

  
TUV-Germany  
ISO 9001

  
USA  
API 6D

  
BV-France  
CE

  
Russia  
GOST

  
Sweden  
P MARK

  
Germany  
FFI

  
Korea  
NT

  
Korea  
INNO-BIZ

Bulletin K07-10



## SIDE ENTRY 3 PIECE & FULLY WELDED BALL VALVES



# General Information

This catalogue introduces KMC's ball valves type "3 Piece Side Entry" and "1 Piece Fully Welded." Basic technical specifications are also included.

These valves have been developed to meet all the requirements for pipeline services in open/close operating position according to API Spec 6D. The material, design and operating requirements, such as temperature, type of fluid, pressure, etc. described in this catalogue are basic specifications only, and these may be altered upon customer's requirements.

KMC manufactures high quality ball valves according to various standards and specifications. Our products are used in gas transmission, district heating pipelines, offshore platforms, oil fields, chemical plants, etc. and are highly regarded by our customers.

We are confident that KMC ball valves will be used all over the world where quality and reliability cannot be compromised. KMC can deliver on time and be competitive as well.



◆ API 6D(USA)



◆ ISO 9001/KS A9001 (TUV-Germany)



◆ FIRE SAFETY (Velosi-United Kingdom)



◆ FFI(Germany)



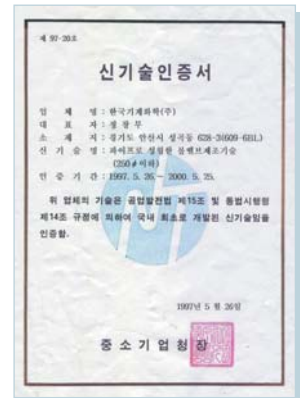
◆ CE(BV-France)



◆ GOST(Russia)



◆ P(Sweden)



◆ NT(Korea)

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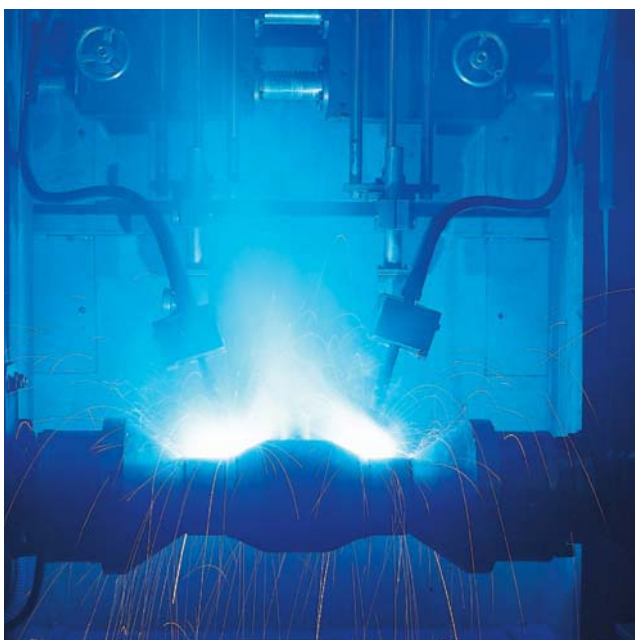
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Ball Machining & Polishing



CNC Vertical Lathe



Automatic Welding



CNC Milling MachineBall Machining & Polishing

# Order Information

## INQUIRY & ORDER REQUISITON

KMC ball valves will be supplied according to the KMC's standard specifications unless otherwise requested during quotation and clearly specified when order is placed.

## BALL VALVES SPECIFICATION

Basic specifications are as follows:

1. Size : From 2" (DN 50) up to 60" (DN 1500)
2. Pressure : ANSI Class 150 (PN20),  
ANSI Class 300 (PN50),  
ANSI Class 600 (PN100),  
ANSI Class 900 (PN150),  
ANSI Class 1500 (PN250),  
ANSI Class 2500 (PN420), etc.
3. Materials : Carbon Steel  
Stainless Steel  
Low alloy Steel, etc.
4. Bore type: Full bore or Regular bore / Reduced bore type.
5. End Connections : Flanged ends, Welded ends,  
Screwed ends, etc.
6. Types of operator: Lever, Gear, Actuator, etc.
7. Working temperature: -196°C ~ 540°C
8. Documents : Manufacturer's inspection report for final inspection, raw material certificates, etc.
9. Other special requirements & options, etc.

## AUTOMATIC OPERATORS

KMC ball valves have a top flange to install various kinds of actuators easily. The actuators are procured by customers at their own expense. However, upon request, KMC can also supply and install such actuators according to customer's requirements.

Besides, KMC Ball valves can be furnished with an actuator mounting flange, designed and prepared according to ISO 5211 specification. Actuator connection flange prepared according to ISO 5211 specification can be also furnished for the actuators chosen for customer's valve automation. Refer to page 16 in this catalogue or KMC home page for more details.



KMC API 6D Side Entry Ball Valve(Welded Ends)  
2" thru 60" / ANSI Class 150 through 2500



KMC API 6D Side Entry Ball Valve(Flanged Ends)  
2" thru 60" / ANSI Class 150 through 2500



KMC Fully Welded Ball Valve(Welded Ends)  
2" thru 60" / ANSI Class 150 through 2500

# Field Installations

**Our products are working all over the world!**

Value · Quality · Reliability

Offshore Platform

District Heating



Oil Production Module

Shipbuilding

# Construction & Design

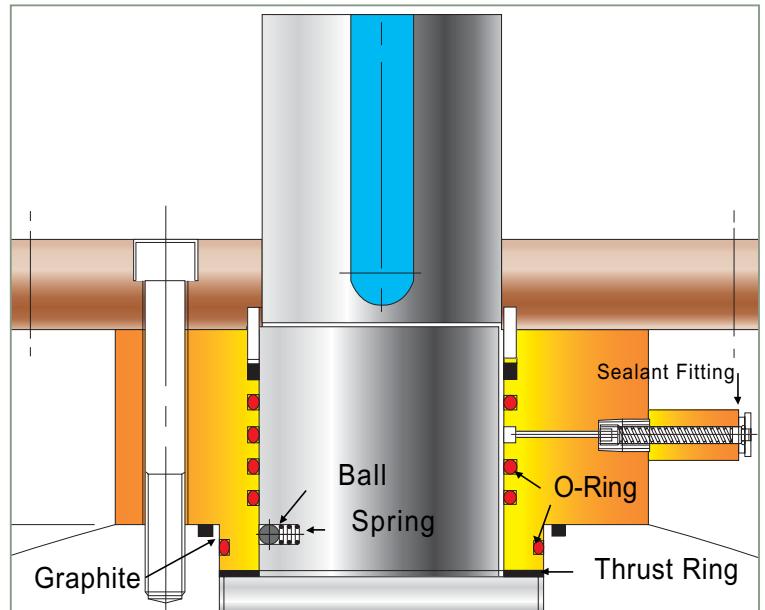
## STEM DESIGN

### Anti - Static Device

The Anti-Static feature is achieved through metal-to-metal contact of the stem to the stem neck by means of the ball and spring built into the stem of the valve.

### Anti - Blowout

The KMC stem is designed to be blowout proof by means of a specially designed stem shoulder and thrust ring.



## BALL CONSTRUCTION

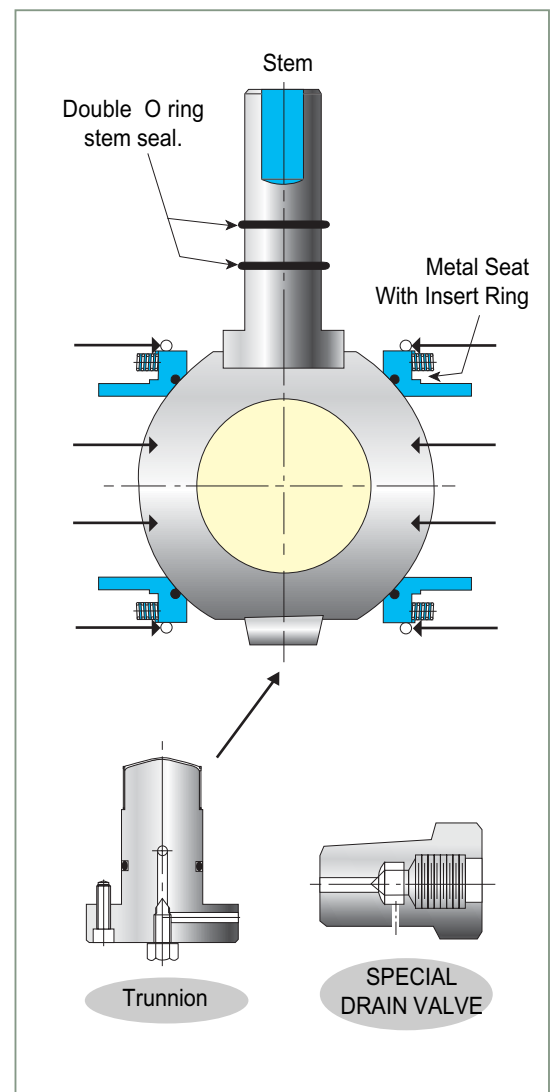
The ball, which is the most critical part of the ball valve, determines both the quality and the service life of the valve. It must therefore be precise and mirror polished.

KMC will help in the selection of either a floating ball or a trunnion mounted ball depending on size requirement and specification. The different ball types include solid ball, cavity ball and hollow (concave) ball.

## DOUBLE BLOCK & BLEED WITH BODY DRAIN

When the valve is fully closed, the specially designed drain or vent valve can be opened to drain the contents in the valve cavity. This can be done while the valve is still in service and under pressure.

With the ball in the open position and the pressure in the line, DBB is also available on customer requirement in option.



## SEALING CONSTRUCTION

Multiple O-rings are used to create the stem seal while graphite and PTFE are added to further enhance the fire safety design.

The ball rotates around its fixed vertical axis between the stem and the trunnion at the bottom.

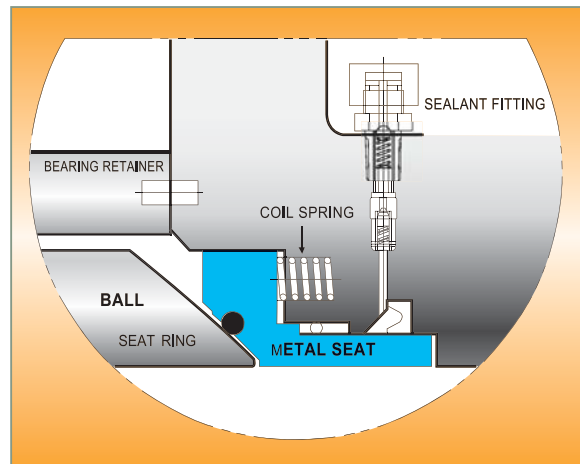
Positive sealing is accomplished by pressing the seat ring (Viton/PTFE/ Nylon, etc.) onto the precisely rounded ball surface. Pressure from the seat ring is provided by high tensile coil springs which readily adjust to the constantly changing line pressure.

# Construction & Design

## SEAT DESIGN FEATURES

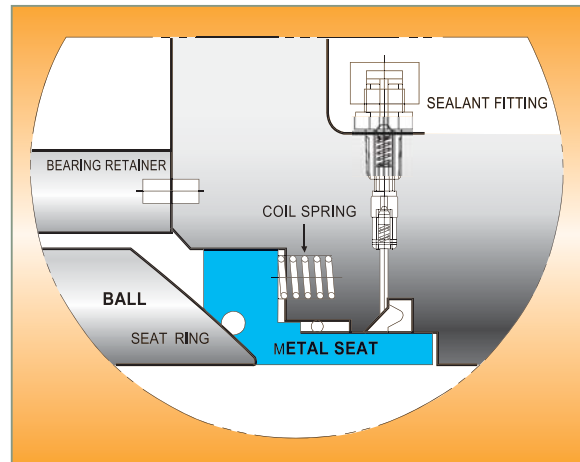
The valve seat used in sizes smaller than 4" is a plastic polymer material which is highly resistant to abrasion and corrosion, and it exhibits self-lubricating properties that reduce friction thus minimizing torque requirements.

The dual sealing mechanism is designed with metal-to-metal seats as the primary seal and a secondary seal consisting of protected synthetic seat rings.



## FIRE SAFETY

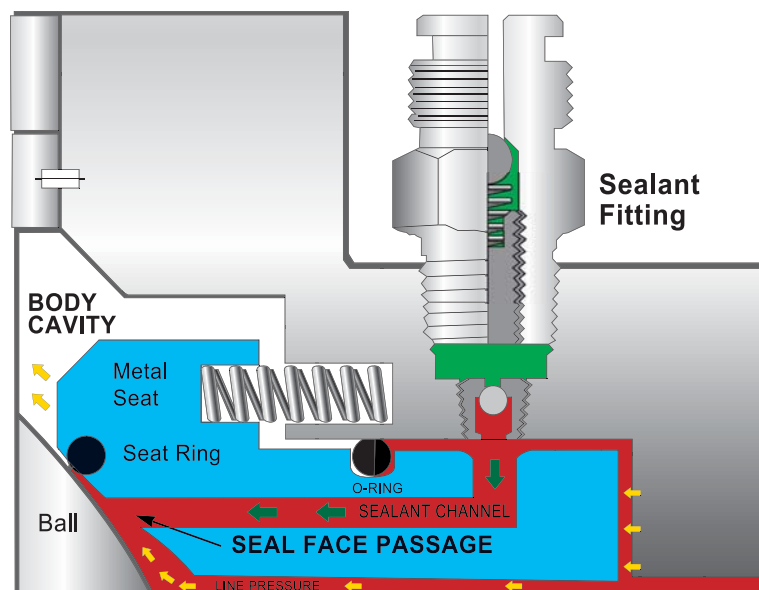
In order to minimize leakage in the event of fire, KMC has designed and tested the valves for Fire Safety in accordance with BS 6755-2, API 6FA, and API Std 607.



## SEALANT & LUBRICATION SYSTEM

Generally, valves 4" and larger can be fitted with an emergency seat sealant system. The lubricant and sealant fittings are located on the valve's end pieces and on the stem neck. The lubricants and sealants are injected into the sealant fittings, filling the sealant channels and the seal face passages.

Lubricants help lower the valve operating torque, while the sealants seal minor scratches and abrasions on both the seal faces and ball. The purpose of sealants is to provide for temporary shut-off in emergency situations. Before attempting to seal such minor leaks, consult the KMC or sealant experts.



# Material Specifications

## MATERIAL SPECIFICATION

### Pressure Retaining Parts

▲ <b>BODY</b>	A350 LF2 A352 LCB / LCC A216 WCB / WCC A516 Gr.60 / 70 A105 A106 Gr.B A182 F304(L) / F316(L) A351 CF8(M) / CF3(M)
▲ <b>Stem</b>	A105+ENP, A350 LF2+ENP A182 F304/F316 AISI 4140 A276 410

### Internal Parts

▲ <b>BALL</b>	A105+ENP A350 LF2+ENP A182 F304 / F316 A351 CF8(M) / CF3(M) A217 CA15
▲ <b>SEAT RINGS</b>	Polymer / Elastomer seat ring Metal seat inserted with polymer / elastomer seat ring PTFE, FKM(Viton), Polyamid(Nylon),PEEK etc. A105+ENP, A350 LF2+ENP A182 F304 / F316
▲ <b>SPRING</b>	Inconel X-750, AISI 302 / 304

### Sealing Materials

▲ <b>O-RINGS</b>	Various grade of FKM(Viton), NBR(Nitrile) etc.
▲ <b>GASKETS</b>	Graphite Spiral wound gasket Various grade of PTFE

### Bolts / Nuts

▲ <b>Bolts / Nuts</b>	A193 / A320 B7(M) / L7(M) / B8(M) A194 2H(M) / 4 / 8(M)
▲ <b>Cap screws</b>	A193 / A320 B7(M) / L7(M) / B8(M) A194 2H(M) / 4 / 8(M)

### Plating / Coating

▲ <b>0.001" ~0.003"</b>	ENP(Electroless Nickel Plating)
▲ <b>0.0045"</b>	Tungsten Carbide Coating

NO	DESCRIPTION
1	BODY
2	BALL
3	OUTER SEAT RING
4	SEAT O RING
5	INNER SEAT RING
6	SEAT KEY
7	U CUP RING
8	O-RINGS
9	SEAT COIL SPRING
10	END PIECE (CLOSURE FLANGE)
11	BODY O RING
12	STUD BOLT/ NUT
13	GREASE FITTING W-CHECK V/V
14	RELIEF V/V
15	WRENCH BOLT
16	NECK FLANGE
17	GRAPHITE PACKING
18	WASHER
19	GLAND BUSH
20	STEM O RING
21	NECK-S
22	GREASE FITTING (SEALANT INJECTOR)
23	NECK O RING
24	STEM KEY
25	STEM-S
26	TRUNNION
27	TRUNNION O RING
28	DOWEL PIN
29	DRY BEARING
30	THRUST WASHER
31	BEARING RETAINER
32	DRAIN PLUG
33	END PIECE(BW)

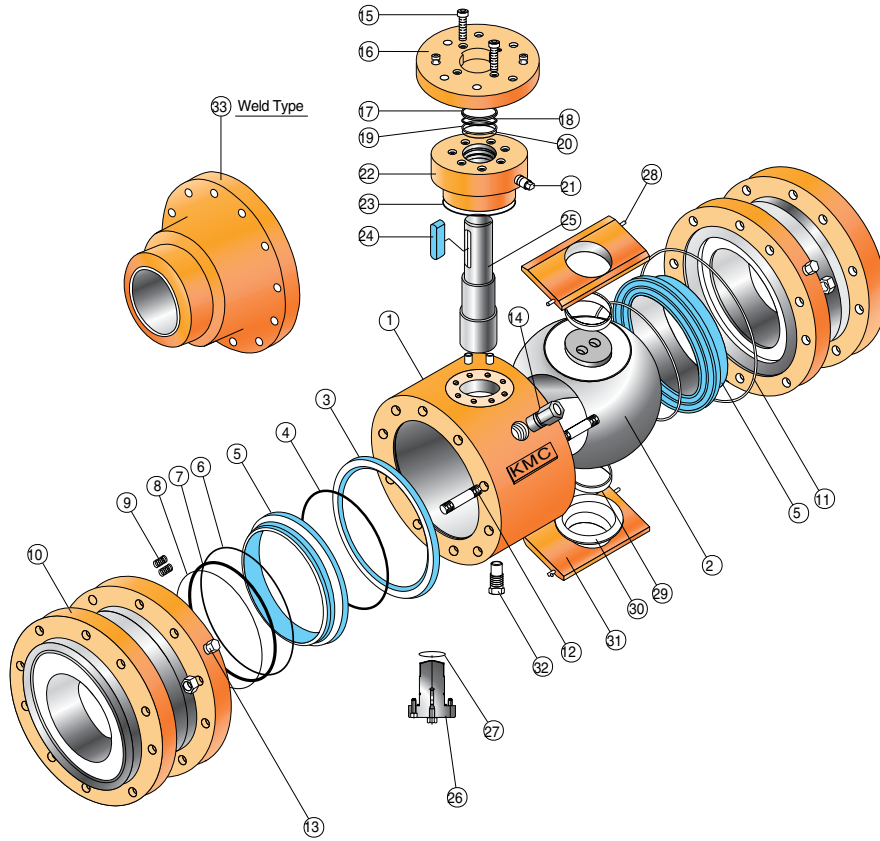
#### NOTE

- The above is a typical listing of materials for KMC standard applications.
- The materials may be adjustable at customer's requirements.

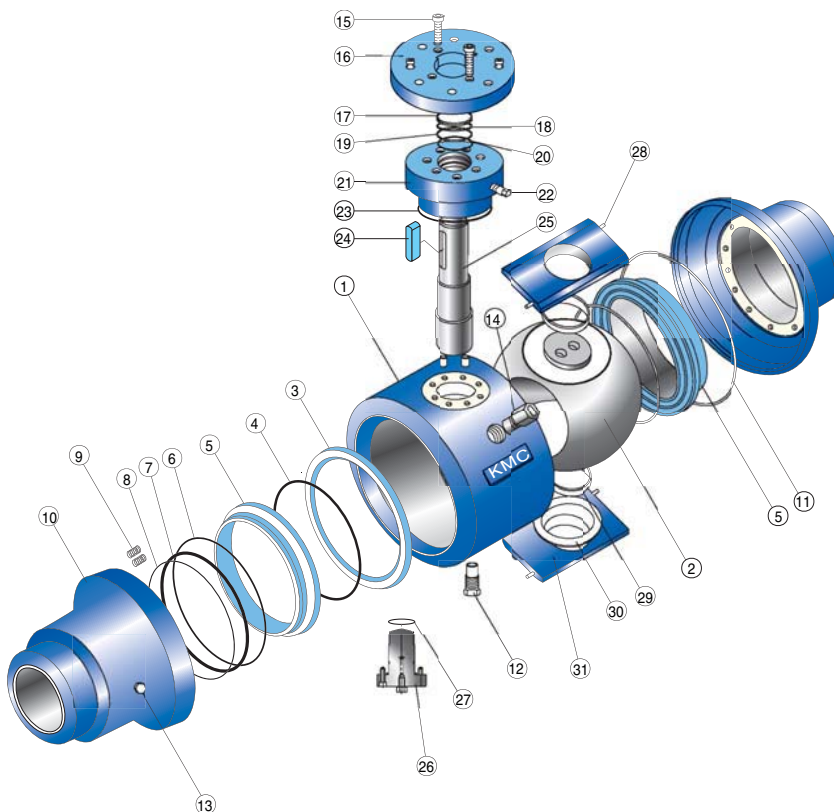


# Assembly Drawing

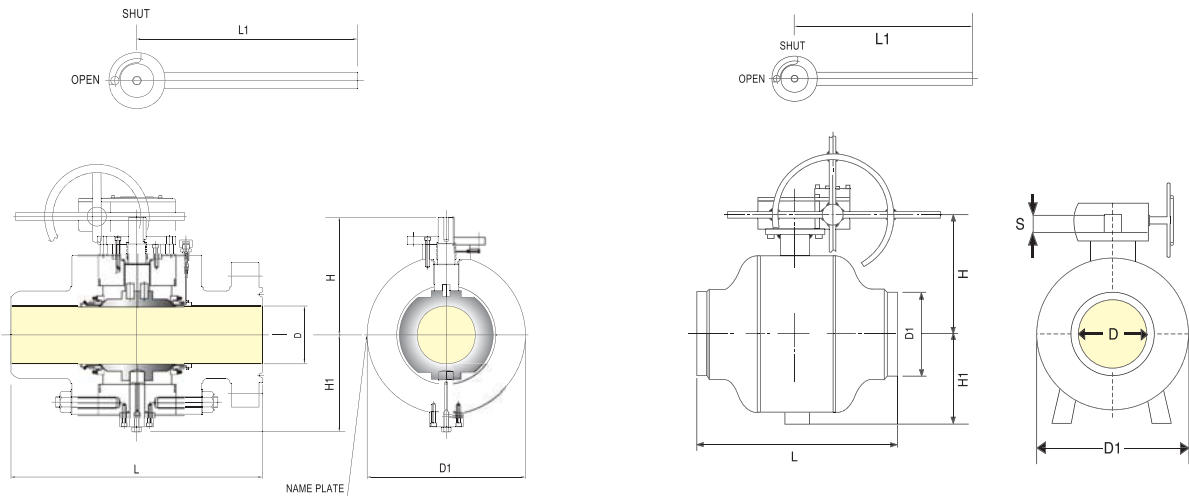
## Side Entry Flanged / Welded Ends Valves



## Fully Welded Ball Valves



# Side Entry 3 Piece & Fully Welded



## CLASS 150 DIMENSIONS

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
2" (50)	51	178	191	216	175	120	400	210	30	28	19
3" x 2" x 3"	50	203	216	283	175	120	400	210	33	30	22
3" (80)	76	203	216	283	210	150	800	260	60	52	33
4" x 3" x 4"	75	229	241	305	210	150	800	260	64	59	36
4" (100)	102	229	241	305	255	168	800	330	103	90	52
6" x 4" x 6"	100	394	406	457	255	168	800	330	110	105	66

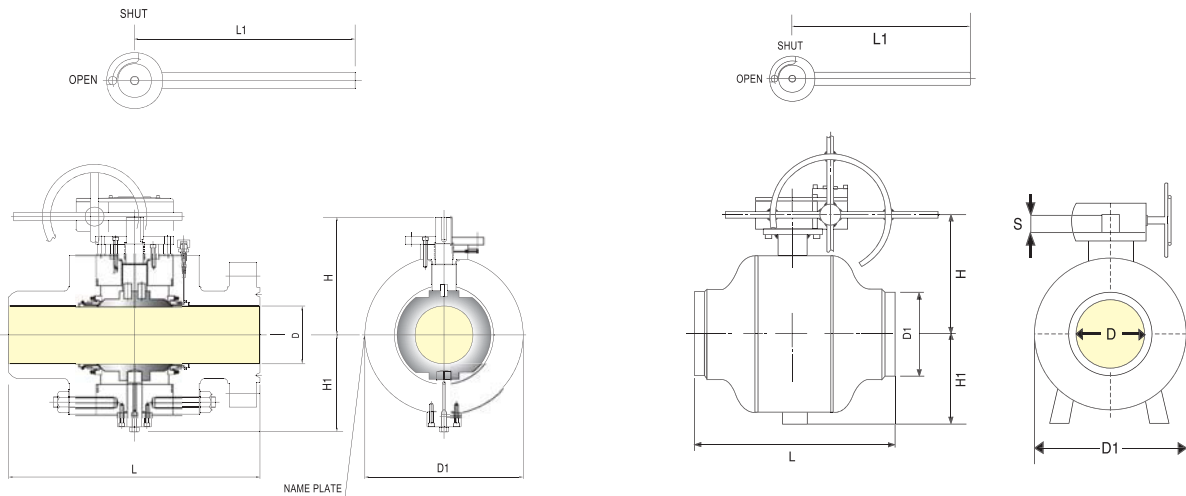
### NOTE

- Face to face dimensions in accordance with API 6D & ANSI B16.10.
- Flanged Ends in accordance with ANSI B16.5.
- Butt Weld Ends in accordance with ANSI B 16.25.

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
6" (150)	152	394	406	457	280	180	800	335	210	202	140
8" x 6" x 8"	150	457	470	521	280	180	800	335	225	210	194
8" (200)	203	457	470	521	320	220	800	420	355	331	230
10" x 8" x 10"	200	533	546	559	320	220	800	420	375	345	265
10" (250)	254	533	546	559	360	265	Gear	510	502	492	345
12" x 10" x 12"	250	610	622	635	360	265	Gear	510	538	505	370
12" (300)	305	610	622	635	360	290	Gear	590	705	660	530
16" x 12" x 16"	300	762	775	838	420	350	Gear	705	730	670	580
14" (350)	337	686	699	762	390	310	Gear	630	865	815	650
16" x 14" x 16"	337	762	775	838	390	310	Gear	630	890	870	755
16" (400)	387	762	775	838	420	350	Gear	705	1020	975	825
18" x 16" x 18"	387	864	876	914	420	350	Gear	705	1120	1050	1010
18" (450)	438	864	876	914	620	430	Gear	800	1469	1360	1180
20" x 18" x 20"	438	914	927	991	620	430	Gear	800	1550	1450	1200
20" (500)	489	914	927	991	635	475	Gear	870	1935	1840	1400
24" x 20" x 24"	490	1067	1080	1143	635	475	Gear	870	2050	1970	1490
24" (600)	591	1067	1080	1143	810	500	Gear	1040	2857	2685	2150
30" x 24" x 30"	590	1295	-	1397	810	500	Gear	1040	2910	2820	2200
26" (650)	635	1143	-	1245	710	550	Gear	1060	3525	3442	2520
28" (700)	686	1245	-	1346	880	620	Gear	1160	4052	3950	3050
30" (750)	737	1295	-	1397	930	669	Gear	1245	4815	4730	3950
36" x 30" x 36"	735	1524	-	1727	930	669	Gear	1245	5000	4850	4300
32" (800)	781	1372	-	1524	950	751	Gear	1305	5500	5392	4400
34" (850)	832	1473	-	1626	1018	777	Gear	1384	6720	6590	5270
36" (900)	876	1524	-	1728	1035	820	Gear	1435	9100	7550	7440
40" (1000)	978	1753	-	1956	1156	910	Gear	1620	11130	9580	9440
48" (1200)	1068	2134	-	2388	1312	1065	Gear	1926	18800	15750	15510
56" (1400)	1384	2489	-	2489	1575	1230	Gear	2260	28400	23900	23540
60" (1500)	1461	*	-	*	1640	1430	Gear	2450	34550	28000	27580

\* Upon request

# Side Entry 3 Piece & Fully Welded



## CLASS 300 DIMENSIONS

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
2" (50)	51	216	232	216	175	120	400	210	33	30	21
3" x 2" x 3"	50	283	298	283	175	120	400	210	36	33	24
3" (80)	76	283	298	283	210	150	800	260	63	60	35
4" x 3" x 4"	75	305	321	305	210	150	800	260	93	70	47
4" (100)	102	305	321	305	255	168	800	330	110	96	68
6" x 4" x 6"	100	403	419	457	295	168	800	330	140	110	85

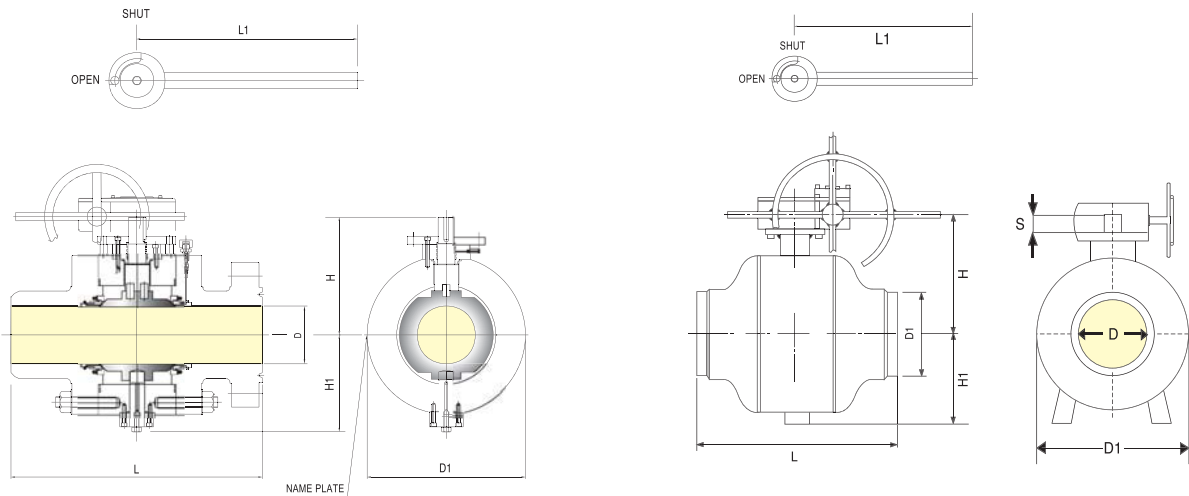
### NOTE

- Face to face dimensions in accordance with API 6D & ANSI B16.10.
- Flanged Ends in accordance with ANSI B16.5.
- Butt Weld Ends in accordance with ANSI B 16.25.

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
6" (150)	152	403	419	457	283	183	800	335	226	210	140
8" x 6" x 8"	150	502	518	521	283	183	800	335	225	220	154
8" (200)	203	502	518	521	323	223	Gear	420	371	325	230
10" x 8" x 10"	200	568	584	559	323	223	Gear	420	420	370	265
10" (250)	254	568	584	559	365	270	Gear	510	562	495	345
12" x 10" x 12"	250	648	664	635	365	270	Gear	510	585	520	380
12" (300)	305	648	664	635	370	290	Gear	590	760	682	564
16" x 12" x 16"	300	838	854	838	370	290	Gear	590	835	745	596
14" (350)	337	762	778	762	390	310	Gear	630	895	815	660
16" x 14" x 16"	337	838	854	838	400	342	Gear	630	920	865	780
16" (400)	387	838	854	838	420	350	Gear	705	1295	1065	852
18" x 16" x 18"	387	914	930	914	430	350	Gear	705	1380	1290	1032
18" (450)	438	914	930	914	495	395	Gear	800	1685	1500	1250
20" x 18" x 20"	438	991	1010	991	495	395	Gear	800	1790	1600	1280
20" (500)	489	991	1010	991	530	430	Gear	870	2038	1840	1480
24" x 20" x 24"	490	1143	1165	1143	530	430	Gear	870	2215	1980	1580
24" (600)	591	1143	1165	1143	630	515	Gear	1040	3045	2702	2260
30" x 24" x 30"	590	1397	-	1397	630	515	Gear	1040	3200	2900	2320
26" (650)	635	1245	-	1245	710	550	Gear	1100	3870	3460	2770
28" (700)	686	1346	-	1346	880	620	Gear	1200	4550	3890	3230
30" (750)	737	1397	-	1397	930	670	Gear	1250	5580	4958	4210
36" x 30" x 36"	740	1727	-	1727	930	670	Gear	1250	6100	5500	4675
32" (800)	781	1524	-	1524	950	760	Gear	1350	6245	5612	4770
34" (850)	832	1626	-	1626	1020	780	Gear	1400	7348	6572	5580
36" (900)	876	1727	-	1727	1035	820	Gear	1435	9600	8100	7980
40" (1000)	978	1956	-	1956	1156	910	Gear	1620	12030	9960	9810
48" (1200)	1168	2170	-	2170	1312	1080	Gear	1960	20060	16500	16250
56" (1400)	1384	2743	-	2743	1575	1230	Gear	2270	30280	25020	24640
60" (1500)	1461	*	-	*	1650	1400	Gear	2450	36880	30100	29650

\* Upon request

# Side Entry 3 Piece & Fully Welded



## CLASS 600 DIMENSIONS

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
2" (50)	51	292	295	292	180	125	450	215	41	32	30
3" x 2" x 3"	50	356	359	356	180	125	450	215	45	34	32
3" (80)	76	356	359	356	220	160	850	265	77	68	65
4" x 3" x 4"	75	432	435	432	220	160	850	265	100	77	75
4" (100)	102	432	435	432	260	170	850	335	139	112	110
6" x 4" x 6"	100	559	562	559	260	170	850	335	190	142	135

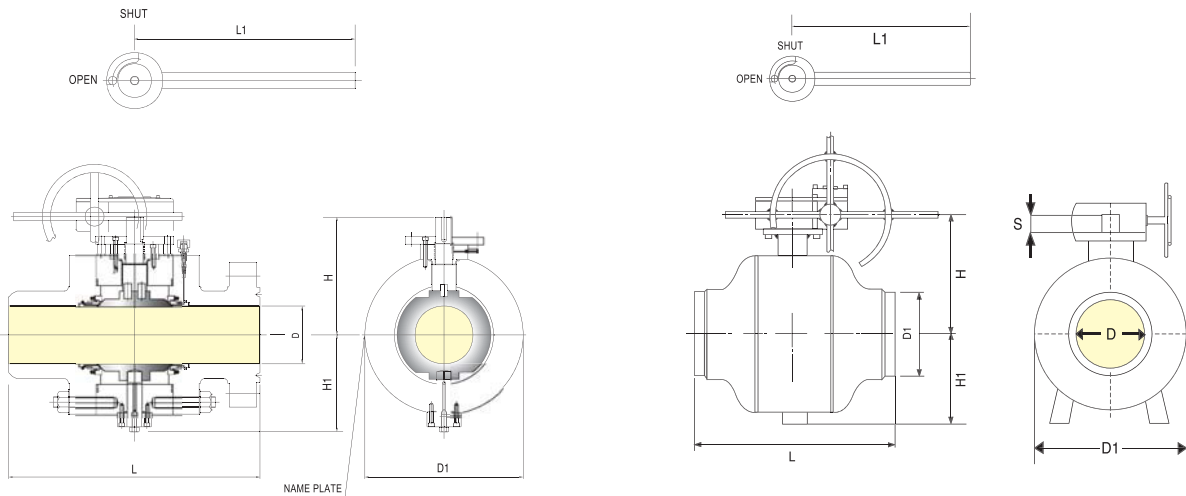
### NOTE

- Face to face dimensions in accordance with API 6D & ANSI B16.10.
- Flanged Ends in accordance with ANSI B16.5.
- Butt Weld Ends in accordance with ANSI B 16.25.

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
6" (150)	152	559	562	559	285	185	Gear	355	258	213	206
8" x 6" x 8"	150	660	664	660	285	185	Gear	355	315	260	255
8" (200)	203	660	664	660	325	225	Gear	430	445	381	370
10" x 8" x 10"	200	787	791	787	325	225	Gear	430	570	440	427
10" (250)	254	787	791	787	370	375	Gear	520	715	577	560
12" x 10" x 12"	250	838	841	838	370	375	Gear	520	850	730	708
12" (300)	305	838	841	838	395	300	Gear	600	910	760	737
16" x 12" x 16"	300	991	994	991	395	300	Gear	600	1300	1120	1086
14" (350)	337	889	892	889	410	315	Gear	640	1220	1070	1038
16" x 14" x 16"	337	991	994	991	485	355	Gear	715	1380	1200	1164
16" (400)	387	991	994	991	485	355	Gear	715	1695	1280	1242
18" x 16" x 18"	387	1092	1095	1092	540	405	Gear	820	1790	1710	1660
18" (450)	438	1092	1095	1092	540	405	Gear	820	1850	1800	1764
20" x 18" x 20"	438	1194	1200	1194	575	440	Gear	890	1960	1710	1670
20" (500)	489	1194	1200	1194	575	440	Gear	890	2710	2370	2320
24" x 20" x 24"	490	1397	1407	1397	575	440	Gear	890	3430	3100	3010
24" (600)	291	1397	1407	1397	720	520	Gear	1040	3844	3620	3550
30" x 24" x 30"	590	1651	1664	1651	720	520	Gear	1040	4700	4420	4350
26" (650)	635	1448	1461	1448	738	650	Gear	1100	5000	4380	4310
28" (700)	686	1549	1562	1549	780	690	Gear	1175	6110	5510	5400
30" (750)	737	1651	1664	1651	820	730	Gear	1270	6700	6000	5910
36" x 30" x 36"	740	2083	2099	2083	820	730	Gear	1270	7400	6730	6590
32" (800)	781	1778	1794	1778	860	767	Gear	1335	7799	7290	7140
34" (850)	832	1930	1946	1930	896	805	Gear	1400	8500	7550	7400
36" (900)	876	2083	2098	2083	1055	840	Gear	1478	12000	10010	9860
40" (1000)	978	2337	2337	2337	1180	940	Gear	1670	15100	12500	12310
48" (1200)	1168	2540	2540	2540	1335	1116	Gear	2020	25060	21000	20690
56" (1400)	1384	2949	2949	2949	1320	1276	Gear	2350	38370	32250	31770
60" (1500)	1461	*	*	*	1680	1475	Gear	2510	47100	39200	38610

\* Upon request

# Side Entry 3 Piece & Fully Welded



## CLASS 900 DIMENSIONS

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
2" (50)	51	368	372	368	185	130	500	220	53	37	35
3" x 2" x 3"	50	381	384	381	185	130	500	220	57	50	46
3" (80)	76	381	384	381	225	165	900	270	92	71	66
4" x 3" x 4"	75	457	460	457	225	165	900	270	100	77	75
4" (100)	102	457	460	457	265	175	900	340	166	116	112
6" x 4" x 6"	100	610	613	610	265	175	900	340	225	180	174

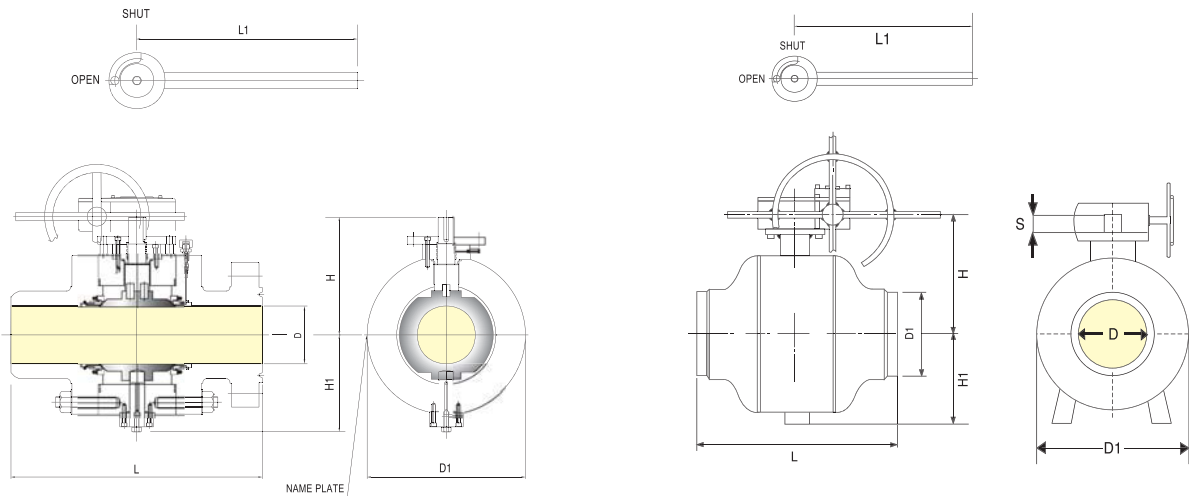
### NOTE

- Face to face dimensions in accordance with API 6D & ANSI B16.10.
- Flanged Ends in accordance with ANSI B16.5.
- Butt Weld Ends in accordance with ANSI B 16.25.

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
6" (150)	152	610	613	610	290	190	Gear	360	390	301	290
8" x 6" x 8"	150	737	740	737	290	190	Gear	360	475	330	320
8" (200)	203	737	740	737	330	230	Gear	435	568	442	429
10" x 8" x 10"	200	838	841	838	330	230	Gear	435	690	575	558
10" (250)	254	838	841	838	375	280	Gear	530	820	640	621
12" x 10" x 12"	250	965	968	965	375	280	Gear	530	945	765	742
12" (300)	305	965	968	965	420	305	Gear	610	1210	1015	985
16" x 12" x 16"	300	1130	1140	1130	420	305	Gear	610	1680	1650	1600
14" (350)	324	1029	1038	1029	460	320	Gear	645	1655	1302	1270
16" x 14" x 16"	324	1130	1140	1130	460	320	Gear	645	1950	1720	1677
16" (400)	375	1130	1140	1130	500	360	Gear	720	2060	1605	1565
18" x 16" x 18"	375	1219	1232	1219	500	360	Gear	720	2200	1820	1775
18" (450)	425	1219	1232	1219	510	410	Gear	820	2870	2275	2218
20" x 18" x 20"	425	1321	1334	1321	510	410	Gear	820	2900	2350	2291
20" (500)	473	1321	1334	1321	620	450	Gear	910	3475	2765	2703
24" x 20" x 24"	475	1549	1569	1549	620	450	Gear	910	4500	3160	3097
24" (600)	572	1549	1569	1549	700	540	Gear	1090	5570	4150	4067
30" x 24" x 30"	570	1880	1902	1880	700	540	Gear	1090	6550	4760	4680
26" (650)	620	1651	1673	1651	740	650	Gear	1180	7100	5900	5820
28" (700)	667	1753	1775	1753	780	680	Gear	1270	8200	7000	6890
30" (750)	714	1880	1902	1877	870	790	Gear	1380	9500	7450	7340
36" x 30" x 36"	725	2286	2315	2286	870	790	Gear	1380	10900	8050	7930
32" (800)	762	2032	2054	2032	920	820	Gear	1450	12100	10200	10040
34" (850)	80	2153	2188	2159	960	860	Gear	1520	17500	14400	14180
36" (900)	857	2286	2315	2286	1060	900	Gear	1600	15500	12990	12800
40" (1000)	956	*	*	*	1185	970	Gear	1810	20100	16500	16250
48" (1200)	1149	*	*	*	1350	1150	Gear	2160	32500	27000	26600

\* Upon request

# Side Entry 3 Piece & Fully Welded



## CLASS 1500 DIMENSIONS

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
2" (50)	51	368.3	371.5	368.3	210	190	600	210	59	39	40
3" x 2" x 3"	50	469.9	473.1	469.9	210	190	600	210	85	76	75
3" (80)	76	469.9	473.1	469.9	270	230	900	260	120	84	85
4" x 3" x 4"	75	546.1	549.3	546.1	270	230	900	260	150	125	122
4" (100)	102	546.1	549.3	546.1	320	240	1200	340	195	132	130
6" x 4" x 6"	100	704.9	711.2	704.9	320	240	1200	340	300	262	260

### NOTE

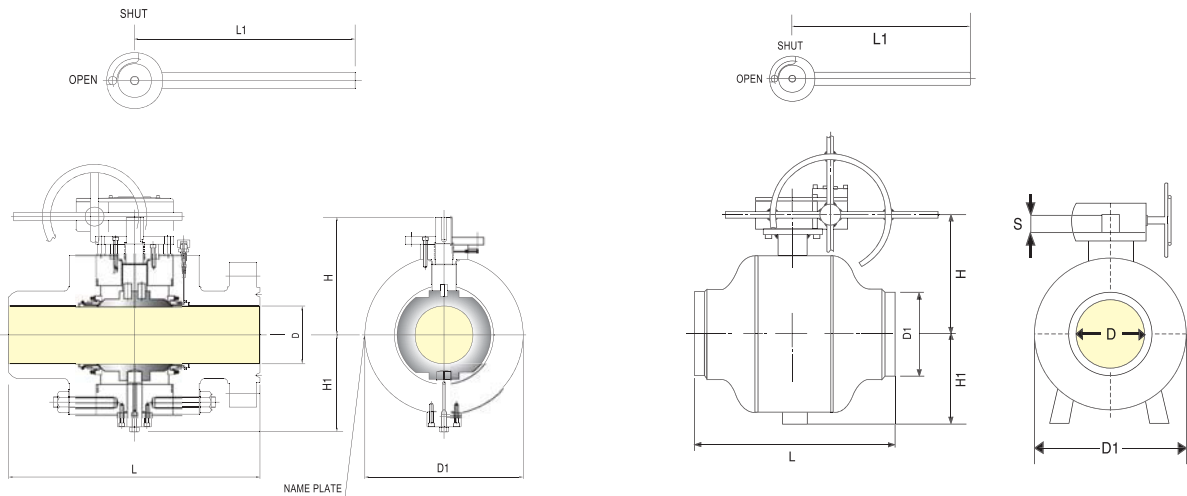
- Face to face dimensions in accordance with API 6D & ANSI B16.10.
- Flanged Ends in accordance with ANSI B16.5.
- Butt Weld Ends in accordance with ANSI B 16.25.

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
6" (150)	147	704.9	711.2	704.9	210	260	Gear	440	580	435	422
8" x 6" x 8"	150	831.9	841.4	831.9	210	260	Gear	440	700	480	466
8" (200)	194	831.9	841.4	831.9	260	330	Gear	530	755	548	532
10" x 8" x 10"	200	990.6	1000.1	990.6	260	330	Gear	530	930	575	560
10" (250)	242	990.6	1000.1	990.6	310	390	Gear	640	1200	840	815
12" x 10" x 12"	240	1130.3	1146.2	1130.3	310	390	Gear	640	1320	890	872
12" (300)	289	1130.3	1146.2	1130.3	350	490	Gear	710	1659	1209	1170
14" x 12" x 14"	290	1257.3	1276.4	1257.3	350	490	Gear	710	1920	1230	1210
16" x 12" x 16"	290	1384.3	1406.5	1384.3	350	490	Gear	710	2150	1300	1280
14" (350)	318	1257.3	1276.4	1257.3	395	490	Gear	800	2800	2059	2020
16" (400)	362	1384.3	1406.5	1384.3	445	530	Gear	905	4120	3120	3070
18" (450)	407	1537	1559	1537	750	610	Gear	1010	3300	2800	2760
20" (500)	457	1664	1686	1664	830	695	Gear	1190	4480	3720	3660
24" (600)	534	2043	2071	2043	908	775	Gear	1350	6640	5500	5420
26" (650)	597	*	*	*	1181	973	Gear	1536	8420	7020	6910
28" (700)	641	*	*	*	1221	1040	Gear	1650	9440	8050	7930
30" (750)	686	*	*	*	1310	1060	Gear	1710	11580	9600	9460

\* Upon request



# Side Entry 3 Piece & Fully Welded



## CLASS 2500 DIMENSIONS

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
2" (50)	44.5	450.9	453.4	444.5	170	170	297	210	127	104	102
3" x 2" x 3"	63.5	578	584	578	210	210	297	280	215	163	160
3" (80)	64	578	584	578	240	240	350	345	230	180	178
4" x 3" x 4"	89	673	683	673	280	240	400	350	275	220	220
4" (100)	89	673	683	673	410	270	400	360	390	300	288
6" x 4" x 6"	133	914	927	914	410	270	600	370	520	405	400

### NOTE

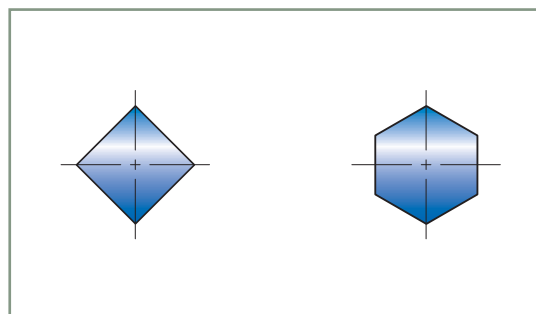
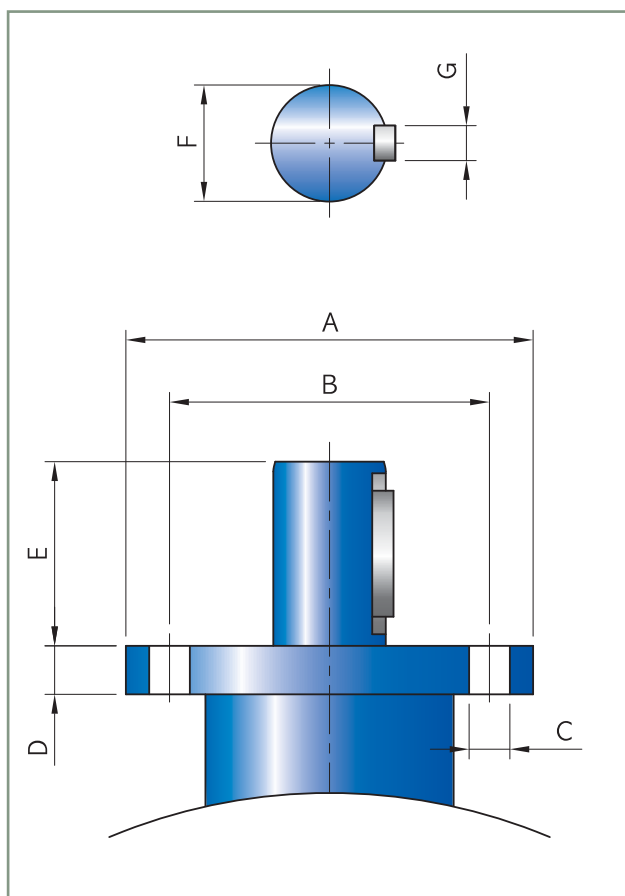
- Face to face dimensions in accordance with API 6D & ANSI B16.10.
- Flanged Ends in accordance with ANSI B16.5.
- Butt Weld Ends in accordance with ANSI B 16.25.

SIZE Inch (DN)	D (mm)	L(mm)			H (mm)	H1 (mm)	L1 (mm)	D1 (mm)	Weight(kg)		
		RF	RJ	BW					3P(RF)	3P(BW)	FW(BW)
6" (150)	133	914.4	927.1	914.4	330	285	Gear	480	918	680	680
8" (200)	181	1022.4	1038.2	1022.4	435	370	Gear	650	1720	1378	1378
10" (250)	226	1270	1292.2	1270	495	435	Gear	780	2711	2166	2166
12" (300)	267	1422.6	1444.6	1422.4	570	495	Gear	905	4227	3328	3328
14" (350)	311	*	*	*	835	580	Gear	990	5100	4200	4140
16" (400)	352	*	*	*	920	670	Gear	1100	6100	5140	5060
20" (500)	438	*	*	*	1160	825	Gear	1330	11600	9700	9550

\* Upon request



# Stem Shaft Key & Top Flange Dimensions for A Wide Range of Operator Applications

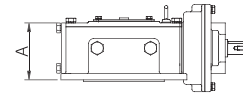
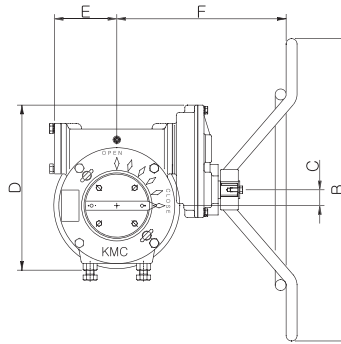


- Though this specification is KMC's standard, stem shaft key and top flange may be manufactured according to the customer's specification or ISO 5211 specification.
- In case of customer's valve automation, actuator connection flange prepared according to ISO 5211 specification can be furnished for the actuator chosen by the customer.
- In case of hand lever and wrench operation, the operating axis with either square adaptor or hexagon adaptor can be manufactured upon request.

VALVE SIZE inch(DN)	A	B	C	D	E	STEM DIA (F)	STEM KEY (G)
6" (150)	150	125	13	15	60	35	10
8" (200)	175	140	17	20	70	45	14
10" (250)	210	165	21	25	75	50	16
12" (300)	210	165	21	25	90	60	18
14" (350)	210	165	21	25	100	65	20
16" (400)	300	254	17	30	120	80	22
18" (450)	300	254	17	30	120	80	22
20" (500)	350	298	21	35	130	100	28
22" (550)	350	298	21	35	130	100	28
24" (600)	350	298	21	35	150	110	32
26" (650)	415	356	31	40	180	120	32
28" (700)	415	356	31	40	180	120	32
30" (750)	475	406	37	45	195	130	36
32" (800)	475	406	37	45	195	130	36
34" (850)	560	483	37	50	225	150	36
36" (900)	560	483	37	50	230	160	45
40"(1000)	560	483	37	50	240	170	45
44"(1100)	560	483	37	50	250	180	45
48"(1200)	560	483	37	50	260	190	45



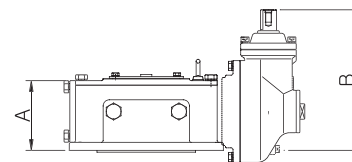
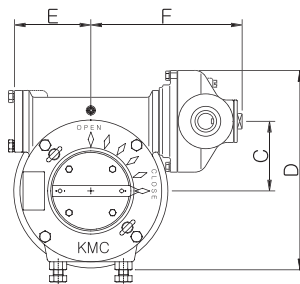
# Information of Gear Operators



MODEL	DIMENSIONS						GEAR RATIO	MAX. STEM DIA.	MOUNTING STANDARD	MAX. TORQUE (N.m)	WEIGHT (kgf)
	A	B	C	D	E	F					
KWG 0	78	300	53	151	72	155	36:1	28	F10	600	6
KWG 00	90	370	62.5	178	84	206	38:1	35	F12	1000	9
KWG 01	91	450	75	203	93	235	42:1	46	F14	1550	13
KWG 02	112	550	91.5	247	111	288	48:1	60	F16	2400	21
KWG 02-1	112	550	10	283	111	308	120:1	60	F16	2400	27
KWG 03-1	113	650	31.5	325	124	341	130:1	75	F16	4300	36
KWG 04-1	151	710	32.7	413	155	400	168:1	95	F25	7700	76
KWG 05-1	155	800	72.7	490	190	454	180:1	115	F30	14800	102
KWG 06-1	193	900	57.6	623	238	540	256:1	140	F35	26700	187
KWG 07-1	204	1000	65	738	289	605	272:1	180	F40	51100	293
KWG 08-1	277	1000	70	905	350	814	290:1	225	F48	106000	550

KMC offers two kinds of manual gear operators ; horizontal gear (standard & double type) and vertical gear. Typically, horizontal gear operator is used for above ground piping, while vertical gear operator is used for underground installation service.

## Vertical Gear



MODEL	DIMENSIONS						GEAR RATIO	MAX. STEM DIA.	MOUNTING STANDARD	MAX. TORQUE (N.m)	WEIGHT (kgf)
	A	B	C	D	E	F					
KWG 00-20	90	194	62.5	200	51	84	76:1	36	F12	1000	15
KWG 01-20	91	195	75	225	52	93	84:1	46	F14	1550	19
KWG 02-20	112	218	91.5	269	63	111	120:1	60	F16	2400	29
KWG 03-20	113	218	113	311	63	124	130:1	75	F16	4300	38
KWG 04-20	151	279	144.5	400	85	155	182:1	95	F25	7700	78
KWG 05-20	155	281	184.5	467	87	190	195:1	115	F30	14800	104
KWG 06-20	193	253	230	588	117	238	256:1	140	F35	26700	195
KWG 07-20	204	362	287.5	703	125	289	272:1	180	F40	51100	301
KWG 08-20	277	452	328	853	140	350	319:1	225	F48	106000	598

# Quality & Reliability

## PIONEERING SPIRIT IN BALL VALVE TECHNOLOGY

KMC is a company specializing in the development and manufacturing of ball valves only. KMC can supply products tailored to customer specifications as well as to many international standards.

Access to technical expertise in the development of fully welded and side entry ball valves has enabled KMC to offer the widest range of ball valves of different designs with sizes ranging from small to large and pressures from low to high.

KMC's continuous commitment to research and development has resulted in an ever growing product range where the emphasis is on quality rather than quantity.



## QUALITY ASSURANCE

Quality assurance is conducted by a team of experienced staffs, using the most advanced facilities, strictly in compliance with international standards.

KMC's operation is implemented in accordance to API Monogram (License 6D-0205) and ISO 9001 Manual and is subject to annual inspection by Korea Gas Safety Corporation, Korea Chemical Inspection and Testing Institute, Korea Machinery Meter and Petrochemical Testing & Research Institute, and other International Third Party Inspectors nominated by clients



## R&D PROGRAM

KMC ball valves are well-known for its best quality and reliability, which is a result of constant improvement through research and development.

The engineering department's concerted effort in product development, with the cooperation of various other departments, has seen the introduction of new products every year.

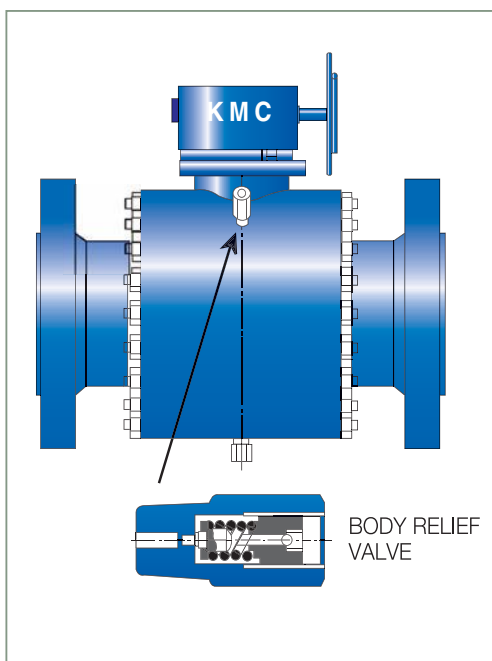
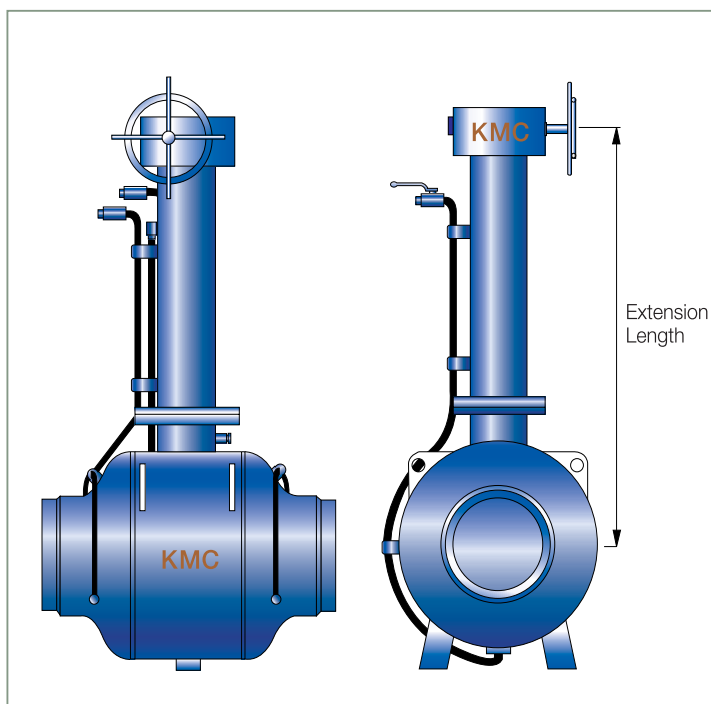
## Optional Specifications

### STEM EXTENSIONS FOR UNDERGROUND SERVICE

In underground installations, the drain and sealant injection ports should be piped to the surface. This is to provide for ease of access during maintenance work.

The height of the stem extension should be based upon the distance between the centerline of the valve body and the centerline of the gear box.

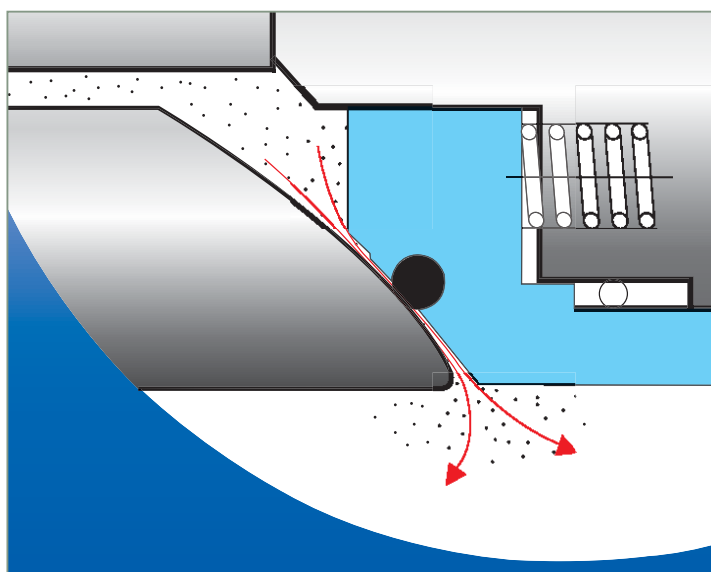
Special coatings such as Fiberglass Reinforced Plastics (FRP) and epoxy coatings may be specified to prevent corrosion when burying the valve underground.



### BODY RELIEF VALVES

When the temperature of the flow medium inside the valve body rises, excessive pressure can build up and affect critical components inside the valve.

To relieve this excessive pressure, a relief valve located near the top of the valve body will open automatically.



### PRESSURE SELF-RELIEF

The seat has been specifically designed to automatically relieve excessive internal body pressures caused by rising temperatures, even without the necessity of an external pressure relief vent.

# Applicable Standards & Specifications

KMC valves are designed, manufactured and tested in accordance with the following standards and other international standards on request.

## KMC STANDARD VALVES

## FIRE SAFETY TEST

## SOUR HYDROCARBON GAS/LIQUID SERVICE

### ISO - International Standard

5208	Industrial Valves - Pressure Testing for Valves
7121	Flanged Steel Ball Valves

### API - American Petroleum Institute

Spec. Q1	Specification for Quality Programs
Spec. 6D	Specification for Pipeline Valves (Steel Gate, Plug, Ball, and Check Valves)
Std. 598	Valve Inspection and Testing

### ANSI - American National Standard Institute

B 16.5	Pipe Flanges and Flanged Fittings
B 16.10	Face-to-Face and End-to-End Dimensions of Valves
B 16.25	Butt Welding Ends
B 16.34	Valves-Flanged, Threaded, and Welding End
B 31.3	Chemical Plant and Petroleum Refinery Piping
B 31.4	Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia, and Alcohols
B 31.8	Gas Transmission and Distribution Piping Systems

### BS - British Standard

BS 5146	Inspection and Test of Valves
BS 5351	Specification for Steel Ball Valves for The Petroleum, Petrochemical and Allied Industries

### MSS - Manufactures Standardization Society

SP 25	Standard Marking Systems for Valves, Fittings, Flanges and Unions
SP 44	Steel Pipe Line Flanges
SP 61	Pressure Testing of Steel Valves
SP 72	Ball Valves with Flanged or Butt-Welding Ends for General Service
SP 82	Valve Pressure Testing Methods

### ASME B16.34 Steel Valves Flanged and Welding Ends

### ASTM - American Society of Testing Materials

### KGSC - Korea Gas Safety Corporation

### API - American Petroleum Institute

Spec. RP6F	Recommended Practice for Fire Test for Valves
Spec. 6FA	Specification for Fire Test for Valves
Std. 607	Fire Test for Soft-Seated Quarter-Turn Valves

### BS 6755 Part 2 Specification for Fire Type-Testing requirements

### NACE-National Association of Corrosion Engineers

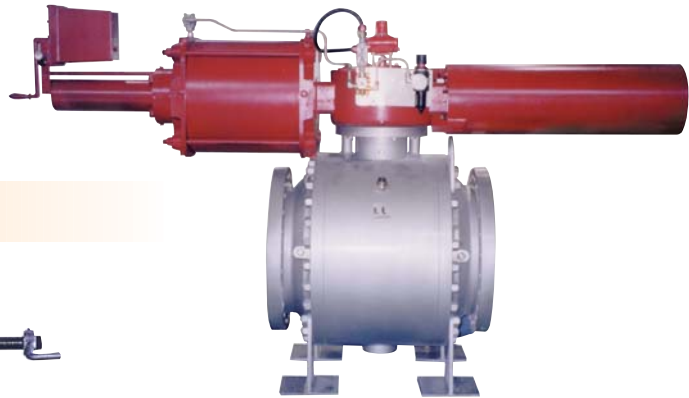
Nace Materials are optional and must be specified on purchase orders

MR-01-75	Sulfide Stress Cracking Resistant Metallic Material For Oil Field Equipment
MT-01-77	Laboratory Corrosion Testing of Metals for the Process Industries

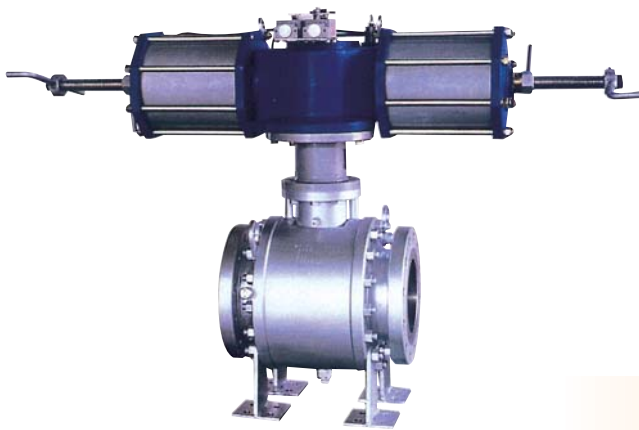
# Diversified & Dependable KMC Ball Valves

A wide range of operators such as remote controlled electric, pneumatic or hydraulic actuators and vertical gears for underground services can be mounted on all KMC valves.

**Spring Return Actuator**



**Double Acting Actuator**



**Vertical Gear for Underground**

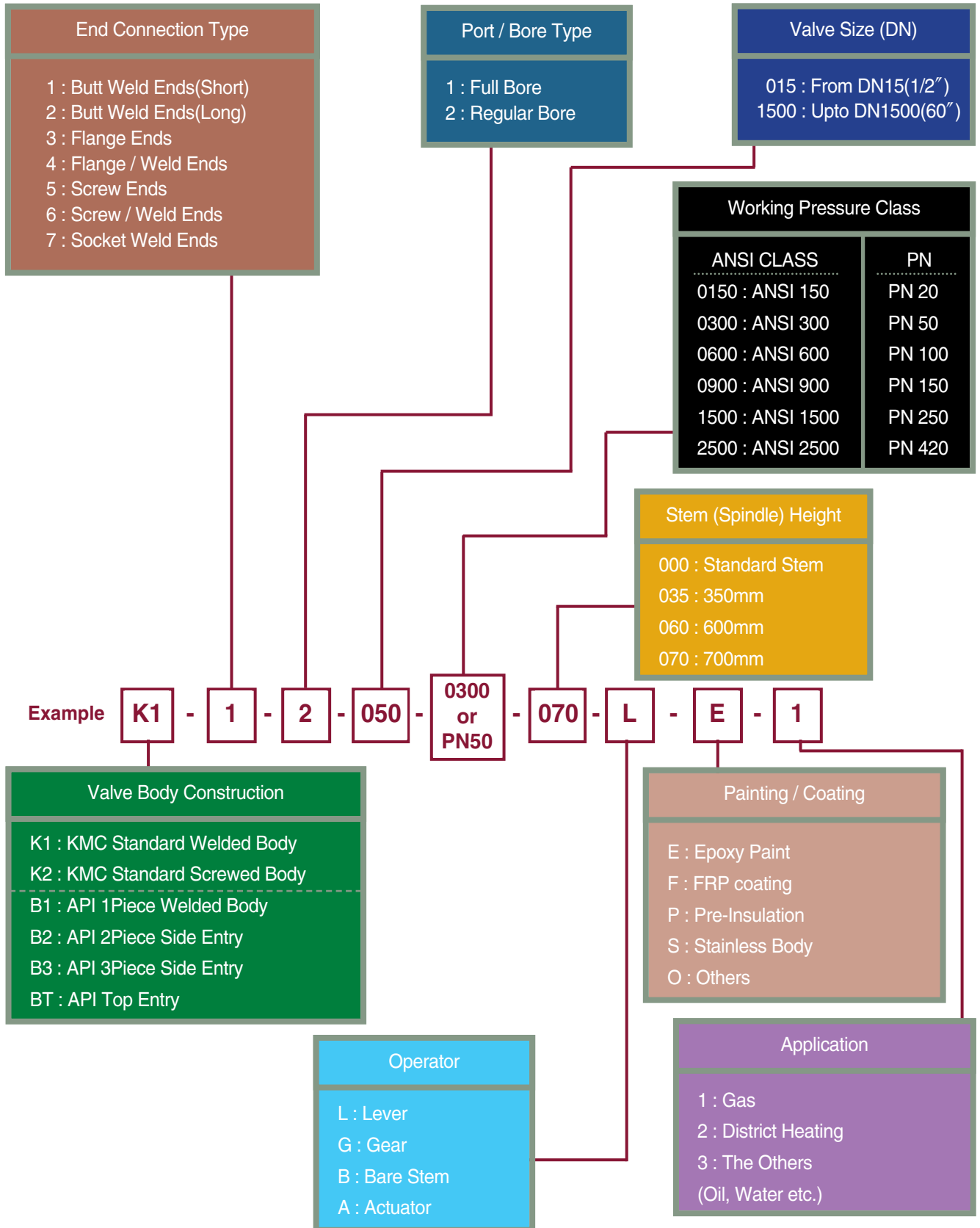


**Electric Motor Actuator**



# KMC Ball Valve Order Numbering System

The following is an explanation of KMC order numbering system.



# Valve Data Sheet

Specification required ..... Valve location and function ..... Nominal valve size ..... Maximum operating pressure ..... Maximum field test pressure ..... Valve pressure class ..... Maximum service temperature ..... Minimum service temperature ..... Liquid or gas service ..... Flow medium composition ..... Special flow requirements: Blow down, solids, pigs, etc. ....
<b>Valve</b> Design type ..... Full round opening required? ..... Minimum bore .....
<b>End connections</b> Upstream pipe: OD ..... ID ..... Material ..... Flanged end? Yes ..... No ..... Plain raised face or ring joint? ..... if ring joint, flat or raised face? ..... Size and pressure class, as per ASME B16.5 ..... or MSS SP-44 ..... or ASME B16.47, Series A ..... Ring gasket or other gasket type and size ..... Note: Gaskets are not furnished as a part of the valve. Welding end? Yes ..... No ..... Attach specifications for welding-end configuration. Special flanges or mechanical joints? ..... Downstream pipe: OD ..... ID ..... Material ..... Flanged end? Yes ..... No ..... Plain raised face or ring joint? ..... if ring joint, flat or raised face? ..... Size and pressure class, as per ASME B16.5 ..... or MSS SP-44 ..... or ASME B16.47, Series A ..... Ring gasket or other gasket type and size ..... Note: Gaskets are not furnished as a part of the valve. Welding end? Yes ..... No ..... Attach specifications for welding-end configuration. Special flanges or mechanical joints? ..... Length: Any special requirements for end-to-end or face-to-face dimension? .....
<b>Valve operation</b> Is gearbox with handwheel required? if so, give details: ..... For a handwheel on a horizontal shaft, give distance from centreline of valve opening to hanewheel: ..... mm Or, for a handwheel on a vertical shaft, give distance from centreline of valve opening to centre of rim of handwheel: ..... mm Lever required? ..... Locking device required? ..... Type .....
<b>Valve support</b> Support ribs or legs required? .....
<b>Other requirements</b> Supplementary requirements (special pressure test or NDE) ..... Fire test design? Yes ..... No ..... NACE MR 0175? Yes ..... No ..... Pressure relief: if pressure relief devices are required, are there special requirements for these devices? ..... Drain connections: Any requirements? ..... Bypass connections: Any requirements? ..... Supplementary documentation required? ..... Third-party witness of processes / testing required? ..... Painting or coating required? .....

# High Quality Quick Delivery Competitive Price



The 1st - KMC Manufacturing Factory



The 2nd - KMC Manufacturing Factory



The 3rd - KMC Manufacturing Factory



KMC R&D Center



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