

TECHNICAL DESCRIPTION

Ball valves are designed and manufactured to ensure maximum durability and reliability. Valves meet requirements of API 608, API 6D and ASME B16.34 standards.

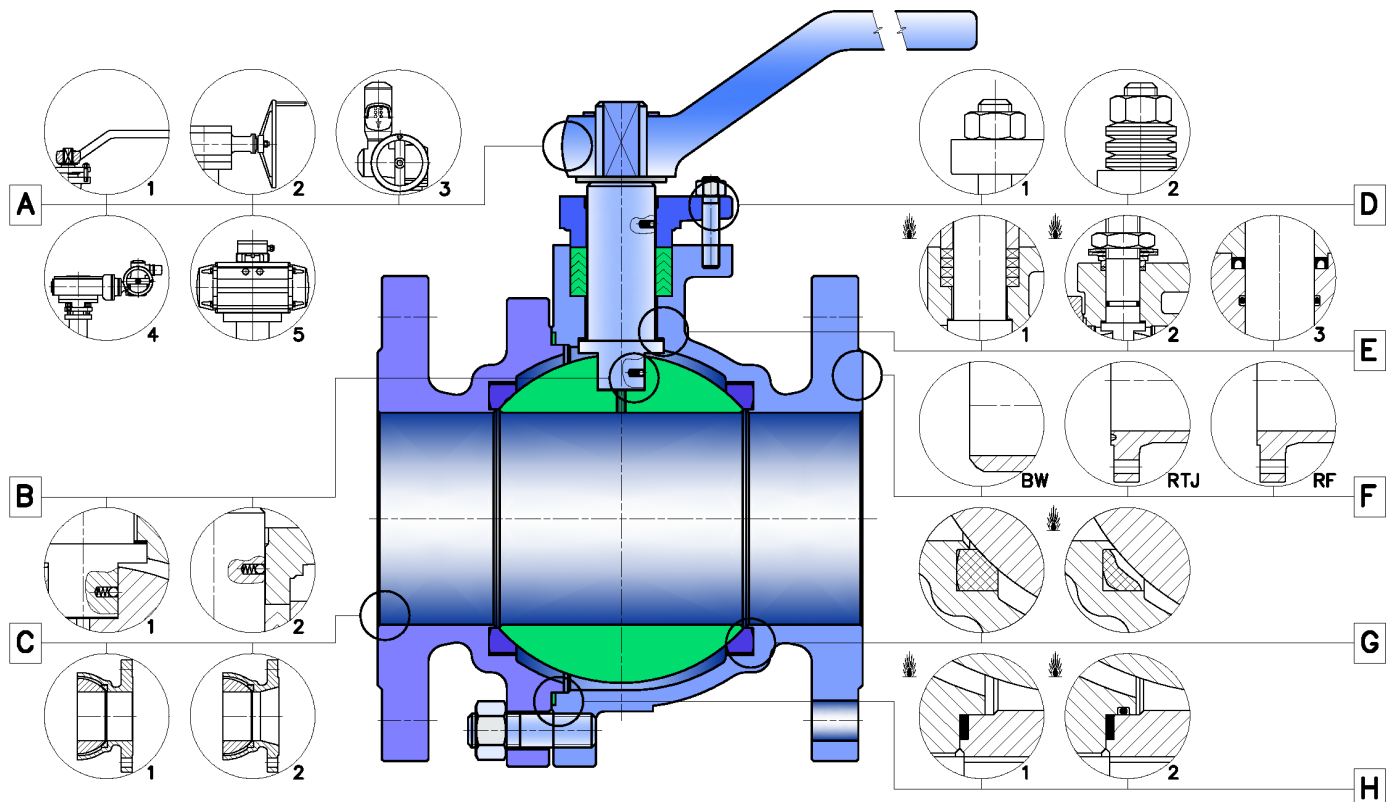
MATERIAL SPECIFICATION

Ball valves are made from carbon and stainless steel. Material execution of ball valves can be selected according to the customer's request so that it suits as much as possible valves service conditions.

APPLICATION

These shut-off valves are designed for complete closing or opening of the flow of the transported medium. The Ball valves are intended for gaseous and liquid media, e.g. air, propane-butane, city and natural gas, coke-oven and blast-furnace gas, hydrocarbons and crude oil products (diesel, petrol, oil), water and weak acids.

STRUCTURAL DESIGN OF BALL VALVE



A - Control

- hand lever
- gearbox
- electric actuator
- electric actuator with gearbox
- pneumatic actuator

B - Antistatic design

- is solved by using springs and small balls. The ball is electrically connected with the control stem. The control stem is electrically connected with the body.

C - Flow through the valve

- ball valve with full flow
- ball valve with reduced flow

D - Gland compression

- in case of valve operation with cyclic changes in pressure or at high pressures and temperatures, the gland compression by means of Belleville springs, which secure a constant pre-stress in packing, is preferred.

E - Stem packing

- by graphite packing in compliance with Fire safe design
- by PTFE packing
- by O - ring and graphite ring, according to Fire safe design
- by O - ring and PTFE V-shaped ring packing

F - Connection into piping

- flanged
 - with rough or smooth raised face
 - with male - female facing
 - with tongue - groove facing
- welding-on
 - with welding-end according to customer's requirements

G - Execution of the seats

- execution of the seats meets the requirements of Fire safe design, i.e. in case of burnout seat ring, the tightness of the closure is secured by sealing of the ball against metal seat - there is metal to metal connection.

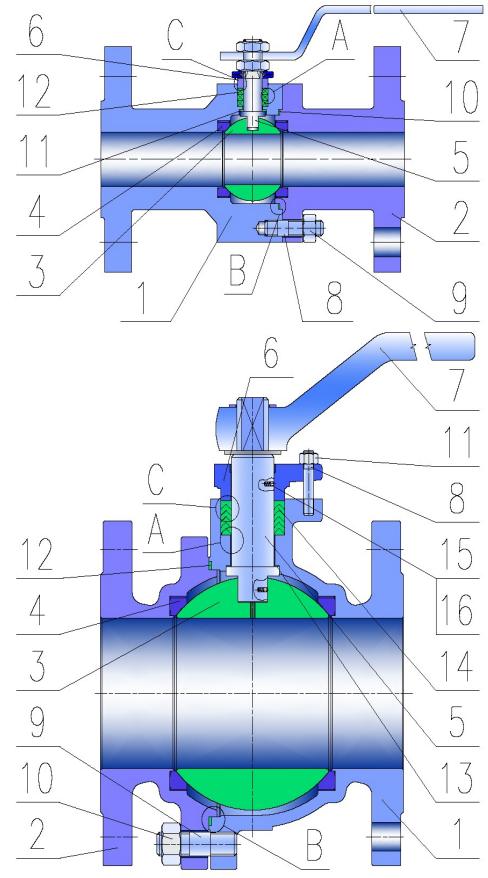
H - Bonnet sealing

- executed by sealing ring or a combination of sealing and O-ring. To comply with Fire safe design the graphite seal ring is used, moreover body and cover are sealed by metal to metal.

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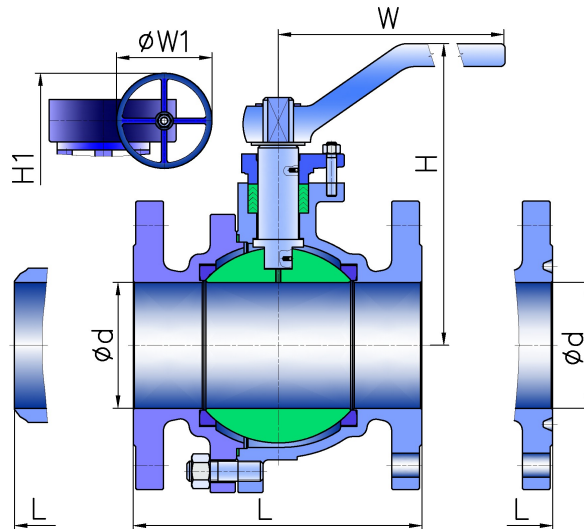
Basic standards for design

Basic design.....	API 608, API 6D, ASME B16.34
Building length.....	ANSI B16.10, EN 558-2, EN 12982
Flange dimension.....	ANSI B 16.5, ANSI B16.47A, EN 1759-1
Dimension of the welding-on ends.....	ANSI B16.25, EN 12627
Testing.....	API 598, API 6D, EN 12266-1
Pressure-temperature dependence.....	ASME B16.34, EN 12516-1
Top flange dimension.....	EN ISO 5211
Special	NACE MR-0175



Pos.	Designation	Foundry execution						Forged execution					
		WCB	LCB/LCC	CF3	CF3M	CF8	CF8M	A350 LF2	A105	1.4551	F316L	F304	F316
1	Body	A216 WCB	A352 LCB, LCC	A351 CF3	A351 CF3M	A351 CF8	A351 CF8M	A350 LF2	A105	1.4541	A182 F316L	A182 F304	A182 F316
2	Bonnet	A216 WCB	A352 LCB, LCC	A351 CF3	A351CF3M	A351 CF8	A351 CF8M	A350 LF2	A105	1.4541	A182 F316L	A182 F304	A182 F316
3	Ball	A105 + ENP (Cr), A350 LF2 + ENP (Cr), A182 F304, A182 F316	A352 LCB, LCC + ENP (Cr), A182 F304, A182 F316	A351 CF3, A182 F304L	A351 CF3M, A182 F316L	A351 CF8, A182 F304	A351 CF8M, A182 F316	A350 LF2 + ENP (Cr)	A105 + ENP (Cr)	1.4541	A351 CF3M, A182 F316L	A351 CF8, A182 F304	A351 CF8M, A182 F316
4	Seat	PTFE, PTFE+ glass, PTFE + graphite, PTFE + stainless steel, PEEK, A182 F304, A182 F304L, A182 F316, A182 F316L,											
5	Stem	A182 F6a	A182 F6a	A182 F304L	A182 F316L	A182 F304	A182 F316	A182 F6a	A182 F6a	1.4541	A182 F316L	A182 F304	A182 F316
6	Gland flange	A216 WCB	A352 LCB, LCC	A351 CF3	A351 CF3M	A351 CF8	A351 CF8M	A350 LF2	A105	1.4541	A182 F304L	A182 F304	A182 F316
7	Lever	Carbon steel											
8	Bolt	A193 B7	A320 L7	A193 B8	A193 B8M	A193 B8	A193 B8M	25CrMo4	A193 B7	A2-70	A193 B8M	A193 B8	A193 B8M
9	Bolt	A193 B7	A320 L7	A193 B8	A193 B8M	A193 B8	A193 B8M	25CrMo4	A193 B7	A2-70	A193 B8M	A193 B8	A193 B8M
10	Nut	A194 2H	A194 4	A194 8	A194 8M	A194 8	A194 8M	A2-70	A194 2H	A2-70	A194 8M	A194 8	A194 8M
11	Nut	A194 2H	A194 4	A194 8	A194 8M	A194 8	A194 8M	A2-70	A194 2H	A2-70	A194 8M	A194 8	A194 8M
12	Gasket	graphite, PTFE, PTFE+ glass, PTFE + graphite, PTFE + stainless steel											
13	Washer	PTFE, PTFE+ glass, PTFE + graphite, PTFE + stainless steel, bronze											
14	Gland packing	graphite, PTFE, PTFE+ glass, PTFE + graphite, PTFE + stainless steel											
15	Spring	stainless steel											
16	Small ball	stainless steel											
17	O - ring	NBR, HNBR, EPDM, VITON, VITON GLT, SI											
18	Sealing ring	graphite											
19	V-shaped PTFE ring	PTFE, PTFE with filler + spring from stainless steel											

Class 150, 300, 600, 900, 1500



Diameter		CLASS 150										CLASS 300											
		L			d	H	H1	W	W1	EN ISO 5211	weight (kg)		L			d	H	H1	W	W1	EN ISO 5211	weight (kg)	
		NPS	DN	RF							RTJ	BW	H.W.	G.O.	RF							RTJ	BW
1/2	15	108	119	140	14	85	-	140	-	F03	3	-	140	151	140	14	85	-	140	-	F03	3	-
3/4	20	117	130	152	19	90	-	140	-	F03	4	-	152	165	152	19	90	-	140	-	F03	5	-
1	25	127	140	165	25	99	-	150	-	F03	5	-	165	178	165	25	99	-	150	-	F03	6	-
1 1/2	40	165	178	190	38	126	-	200	-	F04	8	-	190	203	190	38	126	-	200	-	F04	11	-
2	50	178	191	216	51	140	-	250	-	F05	12	-	216	232	216	51	140	-	250	-	F05	16	-
2 1/2	65	190	203	241	64	165	-	300	-	F05 / F07	18	-	241	257	241	64	165	-	300	-	F05 / F07	24	-
3	80	203	216	283	76	178	-	350	-	F07 / F10	24	-	283	299	283	76	178	330	350	305	F07 / F10	34	52
4	100	229	242	305	102	230	380	500	305	F10 / F12	38	53	305	321	305	102	230	380	500	305	F10 / F12	56	76
5	125	356	369	381	127	280	405	800	305	F12 / F14	60	79	381	397	-	127	280	420	800	305	F12 / F14	86	124
6	150	394	407	457	152	310	460	800	305	F12 / F14	82	102	403	419	457	152	310	480	800	305	F14 / F16	125	163
8	200	457	470	521	203	350	550	1000	305	F14 / F16	145	185	502	518	521	203	350	560	1000	305	F16 / F25	222	267
10	250	533	546	559	254	-	706	-	400	F25	-	280	-	-	-	-	-	-	-	-	-	-	-
12	300	610	623	635	303	-	798	-	400	F30	-	460	-	-	-	-	-	-	-	-	-	-	-

Diameter		CLASS 600										CLASS 900											
		L			d	H	H1	W	W1	EN ISO 5211	weight (kg)		L			d	H	H1	W	W1	EN ISO 5211	weight (kg)	
		NPS	DN	RF							RTJ	BW	H.W.	G.O.	RF							RTJ	BW
1/2	15	165	163.5	165	14	79	-	140	-	F04	5	-	216	214.3	216	14	98	-	150	-	F07	9	-
3/4	20	190	190	190	19	83	-	140	-	F04	7	-	229	229	229	20	105	-	150	-	F07	13	-
1	25	216	216	216	25	114	-	200	-	F05	9	-	254	254	254	25	110	-	200	-	F10 / F12	16	-
1 1/2	40	241	241	241	38	125	-	250	-	F07	17	-	305	305	305	38	125	-	250	-	F12	31	-
2	50	292	295	292	51	156	-	300	-	F07	25	-	368	374	368	50	160	-	350	-	F12 / F14	45	-
2 1/2	65	330	333	330	64	172	-	350	-	F10 / F12	42	-	-	-	-	-	-	-	-	-	-	-	-
3	80	356	359	356	76	220	370	500	305	F12	56	76	-	-	-	-	-	-	-	-	-	-	-
4	100	432	435	432	102	250	400	650	305	F12 / F14	85	123	-	-	-	-	-	-	-	-	-	-	-

Diameter		CLASS 1500										
		L			d	H	H1	W	W1	EN ISO 5211	weight (kg)	
		NPS	DN	RF							RTJ	BW
1/2	15	216	214.3	216	14	98	-	182	-	F07	10	-
3/4	20	229	229	229	20	105	-	200	-	F07	14	-
1	25	254	254	254	25	110	-	250	-	F10 / F12	17	-
1 1/2	40	305	305	305	38	130	-	350	-	F12	33	-
2	50	368	374	368	50	160	-	500	-	F12 / F14	48	-

Type designation**K83 XYZ RST - M Class / A****K83** – Valve type — Floating ball valve acc. to API standards**X** - Building length

- 1... Short
- 2... Long

Y - Seat execution

- 0...Other polymer
- 1...PTFE
- 2...Metal
- 3...Metal (FIRE SAFE)
- 4...Graphite
- 5...PEEK

Z - Gland packing

- 1...2 x O - rings
- 2...O - ring + Graphite packing
- 3...Graphite packing
- 4...PTFE packing
- 5...PTFE V-type ring packing

R - Flow direction

- 1...Straight, full flow
- 2...Straight, reduced flow

S - Connection into piping

- 1...Flanged
- 2...Welding-on
- 7...Inside thread NPT
- 8...Combined

I - Control method

- 1...By hand lever
- 2...Hand wheel with gearbox
- 3...Electric actuator
- 4...Electric actuator with gearbox
- 5...Pneumatic actuator
- 9...Without control - bare shaft

M - Body material

- 0...Stainless steel
- 2...Alloy steel
- 4...Carbon steel

A - Special execution

- AS...Antistatic design
- LT...Low temperature design