

tyco

Flow Control

**Tyco Valves
& Controls**

A comprehensive range of Utility Ball Valves to suit a wide range of general industrial applications.

Features

- The range includes one, two and three piece ball valve designs with screwed, weld or flanged end connections.
- 3/4/5-way multi-port designs available.
- ISO 5211 top mounting plate available, for easy actuation, on selected models.
- Body construction either investment or sand cast according to model.
- Carbon steel or stainless steel body materials.
- Wide range of pressure ratings available.
- Reduced and full bore models.
- Locking facilities on all models.
- Seat material options available.
- Fire safe models available.



Application

The range includes valves ideal for general industrial and service applications including water, oil, gas and chemical processes. Certain models also offer designs suitable for more hazardous services such as fuel and inflammable substances.

Technical Data

Sizes (mm)	DN8 to DN300
(inch)	: 1/4" - 12"
Pressure ratings	: PN10/16, PN25/40, PN63, ANSI 150/300
End connections	
Screwed	: BSPP, BSPT, NPT
Socket & Butt Weld	
Flanged	: ANSI 150/300, PN10/16, PN25/40
Special connections	on request



F110 - One-piece body ball valve

See page 4

- An economical, investment cast, one-piece body ball valve in stainless steel

Size range

DN8 (1/4") to DN50 (2")

- Reduced Bore



F120 - Two-piece body ball valve

See page 5

- General purpose, 1000 psi (PN63) ball valve, in stainless steel

Size range

DN8 (1/4") to DN50 (2")

- Full Bore



F130M - Three-way split body ball valve

See page 6/7

- With ISO 5211 top mounting plate and fully enclosed bolting
- Flanged ANSI 150, 300 or DIN PN 10/16, 25/40
- L-, T- or LL-port options, 90° operation
- Carbon steel or stainless steel bodies

Size range

DN50 (2") to DN150 (6")

- Full Bore



F133M - Three and four-way split body ball valve

See page 8/10

- With ISO 5211 top mounting plate and fully enclosed bolting
- End connections screwed, socket weld, butt weld or flanged
- Flanged ANSI 150, 300 or DIN PN 10/16, 25/40
- L-, T- or LL-port options, 90° operation
- Carbon steel or stainless steel bodies

Size range

DN10 (3/8") to DN50 (2")

- Full and Reduced Bore



F138 - Three way multi-port ball valve

See page 11

- With ISO 5211 top mounting plate
- Investment stainless steel cast body
- Screwed ends, NPT, BSPP, BSPT reduced bore
- L- or T-port options, 90° operation

Size range

DN8 (1/4") to DN50 (2")

- Reduced Bore



F150 - Three-piece economical ball valve

See page 12

- Three piece, swing-out design
- End connections screwed, butt weld or socket weld
- Carbon steel or stainless steel bodies

Size range

DN8 (1/4") to DN100 (4")
- Full Bore



F170 - Three-piece ball valve to ISO 5211

See page 13/14

- With ISO 5211 top mounting plate
- End connections flanged, screwed, butt weld or socket weld
- Carbon steel or stainless steel bodies

Size range

DN8 (1/4") to DN100 (4")
- Full Bore



F180/F180F - Three-piece heavy duty ball valve

See page 15/18

- With ISO 5211 top mounting plate and fully enclosed bolting
- End connections screwed, butt weld or socket weld
- Carbon steel or stainless steel bodies
- F180F Fire safe tested to API 607

Size range

F180 - DN8 (1/4") to DN100 (4")
F180F - DN10 (3/8") to DN80 (3")
- Full Bore and Reduced Bore



F190/F190F - Split body flanged ball valve

See page 19/23

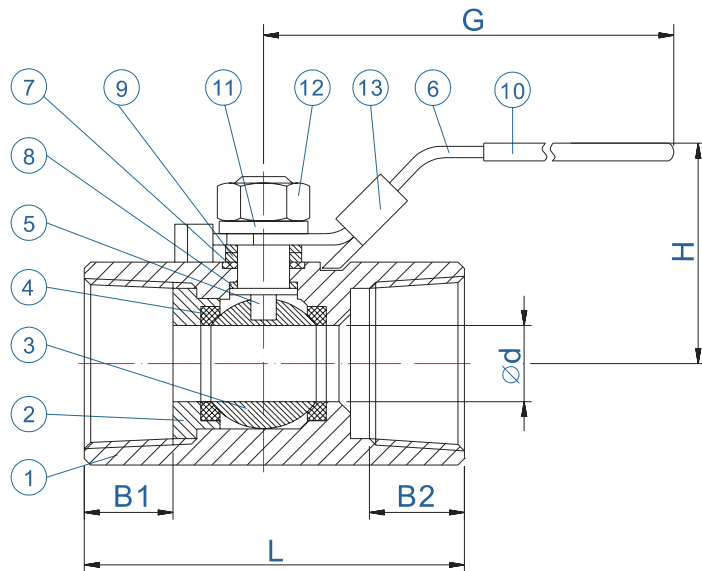
- With ISO 5211 top mounting pad
- Flanged ANSI 150, 300 or DIN PN10/16, 25/40
- Investment casting for 4" and under, carbon steel or stainless steel bodies
- F190F Fire safe tested to API 607

Size range

DN15 (1/2") to DN300 (12")
- Full Bore

Utility Ball Valve Range

F110 - One-piece body ball valves



Materials of construction

No.	Part Name	Material	Quantity
1	Body	CF8M / 1.4408	1
2	Insert	ASTM A351 Gr CF8M	1
3	Ball	ASTM A351 Gr CF8M	1
4	Seat	PTFE	2
5	Anti-static Stem	A276 Type 316	1
6	Handle	SUS304	1
7	Stem Packing	PTFE	1
8	Thrust Washer	PTFE	1
9	Gland Ring	SUS304	1
10	Handle Sleeve	Vinyl	1
11	Handle Washer	SUS304	1
12	Stem Nut	SUS304	1
13	Locking Device	SUS304	1

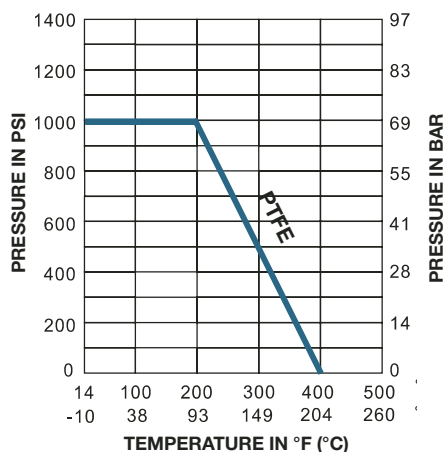
Features

- General purpose 1000psi (PN63) ball valve
- Investment cast, one piece body
- Stainless steel construction only
- Screwed ends to: BSPP
BSPT
NPT
- Blow-out proof stem
- Locking device
- Size range DN8 (1/4") to DN50 (2")
- Reduced bore

Dimensions (mm)

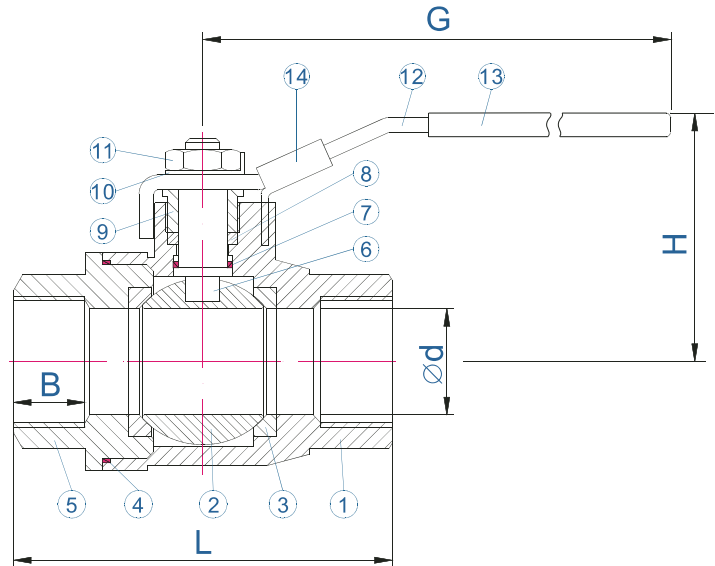
Size	DN	Ød	G	H	L	B1	B2	W (kg)
1/4"	8	5.0	72	34	39.0	7.0	11.0	0.07
3/8"	10	7.0	83	36	44.0	8.0	11.0	0.11
1/2"	15	9.0	85	42	57.0	14.0	15.0	0.18
3/4"	20	12.5	85	44	60.0	10.7	15.0	0.25
1"	25	16.0	105	48	71.0	17.0	17.4	0.43
1 1/4"	32	20.0	105	52	78.0	16.7	19.0	0.70
1 1/2"	40	25.0	123	60	83.0	16.6	19.0	0.82
2"	50	32.0	123	60	100.0	19.7	22.5	1.30

Pressure/temperature chart



Utility Ball Valve Range

F120 - Two-piece body ball valves



Features

- General purpose 1000 psi (PN63), ball valve
- Two piece, investment cast body
- Stainless steel construction only
- Screwed end to: BSPP
BSPT
NPT
- DIN 3202 M3 face-to-face
- Adjustable stem packing
- Locking device
- Size range DN8 (1/4") to DN50 (2")
- Full bore

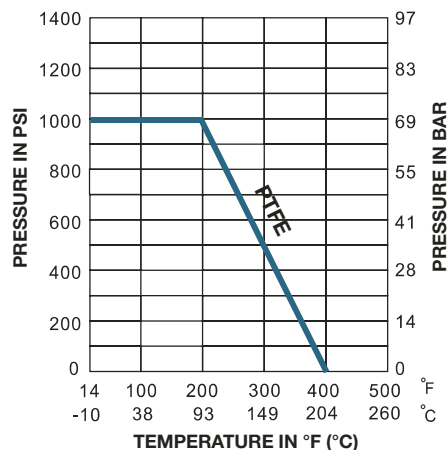
Materials of construction

No.	Part Name	Material	Quantity
1	Body	CF8M / 1.4408	1
2	Ball	ASTM A351 Gr. CF8M	1
3	Seat	PTFE	2
4	Body Seal	PTFE	1
5	Cap	CF8M / 1.4408	1
6	Anti-Static Stem	A276 Type 316	1
7	Thrust Washer	PTFE	2
8	Stem Packing	PTFE	1
9	Gland Nut	SUS304	1
10	Stem Washer	SUS304	1
11	Stem Nut	SUS304	1
12	Handle	SUS304	1
13	Handle Sleeve	Vinyl	1
14	Locking Device	SUS304	1

Dimensions (mm)

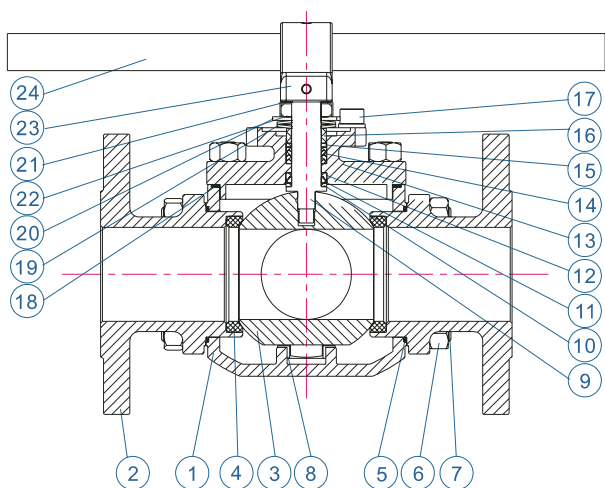
Size	DN	Ød	G	H	L	B	W (kg)
1/4"	8	11.2	108	52	50	10.0	0.24
3/8"	10	11.2	108	54	60	10.0	0.28
1/2"	15	15.0	136	62	75	13.0	0.44
3/4"	20	20.0	150	65	80	16.0	0.56
1"	25	25.0	168	80	90	17.0	0.88
1 1/4"	32	32.0	168	85	110	20.0	1.44
1 1/2"	40	38.0	195	95	120	22.0	1.94
2"	50	50.0	195	110	140	25.0	3.36

Pressure/temperature chart



Utility Ball Valve Range

F130M - Three-way split body ball valves



Materials of construction

No.	Part Name	Material	Quantity
1	Body	CF8M / WCB, 1.4408 / 1.0619	1
2	Cap	CF8M / WCB, 1.4408 / 1.0619	4
3	Ball	ASTM A351 Gr. CF8M	1
4	Ball Seat	RPTFE	4
5	Body Gasket	PTFE	4
6	Bolt Nut	A2-70	*
7	Bolt	A2-70/8.8	*
8	Bushing	25% Carbon Filled PTFE	1
9	Anti-Static Stem	A276 Type 316	1
10	Lower Thrust Washer	50% S.S Powder / 50% PTFE	1
11	Compress Ring	SUS316	1
12	Upper Thrust Washer	TFM1600	1
13	Cover	CF8M / WCB, 1.4408 / 1.0619	1
14	V-Ring Stem Packing	PTFE	1 Set
15	Thrust Washer	50% S.S Powder / 50% PTFE	1
16	Gland	SUS304	1
17	Stop Bolt	A2-70	1
18	Cover Seal	PTFE	1
19	Belleville Washer	SUS301	2
20	Triangle Stopper	SUS304	1
21	Lock Saddle	SUS304	1
22	Stem Nut	SUS304	1
23	Stem Adapter	CF8	1
24	Handle	Steel	1
25	Block Cover	ASTM A351 Gr. CF8M / ASTM A216 Gr. WCB	1*

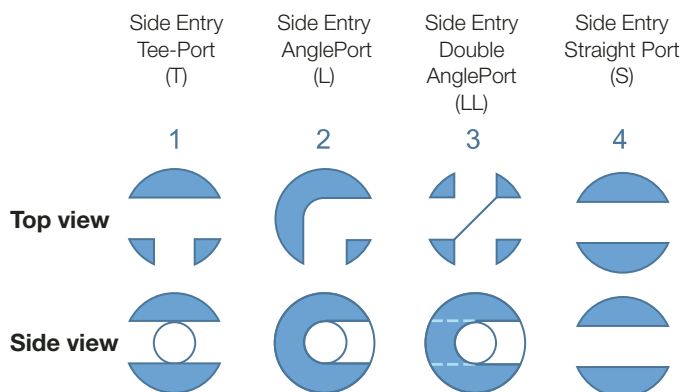
- 2" - 3" Class 150, Class 300, PN10/16, PN25/40, All Standards: 20pcs
- 4" Class 150, Class 300, PN10/16, PN25/40, All Standards: 28pcs
- 6" Class 150, Class 300, PN10/16, PN25/40, All Standards: 56pcs

* For No 25 Block cover, please refer to page 7

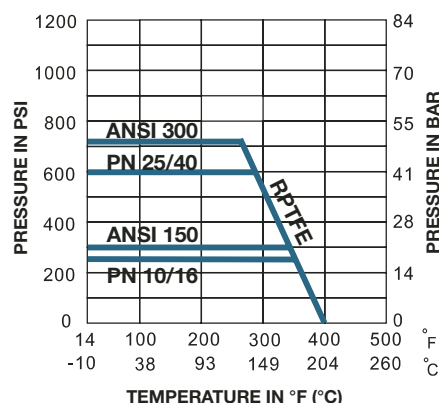
Features

- Four ball seats
- Simplicity in replacing valve seats and packing
- Investment cast body DN50 (2") to DN100 (4")
- Sand casting DN150 (6")
- Standard L-port and T-port; optional LL-port for 4 way
- Tightness to ISO 5208 Cat. A
- Patented "SEALMASTER" stem arrangement
- Double stem sealing complies with TA-Luft requirements
- Trunnion mounted
- Lower operation torque
- ISO 5211 mounting plate
- Full bore and flanged connection
- Anti-static design
- Optional ball and body patterns for various flow paths
- Valve pressure rating:
ANSI Class 150/300
DIN PN 10/16/25/40

Ball Port Configuration

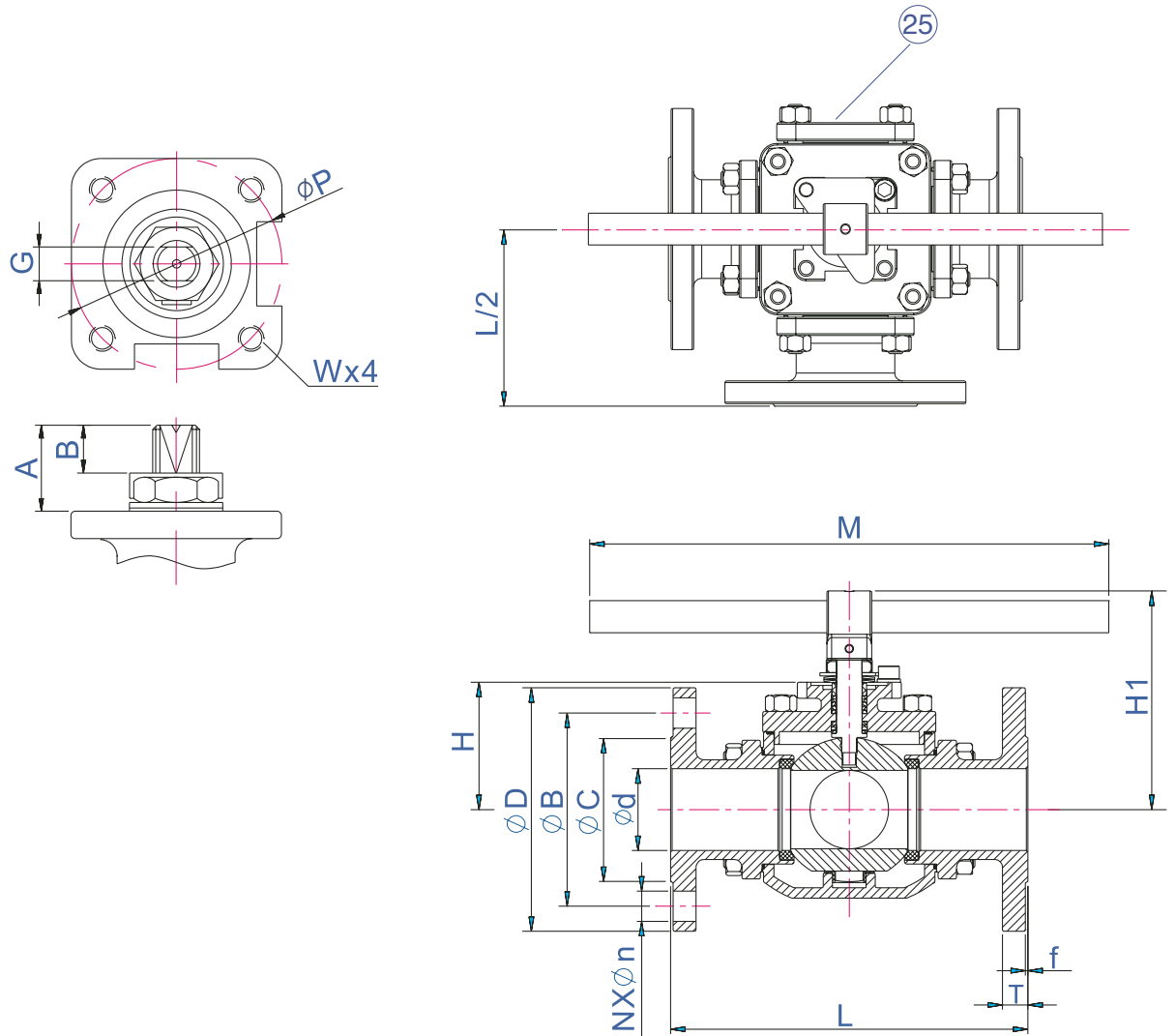


Pressure/temperature chart



Utility Ball Valve Range

F130M - Three-way split body ball valves



Dimensions (mm)

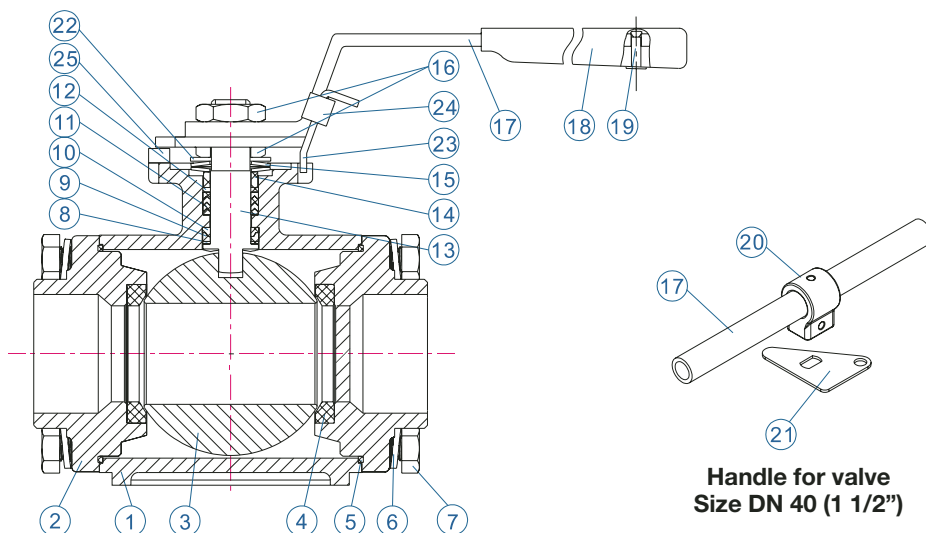
Size	DN	A	B	ØP	G	W
2"	50	23.5	14.0	70	9.5	M8
2 1/2"	65	41.5	22.4	102	17	M12
3"	80	41.5	19.0	102	17	M12
4"	100	47.5	25.9	102	17	M12
6"	150	65.0	37.0	125	23	M12

Size	DN	Ød	ØB				ØC			ØD				T			
			ANSI 150	ANSI 300	PN 10/16	PN 25/40	ANSI 150	PN 10/16	PN 25/40	ANSI 150	ANSI 300	PN 10/16	PN 25/40	ANSI 150	ANSI 300	PN 10/16	PN 25/40
2"	50	50	120.5	127	125	125	92	102	102	152	165	165	165	15.9	22.3	20	20
2 1/2"	65	65	139.5	149	145	145	105	122	122	178	190	185	185	17.5	25.4	18	22
3"	80	76	152.5	168	160	160	127	138	138	190	210	200	200	19.1	28.6	20	24
4"	100	100	190.5	200	180	190	157	158	162	229	254	220	235	23.9	31.8	20	24
6"	150	150	241.3	269.9	240	250	216	212	218	279.4	317.5	285	300	25.4	36.6	22	28

Size	DN	f			N				ØN				L				H	H1	M
		ANSI 150	PN 10/16	PN 25/40	ANSI 150	ANSI 300	PN 10/16	PN 25/40	ANSI 150	ANSI 300	PN 10/16	PN 25/40	ANSI 150	ANSI 300	PN 10/16	PN 25/40			
2"	50	1.6	3	4	4	8	4	4	19	19	18	18	220	220	230	230	80	136.5	400
2 1/2"	65	1.6	3	4	4	8	4	4	19	22	18	18	280	280	290	290	97	162	500
3"	80	1.6	3	4	4	8	8	8	19	22	18	18	285	285	310	310	108	186	500
4"	100	1.6	3	4	4	8	8	8	19	22	18	22	347	347	350	350	129	213	650
6"	150	1.6	3	4	12	8	8	8	22.2	22.2	22	26	480	550	480	550	215	280	800

Utility Ball Valve Range

F133M - Three- and four-way split body ball valves



Materials of construction

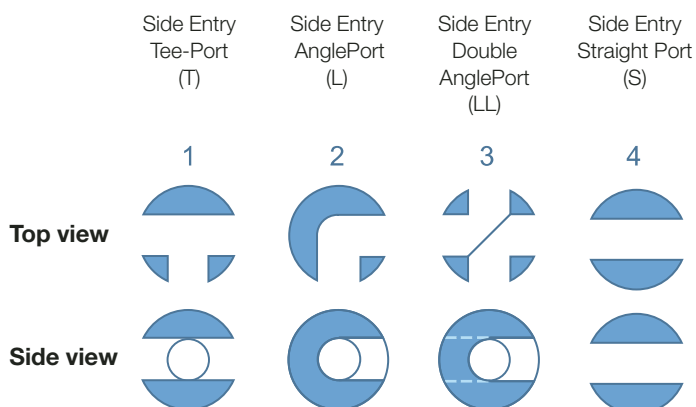
No.	Part Name	Material	Quantity
1	Body	CF8M / WCB, 1.4408 / 1.0619	1
2	Cap	CF8M / WCB, 1.4408 / 1.0619	4
3	Ball	ASTM A351 Gr. CF8M	1
4	Ball Seat	RPTFE	4
5	Body Gasket	PTFE	4
6	Bolt Washer	SUS304	16
7	Bolt	A2-70	16
8	Lower Thrust Washer	50% S.S Powder / 50% PTFE	1
9	Compress Ring	SUS316	1
10	Upper Thrust Washer	TFM1600	1
11	V-Ring Stem Packing	PTFE	1 Set
12	Thrust Washer	50% S.S Powder / 50% PTFE	1
13	Anti-Static Stem	A276 Type 316	1
14	Gland	SUS304	1
15	Belleville Washer	SUS301	2
16	Stem Nut	SUS304	1-2
17	Handle	SUS304	1
18	Handle Sleeve	Vinyl	1
19	Rivet	SUS304	2
20	Stem Adapter	CF8	1
21	Triangle Stopper	SUS304	1
22	Lock Saddle	SUS304	1
23	Locking Trigger	SUS304	1
24	Fix Plate	SUS304	1
25	Stop Bolt	A2-70	1

Features

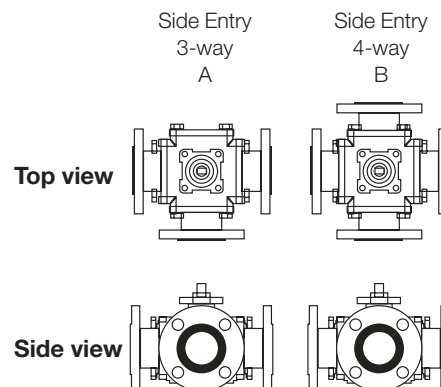
- Four ball seats
- Simplicity in replacing valve seats and packing
- Investment casting for body and end cap
- Optional LL-port for 4 way
- Patented "SEALMASTER" stem arrangement
- Double stem sealing complies with TA-Luft requirements
- Lower operation torque
- ISO 5211 mounting plate
- Anti-static design
- Optional ball & body patterns for various flow paths
- Size range, DN10 (3/8") to DN50 (2") - Full and reduced bore
- Valve pressure rating:
ANSI Class 150/300
DIN PN 10/16/25/40
- End connections screwed, butt weld, socket weld and flanged
- Flanged connection in full bore only

- 3/8" - 1 1/4" For standard handle
- 1 1/2" T-handle

Ball Port Configuration

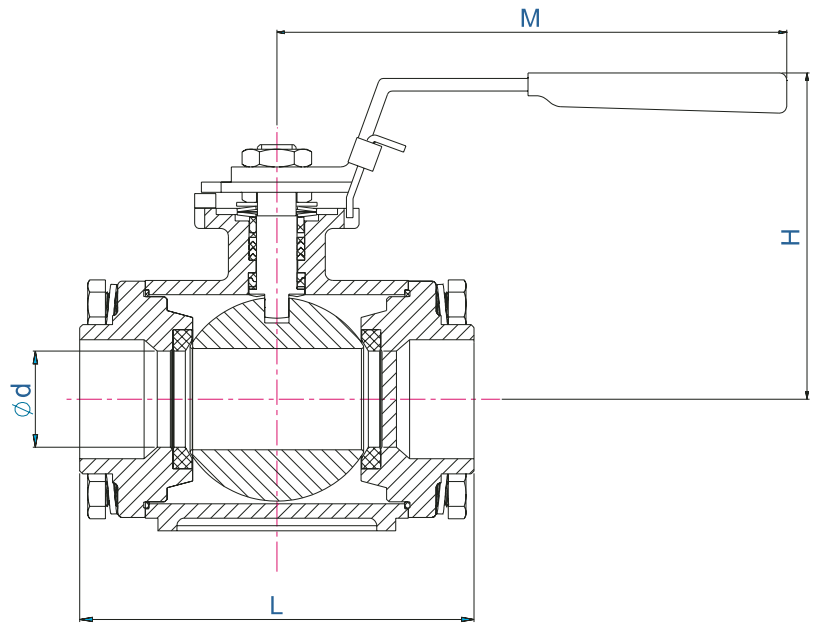
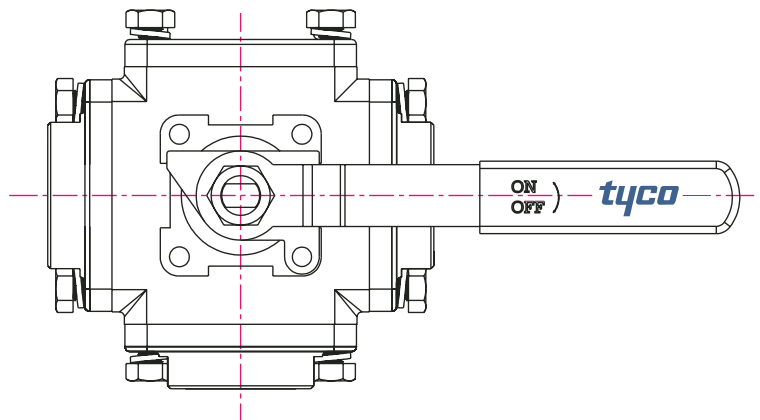
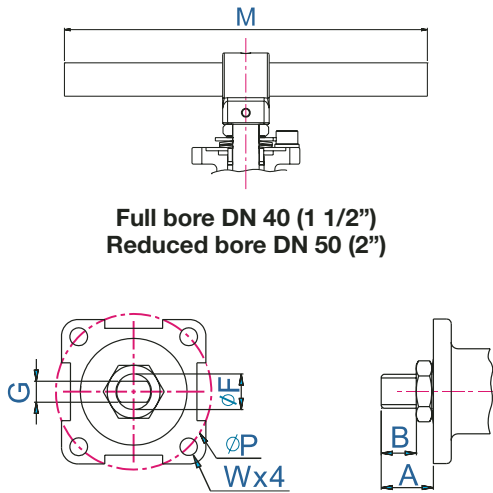


Ball Port Configuration

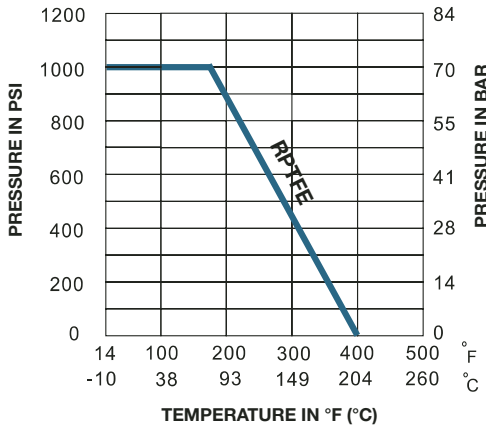


Utility Ball Valve Range

F133M - Three- and four-way split body ball valves - threaded ends



Pressure/temperature chart



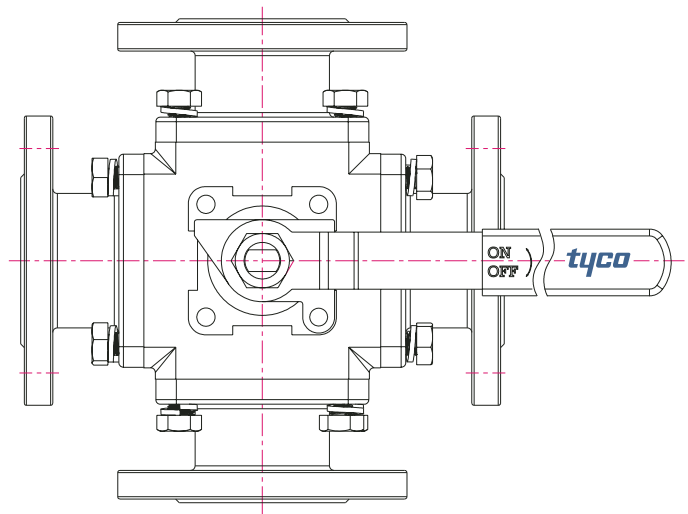
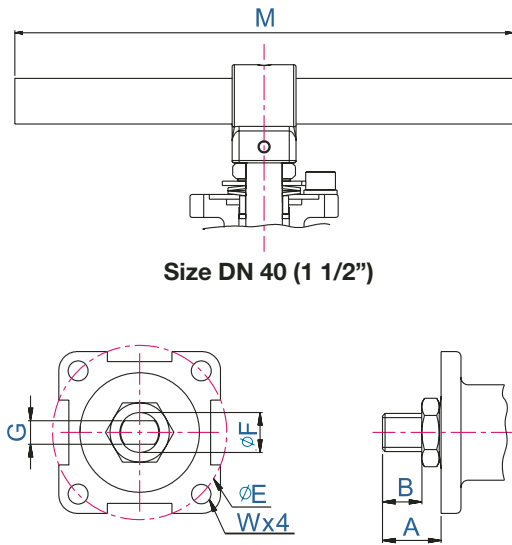
Dimensions (mm)

Size		DN		Ød	H	L	M	A	B	G	ØP	ØF	W
F	R	F	R										
3/8"	1/2"	10	15	12	63.5	90	115	12.5	5.5	6.3	42	12	M5
1/2"	3/4"	15	20	15	82	107	130	18.0	11.2	6.3	42	12	M5
3/4"	1"	20	25	20	86	110.5	130	17.5	11.5	8.0	50	14	M6
1"	1 1/4"	25	32	25	98	126.5	165	20.0	12	8.0	50	14	M6
1 1/4"	1 1/2"	32	40	32	100	135	200	23.5	14	9.5	70	16	M8
1 1/2"	2"	40	50	38	127	154	400	23.5	14	9.5	70	16	M8

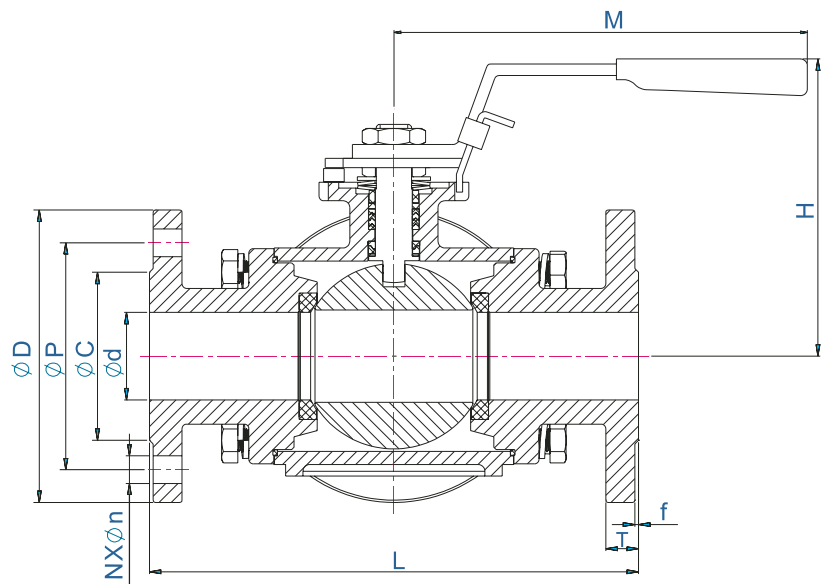
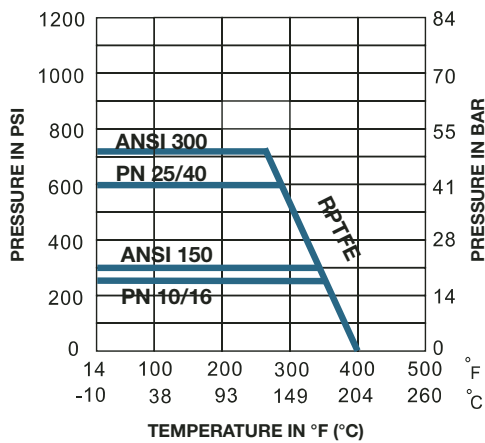
F: Full bore
R: Reduced bore

Utility Ball Valve Range

F133M - Three- and four-way split body ball valves - flanged ends



Pressure/Temperature chart



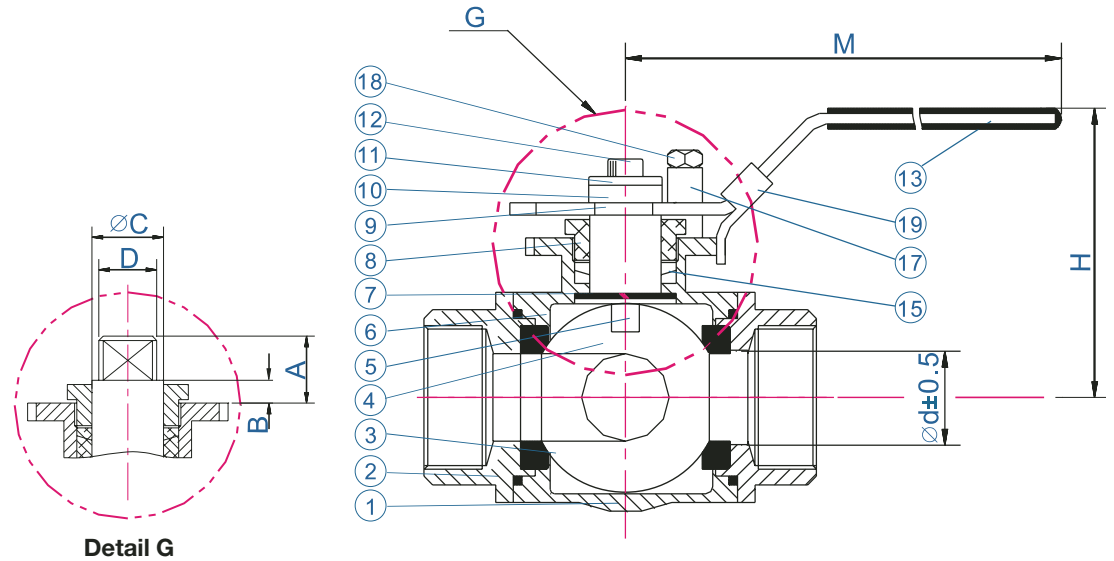
Dimensions

Size	DN	A	B	ØC		ØD			Ød	ØE	ØP			N	M	W
				ANSI 150	PN 10/40	ANSI 150	ANSI 300	PN 10/40			ANSI 150	ANSI 300	PN 10/40			
1/2"	15	18	11.2	35	45	89	95	95	15	42	60.5	66.5	65	4	130	M5
3/4"	20	17.5	11.5	43	58	98	117	105	20	50	70	82.5	75	4	130	M6
1"	25	20	12	51	68	108	124	115	25	50	79.5	89	85	4	165	M6
1 1/2"	40	23.5	14	73	88	127	156	150	38	70	98.5	114.5	110	4	400	M8

Size	DN	F	G	H	L	T			f		Øn		
						PN 10/40	ANSI 150	ANSI 300	PN 10/40	ANSI 150	PN 10/40	ANSI 150	ANSI 300
1/2"	15	12	6.3	82	157.8	11.2	14.3	16	1.6	2	16	16	14
3/4"	20	14	8	86	167.8	11.2	15.9	18	1.6	2	16	19	14
1"	25	14	8	98	182	11.2	17.5	18	1.6	2	16	19	14
1 1/2"	40	16	9.5	127	218	14.2	20.7	18	1.6	3	16	22	18

Utility Ball Valve Range

F138 - Three-way multi port ball-valves - threaded ends

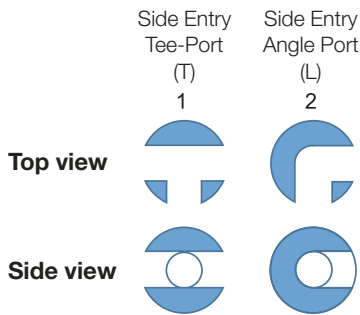


Detail G

Features

- General purpose 1000 psi (PN63), ball valve
- Three way multi-port ball valve with L-port or T-port options, 90° operation
- Investment cast body
- Stainless steel body, RPTFE seats
- Screwed ends to: BSPP, BSPT, NPT
- ISO 5211 top mounting plate
- Blow-out proof stem
- Size range DN8 (1/4") to DN50 (2") - Reduced bore

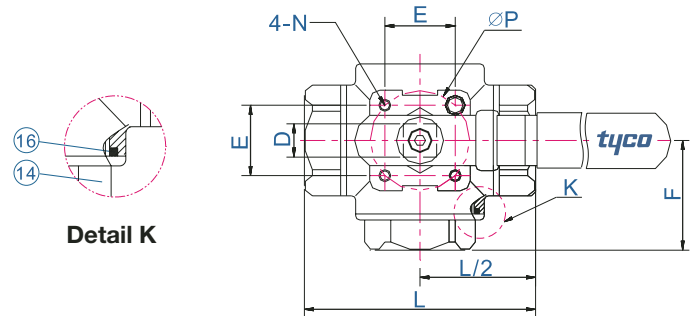
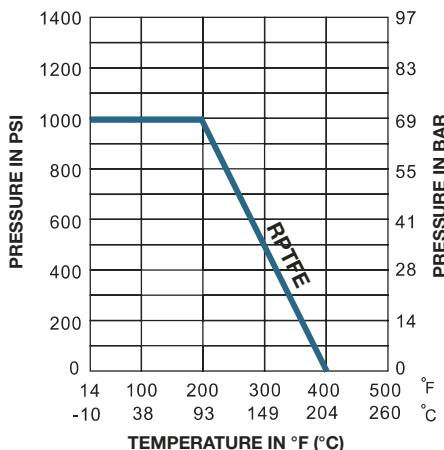
Ball Port Configuration



Materials of construction

No.	Part Name	Material	Quantity
1	Body	CF8M / 1.4408	1
2	Cap	CF8M / 1.4408	2
3	Seat	RPTFE	4
4	Ball	ASTM A351 Gr. CF8M	1
5	Anti-Static Stem	A276 Type 316	1
6	Joint Gasket	PTFE	2
7	Thrust Washer	PTFE	1
8	Gland	SUS304	1
9	Handle	SUS304	1
10	Handle Washer	SUS304	1-3
11	Washer	SUS304	1
12	Handle Nut	SUS304	1
13	Handle Sleeve	Vinyl	1
14	End Cap	CF8M / 1.4408	1
15	Stem Packings	PTFE	1 Set
16	End Cap Seal	PTFE	1
17	Gland Washer	SUS304	1
18	Bolt	A2-70	1
19	Locking Device	SUS304	1

Pressure/Temperature chart



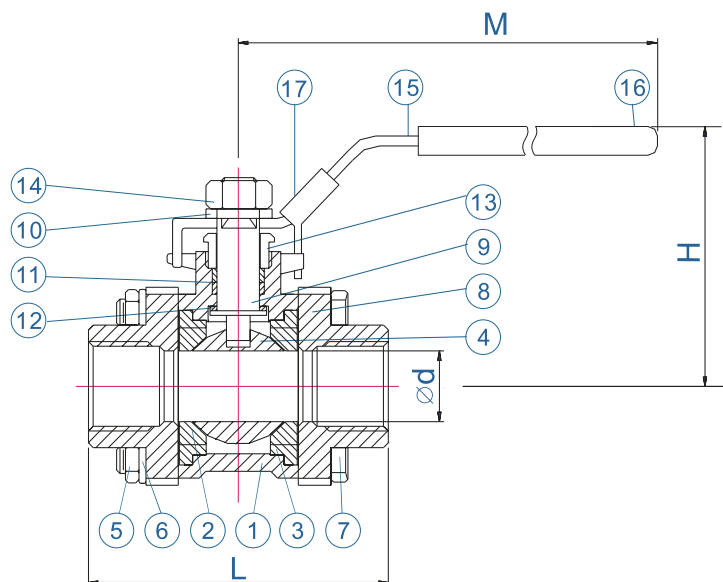
Detail K

Dimensions (mm)

Size	DN	A	B	ØC	D	E	F	ØP	N	Ød±0.5	L±0.8	H±3.0	M±3.0	Wt(kg)
1/4"	8	11	6	12	9	29.7	34.6	42	M5*0.8	11.0	69	58	124	0.60
3/8"	10	11	6	12	9	29.7	34.6	42	M5*0.8	11.0	69	58	124	0.60
1/2"	15	11	6	12	9	29.7	40.8	42	M5*0.8	12.7	75	51	124	0.67
3/4"	20	13	6	15	11	35.4	45.0	50	M6*1.0	16.0	86	71	168	1.20
1"	25	19	7.5	15	11	35.4	52.3	50	M6*1.0	20.0	101	70	168	1.70
1 1/4"	32	19	7.5	15	11	35.4	58.0	50	M6*1.0	25.0	118	88	198	2.40
1 1/2"	40	23.5	8.5	15	11	49.5	63.0	70	M8*1.25	32.0	125	100	194	3.35
2"	50	24.5	8.5	18.5	14	49.5	75.5	70	M8*1.25	38.1	149	110	215	5.50

Utility Ball Valve Range

F150 - Three-piece economical ball valves



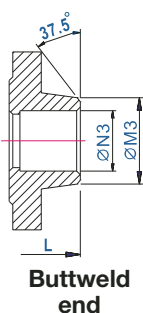
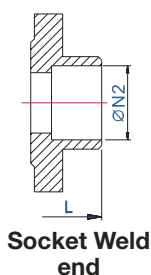
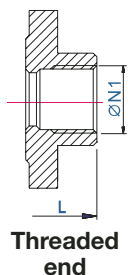
Materials of construction

No.	Part Name	Material	Quantity
1	Body	CF8M / WCB, 1.4408 / 1.0619	1
2	Body Seat	PTFE	2
3	Body Gasket	PTFE	2
4	Ball	ASTM A351 Gr. CF8M	1
5	Bolt Nut	A2-70	4-6
6	Bolt Washer	SUS304	4-6
7	Bolt	A2-70	4-6
8	Cap	CF8M / WCB, 1.4408 / 1.0619	2*
9	Anti-Static Stem	A276 Type 316	1
10	Handle Washer	SUS304	1
11	Stem Packing	PTFE	1
12	Thrust Washer	PTFE	1
13	Gland Nut	SUS304	1
14	Stem Nut	SUS304	1
15	Handle	SUS304	1
16	Handle Sleeve	Vinyl	1
17	Locking Device	SUS304	1

* Stainless steel welded connectors are CF3M/1.4409

Features

- General purpose 1000 psi (PN63) / 600 psi (PN40), ball valve
- Three piece, swing out design
- Investment casting for body and end cap
- End connections screwed, butt weld and socket weld
- Blow-out proof stem
- Locking device
- Size range DN8 (1/4") to DN100 (4") - Full bore

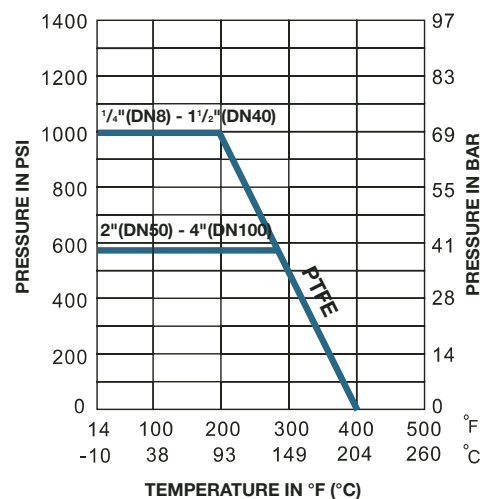


Dimensions (mm)

Size	DN	Ød	L	H	M	ØN2	ØN3	ØM3	Wt(kg)
1/4"	8	11.6	60	52	108	14.1	9.4	18.0	0.38
3/8"	10	12.7	60	52	108	18.0	12.7	18.0	0.38
1/2"	15	15.0	75	57	108	22.0	16.1	22.7	0.58
3/4"	20	20.0	78	59	132	27.3	21.4	27.5	0.76
1"	25	25.0	85	71	153	34.0	27.2	34.0	1.10
1 1/4"	32	32.0	104	78	153	42.8	35.5	42.7	2.15
1 1/2"	40	38.0	120	91	195	48.9	41.2	48.6	2.30
2"	50	50.0	130	91	195	61.4	52.7	60.5	3.40
2 1/2"	65	63.0	165	131	265	77.0	66.0	76.4	7.80
3"	80	78.0	182	140	265	90.0	81.0	92.0	11.20
4"	100	97.0	230	175	285	115.7	107.5	119.5	22.50

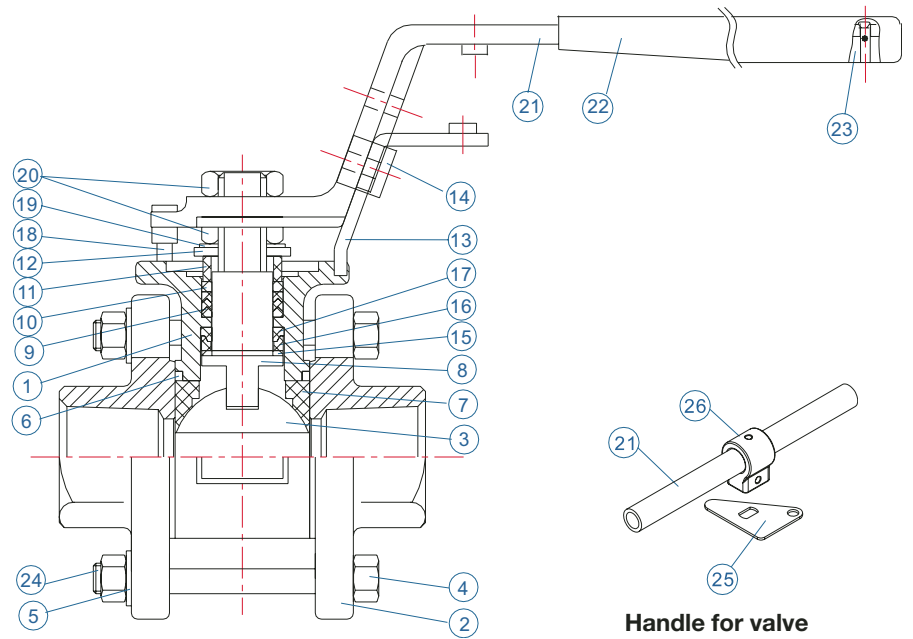
ØN1: BSPP, BSPT, NPT

Pressure/Temperature chart



Utility Ball Valve Range

F170 - Three-piece ball valves to ISO 5211



Sizes DN8-DN80 (1/4"-3")

Handle for valve
Size DN 100 (4")

Features

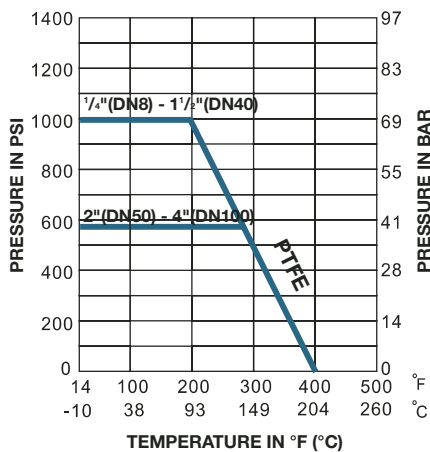
- Three-piece swing out design
- ISO 5211 top mounting plate
- End connections flanged, screwed, butt weld or socket weld
- Carbon steel or stainless steel bodies
- Size range DN15 (1/2") to DN100 (4") - Full bore
- Double stem sealing arrangement
- Primary level with patented SEALMASTER™.
- Seat material options
- Antistatic design
- Tightness to EN 12266-1, rate A

Materials of construction

No.	Part Name	Material	Quantity
1	Body	CF8M / WCB, 1.4408 / 1.0619	1
2	Cap	CF8M / WCB, 1.4408 / 1.0619	2*
3	Ball	ASTM A351 Gr. CF8M	1
4	Bolt	A2-70	4-6
5	Bolt Washer	SUS304 / S45C	4-6
6	Body Gasket	PTFE	2
7	Ball Seat	PTFE	2
8	Anti-Static Stem	A276 Type 316	1
9	V-Ring Stem Packing	PTFE	1 Set
10	Thrust Washer	50% S.S Powder / 50% PTFE	1
11	Gland	SUS304	1
12	Belleville Washer	SUS301 / WCB1075	2
13	Locking Trigger	SUS304	1
14	Fix Plate	SUS304	1
15	Lower Stem Seal	50% S.S Powder / 50% PTFE	1
16	Compress Ring	SUS316	1
17	Upper Stem Seal	TFM1600	1
18	Stop Bolt	A2-70	1
19	Lock Saddle	SUS304	1
20	Stem Nut	SUS304	2
21	Handle	CF8 / Steel	1
22	Handle Sleeve	Vinyl	1
23	Rivet	SUS304	2
24	Bolt Nut	A2-70	4-12
25	Triangle Stopper	SUS304	1
26	Handle Adapter	CF8	1

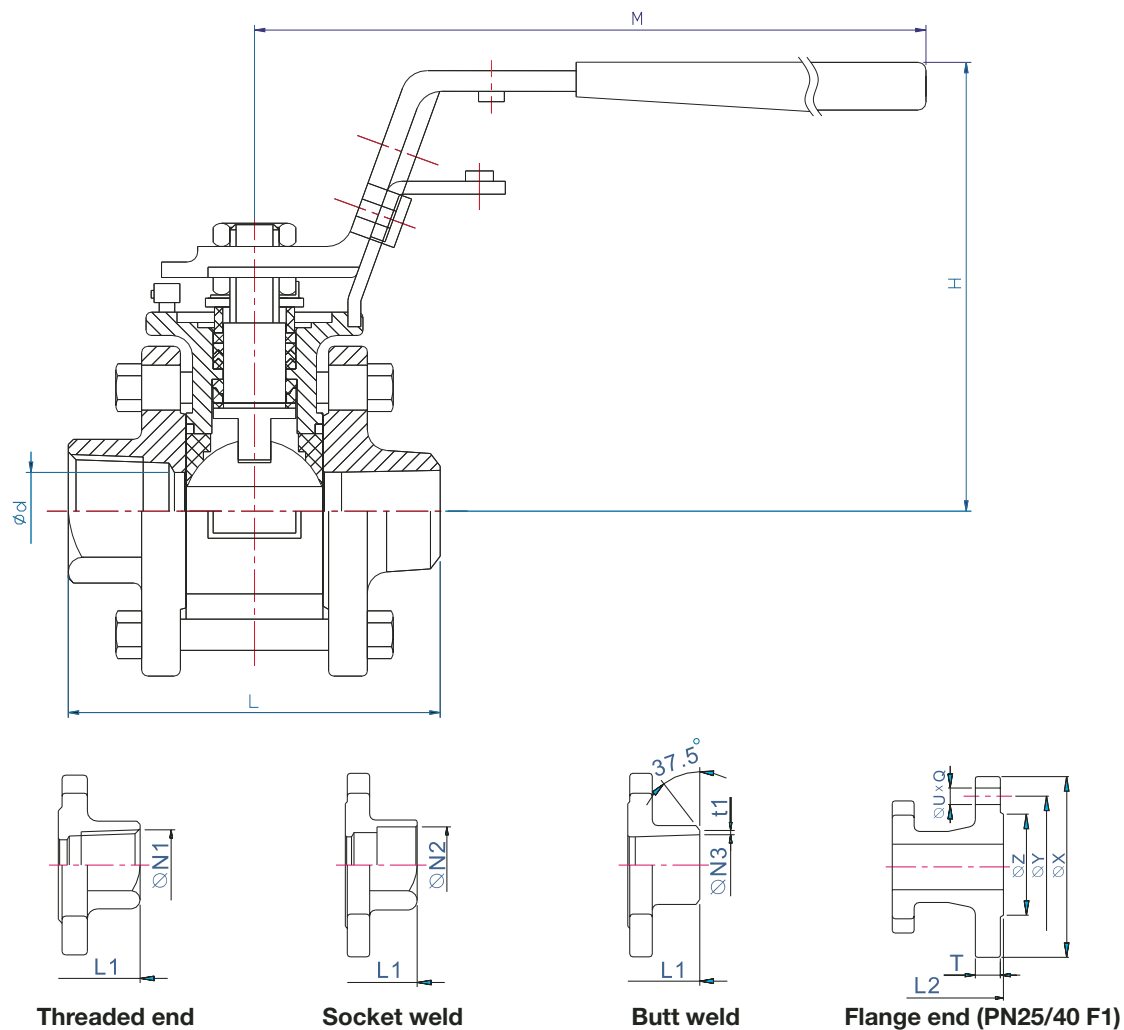
* Stainless steel welded connectors are CF3M/1.4409

Pressure/Temperature chart



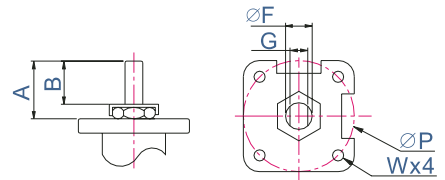
Utility Ball Valve Range

F170 - Three-piece ball valves to ISO 5211



Dimensions (mm)

Size	DN	A	B	G	ØP	ØF	W	Wt(kg) Threaded SW, BW
1/4"	8	12.5	6.0	5.0	36.0	7.9	M5	0.44
3/8"	10	12.5	6.0	5.0	36.0	7.9	M5	0.44
1/2"	15	17.0	9.0	6.3	42.0	9.7	M5	0.44
3/4"	20	17.5	9.0	6.3	42.0	9.7	M5	0.95
1"	25	20.4	12.3	8.0	50.0	11.2	M6	1.40
1 1/4"	32	20.4	12.3	8.0	50.0	11.2	M6	1.90
1 1/2"	40	24.0	13.8	9.5	70.0	16	M8	3.08
2"	50	24.0	13.8	9.5	70.0	16	M8	4.70
2 1/2"	65	42.0	28.0	15.0	102.0	19	M10	8.90
3"	80	42.0	28.0	15.0	102.0	19	M10	14.1
4"	100	48.0	29.0	17.0	102.0	29	M10	22

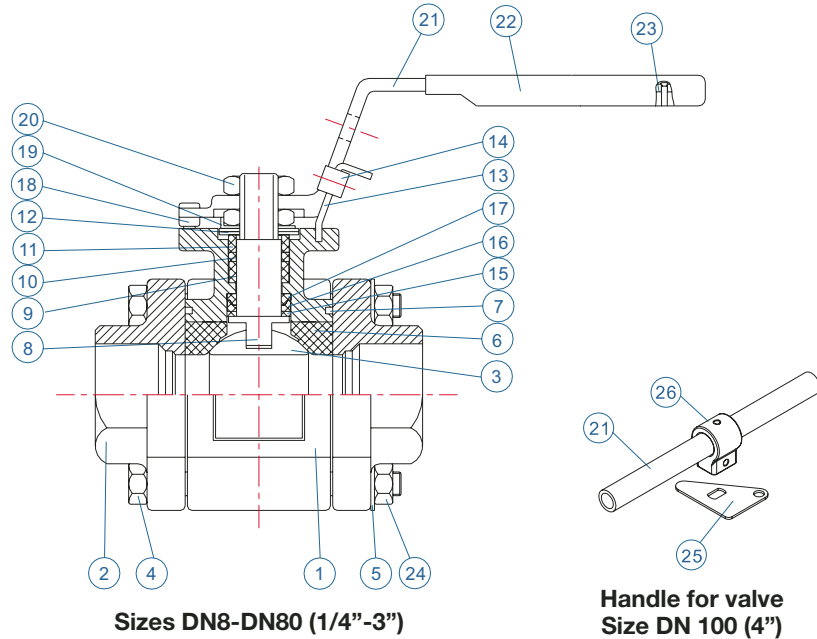


Size	DN	Ød	M	H	L1	L2	Q	t1	T	ØU	ØX	ØY	ØZ	PN25/40		
														ØN2	ØN3	Flange
1/4"	8	11.6	135.0	65.5	65.5	N/A	N/A	0.8	N/A	N/A	N/A	N/A	N/A	14.2	11.6	N/A
3/8"	10	12.7	135.0	66.0	65.5	N/A	N/A	0.8	N/A	N/A	N/A	N/A	N/A	17.5	12.5	N/A
1/2"	15	15.0	135.0	83.0	71.9	130.0	4.0	0.8	16.0	14.0	95.0	65.0	45.0	21.7	15.8	2.24
3/4"	20	20.0	135.0	86.0	85.0	150.0	4.0	1.0	18.0	14.0	105.0	75.0	58.0	27.1	21.0	3.04
1"	25	25.0	165.0	96.0	91.96	160.0	4.0	1.6	18.0	14.0	115.0	85.0	68.0	33.8	26.6	3.90
1 1/4"	32	32.0	165.0	102.0	110.0	180.0	4.0	1.8	18.0	18.0	140.0	100.0	78.0	42.6	35.1	6.25
1 1/2"	40	38.0	200.0	115.0	123.0	200.0	4.0	1.8	18.0	18.0	150.0	110.0	88.0	48.6	40.9	7.15
2"	50	50.8	200.0	124.0	142.0	230.0	4.0	1.8	20.0	18.0	165.0	125.0	102.0	61.1	52.5	10.15
2 1/2"	65	65.2	250.0	160.0	173.9	290.0	8.0	2.0	22.0	18.0	185.0	145.0	122.0	77.1	68.9	16.62
3"	80	76.2	250.0	170.0	193.0	310.0	8.0	2.0	24.0	18.0	200.0	160.0	138.0	90.2	77.9	23.80
4"	100	97.4	500.0	182.0	221.4	350.0	8.0	2.0	24.0	22.0	235.0	190.0	162.0	115.1	102.3	35.60

ØN1: BSPP, BSPT, NPT
N/A = Not Available

Utility Ball Valve Range

F180 - Three-piece heavy duty ball valves



Sizes DN8-DN80 (1/4"-3")

Handle for valve
Size DN 100 (4")

Features

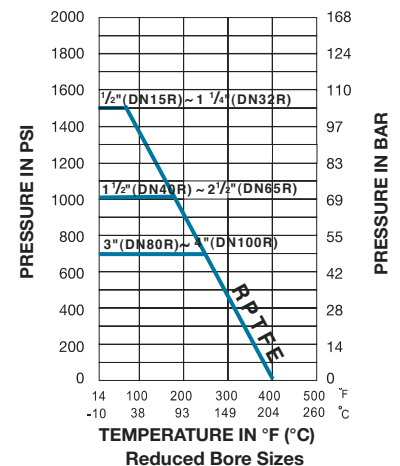
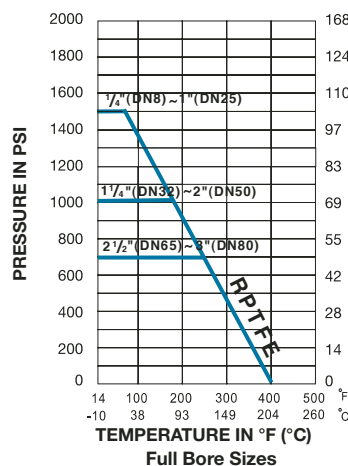
- Heavy duty, three piece ball valve
- Patented "SEALMASTER" stem arrangement
- Double stem sealing complies with TA-Luft requirements
- ISO 5211 top mounting plate
- Blow out proof stem and antistatic design
- Fully enclosed bolting for sizes up to DN40 full bore
- End connections, screwed, butt weld and socket weld
- Carbon steel and stainless steel bodies
- Tightness to EN 12266-1, rate A
- Seat material options
- Optional castings per AD/WO/TRD-100 are available
- Size range DN8 (1/4") to DN100 (4") - Full and reduced bore

Materials of construction

No.	Part Name	Material	Quantity
1	Body	CF8M / WCB, 1.4408 / 1.0619	1
2	Cap	CF8M / WCB, 1.4408 / 1.0619	2*
3	Ball	ASTM A351 Gr. CF8M	1
4	Bolt	A2-70	4-6
5	Bolt Washer	SUS304 / S45C	4-6
6	Ball Seat	RPTFE	2
7	Body Gasket	PTFE	2
8	Anti-Static Stem	A276 Type 316	1
9	V-Ring Stem Packing	PTFE	1 Set
10	Thrust Washer	50% S.S Powder / 50% PTFE	1
11	Gland	SUS304	1
12	Belleville Washer	SUS301 / 1075	2
13	Locking Trigger	SUS304	1
14	Fix Plate	SUS304	1
15	Lower Stem Seal	50% S.S Powder / 50% PTFE	1
16	Compress Ring	SUS316	1
17	Upper Stem Seal	TFM1600	1
18	Stop Bolt	A2-70	1
19	Lock Saddle	SUS304	1
20	Stem Nut	SUS304	2
21	Handle	CF8 / Steel	1
22	Handle Sleeve	Vinyl	1
23	Rivet	SUS304	2
24	Bolt Nut	A2-70	4-12
25	Triangle Stopper	SUS304	1
26	Handle Adapter	ASTM A351 Gr. CF8	1

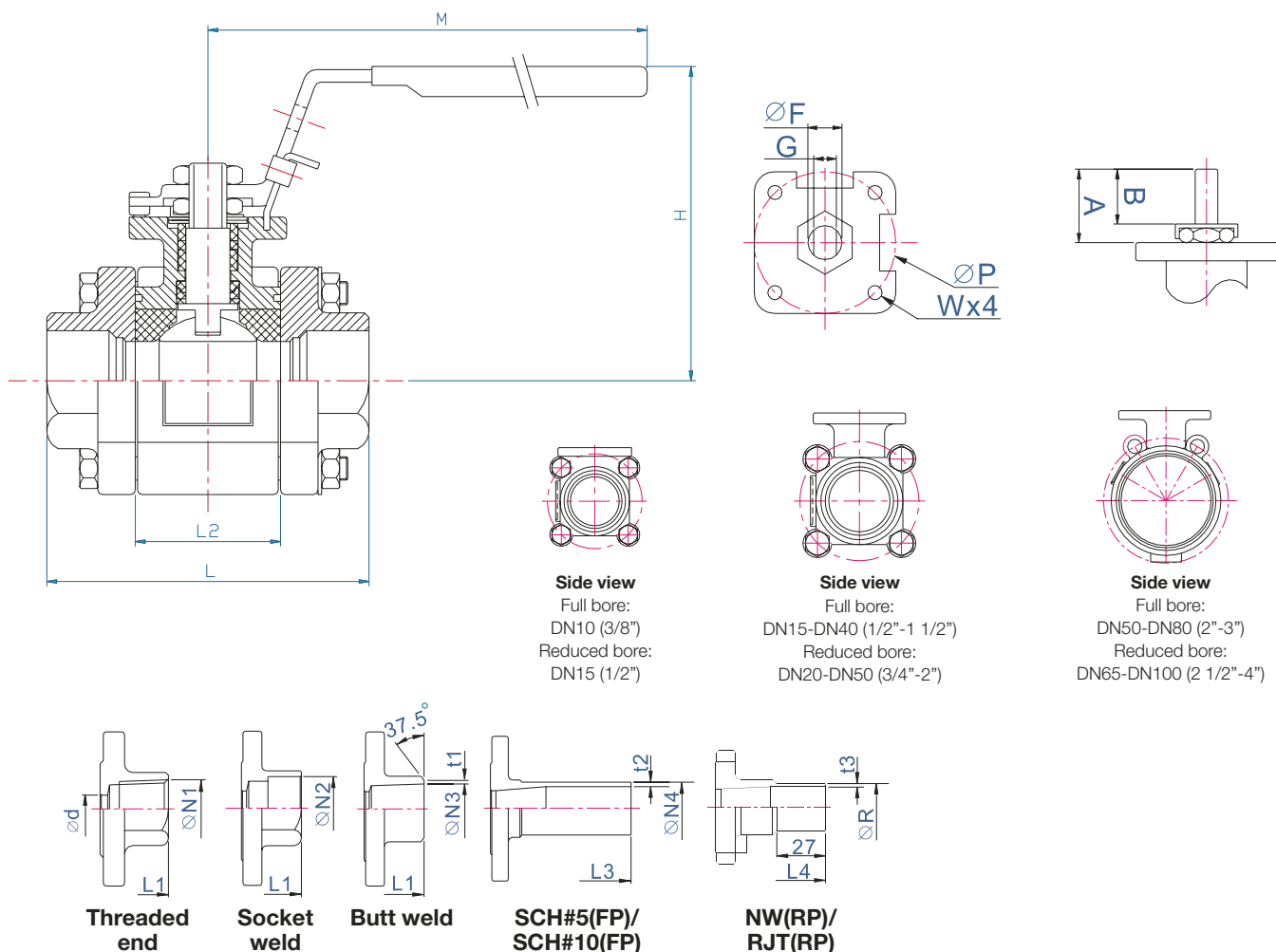
* Stainless steel welded connectors are CF 3M/1.4409

Pressure/Temperature charts



Utility Ball Valve Range

F180 - Three-piece heavy duty ball valves



Full Bore Dimensions (mm)

Size	DN	Ød	A	B	G	ØP	ØF	W	M	t1	t2		L1	L2	L3	ØN2	ØN3	ØN4	H	Wt(kg)
											5S	10S								
1/4"	8	11.2	12.7	5.6	5.0	36	7.9	M5	115	0.5	N/A	N/A	66.6	21.2	N/A	14.1	10.2	N/A	66	0.62
3/8"	10	12.7	12.7	5.6	5.0	36	7.9	M5	115	0.5	N/A	N/A	66.6	21.2	N/A	17.5	13.5	N/A	66	0.60
1/2"	15	15.0	18.0	9.0	6.3	42	9.7	M5	135	0.5	1.65	2.1	71.6	25.2	129.8	22.4	16.8	21.7	84	0.82
3/4"	20	20.0	17.5	9.0	6.3	42	9.7	M5	135	0.5	1.65	2.1	96.6	32.3	140.9	27.4	22.0	27.2	88	1.42
1"	25	25.0	20.0	12.0	8.0	50	11.2	M6	165	0.5	1.65	2.1	109.0	42.3	223.3	34.2	27.6	34.0	98	2.02
1 1/4"	32	31.8	20.0	12.0	8.0	50	11.2	M6	165	0.5	1.65	2.8	117.0	49.4	230.4	43.0	36.1	42.7	101	2.76
1 1/2"	40	38.1	23.5	14.0	9.5	70	16.0	M8	200	0.5	1.65	2.8	129.0	57.2	240.2	49.0	41.9	48.6	117	4.12
2"	50	50.8	23.5	14.0	9.5	70	16.0	M8	200	1.0	1.65	2.8	142.0	71.4	259.4	61.1	54.5	60.5	125	6.00
2 1/2"	65	65.0	41.5	24.7	17.0	102	22.2	M10	250	1.0	N/A	N/A	174.0	89.0	N/A	77.1	70.9	N/A	164	9.48
3"	80	80.0	38.5	25.7	17.0	102	22.2	M10	250	1.6	N/A	N/A	193.0	108.5	N/A	90.2	81.1	N/A	173	15.64

ØN1: BSPP, BSPT, NPT

N/A = Not Available

Reduced Bore Dimensions (mm)

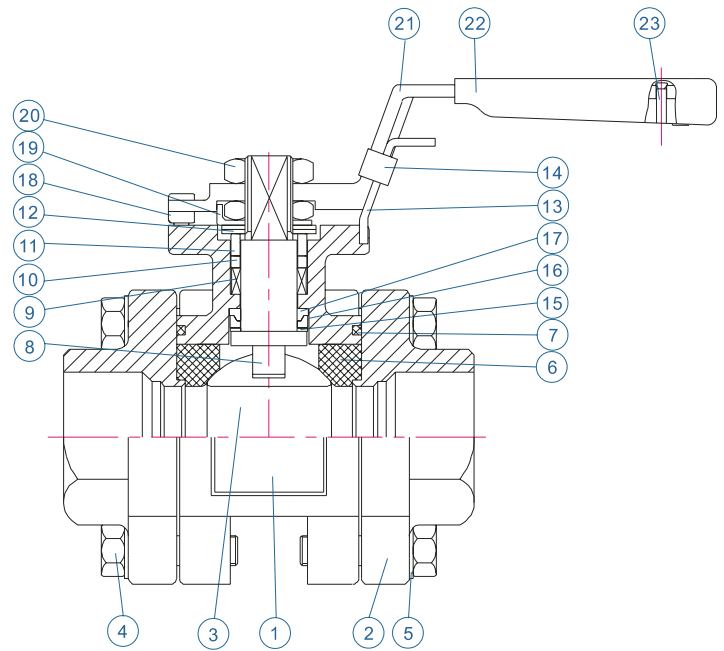
Size	DN	Ød	A	B	G	ØP	ØF	W	M	t1	t3		L1	L2	L4	ØN2	ØN3	H	ØR		Wt(kg)
											NW	RJT							NW	RJT	
											1/2"	15							12.7	12.7	
3/4"	20	15.0	18.0	9.0	6.3	42	9.7	M5	135	0.5	1.5	1.55	71.6	25.2	133	27.4	22.0	82	22	19.0	0.85
1"	25	20.0	17.5	9.0	6.3	42	9.7	M5	135	0.5	1.5	1.6	96.6	32.3	151	34.2	27.6	86	28	25.4	1.48
1 1/4"	32	25.0	20.0	12.0	8.0	50	11.2	M6	165	0.5	1.5	N/A	109	42.3	163	43.0	36.1	98	34	N/A	2.08
1 1/2"	40	31.8	20.0	12.0	8.0	50	11.2	M6	165	0.5	1.5	1.6	117	49.4	182	49.0	41.9	100	40	38.1	2.82
2"	50	38.1	23.5	14.0	9.5	70	16.0	M6	200	1.0	1.5	1.65	129	57.2	189	61.1	54.5	116	52	50.8	4.32
2 1/2"	65	50.8	23.5	14.0	9.5	70	16.0	M8	200	1.0	2.0	1.6	142	71.4	236.5	77.1	70.9	125	70	63.5	5.89
3"	80	65.0	41.5	24.7	17.0	102	22.2	M10	250	1.6	2.0	1.6	174	89.0	260	90.2	81.1	162.8	85	76.2	9.63
4"	100	80.0	38.5	25.7	17.0	102	22.2	M10	250	1.6	2.0	2.1	193	108.5	290	115.1	105.5	170.8	104	101.6	15.44

ØN1: BSPP, BSPT, NPT

N/A = Not Available

Utility Ball Valve Range

F180F - Three-piece fire tested ball valves



Features

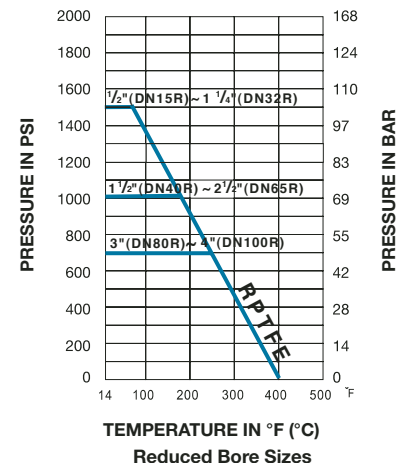
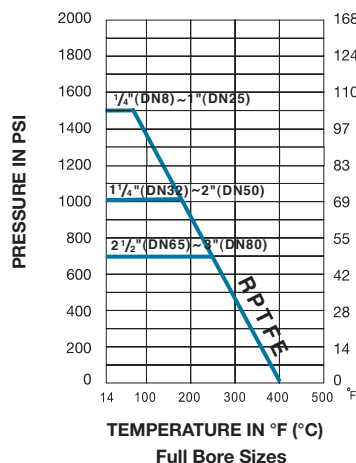
- Heavy duty fire tested three piece ball valve
- Patented "SEALMASTER" stem arrangement
- Double stem sealing complies with TA-Luft requirements
- Blow-out proof stem and anti-static design
- ISO 5211 mounting plate
- End connections, screwed, butt weld and socket weld
- Secondary metal to metal seating surface
- Fire tested to API 607 4th edition up to DN80 (3")
- Optional castings per AD/WO/TRD-100 are available
- Size range DN10 (3/8") to DN80 (3") - Full and reduced bore
- Carbon steel and stainless steel bodies
- Tightness to EN 12266-1, rate A

Materials of construction

No.	Part Name	Material	Quantity
1	Body	CF8M / WCB, 1.4408 / 1.0619	1
2	Cap	CF8M / WCB, 1.4408 / 1.0619	2*
3	Ball	ASTM A351 Gr. CF8M	1
4	Bolt	A193 Gr.B8 / A193 Gr.B7	8-12
5	Bolt Washer	SUS304	8-12
6	Ball Seat	RPTFE	2
7	Body Gasket	Grafoil	2
8	Anti-Static Stem	A276 Type 316	1
9	Stem Packing	Grafoil	1 Set
10	Thrust Washer	50% S.S Powder / 50% PTFE	1
11	Gland	SUS304	1
12	Belleville Washer	SUS301 / WCB1075	2
13	Locking Trigger	SUS304	1
14	Fix Plate	SUS304	1
15	Lower Stem Seal	50% S.S Powder / 50% PTFE	1
16	Compress Ring	SUS316	1
17	Upper Stem Seal	Grafoil	1
18	Stop Bolt	A2-70	1
19	Lock Saddle	SUS304	1
20	Stem Nut	SUS304	2
21	Handle	CF8	1
22	Handle Sleeve	Vinyl	1
23	Rivet	SUS304	2

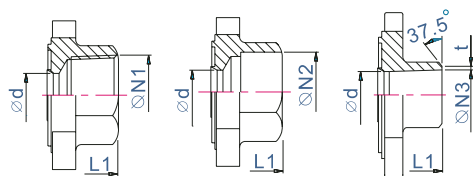
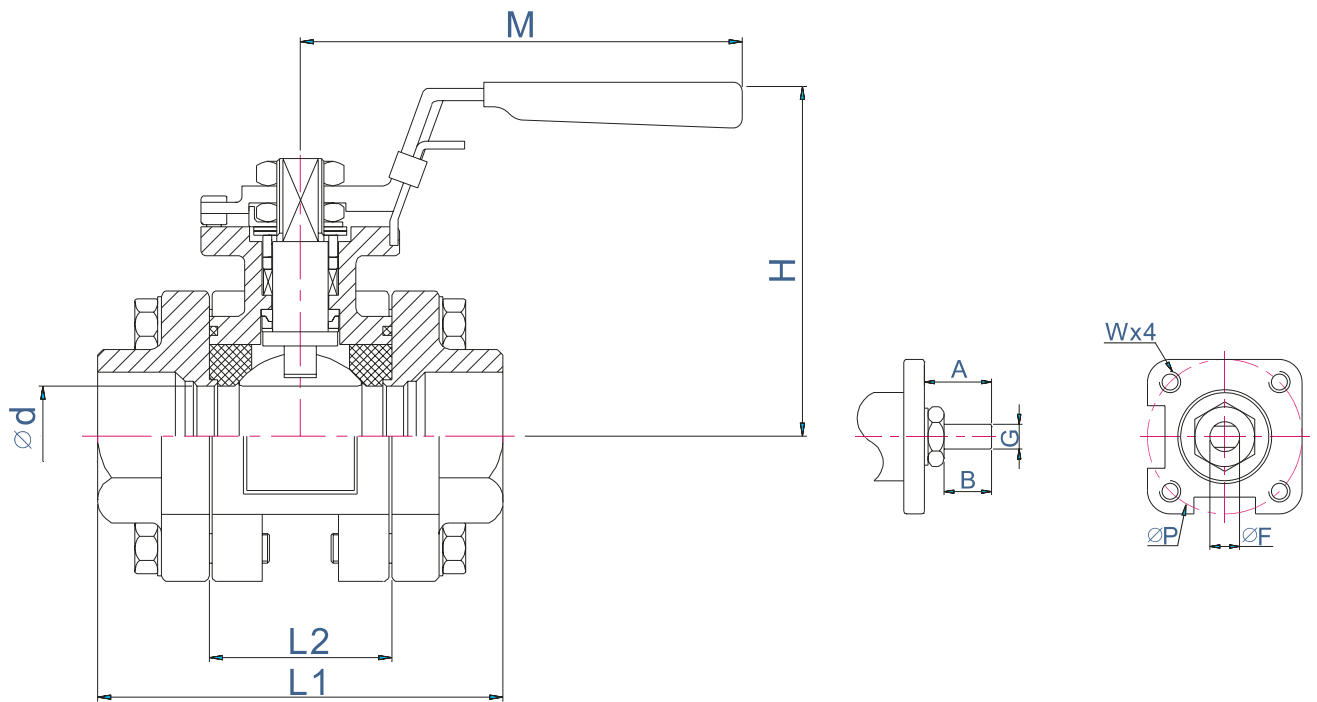
* Stainless steel welded connectors are CF 3M/1.4409

Pressure/Temperature charts



Utility Ball Valve Range

F180F - Three-piece fire tested ball valves



Side view
Full bore:
DN10 (3/8")
Reduced bore:
DN15 (1/2")

Side view
Full bore:
DN15-DN40 (1/2"-1 1/2")
Reduced bore:
DN20-DN50 (3/4"-2")

Side view
Full bore:
DN50-DN80 (2"-3")
Reduced bore:
DN65-DN80 (2 1/2"-3")

Full Bore Dimensions (mm)

Size	DN	Ød	A	B	G	ØP	ØF	W	H	L1	L2	M	ØN2	ØN3	t	Wt(kg)
3/8"	10	12.7	12.7	5.6	5	36	7.9	M5	66	66.6	21.2	115	17.5	13.5	0.5	0.62
1/2"	15	15.0	18.0	9	6.3	42	9.7	M5	84	71.6	25.2	135	22.4	16.8	0.5	0.88
3/4"	20	20.0	17.5	9	6.3	42	9.7	M5	88	96.6	32.3	135	27.4	22.0	0.5	1.40
1"	25	25.0	20.0	12	8	50	11.2	M6	98	109	42.3	165	34.2	27.6	0.5	1.96
1 1/4"	32	31.8	20.0	12	8	50	11.2	M6	101	117	49.4	165	43.0	36.1	0.5	2.72
1 1/2"	40	38.1	23.5	14	9.5	70	16.0	M8	117	129	57.2	200	49.0	41.9	0.5	4.04
2"	50	50.8	23.5	14	9.5	70	16.0	M8	125	142	71.4	200	61.1	54.5	1.0	6.56
2 1/2"	65	65.0	41.5	24.7	17	102	22.2	M10	165	174	89.0	250	77.1	70.9	1.0	N/A
3"	80	80.0	38.5	25.7	17	102	22.2	M10	174	193	108.5	250	90.2	81.1	1.6	N/A

ØN1: BSPP, BSPT, NPT

N/A = Not Available

Reduced Bore Dimensions (mm)

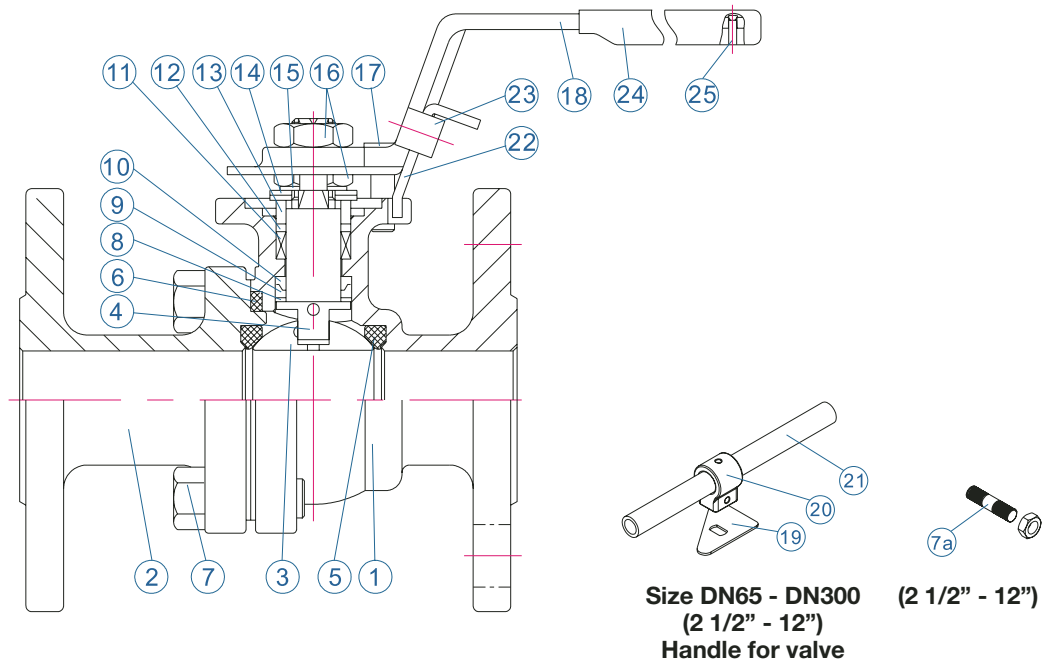
Size	DN	Ød	A	B	G	ØP	ØF	W	H	L1	L2	M	ØN2	ØN3	t
1/2"	15	12.7	12.7	5.6	5	36	7.9	M5	66	66.6	21.2	115	22.4	16.8	0.5
3/4"	20	15.0	18.0	9	6.3	42	9.7	M5	84	71.6	25.2	135	27.4	22.0	0.5
1"	25	20.0	17.5	9	6.3	42	9.7	M5	88	96.6	32.3	135	34.2	27.6	0.5
1 1/4"	32	25.0	20.0	12	8	50	11.2	M6	98	109	42.3	165	43.0	36.1	0.5
1 1/2"	40	31.8	20.0	12	8	50	11.2	M6	101	117	49.4	165	49.0	41.9	0.5
2"	50	38.1	23.5	14	9.5	70	16.0	M8	117	129	57.2	200	61.1	54.5	1.0
2 1/2"	65	50.8	23.5	14	9.5	70	16.0	M8	125	142	71.4	200	77.1	70.9	1.0
3"	80	65.0	41.5	24.7	17	102	22.2	M10	165	174	89.0	250	90.2	81.1	1.6

ØN1: BSPP, BSPT, NPT

N/A = Not Available

Utility Ball Valve Range

F190 - Split body flanged ball valves



Features

- Two piece, split body ball valve with flanged ends
- Carbon steel or stainless steel bodies
- Double stem sealing complies with TA-Luft requirements
- Patented "SEALMASTER" stem arrangement
- Blow-out proof stem
- ISO 5211 mounting plate
- Anti-static design
- Valve pressure rating:
ANSI Class 150/300
DIN PN 10/16/25/40
- Locking device
- Various seat material options
- Investment cast body (DN15 to DN100)
- Sand cast body (DN125 to DN300)
- Optional castings per AD/WO/TRD-100 are available
- Size range DN15 (1/2") to DN300 (12") - Full bore
- Tight shut-off to EN 12266-1, rate A

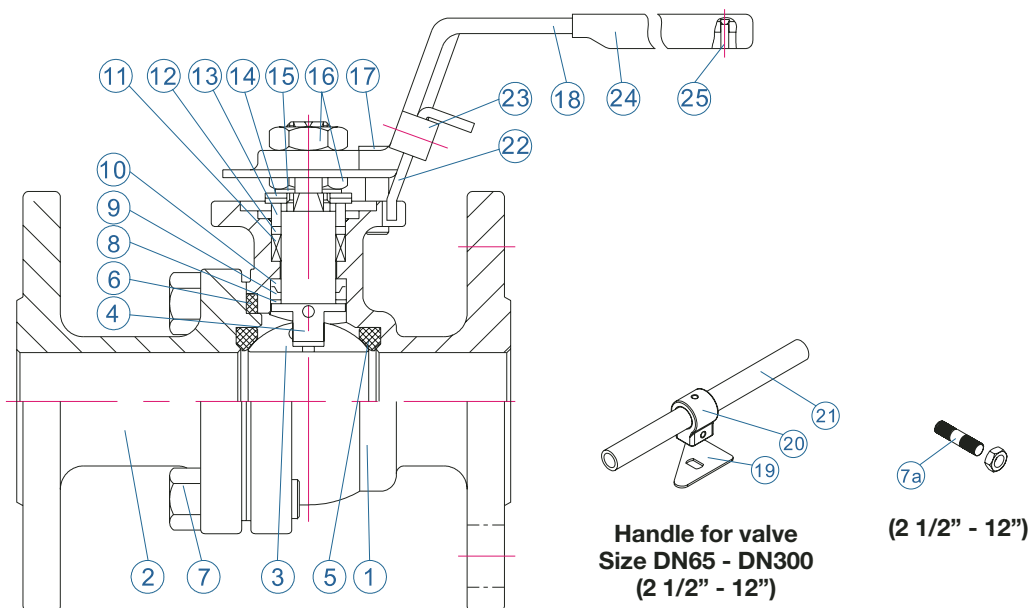
Materials of construction

No.	Part Name	Material	Quantity
1*	Body	ASTM A351 Gr. CF8M / ASTM A216 Gr. WCB	1
2*	Cap	ASTM A351 Gr. CF8M / ASTM A216 Gr. WCB	1
3	Ball	ASTM A351 Gr. CF8M	1
4	Anti-Static Stem	A276 Type 316	1
5	Ball Seat	PTFE	2
6	Body Seal	PTFE	1
7	Flange Bolt (1/2"-2")	A193 Gr.B8 / A193 Gr.B7	4
7a	Flange Stud & Nut (2 1/2"-12")	A193 Gr.B8+A194 Gr.8 / A193 Gr.B7+A194 Gr.2H	6-20
8	Lower Stem Seal	50% S.S Powder / 50% PTFE	1
9	Compress Ring	SUS316	1
10	Upper Stem Seal	TFM1600	1
11	V-Ring Stem Packing	PTFE	1 Set
12	Thrust Washer	50% S.S Powder / 50% PTFE	1
13	Gland	SUS304	1
14	Belleville Washer	SUS301 / 1075	2
15	Lock Saddle	SUS304	1-2
16	Stem Nut	SUS304	1
17	Stop Bolt	A2-70	1
18	Handle (1/2"-2")	CF8	1
19	Triangle Stopper (2 1/2"-12")	SUS304	1
20	Handle Adapter (2 1/2"-12")	CF8 (2 1/2"-5") / FCD 450 (6"-12")	1
21	Handle (2 1/2"-12")	Steel	1
22	Locking Trigger	SUS304	1
23	Fix Plate	SUS304	1
24	Handle Sleeve	Vinyl	1
25	Rivet	SUS304	2

* For DIN valves, the body & cap material will be 1.4408/1.0619.

Utility Ball Valve Range

F190F - Split body flanged ball valves



Materials of construction

No.	Part Name	Material	Quantity
1*	Body	ASTM A351 Gr. CF8M / ASTM A216 Gr. WCB	1
2*	Cap	ASTM A351 Gr. CF8M / ASTM A216 Gr. WCB	1
3	Ball	ASTM A351 Gr. CF8M	1
4	Anti-Static Stem	A276 Type 316	1
5	Ball Seat	PTFE	2
6	Body Seal	SS316 Spiral Wound Grafoil (1/2"-4") + Grafoil (5"-12")	1
7	Flange Bolt (1/2"-2")	A193 Gr.B8 / A193 Gr.B7	4
7a	Flange Stud & Nut (2 1/2"-12")	A193 Gr.B8+A194 Gr.8 / A193 Gr.B7+A194 Gr.2H	6-20
8	Lower Stem Seal	50% S.S Powder / 50% PTFE	1
9	Compress Ring	SUS316	1
10	Upper Stem Seal	Grafoil	1
11	Stem Packing	Grafoil	1 Set
12	Thrust Washer	50% S.S Powder / 50% PTFE	1
13	Gland	SUS304	1
14	Belleville Washer	SUS301 / 1075	2
15	Lock Saddle	SUS304	1-2
16	Stem Nut	SUS304	1
17	Stop Bolt	A2-70	1
18	Handle (1/2"-2")	CF8	1
19	Triangle Stopper (2 1/2"-12")	SUS304	1
20	Handle Adapter (2 1/2"-5") / FCD 450 (6"-12")	CF8 (2 1/2"-5") / FCD 450 (6"-12")	1
21	Handle (2 1/2"-12")	Steel	1
22	Locking Trigger	SUS304	1
23	Fix Plate	SUS304	1
24	Handle Sleeve	Vinyl	1
25	Rivet	SUS304	2

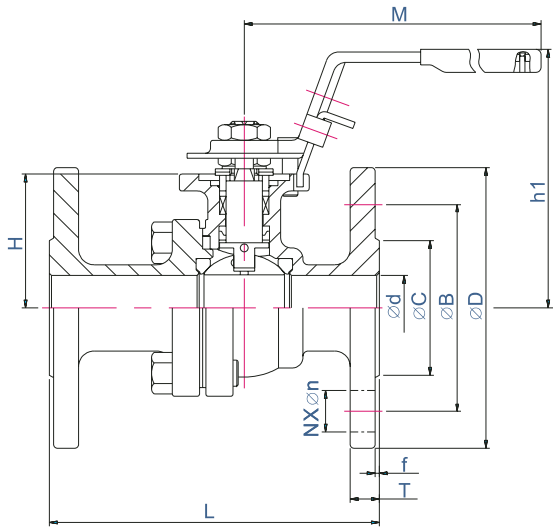
* For DIN valves, the body & cap material will be 1.4408/1.0619.

Features

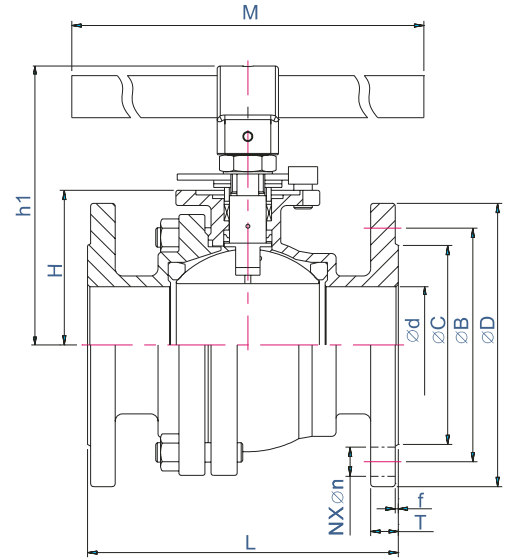
- Double stem sealing complies with TA-Luft requirements
- Blow-out proof stem
- ISO 5211 mounting plate
- Anti-static design
- Valve pressure rating:
ANSI Class 150/300
DIN PN 10/16/25/40
- Two piece, split body ball valve
- Flexible graphite body, seal and stem packing for Hi-temp resistance
- Secondary metal to metal seating surface
- Fire tested to API 607 4th edition up to 12" (DN300)
- Optional castings per AD/WO/TRD-100 are available
- Size range DN15 (1/2") to DN300 (12") - Full bore
- Tight shut-off to EN 12266-1, rate A

Utility Ball Valve Range

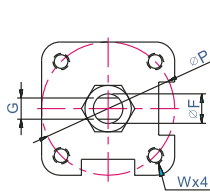
F190/190F - Split body flanged ball valves



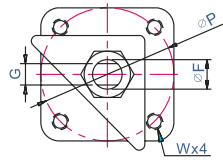
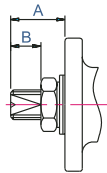
Sizes DN15-DN200 (1/2"-8")
Solid Ball



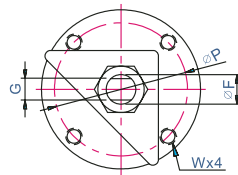
Sizes DN250-DN300 (10"-12")
Cored Cavity



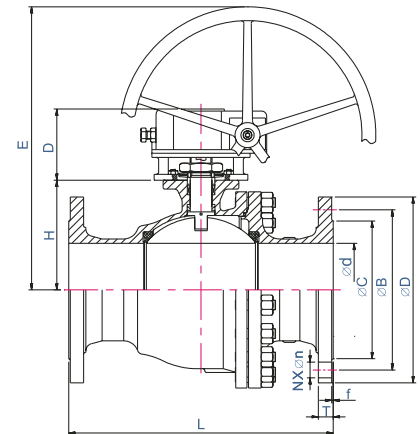
Sizes DN15 - DN100
(1/2" - 4")



Sizes DN125 - DN200
(5" - 8")



Sizes DN250 - DN300
(10" - 12")



Sizes DN125-DN300 (5"-12")
Gear operated

Dimensions (mm)

Size	DN	A	ØP	ØF	G	B	W	M	H	h1	D	E
1/2"	15	18.0	42	9.7	6.3	11.2	M5	135.0	38.5	82.0	N/A	N/A
3/4"	20	17.5	42	9.7	6.3	11.5	M5	135.0	42.0	86.0	N/A	N/A
1"	25	20.0	50	11.2	8.0	12.0	M6	165.0	51.5	98.0	N/A	N/A
1 1/4"	32	20.0	50	11.2	8.0	12.0	M6	165.0	55.5	102.0	N/A	N/A
1 1/2"	40	23.5	70	16.0	9.5	14.0	M8	200.0	65.5	119.0	N/A	N/A
2"	50	23.5	70	16.0	9.5	14.0	M8	200.0	74.5	128.0	N/A	N/A
2 1/2"	65	41.5	102	22.3	17.0	22.4	M10	495.0	90.0	162.0	N/A	N/A
3"	80	41.5	102	22.3	17.0	19.0	M10	495.0	101.0	172.0	N/A	N/A
4"	100	47.5	102	28.6	17.0	25.9	M10	595.0	122.0	197.0	N/A	N/A
5"	125	53.5	102	28.6	17.0	25.0	M10	595.0	140.0	226.0	125	447
6"	150	65.0	125	34.0	23.0	36.5	M12	800.0	167.0	281.0	125	474
8"	200	65.0	125	34.0	23.0	36.5	M12	1100	203.0	317.0	125	510
10"	250	82.0	140	50.0	30.0	40.0	M16	#	263.0	N/A	125	570
12"	300	82.0	140	50.0	30.0	40.0	M16	#	305.0	N/A	170	728

N/A = Not Available

Utility Ball Valve Range

F190/190F - Split body flanged ball valves

ANSI 150 / 300 Dimensions (mm)

Size	DN	ØB		ØD		L		N		T		Øn		ØC	Ød	f	Wt(kg)	
		150	300	150	300	150	300	150	300	150	300	150	300				150#	300#
1/2"	15	60.5	66.5	89.0	95.0	108.0	140.0	4	4	11.2	14.3	16.0	16.0	35.0	15.0	1.6	1.82	2.20
3/4"	20	70.0	82.5	98.6	117.0	117.0	152.0	4	4	11.2	15.9	16.0	19.0	43.0	20.0	1.6	2.12	3.25
1"	25	79.5	89.0	108.0	124.0	127.0	165.0	4	4	11.2	17.5	16.0	19.0	51.0	25.0	1.6	3.04	4.48
1 1/2"	40	98.5	114.5	127.0	156.0	165.0	190.0	4	4	14.2	20.7	16.0	22.0	73.0	40.0	1.6	5.80	8.70
2"	50	120.5	127.0	152.5	165.0	178.0	216.0	4	8	15.9	22.3	19.0	19.0	92.0	50.0	1.6	8.36	11.20
2 1/2"	65	139.5	149.0	178.0	190.0	190.0	241.0	4	8	17.5	25.4	19.0	22.0	105.0	65.0	1.6	15.00	19.00
3"	80	152.5	168.0	190.5	210.0	203.0	283.0	4	8	19.1	28.6	19.0	22.0	127.0	76.0	1.6	19.92	28.00
4"	100	190.5	200.0	229.0	254.0	229.0	305.0	8	8	23.9	31.8	19.0	22.0	157.0	100.0	1.6	32.90	43.72
5"	125	215.9	234.9	254.0	279.4	355.6	381.0	8	8	23.9	34.9	22.2	22.2	186.0	125.0	1.6	49	71
6"	150	241.3	269.9	279.4	317.5	393.7	403.4	8	12	25.4	36.6	22.2	22.2	216.0	150.0	1.6	75	100
8"	200	298.4	330.2	342.9	381.0	457.2	501.7	8	12	28.6	41.3	22.2	25.4	270.0	200.0	1.6	128	172
10"	250	361.9	387.3	406.4	444.5	533.4	568.5	12	16	30.2	47.6	25.4	28.6	324.0	250.0	1.6	215	291
12"	300	431.8	450.8	482.6	520.7	609.6	647.7	12	16	31.8	50.8	25.4	31.8	381.0	300.0	1.6	254	423

#: 10" & 12"w / Gear operator

DIN PN10/16/25/40 Dimensions (mm)

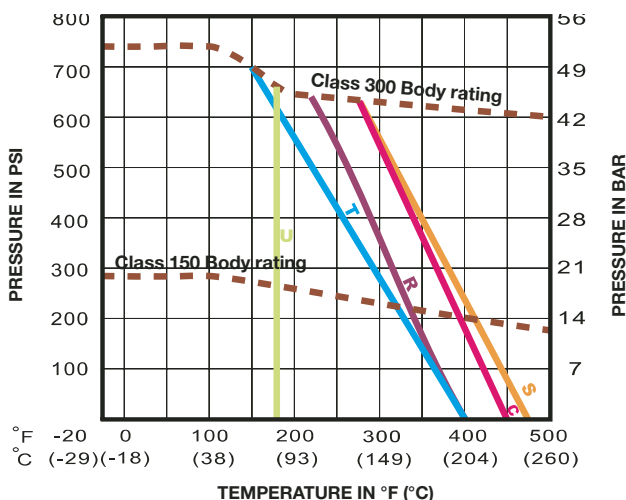
DN	Size	PN	ØB	ØC	ØD	L	*L	N	T	Øn	Ød	f	Wt (kg)	
													F1	F4/F5
DN15	1/2"	10/16/25/40	65	45	95	115	130	4	16	14	15	2	2.42	2.46
DN20	3/4"	10/16/25/40	75	58	105	120	150	4	18	14	20	2	3.24	3.08
DN25	1"	10/16/25/40	85	68	115	125	160	4	18	14	25	2	4.42	4.18
DN32	1 1/4"	10/16/25/40	100	78	140	130	180	4	18	18	32	3	6.10	5.62
DN40	1 1/2"	10/16/25/40	110	88	150	140	200	4	18	18	40	3	7.94	7.40
DN50	2"	10/16/25/40	125	102	165	150	230	4	20	18	50	3	10.50	9.76
DN65	2 1/2"	10/16/25/40	145	122	185	170	290	4	18	18	65	3	17.00	16.60
								8	22				18.30	16.22
DN80	3"	10/16/25/40	160	138	200	180	310	8	20	18	80	3	21.50	21.40
									24				24.90	21.34
DN100	4"	10/16/25/40	180	158	220	190	350	8	20	18	100	3	34.00	27.72
			190	162	235				24	22			37.20	31.42
DN125	5"	10/16/25/40	210	188	250	325	400	8	22	18	125	3	50	48
			220		270				26	26			60	57
DN150	6"	10/16/25/40	240	212	285	350	480	8	22	22	150	3	78	73
			250	218	300				28	26			92	82
DN200	8"	10/16/25/40	295	268	340	400	600	8	24	22	200	3	124	98
			16	295	268	340		12	24	22			124	98
			25	310	278	360		12	30	26			164	148
			40	320	285	375		12	34	30			164	148
DN250	10"	10/16/25/40	350	320	395	450	730	12	26	22	250	3	270	203
			16	355	320	405				26			270	203
DN300	12"	10/16/25/40	400	370	445	500	850	12	28	22	300	4	N/A	233
			16	410	378	460				26			N/A	233

10" & 12"w / Gear operator

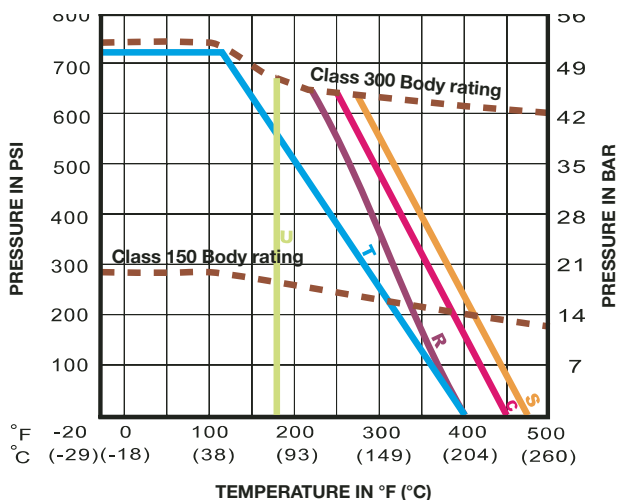
L Dimensions to ISO 5752 Series 27 (DIN 3202 F4/F5)

*L Dimensions to ISO 5752 Series 1 (DIN 3202 F1)

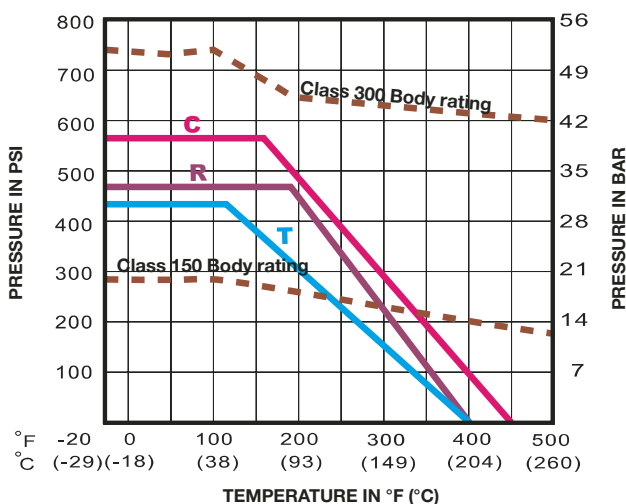
DN15 - DN20 (1/2" - 3/4")



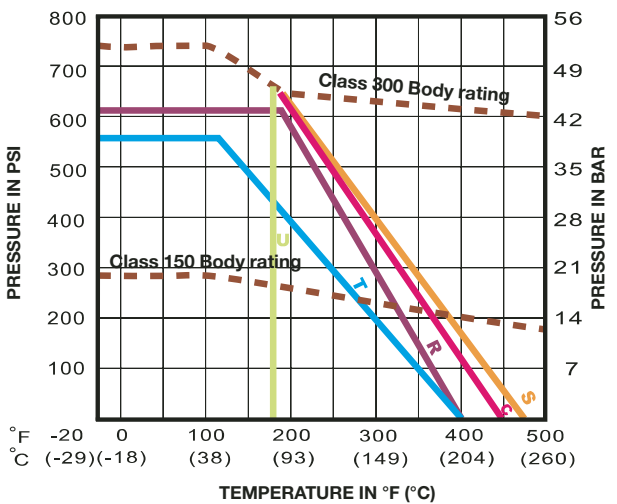
DN25 - DN65 (1" - 2 1/2")



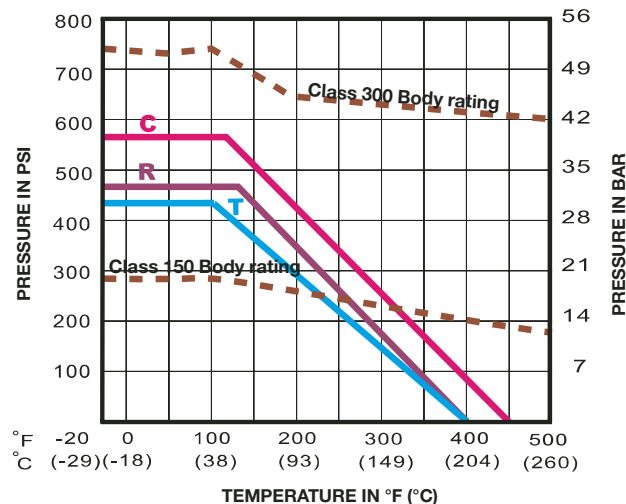
DN80 - DN100 (3" - 4")



DN125 - DN150 (5" - 6")



DN200 - DN300 (8" - 12")



T = PTFE
 C = 25% Carbon filled PTFE
 R = RPTFE
 S = 50% SS filled PTFE
 U = UHMWPE
 Use Class 150 body rating also for DIN PN10/16
 Use Class 300 body rating also for DIN PN25/40

Utility Ball Valve Range

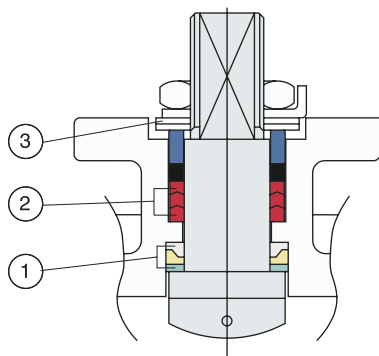
Availability matrix

The following chart indicates models available by size

Model	DN8 1/4"	DN10 3/8"	DN15 1/2"	DN20 3/4"	DN25 1"	DN32 1 1/4"	DN40 1 1/2"	DN50 2"	DN65 2 1/2"	DN80 3"	DN100 4"	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"
F 110 - SS	•	•	•	•	•	•	•	•								
F 120 - SS	•	•	•	•	•	•	•	•								
F 130M - SS								•	•	•	•		•			
- CS								•	•	•	•		•			
F 133M - SS		•	•	•	•	•	•	•								
- CS		•	•	•	•	•	•	•								
F 138 - SS	•	•	•	•	•	•	•	•								
F 150 - SS	•	•	•	•	•	•	•	•	•	•	•					
- CS	•	•	•	•	•	•	•	•	•	•	•					
F 170 - SS	•	•	•	•	•	•	•	•	•	•	•					
- CS	•	•	•	•	•	•	•	•	•	•	•					
F 180 - SS	•	•	•	•	•	•	•	•	•	•	•					
F 180F - SS		•	•	•	•	•	•	•	•	•						
- CS		•	•	•	•	•	•	•	•	•						
F 190 - SS			•	•	•	•	•	•	•	•	•	•	•	•	•	•
- CS			•	•	•	•	•	•	•	•	•	•	•	•	•	•
F 190F - SS			•	•	•	•	•	•	•	•	•	•	•	•	•	•
- CS			•	•	•	•	•	•	•	•	•	•	•	•	•	•

SS = Stainless Steel CS = Carbon Steel

Patented SEALMASTER™ Stem Seal Arrangement - Available for Figures 130M, 133M, 170, 180, 190



Notes

- 1 SEALMASTER™
- 2 V-Ring stem packing
- 3 Belleville washers

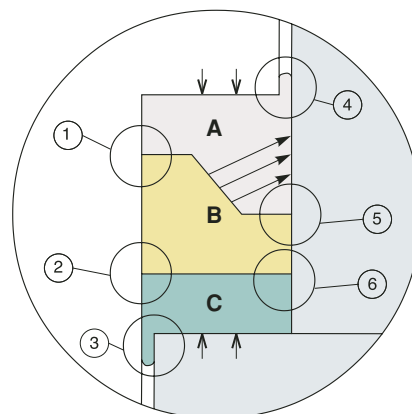
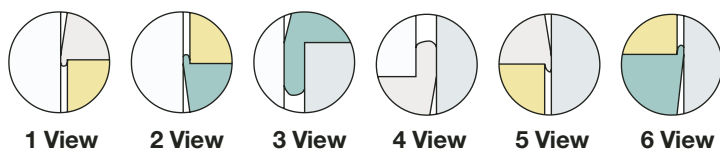
Our extremely high cycle stem sealing design is accomplished by double sealing system. The high performance of Tyco Ball Valves is mainly due to unique SEALMASTER™ stem seal arrangement, which provides a primary sealing. It has been specially designed and constructed to prevent line fluid permeation and resultant leakage. On top of this arrangement are multiple layers of V-Ring stem packing, this acts as secondary sealing.

A set of Belleville washers automatically and constantly compresses the seals to adjust for wear, pressure and temperature fluctuations. Every Tyco Ball Valve is a stalwart barrier against Fugitive Emissions.

Explanation of SEALMASTER™

The live loaded SEALMASTER is a combination of 3 components; (A) a cup and cone PFA/TFE upper thrust seal, (B) a cup and cone sintered SS316 center load ring and (C) a flat SS/TFE lower thrust seal. When tightened, the live loaded stem pulls up and compressing the stem thrust seals. As this happens, material from upper and lower thrust seal extrude between stem and body enclosures. (See 1 - 6). The surfaces between the bottom of lower thrust seal and top of stem flange are smooth and all rotation occurs between these two surfaces leaving the stem thrust seal "static" to create the best possible seal.

As rotation continues, components bed in and keep seal performance constant with usage.



Main features of SEALMASTER™-patented stem seal arrangement

- "Multiple" sealings up to 6 areas (see 1 - 6) for pressure and high vacuum.
- Encapsulated "static" sealing achieved on upper thrust seal.
- Constant sealing force transmitted to stem (see arrow) and making the stem primary sealing "positive".
- Excellent wear resistance on lower thrust seal (50% SS filled PTFE).
- Standard stem finish better than Ra 0.8µm (150 Grit) to reduce seals friction to a minimum.