

PRODUCTS

MADE FOR THE EXTREME!

FULL RANGE OF AUTOMATIC VALVE SOLUTIONS, ONE-STOP PROVISION OF VARIOUS TYPES OF

REGULATING CONTROL AND SHUT-OFF VALVES

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Control Valve(Zhejiang) Co.,ltd

BALL VALVE

CONTROL BALL VALVE

Control Valve(Zhejiang) Co.,Ltd with thirty years of experience in manufacturing control ball valves, designs ball valves based on customer requirements.

In order to meet the requirements of various engineering conditions and media, various structural designs are adopted.

At the same time, we have constantly absorbed the advanced technologies at home and abroad and developed unique pneumatic, electric and hydraulic valves.

The products are widely used in petroleum, chemical industry, natural gas, metal smelting, electric power, paper making and other industries.

WE SUPPLY CONTROL BALL VALVE BODY IN RANGE OF

Body Size: 1/2"~24"
DN15~DN600
Pressure rating: ANSI CLASS150~900LB
PN1.0~PN16.0MPa
Temperature: -196~538℃

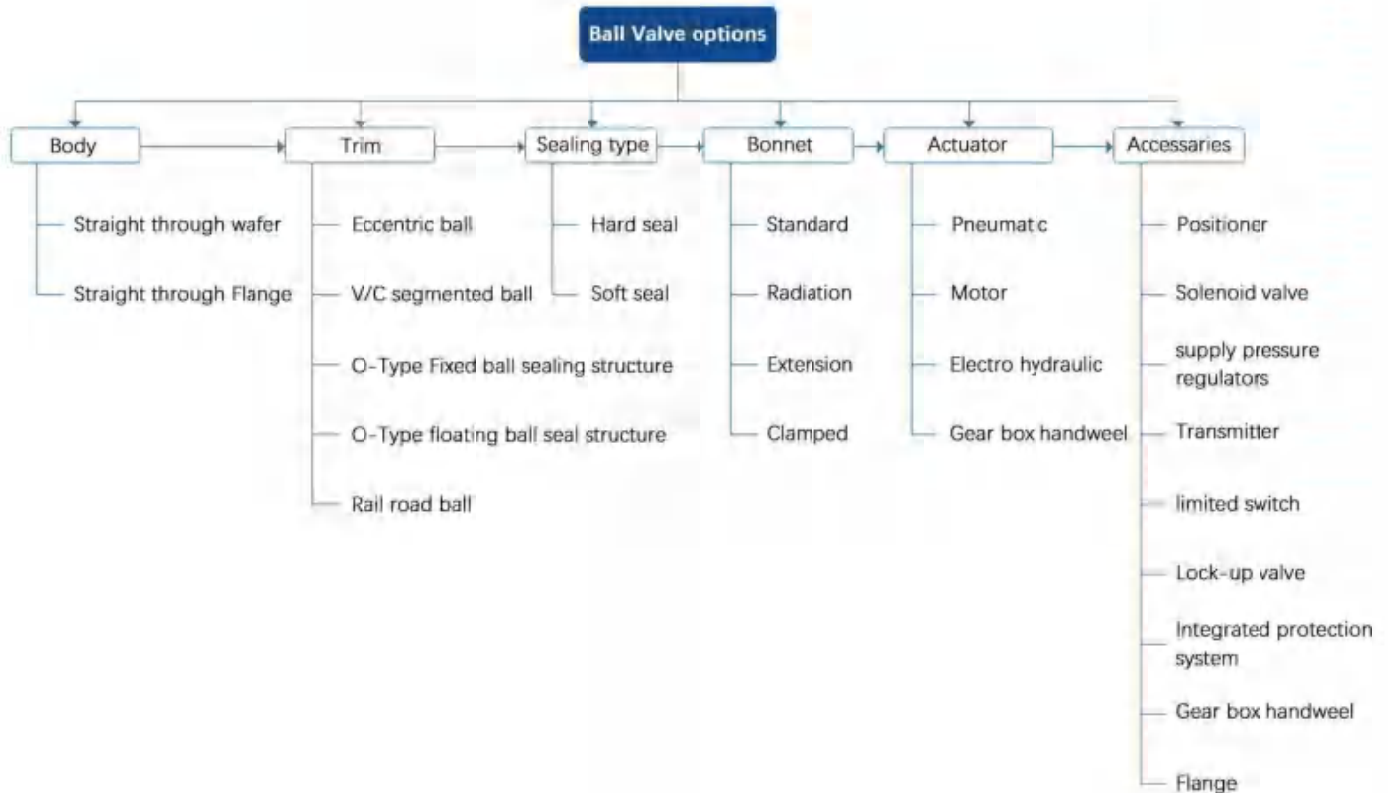
(Detail range refer to valve body type data)

BALL CONTROL VALVE BODIES:

GYR-51100 Eccentric ball valve
GYR-51200 V/C segmented ball valve
GYR-51300 O-Type ball valve
GYR-51400 Rail road ball valve

CONTENTS

Ball valve Options
Design structure
Packing Composition
Valve body
GYR-51100
GYR-51200
GYR-51300
GYR-51400
Actuator
Part-number Instruction



Note:

The above list is a guide diagram for the configuration of control ball valves. You can select the most appropriate control valve structure according to the arrow to meet the requirements of process parameters.

This document in the above configuration guidance diagram only involves some important contents. Please check the relevant content you pay attention to according to the page P.

For electric actuators, electro- hydraulic actuators and relevant accesscries not detailed in this document, please consult Control valve(Zhejiang) Co.,Ltd's engineer for specific parameters.

This document does not list more detailed control valve performance parameters such as the maximum differential pressure allowed when the ball valve is equipped with an actuator, and the CV value corresponding to the corresponding opening of the valve. If you need to know, please consult the engineer or calculate the process parameters according to the selection software, and select the most appropriate control valve.

VALVE BODY TYPE

- ▶ Ball valve control valves involve different installation methods from process pipes. Control Valve(Zhejiang) Co.,Ltd adopts the following two types of valve bodies as options:

Straight flange type (maximum specification: DN600)

Straight wafer type (maximum specification: DN400)

The structural length standard of straight through ball valve body is ASME B.16.10-2009

GB/T 12221-2005

- ▶ The inner cavity of the valve body is straight through the flow passage, with small flow resistance and large flow capacity. (For the flow capacity of each specification, see its specific CV value table)

- ▶ Connection

Flange Wafer Screw welding

Flange connection according to standard of JB/T 9.1-94~JB/T 79.4-94

HG 2061697

ANSI B16.5

ANSI B16.47

Wafer connection according to standard of JB/T 9.1-94~JB/T

79.4-94

HG20616-97

ANSI B16.5

- ▶ Design Body strength compliance to ASME B16.34 GB/T9092-1999 pressure test standard
- ▶ Installation according to flow direction mark on valve body,select different trim for best option of flow to open or flow to close.
- ▶ Design with cast or forged material can satisfied different requirement on pressure and temperature
Max pressure rating: Class 900/16.0 Mpa
Max temperature rating: -196℃-538℃

- ▶ Common valve body material:

PARTS	AVAILABLE MATERIAL
Body	ASTM A216 WCB/WCC ASTM A217 WC6/WC9 ASTM A105
	ASTM A351 CF8/CF3/CF8M/CF3M
	ASTM A182 F304/F316/F316L

Note: Please consult Control Valve(Zhejiang) Co.,Ltd engineer for special alloy



Figure 1



Figure 2

BALL VALVE

PLUG SEALING STRUCTURE

- ▶ Control Valve(Zhejiang) Co.,ltd offer two kinds of plug seal packing
 - 1.Patented self-sealing packing system for standard application.
 - 2.Sulfur free Graphite V-Ring Packing system for high temperature application.
- ▶ self-sealing packing system is Control Valve(Zhejiang) Co.,ltd patented packing solution, 100 thousand full travel experiment ensure leak-free operation, long service life of precision control without friction increase.
- ▶ Graphite Packing is suitable for high temperature service, high thermal conductivity. Impervious to most hard to handle fluids. Meanwhile sulfur free material use spring compensation to prolong life cycle and maintenance free.
- ▶ Standard packing temperature and Pressure rating
 - Max. pressure : Class600/10.0 MPA
 - Max. temperature: -196°C ~ +250°C
- ▶ High temperature Packing temperature and Pressure rating
 - Max. pressure : Class600/10.0 MPA
 - Max. temperature: -196°C ~ +1100°C

▶ Packing material

PACKING	MATERIAL
Standard	PTFE/R.TFE/PPL
High temperature	Sulfur free Graphite V-Ring

Figure 1

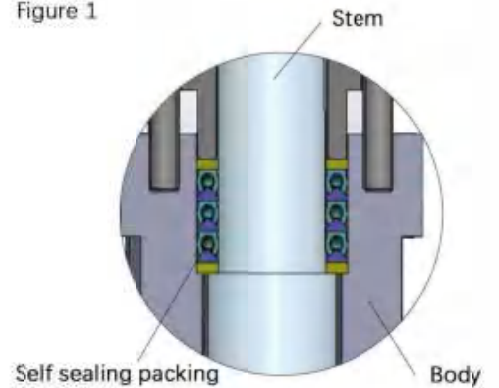


Figure 2

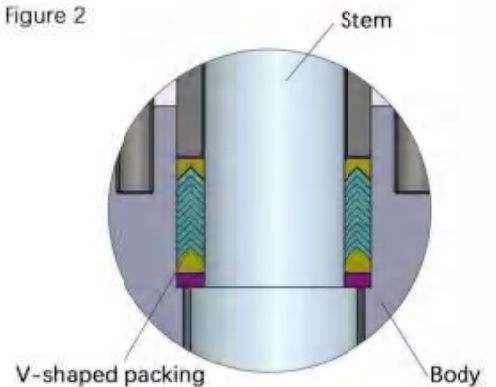
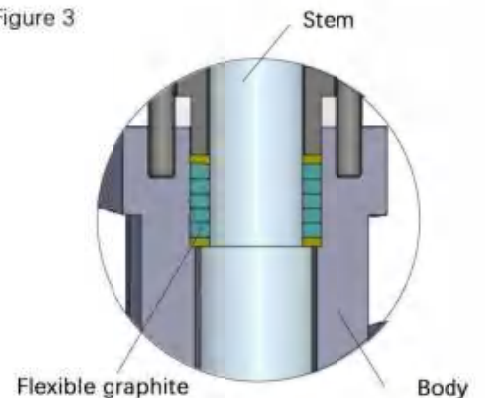


Figure 3



R51100

SPECIFICATION

- ▶ Body size:1" – 16" DN25-DN300
- ▶ Pressure Rating:ANSI150LB-300LB PN1.0- 6.4Mpa
- ▶ Connection End: Flanged Wafer

APPLICATION

- ▶ Mining& petrochemical
- ▶ Chemical & Air separation
- ▶ Water, heat supply system
- ▶ Pulp and paper, power plant



PRODUCT FEATURES

R51100 series eccentric segmental ball valve provide simple fluid path which brings small resistance, valve body is compact and light, wide range ability and accuracy. Eccentric segmental ball structure minimizes contact with the seat ring when opening, reducing seat wear and friction, prolonging seat life, and improving throttling performance. This style of rotary control valve suits erosive, slurry working condition. Rugged mental trim and big output torque ensure dependable working in rated pressure drop.

Note: Please consult Control Valve(Zhejiang) Co.,Ltd engineer for special alloy

PLUG SEAL PACKING

- ▶ Self-sealing packing system
- ▶ Graphite Packing system

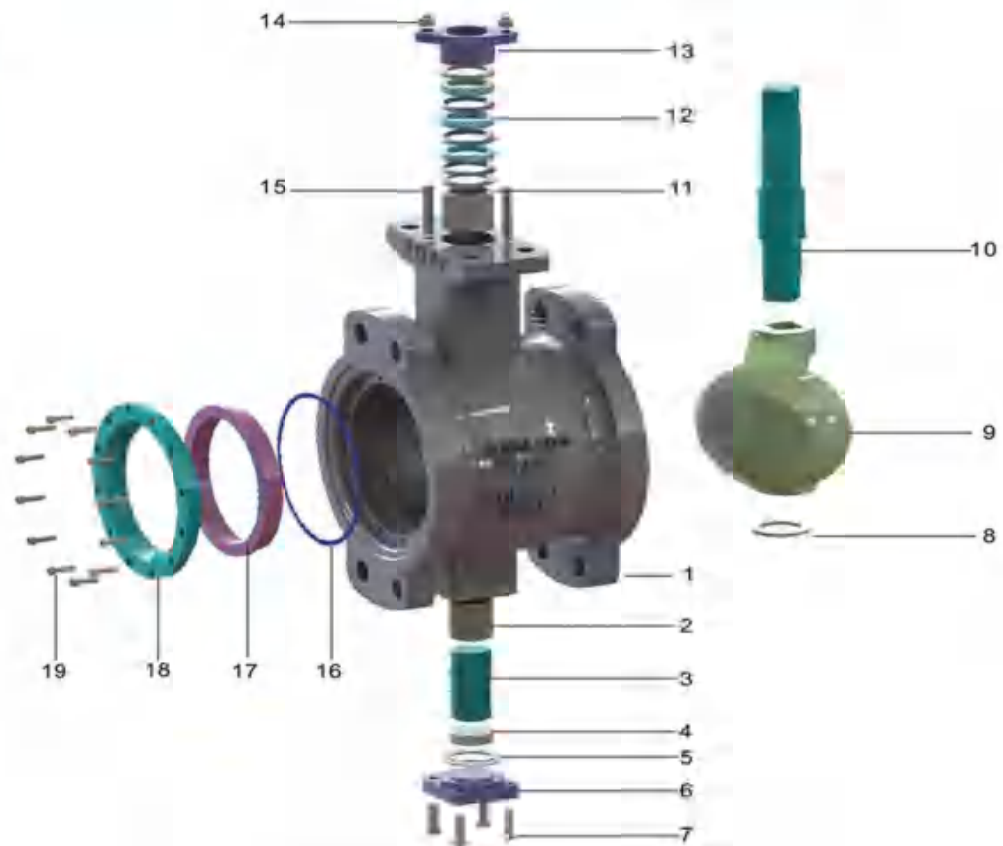
DATA

- ▶ Temperature rating -196--+538°C
- ▶ Leakage: ANSI B16 104 CLASS V
- ▶ Flow Characteristics: Approximate Linear
- ▶ Rangeability: 100:1
- ▶ Flange connection standard:
JB/T 79.1-94~JB/T 79.4-94/HG20616-97

BALL VALVE-GYR51100 SERIES

Control Valve(Zhejiang) Co.,ltd

ASSEMBLY PARTS AND MATERIAL

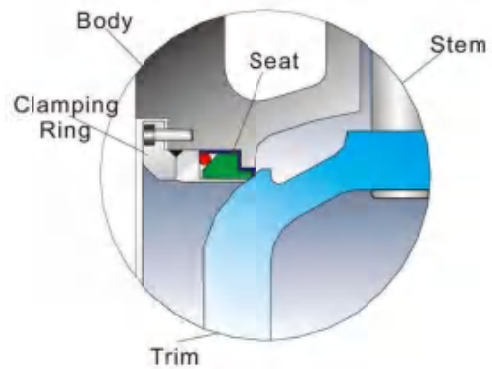


No.	Part	Material		
1	Body	ASTMA216 WCB/WCC	ASTMA351 CF8/CF8M	ASTMA217 WC6/WC9
2	Low sleeve	ASTM C90700		
3	Back shaft	ASTM S17400 17-4PH	ASTMA276 410/420	ASTMA276 F304/F316/F316L
4	Position limit	ASTMA275 F304/F316/F316L		
5	Wound gasket	ASTMA276 F304+Graphit		
6	Cover	ASTMA216 WCB/WCC	ASTMA351 CF8/CF8M	ASTMA217 WC6/WC9
7	Bolt	ASTMA193 B7 B7M		
8	Trim gasket	ASTMA276 410/420 ASTMA276 F304/F316/F316L		
9	Trim	ASTMA216 WCB/WCC	ASTMA351 CF8/CF8M	ASTMA217 WC6/WC9
10	Stem	ASTM S17400 17-4PH	ASTMA276 410/420	ASTMA276 F304/F316/F316L
11	Up sleeve	ASTMA276 410/420 ASTMA276 F304/F316/F316L		
12	Packing	PTFE/R.TFE/PPL/sulfure free Graphit		
13	Packing cover	ASTMA216 WCB/WCC	ASTMA351 CF8/CF8M	ASTMA217 WC6/WC9
14	Nut	ASTMA193 B7 B7M		
15	Stud	ASTMA193 B7 B7M		
16	Seal gasket	Graphit		
17	Seat	ASTMA276 410/420 ASTMA276 F304/F316/F316L		
18	Seal cap	ASTMA276 410/420 ASTMA275 F304/F316/F316L		
19	Screw	ASTMA193 B7 B7M		

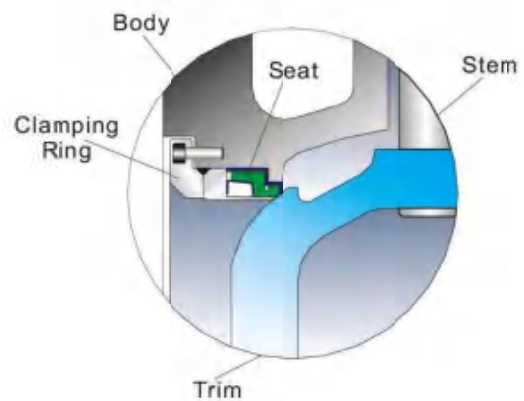
Note: Special alloy materials are not stated in the list. Please consult Control Valve(Zhejiang) Co.,ltd engineers for information.

VALVE SEAT DESIGN

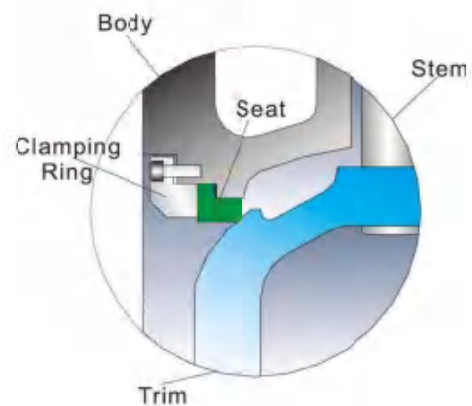
► Adopt Flexible fluorine O-ring as elastic ring, it is compressed with preload force to push valve seat maintain contact with trim to ensure sealing stability. Seat made of high temperature, corrosive resistance PTFE material, applicable to $-10^{\circ}\text{C} \sim +180^{\circ}\text{C}$ orrosive medium.



► In even more strict require for leakage class, available with mental material as elastic ring, safely, stable sealing in frequent rotation. Applicable to $-196^{\circ}\text{C} \sim +250^{\circ}\text{C}$ highleakage Class required service.

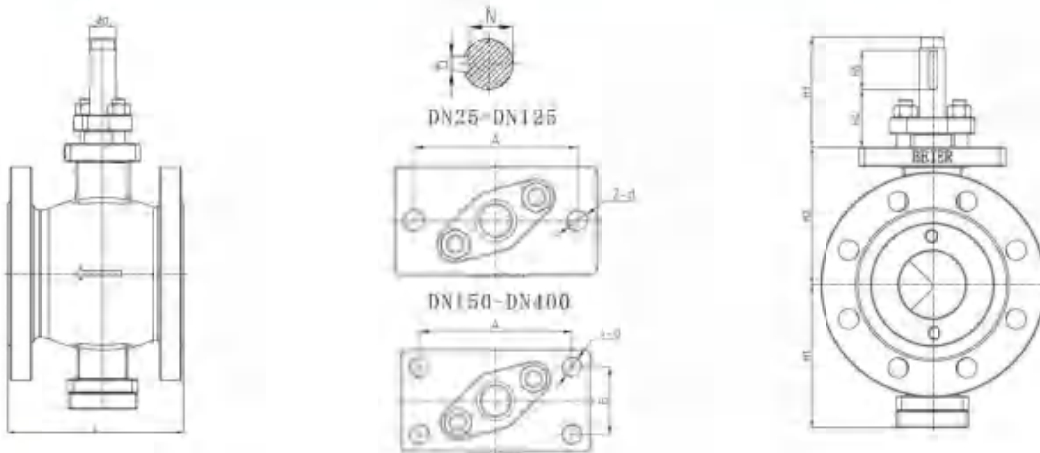


► In some industry process condition that medium mix with dirt may cause deposits and jam. In that cause mental-to mental sealing provide abrasive resistance Co Cr alloy as seal seat surfacing, effectively prevent from particle damage, applicable to temperature rating: $-196^{\circ}\text{C} \sim +400^{\circ}\text{C}$ and high pressure service.



BALL VALVE-GYR51100 SERIES

Control Valve(Zhejiang) Co.,Ltd



VALVE SIZE SPECIFICATION

Unit: mm

Body size		Length(L)		H1	H2	H3	H4	H5	A	B	d	D	b	N
inch	mm	Wafer	Flange											
1"	25	50	102	81	73	102	62	35	75	---	M10	16	5	13
1 1/4"	32	60	102	86	78	102	64	35	75	---	M10	16	5	13
1 1/2"	40	60	114	90	80	102	64	35	75	---	M10	16	5	13
2"	50	75	124	93	90	104	66	35	75	---	M10	16	5	13
2 1/2"	65	100	145	108	105	104	66	35	75	---	M10	16	5	13
3"	80	100	165	123	118	110	68	35	90	---	M12	20	6	16.5
4"	100	115	194	138	130	110	68	35	90	---	M12	20	6	16.5
5"	125	129	194	148	145	110	68	40	90	---	M12	25	8	21
6"	150	160	229	170	170	124	69	50	110	40	M12	30	8	26
8"	200	200	243	200	201	124	69	50	110	40	M12	30	8	26
10"	250	240	297	240	237	140	77	60	135	45	M16	40	12	35
12"	300	---	338	286	282	140	77	60	135	40	M16	40	12	35
14"	350	---	400	330	337	170	105	60	140	64	M16	50	14	44.5
16"	400	---	400	367	372	212	127	60	170	80	M20	60	18	53

Consult Control Valve(Zhejiang) Co.,Ltd Engineer for larger size.

RATED CV VALUE AND STROKE

Body size		Rated CV value	Body size		Rated CV value
inch	mm	90°opening	inch	mm	90°opening
1"	25	29	5"	125	796
1 1/4"	32	47	6"	150	1158
1 1/2"	40	82	8"	200	2059
2"	50	112	10"	250	2925
2 1/2"	65	210	12"	300	4680
3"	80	316	14"	350	7000
4"	100	515	16"	400	9800

R51200**PRODUCT MANUFACTURING SPECIFICATION**

- ▶ Caliber range: 1" - 24" DN25 - DN600
- ▶ Pressure range: ANSI150-900 # PN10-160
- ▶ Connection type: flange type wafer type

**PRODUCT FEATURES**

R-51200 Series Segmented Ball valves features V/C type ball in valve trim, work with positioner to modulating the fluids. Spring Load seat remains the ball in contact with seal during rotation, which produces a shearing effect as the ball closes and minimizes clogging.

The V ball produces an equal-percentage flow characteristic, it has good range ability, control and shutoff capability, also the self clean function make it suited to control erosive, viscous, and slurries containing entrained solids or fibers.

V-type/C-type ball valve has the following characteristics:

- ▶ The spring loaded movable valve seat structure is adopted to prevent the valve core from sticking or separating from the valve seat. The seal is reliable and has a long service life.
- ▶ There is a shearing effect between the valve core and the metal valve seat of the V-notch, which is especially suitable for media containing fibers, small solid particles, slurry, etc.
- ▶ When the valve is fully opened, the flow capacity is large, the pressure loss is small, and the medium will not deposit in the valve body cavity.
- ▶ The valve has accurate regulation and reliable positioning function, approximate percentage of flow characteristics, and wide adjustable range. Maximum adjustable ratio: 200:1

PRODUCT APPLICATION

- ▶ Petroleum Smelting and Chemical Plant.
- ▶ Metal smelting and pharmaceutical plants
- ▶ Environmental protection and power plant
- ▶ Mechanical paper making and power plant
- ▶ In water supply and heating system

VALVE STEM SEALING FORM

- ▶ Self sealing packing structure
- ▶ Flexible graphite packing structure

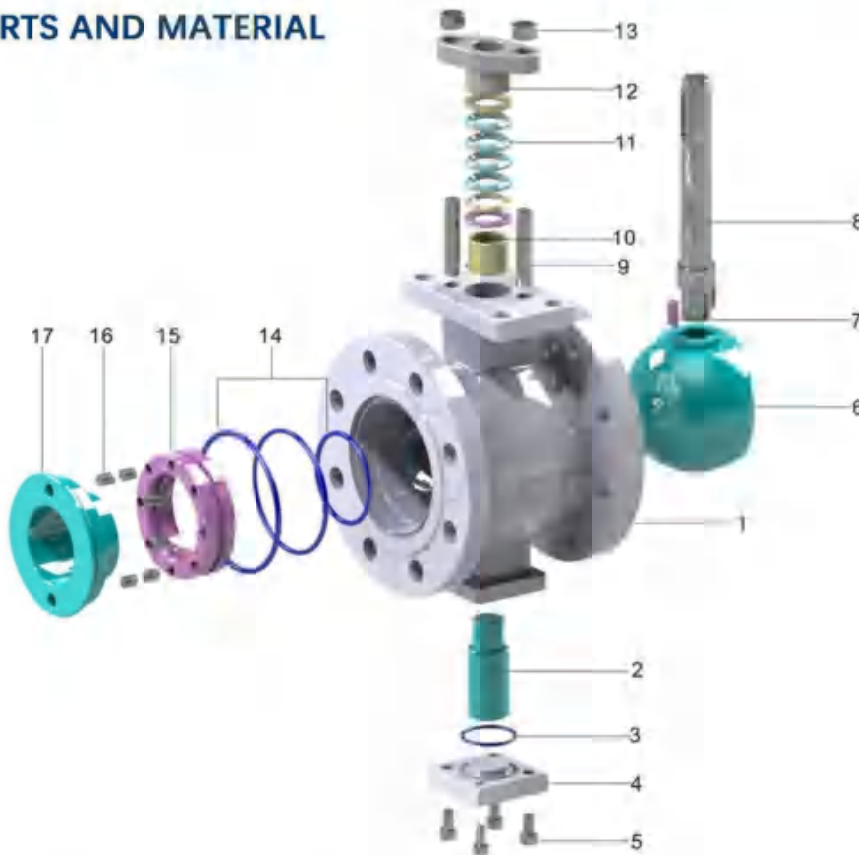
PARAMETER DESCRIPTION

- ▶ Temperature range - 196-538 °C
- ▶ Leakage class ANSI B16 104 CLASS V
- ▶ The flow characteristics are approximately equal to 100
- ▶ Connecting flange standard: JB/T 79.1-94-JB/T 79.4-94/HG20616-97

BALL VALVE-GYR51200 SERIES

Control Valve(Zhejiang) Co.,ltd

ASSEMBLY PARTS AND MATERIAL

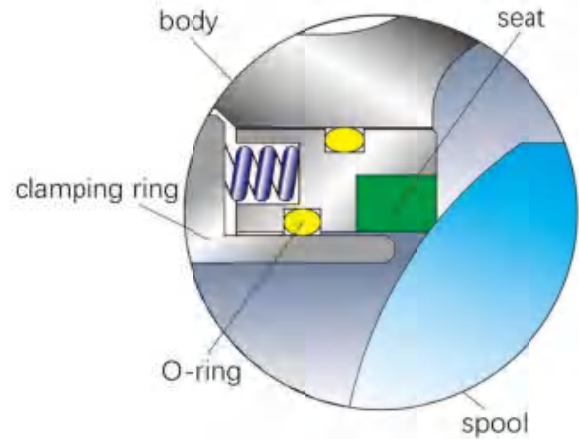


No.	Part	material		
		carbon steel	stainless steel	Cr-Mo
1	valve body	ASTMA216 WCB/WCC	ASTMA351 CF8/CF8M	ASTMA217 WC6/WC9
2	backshaft	ASTM A564 17-4PH	ASTM A276 410/420	ASTM A276 F304/F316/F316L
3	seal	NBR		
4	back cover	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
5	screw	ASTM A193 B7/B7M/B8/B8M		
6	spool	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
7	key	ASTM A276 F304/F316/F316L		
8	stem	ASTM A564 17-4PH	ASTM A276 410/420	ASTM A276 F304/F316/F316L
9	Stud	ASTM A193 B7/B7M/B8/B8M		
10	Bearing	ASTM C90700		
11	filler	PTFE/RPTFE/Sulfur free flexible graphite		
12	Packing gland	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
13	Nut	ASTM A193 B7/B7M/B8/B8M		
14	seal ring	NBR		
15	valve seat	ASTM A276 410/420	ASTM A276 F304/F316/F316L	
16	Spring	ASTM A1000-99		
17	Clamping Ring	ASTM A276 410/420	ASTM A276 F304/F316/F316L	

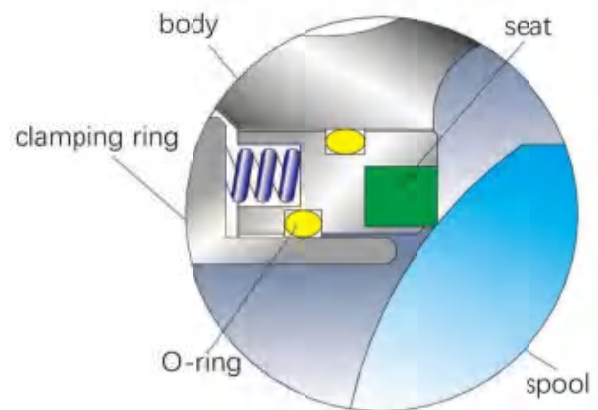
Note: Special alloy materials are not stated in the list. Please consult Control Valve(Zhejiang) Co.,ltd engineers for information.

VARIOUS SEAT DESIGNS

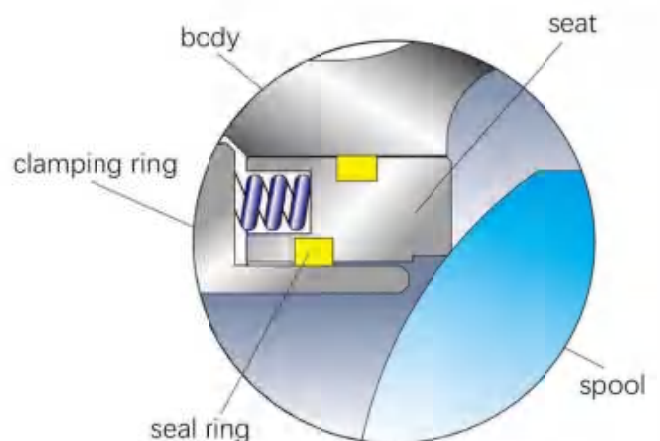
► The valve seat is made of non-metallic materials to enhance PTFE, which enhances the sealing performance and corrosion resistance of the valve seat. The outer ring of the valve seat is covered with metal material, and a spring is set at the end of the metal valve seat to ensure sufficient preload of the sealing ring. When the sealing surface of the valve is worn during use, the valve will continue to ensure good sealing performance under the action of the spring.



► The valve seat adopts an excellent fireproof structure: in order to prevent the polytetrafluoroethylene seal ring from burning out due to sudden heat or fire, causing large leakage and fuelling the fire, a fireproof seal ring is set between the ball and the valve seat. When the seal ring is burned out, under the effect of spring force, the valve seat seal ring is quickly pushed onto the ball to form a metal to metal seal, which plays a certain sealing effect. The fire resistance test meets the standard requirements.

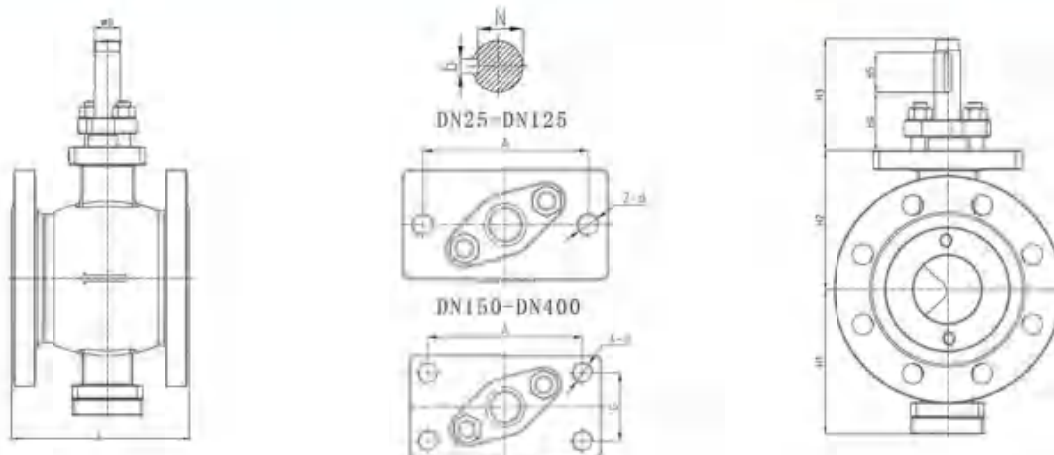


► The valve core and valve seat are made of metal materials and sealed with cobalt chromium hard alloy, greatly improving the wear resistance of the sealing surface. At the same time, the valve seat structure loaded with spring or leaf spring is adopted. Because the elastic restoring force of spring/leaf spring drives the valve seat, it can make the ball core and valve seat have good sealing performance for a long time. At the same time, since the valve seat adopts a spring loaded movable structure, the valve seat can be automatically calibrated to match the ball core.



BALL VALVE-GYR51200 SERIES

Control Valve(Zhejiang) Co.,Ltd



VALVE SIZE SPECIFICATION

Unit: mm

Body size		Length(L)		H1	H2	H3	H4	H5	A	B	d	D	b	N
inch	mm	Wafer	Flange											
1"	25	50	102	81	73	102	62	35	75	---	M10	16	5	13
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6"	150	160	229	170	170	124	69	50	110	40	M12	30	8	26
8"	200	200	243	200	201	124	69	50	110	40	M12	30	8	26
10"	250	240	297	240	237	140	77	60	135	45	M16	40	12	35
12"	300	---	338	286	282	140	77	60	135	40	M16	40	12	35
14"	350	---	400	330	337	170	105	60	140	64	M16	50	14	44.5
16"	400	---	400	367	372	212	127	60	170	80	M20	60	18	53

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RATED CV VALUE AND TRAVEL STROKE

Body size		Rated CV value	Body size Rated CV		Rated CV value
inch	mm	90°opening	inch	mm	90°opening
1"	25	29	5"	125	796
1 1/4"	32	47	6"	150	1158
1 1/2"	40	82	8"	200	2059
2"	50	112	10"	250	2925
2 1/2"	65	210	12"	300	4680
3"	80	316	14"	350	7000
4"	100	515	16"	400	9800

R51300**PRODUCT MANUFACTURING SPECIFICATION**

Diameter range: 1" - 24" DN25-DN600
 Pressure range: ANSI 150-900 # PN10-160
 Connection type: flanged wafer threaded
 Butt welding type

**PRODUCT FEATURES**

R-51300 series O-type ball valve is a kind of guidance transformation shut-off valve, which is also used as a regulating valve in a few occasions. It is used together with pneumatic actuator or electric actuator to achieve remote control, or it can be equipped with a handle or turbine to achieve manual control. This type of valve is mainly used to cut off, distribute and change the flow direction of media in the pipeline, which is a new type of valve widely used in recent years.

PRODUCT APPLICATION

- ▶ Petroleum Smelting and Chemical Plant
- ▶ Metal smelting and pharmaceutical plants
- ▶ Environmental protection and power plant
- ▶ Mechanical paper making and power plant
- ▶ In water supply and heating system

PARAMETER DESCRIPTION:

Valve stem sealing form: self sealing packing structure, sulfur free flexible graphite packing structure.

Flow characteristics: quick opening characteristics.

Valve body type: straight through, three-way.

Standard leakage class: ANSI B16.104-197 CLASS VI

applicable temperature: - 196-538 °C

Applicable medium: water, heavy oil, gas and some corrosive liquids

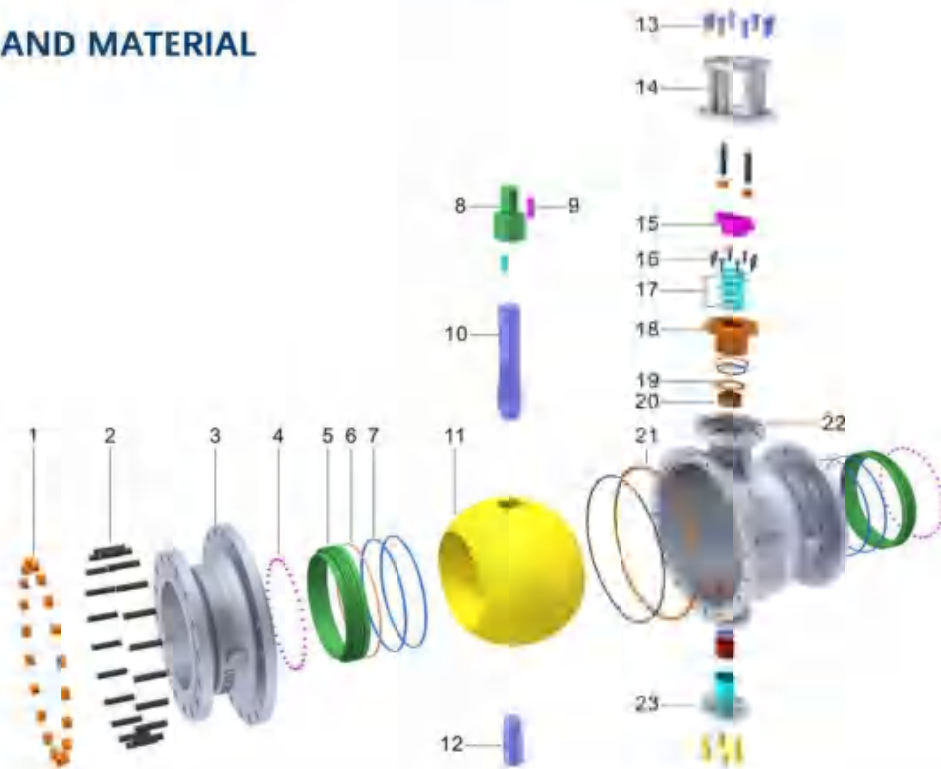
ADVANTAGE:

- ▶ The fluid resistance is small, and its resistance coefficient is equal to that of pipe sections with the same length
- ▶ Simple structure, small volume and light weight.
- ▶ It is tight and reliable. At present, the sealing surface material of the ball valve is widely made of plastic, with good sealing performance. It has also been widely used in the vacuum system.
- ▶ It is easy to operate and can be opened and closed quickly. Only 90° rotation is required from full opening to full closing, which is convenient for remote control.
- ▶ It is easy to maintain, the ball valve is simple in structure, the sealing ring is generally movable, and it is convenient to remove and replace.
- ▶ When the valve is fully opened or closed, the sealing surfaces of the ball and valve seat are isolated from the medium. When the medium passes through, it will not cause erosion of the valve sealing surface.
- ▶ It has a wide range of applications, ranging from a few millimeters to several meters in diameter from high vacuum to high pressure.

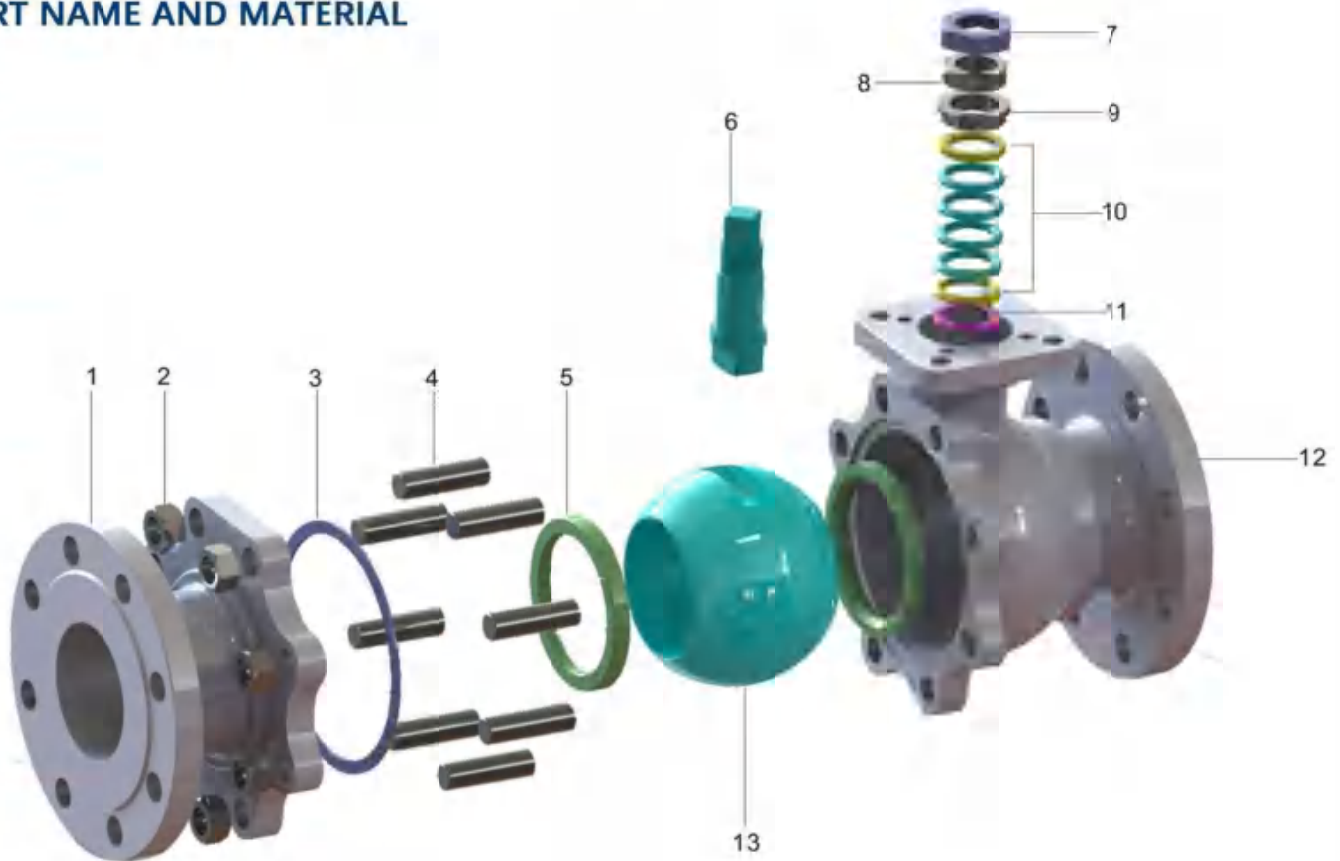
BALL VALVE-GYR51300 SERIES

Control Valve(Zhejiang) Co.,Ltd

PART NAME AND MATERIAL



No.	part	Material Science		
		carbon steel	stainless steel	Cr-Mo
1	Nut	ASTM A194 2H/2HM/8/8M		
2	Bolt	ASTM A193 B7/B7M/B8/B8M		
3	Side valve body	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
4	Spring	ASTM A182 F304/F304L/F316/F316L		
5	Seat	ASTM A564 17-7PH/ASTM B637 Inconel X-750		
6	Fire ring	ASTM A182 F304/F304L/F316/F316L+Ni55/PTFE		
7	O-ring	Sulfur free flexible graphite		
8	Coupling shaft	NBR/FKM		
9	key	ASTM A276 410/420		
10	Front axle	45#		
11	sphere	ASTM A564 17-4PH ASTM A276 410/420 ASTM A276 F304/F304L/F316/F316L		
12	a rear axle	ASTM A276 F304/F304L/F316/F316L+Ni60		
13	Outer hexagon bolt	ASTM A564 17-4PH ASTM A276 410/420 ASTM A276 F304/F304L/F316/F316L		
14	Bracket	ASTM A193 B7/B7M/B8/B8M		
15	Packing gland	ASTM A216 WCB		
16	Socket head cap screw	ASTM A351 CF8/ASTM A276 F304		
17	filler	ASTM A193 B7/B7M/B8/B8M		
18	Sealing ring sleeve	PTFE/Sulfur free flexible graphite		
19	Adjusting pad	ASTM A216 WCB/WCC		
20	Guide sleeve	ASTM A351 CF8/CF8M		
21	Spiral wound gasket	ASTM A217 WC6/WC9		
22	Main valve body	PTFE		
23	back cover	C28000/ASTM A276 F304		
		ASTM A276 F304+Flexible graphite		
		ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
		ASTM A182 F304/F304L/F316/F316L		
		ASTM A316 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9

PART NAME AND MATERIAL

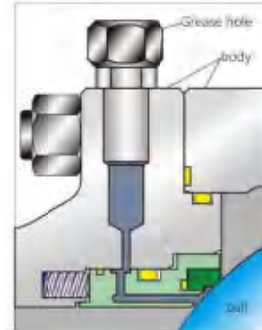
No.	part	Material Science		
		carbon steel	stainless steel	Cr-Mo
1	Side valve body	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
2	Nut	ASTM A194 2H/2HM/8/8M		
3	seal	ASTM A276 F304/F316/F316L+Flexible graphite/PTFE/RPTFE		
4	Stud	ASTM A193 B7/B7M/B8/B8M		
5	seat	ASTM A276 410/420	ASTM A276 F304/F316/F316L	PTFE/RPTFE/PPL
6	Stem	ASTM A564 17-4PH	ASTM A276 410/420	ASTM A276 F304/F316/F316L
7	Pressing cap	ASTM A276 F304/F316/F316L		
8	Lock nut	ASTM A276 F304/F316/F316L		
9	Packing gland	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
10	filler	PTFE/RPTFE/Sulfur free flexible graphite		
11	Packing gasket	ASTM A276 F304/F316/F316L		
12	Main valve body	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
13	spool	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9

Note: Special alloy materials are not stated in the list. Please consult Control Valve(Zhejiang) Co.,ltd engineers for information.

DESIGN FEATURES OF FIXED BALL VALVE

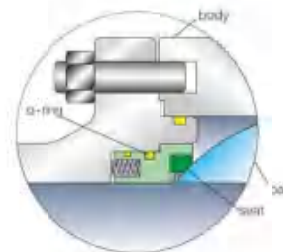
DESIGN FEATURES OF FIXED BALL VALVE

- ▶ Trunnion ball valve seat design with an auxiliary emergency sealing system, once the soft seal damaged or emergency situations occur can not sealed, the secondary seal system by injecting appropriate emergency sealant to seal. Emergency greasing device can also be used when necessary to flush the lubrication of the seat area to keep it clean

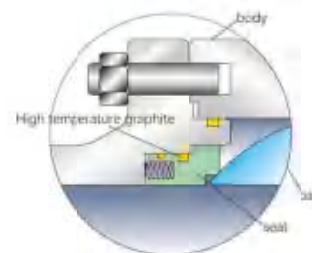


VARIOUS SEAT DESIGNS

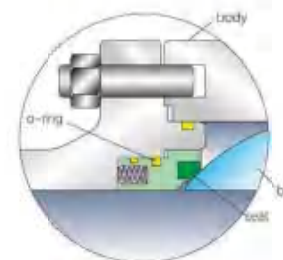
- ▶ Elastic front seat seal design structure, which has a double seal and automatic pressure relief function in the cavity. Inlaid with suitable polymeric materials (polymer material NYLON, MOLON, DELRIN or PEEK). Seal seat is floating spring loaded. In the closed position, the sealing surface has always maintained close contact with the ball, make sure the valve leakage free in the high or low pressure differential.



- ▶ Front seat with seal design: import side, the seat due to the formation of a differential area piston effect in the medium under pressure before and after the effect of the seat, plus spring preload the front seat with the ball in close contact with the ball and seal. The outlet side of the valve seat ring and ball, also produce piston effect under medium pressure valve body cavity effect, so that the ball in close contact with the valve seat ring and seal

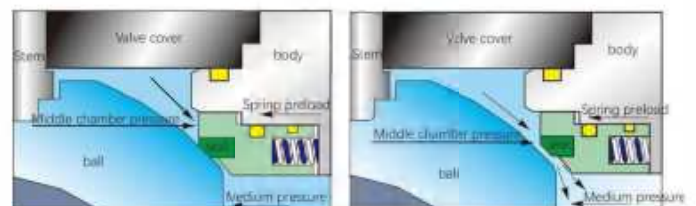


- ▶ Seat fire resistance design: according to the conditions and needs of users, ball valve can be designed for structural fire protection. Compliance to API607, and JB/T6899 standard. In fire condition, after non-mental seal material burn out, mental seal pushed by pre-loaded spring to seal valve protect valve from leakage and fire.



PRESSURE RELIEF IN THE MIDDLE CHAMBER OF VALVE BODY

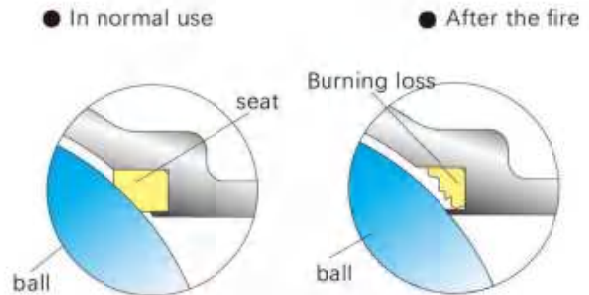
- ▶ When the stagnated medium in valve pressure valve rise over pre-stressed spring, seat will leave from the ball, it will automatically relief pressure, does not affect the upstream seat seal on the medium



FLOATING BALL VALVE FEATURES

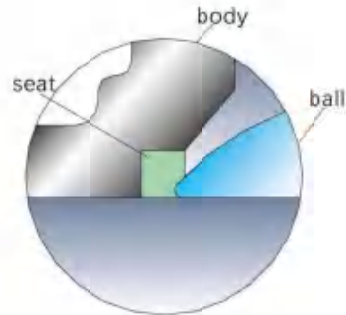
VALVE SEAT FIREPROOF DESIGN

▶R-51300 floating ball valve seat tightly contact with ball in normal rotation service, when fire situation burn out of seal ring, flow medium push ball contact with mental seat form a mental-to mental seal prevent from leakage.

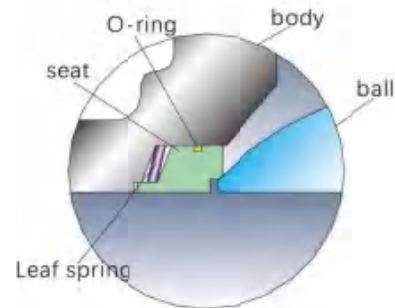


VALVE SEAT DESIGN

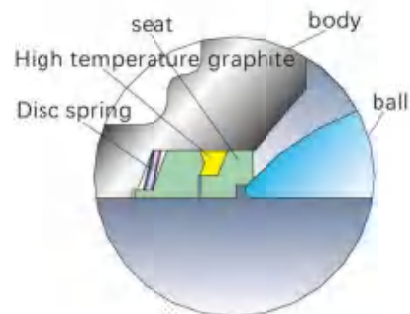
▶Valve seat use PTFE which provide small friction, operation torque, and high chemical stability, applicable to most erosive medium. When valve in close position, through hole vertical to valve tunnel, medium tightly push ball into exist side seat, ensure fully sealing.



▶Sealing surface overlay welding hard Co Cr alloy improve abrasion performance, when pass through small flow stream, flow pressure and Seat loaded pressure double secure tight contact between ball and seat. When flow pressure increasing, contact surface enlarge relatively to form a reliable sealing. Seat edge contain O-ring, this packing applicable to normal temperature with dirt medium.

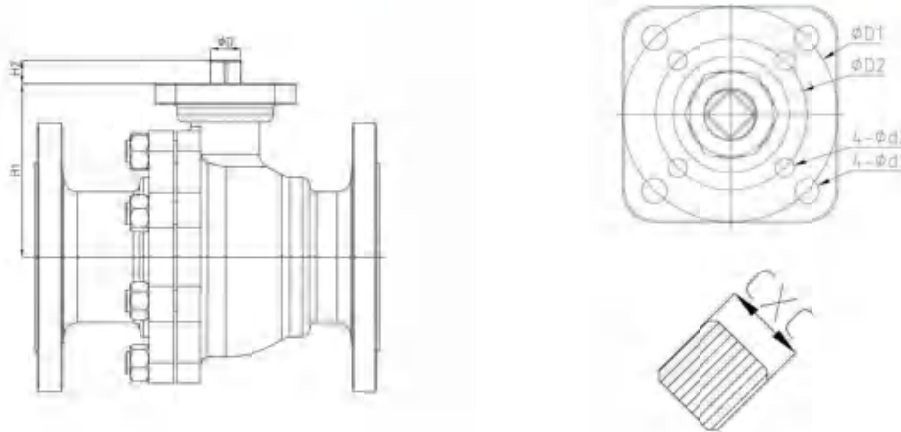


▶Ball and seat made of metal materials, sealing surfacing overlay welding hard Co Cr alloy, corrosion, scratch resistance, good sealing performance. Seal edge covered by high temperature Graphite, while using a spring loaded seat structure, since the elastic restoring force of the spring pushing the seat, creat long-term sealing performance between the ball and seat. the seat can automatically corrected to achieve the best fit with the core of the ball. This seat can be used for high temperature and pressure medium occasions.



BALL VALVE-GYR52300 SERIES

Control Valve(Zhejiang) Co.,Ltd



VALVE SIZE SPECIFICATION

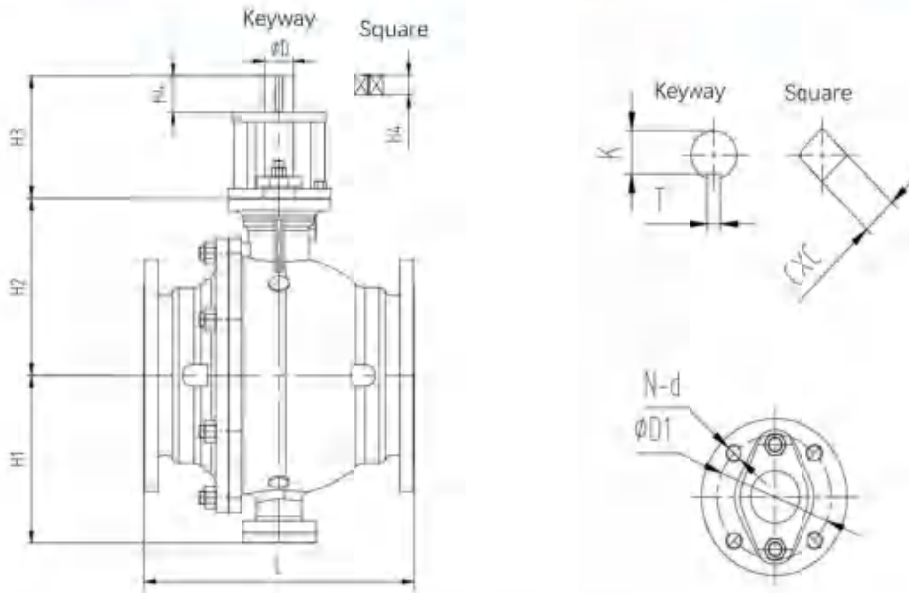
Unit: mm

Body size		Length (L)					H1	H2	D	D1	D2	d1	d2	CXC
inch	mm	PN1.6	PN2.5	PN4.0	150LB	300LB								
1/2"	15	130	130	130	108	140	48	9	10	42	36	6	6	9X9
3/4"	20	130	130	130	117	152	53	9	10	42	36	6	6	9X9
1"	25	140	140	140	127	165	64	11	14	50	42	7	6	11X11
1 1/4"	32	165	165	165	140	178	71	11	14	50	42	7	6	11X11
1 1/2"	40	165	165	165	165	190	76	14	18	70	50	9	7	14X14
2"	50	203	203	203	178	216	85	14	18	70	50	9	7	14X14
2 1/2"	65	222	222	222	190	241	104	17	20	102	70	11	9	17X17
3"	80	241	241	241	203	283	114	17	20	102	70	11	9	17X17
4"	100	305	305	305	229	305	140	22	28	102	---	11	---	22X22
5"	125	356	381	381	356	381	183	27	36	---	125	---	14	27X27
6"	150	394	403	403	394	403	202	27	36	---	125	---	14	27X27
8"	200	457	502	502	457	502	253	27	36	---	125	---	14	27X27

Consult Control Valve(Zhejiang) Co.,Ltd Engineer for larger size.

RATED CV VALUE AND TRAVEL STROKE

Body size		Rated CV value	Body size		Rated CV value
inch	mm	90°opening	inch	mm	90°opening
1/2"	15	10	4"	100	428
3/4"	20	17	5"	125	670
1"	25	27	6"	150	965
1 1/4"	32	44	8"	200	1715
1 1/2"	40	68	10"	250	2680
2"	50	108	12"	300	3858
2 1/2"	65	180	14"	350	5250
3"	80	275	16"	400	6860



VALVE SIZE SPECIFICATION

Body size		Length(L)						H1	H2	H3	H4	ΦD	K	T	CXC	N-Φd	ΦD1
inch	mm	PN10	PN16	PN25	150Lb	PN40	300Lb										
2"	50	178	178	178	178	216	216	100	130	107	17	Φ22	---	---	17X17	---	Φ102
2 1/2"	65	191	191	191	191	241	241	125	150	107	17	Φ22	---	---	17X17	---	Φ102
3"	80	203	203	203	203	283	283	135	160	132	22	Φ28	---	---	22X22	4-Φ14	Φ125
4"	100	229	229	229	229	305	305	150	170	136	26	Φ32	---	---	26X26	4-Φ14	Φ125
5"	125	356	356	356	356	381	381	185	215	172	32	Φ38	---	---	32X32	4-Φ18	Φ140
6"	150	394	394	394	394	403	403	205	230	172	32	Φ38	---	---	32X32	4-Φ18	Φ140
8"	200	457	457	457	457	502	502	285	290	245	65	Φ50	44.5	14	---	4-Φ22	Φ165
10"	250	533	533	533	533	568	568	315	330	245	65	Φ50	44.5	14	---	8-Φ18	Φ200
12"	300	610	610	610	610	648	648	355	370	265	65	Φ65	58	18	---	8-Φ18	Φ254
14"	350	686	686	686	686	762	762	425	415	290	70	Φ75	66	22	---	8-Φ23	Φ298
16"	400	762	762	762	762	838	838	455	510	310	90	Φ80	71	22	---	8-Φ23	Φ298
18"	450	864	864	864	864	914	914	480	535	315	95	Φ85	76	25	---	8-Φ23	Φ298
20"	500	914	914	914	914	991	991	500	550	315	95	Φ90	81	25	---	8-Φ23	Φ298

Consult Control Valve(Zhejiang) Co.,Ltd Engineer for larger size.

RATED CV VALUE AND TRAVEL STROKE

body size		Rated CV value 90°opening	body size		Rated CV value 90°opening
inch	mm		inch	mm	
2"	50	316	10"	250	5850
2 1/2"	65	445	12"	300	8600
3"	80	597	14"	350	12250
4"	100	1100	16"	400	16000
5"	125	1638	18"	450	20500
6"	150	2574	20"	500	25000
8"	200	4095	---	---	---

R51400

PRODUCT MANUFACTURING SPECIFICATION

Caliber range: 1" - 24" DN25-DN600

Pressure range: ANSI 150-900 # PN10-160

Connection type: flange type



PRODUCT FEATURES

- ▶ R-51400 rail ball valve uses the cam principle to make the ball valve break away from the sealing surface of the valve seat during rotation, and then push the ball to the valve seat to achieve sealing after rotation in place. Its main features are as follows:
- ▶ The function of opening and closing is frictionless, which completely solves the problem that the traditional valve seals are affected by the friction between sealing surfaces.
- ▶ Top mounted structure, the valve installed on the pipeline can be directly inspected and maintained online. It can effectively reduce device shutdown and production cost.
- ▶ The single valve seat design eliminates the problem that the medium in the valve cavity affects the use safety due to abnormal pressure rise.
- ▶ The valve rod with low torque design and special structure design can be opened and closed easily with a small handwheel valve. Wedge sealing structure: the valve is sealed by pressing the ball wedge onto the valve seat with the mechanical force provided by the valve stem, so that the sealing performance of the valve is not affected by the change of pipeline differential pressure, and the sealing performance is reliably guaranteed under various working conditions.

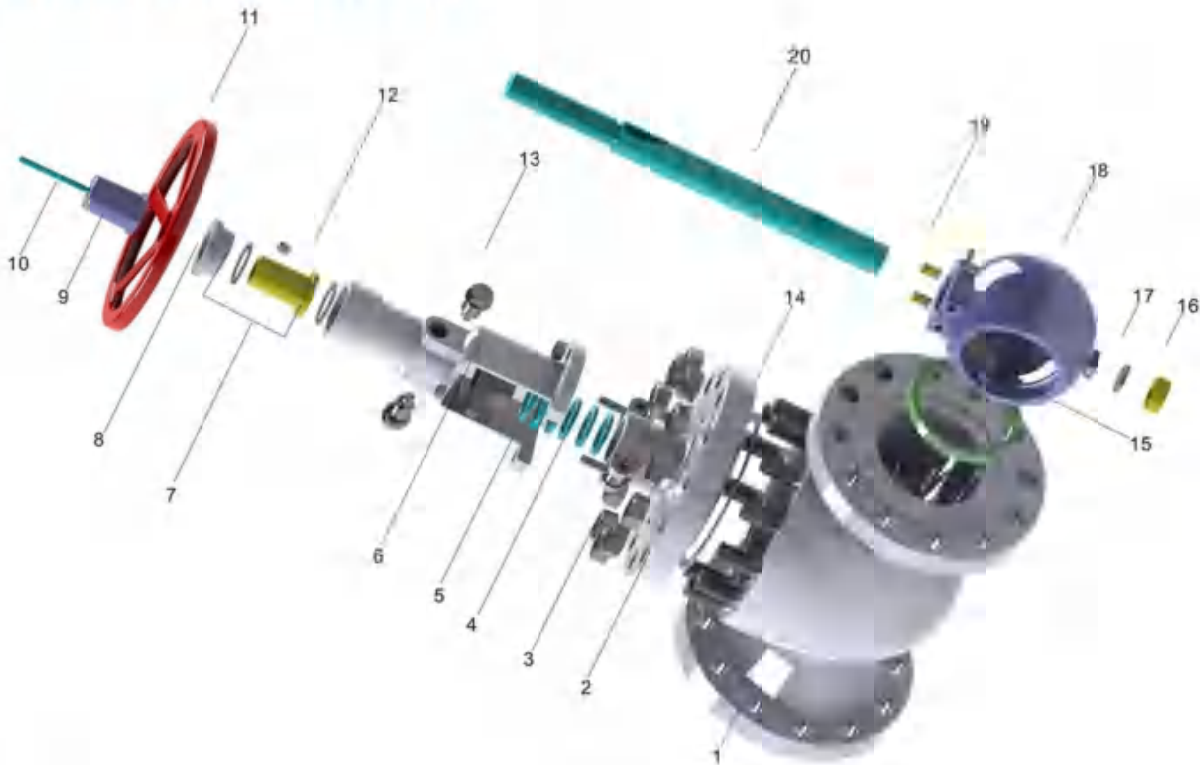
- ▶ Self cleaning structure of the sealing surface, when the ball is tilted away from the valve seat, the fluid in the pipeline will pass through the sealing surface of the ball in a 360° uniform manner. It not only eliminates the local scouring of the valve seat by high-speed fluid, but also washes away the deposits on the sealing surface, so as to achieve the purpose of self-cleaning.

PARAMETER DESCRIPTION

- ▶ Valve body type: straight through
- ▶ Upper bonnet type: standard integrated temperature range: -196-538 °C
- ▶ Valve rod sealing form: PTFE self sealing structure sulfur free flexible graphite structure
- ▶ Connection mode: flange type
- ▶ Standard leakage class: ANSI B16.104-197 CLASS V

PRODUCT APPLICATION

- ▶ Petroleum Smelting and Chemical Plant
- ▶ Metal smelting and pharmaceutical plants
- ▶ Mechanical paper making and power plant
- ▶ In natural gas long-distance pipeline
- ▶ In compressor system

PART NAME AND MATERIAL

No.	part	Material		
		carbon steel	stainless steel	Mo-Cr
1	valve body	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
2	Valve cover	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
3	Nut	ASTM A194 2H/2HM/8/8M		
4	filler	PTFE/RPTFE/Sulfur free flexible graphite		
5	Bracket	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
6	Packing gland	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
7	Thrust bearing	ASTM 8620H		
8	Bearing end cap	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
9	Dust cap	ASTM A276 F304/F316/F316L		
10	Indicator bar	ASTMA105		
11	handwheel	ASTM SA105		
12	Stem nut	ASTMC90700		
13	Plug pin	ASTM A276 F304/F316/F316L		
14	Sealing gasket	ASTM A276 F304/F316/F316L + Flexible graphite/PTFE/RPTFE		
15	valve seat	ASTM A276 410/420 ASTM A276 F304/F316/F316L		
16	axle sleeve	ASTM A276 F304/F316/F316L		
17	Shaft sleeve gasket	ASTM A276 F304/F316/F316L		
18	ball	ASTM A216 WCB/WCC	ASTM A351 CF8/CF8M	ASTM A217 WC6/WC9
19	key	ASTM A276 F304/F316/F316L		
20	Stem	ASTM A564 L7-4PH	ASTM A276 410/420	ASTM A276 F304/F316/F316L

Note: Special alloy materials are not stated in the list. Please consult Control Valve(Zhejiang) Co.,ltd engineers for information.

① When the valve is in the fully open position, turn the handwheel clockwise. With the valve stem nut and thrust bearing matched, the valve stem starts to drop and drives the ball to rotate.

⑧ Continue to turn the handwheel. When the valve stem rises to the limit position, the ball has also reversed 90° with the valve stem. The valve is in the fully open position.

② Continuously rotate the handwheel, and the precise spiral curve groove track on the valve stem interacts with the guide pin embedded in it to drive the ball to rotate clockwise with the valve stem.

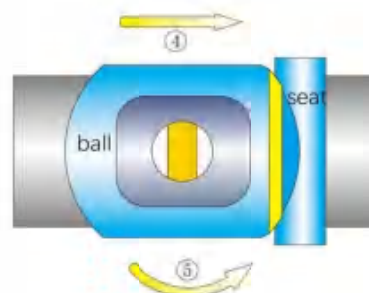
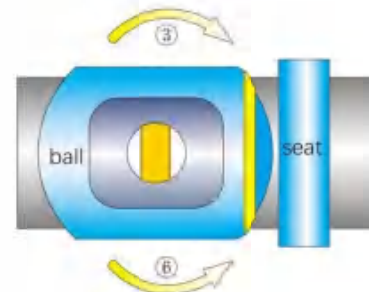
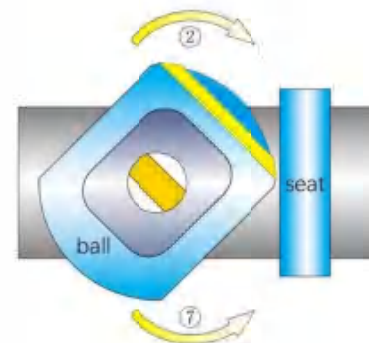
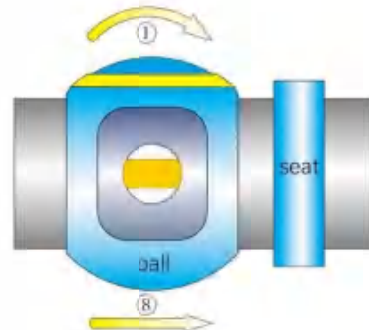
⑦ When the valve is about to open, the precise spiral curve groove track on the valve stem interacts with the guide pin embedded in it to drive the ball to rotate counterclockwise without friction with the sealing surface of the valve seat.

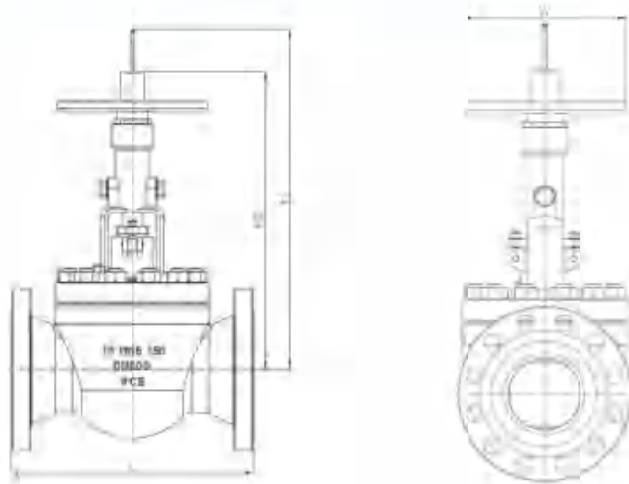
③ When the valve is about to close, the valve rod drives the ball to rotate 90° without friction with the sealing surface of the valve seat.

⑥ Continuously rotating the handwheel and valve rod will drive the ball to tilt away from the valve seat while rising.

④ Continue to rotate the handwheel, and the valve rod that descends again will press the ball mechanically, making the ball contact with the valve seat closely, so as to achieve the sealing effect.

⑤ Turn the handwheel counterclockwise when the valve is in the fully closed position. With the matching of the valve stem nut and the thrust bearing, the valve stem starts to rise and drives the ball to rotate





VALVE BODY STRUCTURE SIZE

unit:mm

Body size		Pressure stage															
		PN1.0/PN1.6/PN2.5/150LB				PN4.0/6.4/300LB				PN10.0/600LB				PN16.0/900LB			
inch	mm	L	H	H1	W	L	H	H1	W	L	H	H1	W	L	H	H1	W
1"	25	200	285	255	160	200	285	255	160	230	345	315	200	230	345	315	200
1 1/2"	40	200	325	290	200	200	325	290	200	260	385	350	250	260	385	350	250
2"	50	230	345	305	200	230	345	305	200	300	410	370	250	300	410	370	250
2 1/2"	65	290	385	340	250	290	385	340	250	340	435	395	300	340	435	395	300
3"	80	310	445	400	250	310	445	400	250	380	525	400	300	380	525	400	300
4"	100	350	485	430	300	350	485	430	300	430	605	550	350	430	605	550	350
5"	125	400	530	480	300	400	530	480	300	---	---	---	---	---	---	---	---
6"	150	480	620	580	350	480	620	580	350	550	720	780	400	550	720	780	400
8"	200	600	710	630	350	600	710	630	350	650	910	830	500	650	910	830	500
10"	250	730	850	770	350	730	850	770	350	775	1060	960	550	775	1060	960	550
12"	300	850	1050	970	400	850	1050	970	400	900	1250	1140	600	900	1250	1140	600
14"	350	980	1230	1130	450	980	1230	1130	450	1025	1440	1330	600	1025	1440	1330	600
16"	400	1100	1520	1400	600	1100	1520	1400	600	1150	1620	1500	700	---	---	---	---
18"	450	1200	1610	1470	650	1200	1610	1470	650	---	---	---	---	---	---	---	---
20"	500	1250	1680	1520	700	1250	1680	1520	700	---	---	---	---	---	---	---	---
24"	600	1450	1750	1600	700	1450	1750	1600	700	---	---	---	---	---	---	---	---

Consult Control Valve(Zhejiang) Co.,Ltd Engineer for larger size.

RATED CV VALUE AND TRAVEL STROKE

Body size		Rated CV value	Body size		Rated CV Value
inch	mm	90°opening	inch	mm	90°opening
1"	25	25	8"	200	1710
1 1/2"	40	65	10"	250	2675
2"	50	105	12"	300	3855
2 1/2"	65	175	14"	350	5250
3"	80	270	18"	400	6855
4"	100	425	20"	450	8680
5"	125	665	22"	500	10710
6"	150	960	24"	600	15430

PREPARATION DESCRIPTION

Control Valve(Zhejiang) Co.,Ltd

GYR - -DN . LB.

Body Type	
5	Ball Valve

GYR Series Trim	
1	Eccentric rotary valve
2	V/C Segmented Ball Valve
3	O Ball Valve
4	Orbital Ball Valve

Connection End	
1	Flange
2	Wafer

Characteristic	
D	Equal percentage
Z	Liner
X	Quick Opening

Flow Path	
1	Fixed Ball Type
2	Floating Ball Type

Bonnet	
1	Standard
2	Radiation
3	Extension

Suffix Instruction	
R	Soft Sealing
X	Rubber Lining
S	Seat Guided
C	PTFE Lining
T	Ceramics Lining

BR -

Actuator Type	
L	Aluminum
A	Steel Type 1
B	Steel Type 2
C	Steel Type 3

	Aluminum Cylinder Size		Aluminum Cylinder Size	
08	80	16	160	
10	100	02	200	
14	140	25	250	
16	160	28	280	
19	190	35	350	
21	210	40	400	
24	240	50	500	
27	270			

Handwheel	
W	Gear Box

Action	
S	Single