,000	35	
35	.045	1.0	.035					85,000	35,000	30	
4	.04	1.0	.03					115,000	75,000	18	255 BHN
	.04	.035	.05					70,000	36,000	22	187 BHN
	.04	.6	.045					70,000	36,000	22	
	.04	.06	.045								
	.04	.75	.045								
2.5	.04	.6	.045					65,000	35,000	24	
	.04	.6	.045					70,000	40,000	24	
9	.035	.25	.04					125,000	105,000	16	126/300 BHN
	.045	1.0	.03								
	.04		.05								250/300 BHN
	.04		.05					100,000		18	121/212 BHN
9	.04	1.0	.05					120,000	92,000	14	
	.045		.03					90,000			
.35	.04	.25	.05					75,000	30,000	30	
	.04	.2	.05								
	.04		.05								120/300 BHN
	.10		.20								
	.07		.3								
	.04		.05					55,000	35,000	25	
3						5		105,000		10	350 BHN
60		1.5						65,000	32,500	25	125/150 BHN
67		.5	.01		.5			135,000	95,000	20	255 BHN



flow data

Cv Values for Valves

		VALVE SIZE															
Fig. Nos.		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8
GATES																	
S & T-22	Cv	.5	2	4.9	9.1	22	40	65	95	175							
S & T-180	Cv	—	5.6	10.7	17.6	32	50	95	130	220							
S & T-111-113-131-133 134-135-136-174-176	Cv	—	5.6	10.7	17.6	32	54	97	135	230	337	536	710	960	1,525	2,250	
(T & F-617-619-667-669 607-609) (CS-102-103 302-303-602-603) (F-637-639-DI-102)	Cv									215	335	510	710	945	1,525	2,250	
GLOBES																	
S & T-211 (BWY)-235Y 275Y	Cv	.61	1.16	2.21	3.64	6.65	11.1	20	28	48	70	111	—	198			
T-275-B	Cv	—	1.16	2.21	3.64	6.65	11.1	20	28	48	70	111					
F-718-(CS-132-133 332-333-632-633 (738)	Cv									45	70	105	—	195	315	465	
CHECKS																	
S & T-413-433-473 (Swing)	Cv	—	1.3	2.5	4.8	14.3	24	43	60	102	150	238	315	465	675	1,000	
S & T-480 (Poppet)	Cv	—	—	3.70	6.86	16.3	30	49	72	130							
F-908 (Swing)	Cv									150	243	356	—	665	1,073	1,584	
T & F-918-968-938 (Swing)	Cv									137	221	327	—	605	975	1,440	
W-900-W (Water)	Cv												—	500	806	1,200	
W-F-910-960 (Poppet)	Cv											330	—	595	950	1,400	
BALL																	
T-560 (Br-CS-SS)	Cv	—	4.0	4.0	4.9	11.7	22	35	52	95							
T-570	Cv	—	—	—	5.2	12.9	24	37	58	97							
F & S & T-580-590	Cv	—	—	—	5.84	13.9	27	44	64	100	183	390					
T & S-580-BR	Cv	—	4.3	6.2	9.1	21	32	45	68	110							
K & S & T-585-595	Cv	—	5.9	11.4	18.7	34	57	103	143	245	310						
BUTTERFLY																	
LD & WD	Cv									135	225	340	—	660	1,080	1,440	
W & L (D-15-E-4D)	Cv																

Liquid Flow:

$$Q = C_v \sqrt{\frac{\Delta P}{S}}$$

where . . . Q = flow rate (gallons per minute)
 ΔP = pressure drop across valve (psi)
 S = specific gravity of media

This equation is good for turbulent flow and for liquids with viscosities near that of water.
 (Cv is defined as the flow in GPM that a valve will carry with a pressure drop of 1.0 psi when the media is water at 60°F.)



Gas Flow:

$$Q = 1360 C_v \sqrt{\frac{\Delta P \times P_1}{S T}}$$

where . . . Q = gas flow (SCFH—std. cu. ft/hr)
 S = specific gravity of gas (air = 1.0)
 T = temp—degrees Rankine (°F + 460)
 ΔP = pressure drop across valve (psi)
 P_1 = upstream pressure (psia) absolute

NOTE: ΔP must be less than .5 P_1 . (Flow is critical when ΔP is greater than .5 P_1 .)

(THROTTLING FACTORS)

For throttling use with disc partially open. Multiply Cv by factor.
 Note: Gate valves are not throttled.

Percent Open

8	10	12	14	16	18	20	24	0	10	20	30	40	50	60	70	80	90	100
4,150	6,700	9,925	13,800	18,375	23,600	29,600	43,570	0	.35	.65	.90	.93	.96	.98	.99	1.00	1.00	1.00
								0	.03	.035	.06	.1	.16	.24	.32	.47	.68	1.00
860	1,390							0	.35	.65	.90	.93	.96	.98	.99	1.00	1.00	1.00

WARNING

The Fluid Flow factors contained herein are calculated values.

They are therefore approximations and cannot be used for highly critical flow or pressure drop calculations.

For very precise flow measurements, tests must be conducted on any valve mentioned within this catalog.

Ball & Butterfly Valves Degrees of Open

2,600	4,175	6,150	8,575	11,400	0	10	20	30	40	45	50	60	70	80	90			
					0	.01	.05	.16	.30	.37	.45	.58	.71	.87	1.00			
					0	.01	.05	.16	.30	.37	.45	.58	.71	.87	1.00			
					0	.01	.05	.16	.30	.37	.45	.58	.71	.87	1.00			
50	5,300	7,969			0	.03	.06	.12	.18	.22	.27	.40	.56	.80	1.00			
			9,500	13,000	18,000	22,500	32,600	0	.03	.06	.12	.18	.22	.27	.40	.56	.80	1.00



flange dimensions

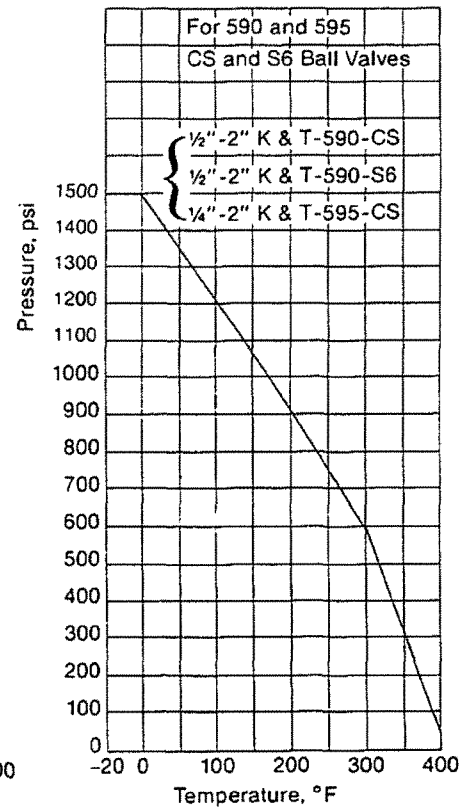
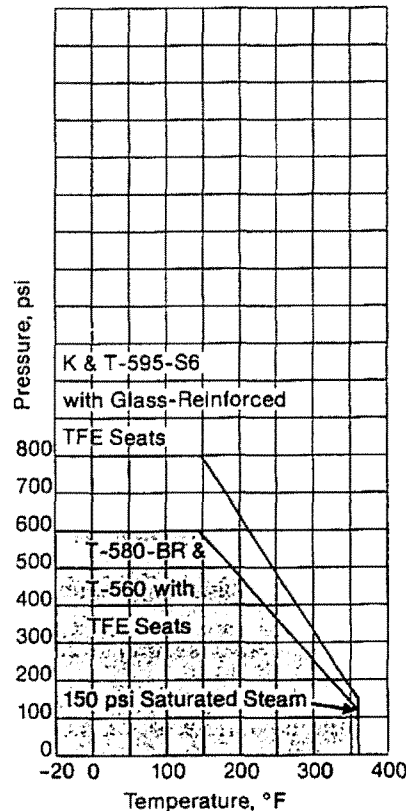
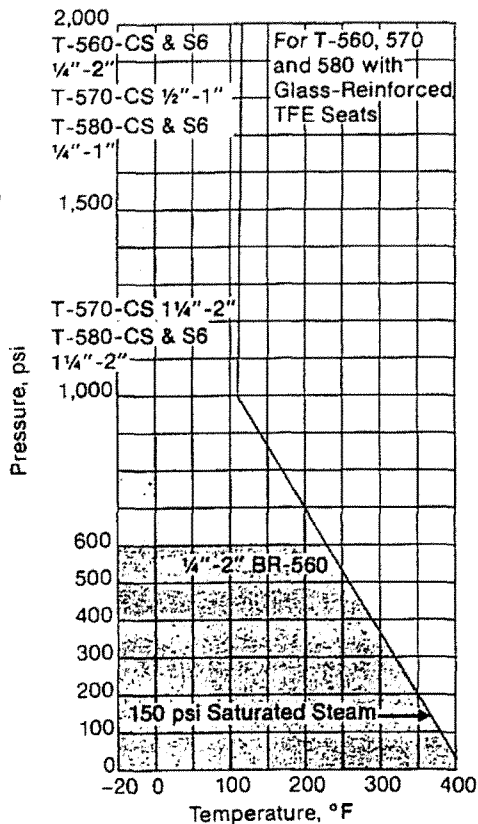
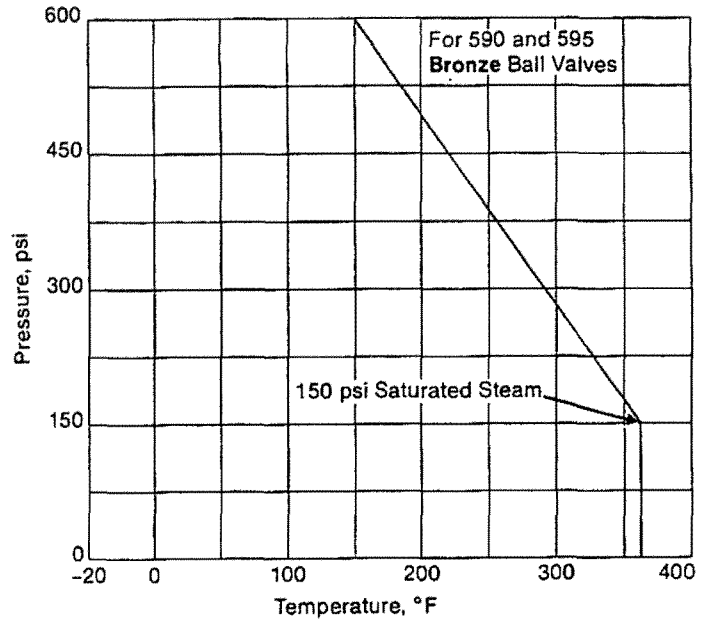
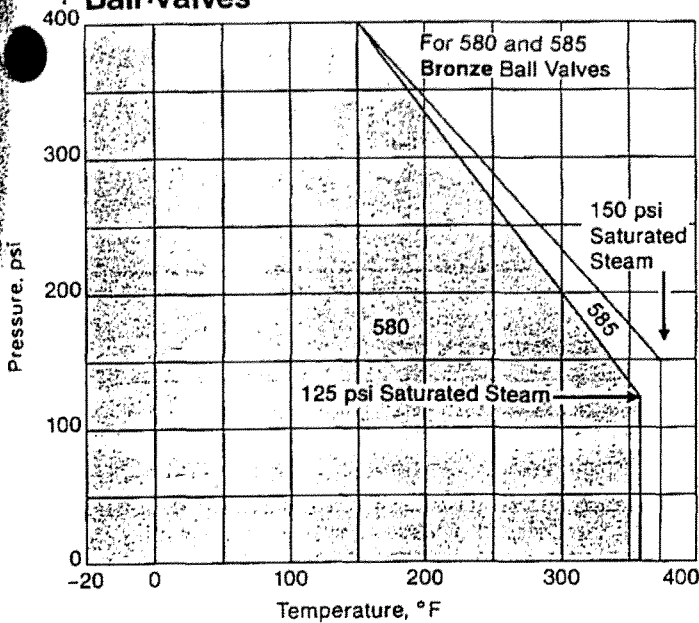
Class 150 Flanges — ANSI-B16.5
 $\frac{1}{16}$ " Raised Face
Mate with 125 lb.
Cast Iron Flanges — ANSI-B16.1

DIMENSIONS IN INCHES

Size	Diameter of Flange	Thickness of Flange	Diameter of Bolt Circle	Bolt Hole Diameter	Number of Bolts	Diameter of Bolts	Length of Stud Bolts
2	6	$\frac{5}{8}$	$4\frac{3}{4}$	$\frac{3}{4}$	4	$\frac{5}{8}$	$3\frac{3}{4}$
2½	7	$\frac{11}{16}$	$5\frac{1}{2}$	$\frac{3}{4}$	4	$\frac{5}{8}$	$3\frac{1}{2}$
3	$7\frac{1}{2}$	$\frac{3}{4}$	6	$\frac{3}{4}$	4	$\frac{5}{8}$	$3\frac{3}{4}$
3½	$8\frac{1}{2}$	$\frac{13}{16}$	7	$\frac{3}{4}$	8	$\frac{5}{8}$	$3\frac{3}{4}$
4	9	$\frac{15}{16}$	$7\frac{1}{2}$	$\frac{3}{4}$	8	$\frac{5}{8}$	$3\frac{3}{4}$
5	10	$\frac{15}{16}$	$8\frac{1}{2}$	$\frac{7}{8}$	8	$\frac{3}{4}$	4
6	11	1	$9\frac{1}{2}$	$\frac{7}{8}$	8	$\frac{3}{4}$	4
8	$13\frac{1}{2}$	$1\frac{1}{8}$	$11\frac{1}{4}$	$\frac{7}{8}$	8	$\frac{3}{4}$	$4\frac{1}{4}$
10	16	$1\frac{3}{8}$	$14\frac{1}{4}$	1	12	$\frac{7}{8}$	$4\frac{3}{4}$
12	19	$1\frac{1}{4}$	17	1	12	$\frac{7}{8}$	$4\frac{3}{4}$
14	21	$1\frac{3}{8}$	$18\frac{3}{4}$	$1\frac{1}{8}$	12	1	$5\frac{1}{4}$
16	$23\frac{1}{2}$	$1\frac{7}{8}$	$21\frac{1}{4}$	$1\frac{1}{8}$	16	1	$5\frac{1}{2}$
18	25	$1\frac{9}{16}$	$22\frac{3}{4}$	$1\frac{1}{4}$	16	$1\frac{1}{8}$	6
20	$27\frac{1}{2}$	$1\frac{11}{16}$	25	$1\frac{1}{4}$	20	$1\frac{1}{8}$	$6\frac{1}{4}$
24	32	$1\frac{7}{8}$	$29\frac{1}{2}$	$1\frac{3}{8}$	20	$1\frac{1}{4}$	7

pressure/temperature ratings

Ball Valves



	TEMPERATURE			
	-20 to 100°F	200°F	300°F	400°F
F-590-S6	275	240	215	195
F-590-CS	285	260	230	200

LINER TEMPERATURE RATINGS

Seat Material	Temperature	Seat Material	Temperature
EPDM	-20°F to + 225°F	Neoprene	-20°F to + 180°F
Nitrile (Buna-N)	-20°F to + 180°F	Hypalon	-20°F to + 200°F
Fluorocarbon (Viton)	-20°F to + 300°F		

Butterfly Valves



butterfly valve technical information

BUTTERFLY VALVE TORQUE REQUIREMENTS

OPERATING TORQUE / INCH-POUNDS

Size	50 PSI		100 PSI		150 PSI		200 PSI		250 PSI	
	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet
2"	225	175	250	190	290	225	295	230	300	235
2½"	280	215	315	240	355	275	375	285	395	300
3"	360	275	390	300	435	350	440	370	450	390
4"	550	420	600	470	675	525	730	565	780	600
5"	850	520	900	570	950	620	975	645	1,000	670
6"	1,000	800	1,100	900	1,300	1,000	1,450	1,100	1,600	1,200
8"	2,400	1,400	2,600	1,600	2,800	1,800	2,900	1,900	3,000	2,000
10"	4,100	2,450	4,400	2,750	4,700	3,050	4,850	3,200	5,000	3,350
12"	5,500	3,200	6,000	3,700	6,500	4,200	6,750	4,450	7,000	4,700
14"	7,600	4,600	8,400	5,400	9,200	6,200	9,600	6,600	10,000	7,000
16"	11,400	7,400	12,600	8,600	13,800	9,800	14,400	10,400	15,000	11,000
18"	14,000	9,000	16,000	11,000	18,000	13,000	19,000	14,000	20,000	15,000
20"	17,500	11,000	20,000	13,500	22,500	16,000	23,750	17,250	25,000	18,500
24"	24,000	15,000	28,000	19,000	32,000	23,000	34,000	25,000	36,000	27,000

Torque is the force that produces rotation when operating a butterfly valve. The rotary force required to operate a butterfly valve is affected by several factors such as length of time in service, frequency of operation, type of liner material and service conditions. All these factors combine to make up three main classes of torque—seating or unseating torque, bearing friction torque, and dynamic torque, which comprise what is known as shut-off or break-away torque. The values given above are a total of seating or unseating torque and bearing friction torque at a given pressure differential. In sizing an actuator, these values are used since they are the highest torques required to operate the valve under normal conditions. A safety factor has been added to these values.

* Before specifying lever-lock operation on these sizes, ensure that the valve can be operated with reasonable effort. Butterfly valves, sizes 8" and larger, when used on liquids, show a marked increase in dynamic torque which tends to close the valve. For this reason, gear operated or actuated valves are recommended.



butterfly valve technical information

Resilient Seat Materials

EPDM — EPDM is a terpolymer elastomer made from ethylene-propylene diene monomer. EPDM has good abrasion and tear resistance and offers excellent chemical resistance to a variety of acids and alkalines. It is susceptible to attack by oils and is not recommended for applications involving petroleum oils, strong acids, or strong alkalines. It has exceptionally good weather aging and ozone resistance. It is fairly good in ketones and alcohols.

BUNA-N (NITRILE) — BUNA-N is a general purpose oil resistant polymer known as nitrile rubber. Nitrile is a copolymer of butadiene and acrylonitrile. BUNA-N has good solvent, oil, water and hydraulic fluid resistance. It displays good compression set, abrasion resistance and tensile strength. BUNA-N should not be used in highly polar solvents such as acetone and methyl ethyl ketone, nor should it be used in chlorinated hydrocarbons, ozone or nitro hydrocarbons.

Fluorocarbon (VITON*) — Fluorocarbon elastomers are inherently compatible with a broad spectrum of chemicals. Because of this extensive chemical compatibility which spans considerable concentration and temperature ranges, fluorocarbon elastomers have gained wide acceptance as a material of construction for butterfly valve O-rings and seats. Fluorocarbon can be used in most applications involving mineral acids, salt solutions, chlorinated hydrocarbons and petroleum oils. It is particularly good in hydrocarbon service.

Fluorocarbon (VITON*) is not suitable for steam service.

NEOPRENE — Neoprenes were one of the first synthetic rubbers developed. It is an all purpose polymer with many desirable characteristics. Neoprene features high resiliency with low compression set, flame resistance, animal and vegetable oil resistance. It is principally recommended for food and beverage service. Generally, neoprene is not recommended and is attacked by strong oxidizing acids, most chlorinated solvents, esters, ketones, aromatic hydrocarbons and hydraulic fluids. Neoprene is not generally affected by moderate chemicals, fats, greases, and many oils and solvents.

HYPALON* — Hypalon has very good resistance to oxidation, ozone and good flame resistance. It is similar to neoprene except with improved acid resistance where it will resist such oxidizing acids as nitric, hydrofluoric, and sulfuric acid. Abrasion resistance of neoprene is excellent, about the equivalent of the nitriles. Oil and solvent resistance is somewhat between that of neoprene and nitrile. Salts have little if any effect on hypalon. Hypalon is not recommended for exposure to concentrated oxidizing acids, esters, ketones, chlorinated, aromatic and nitro hydrocarbons. Not to be used in steam service.

*Trademark of E. I. DuPont Co.



pipe dimensions

TABLE 5
Pipe Dimensions in Inches

Dimensions shown conform to ANSI B36.10 (Wrought Steel and Wrought Iron Pipe).

Nominal Pipe Size	Outside Diam.	Wall I.D.	Nominal Wall Thickness and Inside Diameter													Dbl. Ex. Strong
			Schedule 10	Schedule 20	Schedule 30	Standard Weight	Schedule 40	Schedule 60	Extra Strong	Schedule 80	Schedule 100	Schedule 120	Schedule 140	Schedule 160		
1/8	.405	Wall	...	...	...	.068	.068	...	.095	.095	...	...	...	...	...	
		I.D.	...	...	...	.269	.269	...	.215	.215	...	...	...	...	...	
1/4	.540	Wall	...	...	...	.088	.088	...	.119	.119	...	...	...	...	...	
		I.D.	...	...	...	.364	.364	...	.302	.302	...	...	...	...	...	
3/8	.675	Wall	...	...	...	.091	.091	...	.126	.126	...	...	...	...	...	
		I.D.	...	...	...	.493	.493	...	.423	.423	...	...	...	...	...	
1/2	.840	Wall	...	...	...	.109	.109	...	.147	.147	...	...	...	.187	.294	
		I.D.	...	...	...	.622	.622	...	.546	.546	...	...	...	.466	.252	
3/4	1.050	Wall	...	...	...	.113	.113	...	.154	.154	...	...	...	.218	.308	
		I.D.	...	...	...	.824	.824	...	.742	.742	...	...	...	.614	.434	
1	1.315	Wall	...	...	...	.133	.133	...	.179	.179	...	...	...	.250	.358	
		I.D.	...	...	...	1.049	1.049	...	.957	.957	...	...	...	.815	.599	
1 1/4	1.660	Wall	...	...	...	.140	.140	...	.191	.191	...	...	...	.250	.382	
		I.D.	...	...	...	1.380	1.380	...	1.278	1.278	...	...	...	1.160	.896	
1 1/2	1.900	Wall	...	...	...	.145	.145	...	.200	.200	...	...	...	.281	.400	
		I.D.	...	...	...	1.610	1.610	...	1.500	1.500	...	...	...	1.338	1.100	
2	2.375	Wall	...	...	...	.154	.154	...	.218	.218	...	...	...	.343	.436	
		I.D.	...	...	...	2.067	2.067	...	1.939	1.939	...	...	...	1.689	1.503	
2 1/2	2.875	Wall	...	...	...	.203	.203	...	.276	.276	...	...	...	.375	.552	
		I.D.	...	...	...	2.469	2.469	...	2.323	2.323	...	...	...	2.125	1.771	
3	3.500	Wall	...	...	...	.216	.216	...	.300	.300	...	...	...	.438	.600	
		I.D.	...	...	...	3.068	3.068	...	2.900	2.900	...	...	...	2.624	2.300	
3 1/2	4.000	Wall	...	...	...	.226	.226	...	.318	.318	...	...	...	...	...	
		I.D.	...	...	...	3.548	3.548	...	3.364	3.364	...	...	...	...	...	
4	4.500	Wall	...	...	...	.237	.237	...	.337	.337	...	.438	...	.531	.674	
		I.D.	...	...	...	4.026	4.026	...	3.826	3.826	...	3.624	...	3.438	3.152	
5	5.563	Wall	...	...	...	.258	.258	...	.375	.375	...	.500	...	.625	.750	
		I.D.	...	...	...	5.047	5.047	...	4.813	4.813	...	4.563	...	4.313	4.063	
6	6.625	Wall	...	...	...	.280	.280	...	.432	.432	...	.562	...	.718	.864	
		I.D.	...	...	...	6.065	6.065	...	5.761	5.761	...	5.501	...	5.189	4.897	
8	8.625	Wall	...	.250	.277	.322	.322	.406	.500	.500	.593	.718	.812	.906	.875	
		I.D.	...	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.439	7.189	7.001	6.813	6.875	
10	10.750	Wall	...	.250	.307	.365	.365	.500	.500	.593	.718	.843	1.000	1.125	...	
		I.D.	...	10.250	10.136	10.020	10.020	9.750	9.750	9.564	9.314	9.064	8.750	8.500	...	
12	12.750	Wall	...	.250	.330	.375	.406	.562	.500	.687	.843	1.000	1.125	1.312	...	
		I.D.	...	12.250	12.090	12.000	11.938	11.626	11.750	11.376	11.064	10.750	10.500	10.126	...	
14	14.000	Wall	.250	.312	.375	.375	.438	.593	.500	.750	.937	1.093	1.250	1.406	...	
		I.D.	13.500	13.375	13.250	13.250	13.124	12.814	13.000	12.500	12.126	11.814	11.500	11.188	...	
16	16.000	Wall	.250	.312	.375	.375	.500	.656	.500	.843	1.031	1.218	1.438	1.593	...	
		I.D.	15.500	15.375	15.250	15.250	15.000	14.688	15.000	14.314	13.938	13.564	13.124	12.814	...	
18	18.000	Wall	.250	.312	.438	.375	.562	.750	.500	.937	1.156	1.375	1.562	1.781	...	
		I.D.	17.500	17.375	17.124	17.250	16.876	16.500	17.000	16.126	15.688	15.250	14.876	14.438	...	
20	20.000	Wall	.250	.375	.500	.375	.593	.812	.500	1.031	1.281	1.500	1.750	1.968	...	
		I.D.	19.500	19.250	19.000	19.250	18.814	18.376	19.000	17.938	17.438	17.000	16.500	16.064	...	
24	24.000	Wall	.250	.375	.562	.375	.687	.968	.500	1.218	1.531	1.812	2.062	2.343	...	
		I.D.	23.500	23.250	22.875	23.250	22.626	22.064	23.000	21.564	20.938	20.376	19.876	19.314	...	

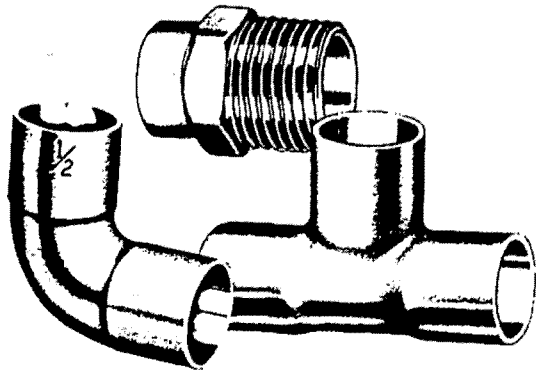
All dimensions given in inches.

The wall thicknesses shown represent nominal or average wall dimensions which are subject to a $\pm 12\frac{1}{2}\%$ mill tolerance.

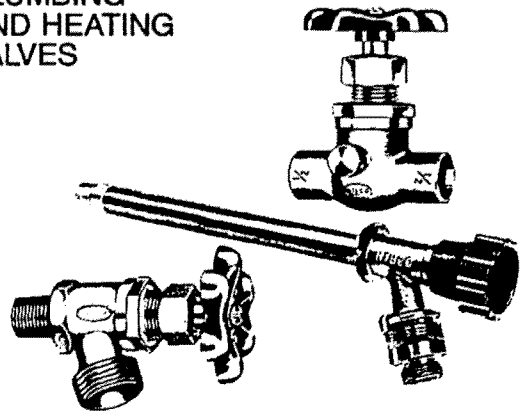
NIBCO INC., ELKHART, INDIANA

NIBCO THE LEADER IN PIPING PRODUCTS

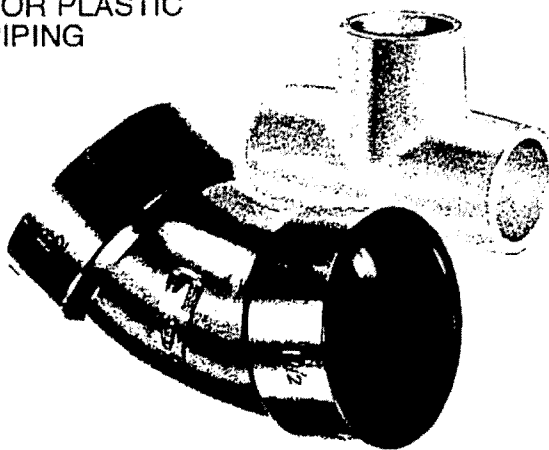
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FOR COPPER
PIPING



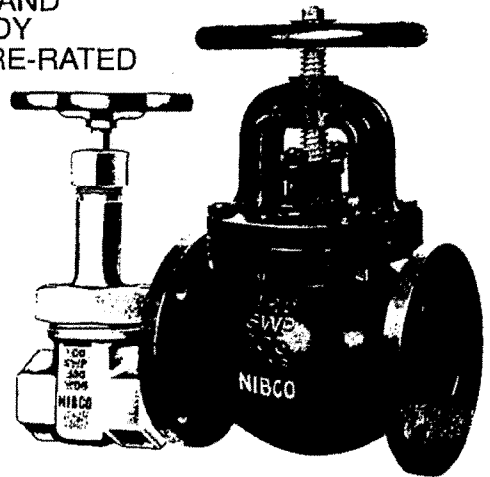
PLUMBING
AND HEATING
VALVES



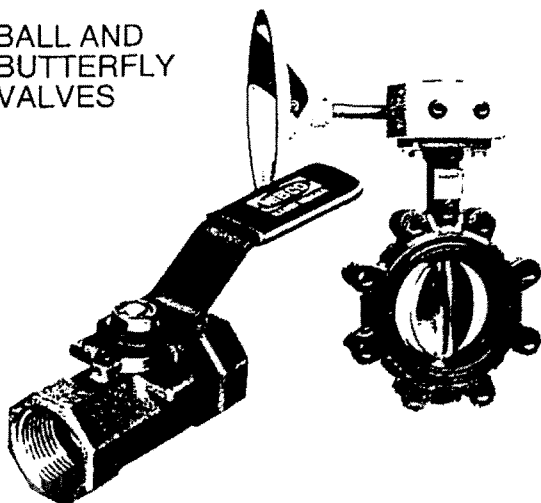
FITTINGS
FOR PLASTIC
PIPING



BRONZE AND
IRON BODY
PRESSURE-RATED
VALVES



BALL AND
BUTTERFLY
VALVES



STEEL AND
ALLOY
VALVES

