KOFLOW

BALL VALVES

Ball Valve Model Schedule Illustration

1 2 3 4 5 6 7 8

① Codes of Nominal Diameter

British series indicated by A××in value, and metric series indicated by G××mm value.

② Codes of Driving Modes (For handle or lever drive, this code can be omitted.)

3—Manual Operator; 6—Pneumatic; 6S—Pneumatic Spring Return; 6A—Pneumatic Control; 5—Gear Drive; 7—Hydraulic; 8—Airdraulic; 8H—Airdraulic with Emergency Cutoff; 9—Electric

③ Codes of Valve Types

FB-Float Ball Valve; TB-Fixed Ball Valve

④ Codes of Nominal Pressure Class

1—PN1.6 class150 ; 2—PN2.5; 3—class300; 4—PN4.0 class400 ; 6—PN6.4 class600

9—class900; 10—PN10.0; 15—class1500; 16—PN16.0; 20—PN20.0; 25—class2500;

⑤ Codes of Connecting Modes

RF—Raised Face Flange; FF—Fully Flat Face Flange; MFM—Male and Female Flange; TG—Tongued and Grooved Flange; RJ—Ring Junction Flange; BW—Butt Welding; SW—Socket Welding; NPT—Threaded Connection

⑥Codes of Structural Modes

1—Full Bore Straightway; 2—Reducing Straightway; 3T—T-shaped Three-Way; 3L—L-shaped Three-way; 4—Four-way; 5—Overall Top Installed (Full Bore); 5A—Overall Top Installed (Reducing); 6—Track Ball Valve (Full Bore); 6A—Track Ball Valve (Reducing); 7H—Eccentric Half Ball; 7F—Eccentric Full Ball; 8—All Welded (Full Bore); 8A—All Welded (Reducing)

⑦ Codes of Shell Materials

C—WCB; C5—C5; C6—WC6; C9—WC9; BL—LCB; CL—LCC

8—CF8; 8M—CF8M; 3—CF3; 3M—CF3M; ML—MONEL

⑧ Codes of Ball Materials

1—WCB; 2—CF8; 3—CF8M; 4—CF3; 5—CF3M

1F—A105or25 2F—304; 3F—316; 4F—304L; 5F—316L

⑨ Codes of Seat Materials

F—PTFE; N—Nylon; G—Carbon Fiber; P—PPL; E—PEEK; M—MOLON

Note:* The letters of " K " 、 " E " 、 " O " and " J " are placed in front of the codes of valve types, respectively representing hydrogen sulphide resistant, extension bar, oxygen, and jacketed ball valve.

Example: A8 " TB3RF1C2F means API 8 " worm gear drive, fixed ball valve, 300Lb, raised face flange, full bore, body material WCB, ball material CF8, and seat of F4.

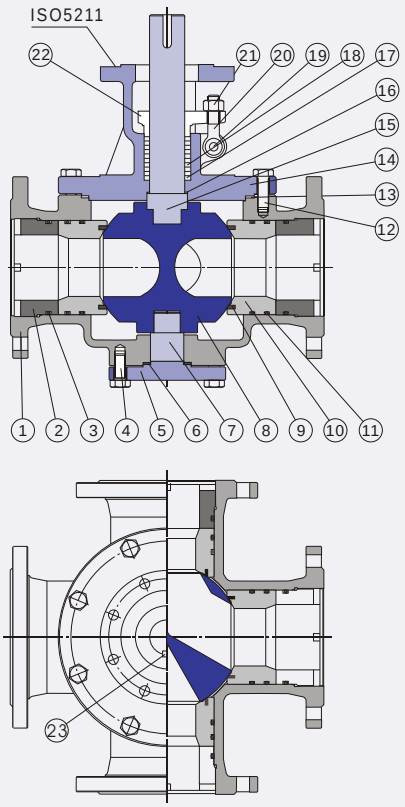
*** The figures mentioned hereunder don't have the codes of caliber and valve material, they are to be specified by users.**

Technical Specifications of Ball Valve

Technical Specifications	API Series	GB Series
Design Specifications	API6D、API608、BS5351	GB/T12237、JB/T7745
Pressure and Temperature Class	ASME B16.34	GB/T9124
Face-to-face	ASME B16.10	GB/T12221、GB/T15188.1
Flange Type and Dimensions	ASME B16.5 、ASME B16.47	GB/T9113 、JB/T79
Butt Welded	ASME B16.25	GB/T12224
Socket Welded	ASME B16.11	/
Threaded	ASME B16.1.20	/
Inspection and Test	API598 、API6D	JB/T9092、GB/T13927
Fireproofing Test	API6FA 、API607	JB/T6899-1993
Quality Inspection of Cast Steel Body	MSS -SP-55	JB/T9092-1999

FOUR WAY BALL VALVE

Valve Structural Diagram:



Range of Supply

Nominal Diameter		Class	
DN	in	150Lb	PN1.0\1.6\2.5MPa
50	2	△/★/☆	△/★/☆
65	2 1/2	△/★/☆	△/★/☆
80	3	△/★/☆	△/★/☆
100	4	△/★/☆	△/★/☆
125	5	△/★/☆	△/★/☆
150	6	△/★/☆	△/★/☆
200	8	△/★/☆	△/★/☆
250	10	△/★/☆	△/★/☆
300	12	△/★/☆	△/★/☆
350	14	△/★/☆	△/★/☆
400	16	△/★/☆	△/★/☆
450	18	△/★/☆	△/★/☆
500	20	△/★/☆	△/★/☆

Note: ●stands for handle operated valves;
☆stands for gearbox operated valves;
—stands for no option of this.
Those not covered in the table can be custom made to users' requirements.

Materials of Main Parts

No.	Part Name	Materials		
		Carbon Steel	Stainless Steel	Low Temperature Steel
1	Valve Body	A216 WCB	A351 CF8M	A352 LCB
2	Locknut	A105+ENP	A182 F316	A350 LF3
3	O-ring	VITON		
4	Bolt	A193 B7	A193 B8	A320 L7
5	Bottom Cover	A105+ENP	A182 F316	A350 LF3
6	Gasket			
7	Lower Valve Stem	A182 F6a	A182 F316	A182 F316
8	Ball	A105+ENP	A182 F316/A351 CF8M	A350 LF3/A352 LCB
9	Sealing Ring	PTFE/RPTFE		
10	Valve Seat	A105+ENP	A182 F316	A350 LF3
11	O-ring	VITON		
12	Bolt	A193 B7	A193 B8	A320 L7
13	Gasket	Flexible Graphite +SS		
14	Bonnet	A216 WCB	A351 CF8M	A352 LCB
15	Valve Stem	A182 F6a	A182 F316	A182 F316
16	Gasket	PTFE+SS		
17	Packing Seat	A182 F6a	/	A182 F6a
18	Packing	Flexible Graphite/PTFE		
19	Pin	A182 F6a		
20	Eyebolt	A193 B7	A193 B8	A320 L7
21	Nut	A194 2H	A194 8	A194 4
22	Packing Gland	A216 WCB	A351 CF8M	A352 LCB
23	Key	ANSI 1215		

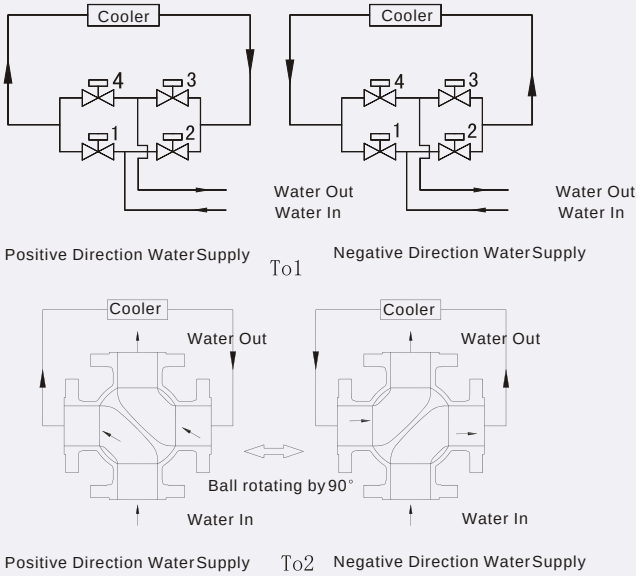
Manufacturing Specifications of Four Way Ball Valve

Standard	API Series	GB Series
Basic Design Specifications	ANSI B16.34	
Pressure-Temperature Rating	ANSI B16.34	GB/T12224
Structural Length	ASME B16.10	
Connecting Flange	ASME B16.5	GB/T9113/HG20596
Inspection & Test	API598	JB/T9092

FOUR WAY BALL VALVE

FUNCTION:

FUNCTION Four-way ball valve is also called multi-way water service rotary valve in power stations, and air reversing changeover valve in petrochemical system. They are applicable for circulating system of liquid, gas, dust, slurry and medium containing solid particles. For example, the forward and reverse circulating water supply system of unit cooler in power station. The conventional piping for forward and reverse circulating water supply has the defects of large occupation, high cost, complicated operation (to operate four valves for each changeover), for forward water supply, valve 1 and 3 to be opened and valve 2 and 4 to be closed, for reverse water supply, valve 2 and 4 to be opened and valve 1 and 3 to be closed. (See figure 1). Use of four-way ball valve instead of the conventional piping and valve group can simplify operational procedures, lower the cost, facilitate the control and improve its asynchronism. (See figure 2)



Structural Features:

1、Designed to meet the process of forward and reverse water supplyof coolers in electric power system, with suitable and depend abl e functions;

2、 Top mounted fixed ball four-side seated valve core, with sound sealing performance, resistance to sand abrasion, and long service life;

3、 Electric and pneumatic operation (switched to hand operation if necessary);

4、Facilitated control. Good information channel and operating interface between control cabin et and valve, and upperlevel machine. If requested, automatic sitch over of forward and reverse water supply may be actualized by a certain interval.

Control System:

Four-way ball valve may be field controlled, or through control cabinet or central control system for remote centralized control. The functions of control interface as follows:

Ⅰ Switch
- 1、Power Switch
- 2、Field Control / Remote Control Changeover Switch
- 3、Manual Circulation / Automatic Circulation Changeover Switch

Ⅱ Button
- 1、Forward Water Supply 2、Reverse Water Supply 3、Pause

Ⅲ Indicator Light
- 1、Power Indicator 2、Forward Water Supply Indicator
- 3、Reverse Water Supply Indicator
- 4、Middle Position Pause Indicator (Flash and Alarm upon Overtime Pause)
- 5、Valve or Electric Fitting Jammed Over-moment Indicator (Flash and Alarm)

Ⅳ Opening Indicator

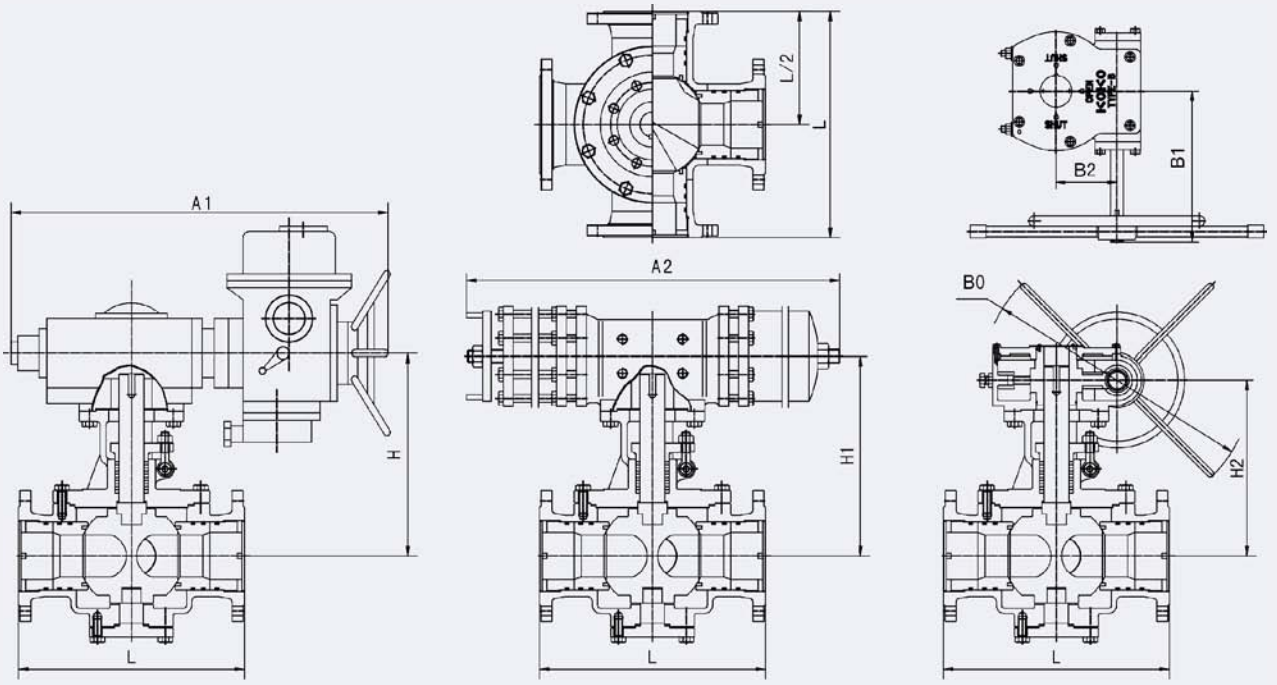
Ⅴ Communication with Upper Machine

Electrical Parameters:

Power supply AC 380V/ 50HZ, ambient temperature -20~+40℃, relative humidity =90％ (at 25℃), level of protection IP67, schematic electrical diagram subject to instruction manual.

FOUR WAY BALL VALVE

PN1.0~2.5MPa CLASS150



Electric cross ball valve

Pneumatic cross ball valve

Worm Gear Drive cross ball valve

Figure No.
A(G)3(6)9TB1(2)RF1

Main Dimensions

PN1.0、1.6MPa mm

DN	NPS	L	do	H	A1	H1	A2	H2	B0	B1	B2	Weight Worm Drive
50	2	265	51	220	433	217	405	200	250	106	52	28
65	2 1/2	280	64	295	433	248	405	260	250	106	52	48
80	3	310	76	367	433	335	574	320	250	106	52	87
100	4	370	102	440	520	412	574	400	300	143	80	137
125	5	440	127	535	520	495	756	500	300	143	80	240
150	6	510	152	660	520	613	756	600	400	200	108	270
200	8	580	203	870	520	824	756	800	400	200	108	585
250	10	665	250	1080	896	1025	1060	1000	600	200	108	765
300	12	760	305	1200	896	1176	1060	1160	600	200	108	1121
350	14	850	337	1250	896	1239	1360	1225	800	330	140	1450
400	16	940	387	1420	910	1388	1360	1350	800	330	140	1780
450	18	1050	438	1610	910	1596	1360	1575	800	330	140	2435
500	20	1180	489	1830	910	1725	2910	1750	1000	370	220	3108

PN2.5MPa CLASS150 mm

DN	NPS	L	do	H	A1	H1	A2	H2	B0	B1	B2	Weight Worm Drive
50	2	265	51	390	433	217	405	200	250	106	52	28.5
65	2 1/2	280	64	420	433	248	405	260	250	106	52	49
80	3	350	76	490	520	335	574	320	250	106	52	87
100	4	420	102	570	520	412	574	400	300	143	80	139
125	5	490	127	680	520	495	756	500	300	143	80	240
150	6	580	152	830	896	613	756	600	400	200	108	270
200	8	640	203	1020	896	824	756	800	400	200	108	585
250	10	740	250	1140	896	1025	1060	1000	600	200	108	765
300	12	820	305	1220	896	1176	1060	1200	600	200	108	1125
350	14	910	337	1390	910	1239	1360	1225	800	330	140	1455
400	16	1000	387	1580	910	1388	1360	1350	800	330	140	1785
450	18	1150	438	1790	910	1596	1360	1575	800	330	140	2467
500	20	1300	489	1960	936	1725	2910	1750	1000	370	220	3150