

Series 1100 3 Piece Ball Valve



TBV™

SERIES 1100



Along with all of the features and versatility of a three-piece valve, the TBV 1100 Series valve incorporates a raised face on the seat-bearing side of the end plate which assures positive alignment of the components and eliminates radial piping stresses. The body seal is 100% encapsulated, to eliminate "cold flow" of virgin PTFE body seals. Rugged construction features a heavy-duty handle and stop plate with a variety of bolting material options. Available in a wide variety of materials with NPT, socket-weld, and butt-weld end connections. Other special end connections available upon request.

- 3 PIECE BALL VALVE
- 1/4 in. - 10 in. SIZES
- VARIETY OF BODY MATERIALS AND END CONNECTIONS

TOP AND SIDE VIEWS SERIES 1100 3 in.

MAJOR DIMENSIONS

VALVE SIZE (in.)	PORT	A1	A2	A3	B1	B2	B3	C	D	E
1/2	0.50*	3.14	3.08	3.08	1.57	1.54	1.54	2.50	2.93	1.81
3/4	0.50*	3.14	3.08	3.08	1.57	1.54	1.54	2.50	2.93	1.81
1	0.81	3.75	3.69	3.67	1.88	1.85	1.84	3.25	3.32	2.29
1 1/2	1.25	4.76	4.70	4.70	2.38	2.35	2.35	4.12	4.20	2.99
2	1.50	5.06	4.92	5.00	2.53	2.46	2.50	4.36	4.36	3.18
3	2.50	8.25	8.25	8.25	4.13	4.13	4.13	7.25	5.97	5.91

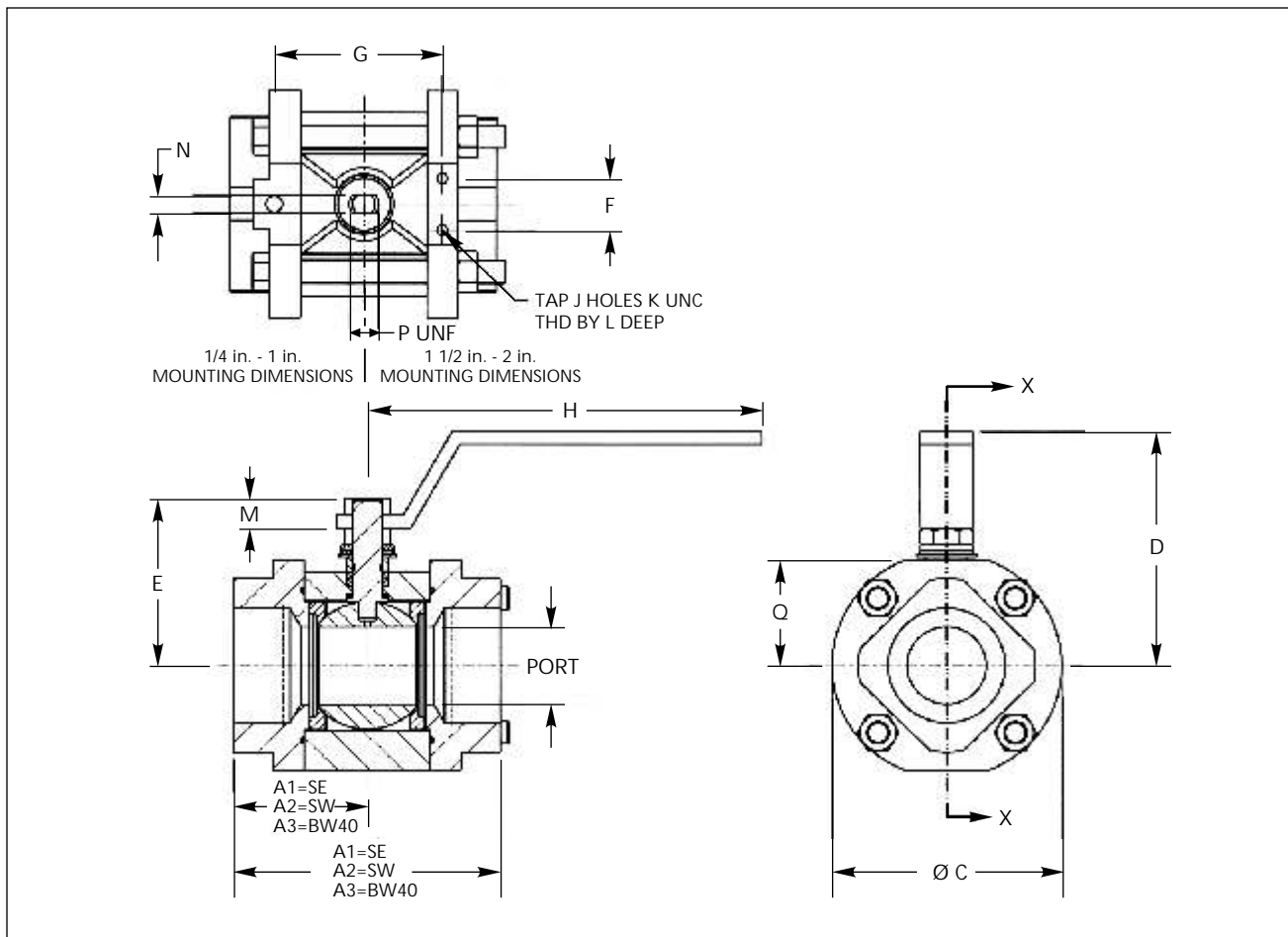
MAJOR DIMENSIONS

VALVE SIZE (in.)	F	G	H	J	K UNC	L	M	N	P UNF	Q	WEIGHT 316 SS
1/2	-	1.77	5.50	2	5/16-18	0.30	0.30	0.230	3/8-24	1.09	2 lbs.
3/4	-	1.77	5.50	2	5/16-18	0.30	0.30	0.230	3/8-24	1.09	2 lbs.
1	-	2.01	5.50	2	5/16-18	0.40	0.48	0.296	7/16-20	1.56	5 lbs.
1 1/2	1.00	2.68	7.55	4	1/4-20	0.50	0.65	0.340	9/16-18	1.90	12 lbs.
2	1.00	2.98	7.55	4	1/4-20	0.50	0.71	0.340	9/16-18	2.03	12 lbs.
3	-	-	18.50	-	-	-	-	-	-	-	-

* 1/2 inch valves are full port as standard.

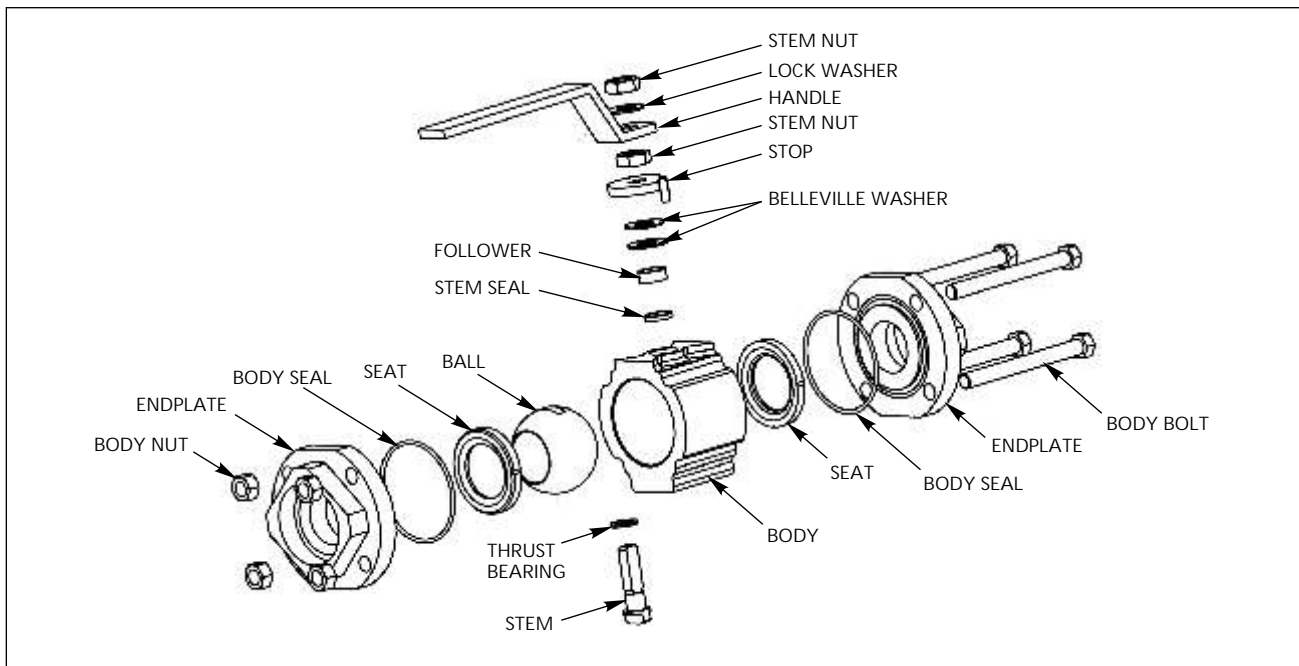
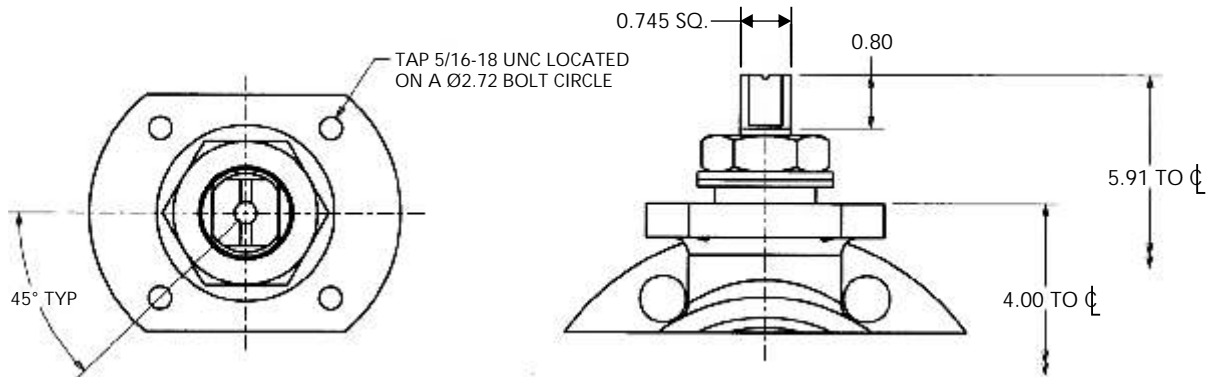
Series 1100 are available to 10 inch.

Please consult the factory for dimensions above 3 inch.



Oval safety handles available to 1 1/2 inch sizes.
 Full port sizes are available.
 Illustration applies to standard cast products only.

TOP AND SIDE VIEWS SERIES 1100 3 in.



BILL OF MATERIALS

ITEM	PART	QUANTITY	DESCRIPTION
1	Body	1	See Note 1 Page 4
2	End Plate	2	
3	Ball	1	
4	Stem	1	
5	Follower	1	See Note 2 Page 4
6*	Seat	2	
7*	Stem Seal	1	As specified
8*	Body Seal	2	
9	Stop	1	300 Stainless Steel
10	Handle	1	300 Stainless Steel
11*	Thrust Bearing	1	Filled PTFE
12	Stem Nut	2	300 Stainless Steel
13	Body Nut	2	300 Stainless Steel / Carbon Steel others available
14	Body Bolt	4	
15	Lock Washer	1	400 Stainless Steel
16	Belleville Washer	2	17-7 Stainless Steel

*Recommended spares available as kits.

SERIES 1100

FEATURES

BENEFITS

Raised face end plates	Positive alignment, elimination of radial stresses.
Totally encapsulated body seals	Elimination of cold flow. High performance over wide temperature and pressure range.
Variety of seating materials	Wide range of process media and service conditions.
Flexible lip seat design	Low operating torque.
Integral actuation bosses (optional)	Ease of automation.
Live loaded stem	Pressure and temperature recovery, stem seal integrity with a low operating torque.
Blow out proof stem	Operator safety.
Heavy duty handle and stop	Ease of operation, long life.
Fully traceable materials	Certification of all pressure retaining parts available for stringent specification requirements.
Metal and graphite seats	Available for abrasive services and temperatures to 1000°F. Consult factory for recommendation.
Modular design	Diverse valve configurations to meet a variety of piping requirements.

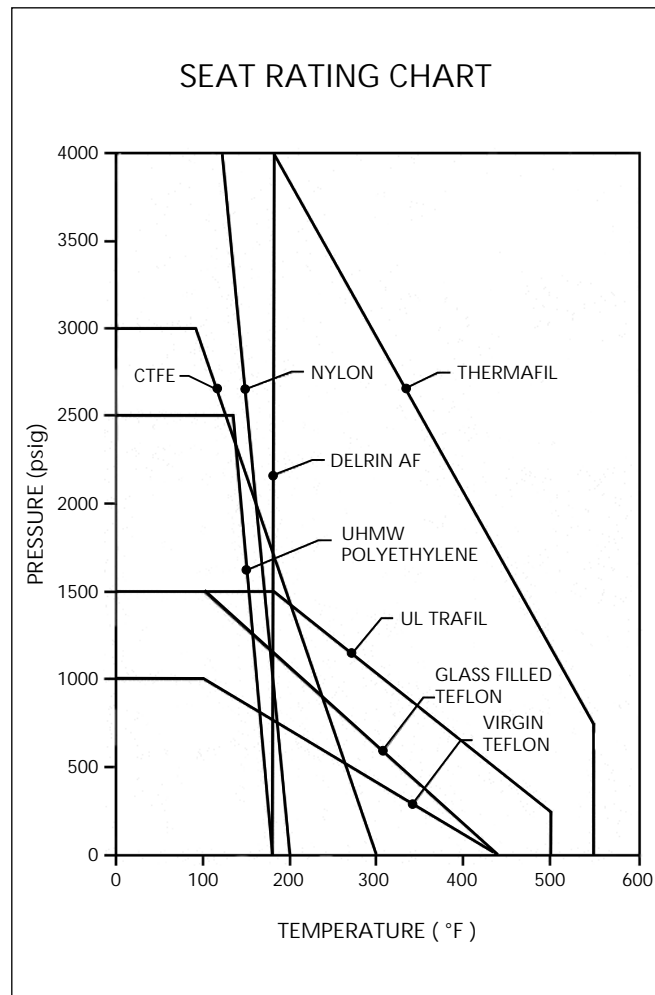
In addition to the options and features shown, TBV specializes in designing and manufacturing ball valves for a wide variety of special applications. TBV is known for its ability to solve difficult applications with severe service valves that perform where others have failed. Extended bonnets are available to meet stringent fugitive emission requirements. Our patented bellows sealed ball valve assures zero leakage, when absolutely no external leakage is tolerable. A wide variety of special materials are also available for severe or exotic services. Special material testing, such as corrosion evaluation, is available. Complete material certification packages can be provided to meet extensive specification requirements. A wide variety of other product configurations and sizes, up to 10 in. line size, are available on application. Consult TBV's extensive library of designs that have proven to give outstanding performance in the most severe services.

BODY RATING

MATERIAL	COLD WORKING PRESSURE
Carbon Steel	1480 psig
Stainless Steel	1440 psig
Alloy 20	1200 psig
Monel	1200 psig
Hastelloy C	1500 psig
Titanium	1230 psig
Nickel	720 psig

Above ratings are based on ASME/ANSI Class 600 limits and are for standard cast products.

Important: The valve rating is the lesser of the body rating and the seat rating. TBV manufactures an extensive line of high pressure valves capable of the full seat ratings shown. Consult factory for details.



SERIES 1100 ENGINEERING DATA

C_v VALUES AND MAXIMUM TORQUE (in.- lbs.)

SIZE (in.)	C _v	SEAT T	SEAT G	SEAT U	SEAT F	SEAT P	SEAT D	SEAT K	SEAT M	SEAT H
1/2	8	30	55	50	65	60	70	120	90	105
3/4	12	45	75	70	91	84	98	150	126	105
1	33	80	130	120	156	144	168	300	216	180
1 1/2	85	280	450	350	455	420	490	450	630	525
2	133	425	640	600	780	720	840	732	1080	900
3	370	1050	2280	1900	2470	2280	2660	1620	3420	2850

NOTES FOR TORQUE INFORMATION

- All torque values are based on maximum rated pressure, clean service, and frequent operation (more than once per month). At reduced pressures, these values will drop significantly. For any extenuating circumstances, consult factory for guidance.
- All values represent torque required to both "break" the valve open and re-close the valve. For spring return actuators, this means that the "end of spring torque" must exceed the above values by the appropriate safety margin.
- The recommended safety margin for sizing purposes is a minimum of 25%.
- For full port valves, use torque values for next size larger valve.
- For valves with torques above 1440 inch lbs., gear operator or actuation should be considered.

MATERIALS AND CONSTRUCTION NOTES

1. Standard materials for these components include Titanium, Monel, Hastelloy, Alloy 20, 316L and Nickel. Other materials are available on request.
2. Standard soft seat materials include PTFE (Virgin and Filled), Thermafil (PEEK), Delrin, CTFE, and UHMW Polyethylene. Other seat materials are available including metal seats. Consult factory.
3. Lubrication: A non-silicone fluorocarbon grease is normally applied to seats and seals. An anti-galling substance is applied to external threads where necessary. No other lubrication is used or recommended.
4. Optional static grounding springs can be supplied between stem and body.
5. Fugitive Emission Bonnets are available. Please consult the factory or see our FE Bonnet or Bellows Seal brochures for more information.

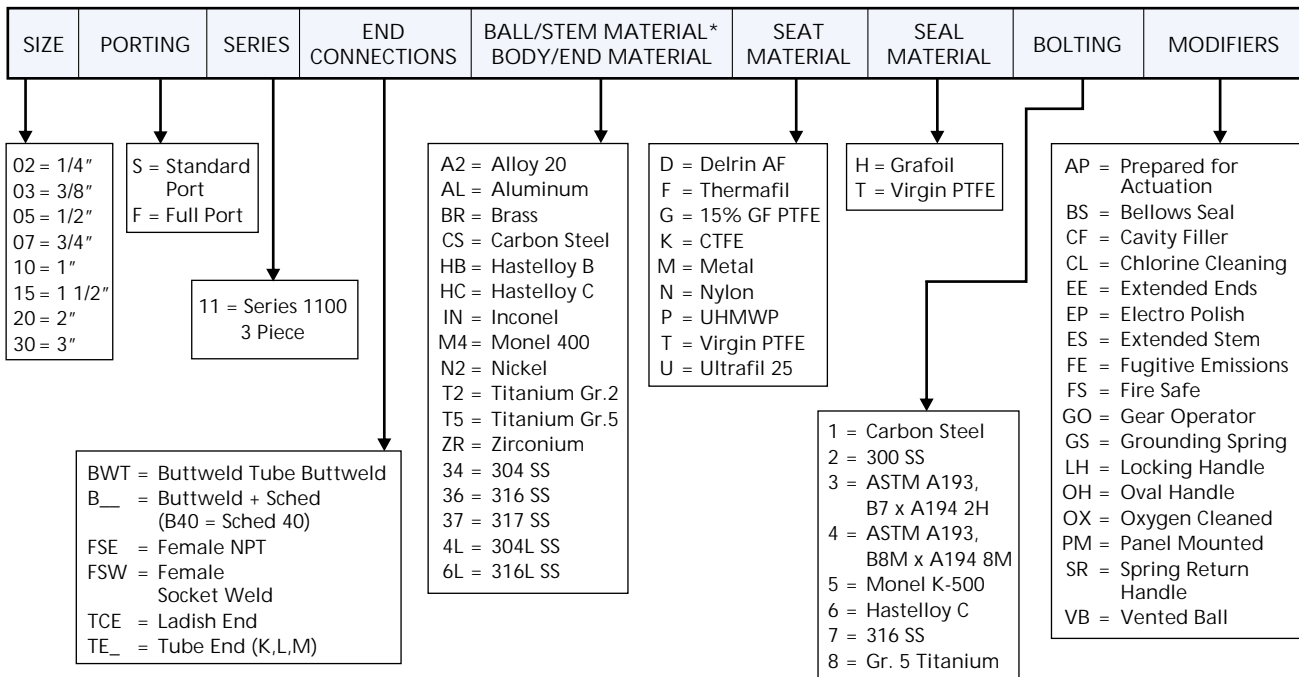
SEAT MATERIAL IDENTIFICATION CODE

T - Virgin PTFE	white
G - Reinforced PTFE	white with red speckles
U - Ultrafil	black
F - Thermafil (Carbon Filled PEEK)	black
P - UHMWP	translucent white
D - Delrin	dark brown
K - CTFE	translucent
M - Metal	silver
H - Graphite	black

DESIGN SPECIFICATIONS AVAILABLE

ASME B1.20.1	NPT Pipe threads
ASME B16.11	Socket weld ends (diameter & depth)
ASME B16.25	Butt weld ends
ASME B16.34	Steel valves (performance & design)
ASME B31.1	Power piping (application)
ASME B31.3	Process Piping (application)
MSS SP25	Valve marking
API 598	Pressure testing
API 607 4th Edition	Fire test for soft seated valves
NACE MR0175	Sour Gas Service Applications

SERIES 1100 HOW TO ORDER



For additional ordering information, see the TBV General Brochure, Corrosion Resistant and Cryogenic Valves.

Example:

10S 11 FSE 6L36 GT 2 = 1 in. 3-piece female screwed end Series 1100, 316L body and end caps, 316 ball and stem; glass filled PTFE seats, PTFE body/stem seals; 300 stainless steel bolting.

SERVICE RELATED OPTIONS

Steam Service - Saturated steam can be handled within the following limits:
250 psi/406°F with Ultrafil seats
450 psi/459°F with Thermafil seats
Super heated steam up to 489°F can be handled at lower pressures.

Vacuum Service - standard TBV valves rated up to 20 microns of absolute pressure, specially prepared valves rated to .01 microns.

Oxygen, chlorine cleaning and other special service cleaning are available.

Actuation and actuator prepping available-consult factory.

Leakage rates - soft seats are bubble tight exceeding API 598 and Class VI requirements of ASME B16.104 standard.

SPECIAL SERVICES

- Chlorine
- Steam
- Vacuum Service
- High Temperature
- Hydraulics
- Hydrofluoric Acid
- Oxygen Service
- High Pressure
- Thermal Fluids

Extended pressures and temperatures may be achieved by altering designs for specific applications. Consult factory with service conditions.

CERTIFICATIONS



**VALVES & MEASUREMENT**

3250 Briarpark Drive, Suite 300
Houston, Texas 77042
USA Toll Free 800 323 9160

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