

# NUTORK®

Actuators & Valve



## Ball Valve

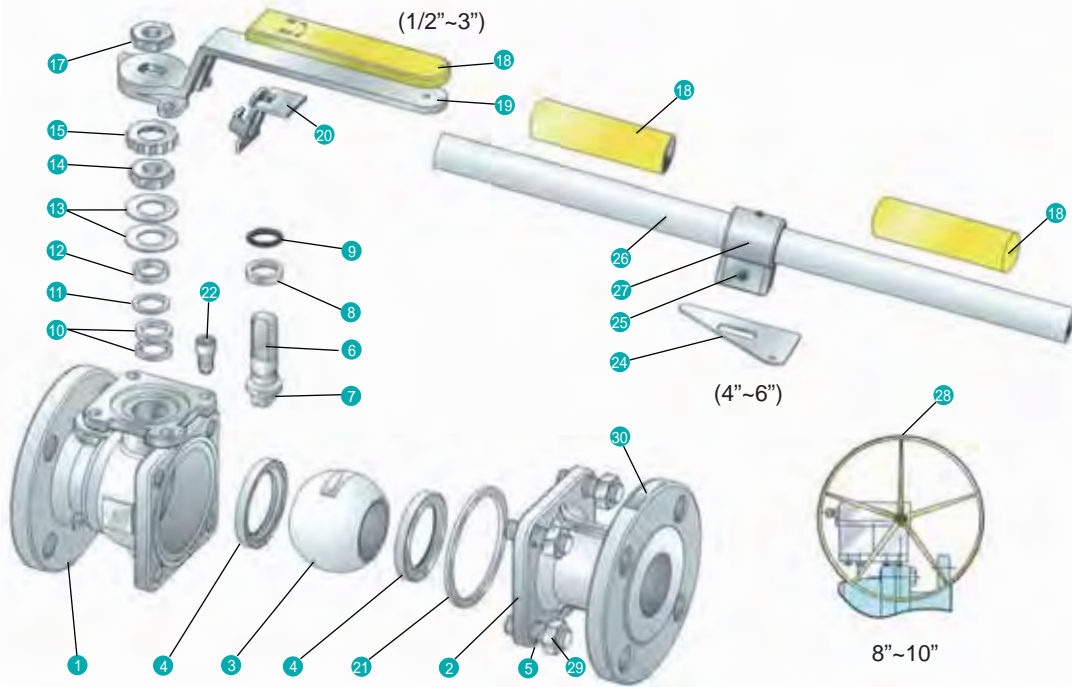


**NUTORK CORPORATION**

Standard	GB	ANSI	DIN / EN	JIS
Rating	GB / T12224 PN10-PN40 GB / T12237	B16.34 CLASS 150 (BS5351 CLASS 150) B16.34 CLASS 300 (BS5351 CLASS 300)	3357 PN10-PN40 EN 12516	B2001 10K B2001 20K
Face to Face	GB / T12221	B16.10 BS2080	3202 F4/F18 3202 F1/F17	B2002 10K Form 6 B2002 20K Form 10
Connection Facing	GB / T9113.1	B16.5RF serrated Finish (Ra3.2-Ra6.3) BS1560 Part 2 RF	2501/1 PN10-PN40 Facing DIN 2526 Form C	B2212 10K B2214 20K
Inspection & Testing	GB / T13927	API 598 and API 6D	3230/3 EN 12266	JIS B2003
Fire Safe		API 607 4 <sup>th</sup> edition 1993		
Quality Assurance		ISO 9001 AD-W0 / TRD100 PED 97/23/EC 0036		

### AVAILABLE OPTIONS

- Other Alloys Steel Upon Request.  
Casting per NACE/MR-01-75 for Sour Gas Service.
- NACE/MR-01-75



### MATERIAL OF CONSTRUCTION

NO.	PART NAME	MATERIALS								
		ANSI			DIN			JIS		
1	Body	CF8M	CF8	WCB	1.4408	1.4308	1.0619	SCS14A	SCS13A	SCPH2
2	End Cap	CF8M	CF8	WCB	1.4408	1.4308	1.0619	SCS14A	SCS13A	SCPH2
3	Ball	CF8M	CF8		1.4408		1.4308	SCS14A		SCS13A
4	Ball Seat									
5	Bolting	PTFE								
6	Stem	A193-B8	A193-B7		A193-B8	A193-B7		A193-B8	A193-B7	
7	Anti-Static	SUS316	SUS304		SUS316	SUS304		SUS316	SUS304	
8	Stem Seal-Ring									
9	O-ring									
10	V-Ring Stem Packing									
11	Bushing									
12	Gland									
13	Belleville Washer									
14	Stem Nut									
15	Stop-lock-cap									
16	Handle Gland									
17	Handle Nut									
18	Handle Sleeve(1/2\"-3")									
19	Handle(1/2\"-3")									
20	Lock Device (1/2\"-3")									
21	Body Gasket									
22	Stop Blot									
23	Nut									
24	Triangle Stoooper									
25	Set Screwed(4\"-6")									
26	Handle(4\"-6")									
27	Handle Adapter(4\"-6")									
28	Worm Gear(8\"-10")									
29	Bolt Nut	A194-8	A194-2H		A194-8	A194-2H		A194-8	A194-2H	
30	Name Plate									

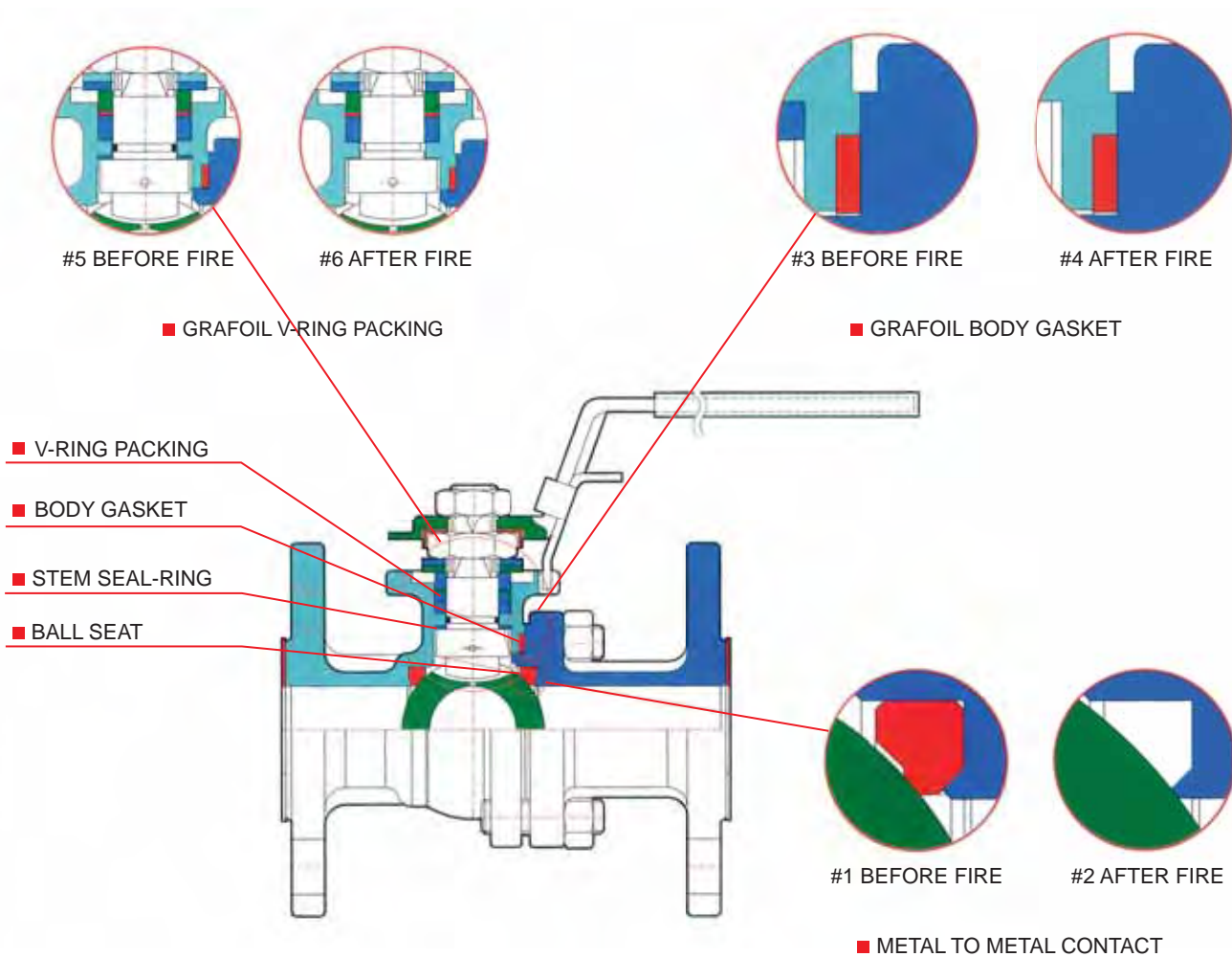
316SS+Solder Stellite #6 , 316SS+Hard Chrome Plated, ASME / PCI 70-2 Class V .

### API607- 5th

Nutork soft-seated ball valves conform to Fire Tests of API 607 Fourth Edition and BS 6755 Part 2 (1987). Our products can seal properly during the fire and after the accident, reduce inside and outside leakage of pipeline fluids, and prevent environmental pollution (even the fire) resulted from flammable or other fluids in the pipeline.

### Design Features:

1. During the fire, soft seats (such as PTFE, RTFE... etc) will burn up and lose supporting and sealing functions. Then, the Ball free moves downstream due to pressure from upstream, contacts secondary metal seats of Body or End Cap, and finally achieves to prevent leakage (see figures #1 & #2).
2. Grafoil Body Gaskets can endure high temperature and remain unaffected during the fire, and eventually prevent fluid leakage to the exterior. Moreover, the connection of Body and End Cap Flange maintains metal to metal contact by Stud Bolts screwed into Body (see figures #3 & #4).
3. Grafoil Stem Seals can endure high temperature and remain unaffected during the fire and prevent fluid leakage to the exterior (see figures #5 & #6).

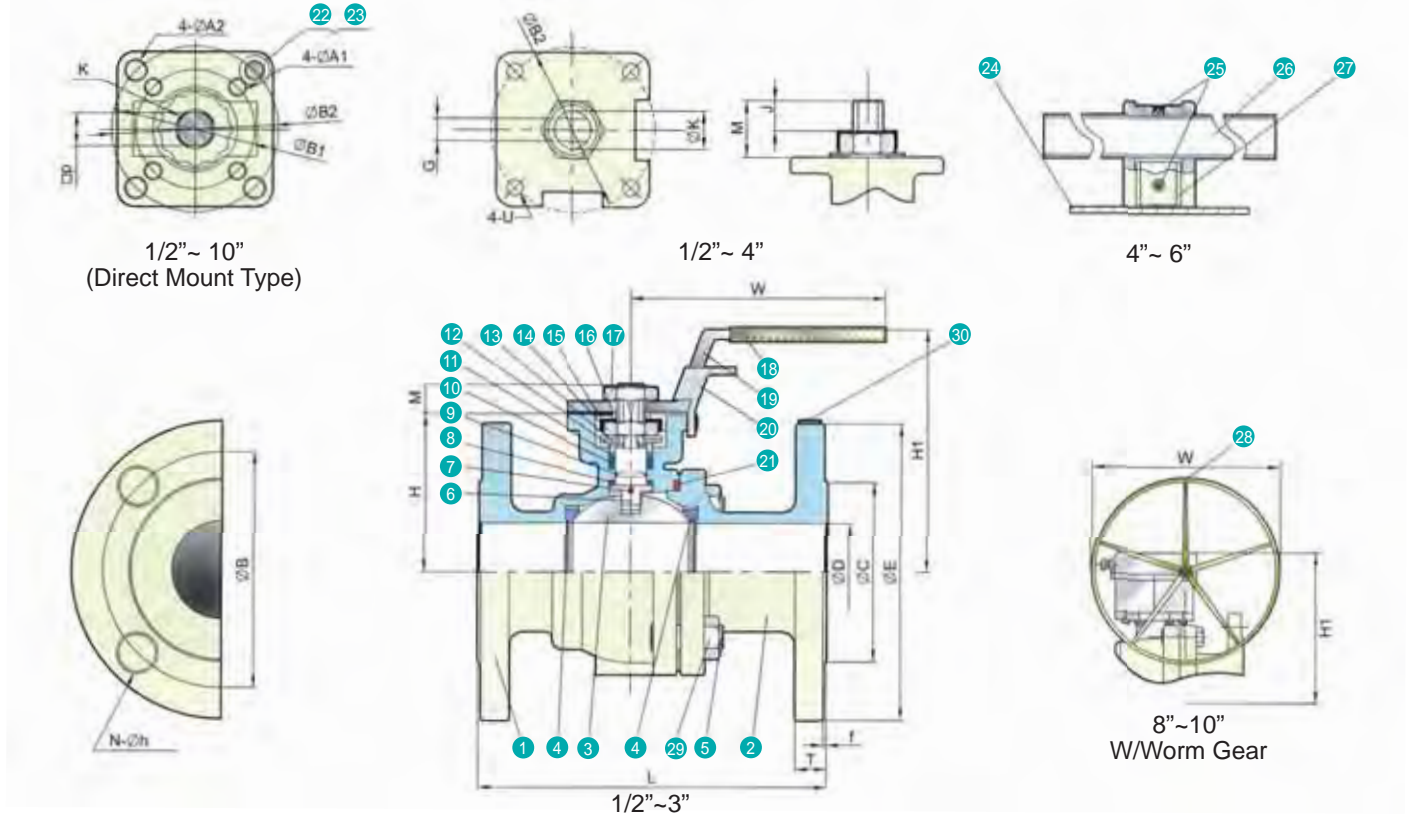


### DESIGN FEATURES

- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot

### APPLICABLE STANDARDS

- Design: ASME B16.34, API 608
- Fire Safe : API 607 4<sup>th</sup> 1993, BS 6755 Part2
- Face to Face : ASME B16.10
- Wall Thickness : ASME B16.34
- End Flange : ASME B16.5
- Inspection & Testing: API 598, API 6D



### ANSI CLASS 150 DIMENSION TABLE / ANSI CLASS 150

Unit: mm

SIZE	ØD	L	ØC	ØE	ØB	T	f	N	Øn	H*	H	H1*	H1	M*	M	W*	W	K*	K	P*	G	A1*	A2*	B1*	B2	U	J
1/2"	15.0	108.0	35.0	89.0	60.5	9.7	1.6	4.0	16.0	48.0	37.0	78.0	86.0	9.0	20.0	145.0	135.0	7/16-20UNF	3/8-24UNF	9.0	6.3	6.0	6.0	36.0	42.0	M5	10.0
3/4"	20.0	117.0	43.0	98.6	70.0	10.5	1.6	4.0	16.0	53.0	40.5	84.0	90.0	9.0	20.0	145.0	135.0	7/16-20UNF	3/8-24UNF	9.0	6.3	6.0	7.0	36.0	50.0	M5	10.0
1"	25.0	127.0	51.0	108.0	79.2	11.2	1.6	4.0	16.0	58.5	45.5	90.5	96.0	11.0	24.0	175.0	170.0	9/16-18UNF		11.0	9.0	6.0	7.0	42.0	50.0	M6	11.0
1-1/4"	32.0	140.0	63.5	117.0	88.9	12.7	1.6	4.0	16.0	71.0	50.0	103.0	102.0	11.0	24.0	175.0	170.0	9/16-18UNF		11.0	9.0	6.0	9.0	42.0	70.0	M6	11.0
1-1/2"	38.0	165.0	73.2	127.0	98.6	14.2	1.6	4.0	16.0	76.0	61.0	111.0	114.0	14.0	27.0	194.0	200.0	3/4-16UNF	5/8-18UNF	14.0	9.6	7.0	9.0	50.0	70.0	M8	16.0
2"	50.0	178.0	92.0	152.5	120.7	15.9	1.6	4.0	16.0	81.0	71.0	116.0	127.0	14.0	27.0	194.0	200.0	3/4-16UNF	5/8-18UNF	14.0	9.6	7.0	9.0	50.0	70.0	M8	16.0
2-1/2"	64.0	190.0	104.7	177.8	139.7	17.5	1.6	4.0	16.0	101.5	89.0	150.0	177.0	17.0	42.5	265.0	250.0	7/8-14UNF		17.0	16.0	9.0	11.0	70.0	102.0	M10	21.0
3"	76.0	203.0	127.0	190.5	152.4	19.1	1.6	4.0	16.0	111.5	100.0	160.0	183.0	17.0	42.5	265.0	250.0	7/8-14UNF		17.0	16.0	9.0	11.0	70.0	102.0	M10	21.0
4"	100.0	229.0	157.2	228.6	190.5	23.9	1.6	4.0	16.0	140.0	121.0	182.0	214.0	22.0	47.5	400.0	400.0	1-1/8-12UNF		22.0	18.0	-	11.0	-	102.0	M10	25.0
5"	125.0	356.0	186.0	254.0	216.0	24.0	1.6	4.0	16.0	183.0	-	260.0	-	27.0	-	600.0	-	1-3/8-12UNF		27.0	-	14.0	-	125.0	-	-	-
6"	150.0	394.0	216.0	279.4	241.3	25.4	1.6	4.0	16.0	204.0	-	280.0	-	27.0	-	800.0	-	1-3/8-12UNF		27.0	-	14.0	-	125.0	-	-	-
8"	200.0	457.0	270.0	342.9	298.5	28.5	1.6	4.0	16.0	252.0	-	370.0	-	27.0	-	305.0	-	1-3/8-12UNF		27.0	-	14.0	-	125.0	-	-	-
10"	250.0	533.0	324.0	406.4	362.0	30.3	1.6	4.0	16.0	310.0	-	430.0	-	36.0	-	305.0	-	2-12UNF		36.0	-	18.0	-	140.0	-	-	-

### ANSI CLASS 300 DIMENSION TABLE / ANSI CLASS 150

Unit: mm

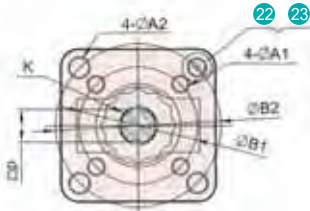
SIZE	ØD	L	ØC	ØE	ØB	T	f	N	Øn	H*	H	H1*	H1	M*	M	W*	W	K*	K	P*	G	A1*	A2*	B1*	B2	U	J
1/2"	15.0	140.0	35.0	95.3	66.5	14.3	1.6	4.0	16.0	-	37.0	-	86.0	-	20.0	-	135.0	-	3/8-24UNF		-	6.3	-	-	42.0	M5	10.0
3/4"	20.0	152.0	43.0	117.4	82.6	15.9	1.6	4.0	19.0	-	40.5	-	90.0	-	20.0	-	135.0	-	3/8-24UNF		-	6.3	-	-	42.0	M5	10.0
1"	25.0	165.0	51.0	124.0	88.9	17.5	1.6	4.0	19.0	-	45.5	-	96.0	-	24.0	-	170.0	-	9/16-18UNF		-	9.0	-	-	50.0	M6	11.0
1-1/4"	32.0	178.0	63.5	133.4	98.6	19.1	1.6	4.0	19.0	-	50.0	-	102.0	-	24.0	-	170.0	-	9/16-18UNF		-	9.0	-	-	50.0	M6	11.0
1-1/2"	38.0	190.0	73.0	155.5	114.3	20.7	1.6	4.0	22.3	-	62.0	-	114.0	-	27.0	-	200.0	-	5/8-18UNF		-	9.6	-	-	70.0	M8	16.0
2"	50.0	216.0	92.0	165.1	127.0	22.3	1.6	8.0	19.0	-	71.0	-	127.0	-	27.0	-	200.0	-	5/8-18UNF		-	9.6	-	-	70.0	M8	16.0
2-1/2"	64.0	241.0	104.7	190.5	149.4	25.4	1.6	8.0	22.3	-	89.0	-	177.0	-	42.5	-	250.0	-	7/8-14UNF		-	16.0	-	-	102.0	M10	21.0
3"	76.0	282.0	127.0	209.6	168.1	28.6	1.6	8.0	22.3	-	100.0	-	183.0	-	42.5	-	250.0	-	7/8-14UNF		-	16.0	-	-	102.0	M10	21.0
4"	100.0	305.0	157.2	254.0	200.2	31.8	1.6	8.0	22.3	-	123.0	-	214.0	-	47.5	-	400.0	-	1-1/8-12UNF		-	18.0	-	11.0	102.0	M10	25.0
5"	125.0	381.0	186.0	279.4	235.0	35.0	1.6	8.0	22.3	183.0	-	260.0	-	27.0	-	600.0	-	1-3/8-12UNF		-	27.0	-	14.0	-	125.0	-	-
6"	150.0	403.0	216.0	317.5	269.8	36.6	1.6	12.0	22.3	204.0	-	280.0	-	27.0	-	800.0	-	1-3/8-12UNF		-	27.0	-	14.0	-	125.0	-	-
8"	200.0	502.0	270.0	381.0	330.2	41.2	1.6	12.0	25.4	253.0	-	370.0	-	27.0	-	305.0	-	1-3/4-12UNF		-	27.0	-	14.0	-	125.0	-	-
10"	250.0	568.0	324.0	444.5	387.4	47.8	1.6	16.0	28.5	310.0	-	430.0	-	36.0	-	305.0	-	2-12UNF		-	36.0	-	18.0	-	140.0	-	-

### DESIGN FEATURES

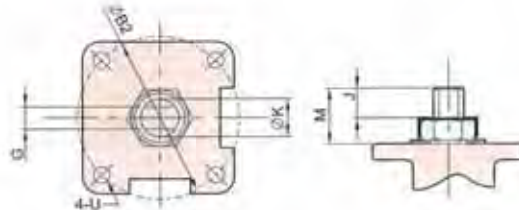
- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot

### APPLICABLE STANDARDS

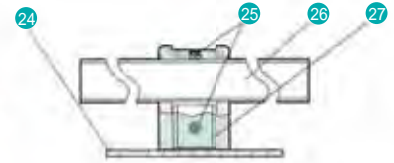
- Design Rating : EN 12516-1, ASME B16.34
- Fire Safe: API 607 4<sup>th</sup> 1993, BS 6755 Part2
- Face to Face : DIN 3202 F4/F17, F4/ F18, DIN 3357/2
- Wall Thickness : EN 12516-1
- End Flange: EN 1092-1: 1999; DIN 2545
- Inspection & Testing: EN 12266, API 6D



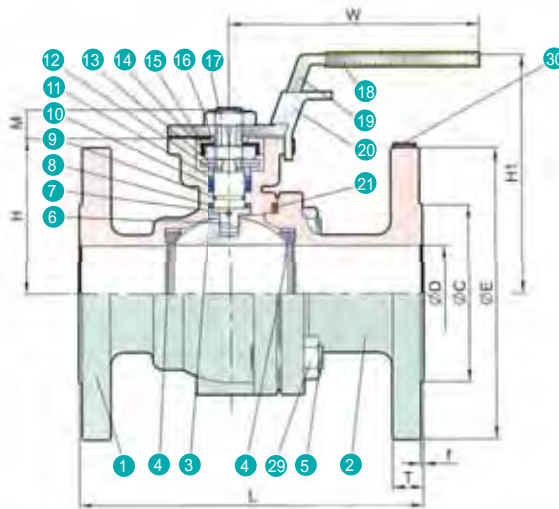
DN15 ~ DN250  
(Direct Mount Type)



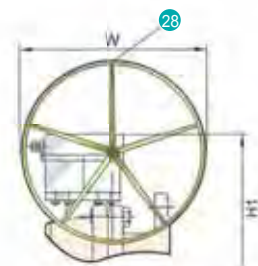
DN15 ~ DN100



DN100 ~ DN150



DN15~DN80



DN200 ~ DN250  
W/Worm Gear

### ■ DIN PN10/16/25/40 DIMENSION TABLE (F1/F17, F4/F18)

Unit: mm

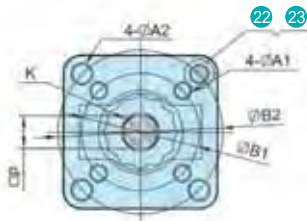
SIZE	PN	ØD	L	°L	ØC	ØE	ØB	f	T	N	Øn	H*	H	H1*	H1	M*	M	W*	W	K*	K	P*	G	A1*	A2*	B1*	B2	U	J
DN15	10	15.0	115.0	130.0	45.0	95.0	65.0	2.0	16.0	4.0	14.0	48.0	37.0	78.0	86.0	9.0	20.0	145.0	135.0	7/16-20UNF	3/8-24UNF	9.0	6.3	6.0	6.0	36.0	42.0	M5	10.0
DN20	20	20.0	120.0	150.0	58.0	105.0	75.0	2.0	18.0	4.0	14.0	53.0	40.0	84.0	90.0	9.0	20.0	145.0	135.0	7/16-20UNF	3/8-24UNF	9.0	6.3	6.0	6.0	36.0	42.0	M5	10.0
DN25	16	25.0	125.0	160.0	68.0	115.0	85.0	2.0	18.0	4.0	14.0	58.5	46.0	90.5	96.0	11.0	24.0	175.0	170.0	9/16-18UNF	9/16-18UNF	11.0	9.0	6.0	7.0	42.0	50.0	M6	11.0
DN32	25	32.0	130.0	180.0	78.0	140.0	100.0	2.0	18.0	4.0	18.0	71.0	50.0	103.0	102.0	11.0	24.0	175.0	170.0	9/16-18UNF	9/16-18UNF	11.0	9.0	6.0	7.0	42.0	50.0	M6	11.0
DN40	40	38.0	140.0	200.0	88.0	150.0	110.0	3.0	18.0	4.0	18.0	76.0	61.0	111.0	114.0	14.0	27.0	194.0	200.0	3/4-16UNF	5/8-18UNF	14.0	9.6	7.0	9.0	50.0	70.0	M8	16.0
DN50	50	50.0	150.0	230.0	102.0	165.0	125.0	3.0	20.0	4.0	18.0	85.0	71.0	120.0	127.0	14.0	27.0	194.0	200.0	3/4-16UNF	5/8-18UNF	14.0	9.6	7.0	9.0	50.0	70.0	M8	16.0
DN65	10/16 25/40	65.0	170.0	290.0	122.0	185.0	145.0	3.0	18.0 22.0	4.0 8.0	18.0	101.5	89.0	150.0	177.0	17.0	42.5	265.0	250.0	7/8-14UNF	7/8-14UNF	17.0	16.0	9.0	11.0	70.0	102.0	M10	21.0
DN80	10/16 25/40	76.0	180.0	310.0	138.0	200.0	160.0	3.0	20.0 24.0	8.0	18.0	111.5	100.0	160.0	183.0	17.0	42.5	265.0	250.0	7/8-14UNF	7/8-14UNF	17.0	16.0	9.0	11.0	70.0	102.0	M10	21.0
DN100	10/16 25/40	100.0	190.0	350.0	158.0 162.0	220.0 235.0	180.0 190.0	3.0	20.0 24.0	8.0 25.0	18.0	140.0	121.0	182.0	214.0	22.0	47.5	400.0	400.0	1-1/8-12UNF	1-1/8-12UNF	22.0	18.0	-	11.0	-	102.0	M10	25.0
DN125	10/16 25/40	125.0	325.0	400.0	188.0	250.0 270.0	210.0 220.0	3.0	22.0 26.0	18.0 26.0	8.0	183.0	-	260.0	-	27.0	-	600.0	-	1-3/8-12UNF	-	27.0	-	14.0	-	125.0	-	-	-
DN150	10/16 25/40	150.0	350.0	450.0	212.0 218.0	285.0 300.0	240.0 250.0	3.0	22.0 28.0	22.0 26.0	8.0	204.0	-	280.0	-	27.0	-	800.0	-	1-3/8-12UNF	-	27.0	-	14.0	-	125.0	-	-	-
DN200	10 16 25 40	200.0	400.0	550.0	268.0 278.0 285.0	340.0 360.0 375.0	295.0 310.0 320.0	3.0	24.0 30.0 34.0	22.0 26.0 30.0	8.0 12.0	252.0	-	370.0	-	27.0	-	305.0	-	1-3/4-12UNF	-	27.0	-	14.0	-	125.0	-	-	-
DN250	10 16 25 40	250.0	450.0	650.0	320.0 335.0 345.0	395.0 405.0 425.0	350.0 355.0 370.0	3.0	26.0 26.0 32.0 38.0	22.0 26.0 30.0 33.0	12.0	310.0	-	430.0	-	36.0	-	305.0	-	2-12UNF	-	36.0	-	14.0	-	140.0	-	-	-

### DESIGN FEATURES

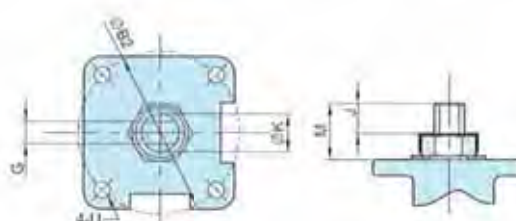
- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot

### APPLICABLE STANDARDS

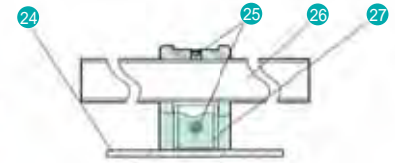
- Design : ASME B16.34, API 608
- Fire Safe : API 607 4th 1993, BS 6755 Part2
- Face to Face : JIS B2002 (ASME B16.10)
- End Flange: JIS B 2238
- Inspection & Testing: JIS B2003, API 6D
- Wall Thickness : ASME B16.34



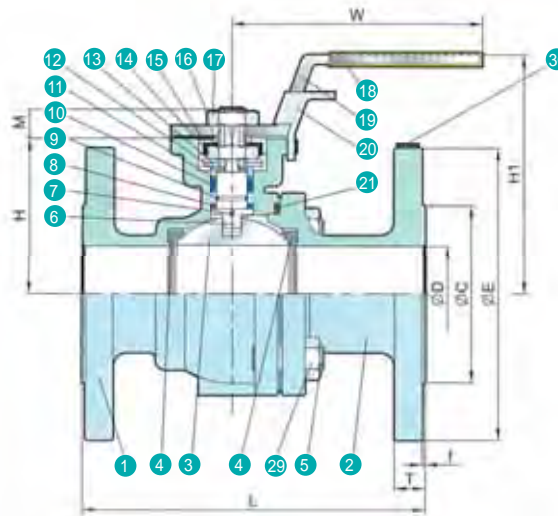
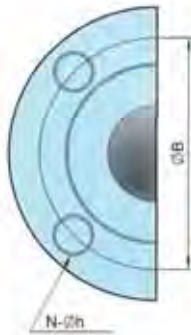
A15 ~ 250A  
(Direct Mount Type)



15A ~ 100A



100A ~ 150A



15A ~ 80A



200A ~ 250A  
W/Worm Gear

### ■ JIS 10K DIMENSION TABLE

Unit: mm

SIZE	ØD	L	ØC	ØE	ØB	T	f	N	Øn	H*	H	H*	H1	M*	M	W*	W	K*	K	P*	G	A1*	A2*	B1*	B2	U	J
15A	15.0	108.0	51.0	95.0	70.0	12.0	1.0	4.0	15.0	48.0	37.0	78.0	86.0	9.0	20.0	145.0	135.0	7/16-20UNF	3/8-24UNF	9.0	6.3	6.0	6.0	36.0	42.0	M5	10.0
20A	20.0	117.0	56.0	100.0	75.0	14.0	1.0	4.0	15.0	53.0	40.0	84.0	90.0	9.0	20.0	145.0	135.0	7/16-20UNF	3/8-24UNF	9.0	6.3	6.0	7.0	36.0	50.0	M5	10.0
25A	25.0	127.0	67.0	125.0	90.0	14.0	1.0	4.0	19.0	63.5	46.0	95.0	96.0	11.0	24.0	175.0	170.0	9/16-18UNF		11.0	9.0	6.0	7.0	42.0	50.0	M6	11.0
32A	32.0	140.0	76.0	135.0	100.0	16.0	2.0	4.0	19.0	70.0	50.0	103.0	102.0	11.0	24.0	175.0	170.0	9/16-18UNF		11.0	9.0	6.0	9.0	42.0	70.0	M6	11.0
40A	38.0	165.0	81.0	140.0	105.0	16.0	2.0	4.0	19.0	71.0	61.0	106.0	114.0	14.0	27.0	194.0	200.0	3/4-16UNF	5/8-18UNF	14.0	9.6	7.0	9.0	50.0	70.0	M8	16.0
50A	50.0	178.0	96.0	155.0	120.0	16.0	2.0	4.0	19.0	80.0	71.0	116.0	127.0	14.0	27.0	194.0	200.0	3/4-16UNF	5/8-18UNF	14.0	9.6	7.0	9.0	50.0	70.0	M8	16.0
65A	64.0	190.0	116.0	175.0	140.0	18.0	2.0	4.0	19.0	101.5	89.0	150.0	177.0	17.0	42.5	265.0	250.0	7/8-14UNF		17.0	16.0	9.0	11.0	70.0	102.0	M10	21.0
80A	76.0	203.0	126.0	185.0	150.0	18.0	2.0	8.0	19.0	111.5	100.0	160.0	183.0	17.0	42.5	265.0	250.0	7/8-14UNF		17.0	16.0	9.0	11.0	70.0	102.0	M10	21.0
100A	100.0	229.0	151.0	210.0	175.0	18.0	2.0	8.0	19.0	140.0	121.0	182.0	214.0	22.0	47.5	400.0	400.0	1-1/8-12UNF		22.0	18.0	-	11.0	-	102.0	M10	25.0
125A	125.0	356.0	182.0	250.0	210.0	20.0	2.0	8.0	23.0	183.0	-	260.0	-	27.0	-	600.0	-	1-3/8-12UNF	-	27.0	-	14.0	-	125.0	-	-	-
150A	150.0	394.0	212.0	280.0	240.0	22.0	2.0	8.0	23.0	204.0	-	280.0	-	27.0	-	800.0	-	1-3/8-12UNF	-	27.0	-	14.0	-	125.0	-	-	-
200A	200.0	457.0	262.0	330.0	290.0	22.0	2.0	12.0	23.0	252.0	-	370.0	-	27.0	-	305.0	-	1-3/8-12UNF	-	27.0	-	14.0	-	125.0	-	-	-
250A	250.0	533.0	324.0	400.0	355.0	24.0	2.0	12.0	25.0	310.0	-	430.0	-	36.0	-	305.0	-	2-12UNF	-	36.0	-	18.0	-	140.0	-	-	-

### ■ JIS 20K DIMENSION TABLE

Unit: mm

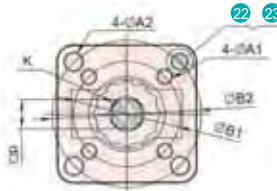
SIZE	ØD	L	ØC	ØE	ØB	T	f	N	Øn	H*	H	H*	H1	M*	M	W*	W	K*	K	P*	G	A1*	A2*	B1*	B2	U	J
15A	15.0	140.0	51.0	95.0	70.0	14.0	1.6	4.0	15.0	-	37.0	-	86.0	-	20.0	-	135.0	-	3/8-24UNF	-	6.3	-	-	-	42.0	M5	10.0
20A	20.0	152.0	56.0	100.0	75.0	16.0	1.6	4.0	15.0	-	40.5	-	90.0	-	20.0	-	135.0	-	3/8-24UNF	-	6.3	-	-	-	42.0	M5	10.0
25A	25.0	165.0	67.0	125.0	90.0	16.0	1.6	4.0	19.0	-	45.5	-	96.0	-	24.0	-	170.0	-	9/16-18UNF	-	9.0	-	-	-	50.0	M6	11.0
32A	32.0	178.0	76.0	135.0	100.0	18.0	2.0	4.0	19.0	-	50.0	-	102.0	-	24.0	-	170.0	-	9/16-18UNF	-	9.0	-	-	-	50.0	M6	11.0
40A	38.0	190.0	81.0	140.0	105.0	18.0	2.0	4.0	19.0	-	62.0	-	114.0	-	27.0	-	200.0	-	5/8-18UNF	-	9.6	-	-	-	70.0	M8	16.0
50A	50.0	216.0	96.0	155.0	120.0	18.0	2.0	8.0	19.0	-	71.0	-	127.0	-	27.0	-	200.0	-	5/8-18UNF	-	9.6	-	-	-	70.0	M8	16.0
65A	64.0	241.0	116.0	175.0	140.0	20.0	2.0	8.0	19.0	-	89.0	-	177.0	-	42.5	-	250.0	-	7/8-14UNF	-	16.0	-	-	-	102.0	M10	21.0
80A	76.0	282.0	132.0	200.0	160.0	22.0	2.0	8.0	23.0	-	100.0	-	183.0	-	42.5	-	250.0	-	7/8-14UNF	-	16.0	-	-	-	102.0	M10	21.0
100A	100.0	305.0	160.0	225.0	185.0	24.0	2.0	8.0	23.0	-	123.0	-	214.0	-	47.5	-	400.0	-	1-1/8-12UNF	-	18.0	-	-	-	102.0	M10	25.0
125A	125.0	381.0	195.0	270.0	225.0	26.0	2.0	8.0	25.0	183.0	-	260.0	-	27.0	-	600.0	-	1-3/8-12UNF	-	27.0	-	14.0	-	125.0	-	-	-
150A	150.0	403.0	230.0	305.0	260.0	28.0	2.0	12.0	25.0	204.0	-	280.0	-	27.0	-	800.0	-	1-3/8-12UNF	-	27.0	-	14.0	-	125.0	-	-	-
200A	200.0	502.0	275.0	350.0	305.0	30.0	2.0	12.0	25.0	252.0	-	370.0	-	27.0	-	305.0	-	1-3/4-12UNF	-	27.0	-	14.0	-	125.0	-	-	-
250A	250.0	568.0	345.0	430.0	380.0	34.0	2.0	12.0	27.0	310.0	-	430.0	-	36.0	-	305.0	-	2-12UNF	-	36.0	-	18.0	-	140.0	-	-	-

### DESIGN FEATURES

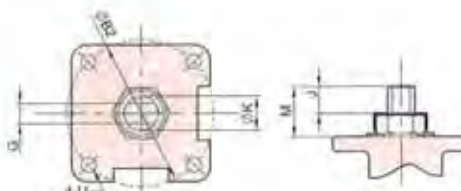
- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot

### APPLICABLE STANDARDS

- Design Rating : GB / T12224 GB / T12237
- Fire Safe: API 607 4<sup>th</sup> 1993, BS 6755 Part2
- Face to Face : GB / T12221
- Wall Thickness: ASME B16.34
- End Flange:GB TT9113.1
- Inspection & Testing: GB / T13927 , API 598



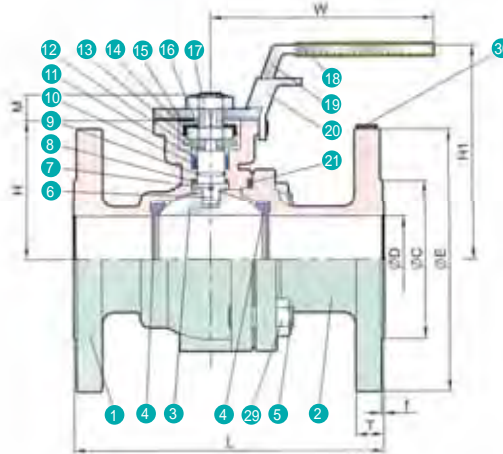
DN15 ~ DN250  
(Direct Mount Type)



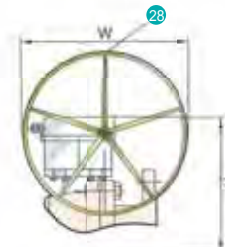
DN15 ~ DN100



DN100 ~ DN150



DN15-DN80



DN200 ~ DN250  
W/Worm Gear

### ■ GB-Q41F PN16 DIMENSION TABLE(F1/F17,F4/F18)

Unit: mm

SIZE	ØD	L	ØC	ØE	ØB	T	f	N	Øn	H	H1	M	W	K	P	G	A1	A2	B1	B2	U	J
DN15	15.0	130.0	45.0	95.0	65.0	14.0	2.0	4.0	14.0	37.0	86.0	20.0	135.0	3/8-24UNF	9.0	6.3	6.0	6.0	36.0	42.0	M5	10.0
DN20	20.0	140.0	58.0	105.0	75.0	16.0	2.0	4.0	14.0	40.0	90.0	20.0	135.0	3/8-24UNF	9.0	6.3	6.0	6.0	36.0	42.0	M5	10.0
DN25	25.0	150.0	68.0	115.0	85.0	16.0	3.0	4.0	14.0	46.0	96.0	24.0	170.0	9/16-18UNF	11.0	9.0	6.0	7.0	42.0	50.0	M6	11.0
DN32	32.0	165.0	78.0	140.0	100.0	16.0	3.0	4.0	18.0	50.0	102.0	24.0	170.0	9/16-18UNF	11.0	9.0	6.0	7.0	42.0	50.0	M6	11.0
DN40	40.0	180.0	84.0	150.0	110.0	18.0	3.0	4.0	18.0	61.0	114.0	27.0	200.0	5/8-18UNF	14.0	9.6	7.0	9.0	50.0	70.0	M8	16.0
DN50	50.0	200.0	99.0	165.0	125.0	20.0	3.0	4.0	18.0	71.0	127.0	27.0	200.0	5/8-18UNF	14.0	9.6	7.0	9.0	50.0	70.0	M8	16.0
DN65	65.0	220.0	118.0	185.0	145.0	20.0	3.0	4.0	18.0	89.0	177.0	42.5	250.0	7/8-14UNF	17.0	16.0	9.0	11.0	70.0	102.0	M10	21.0
DN80	80.0	250.0	132.0	200.0	160.0	20.0	3.0	8.0	18.0	100.0	183.0	42.5	250.0	7/8-14UNF	17.0	16.0	9.0	11.0	70.0	102.0	M10	21.0
DN100	100.0	280.0	156.0	220.0	180.0	22.0	3.0	8.0	18.0	121.0	214.0	47.5	400.0	1-1/8-12UNF	22.0	18.0	---	11.0	---	102.0	M10	25.0
DN125	125.0	320.0	184.0	250.0	210.0	22.0	3.0	8.0	18.0	183.0	260.0	27.0	600.0	1-3/8-12UNF	27.0	---	14.0	---	125.0	---	---	---
DN150	150.0	360.0	211.0	285.0	240.0	24.0	3.0	8.0	22.0	204.0	280.0	27.0	800.0	1-3/8-12UNF	27.0	---	14.0	---	125.0	---	---	---
DN200	200.0	457.0	266.0	340.0	295.0	24.0	3.0	12.0	22.0	252.0	370.0	27.0	305.0	1-3/4-12UNF	27.0	---	14.0	---	125.0	---	---	---
DN250	250.0	533.0	319.0	405.0	355.0	26.0	3.0	12.0	26.0	310.0	430.0	36.0	305.0	2-12UNF	36.0	---	14.0	---	140.0	---	---	---

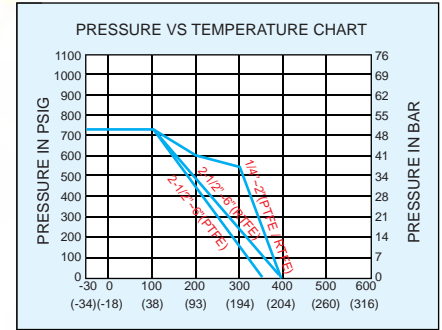
### ■ GB-Q41F PN40 DIMENSION TABLE(F1/F17,F4/F18)

Unit: mm

SIZE	ØD	L	ØC	ØE	ØB	T	f	N	Øn	H	H1	M	W	K	P	G	A1	A2	B1	B2	U	J
DN15	15.0	140.0	45.0	95.0	65.0	14.0	2.0	4.0	14.0	37.0	86.0	20.0	135.0	3/8-24UNF	9.0	6.3	6.0	6.0	36.0	42.0	M5	10.0
DN20	20.0	152.0	58.0	105.0	75.0	16.0	2.0	4.0	14.0	40.0	90.0	20.0	135.0	3/8-24UNF	9.0	6.3	6.0	6.0	36.0	42.0	M5	10.0
DN25	25.0	165.0	68.0	115.0	85.0	16.0	3.0	4.0	14.0	46.0	96.0	24.0	170.0	9/16-18UNF	11.0	9.0	6.0	7.0	42.0	50.0	M6	11.0
DN32	32.0	178.0	78.0	140.0	100.0	16.0	3.0	4.0	18.0	50.0	102.0	24.0	170.0	9/16-18UNF	11.0	9.0	6.0	7.0	42.0	50.0	M6	11.0
DN40	40.0	190.0	84.0	150.0	110.0	18.0	3.0	4.0	18.0	61.0	114.0	27.0	200.0	5/8-18UNF	14.0	9.6	7.0	9.0	50.0	70.0	M8	16.0
DN50	50.0	216.0	99.0	165.0	125.0	20.0	3.0	4.0	18.0	71.0	127.0	27.0	200.0	5/8-18UNF	14.0	9.6	7.0	9.0	50.0	70.0	M8	16.0
DN65	65.0	241.0	118.0	185.0	145.0	22.0	3.0	4.0	18.0	89.0	177.0	42.5	250.0	7/8-14UNF	17.0	16.0	9.0	11.0	70.0	102.0	M10	21.0
DN80	80.0	283.0	132.0	200.0	160.0	24.0	3.0	8.0	18.0	100.0	183.0	42.5	250.0	7/8-14UNF	17.0	16.0	9.0	11.0	70.0	102.0	M10	21.0
DN100	100.0	305.0	156.0	235.0	190.0	24.0	3.0	8.0	22.0	121.0	214.0	47.5	400.0	1-1/8-12UNF	22.0	18.0	---	11.0	---	102.0	M10	25.0
DN125	125.0	381.0	184.0	270.0	220.0	26.0	3.0	8.0	26.0	183.0	260.0	27.0	600.0	1-3/8-12UNF	27.0	---	14.0	---	125.0	---	---	---
DN150	150.0	403.0	211.0	300.0	250.0	28.0	3.0	8.0	26.0	204.0	280.0	27.0	800.0	1-3/8-12UNF	27.0	---	14.0	---	125.0	---	---	---
DN200	200.0	502.0	284.0	375.0	320.0	34.0	3.0	12.0	30.0	252.0	370.0	27.0	305.0	1-3/4-12UNF	27.0	---	14.0	---	125.0	---	---	---
DN250	250.0	568.0	315.0	450.0	385.0	38.0	3.0	12.0	33.0	310.0	430.0	36.0	305.0	2-12UNF	36.0	---	14.0	---	140.0	---	---	---

### DESIGN FEATURES

- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot



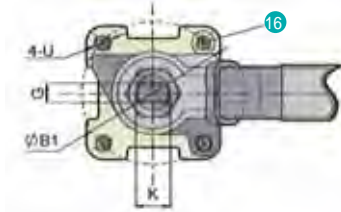
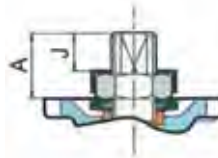
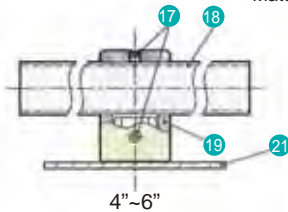
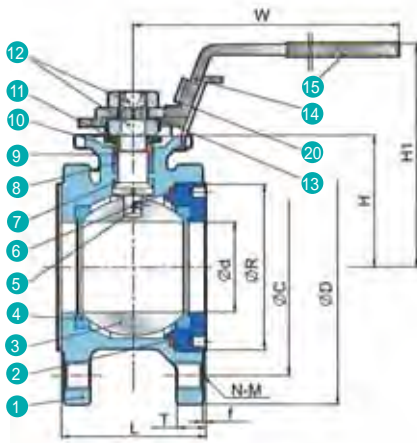
### APPLICABLE STANDARDS

- Design : ASME B16.34, API 608
- Fire Safe : API 607 4<sup>th</sup> 1993, BS 6755 Part2
- Wall Thickness: ASME B16.34
- End Flange : ASME B16.5
- Inspection & Testing: API 598, API 6D

### MATERIAL OF CONSTRUCTION

NO.	PART	MATERIAL		
		CF8M	CF8	WCB
1	Body	CF8M	CF8	WCB
2	End Cap	CF8M	CF8	WCB
3	Ball	CF8M	WCB	
4	Ball Seat	PTFE		
5	Stem	SUS 316	SUS 304	
6	Body Gasket	PTFE / SUS 316 SPIRAL WOUND * / GRAFOIL *		
7	Stem Seal-Ring(+O-Ring *)	PTFE / PTFE (+FKM*)		
8	V-Ring Packing	PTFE / GRAFOIL *		
9	Bushing	50%SS+50%PTFE / SUS 304 *		
10	Gland	SUS 316		
11	Belleville Washer	SUS 301		
12	Stem Nut	SUS 304		
13	Stop-Lock-Cap	SUS 304		
14	Handle (1"~3")	SUS 304		
15	Handle Sleeve (1"~3")	VINYL PLASTIC		
16	Stop Bolt	SUS 304		
17	Set Screwed (4"~6")	SUS 304		
18	Handle (4"~6")	A53-PLATED Zn		
19	Handle Adapter (4"~6")	A351-CF8		
20	Lock Device (1/2"~3")	SUS 304		
21	Triangle Stopper (4"~6")	SUS 304		

\* Materials For FIRE-SAFE Models



### ANSI CLASS 150 DIMENSION TABLE

SIZE	Ød	L	ØR	ØD	ØC	T	f	H	H1	N	M	W	G	A	J	U	ØB1	K
1/2"	15.0	42.0	35.0	89.0	60.5	9.7	1.6	41.0	90.5	4	1/2"	135	6.3	17.0	8.1	M5	42	3/8-24UNF
3/4"	20.0	44.0	43.0	98.6	70.0	10.5	1.6	44.0	94.0	4	1/2"	135	6.3	17.0	8.1	M5	42	3/8-24UNF
1"	25.0	50.0	50.8	108.0	79.3	11.2	1.6	46.5	99.0	4	1/2"	170	9.0	22.7	10.2	M6	50	9/16-18UNF
1-1/4"	32.0	60.0	63.5	117.4	88.9	12.7	1.6	55.0	99.0	4	1/2"	170	9.0	24.0	11.0	M6	50	9/16-18UNF
1-1/2"	38.0	65.0	73.5	127.0	98.6	14.3	1.6	64.0	117.0	4	1/2"	200	9.6	25.8	13.9	M8	70	5/8-24UNF
2"	50.0	80.0	92.0	152.4	120.6	15.8	1.6	73.1	124.0	4	5/8"	200	9.6	23.9	13.9	M8	70	5/8-24UNF
2-1/2"	64.0	110.0	105.0	177.8	139.7	17.5	1.6	88.0	148.0	4	5/8"	250	16.0	42.5	24.0	M10	102	7/8-14UNF
3"	76.0	120.0	127.0	190.5	152.4	19.0	1.6	97.0	157.0	4	5/8"	250	16.0	42.6	22.5	M10	102	7/8-14UNF
4"	100.0	150.0	157.3	228.6	190.5	23.9	1.6	117.0	200.0	8	5/8"	280	18.0	51.4	24.5	M10	102	11/8-12UNF
5"	125.0	195.0	186.0	254.0	215.9	25.2	1.6	155.0	270.0	8	3/4"	600	23.0	76.5	36.0	M10	102	13/8-12UNF
6"	150.0	225.0	215.9	279.4	241.3	25.4	1.6	194.0	310.5	8	3/4"	800	23.0	76.5	36.0	M12	125	13/8-12UNF

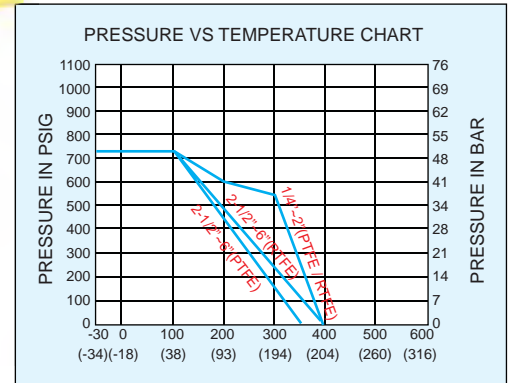
### ANSI CLASS 300 DIMENSION TABLE

SIZE	Ød	L	ØR	ØD	ØC	T	f	H	H1	N	M	W	G	A	J	U	ØB1	K
1/2"	15.0	42.0	35.0	95.3	66.5	14.3	1.6	41.0	90.5	4	1/2"	135	6.3	17.0	8.1	M5	42	3/8-24UNF
3/4"	20.0	44.0	43.0	117.4	82.6	15.9	1.6	44.0	94.0	4	1/2"	135	6.3	17.0	8.1	M5	42	3/8-24UNF
1"	25.0	50.0	50.8	124.0	88.9	17.5	1.6	46.5	99.0	4	5/8"	170	9.0	22.7	10.2	M6	50	9/16-18UNF
1-1/4"	32.0	60.0	63.5	133.0	98.6	19.0	1.6	55.0	99.0	4	5/8"	170	9.0	24.0	11.0	M6	50	9/16-18UNF
1-1/2"	38.0	65.0	73.5	155.0	114.3	20.6	1.6	64.0	117.0	4	3/4"	200	9.6	25.8	13.9	M8	70	5/8-28UNF
2"	50.0	80.0	92.0	165.0	127.0	22.3	1.6	73.1	124.0	8	5/8"	200	9.6	27.0	13.9	M8	70	5/8-28UNF
2-1/2"	64.0	110.0	105.0	190.0	149.4	25.4	1.6	88.0	148.0	8	3/4"	250	16.0	42.5	24.0	M10	102	7/8-14UNF
3"	76.0	120.0	127.0	210.0	168.1	28.5	1.6	97.0	157.0	8	3/4"	250	16.0	42.5	22.5	M10	102	7/8-14UNF
4"	100.0	150.0	140.3	254.0	200.2	31.8	1.6	117.0	200.0	8	3/4"	400	18.0	47.5	24.5	M10	102	11/8-12UNF
5"	125.0	195.0	157.0	280.0	235.0	35.0	1.6	155.0	270.0	8	3/4"	600	23.0	76.5	36.0	M10	102	13/8-12UNF
6"	150.0	225.0	186.0	318.0	269.8	36.6	1.6	194.0	310.5	12	3/4"	800	23.0	76.5	36.0	M12	125	13/8-12UNF



### DESIGN FEATURES

- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot



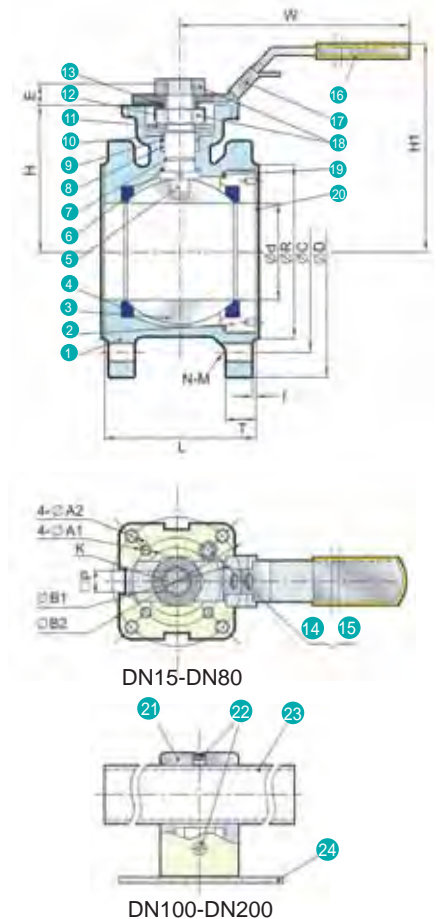
### APPLICABLE STANDARDS

- Design Rating : DIN 3375/1,2, EN 12516-1
- Fire Safe : API 607 4th 1993, BS 6755 Part 2.
- Wall Thickness : ASME B16.34, EN 12516-1
- End Flange : DIN 2542-DIN 2545, EN 1092
- Inspection & Testing : DIN3230/3, EN12266
- Connection : DIN2501/1 PN10-PN40
- Face : DIN2562 Form C

### MATERIAL OF CONSTRUCTION

NO.	PART NAME	MATERIAL		
1	Body	1.4408	1.4308	1.0619
2	End Cap	1.4408	1.4308	1.0619
3	Ball	1.4408	1.4308	
4	Ball Seat	PTFE		
5	Stem	SUS 316	SUS 304	
6	Stem Seal-Ring	PTFE		
7	O-Ring	FKM(VITON)		
8	V-Ring Packing	PTFE / GRAFOIL *		
9	Bushing	50%SS+50%PTFE / SUS 304 *		
10	Gland	SUS 316		
11	Belleville Washer	SUS 301		
12	Stop-lock-Cap	SUS 304		
13	Handle Gland	SUS 304		
14	Stop Bolt	A193-B8		
15	Nut	A194-8		
16	Handle Sleeve (1/2"~3")	VINYL PLASTIC		
17	Handle (1/2"~3")	SUS 304		
18	Stem Nut	A194-8		
19	Body Gasket	PTFE / SUS316 SPIRAL WOUND * / GRAFOIL *		
20	Flange Cover	PVC		
21	Handle Adapter (4"~6")	CF8		
22	Set Screwed (4"~6")	SUS 304		
23	Handle (4"~6")	A53 + Zn Plated		
24	Triangle Stopper (4"~6")	SUS 304		

\* Materials For FIRE-SAFE Models



### ■ DIN PN10 / 16 / 25 / 40 DIMENSION TABLE

Unit: mm

SIZE	PN	Ød	ØR	ØC	ØD	f	T	L	H1	H	E	P	N	M	W	K	ØA1	ØA2	ØB1	ØB2
DN15	1/2"	15	45	65	95	2	16	42	77	46	9.0	9	4	M12	145	7/16-20UNF	6	6	36	42
DN20	3/4"	20	58	75	105	2	18	44	85	51	9.0	9	4	M12	145	7/16-20UNF	6	7	36	50
DN25	1"	25	68	85	115	2	18	50	94	62	11.0	11	4	M12	175	9/16-18UNF	6	7	42	50
DN32	1-1/4"	32	78	100	140	2	18	60	104	72	11.0	11	4	M16	175	9/16-18UNF	6	9	42	70
DN40	1-1/2"	40	88	110	150	3	18	65	114	78	14.0	14	4	M16	194	3/4-16UNF	7	9	50	70
DN50	2"	50	102	125	165	3	20	80	120	86	14.0	14	4	M16	194	3/4-16UNF	7	9	50	70
DN65	2-1/2"	10/16	64	122	145	185	18	110	158	108	17.0	17	4	M16	265	7/8-14UNF	9	11	70	102
		22																		
DN80	3"	10/16	76	138	160	200	20	120	165	116	17.0	17	8	M16	265	7/8-14UNF	9	11	70	102
		24																		
DN100	4"	10/16	95	158	180	220	20	150	182	139	22.0	22	8	M16	NON	1-1/8-12UNF	NON	11	NON	102
		M20																		
DN125	5"	10/16	118	188	210	250	22	180	224	176	27.0	27	8	M16	NON	1-3/8-12UNF	14	NON	125	NON
		M24																		
DN150	6"	10/16	142	212	240	285	22	225	268	192	27.0	27	8	M20	NON	1-3/8-12UNF	14	NON	125	NON
		M24																		
DN200	8"	10	190	268	295	340	24	310	300	240	27.0	27	12	8	NON	1-3/4-12UNF	14	NON	125	NON
		16																		
		25																		
		30																		
		25		278		310	3	30												
		40		285		320		34												

### DESIGN FEATURES

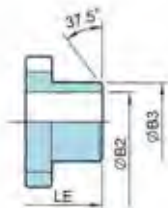
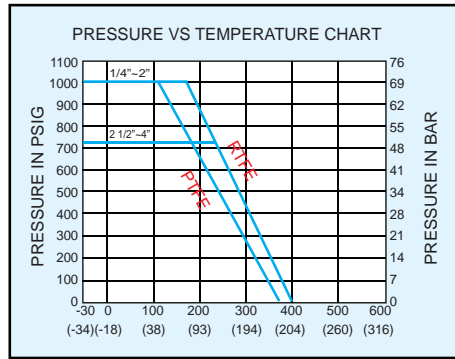
- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot

### STANDARDS:

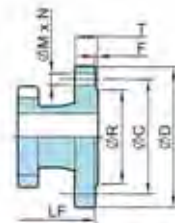
- Design : ASME B16.34, API 608
- Wall Thickness : ASME B16.34 CLASS 400
- Pipe Thread : ASME B1.20.1, BS21  
DIN 2999/259, BSP  
ISO 7/1, ISO 228/1  
JIS B 0203
- Butt Weld : ASME B16.25  
Ø B2 Available in Sch 10, 20 & 40
- Socket Weld : ASME B16.11
- Flange End : ASME B16.5  
DIN2542~2545  
JISB2238
- Inspection & Testing : API 598 EN 12266

### SPECIFICATIONS :

- Working Pressure : 1000 psig at 100°F (38°C)
- Temperature Range : -30°F to 350°F (-34°C to 177°C)

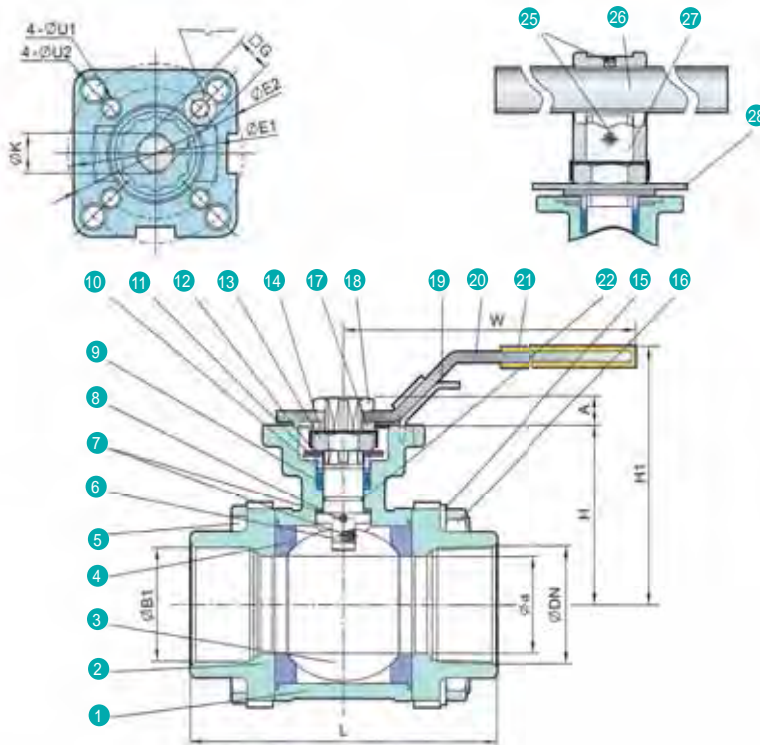


FLANGE BUTT WELD END



FLANGE END (PN25/40 F1)

NO.	PART	MATERIAL
1	Body	A351-CF8M(1.4408)
2	Cap (Thread)	A351-CF8M(1.4408)
2	Cap (Welding)	A351-CF3M(1.4408)
3	Ball	A351-CF3M(1.4408)
4	Ball Seat	PTFE
5	Bolt	A193-B8
6	Stem	A276-316
7	Anti-Static	SUS 316
8	Stem Seal-Ring	PTFE
9	V-Ring Stem Packing	PTFE
10	Bushing	50%SS+50%PTFE
11	Gland	SUS 316
12	Belleville Washer	SUS 301
13	Stem Nut	A194-8
14	Stop-Lock-Cap	SUS 304
15	Bolt Washer	SUS 304
16	Bolt Nut	A194-8
17	Handle Gland	SUS 304
18	Handle Nut	SUS 304
19	Lock Device	SUS 304
20	Handle	SUS 304
21	Handle Sleeve	Vinyl Plastic
22	O-Ring	FKM(VITON)
23	Stop Bolt	A193-B8
24	Nut	A194-8
25	Set Screwed	A193-B8
26	Handle	SUS 304
27	Handle Adapter	SUS 304
28	Triangle Stopper	SUS 304



Unit: mm

SIZE	Ød	L	LE	LF	H	H1	ØE1	ØE2	G	ØU1	ØU2	A	W	ØD	ØC	ØR	T	F	N	ØM	ØB1	ØB2	ØB3	ØDN
1/4"	10.6	75.0	72	--	42.0	72.0	36.0	42.0	9.0	6.0	6.0	9.0	145.0	--	--	--	--	--	--	--	14.2	10.6	18.0	
3/8"	12.7	75.0	72	--	42.0	72.0	36.0	42.0	9.0	6.0	6.0	9.0	145.0	--	--	--	--	--	--	--	17.8	12.7	18.0	
1/2"	15.0	75.0	75	130.0	42.0	72.0	36.0	42.0	9.0	6.0	6.0	9.0	145.0	95.0	65.0	45.0	16.0	2.0	4.0	14.0	21.8	15.8	22.0	NPT
3/4"	20.0	80.0	90	150.0	49.0	80.0	36.0	50.0	9.0	6.0	6.0	9.0	145.0	105.0	75.0	58.0	18.0	2.0	4.0	14.0	27.3	20.9	28.0	BSP
1"	25.0	90.0	100	160.0	58.5	90.0	42.0	50.0	11.0	6.0	7.0	11.0	160.0	115.0	85.0	68.0	18.0	2.0	4.0	14.0	34.0	26.7	34.0	PT
1-1/4"	32.0	110.0	110	180.0	63.0	95.0	42.0	70.0	11.0	6.0	9.0	11.0	160.0	140.0	100.0	78.0	18.0	2.0	4.0	18.0	42.8	35.1	43.0	NIN
1-1/2"	38.0	120.0	125	200.0	71.0	106.0	50.0	70.0	14.0	7.0	9.0	14.0	190.0	150.0	110.0	88.0	18.0	3.0	4.0	18.0	48.9	40.9	50.0	etc.
2"	50.0	140.0	150	230.0	78.0	113.0	50.0	70.0	14.0	7.0	9.0	14.0	190.0	165.0	125.0	102.0	20.0	3.0	4.0	18.0	61.4	52.5	61.0	
2-1/2"	63.5	185.0	190	290.0	100.0	150.0	70.0	102.0	17.0	9.0	11.0	17.0	260.0	185.0	145.0	122.0	22.0	3.0	8.0	18.0	74.0	62.7	76.0	
3"	76.0	205.0	220	310.0	109.0	159.0	70.0	102.0	17.0	9.0	11.0	17.0	260.0	200.0	160.0	138.0	24.0	3.0	8.0	18.0	90.0	78.0	92.0	
4"	100.0	240.0	270	350.0	140.0	198.0	--	102.0	22.0	--	11.0	22.0	350.0	235.0	190.0	162.0	24.0	3.0	8.0	22.0	115.4	102.4	115.0	

### DESIGN FEATURES

- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot

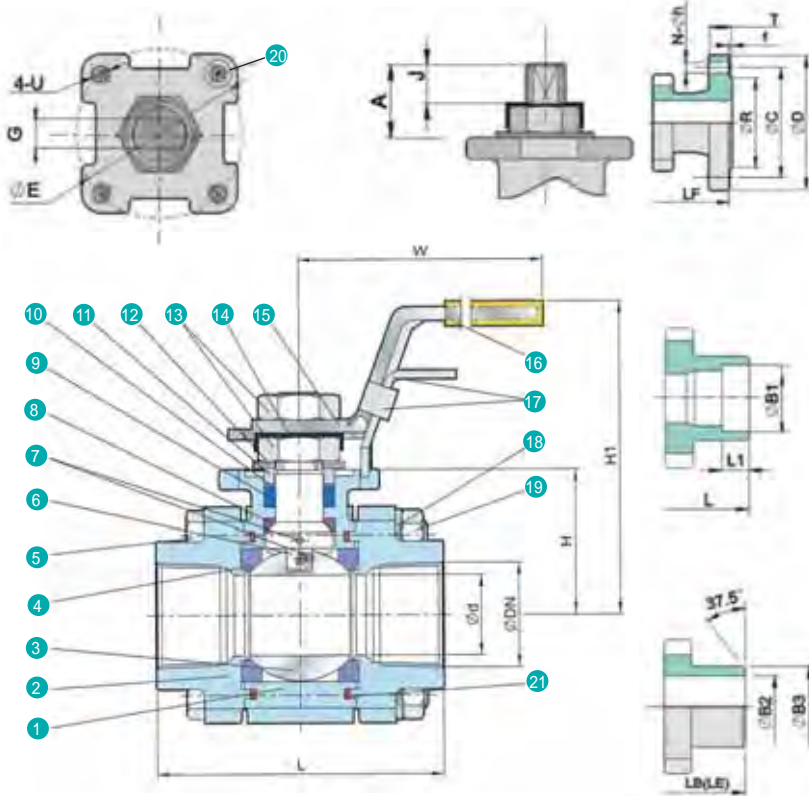
### STANDARDS :

- Design : ASME B16.34, API 608
- Wall Thickness : ASME B16.34 CLASS 800
- Pipe Thread : ASME B1.20.1, BS21  
DIN 2999/259, BSP  
ISO 7/1, ISO 228/1  
JIS B 0203
- Butt Weld :ASME B16.25  
Ø B2 Available in Sch 10, 20 & 40
- Socket Weld : ASME B16.11
- Flange End : ASME B16.5 CLASS 600  
DIN2542~2545 PN100  
JISB2238 40K
- Inspection & Testing : API 598 EN 12266

### SPECIFICATIONS :

- Working Pressure : 1500 psing at 100°F (38°C)
- Temperature Range : -30°F to 350°F (-34°C to 177°C)

NO.	PART	MATERIAL
1	Body	A351-CF8M(1.4408)
2	Thread Cap	A351-CF8M(1.4408)
3	Ball	A351-CF3M(1.4408)
4	Ball Seat	TFM1600
5	Bolt	A193-B8
6	Stem	A276-316
7	Anti-Static	SUS 316
8	Stem Seal-Ring	TFM1600
9	V-Ring Stem Packing	PTFE
10	Bushing	50%SS+50%PTFE
11	Gland	SUS 316
12	Belleville Washer	SUS 301
13	Stem Nut	A194-8
14	Stop-Lock-Cap	SUS 304
15	Handle (1/4"~3")	SUS 304
16	Handle Sleeve (1/4"~3")	Vinyl Plastic
17	Lock Device (1/4"~3")	SUS 304
18	Bolt Washer	SUS 304
19	Bolt Nut	A194-8
20	Stop Bolt	A193-B8
21	Body Gasket	PTFE



Unit: mm

SIZE	Ød	L	LB	LE	LF	H	H1	W	ØE	G	ØD	ØC	ØR	T	f	N	h	U	A	J	L1	ØB1	ØB2	ØB3	DN
1/4"	10.6	70	70	225	--	30.0	76	135	42.0	6.3	--	--	--	--	--	--	--	M5	17.3	10.4	11	14.0	7.6	18.0	
3/8"	12.7	70	70	225	--	30.0	76	135	42.0	6.3	--	--	--	--	--	--	--	M5	17.3	10.4	11	18.0	10.7	18.0	NPT
1/2"	15.0	75	75	225	130	36.0	83	135	42.0	6.3	95.3	66.6	35.0	20.7	6.35	4	15.8	M5	20.3	11.8	11	22.0	13.9	22.2	BSP
3/4"	20.0	80	90	225	150	39.5	88	135	42.0	6.3	117.4	82.6	43.0	22.2	6.35	4	19.1	M5	20.3	11.8	13	27.5	18.8	28.0	PT
1"	25.0	90	100	245	160	45.5	98	170	50.0	9.0	124.0	88.9	51.0	23.9	6.35	4	19.1	M6	23.3	12.5	13	34.5	24.3	34.0	
1-1/4"	31.8	110	110	255	180	50.0	103	175	50.0	9.0	133.4	98.6	63.5	27.0	6.35	4	19.1	M6	23.3	12.5	13	43.0	32.5	43.0	DIN
1-1/2"	38.1	120	125	260	200	60.0	110	200	70.0	9.6	155.5	114.3	73.2	28.8	6.35	4	22.4	M8	23.8	15.1	13	48.6	38.1	50.0	etc.
2"	50.0	140	150	275	230	68.0	119	200	70.0	9.6	165.1	127.0	92.0	31.8	6.35	8	19.1	M8	23.8	15.1	16	61.2	49.2	61.0	

### DESIGN FEATURES

- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot

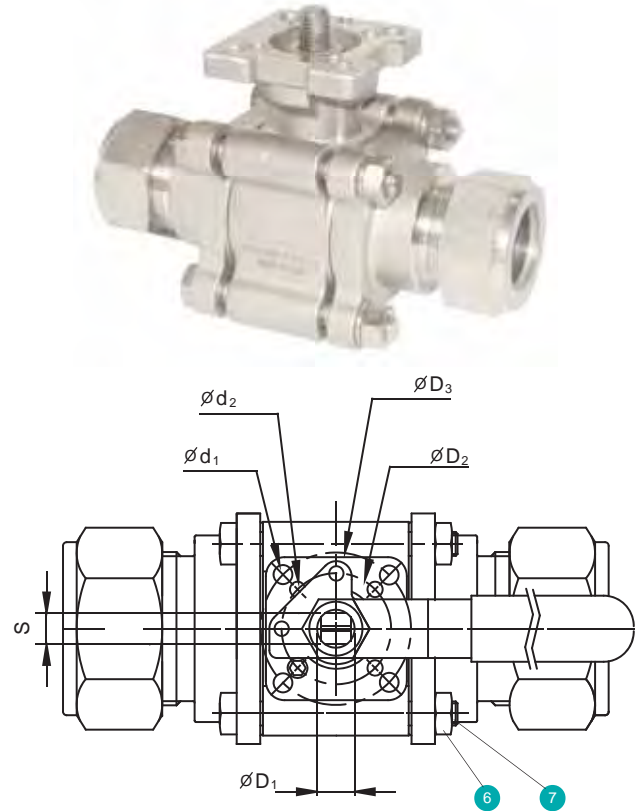
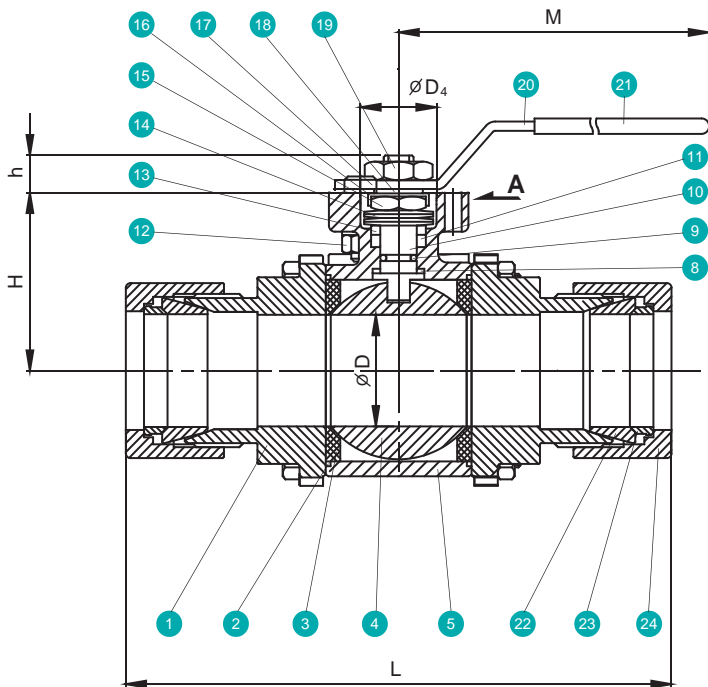
### STANDARDS :

- Design : ASME B16.34, API 608
- Wall Thickness : ASME B16.34 CLASS 800
- Tube End : 1/4" ~ 2"
- Inspection & Testing : API 598 EN 12266

### SPECIFICATIONS :

- Working Pressure : 1500 psing at 100°F (38°C)
- Temperature Range : -30°F to 350°F (-34°C to 177°C)

NO.	PART	MATERIAL
1	End Cap	A351 Gr. CF8M
2	Body Seal	TFM
3	Seat	TFM
4	Ball	316L SS
5	Body	A351 Gr. CF3M
6	Body Nut	304SS
7	Body Bolt	304SS
8	Thrust Washer	PEEK
9	Stem O-Ring	Viton 90
10	Stem	316L SS
11	Stem Packing Set	TFM
12	Stop Pin Nut	304SS
13	Packing Gland	304SS
14	Belleville Washer	301SS
15	Stem Nut	304SS
16	Gland Nut	304SS
17	Stop Pin Bolt	304SS
18	Space Washer	304SS
19	Handle Nut	304SS
20	Handle	304SS
21	Handle Cover	Vinyl
22	Front Ferrule	316SS
23	Back Ferrule	316SS
24	Locking Nut	316SS



### DIMENSIONS

Size	L	D	D1	D2	D3	D4	d1	d2	H	h	s
1/4	86	10	12	1.42	36	25	6	6	39	9	9
3/8	90	10	12	1.42	36	25	6	6	39	9	9
1/2	99	10	12	1.42	36	25	6	6	39	9	9
3/4	99	16	12	1.42	36	25	6	6	39	9	9
1	117	22	14	1.65	42	30	7	6	48	11	11

### DESIGN FEATURES

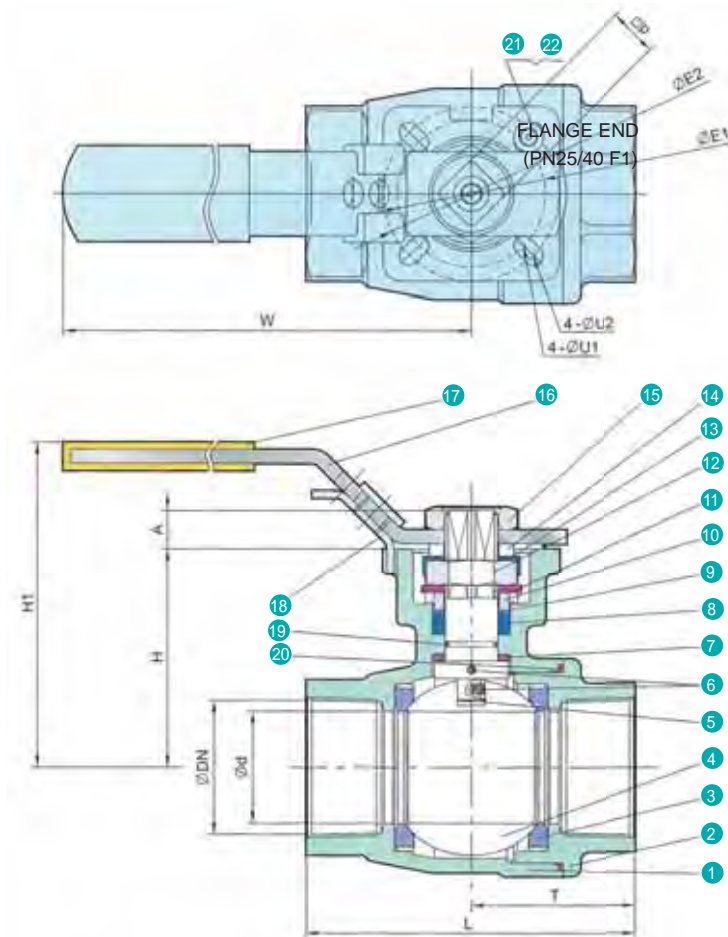
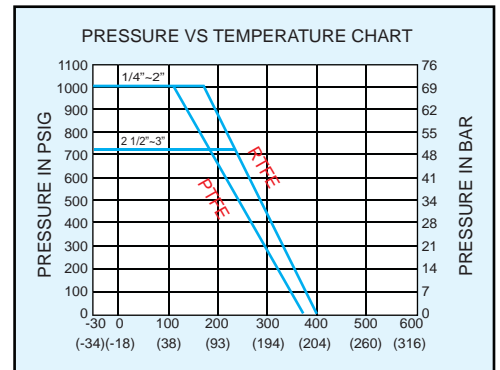
- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot

### STANDARDS :

- Design : ASME B16.34, API 608
- Wall Thickness : ASME B16.34 CLASS 400
- Pipe Thread : ASME B1.20.1, BS21  
DIN 2999/259, BSP  
ISO 7/1, ISO 228/1  
JIS B 0203
- Inspection & Testing : API 598 EN 12266

### SPECIFICATIONS :

- Working Pressure : 1000 psig at 100°F (38°C)
- Temperature Range : -30°F to 350°F (-34°C to 177°C)



NO.	PART	MATERIAL
1	Body	A351-CF8M(1.4408)
2	Cap	A351-CF8M(1.4408)
3	Ball Seat	PTFE
4	Ball	A351-CF8M(1.4408)
5	Stem	A276-316
6	Anti-Static	SUS 316
7	Stem Seal-Ring	PTFE
8	V-Ring Stem Packing	PTFE
9	Bushing	50%SS+50%PTFE
10	Gland	SUS 316
11	Belleville Washer	SUS 301
12	Stem Nut	A194-8
13	Stop-Lock-Cap	SUS 304
14	Handle Gland	SUS 304
15	Handle Nut	SUS 304
16	Handle	SUS 304
17	Handle Sleeve	Vinyl Plastic
18	Lock Device	SUS 304
19	O-Ring	FKM (VITON)
20	Body Gasket	PTFE
21	Stop Bolt	A193-B8
22	Nut	A194-8

Unit: mm

SIZE	Ød	L	H	H1	ØE1	ØE2	T	ØU1	ØU2	A	W	P	ØDN
1/4"	10.6	75.0	42.0	72.0	36.0	42.0	32.0	6.0	6.0	9.0	145.0	9.0	NPT
3/8"	12.7	75.0	42.0	72.0	36.0	42.0	32.0	6.0	6.0	9.0	145.0	9.0	
1/2"	15.0	75.0	42.0	72.0	36.0	42.0	32.0	6.0	6.0	9.0	145.0	9.0	
3/4"	20.0	80.0	49.0	80.0	36.0	50.0	35.2	6.0	6.0	9.0	145.0	9.0	BSP
1"	25.0	90.0	58.5	90.0	42.0	50.0	42.5	6.0	7.0	11.0	160.0	11.0	
1-1/4"	32.0	110.0	63.0	95.0	42.0	70.0	47.0	6.0	9.0	11.0	160.0	11.0	PT
1-1/2"	38.0	120.0	71.0	106.0	50.0	70.0	52.5	7.0	9.0	14.0	190.0	14.0	
2"	50.0	140.0	78.0	113.0	50.0	70.0	62.5	7.0	9.0	14.0	190.0	14.0	DIN etc.
2-1/2"	63.5	185.0	100.0	150.0	70.0	102.0	77.5	9.0	11.0	17.0	260.0	17.0	
3"	76.0	205.0	109.0	159.0	70.0	102.0	86.5	9.0	11.0	17.0	260.0	17.0	



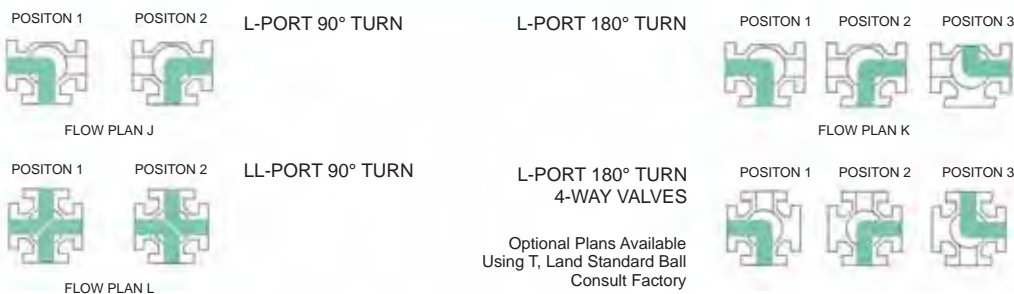
- Blow-out Proof and Anti-static Stem
- Pre-load 2 Belleville Washers to Self-adjust Packing
- Double Stem Sealing to Meet TUV TA-LUFT Requirements

## FLOW PATTERNS FOR 3&4-WAY VALVES

### T-Port 90° TURN



### T-Port 180° TURN



Optional Plans Available  
Using T, Land Standard Ball  
Consult Factory

### DESIGN FEATURES

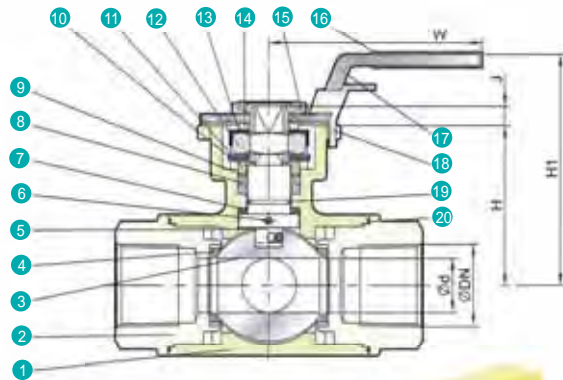
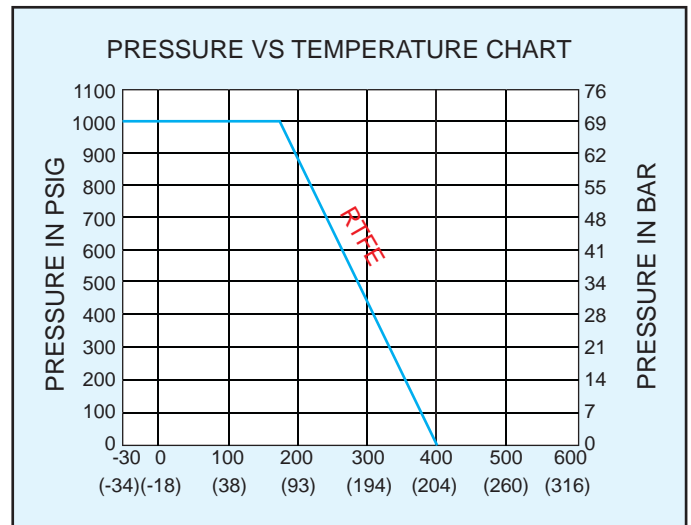
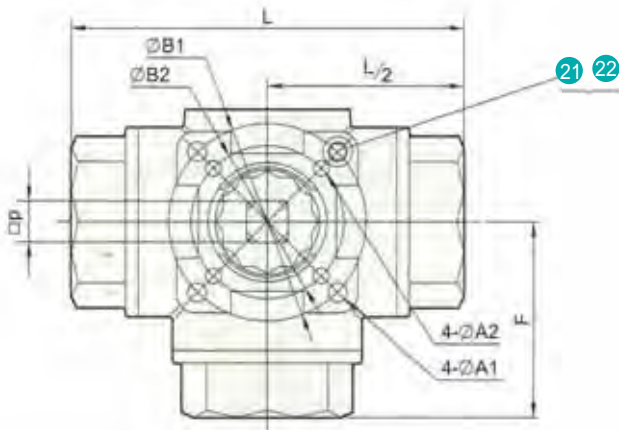
- Built-in ISO 5211 Direct Mounting Pad Easy Automation
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot
- Various Thread Standards are Available

### STANDARDS

- Design: ASME B16.34, API 608
- Wall Thickness : ASME B16.34 CLASS 400
- Pipe Thread: ASME B1.20.1, BS21  
DIN 2999/259, BSP  
ISO 7/1, ISO 228/1  
JIS B 0203
- Inspection & Testing: API 598 EN 12266

### SPECIFICATIONS

- Working Pressure: 1000 psig at 100°F (38°C)
- Temperature Range: -30°F to 350°F (-34°C to 177°C)



NO.	PART	MATERIAL
1	Body	A351-CF8M
2	End Cap	A351-CF8M
3	Ball	A351-CF8M
4	Ball Seat	RTFE / PTFE
5	Stem	A276-316
6	Anti-Static	SUS 316
7	Stem Seal-Ring	PTFE
8	V-Ring Packing	PTFE
9	Bushing	50%SS+50%PTFE
10	Gland	SUS 316
11	Belleville Washer	SUS 301
12	Stem Nut	A194-8
13	Stop-Lock-Cap	SUS 304
14	Handle Gland	SUS 304
15	Handle Nut	SUS 304
16	Handle Sleeve	Vinyl plastic
17	Handle	SUS 304
18	Lock Device	SUS 304
19	O-Ring	FKM(VITON)
20	Body Gasket	PTFE
21	Stop Bolt	A193-B8
22	Nut	A194-8

SIZE	Ød	L	H	H1	W	J	F	ØB1	ØB2	ØA1	ØA2	P	ØDN
1/4"	11.0	79.0	42.0	70.0	147.0	9.0	39.5	42.0	36.0	6.0	6.0	9.0	NPT
3/8"	11.0	79.0	42.0	70.0	147.0	9.0	39.5	42.0	36.0	6.0	6.0	9.0	BSP
1/2"	11.0	79.0	42.0	70.0	147.0	9.0	39.5	42.0	36.0	6.0	6.0	9.0	PT
3/4"	15.0	88.0	49.0	77.0	147.0	9.0	44.0	50.0	36.0	7.0	6.0	9.0	NIN
1"	20.0	108.0	59.0	87.0	176.5	11.0	54.0	50.0	42.0	7.0	6.0	11.0	etc.
1-1/4"	25.0	124.0	65.0	93.0	176.5	11.0	62.0	70.0	42.0	9.0	6.0	11.0	
1-1/2"	32.0	135.0	73.2	103.0	215.0	14.0	67.5	70.0	50.0	9.0	7.0	14.0	
2"	40.0	164.0	82.5	113.0	215.0	14.0	82.0	70.0	50.0	9.0	7.0	14.0	

Unit: mm

### DESIGN FEATURES

- Built-in ISO 5211 Direct Mounting Pad Easy Automation.
- **Fire Safe** Design and Construction
- Anti-static Devices for Ball-stem-body
- Blow-out Proof Stem
- Pressure Balance Hole in Ball Slot

### APPLICABLE STANDARDS :

- Design Rating: DIN 3357/1,2, EN 12516-1
- End Flange: DIN 2542-DIN 2545, EN 1092
- Wall Thickness : ASME B16.34 , EN 12516-1
- Inspection & Testing:  
DIN 3203/3, EN 12266, API 598, API 6D
- Connection: DIN 2501/1 PN 10-40

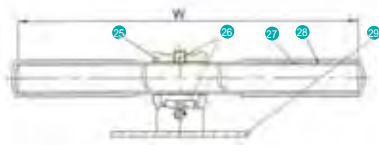


### SPECIFICATIONS :

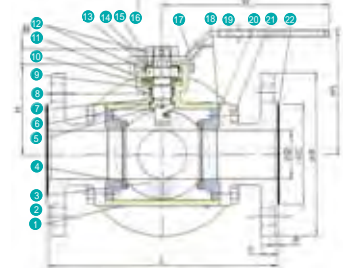
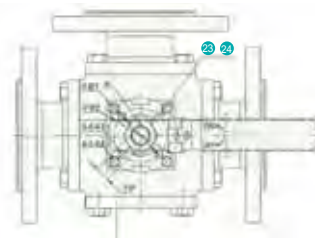
- Working Pressure: 40 Bar at 38°C
- Temperature Range: -30°F to 350°F (-34°C to 177°C)

NO.	PART	MATERIAL		
1	Body	1.4408	1.4308	1.0619
2	Cap	1.4408	1.4308	1.0619
3	Ball	1.4408	1.4308	
4	Ball Seat	PTFE		
5	Bolting	A193-B8	A193-B7	
6	Stem Seal-Ring	PTFE		
7	O-Ring	FKM(VITON)		
8	V-Ring Packing	PTFE		
9	Bushing	50%SS+50%PTFE		
10	Gland	SUS 316		
11	Belleville Washer	SUS 301		
12	Stem Nut	A194-8		
13	Stop-Lock-Cap	SUS 304		
14	Handle Gland	SUS 304		
15	Handle (1/2-3")	SUS 304		

NO.	PART	MATERIAL		
16	End Cap	1.4408	1.4308	1.0619
17	Lock Device(1/2-3")	SUS 304		
18	Body Gasket	PTFE		
19	Handle Sleeve (1/2-3")	VINYL PLASTIC		
20	Seat Retainer	1.4408	1.4308	1.0619
21	Bolt	A193-B8	A193-B7	
22	Flange Cover	PVC		
23	Stop Bolt	A193-B8		
24	Nut	A194-8		
25	Handle Adapter (4")	1.4408		
26	Set Screwed	A193-B8		
27	Handle (4")	A53+Zn Plate		
28	Handle Sleeve	VINYL PLASTIC		
29	Triangle stopper (4")	SUS 304		



DN15~DN80



### ASME CLASS 150 DIMENSION TABLE

SIZE	Rating	ØD	L	ØC	ØE	ØB	F	T	H	H1	N	Øh	W	P	M	K	ØA1	ØA2	ØB1	ØB2
DN15	1/2"	15.0	150.0	35.0	89.0	65.0	1.6	9.7	53.0	83.0	4.0	16.0	144.5	9.0	9.0	7/16-24UNF	6.0	6.0	36.0	42.0
DN20	3/4"	20.0	160.0	43.0	98.6	70.0	1.6	10.5	58.5	88.5	4.0	16.0	144.5	9.0	9.0	7/16-24UNF	6.0	7.0	36.0	50.0
DN25	1"	25.0	180.0	51.0	108.0	79.2	1.6	11.2	70.0	104.0	4.0	16.0	175.0	11.0	11.0	9/16-18UNF	6.0	7.0	42.0	50.0
DN32	1-1/4"	32.0	190.0	63.5	117.0	88.9	1.6	12.7	77.5	111.5	4.0	16.0	175.0	11.0	11.0	9/16-18UNF	6.0	9.0	42.0	70.0
DN40	1-1/2"	38.0	212.0	73.2	127.0	98.6	1.6	14.2	86.5	120.5	4.0	16.0	200.0	14.0	14.0	3/4-18UNF	7.0	9.0	50.0	70.0
DN50	2"	49.0	235.0	92.0	152.2	120.7	1.6	15.9	92.0	126.0	4.0	19.0	200.0	14.0	14.0	3/4-18UNF	7.0	9.0	50.0	70.0
DN65	2-1/2"	63.0	300.0	104.7	177.8	139.7	1.6	17.5	107.0	155.0	4.0	19.0	350.0	17.0	17.0	7/8-14UNF	9.0	11.0	70.0	102.0
DN80	3"	75.0	330.0	127.0	190.5	125.4	1.6	19.1	119.0	167.0	4.0	19.0	350.0	17.0	17.0	7/8-14UNF	9.0	11.0	70.0	102.0
DN100	4"	99.0	380.0	157.2	228.6	190.5	1.6	23.9	150.0	214.0	8.0	19.0	400.0	22.0	22.0	1-1/8-12UNF	--	11.0	--	102.0

Unit: mm

### ASME CLASS 300 DIMENSION TABLE

SIZE	Rating	ØD	L	ØC	ØE	ØB	F	T	H	H1	N	Øh	W	P	M	K	ØA1	ØA2	ØB1	ØB2
DN15	1/2"	15.0	150.0	35.0	89.3	66.5	1.6	14.3	53.0	83.0	4.0	16.0	144.5	9.0	9.0	7/16-24UNF	6.0	6.0	36.0	42.0
DN20	3/4"	20.0	160.0	43.0	117.4	82.6	1.6	15.9	58.5	88.5	4.0	16.0	144.5	9.0	9.0	7/16-24UNF	6.0	7.0	36.0	50.0
DN25	1"	25.0	180.0	51.0	124.0	88.9	1.6	17.5	70.0	104.0	4.0	16.0	175.0	11.0	11.0	9/16-18UNF	6.0	7.0	42.0	50.0
DN32	1-1/4"	32.0	195.0	63.5	133.4	98.6	1.6	19.1	77.5	111.5	4.0	16.0	175.0	11.0	11.0	9/16-18UNF	6.0	9.0	42.0	70.0
DN40	1-1/2"	38.0	215.0	73.2	155.5	114.3	1.6	20.7	86.5	120.5	4.0	16.0	200.0	14.0	14.0	3/4-18UNF	7.0	9.0	50.0	70.0
DN50	2"	49.0	235.0	92.0	165.1	127.0	1.6	22.3	92.0	126.0	8.0	19.0	200.0	14.0	14.0	3/4-18UNF	7.0	9.0	50.0	70.0
DN65	2-1/2"	63.0	300.0	104.7	190.5	149.4	1.6	25.4	107.0	155.0	8.0	22.3	350.0	17.0	17.0	7/8-14UNF	9.0	11.0	70.0	102.0
DN80	3"	75.0	330.0	127.0	209.6	168.1	1.6	28.6	119.0	167.0	8.0	22.3	350.0	17.0	17.0	7/8-14UNF	9.0	11.0	70.0	102.0
DN100	4"	99.0	380.0	157.2	254.0	200.2	1.6	31.8	150.0	214.0	8.0	22.3	400.0	22.0	22.0	1-1/8-12UNF	--	11.0	--	102.0

Unit: mm

### DIN PN10/40 DIMENSION TABLE

SIZE	PN	ØD	L	ØC	ØE	ØB	F	T	H	H1	N	Øh	W	P	M	K	ØA1	ØA2	ØB1	ØB2
DN15	1/2"	15.0	150.0	45.0	95.0	65.0	2.0	16.0	53.0	83.0	4.0	14.0	144.5	9.0	9.0	7/16-20UNF	6.0	6.0	36.0	42.0
DN20	3/4"	20.0	160.0	58.0	105.0	75.0	2.0	18.0	58.5	88.5	4.0	14.0	144.5	9.0	9.0	7/16-20UNF	6.0	7.0	36.0	50.0
DN25	1"	25.0	180.0	68.0	115.0	85.0	2.0	18.0	70.0	104.0	4.0	14.0	175.0	11.0	11.0	9/16-18UNF	6.0	7.0	42.0	50.0
DN32	1-1/4"	32.0	190.0	78.0	140.0	100.0	2.0	18.0	77.5	111.5	4.0	14.0	175.0	11.0	11.0	9/16-18UNF	6.0	9.0	42.0	70.0
DN40	1-1/2"	38.0	212.0	88.0	150.0	110.0	3.0	18.0	86.5	120.5	4.0	18.0	200.0	14.0	14.0	9/4-18UNF	7.0	9.0	50.0	70.0
DN50	2"	49.0	230.0	102.0	165.0	125.0	3.0	20.0	92.0	126.0	4.0	18.0	200.0	14.0	14.0	9/4-18UNF	7.0	9.0	50.0	70.0
DN65	2-1/2"	63.0	290.0	122.0	185.0	145.0	3.0	18.0	107.0	155.0	4.0	18.0	265.0	17.0	17.0	7/8-14UNF	9.0	11.0	70.0	102.0
DN80	3"	75.0	310.0	138.0	200.0	160.0	3.0	20.0	119.0	167.0	8.0	18.0	265.0	17.0	17.0	7/8-14UNF	9.0	11.0	70.0	102.0
DN100	4"	99.0	350.0	158.0	220.0	180.0	3.0	20.0	150.0	214.0	8.0	18.0	400.0	22.0	22.0	1-1/8-12UNF	non	11.0	non	102.0
			370.0	162.0	235.0	190.0		24.0												

Unit: mm



Applications: Applied to any media, but HF (Hydrofluoric Acid), with Max. Temperature 500 and Max. Pressure 5.0Mpa.

This valve has incomparable advantages under using in high corrosion, and high attrition.

Structure: 3-part flange type flowing ball valve, Flange, According to DIN/ANSI/API/JIS



Excellent wearproof property of ceramic enables this valve have high reliability and prolonged lifespan, 2-4times of that of Titanium Alloy and Monel Metal valve

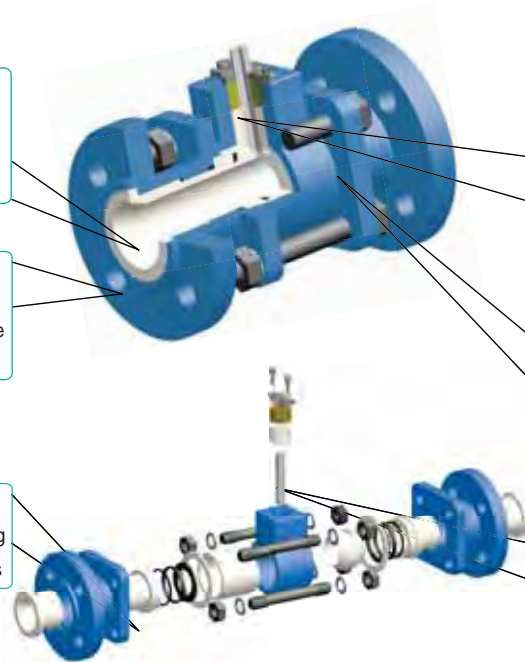
Interference fit between metal part and ceramic part makes the whole part stringer and more reliable, improves the mechanical properties of the ceramic, becoming real ceramic-steel

Elastic washers can guarantee excellent leakproofness at any time and avoid blocking in media with impurities and cracking of balls

A wide selection of stem material options available is 316/316L, Hastelloy-c Monel metal, structure ceramic

Completely symmetric design can ensure dual leak-proofness and two-direction usage for double lifespan.

Unique packing design can ensure closer sealing and prolonged service life



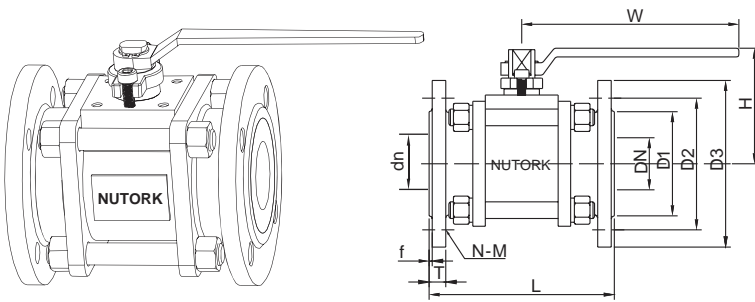
The valve has the exceedingly high wear-proof capability, corrosion resisting, enduring capability, good heat insulation, small thermal expansion. All parts that contact the media are made of structural ceramics with extremely high chemical stability and hardness (HRC90) only inferior to diamond.

The ball is processed by advanced polishing equipment that can ensure high circularity, accuracy, good surface quality. The self-lubricating capability of ZrO<sub>2</sub>e ensures the good sealing performance. Thoroughly free from the defects that metal hard sealing has such as big torque, on-corrosion-resistant sealing surface.

The valve fits in granule medium of high hardness, or medium with erosive soft granule. It is also the only valve suitable for this type of medium. They are widely used in petrochemical industry, metallurgy, mining, power station, medicine and papermaking and so on.

### Part List :

No.	Part Name	Material	No.	Part Name	Material
1	Flange	WCB, CF8, CF8M	12	Ring	WCB, 304SS
2	Seat	Ceramic	13	Washer	PTFE, RTFE, Graphite
3	Socket	Ceramic	14	Ball	Ceramic
4	Stem	304Ss, 316SS, Hastelloy, Monel	15	Inner Lined	Ceramic
5	Gland	WCB, 304SS	16	O Ring	Rubber
6	Space Ring	WCB, 304SS	17	Spring	Inconel 750
7	Handle	WCB, 304SS	18	Gasket	PTFE, RTFE, Graphite
8	Snap Ring	65Mn	19	Body	WCB, CF8, CF8M
9	Snap Ring	65Mn	20	Spring Washer	65Mn
10	Gland Bolt	WCB, 304SS	21	Nut	WCB, 304SS
11	Packing	PTFE, RTFE, Graphite	22	Stud Bolt	WCB, 304SS



### PN10 / JIS10K :

DN		Figure Size				DIN PN10 Flange Dia.						JIS 10K Flange Dia.						Kg
Inch	mm	dn	L	W	H	D1	D2	D3	N-M	T	f	D1	D2	D3	N-M	T	f	
1/2"	15	15	108	160	85	45	65	95	4-M12	14	2	52	70	95	4-M12	12	1	2.9
3/4"	20	15	117	160	94	55	75	105	4-M12	14	2	58	75	100	4-M12	14	1	3.4
1"	25	20	127	230	100	65	85	115	4-M12	14	2	70	90	125	4-M16	14	1	4.3
1 1/4"	32	25	140	230	114	78	100	135	4-M16	16	2	80	100	135	4-M16	16	2	6.8
1 1/2"	40	32	165	320	121	85	110	145	4-M16	16	2	85	105	140	4-M16	16	2	9.3
2"	50	40	178	320	140	100	125	160	4-M16	16	3	100	120	155	4-M16	16	2	12.6
2 1/2"	65	50	190	320	158	120	145	180	4-M16	18	3	120	140	173	4-M16	18	2	14.9
3"	80	65	203	400	176	135	160	195	8-M16	20	3	130	150	185	8-M16	18	2	22.3
4"	100	80	229		202	155	180	215	8-M16	20	3	155	175	210	8-M16	18	2	30
5"	125	100	254		252	185	210	245	8-M16	22	3	185	210	250	8-M20	20	2	41
6"	150	100	267		276	210	240	280	8-M20	24	3	215	240	280	8-M20	22	2	54
8"	200	150	292		293	265	295	335	12-M20	26	3	265	290	330	12-M20	22	2	76

### PN16 / ANSI150LB :

DN		Figure Size				DIN PN16 Flange Dia.						ANSI CLASS 150 Flange Dia.						Kg
Inch	mm	dn	L	W	H	D1	D2	D3	N-M	T	f	D1	D2	D3	N-M	T	f	
1/2"	15	15	108	160	85	45	65	95	4-M12	14	2	35	60.5	89	4-M12	11	1.6	2.9
3/4"	20	15	117	160	94	55	75	105	4-M12	14	2	43	70	98	4-M12	11	1.6	3.4
1"	25	20	127	230	100	65	85	115	4-M12	14	2	51	79.5	108	4-M12	11	1.6	4.3
1 1/4"	32	25	140	230	114	78	100	135	4-M16	16	2	64	89	117	4-M12	13	1.6	6.8
1 1/2"	40	32	165	320	121	85	110	145	4-M16	16	3	73	98.5	127	4-M12	14	1.6	9.3
2"	50	40	178	320	140	100	125	160	4-M16	16	3	92	120.5	152	4-M16	16	1.6	12.6
2 1/2"	65	50	190	320	158	120	145	180	4-M16	18	3	105	139.5	178	4-M16	18	1.6	14.9
3"	80	65	203	400	176	135	160	195	8-M16	20	3	127	152.5	190	4-M16	19	1.6	22.3
4"	100	80	229		202	155	180	215	8-M16	20	3	157	190.5	229	8-M16	24	1.6	30
5"	125	100	254		252	185	210	245	8-M16	22	3	186	216	254	8-M20	24	1.6	41
6"	150	100	267		276	210	240	280	8-M20	24	3	216	241.5	279	8-M20	25	1.6	54
8"	200	150	292		293	265	295	335	12-M20	26	3	270	298.5	343	8-M20	29	1.6	76

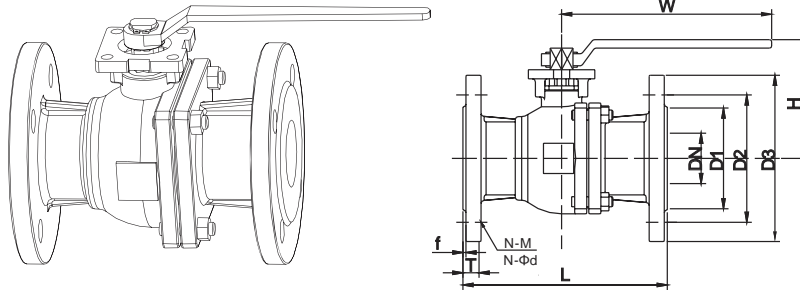
### PN25 / JIS20K :

DN		Figure Size				DIN PN25 Flange Dia.						JIS 20K Flange Dia.						Kg
Inch	mm	dn	L	W	H	D1	D2	D3	N-M	T	f	D1	D2	D3	N-M	T	f	
1/2"	15	15	108	160	85	45	65	95	4-M12	16	2	52	70	95	4-M12	14	1	2.9
3/4"	20	15	117	160	94	55	75	105	4-M12	16	2	58	75	100	4-M12	16	1	3.4
1"	25	20	127	230	100	65	85	115	4-M16	16	2	70	90	125	4-M16	16	1	4.3
1 1/4"	32	25	140	230	114	78	100	135	4-M16	18	2	80	100	135	4-M16	18	2	6.8
1 1/2"	40	32	165	320	121	85	110	145	4-M16	18	3	85	105	140	4-M16	18	2	9.3
2"	50	40	178	320	140	100	125	160	4-M16	20	3	100	120	155	8-M16	18	2	12.6
2 1/2"	65	50	190	320	158	120	145	180	8-M16	22	3	120	140	175	8-M16	20	2	14.9
3"	80	65	203	400	176	135	160	195	8-M16	22	3	135	160	200	8-M20	22	2	22.3
4"	100	80	229		202	160	190	230	8-M20	24	3	160	185	225	8-M20	24	2	30
5"	125	100	254		252	188	220	270	8-M24	28	3	195	225	270	8-M24	26	2	41
6"	150	100	267		276	218	250	300	8-M24	30	3	230	260	305	12-M24	28	2	54
8"	200	150	292		293	278	310	360	12-M24	34	3	275	305	350	12-M24	30	2	76

### PN40 / ANIS300LB :

DN		Figure Size				DIN PN40 Flange Dia.						ANSI CLASS 300 Flange Dia.						Kg
Inch	mm	dn	L	W	H	D1	D2	D3	N-M	T	f	D1	D2	D3	N-M	T	f	
1/2"	15	15	108	160	90	45	65	95	4-M12	16	2	35	66.5	95	4-M12	15	1.6	3.5
3/4"	20	15	117	160	100	55	75	105	4-M12	16	2	43	82.5	117	4-M16	16	1.6	4.1
1"	25	20	127	230	105	65	85	115	4-M16	16	2	51	89	124	4-M16	18	1.6	5.2
1 1/4"	32	25	140	230	120	78	100	135	4-M16	18	2	64	98.5	133	4-M16	19	1.6	8.2
1 1/2"	40	32	165	320	128	85	110	145	4-M16	18	3	73	114.5	156	4-M20	21	1.6	11.3
2"	50	40	178	320	146	100	125	160	4-M16	20	3	92	127	165	8-M16	22	1.6	15.1
2 1/2"	65	50	190	320	165	120	145	180	8-M16	22	3	105	149.5	190	8-M20	25	1.6	17.9
3"	80	65	203	400	185	135	160	195	8-M16	22	3	127	168	210	8-M20	29	1.6	26.8
4"	100	80	229		210	160	190	230	8-M20	24	3	157	200.5	254	8-M20	32	1.6	36
5"	125	100	254		265	188	220	270	8-M24	28	3	186	235	279	8-M20	35	1.6	49
6"	150	100	267		290	218	250	300	8-M24	30	3	216	270.5	318	12-M20	37	1.6	65
8"	200	150	292		308	282	320	375	12-M27	38	3	270	330	381	12-M24	41	1.6	93

Remarks: ceramic ball valve with nominal diameter larger than DN100 all matched with worm wheel manual operation



### PN10 / JIS10K :

DN		DIN PN10 Figure Size & Flange Dia.										JIS 10K Figure Size & Flange Dia.							
Inch	mm	W	L	H	D1	D2	D3	N-φd	T	f	L	H	D1	D2	D3	N-φd	T	f	
1/2"	15	130	130	84	45	65	95	4-φ14	14	2	108	66	52	70	95	4-φ15	12	1	
3/4"	20	130	130	84	55	75	105	4-φ14	14	2	117	69	58	75	100	4-φ15	14	1	
1"	25	160	140	95	65	85	115	4-φ14	14	2	129	86	70	90	125	4-φ19	14	1	
1 1/4"	32	160	165	95	78	100	135	4-φ18	16	2	140	97	80	100	135	4-φ19	16	2	
1 1/2"	40	250	165	138	85	110	145	4-φ18	16	2	165	123	85	105	140	4-φ19	16	2	
2"	50	250	203	147	100	125	160	4-φ18	16	3	180	130	100	120	155	4-φ19	16	2	
2 1/2"	65	400	222	185	120	145	180	4-φ18	18	3	190	148	120	140	173	4-φ19	18	2	
3"	80	400	241	194	135	160	195	4-φ18	20	3	200	174	130	150	185	8-φ19	18	2	
4"	100	700	305	210	155	180	215	8-φ18	20	3	235	190	155	175	210	8-φ19	18	2	
5"	125	700	381	265	185	210	245	8-φ18	22	3	300	230	185	210	250	8-φ23	20	2	
6"	150	1100	403	290	210	240	280	8-φ23	24	3	340	252	215	240	280	8-φ23	22	2	
8"	200	1100	419	308	265	295	335	12-φ23	26	3	350	278	265	290	330	12-φ23	22	2	

### PN16 / ANSI150LB :

DN		DIN PN16 Figure Size & Flange Dia.										ANSI CLASS 150 Figure Size & Flange Dia.							
Inch	mm	W	L	H	D1	D2	D3	N-φd	T	f	L	H	D1	D2	D3	N-φd	T	f	
1/2"	15	130	130	84	45	65	95	4-φ14	14	2	108	66	35	60.5	89	4-φ15	11	1.6	
3/4"	20	130	130	84	55	75	105	4-φ14	14	2	117	69	43	70	98	4-φ15	11	1.6	
1"	25	160	140	95	65	85	115	4-φ14	14	2	127	91	51	79.5	108	4-φ15	11	1.6	
1 1/4"	32	160	165	95	78	100	135	4-φ18	16	2	140	97	64	89	117	4-φ15	13	1.6	
1 1/2"	40	250	165	138	85	110	145	4-φ18	16	2	165	123	73	98.5	127	4-φ15	14	1.6	
2"	50	250	203	147	100	125	160	4-φ18	16	3	178	130	92	120.5	152	4-φ19	16	1.6	
2 1/2"	65	400	222	185	120	145	180	4-φ18	18	3	190	143	105	139.5	178	4-φ19	18	1.6	
3"	80	400	241	194	135	160	195	4-φ18	20	3	203	176	127	152.5	190	8-φ19	19	1.6	
4"	100	700	305	210	155	180	215	8-φ18	20	3	229	192	157	190.5	229	8-φ19	24	1.6	
5"	125	700	381	265	185	210	245	8-φ18	22	3	356	230	186	216	254	8-φ22	24	1.6	
6"	150	1100	403	290	210	240	280	8-φ23	24	3	394	252	216	241.5	279	8-φ22	25	1.6	
8"	200	1100	419	308	265	295	335	12-φ23	26	3	457	278	270	298.5	343	8-φ22	29	1.6	

### PN25 / JIS20K :

DN		DIN PN25 Figure Size & Flange Dia.										JIS 20K Figure Size & Flange Dia.							
Inch	mm	W	L	H	D1	D2	D3	N-φd	T	f	L	H	D1	D2	D3	N-φd	T	f	
1/2"	15	160	130	84	45	65	95	4-φ14	16	2	108	66	52	70	95	4-φ15	14	1	
3/4"	20	160	130	84	55	75	105	4-φ14	16	2	117	69	58	75	100	4-φ15	16	1	
1"	25	230	140	95	65	85	115	4-φ14	16	2	129	91	70	90	125	4-φ19	16	1	
1 1/4"	32	230	165	95	78	100	135	4-φ18	18	2	140	97	80	100	135	4-φ19	18	2	
1 1/2"	40	320	165	138	85	110	145	4-φ18	18	3	165	123	85	105	140	4-φ19	18	2	
2"	50	320	203	147	100	125	160	4-φ18	20	3	180	130	100	120	155	4-φ19	18	2	
2 1/2"	65	400	222	185	120	145	180	4-φ18	22	3	190	143	120	140	175	8-φ19	20	2	
3"	80	400	241	194	135	160	195	8-φ18	22	3	200	176	135	160	200	8-φ23	22	2	
4"	100	700	305	210	160	190	230	8-φ23	24	3	235	192	160	185	225	8-φ23	24	2	
5"	125	700	381	265	188	220	270	8-φ25	28	3	300	230	195	225	270	8-φ25	26	2	
6"	150	1100	403	290	218	250	300	8-φ25	30	3	340	252	230	260	305	12-φ25	28	2	
8"	200	1100	419	308	278	310	360	12-φ25	34	3	350	278	275	305	350	12-φ25	30	2	

### PN40 / ANIS300LB :

DN		DIN PN40 Figure Size & Flange Dia.										ANSI CLASS 300 Figure Size & Flange Dia.							
Inch	mm	W	L	H	D1	D2	D3	N-φd	T	f	L	H	D1	D2	D3	N-φd	T	f	
1/2"	15	160	140	67	45	65	95	4-φ14	16	2	108	66	35	66.5	95	4-φ15	15	1.6	
3/4"	20	160	152	70	55	75	105	4-φ14	16	2	117	69	43	82.5	117	4-φ19	16	1.6	
1"	25	230	165	89	65	85	115	4-φ14	16	2	127	91	51	89	124	4-φ19	18	1.6	
1 1/4"	32	230	180	95	78	100	135	4-φ18	18	2	140	97	64	98.5	133	4-φ19	19	1.6	
1 1/2"	40	320	200	122	85	110	145	4-φ18	18	2	165	123	73	114.5	156	4-φ22	21	1.6	
2"	50	320	230	130	100	125	160	4-φ18	20	3	178	130	92	127	165	8-φ19	22	1.6	
2 1/2"	65	400	290	157	120	145	180	4-φ18	22	3	190	143	105	149.5	190	8-φ22	25	1.6	
3"	80	400	310	186	135	160	195	4-φ18	22	3	203	176	127	168	210	8-φ22	29	1.6	
4"	100	700	350	203	160	190	230	8-φ23	24	3	229	192	157	200.5	254	8-φ22	32	1.6	
5"	125	700	356	252	188	220	270	8-φ25	28	3	350	230	186	235	279	8-φ22	35	1.6	
6"	150	1100	394	276	218	250	300	8-φ25	30	3	414	252	216	270.5	318	12-φ22	37	1.6	
8"	200	1100	457	293	282	320	375	12-φ30	38	3	439	278	270	330	381	12-φ25	41	1.6	

## Order Information

1P ↓ Body Type	O ↓ Ball Type	PTFE ↓ Liner Material	0100 ↓ Size	PN10 ↓ Pressure Rating	FL ↓ End Coonectio	CS ↓ Body	13 ↓ Ball	PTFE ↓ Seat	NTE ↓ Operation
1	2	3	4	5	6	7	8	9	10

### 1. Body Type

Code	Description
1P	1-Piece Body
2P	2-Piece Body
3P	3-Piece Body

### 2. Ball Type

Code	Description
V	V Port
R	Reduce Port
O	Full Port

### 3. Liner Material

Code	Description
00	NONE
PTFE	PTFE
PFA	PFA
CR	Ceramic

### 4. Valve Size

Code	Description
0100	Four numbers represent the valve size. eg: 0100 represent DN100(4 )

### 5. Pressure Rating

Code	GB	Code	ANSI	Code	DIN	Code	JIS
PN10	PN10	150LB	ANSI150LB	DPN10	DIN PN10	10K	JIS10K
PN16	PN16	300LB	ANSI300LB	DPN16	DIN PN16	20K	JIS20K
PN25	PN25	600LB	ANSI600LB	DPN25	DIN PN25		
PN40	PN40	900LB	ANSI900LB	DPN40	DIN PN40		

### 6. End Coonectionv

Code	Description
PT	PT
NPT	NPT
BW	Butt Weld
SW	Scoket Weld
CL	Clamp Type
TU	Tube End
FL	Flanged End

### 7. Body Material

Code	Description
CS	Carbon Steel
13	304SS
14	316SS
MN	Monel
HC	Hastelloy C
XX	XX

### 8. Ball Material

Code	Description
13	304SS
14	316SS
MN	Monel
HC	Hastelloy C
XX	XX

### 9. Seat Material

Code	Description
PTFE	PTFE
PFA	PFA
CR	Ceramic
S6	Stellite #6
XX	XX

### 10. Operation

Code	Description
M	Manual
NK	Rack & Pinon Pneumatic Actuator/NK(052~270)
NSF	Scotch Yoke Type Pneumatic Actuator/NSF(16~60)
NTE	Electric Actuator/NTE Series(02~200)
NTQ	Electric Actuator/NTQ Series(100~3000)

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