ZIGAO VALVE

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自贡自高阀门有限公司

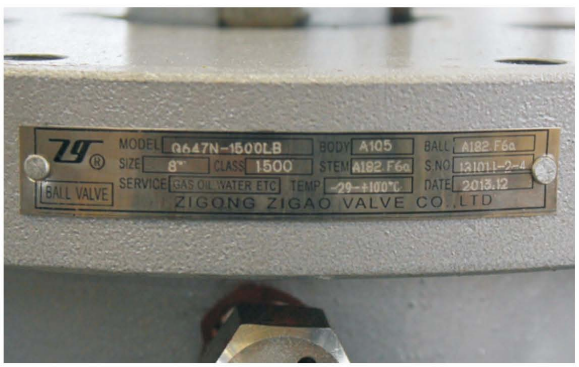
ZIGONG ZIGAO VALVE CO., LTD.

公司简介

自贡自高阀门有限公司（简称自高阀门）位于中国最大的阀门研发生产基地--四川省自贡市，公司新建车间坐落于国家级高新工业园区金川路21号及29号，公司于2008年彻底改制成立自贡自高阀门有限公司，注册资金11090万元，占地面积55500m²，生产场地建筑面积38000m²，现有员工300余人，年产能达5亿元。

自高阀门是一家专注于设计研发、生产销售燃气、石油石化类阀门的综合型企业。自高通过引进国外先进的技术，不断开拓新的领域，经过近年来的飞速发展，自高产品广泛应用于石油、天然气、供热、化工、电力、冶金、制药、建筑等行业，客户涉及国内外诸多著名企业，与国家管网、中石油、中石化、中海油、华润燃气、中国燃气、新奥燃气、昆仑燃气、港华燃气、深圳燃气、中油中泰、北京燃气、广州燃气、长江三峡集团、中国东方电气、中国铝业、华西建工、俄罗斯苏尔古特石油局、卢克石油等均有着成功的合作。自高产品涵盖各类标准及材质的球阀、闸阀、蝶阀、截止阀、止回阀、流量调节阀、清管阀，并可根据客户要求提供定制化产品，自高阀门的产品规格：口径1/2"（DN15）~48"（DN1200），压力150LB（PN16）~2500LB（PN420）。自高已取得各项国际及国内认证证书（TS、ISO、CE、API6D、SIL3、API607、API6FA、TUV低泄漏认证），公司具有完善的质量保证体系和控制措施，建有质量检测中心，拥有齐备的检测手段，可采用RT-射线检测，UT-超声波检测，MT-磁粉检测，PT-渗透检测及氦质谱检漏仪等一系列先进的检测措施对阀门进行检测，产品质量安全可靠，深得国内外客户好评。

自高为给客户提供更加优质、高效的服务，在全国建立多处服务中心和代理点，形成一套完整的供销体系和售后服务网络，自高竭诚欢迎广大客商的加盟与合作。

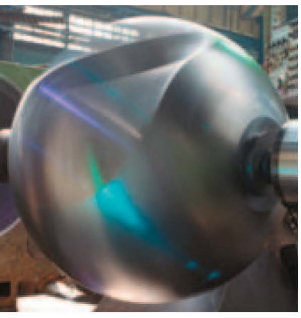
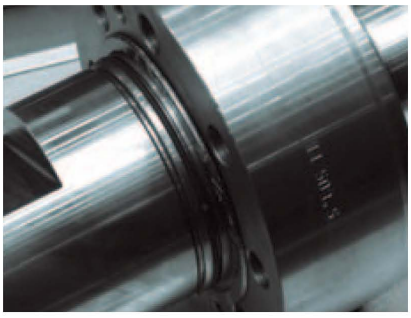
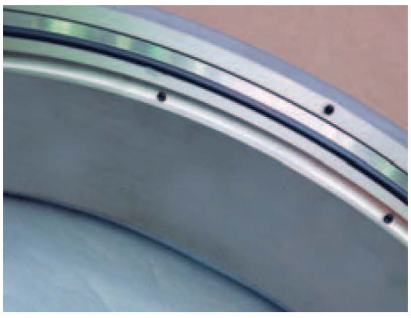
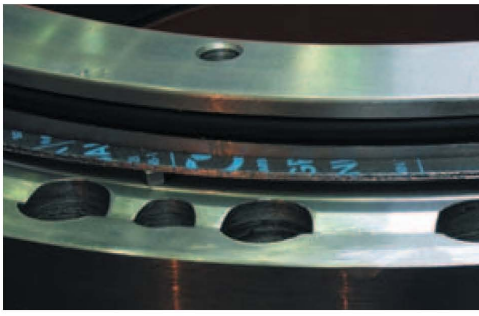


Company Introduction

Zigong Zigao Valve Co., Ltd. (Abbr.: Zigao Valve) is located in Zigong, Sichuan, the most largest research&development base of valve, the new workshop is located at NO.21 and NO.29 Jinchuan Road, National high and new Industrial park, and in 2008 was converted into Zigong Zigao Valve Co., Ltd. The registration capital is upto 110 million, and it covers 55500 square meters, and the buildings cover 38000 square meters. There are 300 staff in the company at present and its production capability is CNY 500 million and more.

Zigao Valve is a comprehensive enterprise focusing on research&development, production&sale of valves used for fuel gas, petroleum and petrochemicals. Zigao Valve introduced advanced technology from oversea, and continuously developed new field. By the fast development of last years, Zigao products are widely used for petroleum, natural gas, water, heating system, chemical, electric power, metallurgy, pharmacy, construction and other field and its clients/users include many domestic&overseas famous companies and successfully cooperated with Pipe China, CNPC, Sinopec, CNOOC, China Resources Gas, China Gas, Xinao Gas, Kunlun Gas, Ganghua Gas, Shenzhen Gas, CNPC Zhongtai, Beijing Gas, Guangzhou Gas, China Three Gorges Corporation, China Dongfang Electric, CHALCO, West China Construction Engineering, Russia Surgut Petroleum Bureau, Luke Oil and others. Zigao's products include ball valve, gate valve, butterfly valve, globe valve, check valve of all kinds of material and standards, also Zigao can provide customized products according to customer's special requirements. Zigao products' specification: NPS 1/2"(DN15) to NPS 48"(DN1200), pressure class: ANSI Class 150Lb(PN16) to ANSI Class 2500Lb(PN420). Zigao Valve is certified with TS, ISO 9001, ISO14001, CE, API6D, SIL3, API607, API6FA and runs under perfect quality assurance system and quality control measurements. In Zigao there is quality center constructed and Zigao owns complete inspection&test measurements, can test valves with RT, UT, MT, PT, helium mass spectrometer leak detector and other advanced measurements. Zigao's products are safe and reliable, and were appraised by the customers.

Zigao established service centers and agent office around China for providing more excellent& efficient customers service, and established complete supply&sale system and after-sale service net. Zigao sincerely welcome customers and businessmen to join us and to cooperate.

目 录 Product Catalog

自高阀门型号编制Model establishment of ZG VALVE

1	2	3	4	5
阀门类型	阀门口径	压力等级	端部连接	操作方式
1. WBV 2. ZGWBV 3. ZGMBV 4. PE 5. FBV 6. QBV 7. CBV 8. ZSHV 9. GDQ 10. PGV 11. TBV 12. MMBV 13. FSV 14. VBV 15. SDBV	NPS1"-NPS48" DN25-DN1200	150LB-2500LB PN16-PN420	1. WE 焊接 2. RF 法兰突面 3. MF 凹凸面 4. TG 榫槽面 5. RJ 环连接法兰 6. OSG O形圈面	3-齿轮 6-气动 7-液动 8-气液联动 9-电动

举例：

ZGWBV-DN300-PN16-WE-3

阀门类型：ZGWBV—城市燃气直埋式全焊接球阀；口径—DN300；压力—PN16；WE—焊接；3—蜗轮操作

阀门类型：

WBV	锻钢全焊接球阀（标准型）
ZGWBV	直埋式全焊接球阀（长结构）
ZGMBV	城市燃气直埋球阀
PE	钢制PE球阀
FBV	锻钢分体式球阀
QBV	一体式法兰球阀
CBV	铸钢分体式球阀
ZSHV	轴流式止回阀
GDQ	轨道式球阀（强制密封球阀）
PGV	清管阀
TBV	内螺纹球阀
MMBV	金属硬密封球阀
FSV	三通/四通阀
VBV	V型球阀
SDBV	水电球阀

其他注意事项：

订货时请注明以下部件材质：阀体、球体、阀杆、阀座，如不注明，公司将按照公司常规设计制造

对于埋地球阀：

如阀杆需加高，请注明加高高度（加高高度为管中心到操作器顶部）

如需连接配管，请注明连接配管材质以及尺寸

对于法兰连接球阀：

请注明是否需要配对法兰

固定式球阀扭矩表 Trunnion mounted ball valve torque

适用阀门型号：WBV，ZGWBV，ZGMBV，钢制PE球阀、FBV中所有固定式球阀。

CLASS		/	CL150		CL300		CL400		CL600		CL900	
PN		0	PN20		PN50		PN64		PN100		PN150	
扭矩		扭矩 N．m	扭矩 N．m		扭矩 N．m		扭矩 N．m		扭矩 N．m		扭矩 N．m	
NPS	DN		全压差下阀门开关扭矩	阀杆允许扭矩	全压差下阀门开关扭矩	阀杆允许扭矩	全压差下阀门开关扭矩	阀杆允许扭矩	全压差下阀门开关扭矩	阀杆允许扭矩	全压差下阀门开关扭矩	阀杆允许扭矩
2"	DN50	60	75	650	95	650	110	650	130	650	160	650
$2^1/_2$"	DN65	100	130	650	160	650	170	650	200	650	250	650
3"	DN80	130	160	650	200	650	210	1151	260	1151	310	1151
4"	DN100	210	250	1151	310	1151	330	1151	400	1151	690	3119
6"	DN150	360	460	1989	650	3119	700	3119	900	3119	1650	6738
8"	DN200	500	750	3119	1250	3119	1400	6738	1800	6738	2700	10136
10"	DN250	850	1200	6738	1700	6738	1900	10136	2600	10136	4000	10136
12"	DN300	1150	1650	10136	2500	10136	2750	10136	3550	10136	5200	20896
14"	DN350	1550	2350	20896	3200	20896	3700	20896	5000	20896	8900	60922
16"	DN400	1950	2800	20896	4050	20896	4550	20896	7000	20896	10500	60922
18"	DN450	2300	4000	44412	5900	44412	7050	60922	9950	60922	14000	60922
20"	DN500	2700	4650	44412	7550	44412	9050	60922	12400	60922	20000	81088
24"	DN600	4550	7700	60922	11950	60922	13400	81088	17600	81088	28000	133846
28"	DN700	7650	11250	81088	17300	81088	18700	81088	25300	81088	37000	133846
30"	DN750	8550	12650	81088	19200	81088	21300	133846	29600	133846	44000	205613
32"	DN800	9550	14250	81088	21300	81088	24300	133846	34700	133846	54000	205613
36"	DN900	12100	18100	81088	28500	81088	30600	133846	43300	133846	66000	205613
40"	DN1000	14100	21000	205613	34000	205613	39000	205613	65300	205613	89500	299311
42"	DN1050	17000	23000	205613	38600	205613	44000	205613	74000	205613	105000	299311
48"	DN1200	23000	34000	205613	52500	205613	69400	299311	96600	299311	145000	417866

备注：1、驱动装置选型扭矩=全压差下阀门开关力矩x1.5倍安全系数。
Drive option torque = valve opening torque x 1.5 times safety factor under full differential pressure.
2、以上数据为软密封固定式结构，干净介质的扭矩，如选用硬密封结构则以上数据不适用，硬密封结构球阀扭矩详询自高技术部。
The above data is of fixed structure with soft seal, and the torque of clean medium. If the hard seal structure is selected, the above data is not applicable.
3、以上阀杆允许扭矩数据为AISI 4140材质的计算值，如为其它材质，则数据有所变化，详询自高技术部。
The allowable torque data of the above valve stem is the calculated value of AISI 4140 material. If it is made of other materials, the data will be changed.
4、上表为全通径球阀扭矩，缩径球阀按缩后口径查询，例如8"x6"口径球阀，查询6”即可。
The above table shows the torque of full bore ball valve. The reduced bore ball valve is inquired according to the reduced bore. For example, 8 "X6" bore fixed ball valve can be inquired as 6 ".

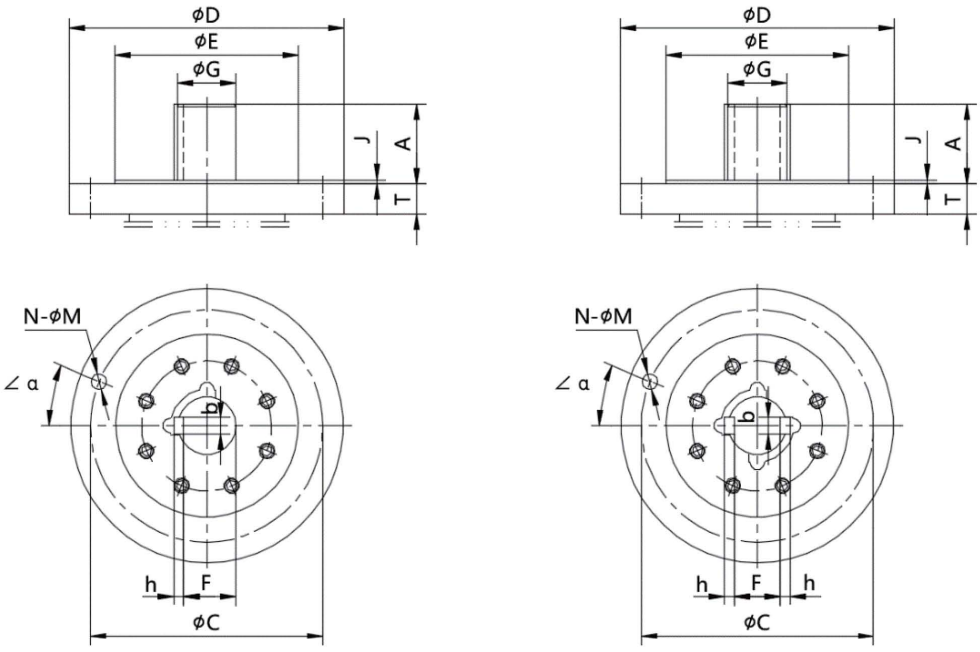
浮动式球阀扭矩表 Float Ball Valve Torque

适用阀门型号：QBV、CBV、THBV中所有浮动式球阀。

CLASS		/	CL150		/	/	CL300		CL400		CL600		CL900	
PN		PN16	PN20		PN25	PN40	PN50		PN64		PN100		PN150	
扭矩		扭矩 N．m	扭矩 N．m		扭矩 N．m	扭矩 N．m	扭矩 N．m		扭矩 N．m		扭矩 N．m		扭矩 N．m	
NPS	DN	全压差下阀门开关扭矩	全压差下阀门开关扭矩	阀杆允许扭矩	全压差下阀门开关扭矩	全压差下阀门开关扭矩	全压差下阀门开关扭矩	阀杆允许扭矩	全压差下阀门开关扭矩	阀杆允许扭矩	全压差下阀门开关扭矩	阀杆允许扭矩	全压差下阀门开关扭矩	阀杆允许扭矩
$^1/_2$"	DN15	6	7	175	8	10	10	175	15	175	17	175	25	175
$^3/_4$"	DN20	9	10	175	12	15	16	175	20	175	24	175	35	175
1"	DN25	14	16	175	18	23	25	175	35	175	40	175	65	340
$1^1/_4$"	DN32	22	24	340	28	32	35	340	50	340	60	340	100	749
$1^1/_2$"	DN40	32	35	340	40	45	50	340	70	454	90	454	120	749
2"	DN50	40	50	454	55	65	70	454	85	749	110	749	180	1151
$2^1/_2$"	DN65	60	80	749	85	95	100	749	130	749	165	749		
3"	DN80	90	120	749	130	150	160	749	200	1151	300	1151		
4"	DN100	130	180	1151	190	260	280	1151	340	1151	600	1151		
5"	DN125	250	280	1151	320	550	600	3119						
6"	DN150	490	540	3119	620	900	1000	3119						
8"	DN200	860	960	3119	1100	1800	2100	3119						

备注：1、驱动装置选型扭矩=全压差下阀门开关力矩x1.5倍安全系数。
Drive option torque = valve opening torque x 1.5 times safety factor under full differential pressure.
2、以上数据为软密封浮动式结构，干净介质的扭矩，如选用硬密封结构则以上数据不适用，硬密封结构球阀扭矩详询自高技术部。
The above data is of fixed structure with soft seal, and the torque of clean medium. If the hard seal structure is selected, the above data is not applicable.
3、以上阀杆允许扭矩数据为AISI 4140材质的计算值，如为其它材质，则数据有所变化，详询自高技术部。
The allowable torque data of the above valve stem is the calculated value of AISI 4140 material. If it is made of other materials, the data will be changed.
4、上表为全通径球阀扭矩，缩径球阀按缩后口径查询，例如8"x6"口径球阀，查询6”即可。
The above table shows the torque of full bore ball valve. The reduced bore ball valve is inquired according to the reduced bore. For example, 8 "X6" bore fixed ball valve can be inquired as 6 ".

阀门顶部连接尺寸 Valve top connection dimensions



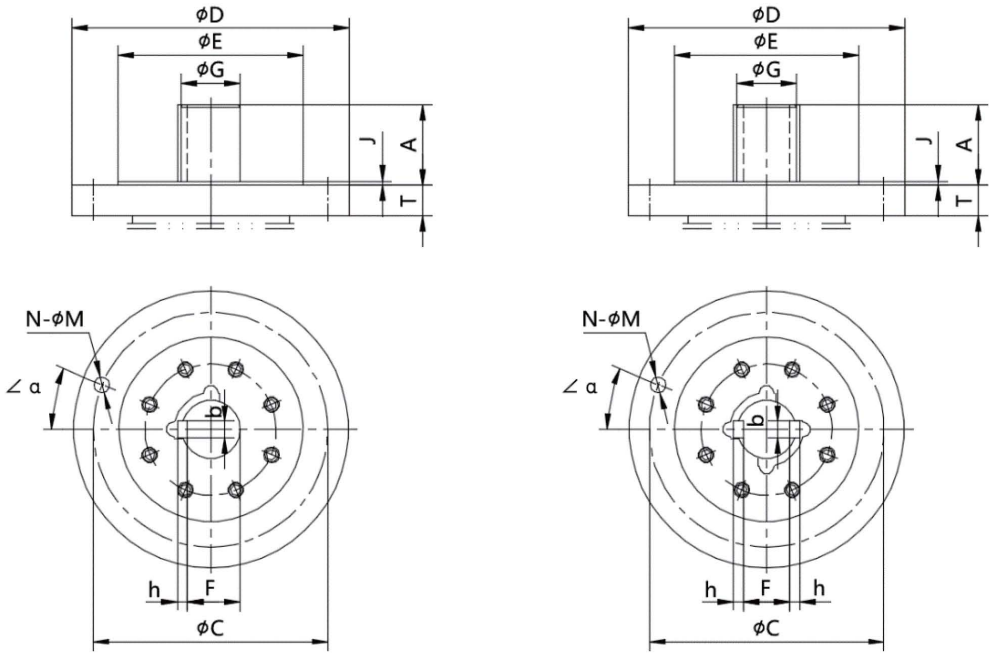
■ A型　　■ B型

适用阀门型号：WBV，ZGWBV，ZGMBV，钢制PE球阀、FBV中锻钢固定式球阀。
适用压力等级：ASME CL150、CL300 PN16、20、25、40、50　　尺寸单位:mm

公称直径 NPS	公称直径 DN	类型	ΦG	A	ΦE	J	ΦD	T	ΦC	∠α	N-X	b	h	F	连接型号 (ISO F5211)	备注
2"	DN50	A	26	39	/	/	125	16	102	45°	4-Φ12	8	7	22	F10	
$2^1/_2$"	DN65	A	26	39	/	/	125	16	102	45°	4-Φ12	8	7	22	F10	
3"	DN80	A	26	39	/	/	125	16	102	45°	4-Φ12	8	7	22	F10	
4"	DN100	A	30	46	85	2	150	18	125	45°	4-Φ14	10	8	25	F12	
6"	DN150	B	36	58	100	3	175	19	140	45°	4-Φ19	10	8	26	F14	FBV CL150 专用
			40	58	100	3	175	19	140	45°	4-Φ19	12	8	30	F14	FBV CL150 除外
8"	DN200	B	40	58	100	3	175	19	140	45°	4-Φ19	12	8	30	F14	
10"	DN250	B	48	64	130	3	210	20	165	45°	4-Φ23	14	9	37	F16	
12"	DN300	B	55	75	160	3	260	24	200	22.5°	8-Φ19	16	10	43	F20	
14"	DN350	B	70	92	200	3	300	25	254	22.5°	8-Φ19	20	12	55	F25	
16"	DN400	B	70	92	200	3	300	25	254	22.5°	8-Φ19	20	12	55	F25	
18"	DN450	B	90	112	230	3	350	28	298	22.5°	8-Φ23	25	14	72	F30	
20"	DN500	B	90	112	230	3	350	28	298	22.5°	8-Φ23	25	14	72	F30	
24"	DN600	B	100	134	230	3	350	28	298	22.5°	8-Φ23	28	16	80	F30	
28"	DN700	B	110	139	260	3	415	35	356	22.5°	8-Φ33	28	16	90	F35	
32"	DN800	B	110	139	260	3	415	35	356	22.5°	8-Φ33	28	16	90	F35	
36"	DN900	B	120	165	260	3	415	40	356	22.5°	8-Φ33	32	18	98	F35	
40"	DN1000	B	130	185	300	3	475	42	406	22.5°	8-Φ39	32	18	108	F40	

备注：上表为全通径球阀顶部连接尺寸，缩径球阀按缩后口径查询，例如8"x6"口径球阀，查询6”即可。
The above table shows the top connection size of full bore ball valve. The reduced bore ball valve shall be inquired according to the reduced bore. For example, 8 "X6" bore ball valve can be inquired as 6 ".

阀门顶部连接尺寸 Valve top connection dimensions



■ A型　　■ B型

适用阀门型号：WBV，ZGWBV，ZGMBV，钢制PE球阀、FBV中锻钢固定式球阀。
适用压力等级：ASME CL400、CL600　PN64、100　　尺寸单位:mm

公称直径 NPS	公称直径 DN	类型	ΦG	A	ΦE	J	ΦD	T	ΦC	∠α	N-X	b	h	F	连接型号 (ISO F5211)	备注
2"	DN50	A	26	39	/	/	125	16	102	45°	4-Φ12	8	7	22	F10	
$2^1/_2$"	DN65	A	26	39	/	/	125	16	102	45°	4-Φ12	8	7	22	F10	
3"	DN80	A	30	45	85	2	150	18	125	45°	4-Φ14	10	8	25	F12	
4"	DN100	A	30	46	85	2	150	18	125	45°	4-Φ14	10	8	25	F12	
6"	DN150	B	40	58	100	3	175	20	140	45°	4-Φ19	12	8	30	F14	
8"	DN200	B	48	64	130	3	210	20	165	45°	4-Φ23	14	9	37	F16	
10"	DN250	B	55	75	160	3	260	24	200	22.5°	8-Φ19	16	10	43	F20	
12"	DN300	B	55	75	160	3	260	24	200	22.5°	8-Φ19	16	10	43	F20	
14"	DN350	B	70	92	200	3	300	25	254	22.5°	8-Φ19	20	12	55	F25	
16"	DN400	B	70	92	200	3	300	25	254	22.5°	8-Φ19	20	12	55	F25	
18"	DN450	B	100	134	230	3	350	28	298	22.5°	8-Φ23	28	16	80	F30	
20"	DN500	B	100	134	230	3	350	28	298	22.5°	8-Φ23	28	16	80	F30	
24"	DN600	B	110	139	260	3	415	35	356	22.5°	8-Φ33	28	16	90	F35	
28"	DN700	B	110	147	260	3	415	35	356	22.5°	8-Φ33	28	16	90	F35	CL400 用
			110	151	300	3	475	35	406	22.5°	8-Φ39	28	16	90	F40	CL600 用
32"	DN800	B	130	183	300	3	475	40	406	22.5°	8-Φ39	32	18	108	F40	
36"	DN900	B	140	195	300	3	475	40	406	22.5°	8-Φ39	36	20	116	F40	
40"	DN1000	B	150	210	370	3	500	45	483	22.5°	12-Φ39	40	22	124	F48	

备注：上表为全通径球阀顶部连接尺寸，缩径球阀按缩后口径查询，例如8"x6"口径球阀，查询6”即可。
The above table shows the top connection size of full bore ball valve. The reduced bore ball valve shall be inquired according to the reduced bore. For example, 8 "X6" bore ball valve can be inquired as 6 ".

产品应用领域
APPLICATIONS

- 石油管线、井口装置、炼油厂
- 天然气长输管线、调压站、城市管网
- 煤化工行业：煤化工耐磨球阀、焦化工艺截断阀、浆料截断阀
- 城市供热供暖管网
- 生物制药：原材料输送、反应釜工艺截断阀
- 水电行业：水利输送、水利发电、火力发电

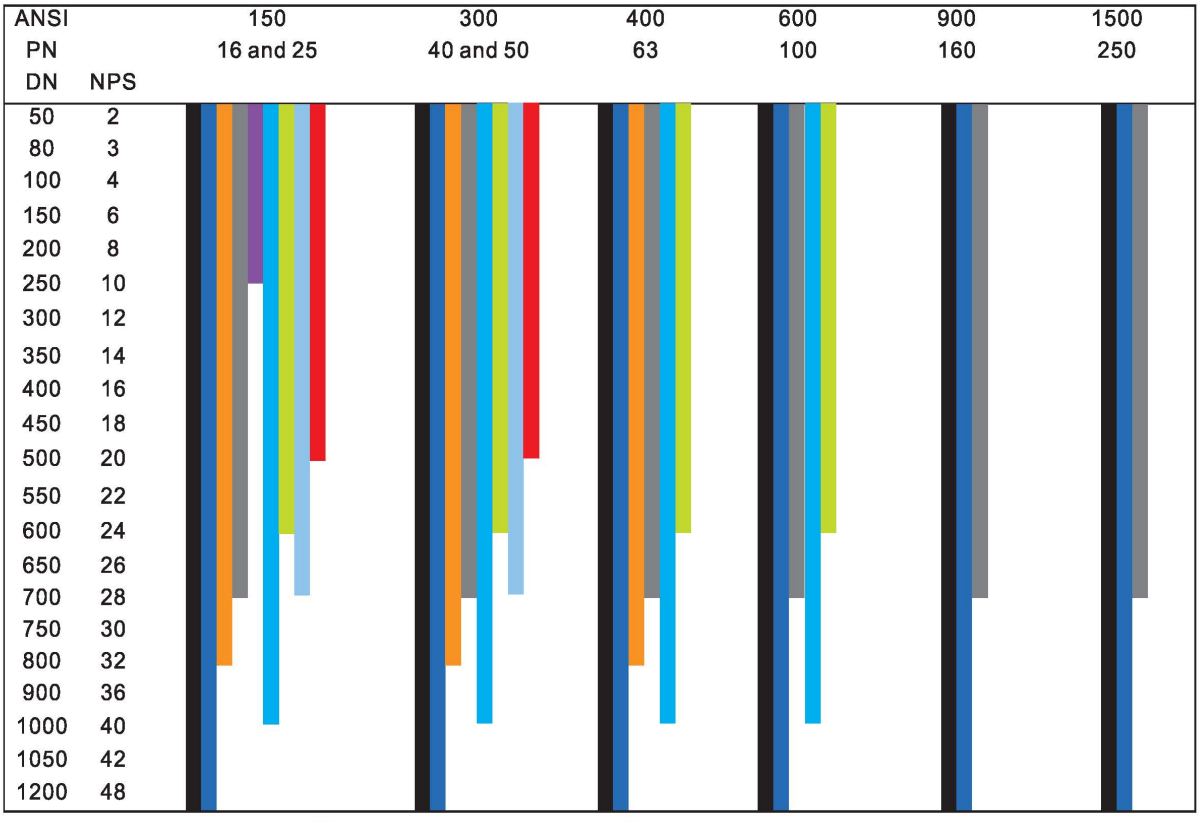
Oil and Gas Production

Pressure Control
Water Injection
Cavern Storage

Gas Transportation

Metering & Regulating Stations
Temperature, Pressure and Flow Control
Launcher/Receiver
Natural Gas Pipelines
Emergency Shut Down
Off-Shore Platforms
Compressor Stations

生产范围
RANGE OF PRODUCT



■锻钢全焊接球阀(Full-welded ball valve) ■锻钢分体式球阀(Splity body ball valve) ■燃气直埋型球阀(Under-ground ball valve) ■金属硬密封球阀(Metal to metal ball valve)
■PE钢塑复合型球阀(PE ball valve) ■铸钢球阀(Casting steel ball valve) ■清管阀(Pigging valve) ■三通\四通阀(3/4 Way ball valve) ■V型球阀(V-type ball valve)

主导产品
LEADING PRODUCTS

ZSHV
轴流式止回阀

WBV
锻钢全焊接球阀

ZGWBV
直埋式全焊接球阀

ZGMBV
城市燃气直埋球阀

PE
钢制PE球阀

FBV
锻钢分体式球阀

QBV
一体式法兰球阀

CBV
铸钢球阀

GDQ
轨道球阀

PGV
清管阀

FSV
三/四通阀

SDBV
水电球阀

应用标准
APPLICABLE STANDARDS

公称压力	PN16～420、Class150～2500
公称口径	DN15～1200、NPS1/2～48
适用温度	-196℃～650℃
驱动方式	手动、气动、电动、气液联动
设计制造	API 6D 管线阀门
	API 608 法兰、螺纹和焊接连接的金属球阀
	ASME B16.34 法兰、螺纹和焊接连接的阀门
	ANSI C507 6英寸至48英寸球阀
	BSS SP-72 法兰和对焊连接的一般用球阀
	BS 5351 石油、石化及相关工业用钢制球阀
	BS 6364 低温阀门
	GB/T 12237 通用阀门法兰和对焊连接钢制球阀
	JB/T 7745 管线球阀
连接端	ASME B16.5 管道法兰和法兰管件
	ASME B16.47 大直径钢制法兰
	ASME B31.8 液态烃和其他液体管线输送系统
	ASME B16.25 对焊端
	ASME B16.11 承插焊和螺纹连接的锻造管件
	API 605 大直径碳钢法兰
	MSS SP-44 钢制管道法兰
	GB/T 9113.1 整体钢制管法兰
	GB/T 9115.1 对焊钢制管法兰
	GB/T 12224 钢制阀门一般要求
	HG 20592～20635 钢制管法兰
	HG/T 20615-2009 钢制管法兰
	JB/T 74～90 钢制法兰
结构长度	ASME B16.10 阀门的结构长度
	GB/T 12221 金属阀门结构长度
	GB/T 15118.1 阀门的结构长度 对焊连接阀门
	ISO 5752 法兰连接金属阀门结构长度
	BS 558 法兰连接管道系统用金属阀门结构长度
	BS 12982 对焊端阀门的结构长度
试验检验	API 6D 管线阀门
	API 598 阀门的检查与试验
	API 607 旋转1/4周软密封阀座阀门的耐火试验
	API 6FA 阀门耐火试验
	GB/T13927 通用阀门压力试验
	JB/T 9092 阀门的检验与试验
	JB/T 6899 阀门的耐火试验
	MSS SP-82 阀门压力试验方法
	MSS SP-61 钢阀门的压力试验

质量控制 Quality control

除非另有要求，自贡自高球阀将按工厂工艺进行严格的质量控制和检测。主要包括：

●主要零件按相应的材料规范要求进行化学成份和机械性能试验

●按ANSIB16.34附件E对焊端进行超探检测

●体环焊缝，按ASMEVIII标准进行超探验收

●按API 6D（见下）进行压力试验

Unless otherwise requested, Zigong ZIGAO ball valves are commonly subjected to quality control testing according to in-houseproce-dures including:

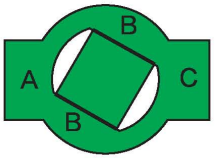
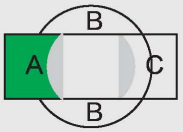
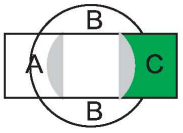
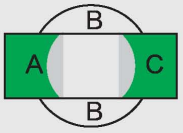
●Chemical analysis and testing of the mechanical properties of materials for pressure containing parts and main comp-onents according to the applicable materials specifications.

●Visual examination of all valve components.Ultrasonic examination of body welding ends according to ANSI B16.34, Annex E.

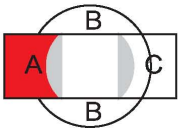
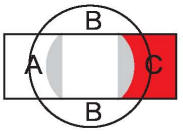
●Ultrasonic examination of circular body welds according to ASME VIII, Division 1.Acceptance criteria as per Appendix 12.

● Pressure testing of assembled valves in compliance with APISpec 6D(See below).

液压试验 HYDROSTATIC SEAL TEST AP16D 10.3and10.4

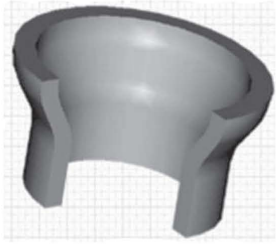
Sequece图列		Pressure压力		持续时间Duration(min)		描述Description
SHELL TEST 壳体测试		A	1.5xPN	6"~10"	5	1.阀门处于半开状态 2.加压至1.5倍PN 3.减少50%PN 4.重新设置压力到1.5倍PN 5.在试验期间，让其稳定，保持在该压力 1.valve in partial open 2.set the pressure to 150% PN 3.reduce the pressure to 50%PN 4.reset the pressure to 150%PN 5.hold the pressure for the duration of testing
		B	1.5xPN	12"~18"	15	
		C	1.5xPN	20"~60"	30	
SEAT TEST 密封测试		A	1.1xPN	5		Seat hydro seal test at A end toawrds body B 阀座水密封测试从A端向B端加压。
		B	Atmospheric大气			
		C	Atmospheric大气			
		A	Atmospheric大气	5		Seat hydro seal test at C end toawrds body B 阀座水密封测试从C端向B端加压。
		B	Atmospheric大气			
		C	1.1xPN			
		A	1.1xPN	5		Seat hydro seal test for both A and C DBB. 阀座水密封测试对A端和C端同时加压。DBB功能。
		B	Atmospheric大气			
		C	1.1xPN			

气密试验 AIR SEAL TEST AP16D 10.4

SEAT TEST		A	Atmospheric大气	5	Seat hydro seal test at A end toawrds body B 阀座气密封试验从A端向B端加压
		B	Atmospheric大气		
		C	80PSIG(5.5bar)		
		A	80PSIG(5.5bar)	5	Seat hydro seal test at C end toawrds body B 阀座气密封试验从C端向B端加压
		B	80PSIG(5.5bar)		
		C	Atmospheric大气		

PN=Nominal Pressure Green=Uquid RED=Air
PN=阀门选型压力 绿色=液体 红色=气体

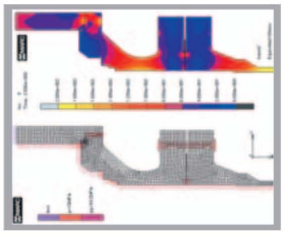
锻钢结构 Forging steel structure



紧凑的阀体设计 Compact body structure

阀体采用高质量的锻造材料，阀体和左右体整体锻造成型，阀门的结构更加紧凑，重量更轻。

The body selects high quality forged material,the body and left body adopts the forged forming,so the valve structure is more compacter,lighter.

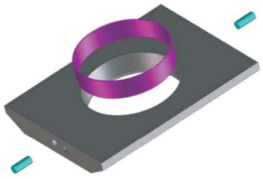


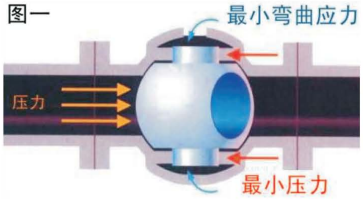
锻造结构 Forged struction

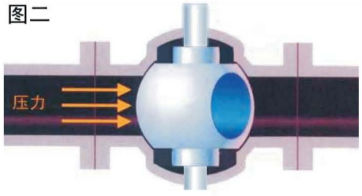
自高阀门阀体采用锻钢材料，充分保证与相应管道、管件之间的适配性与可焊性，在最高额定工作压力下能保证其有足够的强度和刚度，避免了铸件缩孔、缩松等潜在缺陷造成的阀门壳体泄漏，阀门为全焊接球阀，无外漏点，并经过3D有限元分析，具有足够强度，可完全杜绝阀体的泄漏，并足以承受管道的应力。

ZIGAO ball valve selects forged material,itavoids outside leakage of the valve by the material casting.The forged material can show it high-performance.

支承板\支承柱结构 Fixed plates or trunnion structure







球体顶部和底部通过上下支承板或阀杆和支承柱支撑，将球体精确地固定在球阀的中心，这样能实现完全的密封和精确的动作。采用支承板固定时介质作用在球体上的力通过支承板被分担到左右阀体上，使阀杆不承受介质力产生的弯矩，而只是在开关球阀时转动球体所需扭矩球体的轴向载荷经较大的自润滑滑动轴承传递给阀体，因而耐磨损，且操作灵活，扭矩低。

The top and bottom of the ball is supported by upper and lower fixed plates or stem and trunion,and the ball is accuratelyplaced in the center of the ball valve to achieve complete seals and precise movements.When plate adopted , the forceexerted by the medium to the ball is distributed via the plate to the left and right bodies,so that the stem does not bear theblending moment from the medium,but only the torque from the ball rotation during driving the valve.The axial load of ballis transmitted to body by means of two large self lubricated bearings,resulting in wear resistance,flexibility and low torque.

阀杆结构 Stem structure

阀杆密封 STEM SEAL

阀杆密封通过上阀盖中的三层密封圈(两层O型圈+一层填料)实现密封,密封圈及填料可实现带压在线更换。

Stem seal integrity is achieved by the use of three orings(or two o-rings and a graphite gasket)Upper o-ring(graphite gasket) can be replaced with the valve in line and under pressure.

防爆喷射阀杆 ANTI-BLOWOUT STEM

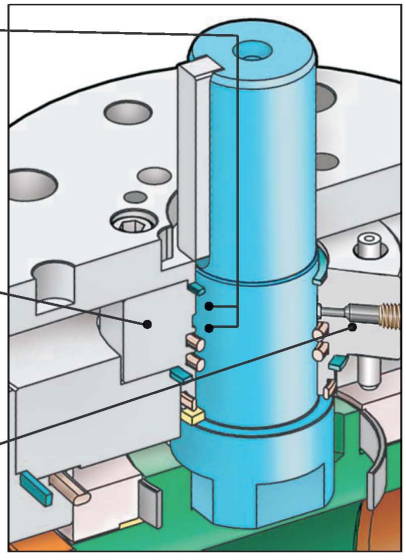
阀杆头部设计为带凸台的结构,和阀盖顶部之间留有间隙,保证阀杆受到的压力抵消在阀体平台上。

The stem head is designed to convex form.When the cavity pressure increase abnormally.

阀杆注脂(选配) SEAT INJECTION

6"及以上口径球阀可选配阀杆注脂功能:阀杆出现泄漏时,可注入密封脂用于紧急密封。

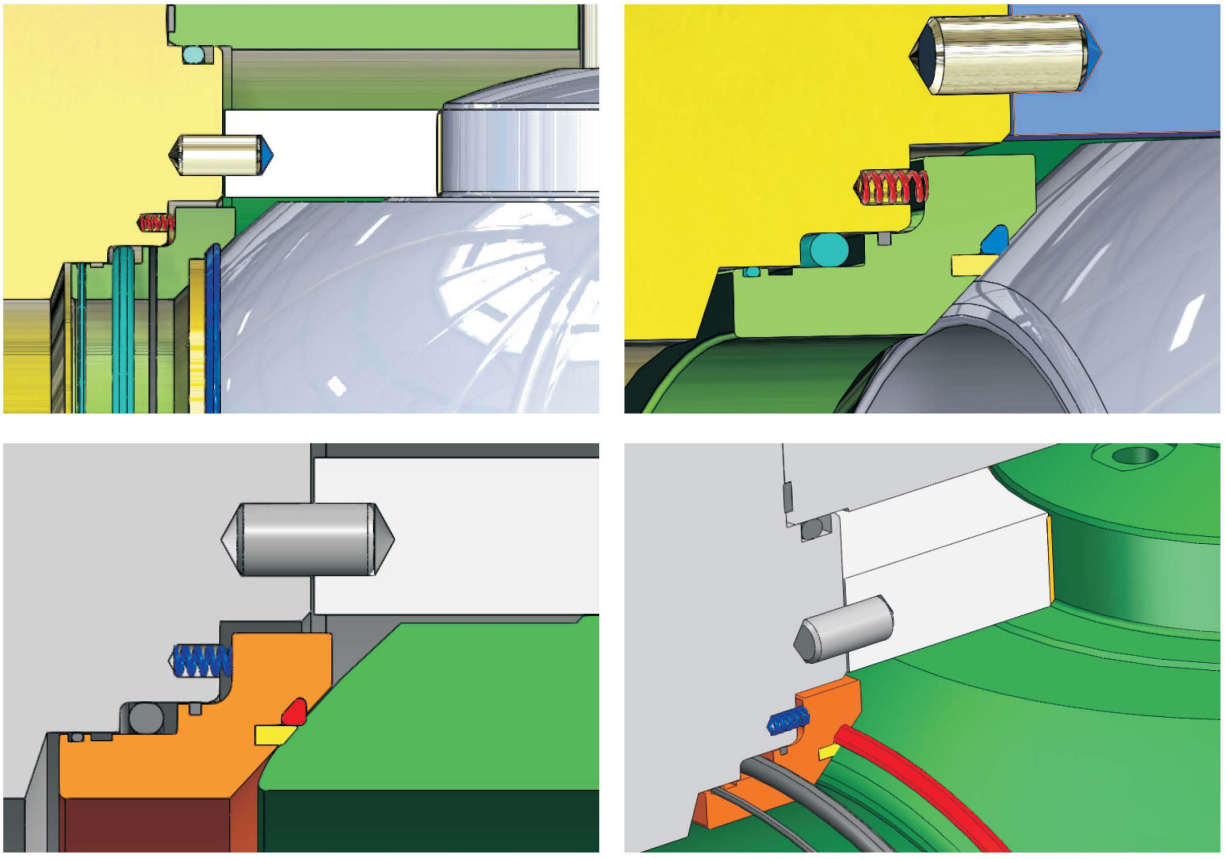
The valve is supplied seat injection for 6" and lager.



阀座结构 Seat structure

自高阀门采用弹性加载阀座结构，阀座密封由软密封材料与金属支承圈组合而成，阀座支承圈是轴向浮动的：低压时，阀座通过弹簧预压实现低压密封;当管道介质压力升高时，利用阀座活塞效应，依靠介质自身的压力实现高压密封。该结构可借助金属对金属的辅助密封实现失火状态下的密封。

ZIGAO valve put to use the spring-loaded seat structure,it's formed by soft sealing material and metal retainer. The retainer floats axially.Low pressure sealing of valve is reached by pre-pressure of spring,The high pressure sealing is reached through the piston effect, by the pressure of transmitter substance.when under firecondition,it be sealded by the metal to metal assist structure.

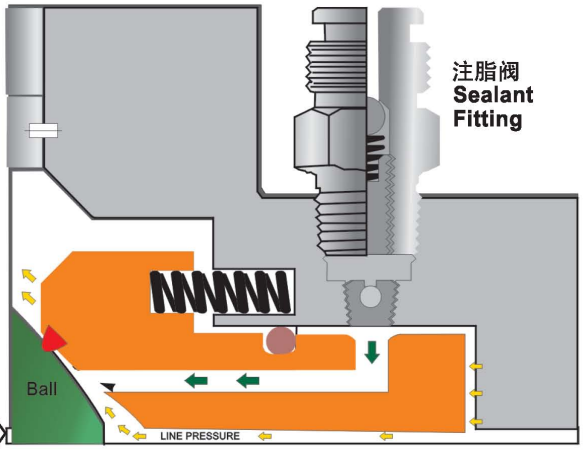


此类阀座结构仅适用于口径≥2"的球阀.(The seat structure of ball valve for size 2" and larger only)

阀座紧急密封(选配) Emergency seat sealing

当阀座密封面有所损伤，影响到密封时，可通过注入密封脂用于紧急密封，这由支承圈和阀体上的注脂孔和槽组成，通过阀体上的单向止回阀注脂实现2次密封。该功能为选配功能，此功能进适用于球阀口径≥2"。

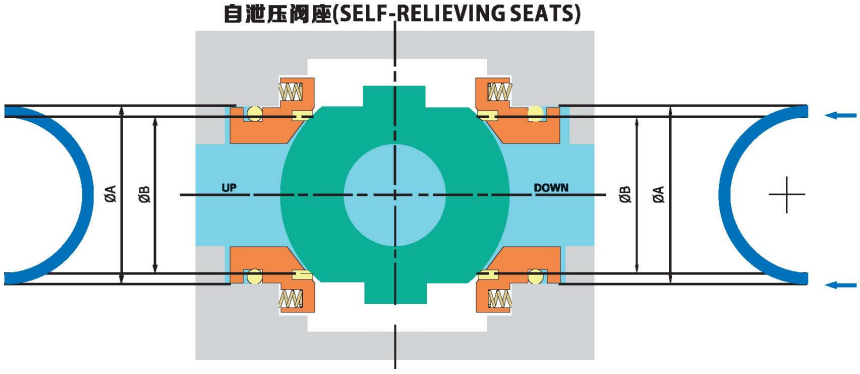
In the event when an excess of impurities in fluid may have a harmful effect on seat sealing ring,emergency sealing can be reached by the internal check valve.If need,it can be choosed for the ball valve ≥2".



阀座紧急密封
Emergency Seat Sealing

阀座单\双活塞效应 SPE/DPE

单活塞效应
SINGLE PISTON EFFECT
自泄压阀座(SELF-RELIEVING SEATS)

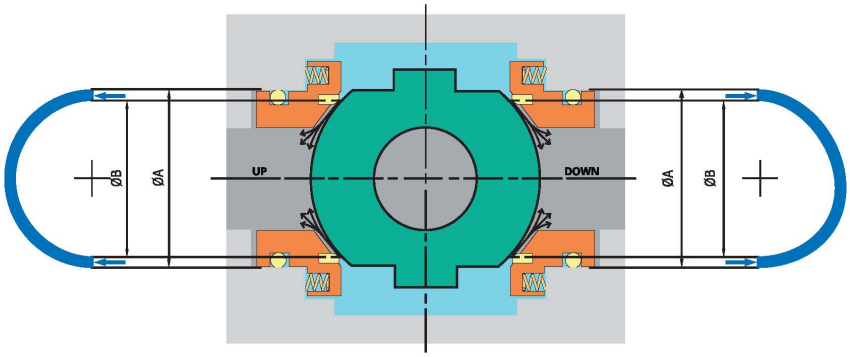


管道上游或下游带压产生的推力将阀座推向球体并紧密贴合，形成密封。

The pressure from up and down make a thrust pushes the seat to the ball.

上下游阀座均为单活塞阀座时上游密封，下游自泄压。当阀处于全开或全关时，中腔升压后将自动泄放，也被称为自泄压阀座。

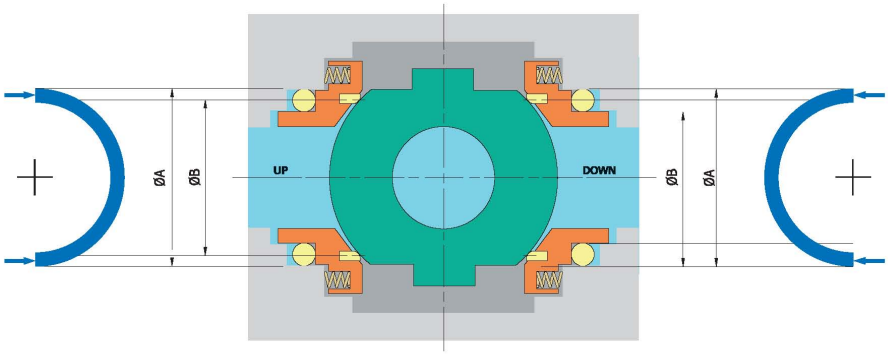
If both up and down seats are single piston effect that the up seat is sealed and the down seat is self-relieving.



阀腔中部进压时产生的推力将阀座推离球体，排泄压力。

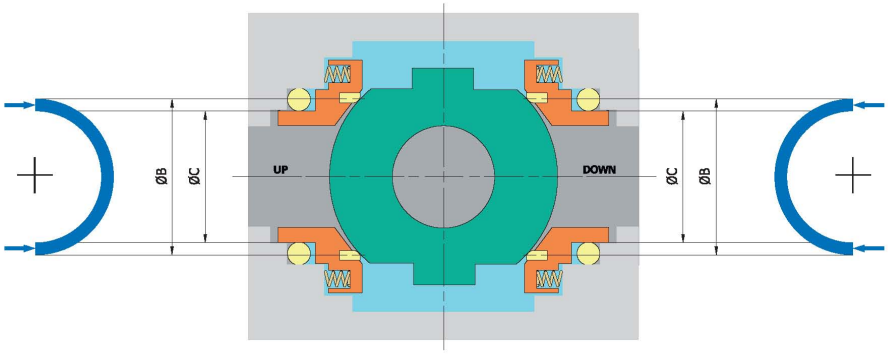
The pressure from the body cavity make a thrust pushes the seat to the ball.

双活塞效应
DOUBLE PISTON EFFECT



管道上游或下游带压产生的推力以及中腔带压产生的推力都将阀座推向球体并紧密贴合，形成密封。

The pressure from up and down or in the body,make a thrust pushes the seat to the ball.



上下游阀座均为双活塞阀座时上下游均可密封。可安装放空阀对中腔压力进行排泄。为了实现上下游同时密封又能在中腔超压时实现管道内部泄压，则可采用上游单活塞，下游双活塞密封结，此类结构有安装方向限制。

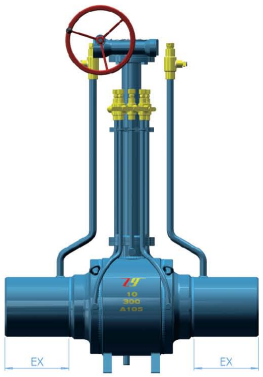
If both up and down seats are double piston effects that all of the seats can seal,and it can be relieved by vent valve.In order to realize the up and down sealing and release the pressure in the pipe,the up sealing must be the single piston and the down sealing must be the double piston,the structure have the right direction.

选择特点 Optionals

加长阀杆 EXTENSION STEM

对于安装在地下的阀门，可根据用户需要使用加长杆，加长长度由用户指定；排污阀、放空阀、注脂阀等附属管件均引至阀顶部，便于操作。阀门加高的高度有不同的描述，在订货时须确认清楚。

For the underground installed valve,the extension is specified by the customer if need, And for the conbenience of operation, the drain plug,sealant injection,vent valve are all be extended to the top of valve.The extension of valve is described in each way,it must be check before ordering.



连接配管 TRANSITION PUPS

端部为对焊连接形式的阀门，考虑到现场焊接的可操作性，通常在阀门与管道之间连接一段过渡管，其材质，尺寸及长度符合用户及管线要求，并确保现场焊接时不会影响到阀门密封。

The welded ball valve always insert the transition pups between the valve and pipeline to make sure that welding in the field will not be harmed the valve seal.The transition length is to be specified by the customer,including wall thickness and material.

防静电设计 ANTISTATIC DESIGN

所有内部金属件与球阀阀体均采用导体连接，可安全导出静电,符合BS5351的要求。

All internal metal components are conductively connected with ball valve body.The design is according to BS5351.

防火设计 FIREPROOF DESIGN

当非金属材料制作的阀座密封圈、O型圈，阀杆O型圈在高温下损坏以后，可借助特别设计的金属对金属的辅助密封结构或柔性石墨结构，有效的控制阀门的外漏和内漏。防火结构符合API607、API 6FA、BS6755及JB/T 6899等标准规范。

When the seat ring and stem O-ring is damaged in high temperature.It can control the outside and inside leakage effectively.Fireproof structure is based on API607、API 6FA、BS6755及JB/T 6899.

各种操作方式 VARIOUS DRVING TYPES

自高可提供各种类型的阀门执行机构：手动、气动、电动、液动、气液联动。具体型号根据阀门力矩选型。

Zigao can offer all the type of actuators and manufactures,manual,electrical,pneumatic and pneumatic-hydraulic.


Levers
手柄操作


Gearboxes
蜗轮操作器


Pneumatic actuators
气动执行器


Electric actuators
电动执行器


Gas over Oil actuators
气液联动执行器

WBV
锻钢全焊接球阀
FULLY WELDED BALL VALVE

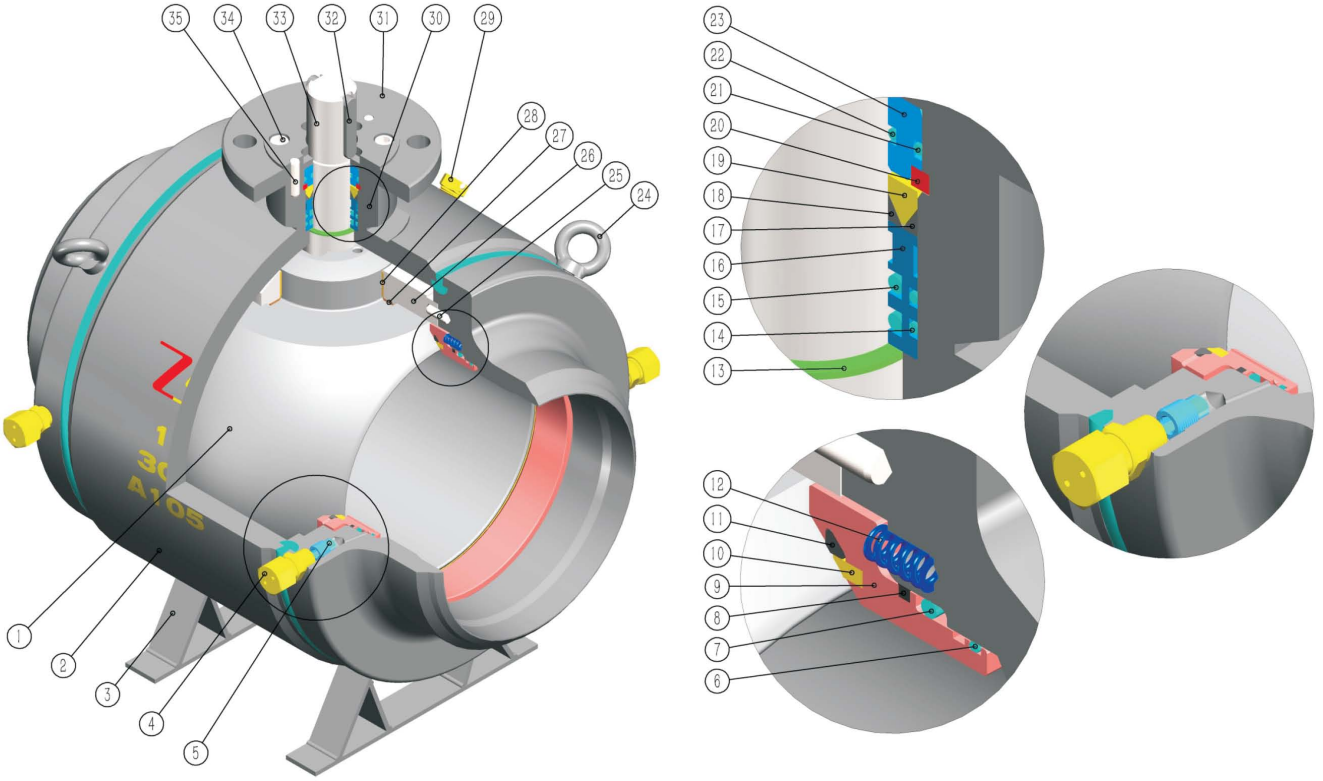
阀门类型——口径——压力——端部连接——操作方式

举例：

WBV-DN300-PN16-WE-3

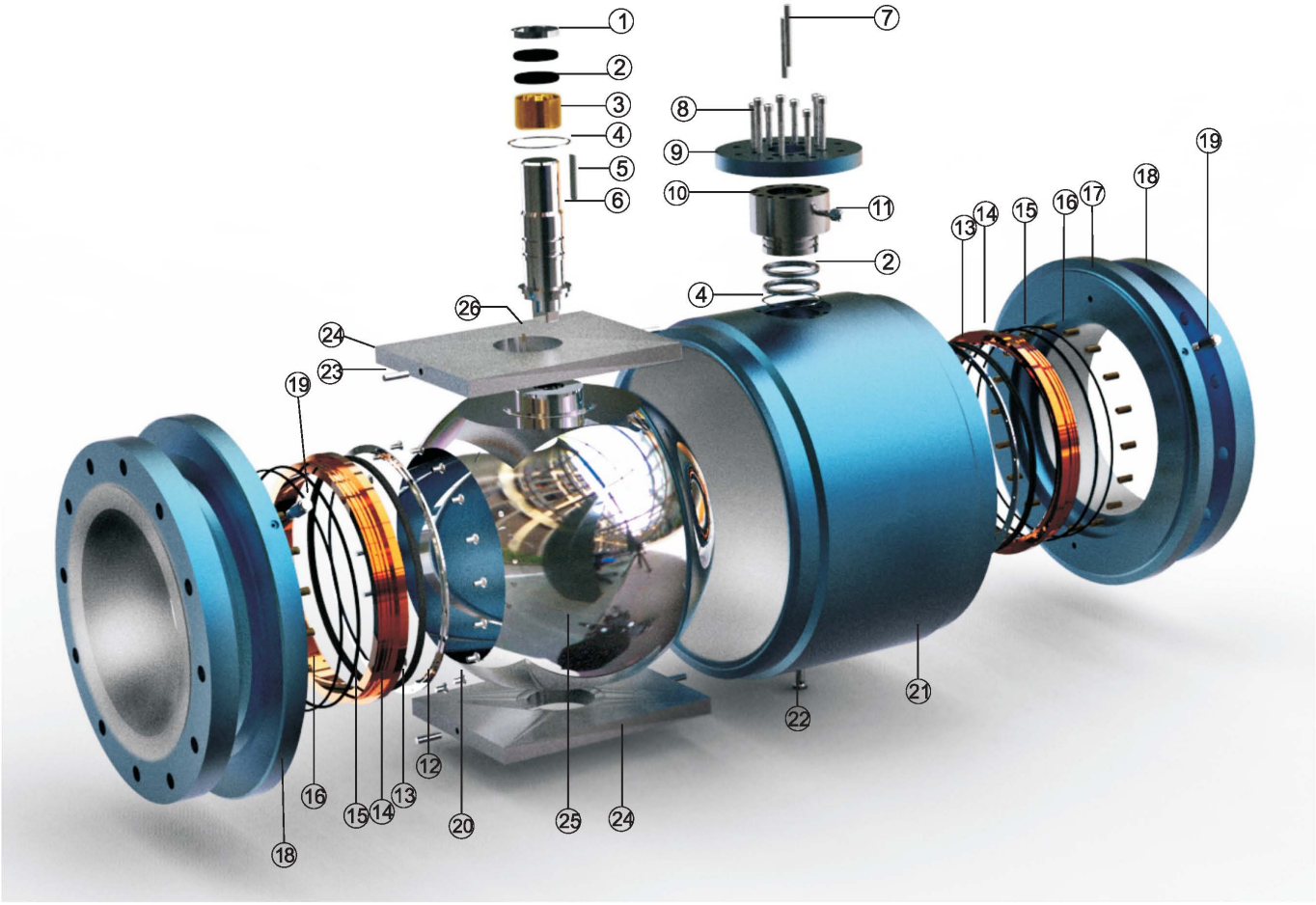
阀门类型：WBV—锻钢全焊接球阀；DN300—口径；PN16—压力；WE—焊接；3—蜗轮操作

零配件装配图 Assembly drawing



1. 球体Ball
2. 阀体Body
3. 支架Yoke
4. 注脂阀Seat injection valve
5. 单向阀Check valve
6. O型圈O-ring
7. O型圈O-ring
8. 石墨防火圈Graphite fire prevention ring
9. 阀座支承圈Seat support ring
10. 阀座圈Seat ring
11. 阀座Seat
12. 弹簧Spring
13. 止推垫片Thrust bearing
14. O型圈O-ring
15. O型圈O-ring
16. 密封环Sealing ring
17. 石墨填料Graphite packing
18. 石墨填料Graphite packing
19. 垫环Backing rings
20. 四开环Four open loop
21. O型圈O-ring
22. O型圈O-ring
23. 压盖Gland
24. 吊耳Lifting lug
25. 圆柱销Pin
26. 支座Ball support
27. 平面轴承Plane bearing
28. 滑动轴承Slide bearing
29. 放空阀Vent valve
30. 前盖Gover
31. 接盘Connecting flange
32. 平键Key
33. 阀杆Stem
34. 内六角螺钉Hexagon screw
35. 定位销Lock pin

零配件装配图 Assembly drawing



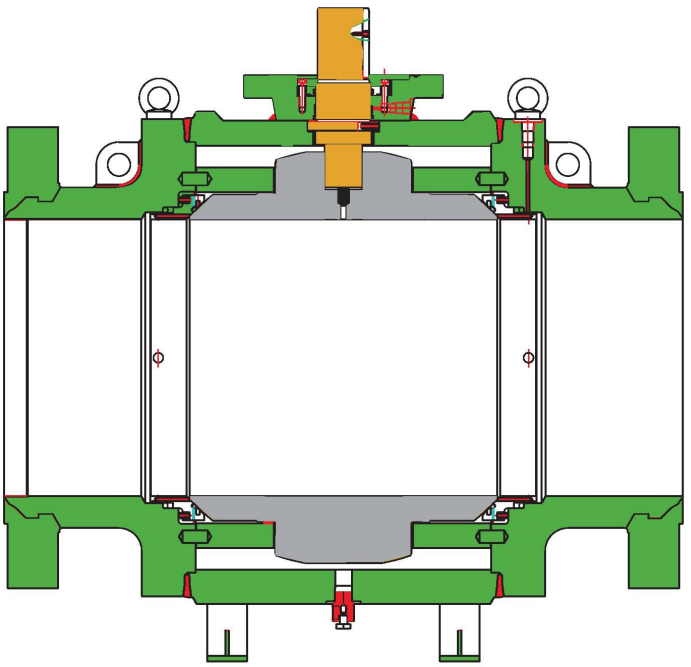
1. 阀杆填料Stem gasket
2. 阀杆O型圈Stem O-ring
3. 阀杆轴承Stem bearing
4. 止推轴承Thrust bearing
5. 销钉Pin
6. 阀杆Stem
7. 滑动轴承Alignment bearing
8. 压盖螺栓Cap screw
9. 限位块Adapter plate
10. 压盖Gland
11. 阀杆注脂阀Stem injection
12. 后阀座环Backup ring
13. 内嵌阀座Seat insert
14. 支撑圈Seat ring
15. 阀座O型圈Seat O-ring
16. 弹簧Spring
17. 焊缝线Seam line
18. 阀盖Cap
19. 阀座注脂Seat injection
20. 螺丝Screw
21. 阀体Body
22. 排污阀Drain plug
23. 定位销Block pin
24. 支撑板Trunnion block
25. 球体Ball
26. 防静电弹簧Antistatic spring

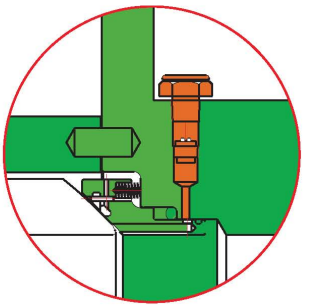
WBV型全焊式锻钢球阀 Fully welded body ball valve

- 公称通径（DN）：1/2"（15mm）~48"（1200mm）
- 压力等级（CLASS）：ANSI 150~2500（PN10~PN420）
- 流量孔：全通径&缩径（文丘里型）
- 连接端：对焊，法兰，对焊&法兰

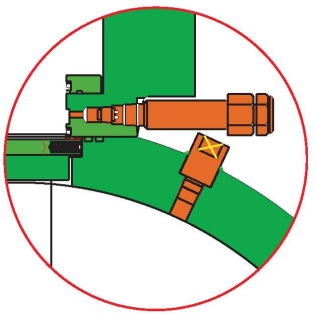
- Norminal Size(DN):1/2inches(15mm)up to 48 " inches(1200mm)
- Pressure Class(CLASS):ANSI 150 up to ANSI 2500(PN10~PN420)
- Bore:full&reduced(Venturi type)
- Ends:butt weld,flanged,butt weld and flanged

装配图 Assenbly drawing



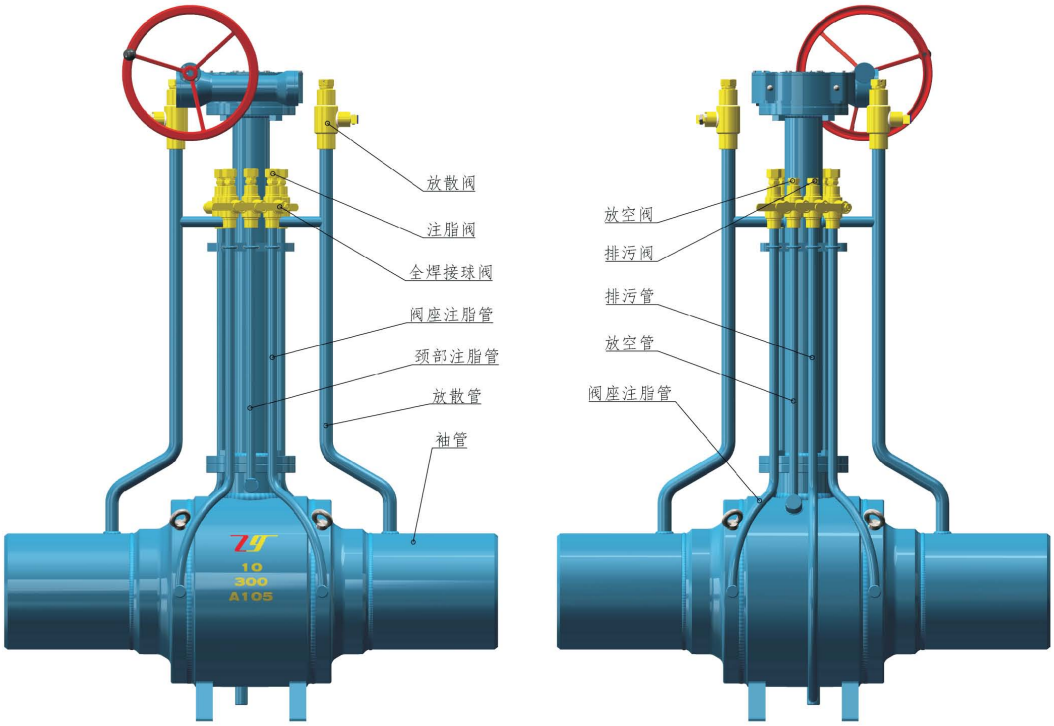


Seat Sealant Injection



Stem Sealant Injection

引出附件结构特点 Structural features of lead out accessories



放散阀：放散阀是管道输送中的一种安全装置，当管道内部压力超过某一特定值时，可以通过放散阀排出管道内的一部分介质，从而达到降低管道内部压力的效果。

Relief valve:Relief valve is a safety device of transported in the pipeline, when the pipeline internal pressure exceeds a certain value, can discharge pipe of a portion of the medium through the valve, so as to reduce the pipeline internal pressure effect.

放空阀：放空阀主要目的是排出阀门中腔的介质，当需要拆卸阀门或者检查时，可通过放空阀对中腔进行放空，从而安全的进入下一步操作。

Vent valve:Vent valve is mainly to discharge valve in the cavity of the medium, when the need to remove the valve or check, can through the cavity of the vent valve vent, thus safe to enter the next step.

排污阀：排污阀的主要目的是排出阀门内部的脏物，当需要清洗阀门内腔时，打开排污阀，通过介质自身的压力即可实现排污。

Drain valve:The main purpose of the drain valve is inside the dirt discharge valve, when the need to clean the valve cavity, the drainage valve is opened, the sewage through the pressure medium itself.

注脂阀：当阀门出现泄漏时，即可通过注脂阀向阀门内部注入密封脂，实现紧急密封；注脂阀也可用于对阀门注入润滑脂以起润滑作用。

Grease valve:When the leakage occurs when the valve sealing grease, can be injected to the internal valve grease through the valve, to achieve the emergency seal; fat injection valve can also be used for the valve into the grease to lubricate.

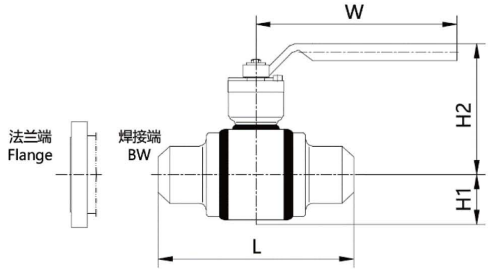
主要部件材料 Main component materials

部件名称 Part name	无腐蚀工况 Non-corrosive media conditions		酸性腐蚀工况 Acid medium conditions	
	常温(-29C°~120C°)	低温(-46C°~120C°)	常温(-29C°~120C°)	低温(-46C°~120C°)
阀体 Body	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)
左右体 Bonnet	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)
球体 Ball	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)
阀座支承圈 Seat ring	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)
阀座 seat	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK
阀杆 Stem	AISI 4140	AISI 4140	AISI 4140 17-4PH FXM-19	AISI 4140 17-4PH FXM-19
弹簧 Spring	INCONE-X750	INCONE-X750	INCONE-X750	INCONE-X750
螺栓 Bolt	ASTM A193 B7	ASTM A320 L7	ASTM A193 B7M	ASTM A320 L7M
螺母 Nut	ASTM A194 2H	ASTM A194 7	ASTM A194 2HM	ASTM A194 7M

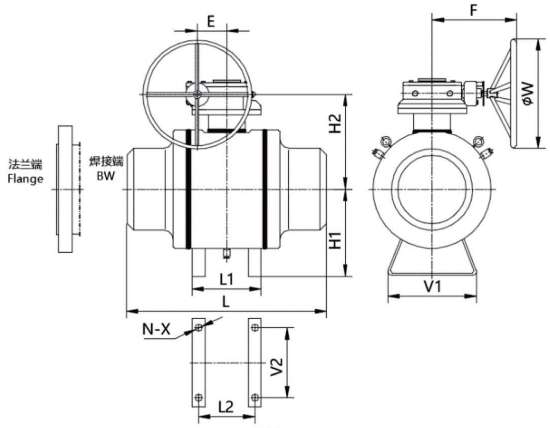
注：表中阀门主要零部件的常规材料配置，根据实际工况可能会有所调整，特别如硫化氢等危险工况，需明确组份含量进行针对性选材，详询自高阀门技术部。

Note: the conventional material configuration of the main parts of the valve in the table may be adjusted according to the actual working conditions, especially for the hazardous working conditions such as hydrogen sulfide. It is necessary to make clear the component content for targeted selection. Please refer to the zigao valve technology department for details.

外形尺寸图 Outline dimension drawing



■ A型



■ B型

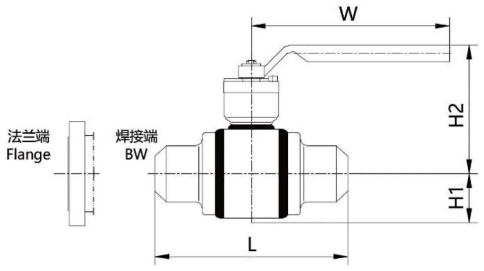
适用压力等级：ASME CL150 PN16、PN20

尺寸单位:mm

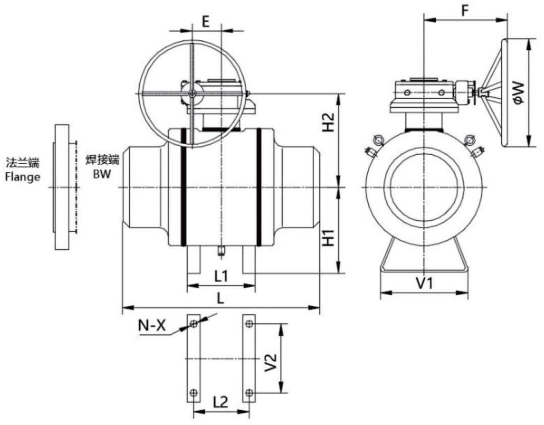
公称直径		类型	L			H1		H2	ΦW (W)	E	F	L1	V1	L2	V2	N-X	重量 Kg
NPS	DN		RF	BW	RTJ	标准	加高										
2"	50	A	178	216	191	68	/	165	300	/	/	/	/	/	/	/	13
3"x2"	80x50	A	203	283	216	68	/	165	300	/	/	/	/	/	/	/	15
$2^1/_2$"	65	A	191	241	203	78	/	177	350	/	/	/	/	/	/	/	23
3"	80	A	203	283	216	83	/	209	400	/	/	/	/	/	/	/	32
4"x3	100x80	A	229	305	241	83	/	209	400	/	/	/	/	/	/	/	37
4"	100	A	229	305	241	106	/	260	400	/	/	/	/	/	/	/	54
6"x4"	150x100	A	394	457	406	106	/	260	400	/	/	/	/	/	/	/	62
6"	150	B	394	457	406	245	305	255	300	62	214	257	285	222	180	4-Φ16	95
8"x6"	200x150	B	457	521	470	245	305	255	300	62	214	257	285	222	180	4-Φ16	109
8"	200	B	457	521	470	298	350	307	350	79	229	220	335	185	220	4-Φ16	188
10"x8"	250x200	B	533	559	546	298	350	307	350	79	229	220	335	185	220	4-Φ16	216
10"	250	B	533	559	546	325	385	352	400	89	244	260	400	225	280	4-Φ18	350
12"x10"	300x250	B	610	635	622	325	385	352	400	89	244	260	400	225	280	4-Φ18	403
14"x10"	350x250	B	686	762	699	325	385	352	400	89	244	260	400	225	280	4-Φ18	511
12"	300	B	610	635	622	365	425	402	600	112	303	310	460	275	320	4-Φ18	445
16"x12"	400x300	B	762	838	775	365	425	402	600	112	303	310	460	275	320	4-Φ18	534
14"	350	B	686	762	699	388	448	435	600	78	390	360	480	325	340	4-Φ18	756
18"x14"	450x350	B	864	914	876	388	448	435	600	78	390	360	480	325	340	4-Φ18	908
16"	400	B	762	838	775	428	488	475	600	78	390	420	540	380	380	4-Φ18	910
20"x16"	500x400	B	914	991	927	428	488	475	600	78	390	420	540	380	380	4-Φ18	1092
18"	450	B	864	914	876	470	530	540	600	67	433	500	588	460	430	4-Φ18	1329
22"x18"	550x450	B	○	○	○	470	530	540	600	67	433	500	588	460	430	4-Φ18	1595
20"	500	B	914	991	927	510	570	577	600	67	433	540	677	500	480	4-Φ18	1850
24"x20"	600x500	B	1067	1143	1080	510	570	577	600	67	433	540	677	500	480	4-Φ18	2128
24"	600	B	1067	1143	1080	605	665	679	600	182	488	620	785	580	560	4-Φ18	2918
28"x24"	700x600	B	1245	1346	1372	605	665	679	600	182	488	620	785	580	560	4-Φ18	3356
28"	700	B	1245	1346	○	685	745	769	600	200	498	680	878	630	640	4-Φ18	4779
32"x28"	800x700	B	1372	1524	○	685	745	769	600	200	498	680	878	630	640	4-Φ18	5496
32"	800	B	1372	1524	○	780	850	960	700	220	608	750	1000	670	940	4-Φ23	/
36"x32"	900x800	B	1524	1727	○	780	850	960	700	220	608	750	1000	670	940	4-Φ23	/
36"	900	B	1524	1727	○	880	940	1040	800	275	620	820	1100	740	1040	4-Φ23	/
40"x36"	1000x900	B	1753	1900	○	960	1050	1150	800	275	620	820	1100	740	1040	4-Φ23	/
40"	1000	B	1753	1900	○	960	1050	1150	800	275	620	1000	1200	920	1100	4-Φ23	/

注：表中带“○”尺寸与用户共同协商确定。

Note: the dimension with "○" in the table shall be determined through consultation with the user.



■ A型



■ B型

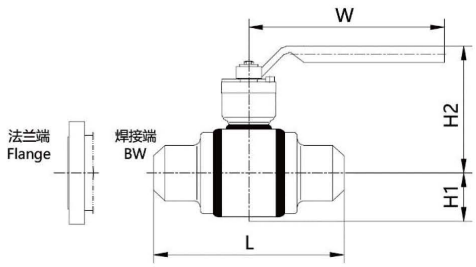
适用压力等级：ASME CL300 PN25、PN40

尺寸单位:mm

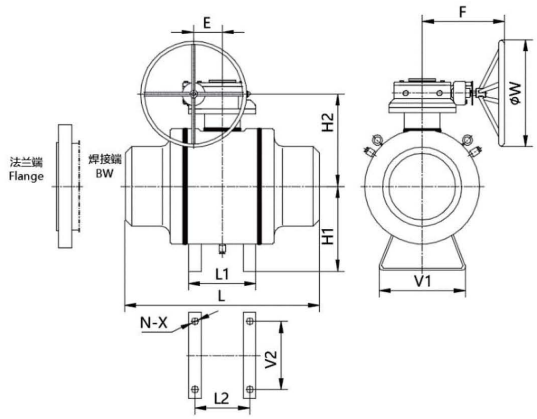
公称直径		类型	L			H1		H2	ΦW (W)	E	F	L1	V1	L2	V2	N-X	重量 Kg
NPS	DN		RF	BW	RTJ	标准	加高										
2"	50	A	216	216	232	68	/	165	300	/	/	/	/	/	/	/	13
3"x2"	80x50	A	283	283	298	68	/	165	300	/	/	/	/	/	/	/	15
$2^1/_2$"	65	A	241	241	257	78	/	177	350	/	/	/	/	/	/	/	23
3"	80	A	283	283	298	83	/	209	400	/	/	/	/	/	/	/	32
4"x3	100x80	A	305	305	321	83	/	209	400	/	/	/	/	/	/	/	37
4"	100	A	305	305	321	106	/	260	400	/	/	/	/	/	/	/	54
6"x4"	150x100	A	403	457	419	106	/	260	400	/	/	/	/	/	/	/	62
6"	150	B	403	457	419	245	305	270	350	79	229	257	285	222	180	4-Φ16	95
8"x6"	200x150	B	502	521	518	245	305	270	350	79	229	257	285	222	180	4-Φ16	109
8"	200	B	502	521	518	298	350	311	400	89	244	220	335	185	220	4-Φ16	188
10"x8"	250x200	B	568	559	584	298	350	311	400	89	244	220	335	185	220	4-Φ16	216
10"	250	B	568	559	584	325	385	357	400	112	303	260	400	225	280	4-Φ18	350
12"x10"	300x250	B	648	635	664	325	385	357	400	112	303	260	400	225	280	4-Φ18	403
14"x10"	350x250	B	762	762	778	325	385	357	400	112	303	260	400	225	280	4-Φ18	443
12"	300	B	648	635	664	365	425	402	600	112	303	310	460	275	320	4-Φ18	445
16"x12"	400x300	B	838	838	854	365	425	402	600	112	303	310	460	275	320	4-Φ18	534
14"	350	B	762	762	778	388	448	435	600	78	390	360	480	325	340	4-Φ18	756
18"x14"	450x350	B	914	914	930	388	448	435	600	78	390	360	480	325	340	4-Φ18	907
16"	400	B	838	838	854	428	488	475	600	78	390	420	540	380	380	4-Φ18	910
20"x16"	500x400	B	991	991	1010	428	488	475	600	78	390	420	540	380	380	4-Φ18	1092
18"	450	B	914	914	930	470	530	540	600	67	433	500	588	460	430	4-Φ18	1329
22"x18"	550x450	B	1092	1092	1114	470	530	540	600	67	433	500	588	460	430	4-Φ18	1594
20"	500	B	991	991	1010	510	570	577	600	67	433	540	677	500	480	4-Φ18	1850
24"x20"	600x500	B	1143	1143	1165	510	570	577	600	67	433	540	677	500	480	4-Φ18	2128
24"	600	B	1143	1143	1165	605	665	679	600	182	488	620	785	580	560	4-Φ18	2918
28"x24"	700x600	B	1346	1346	1372	605	665	679	600	182	488	620	785	580	560	4-Φ18	3356
28"	700	B	1245	1346	○	685	745	769	600	200	498	680	878	630	640	4-Φ18	4779
32"x28"	800x700	B	1372	1524	○	685	745	769	600	200	498	680	878	630	640	4-Φ18	5496
32"	800	B	1372	1524	○	780	850	960	700	220	608	750	1000	670	940	4-Φ23	/
36"x32"	900x800	B	1524	1727	○	780	850	960	700	220	608	750	1000	670	940	4-Φ23	/
36"	900	B	1524	1727	○	880	940	1040	800	275	620	820	1100	740	1040	4-Φ23	/
40"x36"	1000x900	B	1753	1900	○	960	1050	1150	800	275	620	820	1100	740	1040	4-Φ23	/
40"	1000	B	1753	1900	○	960	1050	1150	800	275	620	1000	1200	920	1100	4-Φ23	/

注：表中带“○”尺寸与用户共同协商确定。

Note: the dimension with "○" in the table shall be determined through consultation with the user.



■ A型



■ B型

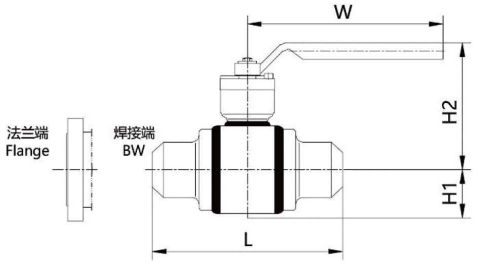
适用压力等级：ASME CL400 PN64

尺寸单位:mm

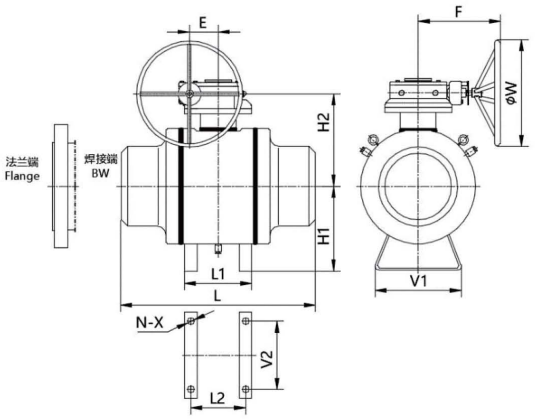
公称直径		类型	L			H1		H2	ΦW (W)	E	F	L1	V1	L2	V2	N-X	重量 Kg
NPS	DN		RF	BW	RTJ	标准	加高										
2"	50	A	292	292	295	68	/	163	350	/	/	/	/	/	/	/	15
3"x2"	80x50	A	356	356	359	68	/	163	350	/	/	/	/	/	/	/	17
$2^1/_2$"	65	A	330	330	333	78	/	177	400	/	/	/	/	/	/	/	26
3"	80	A	356	356	359	145	/	260	450	/	/	/	/	/	/	/	37
4"x3	100x80	A	406	406	410	145	/	260	450	/	/	/	/	/	/	/	43
4"	100	A	406	406	410	106	/	276	550	/	/	/	/	/	/	/	62
6"x4"	150x100	A	495	495	498	106	/	276	550	/	/	/	/	/	/	/	71
6"	150	B	495	495	498	250	310	271	350	79	229	265	285	230	180	4-Φ16	109
8"x6"	200x150	B	597	597	600	250	310	271	350	79	229	265	285	230	180	4-Φ16	125
8"	200	B	597	597	600	298	350	314	400	89	244	220	335	185	220	4-Φ16	216
10"x8"	250x200	B	673	673	676	298	350	314	400	89	244	220	335	185	220	4-Φ16	248
10"	250	B	673	673	676	330	390	364	400	112	303	260	400	225	280	4-Φ18	403
12"x10"	300x250	B	762	762	765	330	390	364	400	112	303	260	400	225	280	4-Φ18	463
14"x10"	350x250	B	826	826	829	330	390	364	400	112	303	260	400	225	280	4-Φ18	509
12"	300	B	762	762	765	375	435	411	600	61	378	310	460	275	320	4-Φ18	512
16"x12"	400x300	B	902	902	905	375	435	411	600	61	378	310	460	275	320	4-Φ18	614
14"	350	B	826	826	829	405	465	429	600	78	390	360	487	325	340	4-Φ18	869
18"x14"	450x350	B	978	978	981	405	465	429	600	78	390	360	487	325	340	4-Φ18	1042
16"	400	B	902	902	905	445	505	498	600	67	433	420	540	380	380	4-Φ18	1047
20"x16"	500x400	B	1054	1054	1060	445	505	498	600	67	433	420	540	380	380	4-Φ18	1256
18"	450	B	978	978	981	490	550	568	600	182	488	500	588	430	471	4-Φ18	1528
22"x18"	550x450	B	1143	1143	1153	490	550	568	600	182	488	500	588	430	471	4-Φ18	1833
20"	500	B	1054	1054	1060	535	595	609	600	182	488	540	677	500	480	4-Φ18	2128
24"x20"	600x500	B	1232	1232	1241	535	595	609	600	182	488	540	677	500	480	4-Φ18	2447
24"	600	B	1232	1232	1241	636	696	721	700	220	608	620	786	580	560	4-Φ18	3356
28"x24"	700x600	B	1397	1397	1410	636	696	721	700	220	608	620	786	580	560	4-Φ18	3859
28"	700	B	1397	1397	1410	720	780	772	700	220	608	680	878	630	640	4-Φ18	5496
32"x28"	800x700	B	1651	1651	1667	720	780	772	700	220	608	680	878	630	640	4-Φ18	6320
32"	800	B	1651	1651	1667	830	960	923	700	275	577	800	1000	740	740	4-Φ23	/
36"x32"	900x800	B	1880	1880	1895	830	960	923	700	275	577	800	1000	740	740	4-Φ23	/
36"	900	B	1880	1880	1895	910	1000	1050	700	275	577	820	1200	740	1040	4-Φ23	/
40"x36"	1000x900	B	1900	1900	○	910	1000	1050	700	275	577	820	1200	740	1040	4-Φ23	/
40"	1000	B	1900	1900	○	1020	1100	1200	700	275	577	1000	1200	920	1100	4-Φ23	/

注：表中带“○”尺寸与用户共同协商确定。

Note: the dimension with "○" in the table shall be determined through consultation with the user.



■ A型



■ B型

适用压力等级：ASME CL600 PN100

尺寸单位:mm

公称直径		类型	L			H1		H2	ΦW (W)	E	F	L1	V1	L2	V2	N-X	重量 Kg
NPS	DN		RF	BW	RTJ	标准	加高										
2"	50	A	292	292	295	68	/	163	350	/	/	/	/	/	/	/	15
3"x2"	80x50	A	356	356	359	68	/	163	350	/	/	/	/	/	/	/	17
$2^1/_2$"	65	A	330	330	333	78	/	177	400	/	/	/	/	/	/	/	26
3"	80	A	356	356	359	145	/	260	450	/	/	/	/	/	/	/	37
4"x3	100x80	A	432	432	435	145	/	260	450	/	/	/	/	/	/	/	46
4"	100	A	432	432	435	106	/	276	550	/	/	/	/	/	/	/	66
6"x4"	150x100	A	559	559	562	106	/	276	550	/	/	/	/	/	/	/	76
6"	150	B	559	559	562	250	310	275	400	89	244	265	285	230	180	4-Φ16	117
8"x6"	200x150	B	660	660	664	250	310	361	400	112	303	265	285	230	180	4-Φ16	134
8"	200	B	660	660	664	298	350	361	400	112	303	220	335	185	220	4-Φ16	231
10"x8"	250x200	B	787	787	791	298	350	361	400	112	303	220	335	185	220	4-Φ16	265
10"	250	B	787	787	791	330	390	364	400	112	303	260	400	225	280	4-Φ18	431
12"x10"	300x250	B	838	838	841	330	390	364	400	112	303	260	400	225	280	4-Φ18	495
14"x10"	350x250	B	889	889	892	330	390	364	400	112	303	260	400	225	280	4-Φ18	544
12"	300	B	838	838	841	375	435	411	600	61	378	310	460	275	320	4-Φ18	548
16"x12"	400x300	B	991	991	994	375	435	411	600	61	378	310	460	275	320	4-Φ18	657
14"	350	B	889	889	892	405	465	429	600	78	390	360	487	325	340	4-Φ18	930
18"x14"	450x350	B	1092	1092	1095	405	465	429	600	78	390	360	487	325	340	4-Φ18	1116
16"	400	B	991	991	994	445	505	498	600	67	433	420	540	380	380	4-Φ18	1120
20"x16"	500x400	B	1194	1194	1200	445	505	498	600	67	433	420	540	380	380	4-Φ18	1344
18"	450	B	1092	1092	1095	490	550	568	600	182	488	500	588	460	430	4-Φ18	1635
22"x18"	550x450	B	1295	1295	1305	490	550	568	600	182	488	500	588	460	430	4-Φ18	1962
20"	500	B	1194	1194	1200	535	595	609	600	182	488	540	677	500	480	4-Φ18	2277
24"x20"	600x500	B	1397	1397	1407	535	595	609	600	182	488	540	677	500	480	4-Φ18	2618
24"	600	B	1397	1397	1407	636	696	721	700	220	608	620	786	580	560	4-Φ18	3591
28"x24"	700x600	B	1549	1549	1562	636	696	721	700	220	608	620	786	580	560	4-Φ18	4129
28"	700	B	1549	1549	1562	720	780	838	700	275	577	680	878	630	640	4-Φ18	5881
32"x28"	800x700	B	1778	1778	1794	720	780	838	700	275	577	680	878	630	640	4-Φ18	6762
32"	800	B	1778	1778	1794	830	960	923	700	275	577	800	1000	740	740	4-Φ23	/
36"x32"	900x800	B	2083	2083	2099	830	960	923	700	275	577	800	1000	740	740	4-Φ23	/
36"	900	B	2083	2083	2099	910	1000	1050	800	315	730	820	1200	740	1040	4-Φ23	/
40"x36"	1000x900	B	1900	1900	○	910	1000	1050	800	315	730	820	1200	740	1040	4-Φ23	/
40"	1000	B	1900	1900	○	1020	1100	1200	800	315	730	1000	1200	920	1100	4-Φ23	/

注：表中带“○”尺寸与用户共同协商确定。口径>40"，压力等级>600LB的球阀尺寸等技术参数详询自高技术部。

Note: the dimension with "○" in the table shall be determined through consultation with the user.

ZGWBV
直埋式全焊接球阀
UNDER-GROUND BALL VALVE

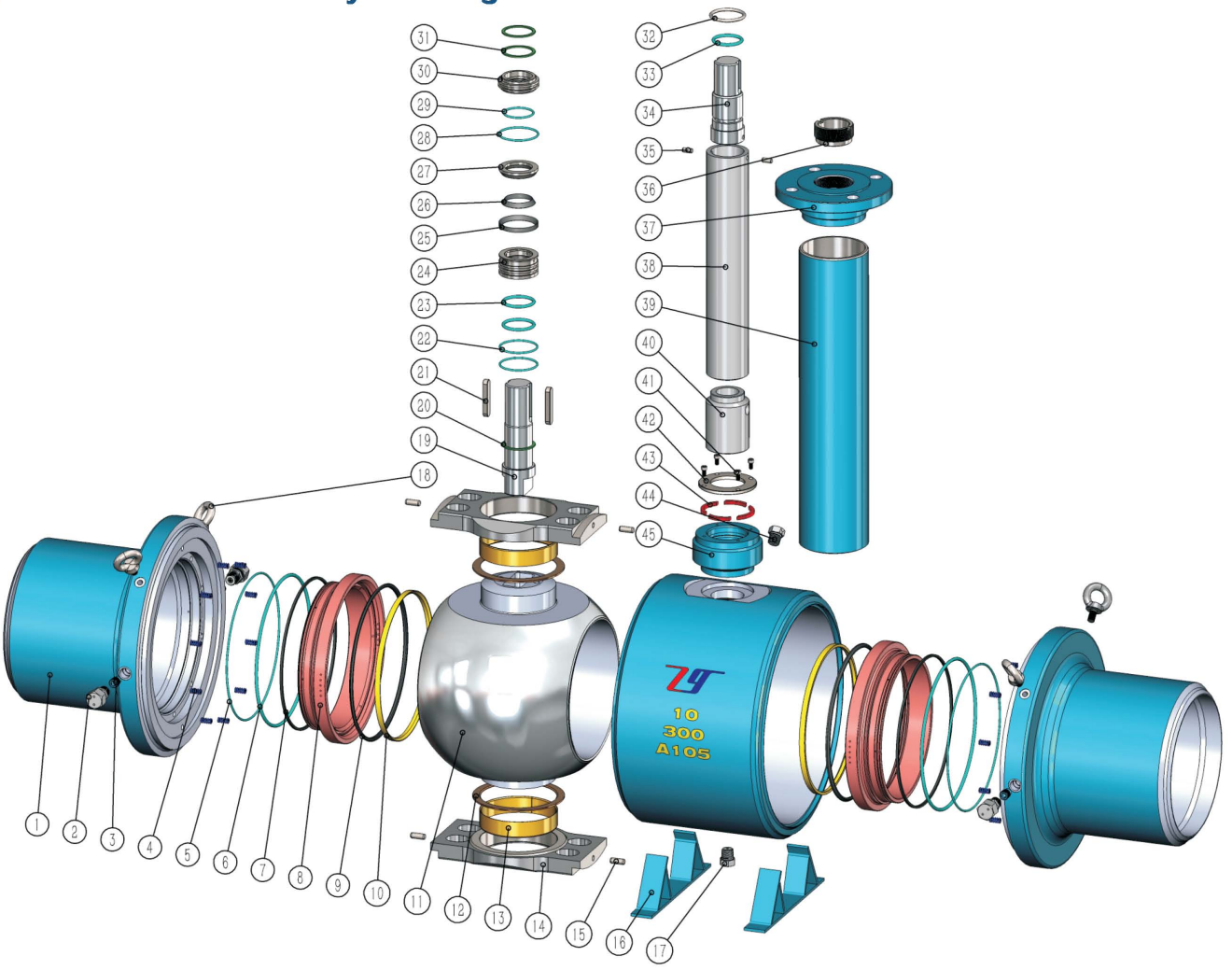
阀门类型——口径——压力——端部连接——操作方式

举例：

ZGWBV-DN200-PN25-WE-3

阀门类型：ZGWBV—直埋式全焊接球阀；DN200—口径；PN25—压力；WE—焊接；3—蜗轮操作

零配件装配图 Assembly drawing



1. 左右体Bonnet
2. 注脂阀Grease injection valve
3. 止回阀Check valve
4. 弹簧Spring
5. O型圈O-ring
6. O型圈O-ring
7. 阀座防火圈Seat fire ring
8. 阀座支承圈Seat support
9. 阀座（VITON）Seat
10. 阀座（DEVLON）Seat
11. 球体Ball
12. 平面轴承Thrust bearing
13. 滑动轴承Thrust bearing
14. 支撑板Ball support
15. 圆柱销Pin
16. 脚架Foot stand
17. 排污阀Drain valve
18. 吊耳Lifting lug
19. 阀杆Stem
20. 止推垫片Thrust bearing
21. 平键Key
22. O型圈O-ring
23. O型圈O-ring
24. 密封环Stem sealing ring
25. 防火外环Fire safe ring
26. 防火内环Fire safe ring
27. 垫环Gasket ring
28. O型圈O-ring
29. O型圈O-ring
30. 压盖Glange
31. O型圈O-ring
32. O型圈O-ring
33. O型圈O-ring
34. 加长阀杆Extended stem
35. 圆柱销Pin
36. 压环Outer ring
37. 连接盘Terminal area
38. 加长内管Extended pipes
39. 加长外管Extended pipes
40. 联轴套Coupling stem
41. 内六角螺钉Hexagon screw
42. 压环Outer ring
43. 四开环Four open loop
44. 放空阀Vent valve
45. 上阀杆接头Stem cap

直埋式全焊接球阀 Under-ground ball valve

直埋式全焊接球阀是自高阀门公司通过对全焊接球阀的研究与吸收基础上，研发出的的高性能产品，采用双阀座密封、具有双活塞效应、操作轻便、使用寿命长等特点；直埋式全焊接球阀作为开启或关闭管路的控制装置被广泛用于城市燃气管网、城市供热、管线以及主管线上。

Uder-ground Ball Valve is a product of Zigao Company with high performances through the research of fully welded ball valve and absorption basis. It is designed with double seats sealing and it has the characteristics of double block-bleed ,easy operation, long service life etc.This valve can be used as a control device to open or shut off the pipeline in the main pipelines of heat or gas

- 公称通径（DN）：1/2"（15mm）~12"（300mm）
- 压力等级（CLASS）：ANSI 150~400（PN16~PN63）
- 流量孔：全通径&缩径
- 连接端：对焊连接

- Norminal Size(DN):1/2inches(15mm)up to 12 " inches(300mm)
- Pressure Class(CLASS):ANSI 150 up to ANSI 400(PN16~PN63)
- Bore:full&reduced
- Ends:butt weld

技术特点 Main design features

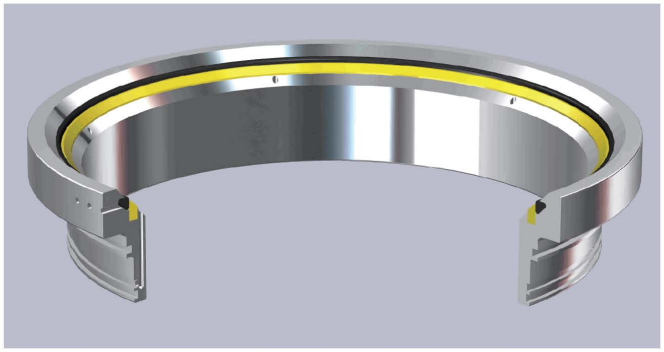
球阀设计为整体全焊接结构，杜绝了介质的外漏现象。
The ball valve is designed as fully welded structure which can prevent the leakage of medium.

ZGWBV球阀结构较全焊接球阀稍长，因此不用焊接袖管，运输施工都很方便。
ZGWBV ball valve is slightly longer than fully welded ball valve. so it has no welding sleeves, and it’s transportation and construction is very convenient.

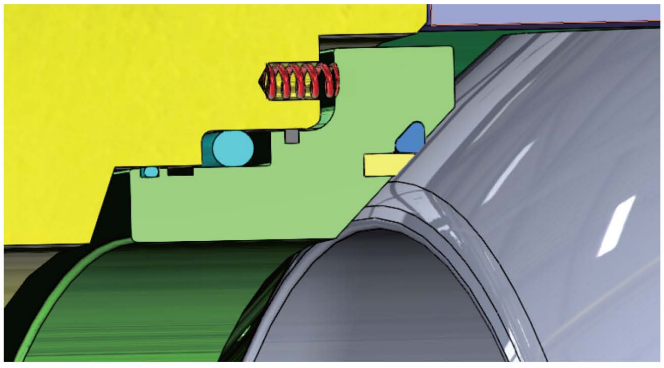
DBB阀座结构、双截断和排放、双向密封设计。
DBB seat structure double block and bleed .

阀杆采用四重密封结构，确保阀杆密封的安全可靠。
The stem seated by four gaskets which make sure that the stem sealing safety.

ZGWBV球阀体型较小、安装方便。
The shape of ZGWBV is amall . it is better to draw、cheaper and more secure.



自高阀门采用弹性加载阀座结构，阀座密封由软密封材料与金属支承圈组合而成，阀座支承圈是轴向浮动的,低压时阀座通过弹簧预压实现低压密封，当管道介质压力升高时，利用阀座活塞效应，依靠介质自身压力实现高压密封。该结构可借助金属对金属的辅助密封实现失火状态下的密封。
ZIGAO valve put to use the spring-loaded seat structure,it,s formed by soft sealing aterial and metal retainer. The retainer floats axially.Low pressure sealing of valve is reached by pre-pressure of spring,The high pressure sealing is reached through the piston effect, by the pressure of transmitter substance.when under fire condition,it be sealded by the etal to metal assist structure.

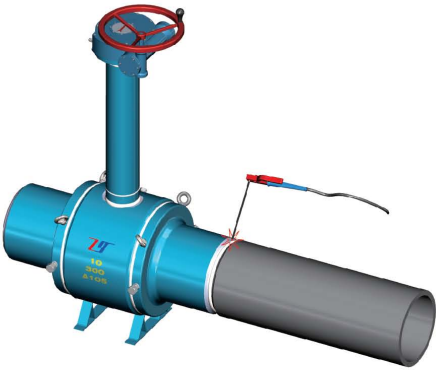


阀体长结构 Long strcture

长结构阀体对施工现场焊接的适用性.

直埋式全焊接球阀相比普通标准全焊接球阀，其结构长度（总长）更长，阀门设计时充分考虑施工现场焊接的可操作性，确保现场焊接时散发的热不会影响并破坏阀门内的密封件，从而证明此种长结构的全焊接球阀现场焊接施工时是绝对安全可靠的。

Applicability of the long body structure for the construction site welding
Buried fully welded ball valve compared with the ordinary standard full welded ball valve, the structure length (length) longer,Valve designed to take full account of the construction operation of welding field, ensure that the heat does not affect the field welding sporadic and seal failure of valve. thus proving the long full welded ball valve structure of the construction site is absolutely safe and reliable.

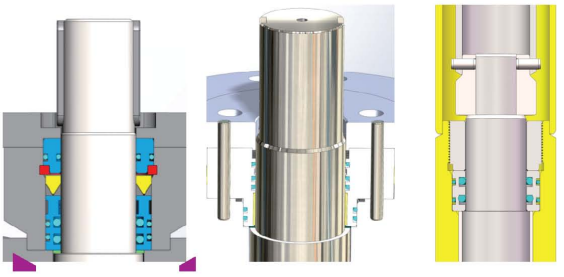


图示1：阀门与管道对焊示意图

阀杆结构 Stem strcture

阀杆采用四重密封结构，确保阀杆密封的安全可靠性.

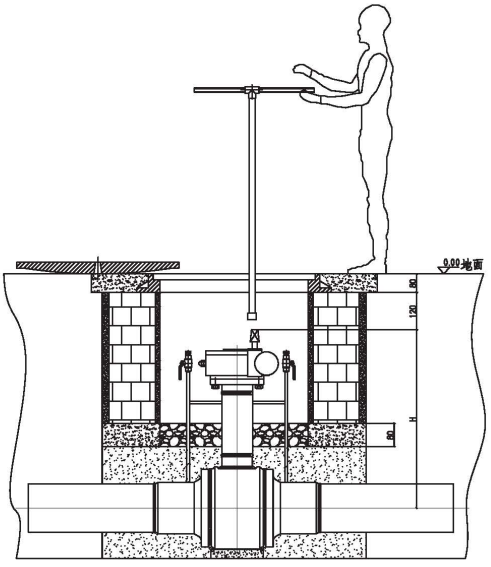
直埋式全焊接球阀大量用于城市燃气，现在对城市燃气的安全要求越来越高，城市燃气管网最忌讳出现外漏，而全焊接球阀唯一可能出现外露的地方是阀杆的转动部位，对阀杆转动部位我公司采用四重密封，阀杆下部有两道O形圈密封，外加一道填料密封，填料密封部位采用可拆卸、可更换结构。



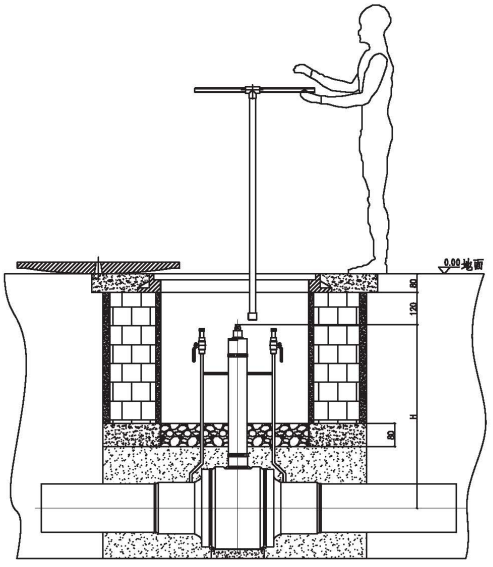
图示2：阀杆四重密封

Stem uses four seal structure to ensure the safety and reliability of the valve stem seal。Buried fully welded ball valve is widely used in city gas，now the city gas safety requirements more and more high, the city gas pipeline network is the most taboo appear leakage, and all welded ball valve only possible leakage place is turning parts of the stem.So our company adopts the four layers structure for the turning of the stem parts,the lower part of the valve rod with two O shaped seal ring, and a packing seal, packing seal parts of the use of removable, replaceable structure.

ZGWBV埋地示意图 Drawing of the ZGWBV

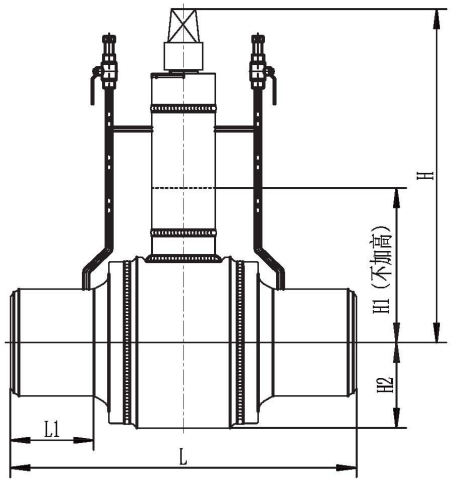


■ 带蜗轮箱

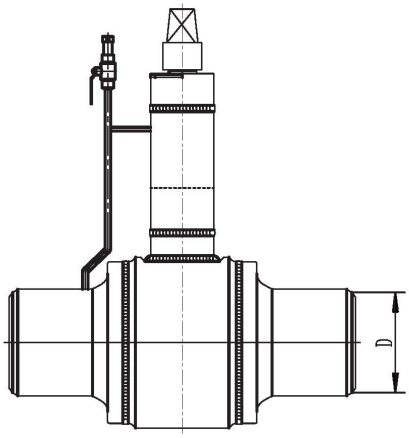


■ 不带蜗轮箱

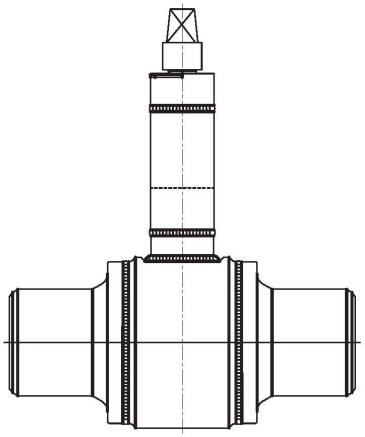
外形尺寸图 Outline dimension drawing



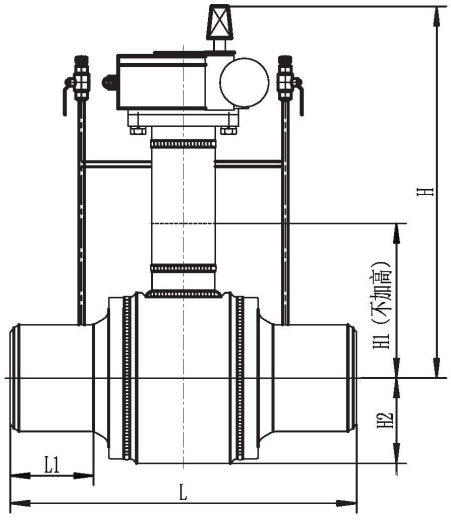
■ 双放散(不带蜗轮箱)



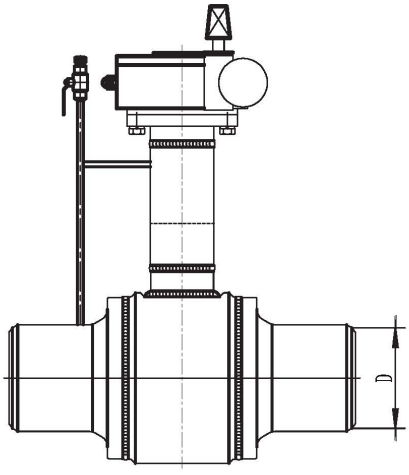
■ 单放散(不带蜗轮箱)



■ 无放散(不带蜗轮箱)



■ 双放散(带蜗轮箱)



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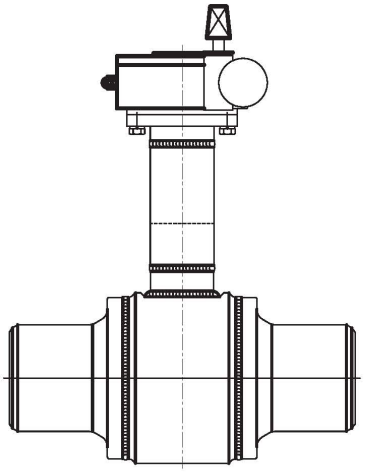
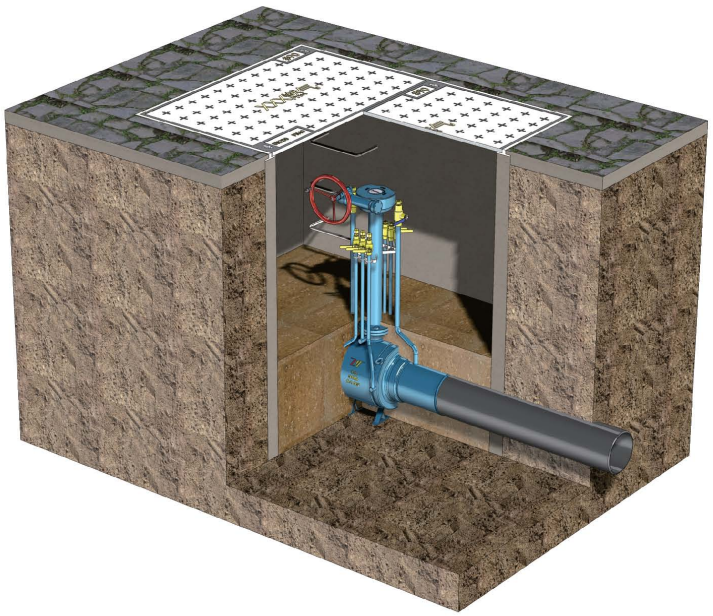


■ 无放散(带蜗轮箱)

压力等级：PN≤63　　尺寸单位:mm

公称直径 DN	D	L1	L	H1	H2	H	备注
50	50	62	300	100	61	客户自定	
80	76	78	350	125	83		
100	100	102	450	165	106		
150	152	141	600	210	245		
200	201	155	700	250	288		
250	252	180	800	290	325		
300	304	146	800	325	365		
350	336	250	1000	370	388		

注：更多口径的球阀可定制，详询自高阀门技术部。
Note: more ball valves can be customized. Please refer to the zi gao valve co.,ltd.



ZGWBV现场照片

ZGMBV
城市燃气直埋球阀
CITY GAS DIRECT BURIED BALL VALVE

阀门类型——口径——压力——端部连接——操作方式

举例：

ZGMBV-DN250-PN25-WE-3

阀门类型：ZGMBV—城市燃气直埋球阀；DN250—口径；PN25—压力；WE—焊接；3—蜗轮操作

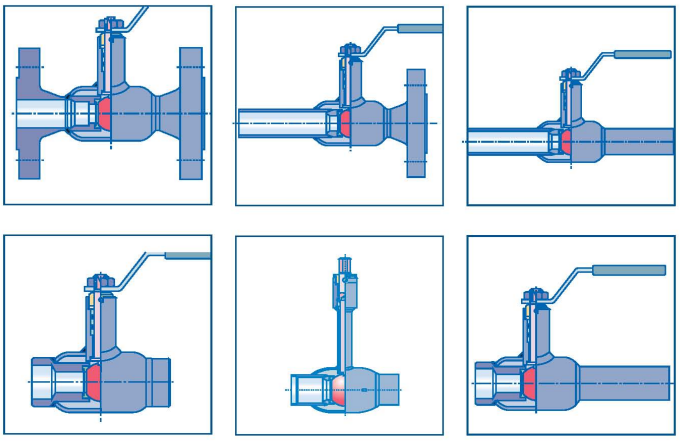
ZGMBV 城市燃气直埋球阀 City gas direct buried ball valve

ZGMBV城市燃气直埋球阀是自高阀门公司的高性能产品，该球阀的密封阀座是特殊设计的双阀座密封、双活塞效应结构。具有密封可靠、操作轻便、使用寿命长等特点；同时自高球阀的规格可达到DN400mm，可用在供热、燃气系统的主管线上，作为开启或关闭管路的控制装置。

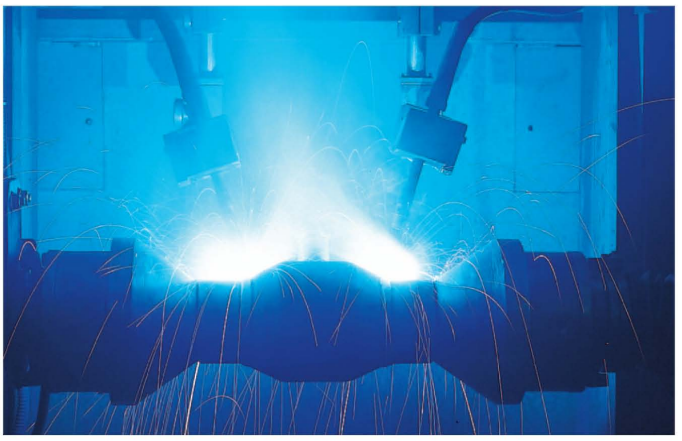
ZGMBV City gas direct buried ball valve of ZIGAO Company with high performances.The sealing seat of this type of valve is specially designed with double seats sealing and double block-bleed structure. Zigong ZIGAO is featured by reliable sealing,user-friendiness,long service life,etc.The largest size of PWBV pipe welded Type is up to DN350 which can be used in the main pipeline of heating systems as a control device to open or shut down the pipeline.

- 公称通径（DN）：2"（50mm）~14"（350mm）
- 压力等级（CLASS）：ANSI 150~400（PN10~PN63）
- 流量孔：全通径&缩径（文丘里型）

- Norminal Size(DN):2inches(50mm)up to 14 " inches(350mm)
- Pressure Class(CLASS):ANSI 150 up to ANSI 400(PN10~PN63)
- Bore:full&reduced(Venturi type)



● Ends:butt weld,butt weld and flanged,flanged
● 连接端：对焊, 对焊*法兰, 法兰, 螺纹



● Automatic welding center
● 全自动焊接中心

主要设计特点 Design features

★ 球阀设计为整体全焊接结构，杜绝了介质的外漏现象。

★ DBB阀座结构，双截断和双排放，自泄压设计，双向密封设计。

★ 阀杆采用四重密封结构，确保阀杆密封的安全可靠性。

★ 管焊球阀体型较小，易于埋地安装，安装更加方便，安装成本也很低，无须建大的阀井，阀室，只需做井圈井盖，道路施工更安全。

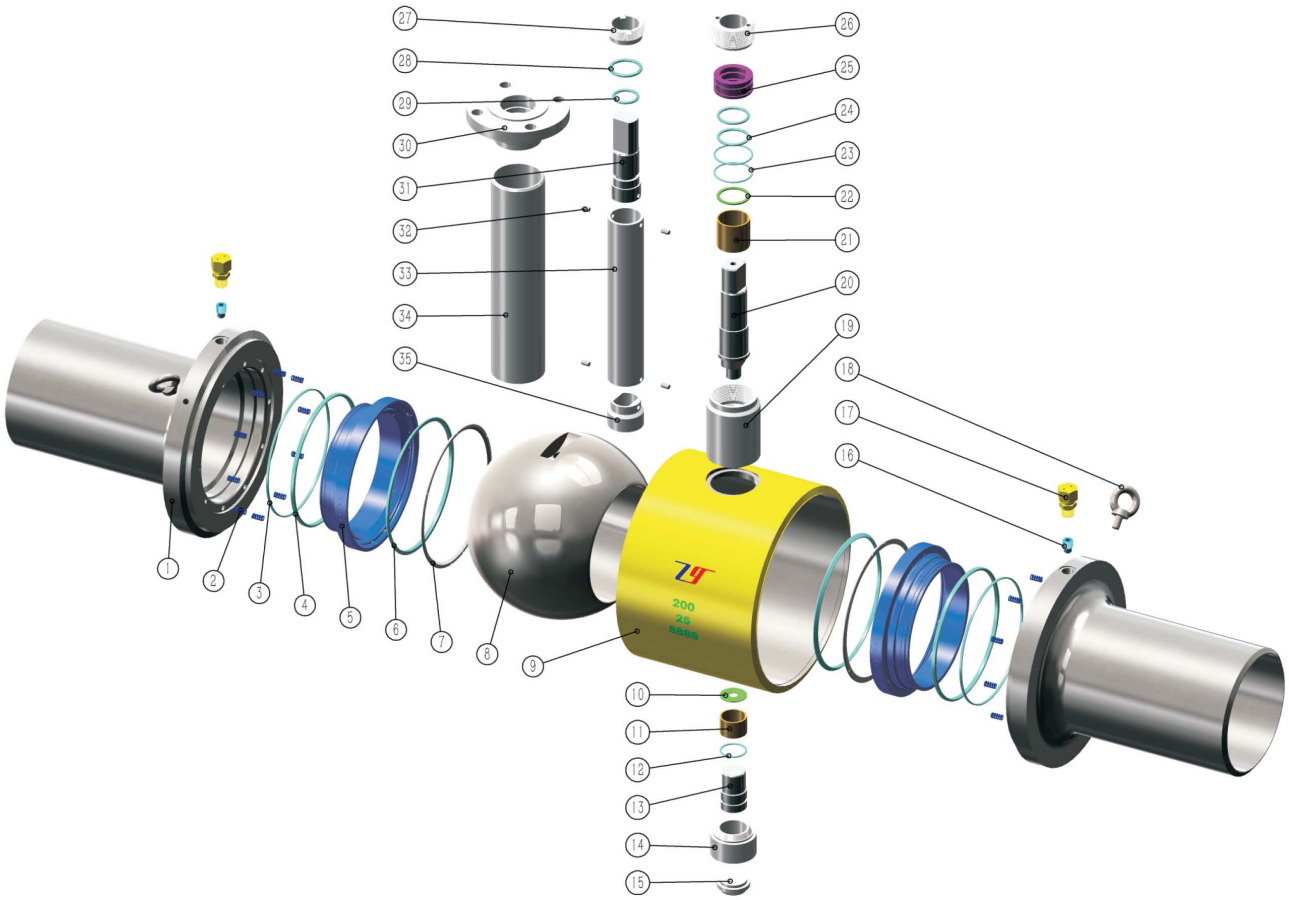
★ The ball valve is designed as fully welded stucture,which can prevent the leakage of medium.

★DBB seat structure, double block and bleed,it can self-relieving.

★The stem seated by four gaskets,that make sure the stem sealing safety.

★The shape of PWBV is small,it better to draw,and be cheaper and safe.

零配件装配图 Assembly drawing



1. 左右体Bonnet
2. 弹簧Spring
3. O型圈O-ring
4. O型圈O-ring
5. 阀座支承圈Seat support
6. 阀座Seat
7. 阀座卡环Seat clasp
8. 球体Ball
9. 阀体Body
10. 平面轴承Thrust bearing
11. 滑动轴承Thrust bearing
12. O型圈O-ring
13. 下阀杆Lower stem
14. 下阀杆接头Stem cap
15. 底盖Lover cover
16. 止回阀Check valve
17. 注脂阀Grease injection valve
18. 吊耳Lifting lug
19. 上阀杆接头Stem cap
20. 阀杆Stem
21. 滑动轴承Thrust bearing
22. 止推垫片Thrust bearing
23. O型圈O-ring
24. O型圈O-ring
25. 密封环Stem sealing ring
26. 压环Outer ring
27. 压环Outer ring
28. O型圈O-ring
29. O型圈O-ring
30. 连接盘Terminal area
31. 加长阀杆Extended stem
32. 圆柱销Pin
33. 加长内管Extended pipes
34. 加长外管Extended pipes
35. 联轴套Coupling stem

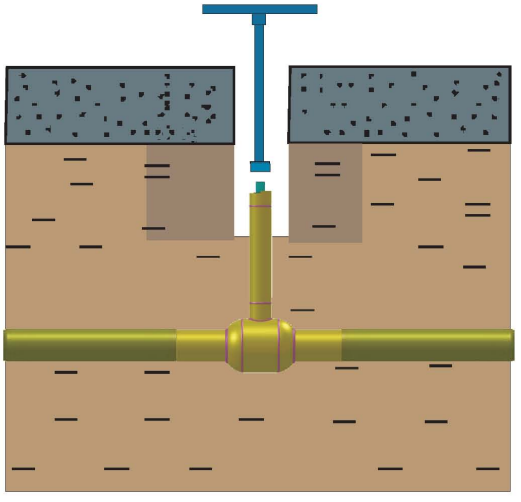
ZGMBV城市燃气直埋球阀用途 ZGMBV Application of city gas direct buried ball valve

* 城市燃气：燃气输送管道，主干线及各支线供应管道等。
* 集中供热：大型供热设备输送管线，主干线、支线。
* 热交换机：管道及各回路启闭。
* 调压设备：天燃气调压设备。
* 钢铁厂：各种流体管道、废气排放管道、燃气和热力供应管道、燃料供应管道。
* 各种工业设备：各种热处理管道、各种工业煤气和热力管道。
* 可根据管道的施工及设计的要求，调整阀体的长短和阀杆的高度。
* 球体的加工精度非常精密，操作轻便，无不良干涉。
* 与同类行业的同种规格产品相比，阀体小，而且外形美观。
* 在保证阀门正常操作、使用的情况下，质保20年。

ZGMBV城市燃气直埋球阀施工图 ZGMBV Construction drawing of city gas direct buried ball valve

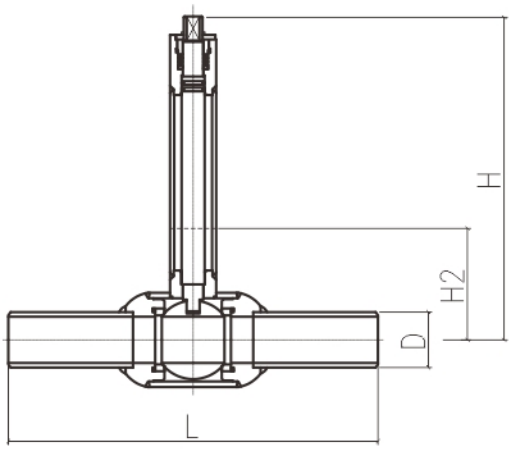
* 由于现代城市里面的车辆及行人通行密集，道路的情况也非常复杂。
* 所以在施工和维护燃气供应管道和供热供应管时对管道系统安全的要求非常高。
* ZGMBV全焊接球阀，阀门无外漏；可以直接深埋地下。利用最新工程技术方法施工能最大化减少阀门控制所占空间，并且大大节省施工费用及工程时间。而且能预防煤气爆炸的危险，ZGMBV全焊接球阀是非常安全的阀门。
* ZGMBV全焊接球阀，阀门无外漏；可以直接深埋地下。利用最新工程技术方法施工能最大化减少阀门控制所占空间，并且大大节省施工费用及工程时间。而且能预防煤气爆炸的危险，ZGMBV全焊接球阀是非常安全的阀门。

* Because of the vehicle and peoples in the modern city is very denseness and many,and the road condition is also very complex.
* So require the pipeline system is very safe,when constructuct and maintain the gas supply pipeline and thermal energy supply pipeline.
* No external leak occur for ZGMBV fully welded body ball valve it can be buried underground directly.Use up to date engineering technique to construct,and much space for control and installation of valve can be saved,and also save a lot of construction cost and work time.Moreover it canprevent the danger of explosion from gas,so ZGMBV fully welded body ball valve is very safe to project.
* When operate ZGMBV underground fully welded body ball valve,the operator do not need to enter into underground,just operate the valve aboveground,this is very safe and convenient for operating.

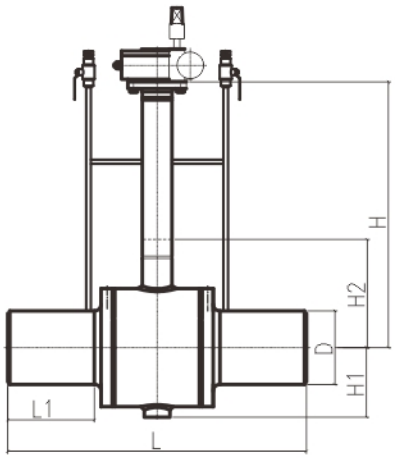


现场操作示意图

外形尺寸图 Outline dimension drawing



■ 标准型直埋式(无放散)



■ 特殊型直埋式（双/单放散）

压力等级：PN≤25　　尺寸单位:mm

公称直径 DN	D	L1	L	H1	H2	H	备注
50	50	120	400	120	51	客户自定	
80	76	120	450	150	75		
100	100	140	500	170	97		
150	152	210	700	240	180		
200	201	330	1000	288	210		
250	252	300	1000	310	250		
300	304	280	1000	354	300		
350	334	350	1200	380	378		
400	426	400	1355	414	421		

注：更多口径的球阀可定制，详询自高阀门技术部。
Note: more ball valves can be customized. Please refer to the zi gao valve co.,ltd.

PE
钢制PE球阀
PE -F.SBALL VALVE

阀门类型——口径——压力——端部连接——操作方式

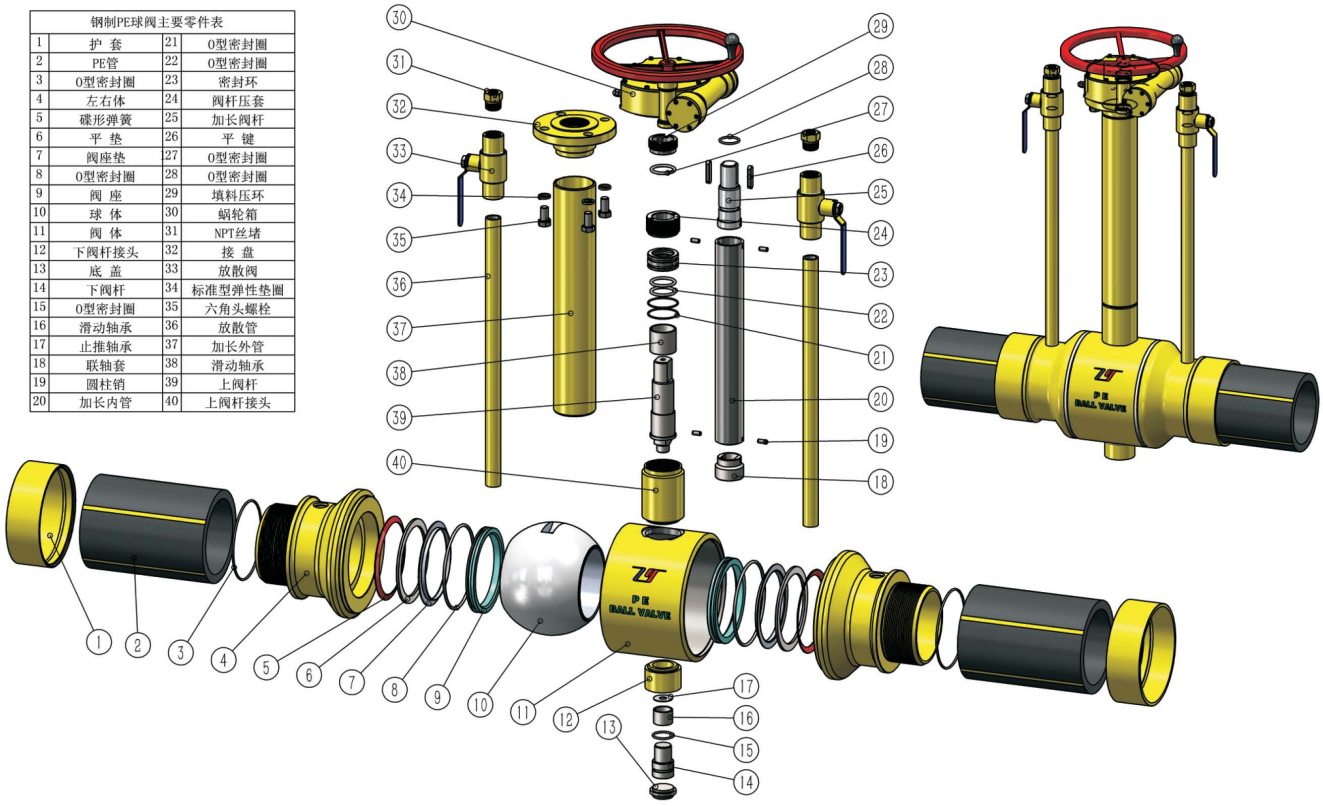
举例：

PE-DN200-PN16-WE

阀门类型：PE—钢制PE球阀；DN200—口径；PN16—压力；WE—焊接；手柄或T型扳手忽略

零配件装配图 Assembly drawing

钢制PE球阀主要零件表			
1	护 套	21	O型密封圈
2	PE管	22	O型密封圈
3	O型密封圈	23	密封环
4	左右体	24	阀杆压套
5	碟形弹簧	25	加长阀杆
6	平 垫	26	平 键
7	阀座垫	27	O型密封圈
8	O型密封圈	28	O型密封圈
9	阀 座	29	填料压环
10	球 体	30	蜗轮箱
11	阀 体	31	NPT丝堵
12	下阀杆接头	32	接 盘
13	底 盖	33	放散阀
14	下阀杆	34	标准型弹性垫圈
15	O型密封圈	35	六角头螺栓
16	滑动轴承	36	放散管
17	止推轴承	37	加长外管
18	联轴套	38	滑动轴承
19	圆柱销	39	上阀杆
20	加长内管	40	上阀杆接头



钢制PE球阀 PE-F.S Ball valve

钢制PE球阀，是自高阀门在燃气球阀领域的重大研究成果：一种钢塑混合型球阀。其主体部分采用锻钢球阀结构，与管道连接部分采用PE（聚乙烯塑料）接管。这种钢塑复合设计避免了纯PE球阀在长期使用中因阀体及操作部分材质老化而导致开关失效及损坏的弊端，所以不易产生因PE老化损坏后引起的泄漏，使用寿命长并且安全可靠，不易产生外漏及因PE材料老化损坏以后而导致的纯PE球阀出现泄漏。

PE-Forged-Steel Ball Valve is an important scientific researching product of ZIGAO.Its body is forged steel ball valve,and the end side is PE. This plastic composite design to avoid long-term use of pure PE ball valve and the operating part due to the aging of the material damage caused by switch failures and drawbacks, so it will not leak because of PE damage caused by aging. This valve is long life and reliable.

根据材料等级，PE球阀分为PE80和PE100，公司主要生产PE80。
根据功能区分，分为常规型、单放散型、双放散型。

主要特点 Design Features

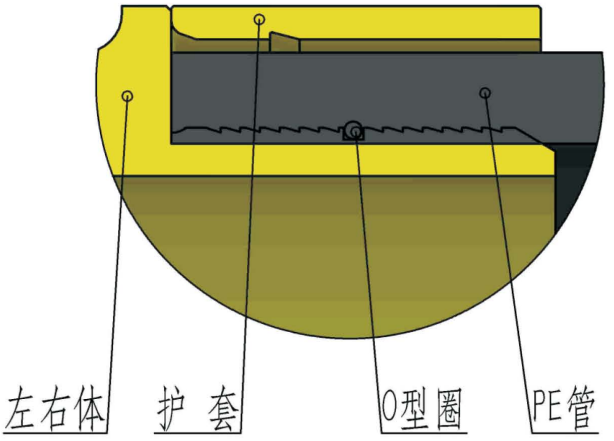
☆钢制PE球阀克服了纯PE球阀因材料老化而导致的阀门主体泄露问题以及操作器和加长杆容易扭断或长期动作磨合之后开关失效的情况。

☆PE-Forged-Steel ball valve overcomes the leakage problem of pure PE ball valve body due to material aging and operator and an extension rod easily break or after the long-term action of running switch failure.

☆钢制PE球阀采用双向密封阀座结构，相比于常规聚四氟乙烯阀座，密封性能更加可靠牢固可靠。

☆ PE-Forged-Steel ball valve using a two-way sealing valve seat structure, compared to the conventional PTFE valve seat, the sealing performance is more reliable and firm and reliable.

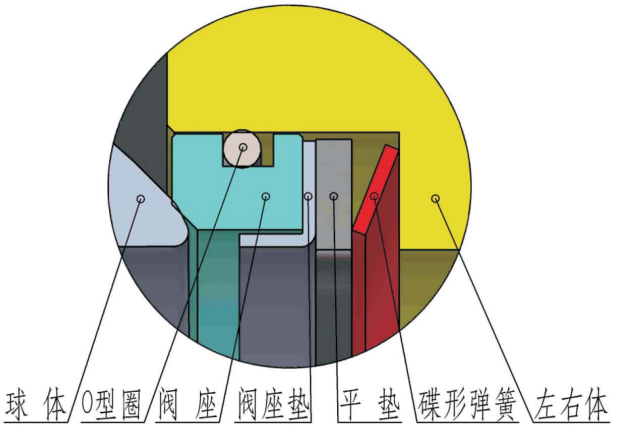
钢塑结合结构



☆钢制PE球阀为安全防火型阀门：金属复合密封阀座，当阀座上的软密封材质被烧毁以后，可通过金属阀座在蝶形弹簧预载力的作用下补充软密封空间，压紧球体，形成金属对金属的密封结构。

☆PE-Forged-Steel ball valve is fire safty valve: metal composite sealing valve seat, when the soft sealing material on the seat was burned, the metal seat under the butterfly spring preload force will supply soft sealing space, pressing ball, forming metal to metal seal structure.

阀座密封结构

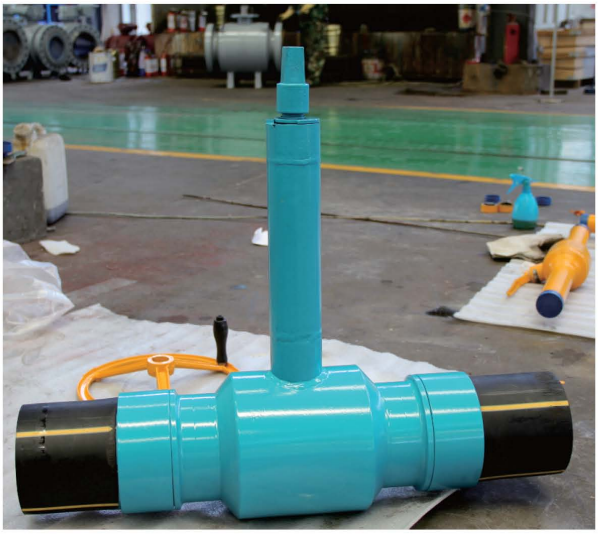


☆钢制PE球阀阀杆设计为防飞倒穿型，设置带有密封垫片的倒密封结构，倒密封的密封效果随阀腔压力的增高而增大，阀杆采用O型圈密封；阀门的启闭力矩较小，阀杆使用锻钢件，使用寿命长，强度高。

☆PE-Forged-Steel ball valve is designed to stem the anti-wear type fly inverted, set down with a gasket seal structure, sealing effect increased with valve chamber pressure increasing, the valve stem sealing with an O-ring seal; valve opening and closing torque is small, the stem is forged steel materiawhich has long life and high strength.

☆钢制球阀与PE管采用螺纹连接，外部加一金属护套进行固定，充分保证其强度，使其连接更加稳定可靠。

☆Steel ball valve and PE pipe is threaded conncetions,external is fixed with metal sheath,sufficient to ensure its strength,the connection is more stable and reliable.

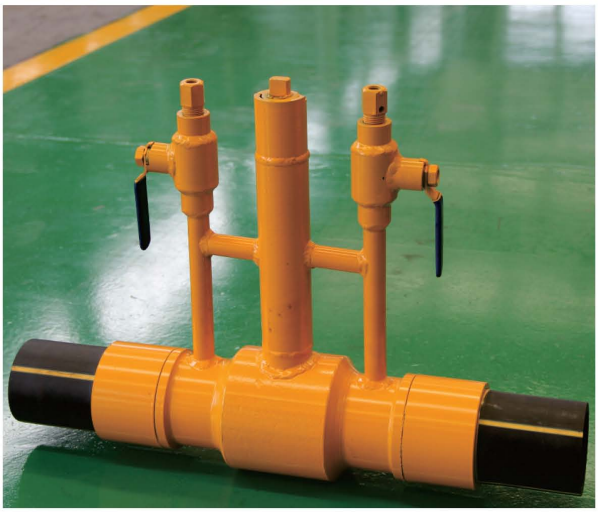


☆钢制PE球阀的安装非常方便，钢制PE球阀在出厂时，已经将PE管与阀门充分连接好，施工时，只需通过热熔和电熔等方式与管道进行融合连接。

☆ The installation of PE-Forged-Steel ball valve is very convenient, when at the factory, PE pipes and valves have been fully connected, when need to construct, simply by way of hot melt and fused connection with the pipe fusion.

☆钢制PE球阀可直接埋于地下，无需建造阀井，只需要建一个浅井；施工质量方便，而且相对于全钢制阀门成本也更低。

☆ PE-Forged-Steel ball valve can be directly buried in the ground, without the construction of valve well, only need to build a shallow well; the construction is convenient, but relative to the full steel valves at less cost.

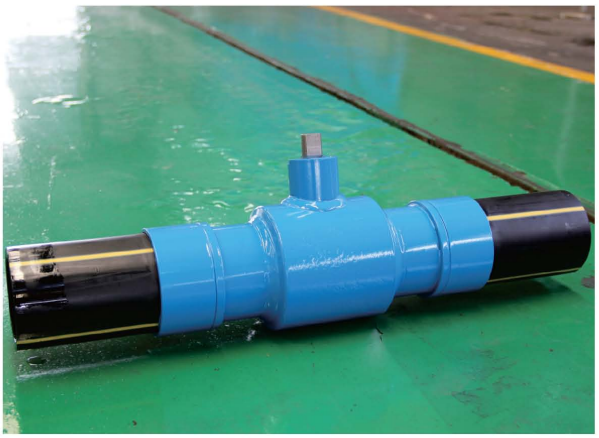


☆钢制PE球阀易腐蚀面较常规球阀面较易腐蚀小，因此寿命更长，更加可靠。

☆ PE-Forged-Steel ball valve has smaller corrosion surface than the conventional ball valve .so its life is longer and more reliable.

☆钢制PE球阀防静电效果显著，能避免金属球阀静电打火点爆燃气，确保安全。

☆ PE-Forged-Steel ball valve`s anti-static effect is remarkable. It can avoid the metal ball to generate static electricity, so it is more secure and reliable.



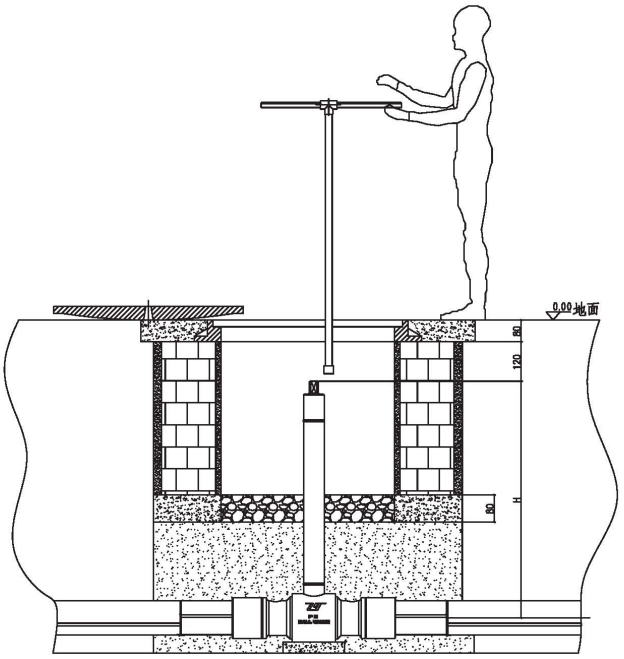
☆钢制PE球阀结合了普通全焊接球阀和PE球阀的特性。因此其性能更加稳定，运行更加可靠，施工更加方便，成本更加低廉。

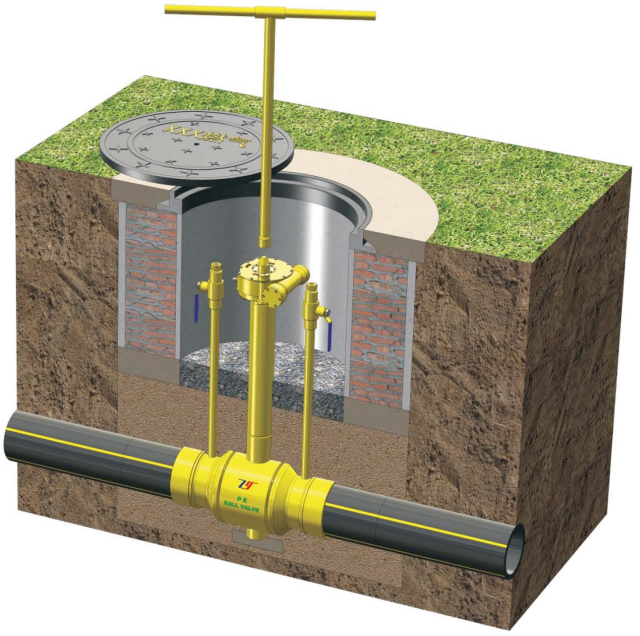
☆ PE-Forged-Steel ball valve combined with the characteristics of ordinary fully welded ball valve and PE ball valve. Therefore, its performance is more stable and operation is more reliable, construction is more convenient and it is more low - cost.

钢制PE球阀埋地示意图 Drawing of the pe-forged-steel ball valve

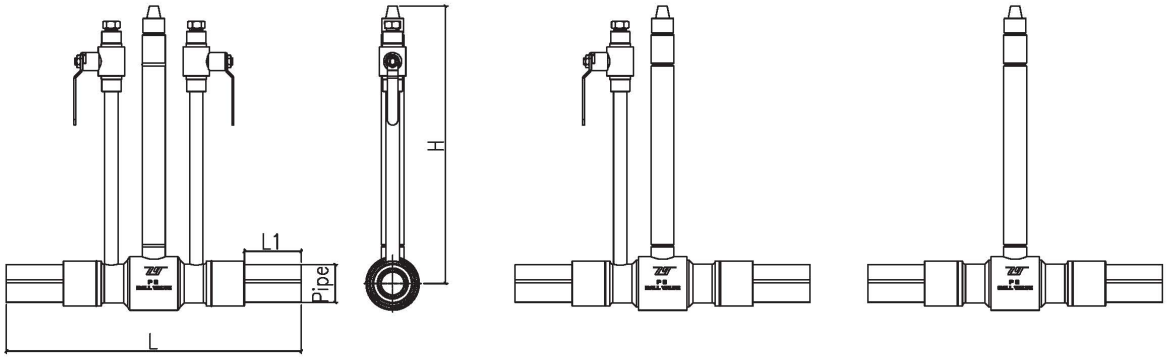
钢制PE球阀操作时，操作者无需进入井下，只需在井上转动操作器即可，操作十分安全方便。

When operating,operator needn’t to enter the mine,simply turn to the operator in inoue,the operatoration is very secure and convenient.

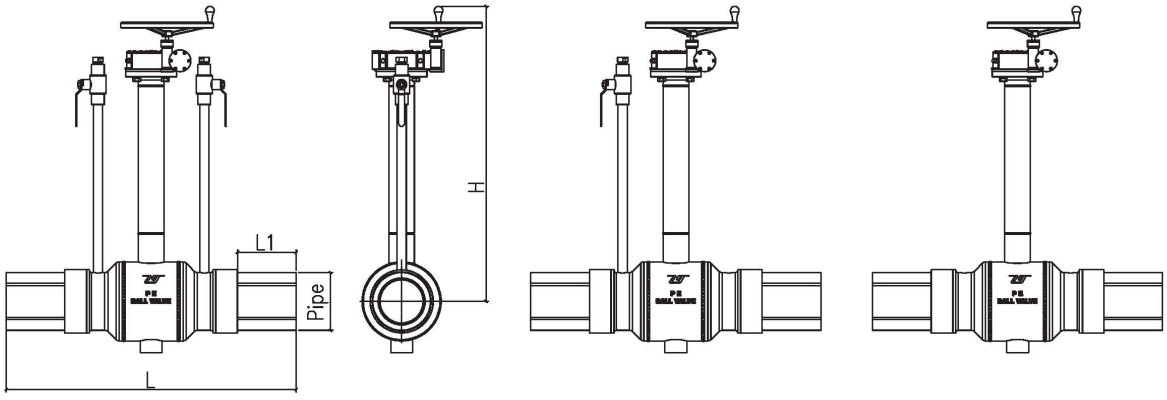




外形尺寸图 Outline dimension drawing



■ 双放散(不带蜗轮箱)　■ 单放散(不带蜗轮箱)　■ 无放散(不带蜗轮箱)



■ 双放散(带蜗轮箱)　■ 单放散(带蜗轮箱)　■ 无放散(带蜗轮箱)

公称压力：PN≤16
工作压力：P≤0.4Mpa　　尺寸单位:mm

公称直径 DN	Pipe	L	L1	H	备注
50	Φ50x4.6	500	122	客户自定	
63	Φ63x5.8	550	125		
75	Φ75x6.8	600	129		
90	Φ90x8.2	700	150		
110	Φ110x10.0	800	183		
160	Φ160x14.6	900	185		
200	Φ200x18.2	1100	253		
225	Φ225x20.5	1250	302		
250	Φ250x22.7	1300	302		
315	Φ315x28.6	1400	307		
400	Φ400x36.4	1600	337		
450	Φ450x40.9	2100	500		

注：L1尺寸为默认值，客户可按实际需求指定长度。
Note: L1 size is the default value, and the customer can specify the length according to the actual demand.

FBV
锻钢分体式球阀
SPLITY BODY BALL VALVE

阀门类型——口径——压力——端部连接——操作方式

举例：

FBV-DN400-PN63-RF-9/6

阀门类型：FBV—锻钢分体式球阀；DN400—口径；PN63—压力；RF—法兰；9/6—电动/气动

主要功能特征(固定式) Majer functlon feature(Trunnion mounted)

1.安全泄压
Saferelease

2.可靠密封
Reliable seal

3.火灾安全
Fire safe

4.清扫管道
Cleaning pipe

5.紧急密封
Emergency seal

6.特殊阀座
Special seat

7.阀盖组合密封
Bonnet combined seal

8.排污
Drainning

9.加长阀杆
Extended stem

10.双截断和排放
Double bleed&block

11.各类驱动方式
Various driving methods

12.连接方式多样
Various end connection

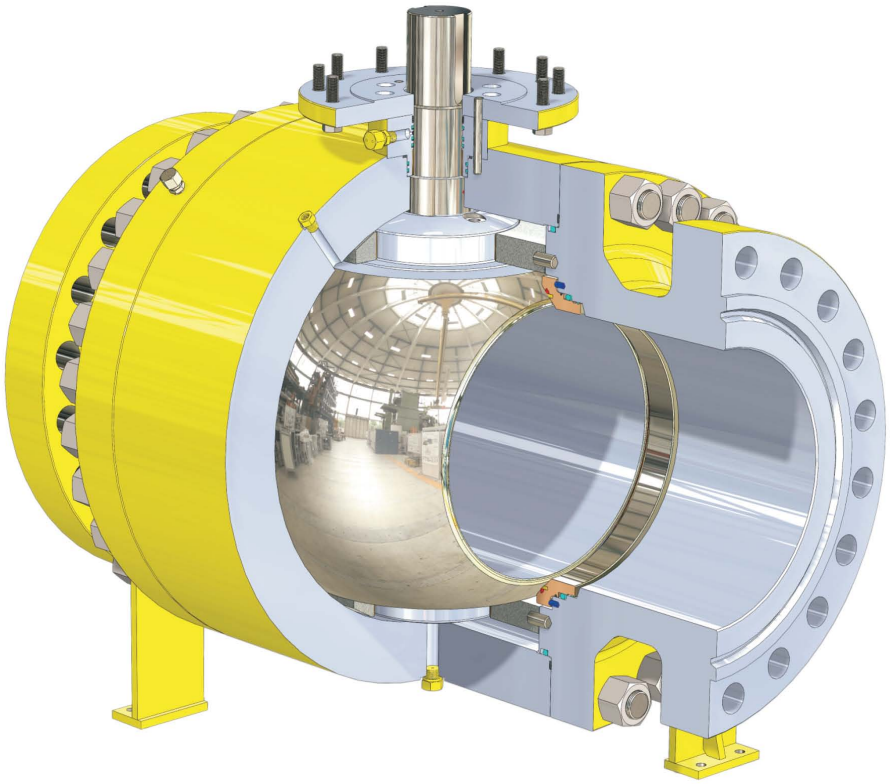
13.阀体材质多样
Diversity of body material

14.阀座材质多样
Diversity of seat material

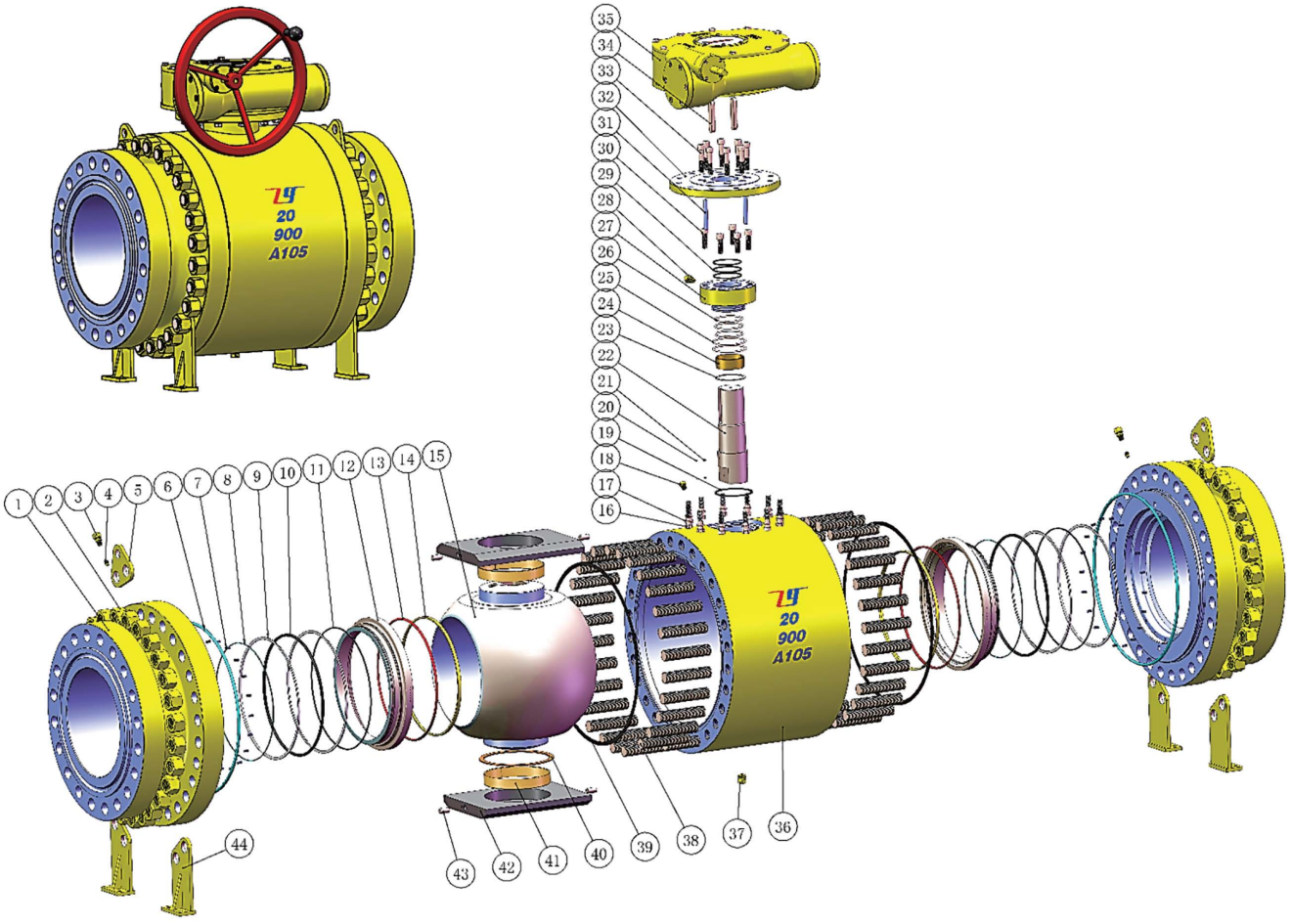
15.各类控制系统
Various kinds of control system

16.承受管道应力安全
Bearing pipe stress safety

17.可靠的操作
Reliable operation



主要功能特征 Major function feature



1. 左右体Bonnet
2. 六角螺母Nut
3. 注脂阀Injection
4. 止回阀Check valve
5. 吊耳板Lifting lug
6. O型密封圈O-ring
7. 螺旋弹簧Spring
8. O型密封圈O-ring
9. 挡圈Retaining ring
10. O型密封圈O-ring
11. 防火垫片Gasket
12. 阀座支承圈Seat ring
13. 三角形密封圈△-ring
14. 阀座seat
15. 球体ball
16. 六角头螺栓Bolt
17. 弹簧垫圈Spring washer
18. 放空阀Vent valve
19. 垫片Gasket
20. 防静电钢球 Antistatic ball
21. 防静电弹簧Antistatic spring
22. 阀杆 Stem
23. 止推垫片Thrust washer
24. 滑动轴承Sliding bearing
25. O型密封圈O-ring
26. O型密封圈O-ring
27. 前盖Gland
28. 颈部注脂阀Stem Injection
29. 石墨填料Graphite packing
30. 内六角螺栓Bolt
31. 圆柱销 Pin
32. 连接盘Connecting disk
33. 内六角螺栓Bolt
34. 平键Key
35. 蜗轮箱Gear
36. 阀体 Body
37. 排污阀 Vent valve
38. 双头螺栓Bolt
39. 垫片Gasket
40. 止推轴承Thrust bearing
41. 滑动轴承Sliding bearing
42. 支撑板Supporting plate
43. 圆柱销Pin
44. 脚架Foot stool

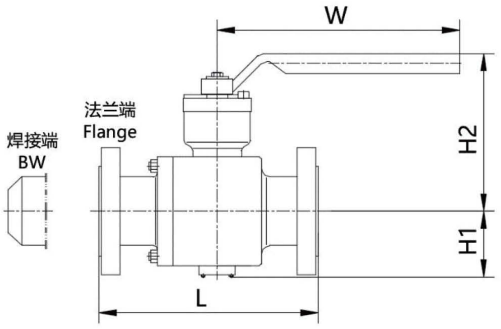
主要部件材料(固定式) Main component materials(Trunnion mounted)

部件名称 Part name	部件材料 Part material				
	无腐蚀介质工况 Non-corrosive media conditions		酸性介质工况 Acid medium conditions		普通腐蚀工况 Normal corrosion condition
	常温(-29C° ~120C°)	低温(-46C° ~120C°)	常温(-29C°~120C°)	低温(-46C° ~120C°)	-46C°~120C°
阀体 Body	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)	ASTM A182 F304/F304L/F316/F316L
左右体 Bonnet	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)	ASTM A182 F304/F304L/F316/F316L
球体 Ball	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)	ASTM A182 F304/F304L/F316/F316L
阀座支承圈 Seat ring	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)	ASTM A182 F304/F304L/F316/F316L
阀座 seat	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK
阀杆 Stem	AISI 4140	AISI 4140	AISI 4140 17-4PH FXM-19	AISI 4140 17-4PH FXM-19	AISI 4140 17-4PH FXM-19
弹簧 Spring	INCONE-X750	INCONE-X750	INCONE-X750	INCONE-X750	INCONE-X750
螺栓 Bolt	ASTM A193 B7	ASTM A320 L7	ASTM A193 B7M	ASTM A320 L7M	ASTM A320 B8
螺母 Nut	ASTM A194 2H	ASTM A194 7	ASTM A194 2HM	ASTM A194 7M	ASTM A194 8

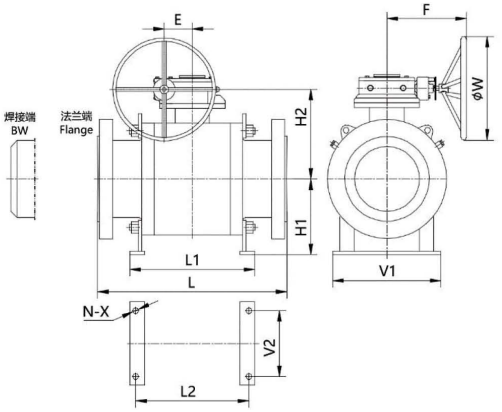
注：表中阀门主要零部件的常规材料配置，根据实际工况可能会有所调整，特别如硫化氢等危险工况，需明确组份含量进行针对性选材，详询自高阀门技术部。

Note: the conventional material configuration of the main parts of the valve in the table may be adjusted according to the actual working conditions, especially for the hazardous working conditions such as hydrogen sulfide. It is necessary to make clear the component content for targeted selection. Please refer to the zigao valve technology department for details.

外形尺寸图(固定式) Outline dimension drawing(Trunnion mounted)



■ 类型A

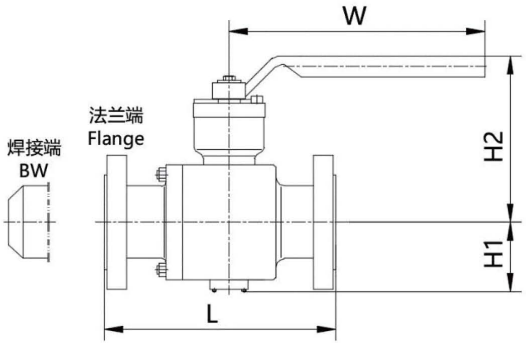


■ 类型B

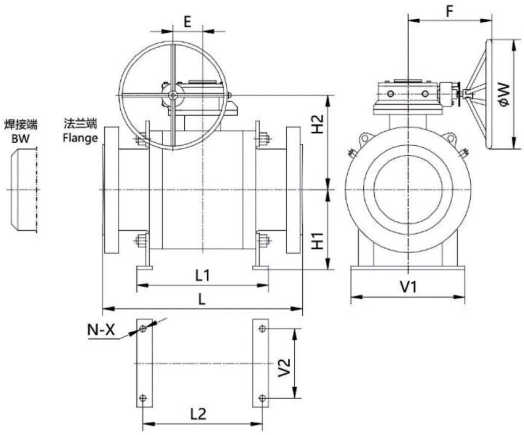
压力等级：ASME CL150 PN16、PN25（PN25适用于DN≥150口径） 尺寸单位:mm

公称直径		类型	L			H1		H2	ΦW (W)	E	F	L1	V1	L2	V2	N-X	重量
NPS	DN		RF	BW	RTJ	标准	加高										Kg
2"	50	A	178	216	191	102	/	186	300	/	/	/	/	/	/	/	18
3"x2"	80x50	A	203	283	216	102	/	186	300	/	/	/	/	/	/	/	21
2$^1/_2$"	65	A	190	241	203	111	/	196	350	/	/	/	/	/	/	/	28
3"	80	A	203	283	216	118	/	207	400	/	/	/	/	/	/	/	38
4"x3	100x80	A	229	305	241	118	/	207	400	/	/	/	/	/	/	/	44
4"	100	A	229	305	241	141	/	253	400	/	/	/	/	/	/	/	60
6"x4"	150x100	B	394	457	406	141	/	253	400	/	/	/	/	/	/	/	69
6"	150	B	394	457	406	250	310	264	300	62	214	292	290	248	250	4-Φ18	105
8"x6"	200x150	B	457	521	470	250	310	264	300	62	214	292	290	248	250	4-Φ18	121
8"	200	B	457	521	470	285	345	304	350	79	229	365	340	315	300	4-Φ18	240
10"x8"	250x200	B	533	559	546	285	345	304	350	79	229	365	340	315	300	4-Φ18	276
10"	250	B	533	559	546	340	400	353	400	89	244	409	390	359	350	4-Φ18	410
12"x10"	300x250	B	610	635	622	340	400	353	400	89	244	409	390	359	350	4-Φ18	472
14"x10"	350x250	B	686	762	699	340	400	353	400	89	244	409	390	359	350	4-Φ18	519
12"	300	B	610	635	622	380	440	396	600	112	303	480	430	420	380	4-Φ18	590
16"x12"	400x300	B	762	838	775	380	440	396	600	112	303	480	430	420	380	4-Φ18	708
14"	350	B	686	762	699	415	475	432	600	78	390	550	460	490	410	4-Φ18	835
18"x14"	450x350	B	864	914	876	415	475	432	600	78	390	550	460	490	410	4-Φ18	1002
16"	400	B	762	838	775	450	510	472	600	78	390	620	570	560	530	4-Φ18	1130
20"x16"	500x400	B	914	991	927	450	510	472	600	78	390	620	570	560	530	4-Φ18	1356
18"	450	B	864	914	876	485	545	537	600	67	433	720	660	640	620	4-Φ18	1630
22"x18"	550x450	B	○	○	○	485	545	537	600	67	433	720	660	640	620	4-Φ18	1956
20"	500	B	914	991	927	530	590	580	600	67	433	779	730	699	685	4-Φ18	2023
24"x20"	600x500	B	1067	1143	1080	530	590	580	600	67	433	779	730	699	685	4-Φ18	2326
24"	600	B	1067	1143	1080	615	675	671	600	182	488	960	700	920	530	4-Φ18	2538
28"x24"	700x600	B	1245	1346	○	615	675	671	600	182	488	960	700	920	530	4-Φ18	2919
28"	700	B	1245	1346	○	685	745	769	600	200	498	680	878	630	640	4-Φ18	4779
32"x28"	800x700	B	1372	1524	○	685	745	769	600	200	498	680	878	630	640	4-Φ18	5496
32"	800	B	1372	1524	○	780	850	960	700	220	608	750	1000	670	940	4-Φ23	/
36"x32"	900x800	B	1524	1727	○	780	850	960	700	220	608	750	1000	670	940	4-Φ23	/
36"	900	B	1524	1727	○	880	940	1040	700	230	577	820	1100	740	1040	4-Φ23	/
40"x36"	1000x900	B	1753	1900	○	960	1050	1150	700	230	577	820	1100	740	1040	4-Φ23	/
40"	1000	B	1753	1900	○	960	1050	1150	700	230	577	1000	1200	920	1100	4-Φ23	/

注：表中带“○”尺寸与用户共同协商确定。
Note: the dimension with "○" in the table shall be determined through consultation with the user.



■ 类型A

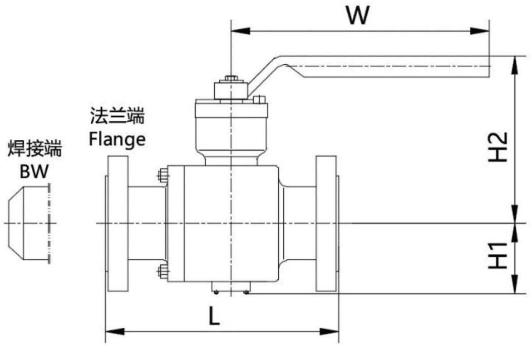


■ 类型B

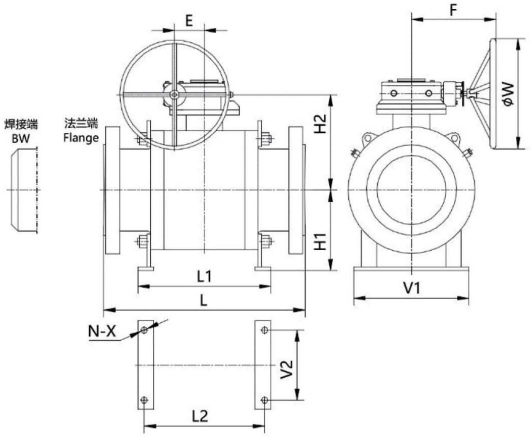
压力等级：ASME CL300　PN25（PN25适用于DN50~100口径）、PN40　　尺寸单位:mm

公称直径		类型	L			H1		H2	ΦW (W)	E	F	L1	V1	L2	V2	N-X	重量
NPS	DN		RF	BW	RTJ	标准	加高										Kg
2"	50	A	216	216	232	102	/	186	300	/	/	/	/	/	/	/	24
3"x2"	80x50	A	283	283	298	102	/	186	300	/	/	/	/	/	/	/	28
$2^1/_2$"	65	A	241	241	257	111	/	196	350	/	/	/	/	/	/	/	38
3"	80	A	283	283	298	118	/	207	400	/	/	/	/	/	/	/	53
4"x3	100x80	A	305	305	321	118	/	207	400	/	/	/	/	/	/	/	61
4"	100	A	305	305	321	141	/	253	400	/	/	/	/	/	/	/	72
6"x4"	150x100	B	403	457	419	141	/	253	400	/	/	/	/	/	/	/	83
6"	150	B	403	457	419	250	310	269	350	79	229	292	290	248	250	4-Φ18	151
8"x6"	200x150	B	502	521	518	250	310	269	350	79	229	292	290	248	250	4-Φ18	174
8"	200	B	502	521	518	285	345	313	400	89	244	365	340	315	300	4-Φ18	276
10"x8"	250x200	B	568	559	584	285	345	313	400	89	244	365	340	315	300	4-Φ18	317
10"	250	B	568	559	584	340	400	358	400	112	303	409	390	359	350	4-Φ18	465
12"x10"	300x250	B	648	635	664	340	400	358	400	112	303	409	390	359	350	4-Φ18	535
14"x10"	350x250	B	762	762	778	340	400	358	400	112	303	409	390	359	350	4-Φ18	588
12"	300	B	648	635	664	380	440	396	600	112	303	480	430	420	380	4-Φ18	675
16"x12"	400x300	B	838	838	854	380	440	396	600	112	303	480	430	420	380	4-Φ18	810
14"	350	B	762	762	778	415	475	432	600	78	390	550	460	490	410	4-Φ18	925
18"x14"	450x350	B	914	914	930	415	475	432	600	78	390	550	460	490	410	4-Φ18	1110
16"	400	B	838	838	854	450	510	472	600	78	390	620	570	560	530	4-Φ18	1250
20"x16"	500x400	B	991	991	1010	450	510	472	600	78	390	620	570	560	530	4-Φ18	1500
18"	450	B	914	914	930	485	545	537	600	67	433	720	660	640	620	4-Φ18	1805
22"x18"	550x450	B	1092	1092	1114	485	545	537	600	67	433	720	660	640	620	4-Φ18	2166
20"	500	B	991	991	1010	530	590	577	600	67	433	779	730	699	685	4-Φ18	2360
24"x20"	600x500	B	1143	1143	1165	530	590	577	600	67	433	779	730	699	685	4-Φ18	2714
24"	600	B	1143	1143	1165	615	675	671	600	182	488	960	700	920	530	4-Φ18	3470
28"x24"	700x600	B	1346	1346	1372	615	675	671	600	182	488	960	700	920	530	4-Φ18	3991
28"	DN700	B	1346	1346	1372	685	745	768	600	200	498	680	878	630	640	4-Φ18	4779
32"x28"	800x700	B	1524	1524	1553	685	745	768	600	200	498	680	878	630	640	4-Φ18	5496
32"	800	B	1524	1524	1553	780	850	960	700	220	608	750	1000	670	940	4-Φ23	/
36"x32"	900x800	B	1727	1727	1756	780	850	960	700	220	608	750	1000	670	940	4-Φ23	/
36"	900	B	1727	1727	1756	880	940	1040	700	275	577	820	1100	740	1040	4-Φ23	/
40"x36"	1000x900	B	1753	1900	○	960	1050	1150	700	275	577	820	1100	740	1040	4-Φ23	/
40"	1000	B	1753	1900	○	960	1050	1150	700	275	577	1000	1200	920	1100	4-Φ23	/

注：表中带“○”尺寸与用户共同协商确定。
Note: the dimension with "○" in the table shall be determined through consultation with the user.



■ 类型A



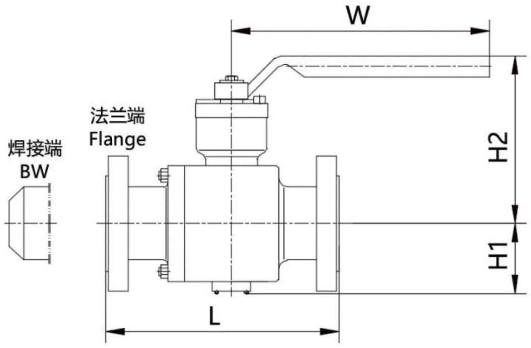
■ 类型B

适用压力等级：ASME CL400 PN64

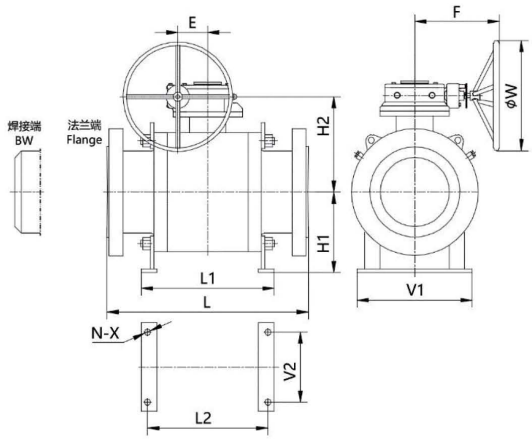
尺寸单位:mm

公称直径		类型	L			H1		H2	ΦW (W)	E	F	L1	V1	L2	V2	N-X	重量 Kg
NPS	DN		RF	BW	RTJ	标准	加高										
2"	50	A	292	292	295	102	/	186	350	/	/	/	/	/	/	/	34
3"x2"	80x50	A	356	356	359	102	/	186	350	/	/	/	/	/	/	/	39
2½"	65	A	330	330	333	111	/	196	400	/	/	/	/	/	/	/	63
3"	80	A	356	356	359	125	/	221	550	/	/	/	/	/	/	/	61
4"x3	100x80	A	406	406	410	125	/	221	550	/	/	/	/	/	/	/	70
4"	100	B	406	406	410	146	/	257	550	/	/	/	/	/	/	/	106
6"x4"	150x100	B	495	495	498	146	/	257	550	/	/	/	/	/	/	/	122
6"	150	B	495	495	498	255	315	269	350	79	229	334	270	290	230	4-Φ18	220
8"x6"	200x150	B	597	597	600	255	315	269	350	79	229	334	270	290	230	4-Φ18	253
8"	200	B	597	597	600	288	348	315	400	89	244	402	320	352	270	4-Φ18	355
10"x8"	250x200	B	673	673	676	288	348	315	400	89	244	402	320	352	270	4-Φ18	408
10"	250	B	673	673	676	355	415	373	400	112	303	457	360	407	310	4-Φ18	568
12"x10"	300x250	B	762	762	765	355	415	373	400	112	303	457	360	407	310	4-Φ18	653
14"x10"	350x250	B	826	826	829	355	415	373	400	112	303	457	360	407	310	4-Φ18	718
12"	300	B	762	762	765	390	450	410	600	61	378	525	430	465	380	4-Φ18	780
16"x12"	400x300	B	902	902	905	390	450	410	600	61	378	525	430	465	380	4-Φ18	936
14"	350	B	826	826	829	420	480	449	600	78	390	580	500	520	460	4-Φ18	1133
18"x14"	450x350	B	978	978	981	420	480	449	600	78	390	580	500	520	460	4-Φ18	1359
16"	400	B	902	902	905	460	520	497	600	67	433	670	570	590	530	4-Φ18	1490
20"x16"	500x400	B	1054	1054	1060	460	520	497	600	67	433	670	570	590	530	4-Φ18	1788
18"	450	B	978	978	981	500	560	556	600	182	488	760	690	680	645	4-Φ18	2030
22"x18"	550x450	B	1143	1143	1153	500	560	556	600	182	488	760	690	680	645	4-Φ18	2427
20"	500	B	1054	1054	1060	545	605	626	600	182	488	809	730	729	685	4-Φ18	2575
24"x20"	600x500	B	1232	1232	1241	545	605	626	600	182	488	809	730	729	685	4-Φ18	2961
24"	600	B	1232	1232	1241	636	696	725	700	220	608	620	786	580	560	4-Φ18	3356
28"x24"	700x600	B	1397	1397	1410	636	696	725	700	220	608	620	786	580	560	4-Φ18	3859
28"	DN700	B	1397	1397	1410	720	780	809	700	220	608	680	878	630	640	4-Φ18	5496
32"x28"	800x700	B	1651	1651	1667	720	780	809	700	220	608	680	878	630	640	4-Φ18	6320
32"	800	B	1651	1651	1667	830	960	923	700	275	577	800	1000	740	740	4-Φ23	/
36"x32"	900x800	B	1880	1880	1895	830	960	923	700	275	577	800	1000	740	740	4-Φ23	/
36"	DN900	B	1880	1880	1895	910	1000	1050	700	275	577	820	1200	740	1040	4-Φ23	/
40"x36"	1000x900	B	1900	1900	○	910	1000	1050	700	275	577	820	1200	740	1040	4-Φ23	/
40"	1000	B	1900	1900	○	1020	1100	1200	700	275	577	1000	1200	920	1100	4-Φ23	/

注：表中带“○”尺寸与用户共同协商确定。
Note: the dimension with "○" in the table shall be determined through consultation with the user.



■ 类型A



■ 类型B

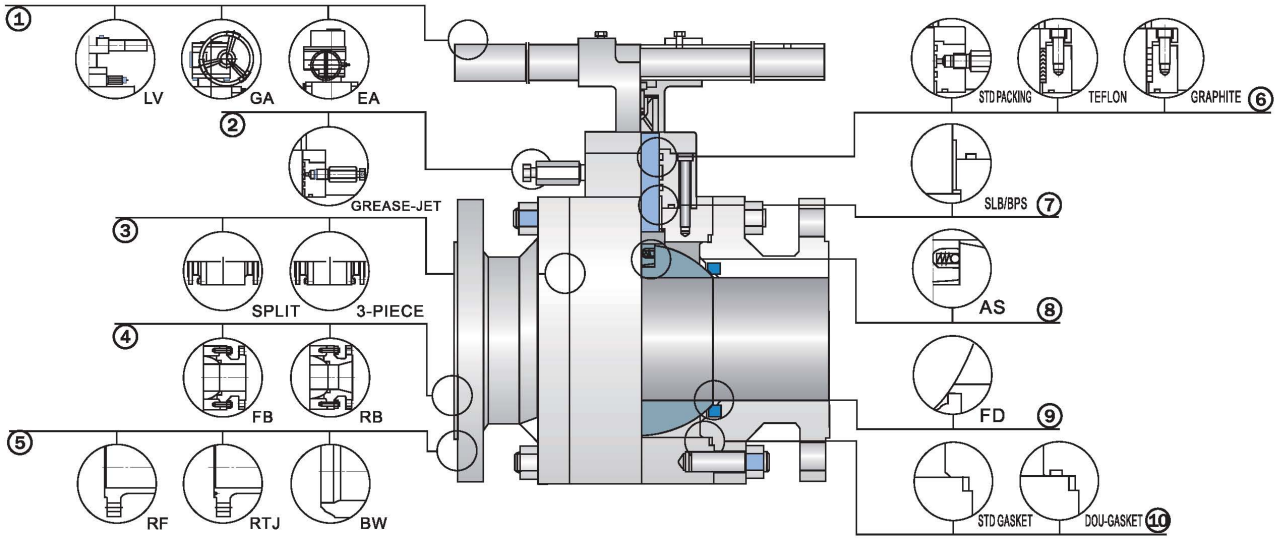
适用压力等级：ASME CL600 PN100

尺寸单位:mm

公称直径		类型	L			H1		H2	ΦW (W)	E	F	L1	V1	L2	V2	N-X	重量 Kg
NPS	DN		RF	BW	RTJ	标准	加高										
2"	50	A	292	292	295	102	/	186	350	/	/	/	/	/	/	/	41
3"x2"	80x50	A	356	356	359	102	/	186	350	/	/	/	/	/	/	/	69
$2^1/_2$"	65	A	330	330	333	111	/	196	400	/	/	/	/	/	/	/	60
3"	80	A	356	356	359	125	/	221	550	/	/	/	/	/	/	/	70
4"x3	100x80	A	432	432	435	125	/	221	550	/	/	/	/	/	/	/	112
4"	100	B	432	432	435	146	/	257	550	/	/	/	/	/	/	/	129
6"x4"	150x100	B	559	559	562	146	/	257	550	/	/	/	/	/	/	/	118
6"	150	B	559	559	562	255	315	269	400	89	244	334	270	290	230	4-Φ18	226
8"x6"	200x150	B	660	660	664	255	315	269	400	112	303	334	270	290	230	4-Φ18	260
8"	200	B	660	660	664	288	348	315	400	112	303	402	320	352	270	4-Φ18	430
10"x8"	250x200	B	787	787	791	288	348	315	400	112	303	402	320	352	270	4-Φ18	495
10"	250	B	787	787	791	355	415	373	400	112	303	457	360	407	310	4-Φ18	665
12"x10"	300x250	B	838	838	841	355	415	373	400	112	303	457	360	407	310	4-Φ18	765
14"x10"	350x250	B	889	889	892	355	415	373	400	112	303	457	360	407	310	4-Φ18	765
12"	300	B	838	838	841	390	450	410	600	61	378	525	430	465	380	4-Φ18	910
16"x12"	400x300	B	991	991	994	390	450	410	600	61	378	525	430	465	380	4-Φ18	841
14"	350	B	889	889	892	420	480	449	600	78	390	580	500	520	460	4-Φ18	1328
18"x14"	450x350	B	1092	1092	1095	420	480	449	600	78	390	580	500	520	460	4-Φ18	1584
16"	400	B	991	991	994	460	520	497	600	67	433	670	570	590	530	4-Φ18	1747
20"x16"	500x400	B	1194	1194	1200	460	520	497	600	67	433	670	570	590	530	4-Φ18	2096
18"	450	B	1092	1092	1095	500	560	556	600	182	488	760	690	680	645	4-Φ18	2165
22"x18"	550x450	B	1295	1295	1305	500	560	556	600	182	488	760	690	680	645	4-Φ18	2598
20"	500	B	1194	1194	1200	545	605	626	600	182	488	819	730	739	685	4-Φ18	3003
24"x20"	600x500	B	1397	1397	1407	545	605	626	600	182	488	819	730	739	685	4-Φ18	3453
24"	600	B	1397	1397	1407	636	696	725	700	220	608	620	786	580	560	4-Φ18	3591
28"x24"	700x600	B	1549	1549	1562	636	696	725	700	220	608	620	786	580	560	4-Φ18	4129
28"	700	B	1549	1549	1562	720	780	809	700	275	577	680	878	630	640	4-Φ18	5881
32"x28"	800x700	B	1778	1778	1794	720	780	809	700	275	577	680	878	630	640	4-Φ18	6762
32"	800	B	1778	1778	1794	830	960	923	700	275	577	800	1000	740	740	4-Φ23	/
36"x32"	900x800	B	2083	2083	2099	830	960	923	700	275	577	800	1000	740	740	4-Φ23	/
36"	900	B	2083	2083	2099	910	1000	1050	800	315	730	820	1200	740	1040	4-Φ23	/
40"x36"	1000x900	B	1900	1900	○	910	1000	1050	800	315	730	820	1200	740	1040	4-Φ23	/
40"	1000	B	1900	1900	○	1020	1100	1200	800	315	730	1000	1200	920	1100	4-Φ23	/

注：表中带“○”尺寸与用户共同协商确定。口径>40"，压力等级>600LB的球阀尺寸等技术参数详询自高技术部。
Note: the dimension with "○" in the table shall be determined through consultation with the user.

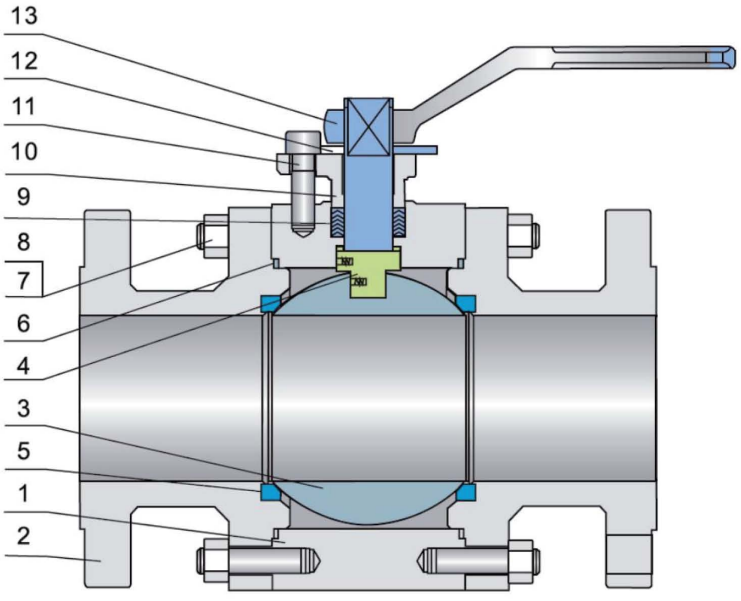
主要功能特征(浮动式) Major function feature(Floating)



① Operating 操作方式	③ BODY & BONNET 阀体形式	⑤ End Connections 端部连接形式	⑦ SLB 纯扭矩操作	BPS 防飞阀杆	⑨ FD 防火设计
② Grease-Jet Joint 紧急注脂	④ BORE 流量孔	⑥ Packing 阀杆填料	⑧ AS 防静电		⑩ GASKET 密封件

零配件装配图(浮动式) Assembly drawing(Floating)

1. 阀体Body
2. 左右体Bonnet
3. 球体Ball
4. 阀杆Stem
5. 阀座Seat
6. 密封垫片Gasket
7. 螺栓Blot
8. 螺母Nut
9. 填料Packing
10. 压盖Gland
11. 螺栓Blot
12. 限位块Stop Plate
13. 手柄Handle



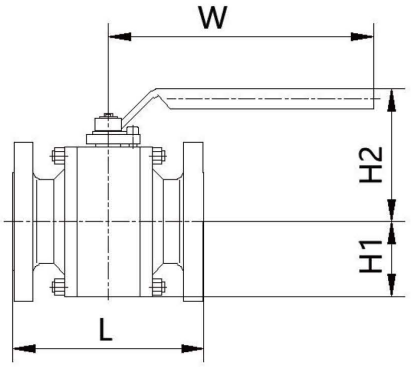
主要部件材料(浮动式) Main component materials(Floating)

部件名称 Part name	部件材料 Part material				
	无腐蚀工况 Non-corrosive media conditions		酸性腐蚀工况 Acid medium conditions		普通腐蚀工况 Normal corrosion condition
	常温(-29C° ~120C°)	低温(-46C° ~120C°)	常温(-29C°~120C°)	低温(-46C° ~120C°)	-46C°~120C°
阀体 Body	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)	ASTM A182 F304/F304L/F316/F316L
左右体 Bonnet	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)	ASTM A182 F304/F304L/F316/F316L
球体 Ball	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)	ASTM A182 F304/F304L/F316/F316L
阀座 seat	PTFE PPL TYLON	PTFE PPL TYLON	PTFE PPL TYLON	PTFE PPL TYLON	PTFE PPL TYLON
阀杆 Stem	AISI 4140	AISI 4140	AISI 4140 17-4PH FXM-19	AISI 4140 17-4PH FXM-19	AISI 4140 17-4PH FXM-19
螺栓 Bolt	ASTM A193 B7	ASTM A320 L7	ASTM A193 B7M	ASTM A320 L7M	ASTM A320 B8
螺母 Nut	ASTM A194 2H	ASTM A194 7	ASTM A194 2HM	ASTM A194 7M	ASTM A194 8

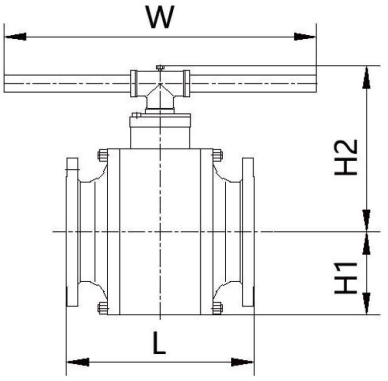
注：表中阀门主要零部件的常规材料配置，根据实际工况可能会有所调整，特别如硫化氢等危险工况，需明确组份含量进行针对性选材，详询自高阀门技术部。

Note: the conventional material configuration of the main parts of the valve in the table may be adjusted according to the actual working conditions, especially for the hazardous working conditions such as hydrogen sulfide. It is necessary to make clear the component content for targeted selection. Please refer to the zigao valve technology department for details.

外形尺寸图(浮动式) Outline dimension drawing(Floating)



■ 类型A

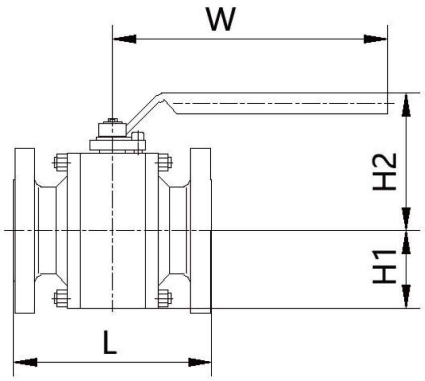


■ 类型B

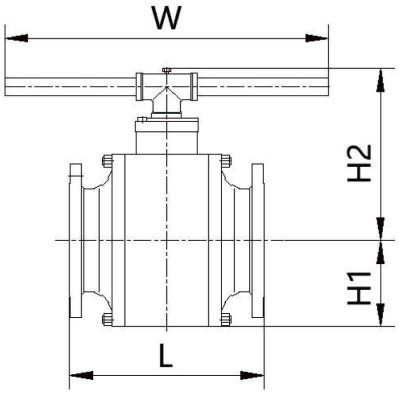
压力等级：ASME CL150、CL300、PN16、PN25、PN40

公称直径		类型	L (RF)								H1	H2	W
NPS	DN		CL150	CL300	新PN16	老PN16	新PN25	老PN25	新PN40	老PN40			
1/2"	15	A	108	140	130	130	130	130	140	130	48	83	200
3/4"	20	A	117	152	130	140	130	140	152	140	49	96	200
1"	25	A	127	165	140	150	140	150	165	150	53	104	200
1 1/4"	32	A	140	178	165	165	165	165	178	180	58	110	200
1 1/2"	40	A	165	190	165	180	165	180	190	200	68	138	250
2"	50	A	178	216	178	200	216	200	216	220	79	153	300
2 1/2"	65	A	190	241	190	220	241	220	241	250	86	163	400
3"	80	A	203	283	203	250	283	250	283	280	99	178	400
4"	100	A	229	305	229	280	305	320	305	320	120	216	500
5"	125	B	356	381	356	320	356	360	381	360	140	250	600
6"	150	B	394	403	394	360	394	360	403	403	160	333	700
8"	200	B	457	502	457	400	457	400	502	502	195	355	800

注：浮动式球阀默认配置为手柄，可按客户需求配置蜗轮箱，尺寸详询自高阀门技术部。
Note: the default configuration of the floating ball valve is the handle, and the worm gear box can be configured according to the customer's requirements. For the size, please refer to the zigao valve technology department.



■ 类型A



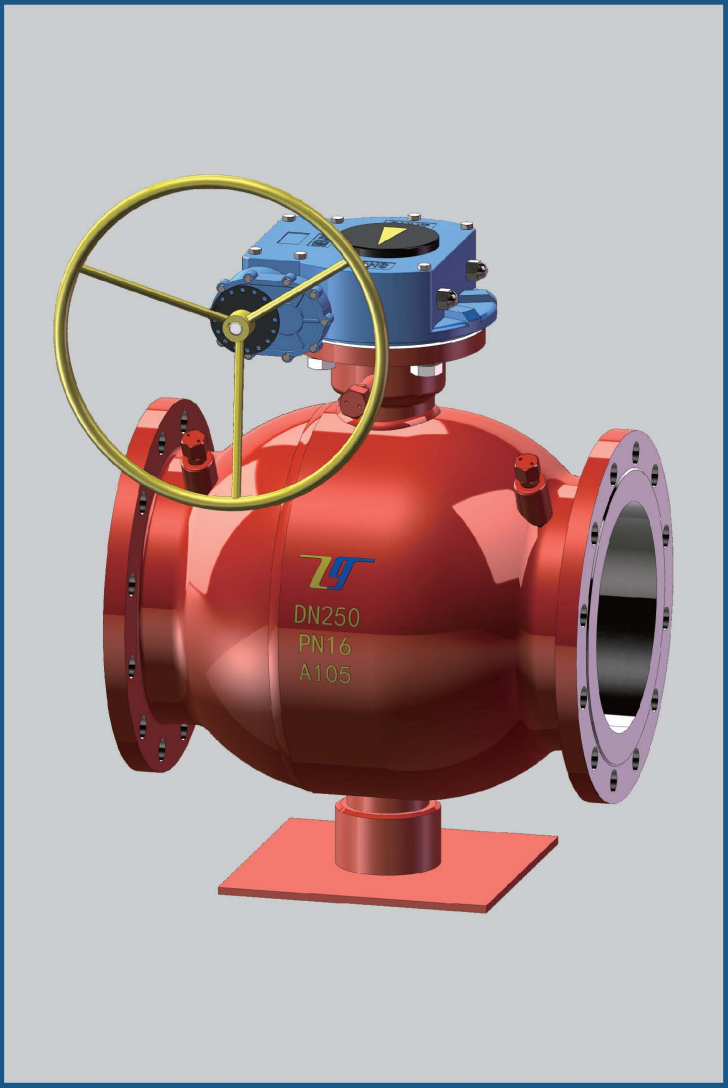
■ 类型B

压力等级：ASME CL400、CL600、PN64、PN100、150LB、300LB、400LB、600LB

公称直径		类型	L (RF)								H1	H2	W
NPS	DN		CL400	CL600	PN64	PN100	150LB	300LB	400LB	600LB			
1/2"	15	A	165	165	165	165	108	140	165	165	48	96	200
3/4"	20	A	190	190	190	190	117	152	190	190	49	96	200
1"	25	A	216	216	216	216	127	165	216	216	53	104	200
1 1/4"	32	A	229	229	229	229	140	178	229	229	58	112	200
1 1/2"	40	A	241	241	241	241	165	190	241	241	68	143	300
2"	50	A	292	292	292	292	178	216	292	292	79	158	400
2 1/2"	65	A	330	330	330	330	190	241	330	330	87	163	400
3"	80	A	356	356	356	356	203	283	356	356	102	198	500
4"	100	A	406	432	406	432	229	305	406	432	125	226	500
5"	125	B	457	508	457	508	356	381	457	508	145	255	800
6"	150	B	495	559	495	559	394	403	495	559	/	/	/
8"	200	B	597	660	597	660	457	502	597	660	/	/	/

注：浮动式球阀默认配置为手柄，可按客户需求配置蜗轮箱，尺寸详询自高阀门技术部。
Note: the default configuration of the floating ball valve is the handle, and the worm gear box can be configured according to the customer's requirements. For the size, please refer to the zigao valve technology department.

QBV
一体式法兰球阀
INTEGRAL FLANGED BALL VALVE



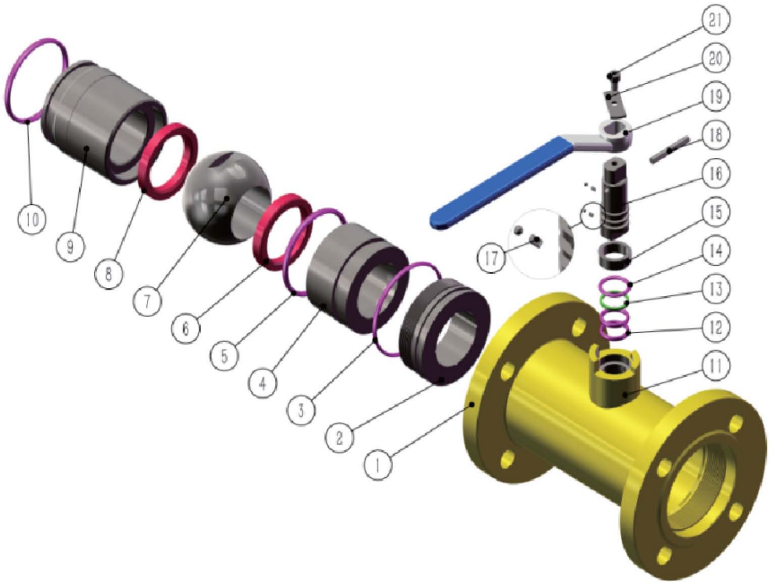
阀门类型——口径——压力——端部连接——操作方式

举例：

QBV-DN50-PN16-RF

阀门类型：QBV-一体式法兰球阀；DN50-口径；PN16-压力；RF-突面法兰

一体式浮动球阀设计技术特点

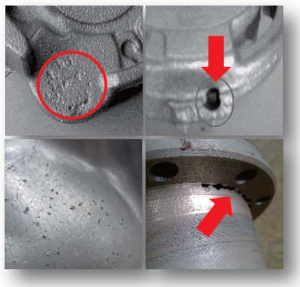


一体式法兰球阀零件表			
1	阀体	12	O型圈
2	并紧压环	13	止推垫片
3	O型圈	14	O型圈
4	阀座支撑座	15	填料压环
5	O型圈	16	阀杆
6	阀座	17	防静电弹簧
7	球体		防静电钢珠
8	阀座	18	圆柱销
9	阀盖	19	手柄
10	O型圈	20	压板
11	阀杆接头	21	内六角螺钉

阀体材料锻造

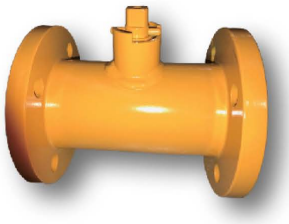
阀体材料锻造，选用热锻优质碳钢做为阀体材料，锻造材料组织致密，承压性能更可靠，避免铸钢阀体材料缺陷，杜绝壳体缺陷所致的外泄漏。

铸造缺陷一直是困扰阀门制造企业的一大难题，如砂眼、缩孔、裂纹、针孔、夹渣、疏松及硬度降低等铸态缺陷，容易引起阀体泄漏和强度下降。自高阀门YHF系列球阀壳体材料为锻造件，材料通过锻打能消除金属在冶炼过程中产生的缺陷，优化微观组织结构，锻件的机械性能优于同样材料的铸件。


铸造零件典型铸造缺陷


锻造材料机械锻打消除缺陷

铸钢浮动球阀


自高锻钢浮动球阀

一体式成型阀体，无螺栓连接点，避免阀体螺栓连接密封处的外泄漏。

阀体采用一体式锻件，整体制造成型，无外漏点。彻底避免了传统两片/三片式浮动球阀阀体螺栓连接处容易泄漏的隐患。

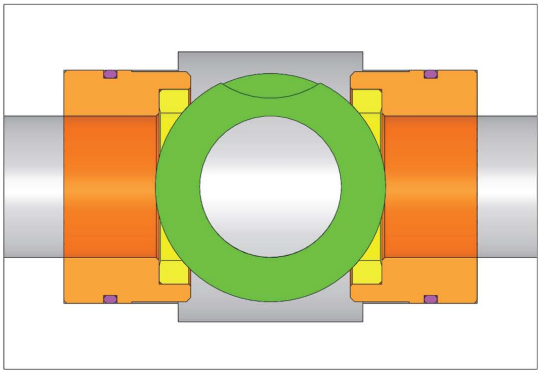
两片式浮动球阀

自高一体式浮动球阀阀体

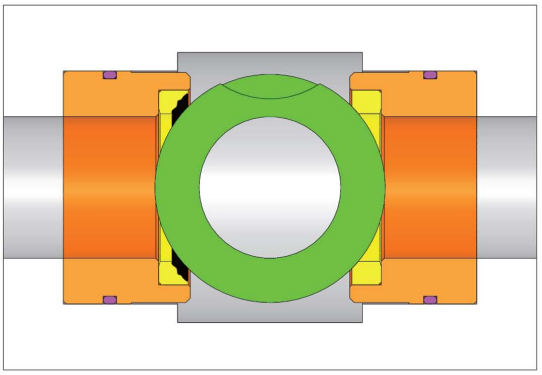
阀座主动密封结构

阀座主动密封结构，双保险密封更可靠、不容易产生内漏。

自高采用主动密封座结构，使得阀门正常运行条件下由介质主动推动上游密封零件实现密封，即使上游阀座损坏，介质也可推动球体紧压阀座，实现下游阀座密封。而普通浮动式球阀，阀座镶嵌在阀体上不可移动，只能实现下游密封。



上游阀座完好
介质主动推动活塞组件向球体位移
使阀座与球体紧贴密封截断

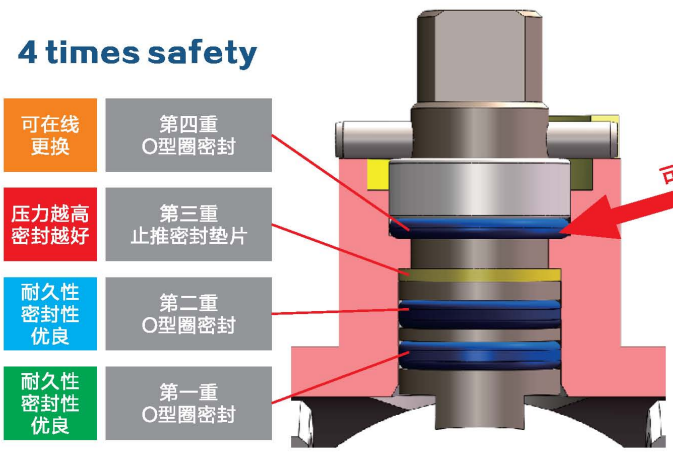


上游阀座损坏
介质从上游阀座损坏处到达中腔
推动球体紧贴下游阀座密封截断

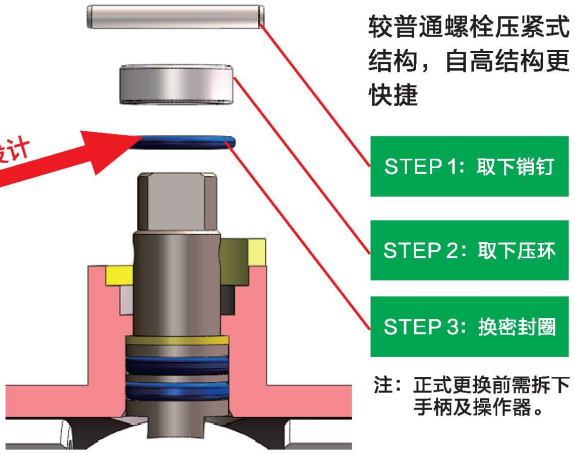
阀杆四重密封设计不易泄露

阀杆四重密封设计，最外层可在线维护更换，解决了普通浮动球阀单一阀杆密封容易泄漏的难点。

自高阀门一体式浮动球阀采用O型密封圈+止推密封垫片结构，总共四重密封，最外层（第四层）密封可在线快捷更换，材质为橡胶+PTFE两种材料组合密封。



阀杆密封结构（自高一体式浮动球阀）

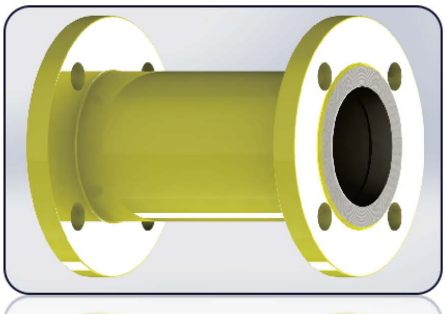


可在线更换第四重密封

防火结构设计

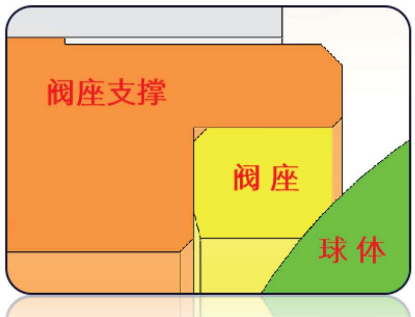
火灾条件下球阀的泄漏分为壳体外漏和密封面内漏两种途径，一体式阀体本质杜绝壳体外漏，特殊设计的双重唇形金属防火密封结构，可有效防止密封面内漏。

无螺栓连接一体式阀体

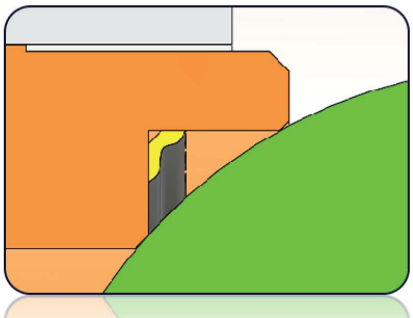


一体式阀体本质防火安全

火烧前



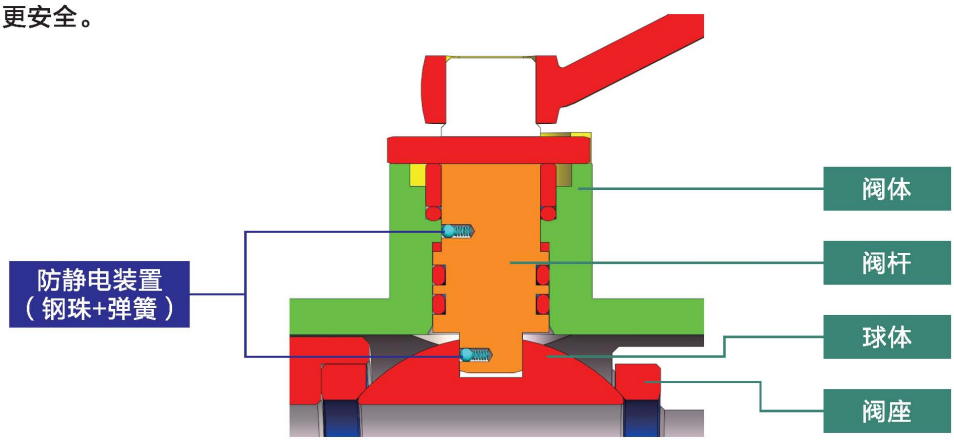
火烧后



双重唇形金属防火密封结构

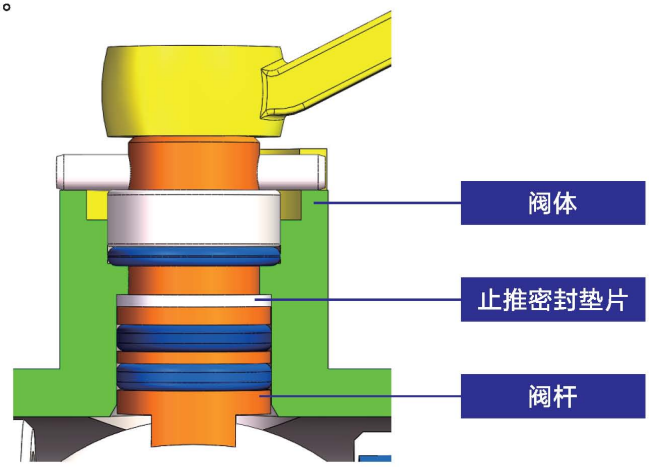
防静电结构设计

一体式球阀在阀杆与阀体接触部位以及阀杆与球体接触部位采用钢珠+弹簧式防静电装置，使球体与阀体之间形成电流通路，从而可将球体与阀座开关过程中摩擦产生的静电通过阀体引至大地，防止静电火花点燃介质，避免引起火灾或爆炸等危险。确保使用更安全。

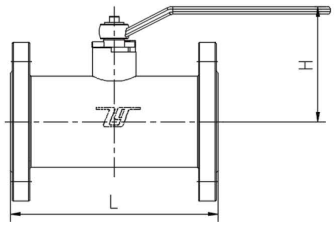


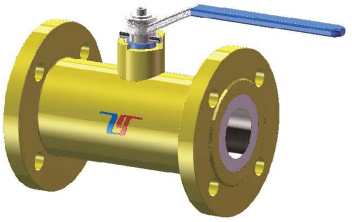
阀杆防喷出结构设计

阀杆在介质的压力作用下，有往外喷出的趋势，自高阀门采用下装式阀杆设计，阀体直接阻挡阀杆喷出，相对于螺栓防喷出结构更加可靠。确保使用更安全。

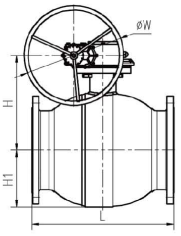


一体式浮动球阀





■ 类型A



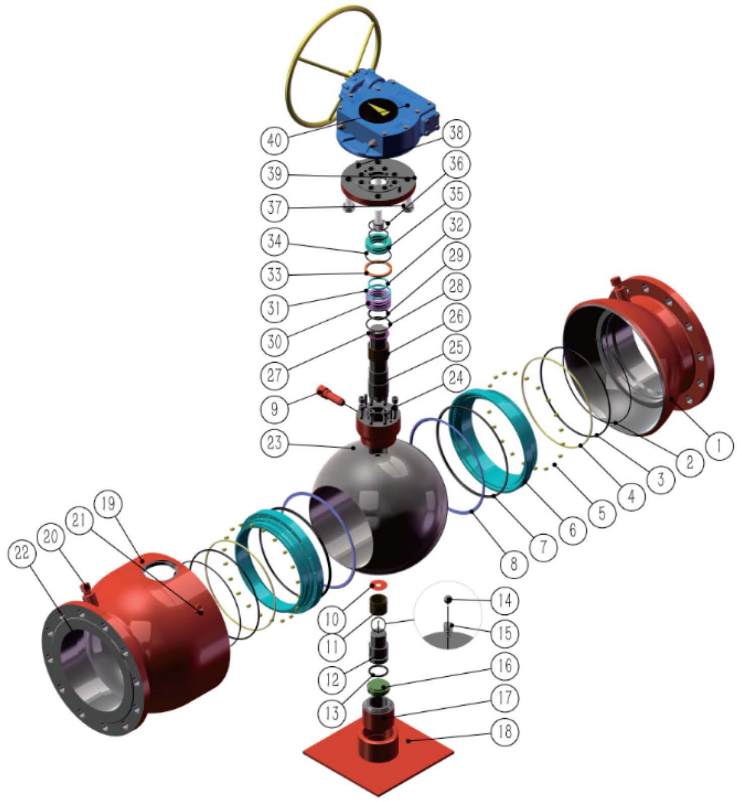
■ 类型B

适用压力等级：ASME CL150 PN16　　尺寸单位：mm

公称直径		类型	L		手柄	蜗轮操作	H1	手柄	手轮
NPS	DN		系列 I	系列 II	H	G		W	φW
1"	25	A	140	150	77	/	/	135	/
1 1/4"	32	A	165	165	82	/	/	135	/
1 1/2"	40	A	165	180	112	/	/	225	/
2"	50	A	178	200	120	/	/	225	/
2 1/2"	65	A	190	220	143	/	/	282	/
3"	80	B	203	250	155	150	/	292	200
4"	100	B	229	280	180	167	/	328	200
5"	125	B	356	320	228	206	/	550	300
6"	150	B	394	360	285	246	137	740	350
8"	200	B	457	400	/	330	176	/	400

注：更多口径的球阀可定制，详询自高阀门技术部。
Note: more ball valves can be customized. Please refer to the zi gao valve co.,ltd.

一体式固定球阀设计技术特点

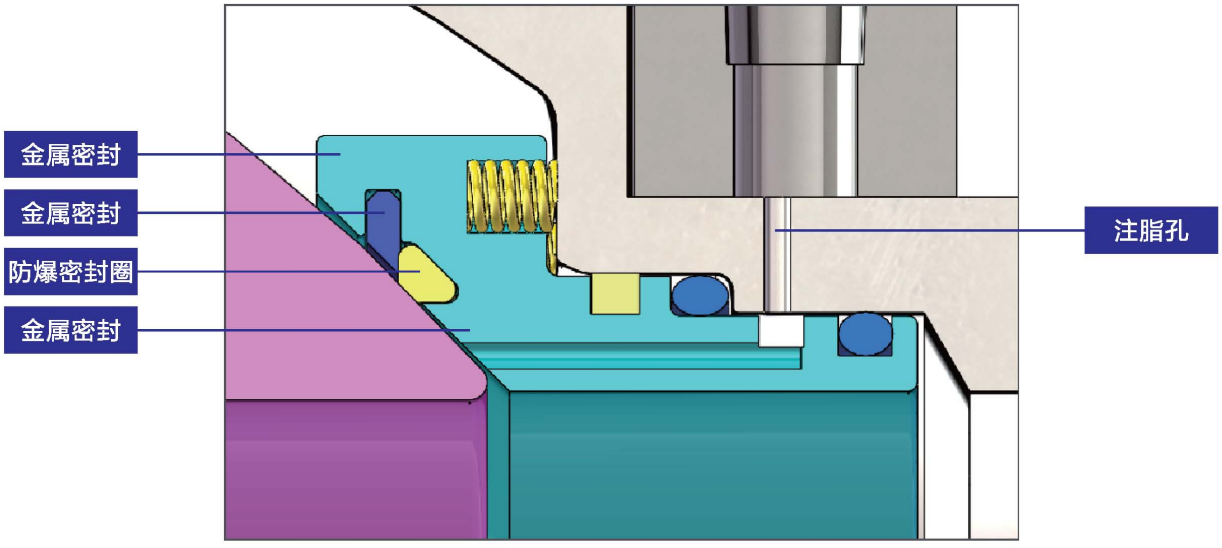


球形一体式法兰球阀零件表			
1	阀盖	22	排污阀
2	O型圈	23	球体
3	O型圈	24	内六角螺钉
4	阀座防火圈		圆柱销
5	弹簧	25	阀杆
6	阀座支撑圈	26	滑动轴承
7	阀座	27	阀杆止推垫片
8	阀座卡环	28	O型圈
9	阀杆注脂阀	29	O型圈
10	止推轴承	30	阀杆密封环
11	滑动轴承	31	阀杆防火填料
12	下阀杆	32	阀杆防火填料
13	O型圈	33	四开环
14	防静电钢珠	34	O型圈
15	防静电弹簧	35	压盖
16	底盖	36	O型圈
17	下阀杆接头	37	六角头螺栓
18	脚架		标准型弹簧垫圈
19	阀体	38	圆柱销
20	阀座注脂阀	39	连接盘
	单向阀	40	涡轮操作器
21	放空阀		

多重复合密封阀座结构设计

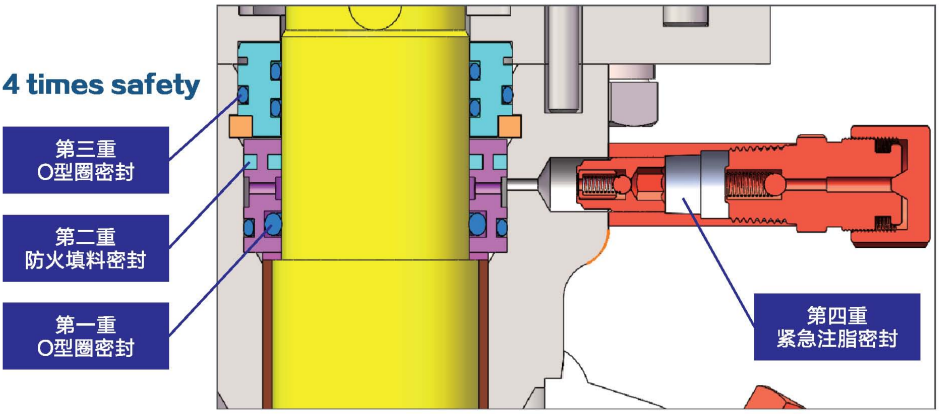
第一级密封由阀座和球体的金属对金属之间实现。第二级密封，即主密封是由抗爆橡胶（AED）弹性材料对球体的软密封，来实现绝对的零泄漏。并且在阀座注脂时形成封闭的注脂通道，实现真正的注脂密封，对阀门的整体密封性能和可靠性有极大的提高。

球体为固定式设计，阀座组件沿通道方向则是浮动的，在弹簧作用下提供低压下的预紧密封（弹簧材质为X-750），而在工作压力状态下，则利用介质自身的压力实现自密封。



阀杆部位多重密封结构

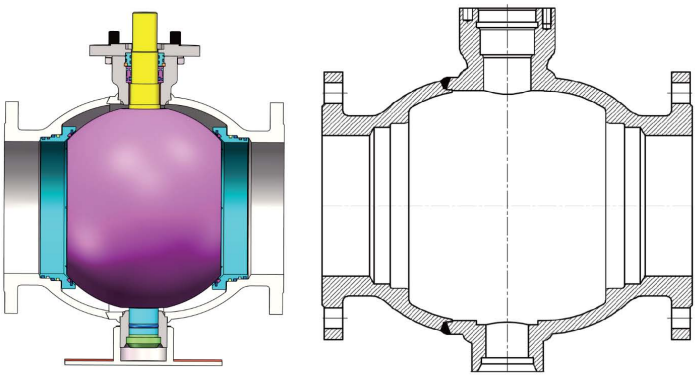
阀杆四重密封设计，第一重密封为O型圈组合密封（VITON AED），第二重密封为自密封式楔型防火密封环（膨胀石墨），在压力作用下密封效果更好，第三重密封为O型圈组合密封（VITON AED）。第四重注脂密封，在紧急情况下，可通过注脂阀向阀杆密封部位注入密封脂，使阀杆部位密封安全可靠。



钢管模压成型结构

球形一体式法兰球阀采用一种全新的球阀生产制造方式，具体为一种全焊接球阀的生产工艺，即选用无缝钢管或不锈钢管做毛坯，通过压制的方式，分别制出球阀的主管、接管的主要部分，再通过焊接，将主管和接管相连，从而完成了球阀主要部件的生产制作。

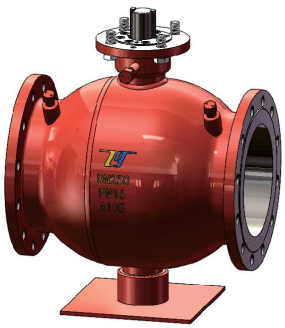
球形一体式法兰球阀阀体与阀盖之间，阀体与上阀杆接头、下阀杆接之间采用组焊连接，整体制造成型，无螺栓连接点。避免阀体螺栓连接密封处的外泄漏。彻底避免了传统两片/三片式球阀阀体螺栓连接处容易泄漏的隐患。



防火结构设计

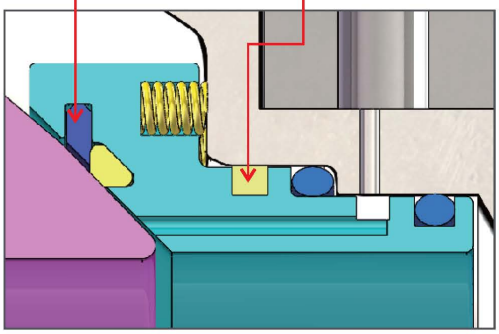
火灾条件下球阀的泄漏分为壳体外漏和密封面内漏两种途径，球形一体式法兰阀体本质杜绝壳体外漏，阀座处设计有阀座防火圈、阀座卡环，阀杆处设计有防火填料，在软密封被烧毁后，能起到继续密封的作用。

无螺栓连接一体式阀体



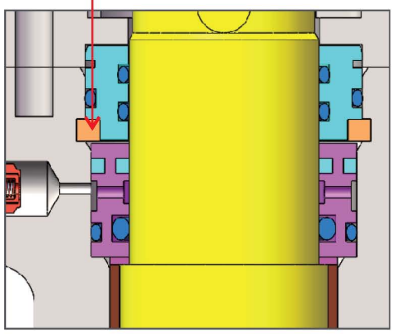
一体式阀体本质防火安全

金属卡环：A105+HCr　阀座防火圈：石墨盘根



阀座处防火设计

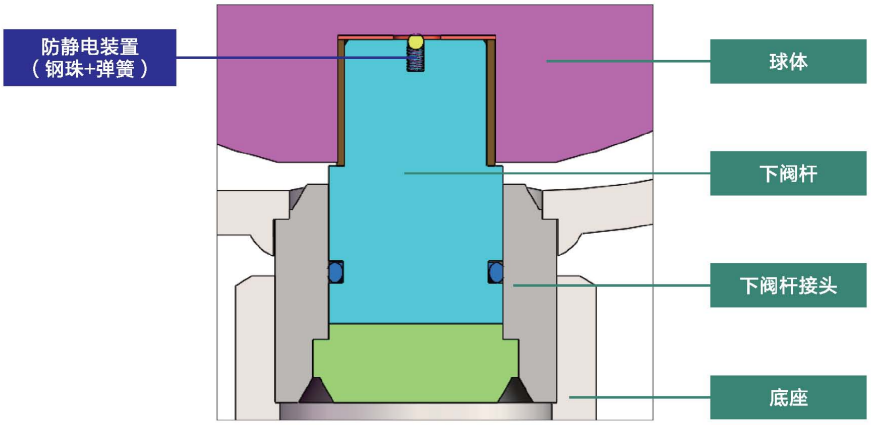
防火填料：柔性石墨



阀杆处防火设计

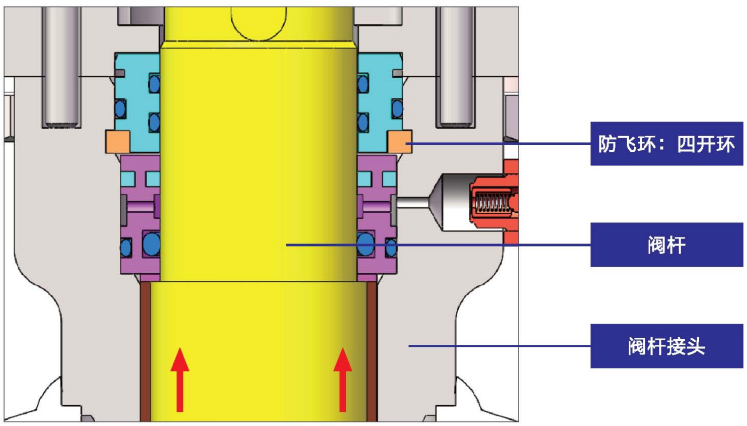
防静电结构设计

球形一体式法兰球阀在下阀杆与球体接触部位采用钢珠+弹簧式防静电装置，使球体与阀体之间形成电流通路，从而可将球体与阀座开关过程中摩擦产生的静电通过阀体引至大地，防止静电火花点燃介质，避免引起火灾或爆炸等危险。确保使用更安全。

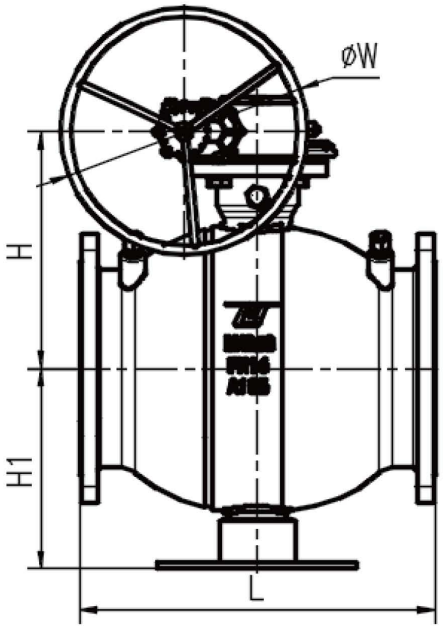


阀杆防喷出结构设计

阀杆在介质的压力作用下，有往外喷出的趋势，自贡自高球形一体式法兰阀阀杆部位采用阀杆防飞设计，直接阻挡阀杆喷出，确保使用更安全。



一体式固定球阀



适用压力等级：ASME CL150 PN16　　尺寸单位：mm

公称直径		类型	L	蜗轮操作	H1	手轮
NPS	DN			G		φW
6"	150	A	394	272	225	300
8"	200	A	457	315	265	350
10"	250	A	533	360	300	400
12"	300	A	610	415	350	500
14"	350	A	686	440	375	500
16"	400	B	762	490	430	500
18"	450	B	864	/	/	200
20"	500	B	914	602	542	600

注：更多口径的球阀可定制，详询自高阀门技术部。
Note: more ball valves can be customized. Please refer to the zi gao valve co.,ltd.

FJ-TP
节流截止放空阀
THROTTLE CUT-OFF VENT VALVE

TÜV Rheinland Fire Safety | API 607

UKAS QUALITY MANAGEMENT

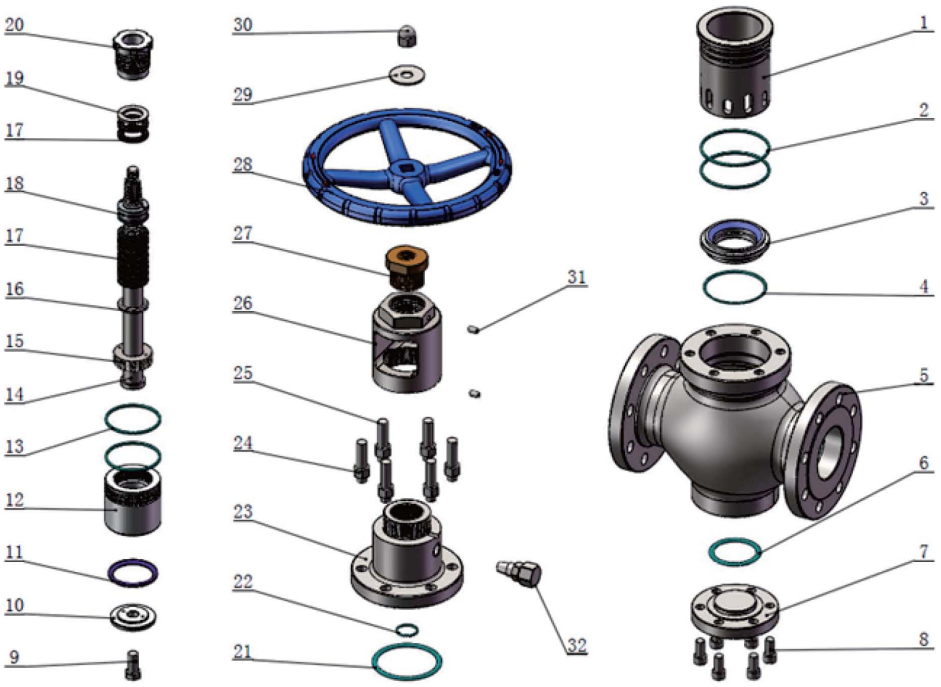
系列产品之——

（K）F（L）J41Y F 节流截止放空阀

（K）S L J41Y F 双作用节流截止阀

（K）T P41Y F 阀套式排污阀

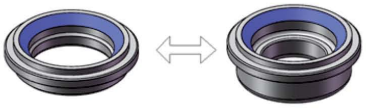
阀门分解图 Valve decomposition map



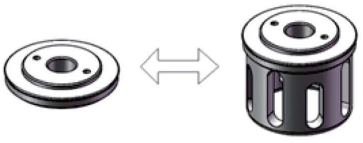
1. 阀套
2. “O”形圈
3. 阀座
4. “O”形圈
5. 阀体
6. “O”形圈
7. 底盖
8. 螺钉
9. 螺栓
10. 缓压盖
11. 防爆密封圈
12. 阀芯
13. “O”形圈
14. 阀杆
15. 阀芯压盖
16. 填料垫圈
17. 填料
18. 隔环
19. 上填料垫
20. 填料压盖
21. “O”形圈
22. “O”形圈
23. 阀盖
24. 螺母
25. 螺柱
26. 支架
27. 阀杆螺母
28. 手轮
29. 大垫圈
30. 盖形螺母
31. 螺钉
32. 注脂接头

功能切换 Function switch

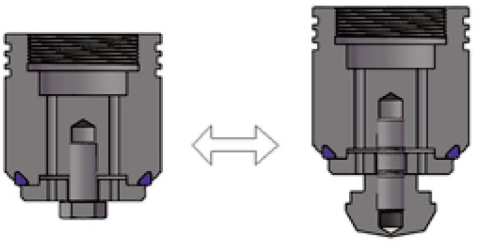
A.阀座————————带喷嘴的阀座

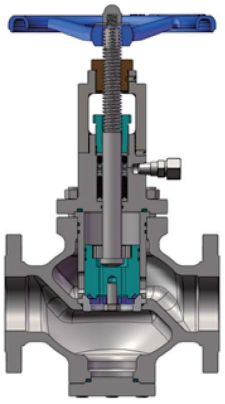


B.缓压盖——带节流窗口的缓压盖

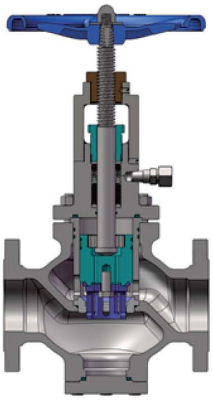


C. 阀芯组件----带节流阀瓣的阀芯组件

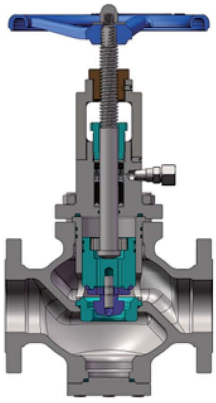




（K）F（L）J41Y



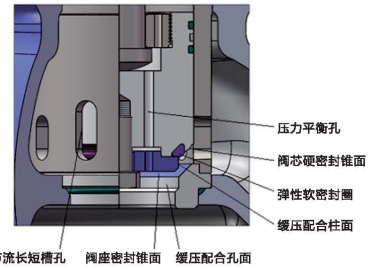
（K）SLJ41Y



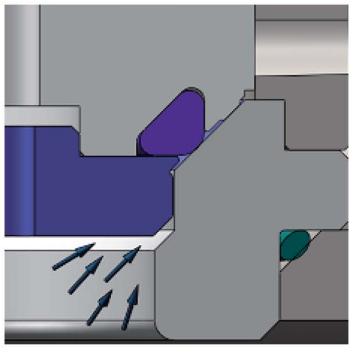
（K）TP41Y

创新技术

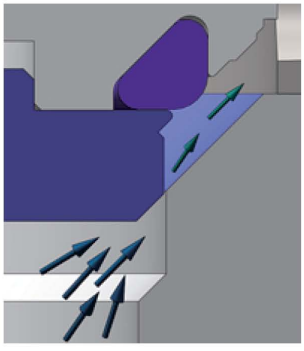
★流畅美观的阀体结构设计、降低阻力、减少振动。
★锥形阀座密封面利于吹扫，容易去除密封面上的脏物。
★最独特的软、硬双密封技术，满足阀座最佳密封性能。
★缓压区结构设计，提升阀门使用压差。
★改变介质流向结构设计，有效保护密封面。
★平滑过渡的长短节流槽结构设计，节流线性增量，排放时噪音更低。
★笼形阀套、内置平衡式阀芯结构，阀门操作力更轻便、灵活和稳定。



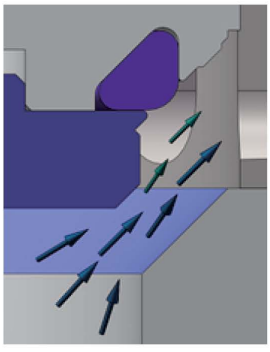
工作状态描述



(1) 软、硬双密封全闭状态



(2) 缓压保护状态



(3) 弱化介质直冲击密封面状态

1、图（1）是阀门全关时阀座密封图：顺时针驱动手轮带动阀杆下降，阀杆下端部把阀瓣推向阀座，首先阀瓣上的软质弹性密封圈与阀座密封锥面接触，先实现软密封；进一步加大手轮上的操作力力，继续关闭，直到阀瓣上的锥形硬密封面完全抵在阀座锥形硬密封面上，此时实现硬密封，关闭完全到位，这种结构设计为真正意义上的软硬双密封结构。

软质阀座密封圈选用弹性与密封性均非常好的防爆氟橡胶材料；阀座及阀瓣硬密封配合锥面均堆焊（或喷涂）有耐磨、抗腐蚀硬质合金层或碳化钨硬面层。这样的密封面材料配合与结构设计确保阀门的软、硬双密封均达到极佳的密封效果。

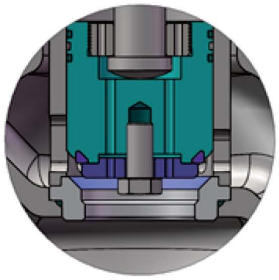
2、图（2）是阀门开启时（或关闭前）的工作图：阀门开启时（或关闭前）阀芯组件逐步离开（或推近）阀座，阀芯密封锥面、阀座密封圈先后脱离阀座密封锥面一小段距离，在此过程中缓压盖的外圆柱面与阀座的内圆孔面配合起到缓压的作用，防止了阀门在开启（或关闭）瞬间因压力过高、压差过大对密封面造成撕裂破坏。

3、图（3）为阀门开启后的工作图：阀芯组件中的软、硬密封面相对缓压盖形成凸面台阶锥面，该结构在阀芯开启少时，改变流出介质的流向，弱化了介质对软质阀座密封圈和阀芯密封面的冲击力。同时阀座的内孔为台阶扩展形凹面台阶锥面，该结构在阀瓣开启少时同样改变流出介质的方向，弱化了介质对阀座密封面流出时的冲击力。阀门开启逐步加大，此阀芯组件上的凸台阶锥面和阀座上的凹面台阶锥面对改变介质流向角度也在减小，在变化过种中，阀门压差也在减小，笼形阀套的节流槽也发挥作用，逐步减缓了介质流的冲刷力。该结构设计弱化了介质流对阀瓣、密封圈及阀座密封面的直接冲刷力，有效提高了密封面的使用寿命。

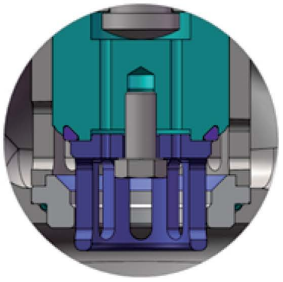
功能实现

1、节流功能

见下图：阀芯套上开设有平滑过渡的长、短槽窗口，其窗口面积能保证流通能力。阀芯为柱塞形结构，其中部开设平衡孔，阀芯与阀套间密封设有两道O形圈，在两道O形圈间设有贮渣槽，阀芯下端O形圈在阀套内上下移动实现自动除渣，清洁此密封段；阀芯下端设有刮渣口、能自动清除阀套下段内壁的脏物，防止卡阻。



(1) 单级节流

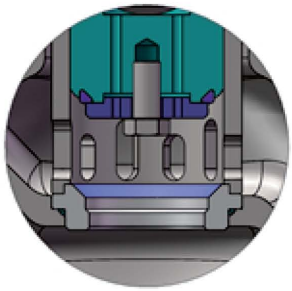


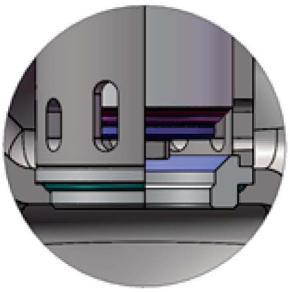
(2) 双作用节流

图（1）是阀芯柱面遮蔽阀套窗口面积的大小来调节介质流出量的多少。阀套上所开设的窗口为长槽形，利于控制调节量；长槽形窗口有长有短，平滑过渡在阀套圆周上，此结构有利于节流调节控制行程与流量的线性增量关系，排放平稳，噪音更低。

当阀门压差比较大，或要求提高节流、控压能力时，有必要采用二级及以上的节流降压结构。图（2）是在图（1）的基础上增设了一级节流调节结构。新增设的节流结构是缓压盖上的节流长槽窗口与阀座内孔配合，控制流出方向未遮蔽窗口的面积大小来进行节流。新增设的节流结构此时变为一级节流了，原阀套与阀芯配合的节流结构变为二级节流。经过二级或多级节流后，最终介质排放时对节流窗口的冲击力明显减缓，节流效果更明显。

2、放空与节流放空





在广泛的油气管路放空装置上，阀门的放空通常离不开节流，为了减小振动、降低噪音危害、控制排放时间及安全排放，需要控制阀门排放流量，当管路压力比较低时进一步加大或全启排放。

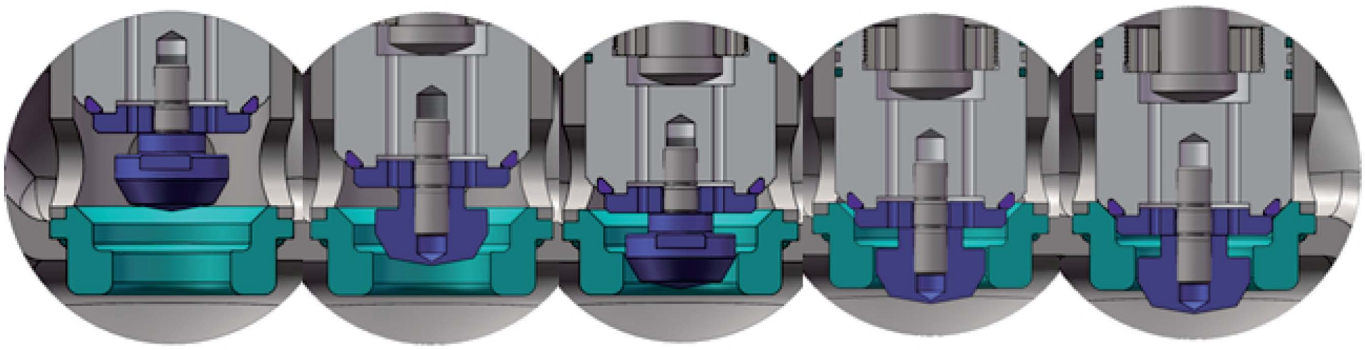
3、排污

为了实现污物的有效排放及截断时的可靠密封，阀套式排污阀与节流放空阀有所区别。排污与节流分离，节流在前，排污窗口在后，排污窗口为圆形、能更好的排出阀腔内的污物。采用带喷嘴结构阀座，有利于积压排出污物，是一种冲洗排放，防止了因缓速排放时可能出现的重质渣物沉积、污物粘附在密封面上。节流部位设置在阀芯底部，控制节流阀瓣与阀座喷嘴孔间的距离进行节流排污。

★排污原理：

阀门开启，管道中的介质经阀座喷嘴孔、节流阀瓣调节、阀套排污窗口排污。在此过程中，介质流经方向改变产生的涡流，实现自清扫阀腔，使软密封面不粘附杂质。

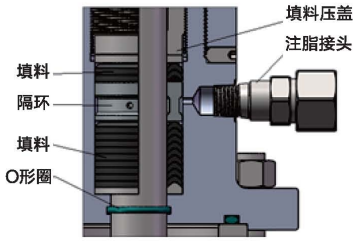
管道中介质排放后阀门关闭，节流阀瓣向阀座喷嘴配合运行一段距离后，管道中的介质只有小于配合间隙的杂质才能流到阀瓣上方（出口方向），此控渣过程中，使流阻系数进一步增加，介质流速加快，阀座密封面得到吹扫干净。继续关闭阀门，缓压盖与阀座缓压孔的配合柱面段为缓压保护过程，同时阻止更细微的杂质流出，这样阀座密封面、阀芯组件上的软、硬密封面也均得到更彻底的洁净清扫，保证了阀门排污后的密封性能。



全启状态→节流排污状态→控渣状态→缓压状态→全闭状态

阀杆密封

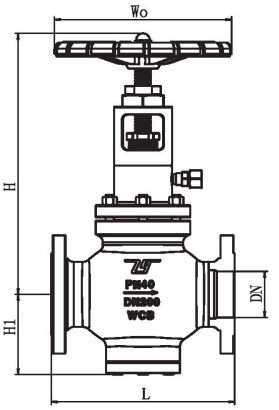
阀杆密封为动密封，采用了橡胶O形圈、自紧式V形塑氟填料、密封脂辅助密封系统等多重密封+补充压紧式填料压盖结构，保证阀杆密封性能可靠，操作灵便。



安装方式

阀体上有流向，现场安装时，请按阀体上的流向指示正确安装。我们推荐：放空时阀门通常垂直安装、出口向上，也可站立安装，出口端接放空管道进行安全放空；排污时阀门通常站立安装，也可垂直安装、出口向下。

结构外形尺寸



压力	NPS	DN	L	H	H1	Wo	重量kg	压力	NPS	DN	L	H	H1	Wo	重量kg
Pn16 150Lb	2 ½	65	290	337	130	250	30	Pn64 400Lb	1	25	216	262	73	180	16
	3	80	310	438	138	300	45		1 ½	40	240	294	90	200	24
	4	100	350	453	152	300	60		2	50	230	316	100	220	30
	5	125	400	510	208	350	80		2	65	290	337	130	250	40
	6	150	480	570	218	400	103		3	80	310	438	138	300	76
	8	200	600	630	260	400	165		4	100	350	453	156	350	110
	10	250	730	890	331	500	335		6	150	480	570	218	400	160
Pn25	8	200	600	630	260	400	180		8	200	600	660	263	500	265
	10	250	730	890	337	500	344		10	250	730	890	335	600	420
Pn40 300Lb	1	25	216	262	68	180	13	Pn100 600Lb	1	25	216	262	73	180	18
	1 ½	40	240	294	90	200	18		1 ½	40	260	294	90	200	25
	2	50	230	316	100	220	22		2	50	300	316	100	220	35
	2	65	290	337	130	250	30		2	65	340	337	130	250	70
	3	80	310	438	138	300	45		3	80	380	438	138	300	98
	4	100	350	453	152	300	63		4	100	430	453	156	350	135
	5	125	400	510	208	350	84		5	125	508	–	–	–	–
	6	150	480	570	218	400	110		6	150	559	570	218	400	220
	8	200	600	630	260	400	170		8	200	660	660	270	500	340
	10	250	730	890	331	500	350		10	250	787	890	345	600	540

压力	NPS	DN	L	H	H1	Wo	重量kg	压力	NPS	DN	L	H	H1	Wo	重量kg
Pn160 900Lb	1	25	230	262	73	180	20	Pn250 1500Lb	1	25	254	268	78	180	30
	1 ½	40	260	294	95	200	28		1 ½	40	305	300	98	220	41
	2	50	300	320	110	250	37		2	50	368	320	110	250	60
	3	80	390	440	152	350	120		3	80	470	450	152	400	160
	4	100	450	480	170	400	150		4	100	470	–	–	–	–
	6	150	610	–	–	–	–		6	150	705	–	–	–	–

数据仅供参考，请以实物为准

CBV
铸钢球阀（浮动-固定球）
CASTING STEEL BALL VALVE

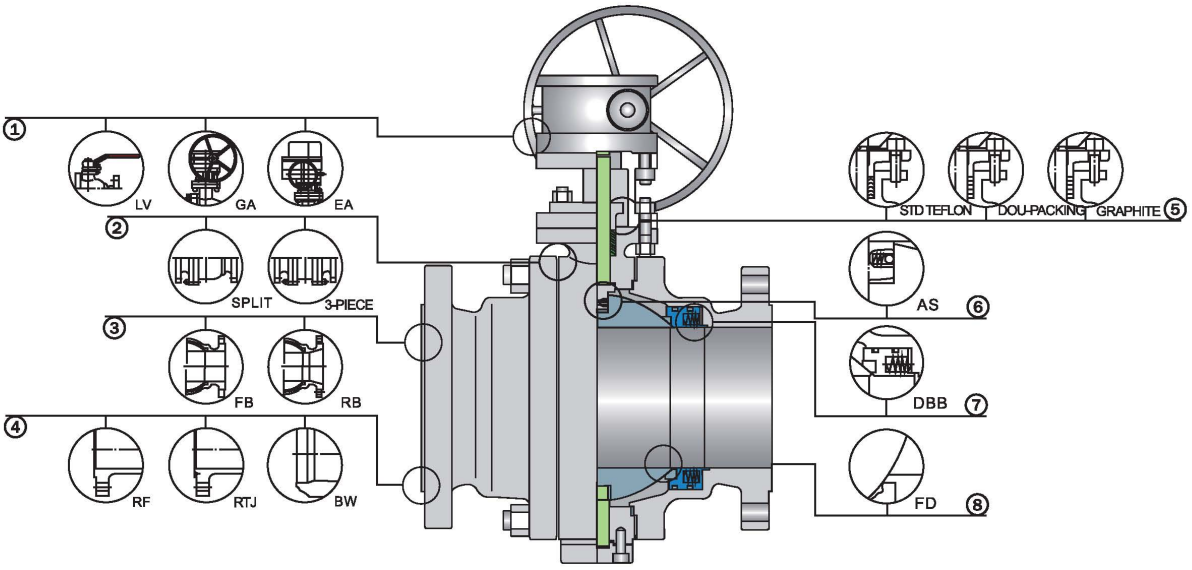
阀门类型——口径——压力——端部连接——操作方式

举例：

CBV-DN25-PN16-RF

阀门类型：CBV—铸钢球阀（浮动-固定球）；DN25—口径；PN16—压力；RF—突面法兰

主要功能特征(固定式) Majer functlon feature(Trunnion mounted)



① **Operating**
操作方式

② **BODY & BONNET**
阀体形式

③ **BORE**
流道孔

④ **End Connections**
端部链接形式

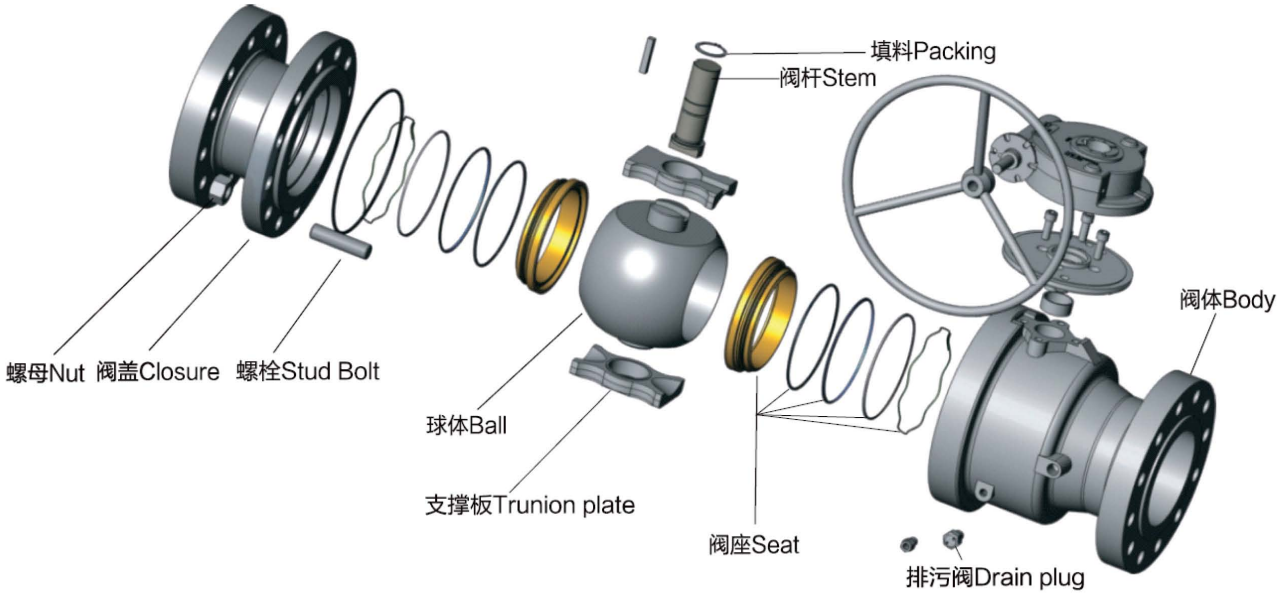
⑤ **Packing**
阀杆填料

⑥ **AS**
防静电

⑦ **DDB**
双截断双排放

⑧ **FD**
防火

零配件装配图(固定式) Assembly drawing(Trunnion mounted)



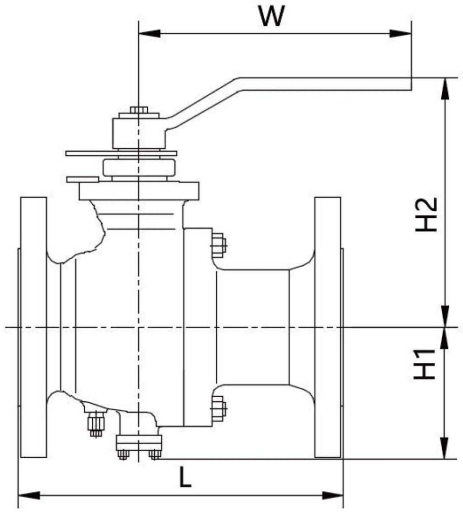
主要部件材料(固定式) Main component materials(Trunnion mounted)

部件名称 Part name	部件材料 Part material				
	无腐蚀介质工况 Non-corrosive media conditions		酸性介质工况 Acid medium conditions		普通腐蚀工况 Normal corrosion condition
	常温(-29C° ~120C°)	低温(-46C° ~120C°)	常温(-29C°~120C°)	低温(-46C° ~120C°)	-46C°~120C°
阀体 Body	ASTM A216 WCB	ASTM A352 LCB/LCC	ASTM A216 WCB (FOR NACE)	ASTM A352 LCB/LCC (FOR NACE)	ASTM A351 CF8/CF3/CF8M/CF3M
左右体 Bonnet	ASTM A216 WCB	ASTM A352 LCB/LCC	ASTM A216 WCB (FOR NACE)	ASTM A352 LCB/LCC (FOR NACE)	ASTM A351 CF8/CF3/CF8M/CF3M
球体 Ball	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)	ASTM A182 F304/F304L/F316/F316L
阀座 seat	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK	VITON PTFE NYLON DEVLON PEEK
阀杆 Stem	AISI 4140	AISI 4140	AISI 4140 17-4PH FXM-19	AISI 4140 17-4PH FXM-19	AISI 4140 17-4PH FXM-19
弹簧 Spring	INCONEL X-750	INCONEL X-750	INCONEL X-750	INCONEL X-750	INCONEL X-750
螺栓 Bolt	ASTM A193 B7	ASTM A320 L7	ASTM A193 B7M	ASTM A320 L7M	ASTM A320 B8
螺母 Nut	ASTM A194 2H	ASTM A194 7	ASTM A194 2HM	ASTM A194 7M	ASTM A194 8

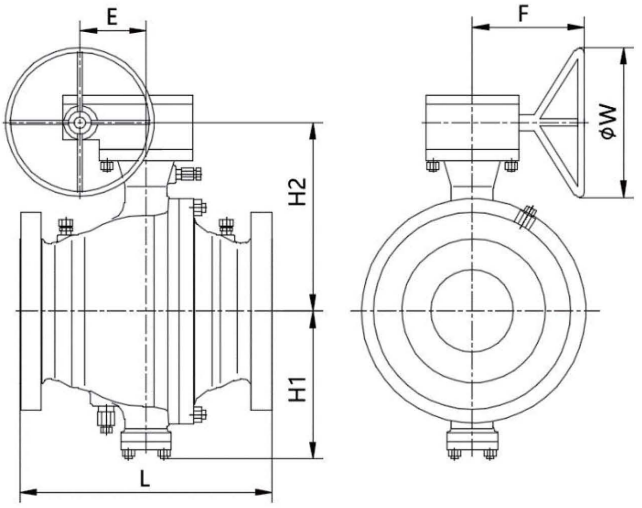
注：表中阀门主要零部件的常规材料配置，根据实际工况可能会有所调整，特别如硫化氢等危险工况，需明确组份含量进行针对性选材，详询自高阀门技术部。

Note: the conventional material configuration of the main parts of the valve in the table may be adjusted according to the actual working conditions, especially for the hazardous working conditions such as hydrogen sulfide. It is necessary to make clear the component content for targeted selection. Please refer to the zigao valve technology department for details.

外形尺寸图(固定式) Outline dimension drawing(Trunnion mounted)



■ 类型WTCBV

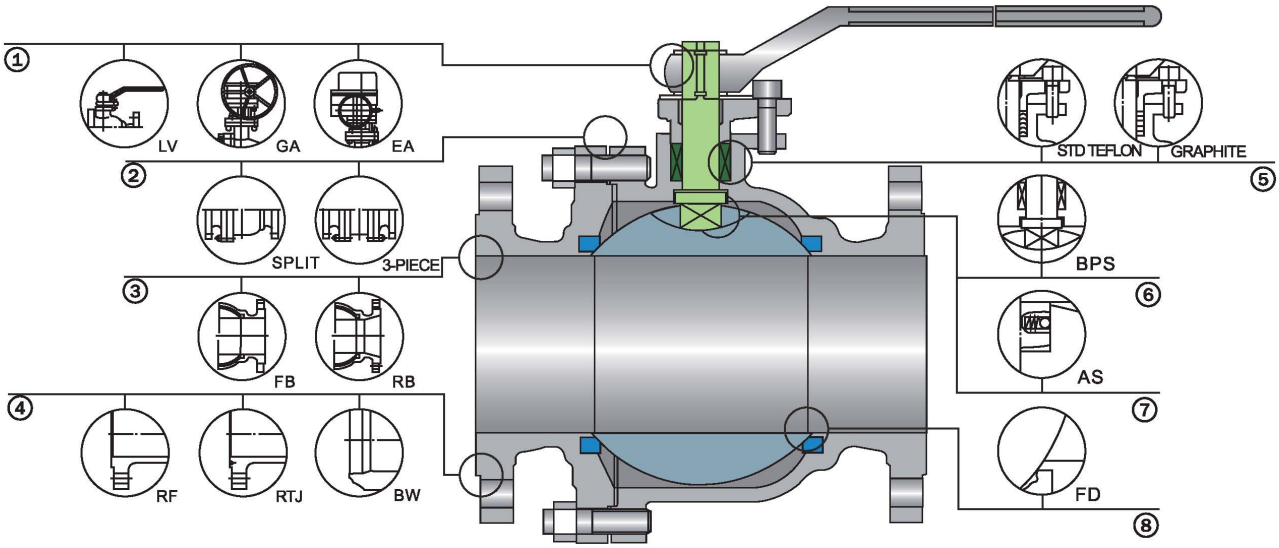


■ 类型GTCBV

公称直径		类型	L								
NPS	DN		PN16	PN25	PN40	PN64	PN100	150LB	300LB	400LB	600LB
2"	50	WTCBV	178	216	216	292	292	178	216	292	292
2 1/2"	65	WTCBV	190	241	241	330	330	190	241	330	330
3"	80	WTCBV	203	283	283	356	356	203	283	356	356
4"	100	GTCBV	229	305	305	406	432	229	305	406	432
6"	150	GTCBV	394	394	403	495	559	394	403	495	559
8"	200	GTCBV	457	457	502	597	660	457	502	597	660
10"	250	GTCBV	533	533	568	673	787	533	568	673	787
12"	300	GTCBV	610	610	648	762	838	610	648	762	838
14"	350	GTCBV	686	686	762	826	889	686	762	826	889
16"	400	GTCBV	762	762	838	902	991	762	838	902	991
18"	450	GTCBV	864	864	914	978	1092	864	914	978	1092
20"	500	GTCBV	914	914	991	1054	1194	914	991	1054	1194
24"	600	GTCBV	1067	1067	1143	1232	1397	1067	1143	1232	1397

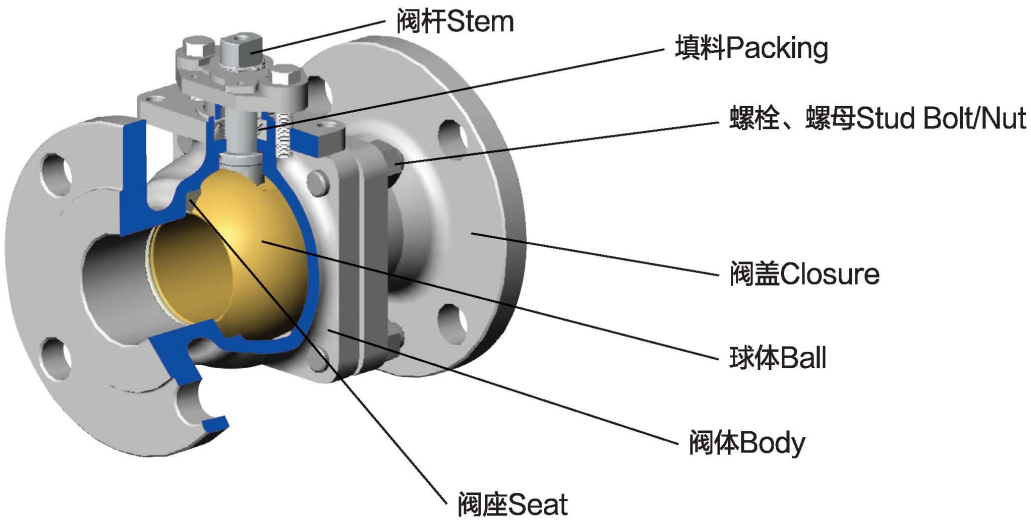
注：更多口径的球阀可定制，详询自高阀门技术部。
Note: more ball valves can be customized. Please refer to the zi gao valve co.,ltd.

主要功能特征(浮动式) Major function feature(Floating)



①Operating 操作方式	③ BORE 流道孔	⑤ Packing 阀杆填料	⑦ AS 防静电
② BODY & BONNET 阀体形式	④ End Connections 端部链接形式	⑥ BPS 防飞阀杆	⑧ FD 防火

零配件装配图(浮动式) Assembly drawing(Floating)



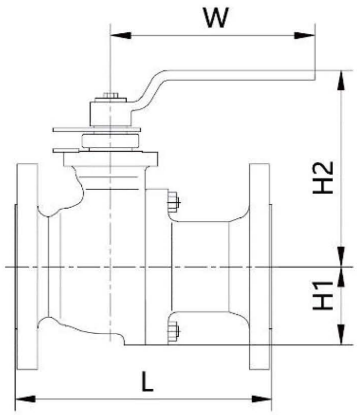
主要部件材料(浮动式) Main component materials(Floating)

部件名称 Part name	部件材料 Part material				
	无腐蚀介质工况 Non-corrosive media conditions		酸性介质工况 Acid medium conditions		普通腐蚀工况 Normal corrosion condition
	常温(-29C° ~120C°)	低温(-46C° ~120C°)	常温(-29C°~120C°)	低温(-46C° ~120C°)	-46C°~120C°
阀体 Body	ASTM A216 WCB	ASTM A352 LCB/LCC	ASTM A216 WCB (FOR NACE)	ASTM A352 LCB/LCC (FOR NACE)	ASTM A351 CF8/CF3/CF8M/CF3M
左右体 Bonnet	ASTM A216 WCB	ASTM A352 LCB/LCC	ASTM A216 WCB (FOR NACE)	ASTM A352 LCB/LCC (FOR NACE)	ASTM A351 CF8/CF3/CF8M/CF3M
球体 Ball	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)	ASTM A182 F304/F304L/F316/F316L
阀座 seat	PTFE PPL TYLON	PTFE PPL TYLON	PTFE PPL TYLON	PTFE PPL TYLON	PTFE PPL TYLON
阀杆 Stem	AISI 4140	AISI 4140	AISI 4140 17-4PH FXM-19	AISI 4140 17-4PH FXM-19	AISI 4140 17-4PH FXM-19
螺栓 Bolt	ASTM A193 B7	ASTM A320 L7	ASTM A193 B7M	ASTM A320 L7M	ASTM A320 B8
螺母 Nut	ASTM A194 2H	ASTM A194 7	ASTM A194 2HM	ASTM A194 7M	ASTM A194 8

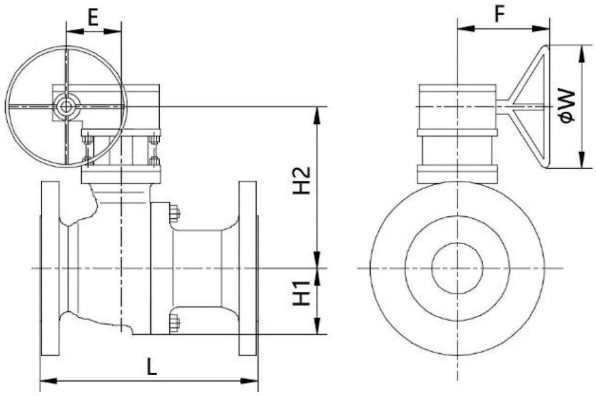
注：表中阀门主要零部件的常规材料配置，根据实际工况可能会有所调整，特别如硫化氢等危险工况，需明确组份含量进行针对性选材，详询自高阀门技术部。

Note: the conventional material configuration of the main parts of the valve in the table may be adjusted according to the actual working conditions, especially for the hazardous working conditions such as hydrogen sulfide. It is necessary to make clear the component content for targeted selection. Please refer to the zigao valve technology department for details.

外形尺寸图(浮动式) Outline dimension drawing(Floating)



■ 类型WFCBV



■ 类型GFCBV

公称直径		类型	L								
NPS	DN		PN16	PN25	PN40	PN64	PN100	150LB	300LB	400LB	600LB
1/2"	15	WFCBV	130	130	130	165	165	108	140	165	165
3/4"	20	WFCBV	140	140	140	190	190	117	152	190	190
1"	25	WFCBV	150	150	150	216	216	127	165	216	216
1 1/4"	32	WFCBV	165	165	180	229	229	140	178	229	229
1 1/2"	40	WFCBV	180	180	200	241	241	165	190	241	241
2"	50	WFCBV	200	200	220	292	292	178	216	292	292
2 1/2"	65	WFCBV	220	220	250	330	330	190	241	330	330
3"	80	WFCBV	250	250	280	356	356	203	283	356	356
4"	100	WFCBV	280	320	320	406	432	229	305	406	432
6"	150	GFCBV	360	360	403	495	559	394	403	495	559
8"	200	GFCBV	400	400	502	597	660	457	502	597	660

注：更多口径的球阀可定制，详询自高阀门技术部。
Note: more ball valves can be customized. Please refer to the zi gao valve co.,ltd.

ZSHV
轴流式止回阀
AXIAL FLOW CHECK VALVE

阀门类型——口径——压力——端部连接

举例：

ZSHV-DN650-PN63-RF

阀门类型：ZSHV—轴流式止回阀；DN650—口径；PN63—压力；RF—法兰端RF面

ZSHV轴流式止回阀 Axial flow check valve

ZSHV轴流式止回阀是自高阀门制造的一种阻止介质回流的阀门，通过阀门进口和出口两端的压力差来实现阀瓣开关的装置，是用在单向流动的介质管道上的一种部件，是自动开关阀。具有流阻系数小、水击压力低、噪音低、流动性能好、响应速度快等优点。

普遍应用于石油和天然气长输管线、大型乙烯装置中压缩机和大型泵的出口处，阻止介质反向流动，一定程度上防止事故的发生。

ZSHV axial flow check valve is a kind of valve manufactured by the self-contained valve to prevent the backflow of medium. It is a device to realize the valve disc switch by the pressure difference between the inlet and the outlet of the valve. It is a component used in the one-way flow medium pipeline and an automatic on-off valve. It has the advantages of small flow resistance coefficient, low water hammer pressure, low noise, good flow performance and fast response.

It is widely used in long-distance oil and gas pipelines, large-scale ethylene plant compressors and large-scale pump outlets, to prevent the reverse flow of media, to some extent, to prevent accidents.

产品制造范围 Product manufacturing scope

- 尺寸：NPS 1/2"~24"（DN50~600）
- 压力等级：ASME CL150~CL2500Lb（PN10~PN420）
- 流道孔形式：全通径&缩径

- size: NPS 1/2"~ 24" (DN15 ~ 600)
- Pressure: ASME CL150~CL2500Lb（PN10~PN420）
- Channel Hole Type: full bore & reduced bore

设计制造标准 Design and manufacturing standards

- 设计标准：API 6D、ASME B16.34、GB/T21387
- 检测标准：API 6D、API 598、GB/T13927
- 结构长度：API 6D、ASME B16.10、工厂标准
- 耐火试验标准：API 6FD
- 防腐蚀标准：NACE MR0175

- Design Standard: API 6D, ASME B16.34
- Test Standard: API 6D, API 598
- Length: API 6D, ASME B16.10、Plant standards
- Fire Test Standard: API 6FD
- Anti Corrosion Standard: NACE MR0175

适用工况 Applicable working condition

- 介质温度：-46℃~425℃
- 适用介质：石油、天然气等液体和气体

- Medium Temperature: - 46 ℃ ~ 425 ℃
- Applicable Media: Oil, natural gas and other liquids and gases

主要功能特征 Majer functlon feature

☆锻钢一体式，全焊接阀体优先推荐，强度密封可靠，更好的满足管线长期输送作业需求。

☆超低压降，实现阀门自动化启闭性能优良。特别是大口径阀门，启闭行程短，可以实现快速关闭。防止介质倒流造成上游管道设备受到破坏。

☆流畅美观的阀腔结构设计、降低阻力、降低水锤冲击力，减少振动噪音小。

☆锥形阀座密封面利于吹扫，容易去除密封面上的脏物。

☆最独特的软、硬双密封技术，满足阀座最佳密封性能。高压阀门密封面可采用金属纯硬密封。

☆阀芯轴定位精准，除渣结构设计，启闭灵活。

☆分体式阀座结构设计推荐，能更好的满足高精度加工工艺技术的要求，如喷焊——热处理——机加工等，保证密封性能更佳。

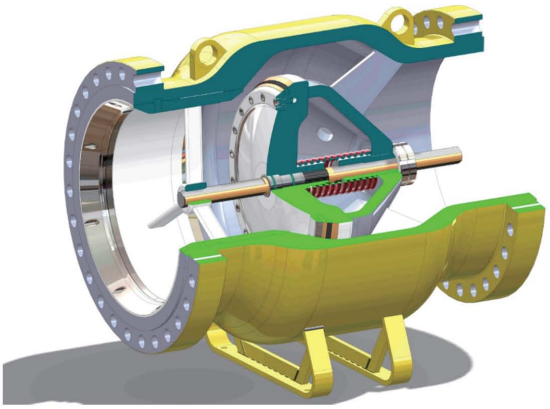
☆使用高寿命弹簧材料，对阀芯稳定的较小推力，保证阀门低压开启，低压密封。

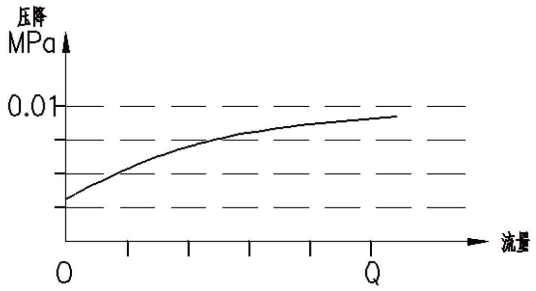
☆阀轴及导向套采用优质不锈类材料，采用特殊的工艺技术，保证阀门长期启闭不受介质腐蚀、冲蚀、耐磨性好。

☆阀门结构紧凑，安装空间小，水平或垂直均可，不受限。推荐水平安装，流阻更小。

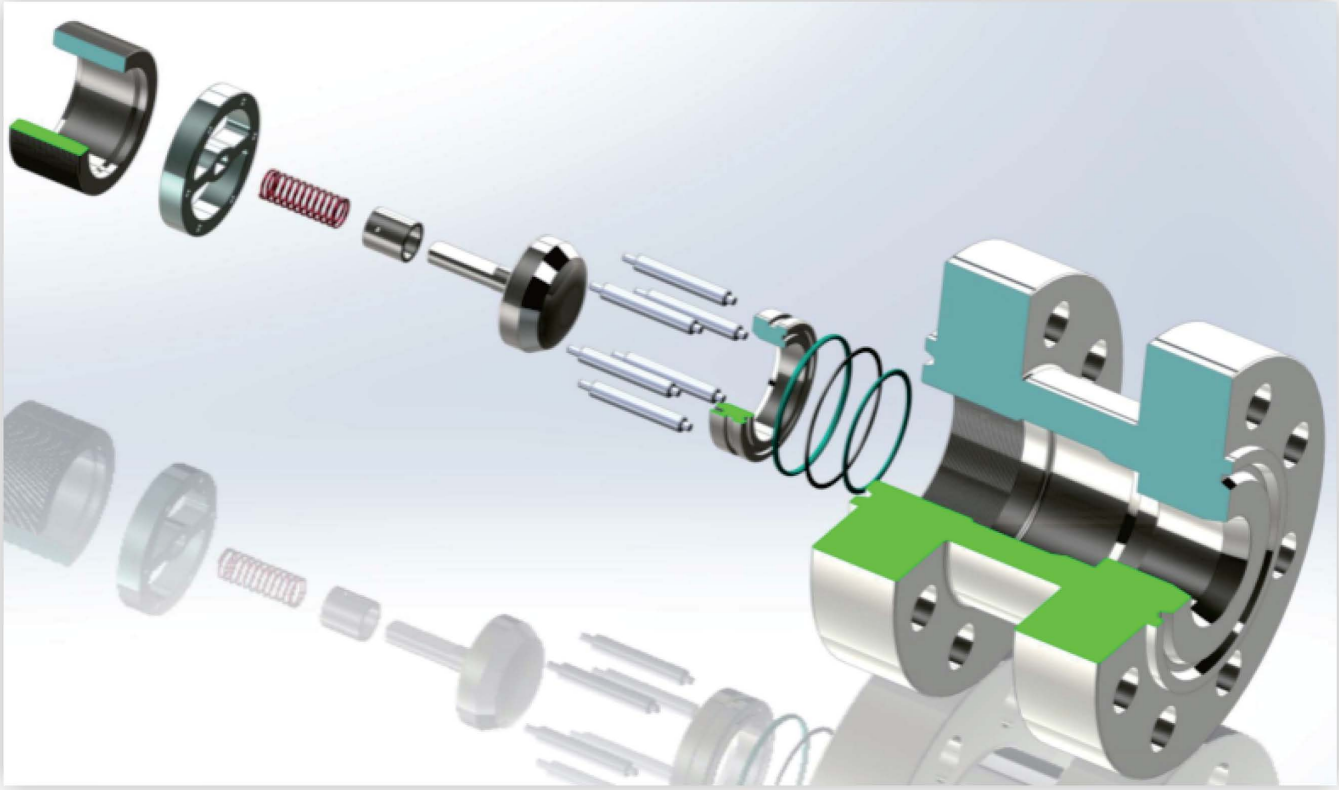
☆免维护结构，试车和运行阶段均不需要对阀门进行调试、注脂等保养与维护。

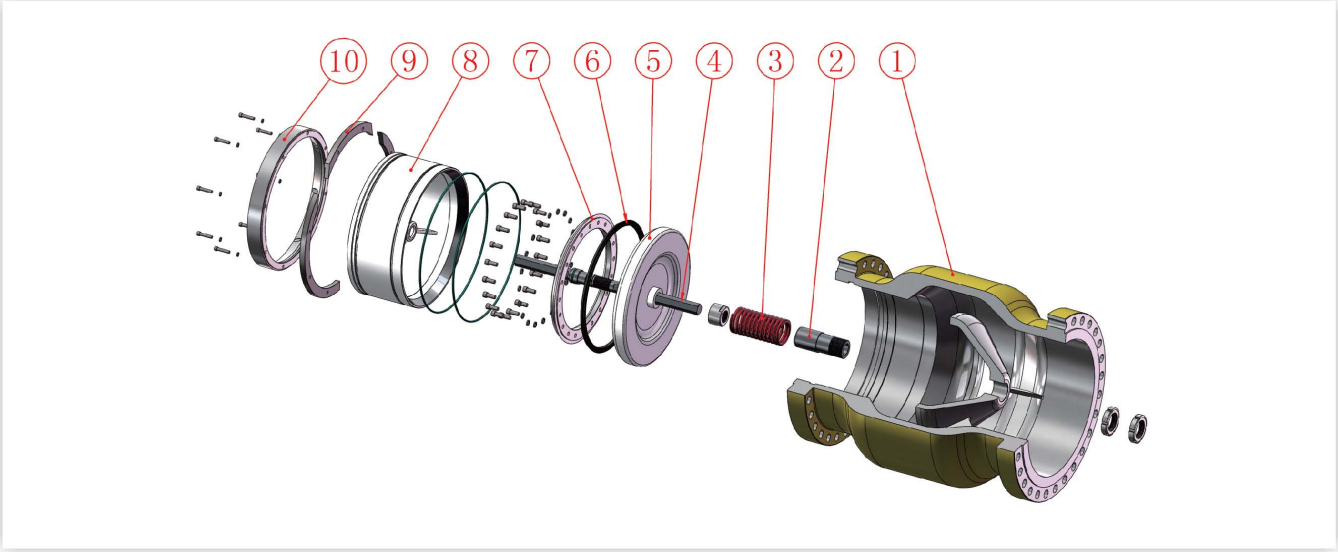
☆阀门压降最小设计（见压降曲线图）低压开启时，弹簧压缩小，对阀门产生压力损失小，开启时，弹簧压缩到最大，此时的阻力系数小于设计控制值。





零配件装配图 Assembly drawing





1.阀体	3.弹簧	5.阀芯	7.阀芯压盖	9.防飞卡环
2.轴套	4.阀轴	6.阀芯密封圈	8.阀座	10.压环

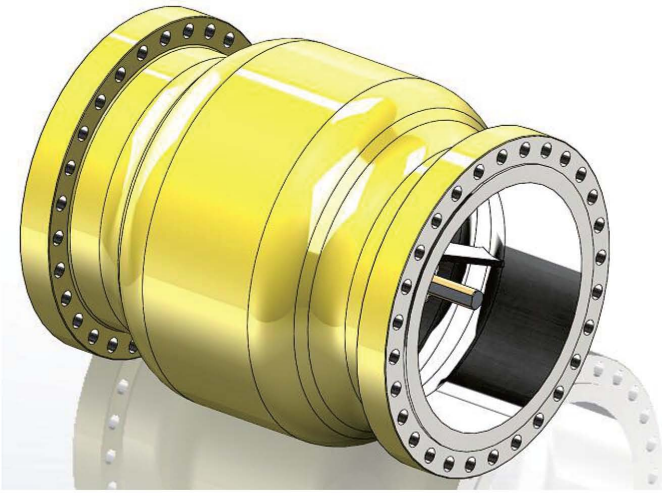
主要部件材料 Main component materials

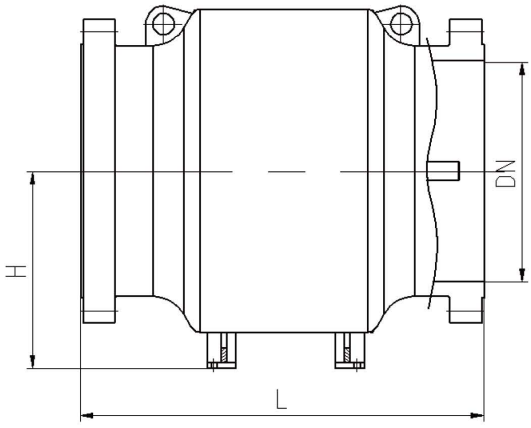
部件名称 Part name	部件材料 Part material		
	碳钢类 Non-corrosive media conditions		不锈钢类 Normal corrosion condition
	常温(-29C°~120C°)	低温(-46C°~120C°)	-46C°~120C°
阀体 Body	ASTM A216 WCB/WCC ASTM A105	ASTM A352 LCB/LCC ASTM A350 LF2	ASTM A351 CF8/CF3/CF8M/CF3M ASTM A182 F304/F304L/F316/F316L
轴套 Axle sleeve	GB/T1220 20Cr13	ASTM A182 F304	ASTM A182 F304/F304L/F316/F316L
弹簧 Spring	Inconel X750	Inconel X750	Inconel X750
阀轴 Shaft	GB/T1220 20Cr13	ASTM A182 F304	ASTM A182 F304/F304L/F316/F316L
阀芯 Spool	ASTM A105 GB/T1220 20Cr13	ASTM A350 LF2 ASTM A182 F304	ASTM A182 F304/F304L/F316/F316L
阀芯密封圈 Core sealing ring	RPTFE/MOLON/PEEK	RPTFE/MOLON/PEEK	RPTFE/MOLON/PEEK
阀芯压盖 Core gland	ASTM A105 GB/T1220 20Cr13	ASTM A350 LF2 ASTM A182 F304	ASTM A182 F304/F304L/F316/F316L
阀座 Seat	ASTM A105 GB/T1220 20Cr13	ASTM A350 LF2 ASTM A182 F304	ASTM A182 F304/F304L/F316/F316L
防飞卡环 Anti flight clasp	GB/T1220 20Cr13	ASTM A350 LF2 ASTM A182 F304	ASTM A182 F304/F304L/F316/F316L
压环 Pressing ring	ASTM A105 GB/T1220 20Cr13	ASTM A350 LF2 ASTM A182 F304	ASTM A182 F304/F304L/F316/F316L

注：表中阀门主要零部件的常规材料配置，根据实际工况可能会有所调整，特别如硫化氢等危险工况，需明确组份含量进行针对性选材，详询自高阀门技术部。

Note: the conventional material configuration of the main parts of the valve in the table may be adjusted according to the actual working conditions, especially for the hazardous working conditions such as hydrogen sulfide. It is necessary to make clear the component content for targeted selection. Please refer to the zigao valve technology department for details.

外形尺寸图 Outline dimension drawing





止回阀结构长度

NPS	150Lb/300Lb/PN16/PN25/PN40			400Lb/PN63			600Lb/PN100		
	DN	标准型	短型	DN	标准型	短型	DN	标准型	短型
1	25	127	121	25	216	140	25	216	140
1.5	40	165	146	40	241	161	40	241	161
2	50	203	165	50	292	165	50	292	165
2.5	65	216	178	65	330	178	65	330	178
3	80	241	190	80	356	190	80	356	190
4	100	292	216	100	406	216	100	432	216
6	150	356	254	150	495	254	150	559	254
8	200	495	305	200	597	305	200	660	305
10	250	622	356	250	673	356	250	787	356
12	300	699	435	300	762	435	300	838	435
14	350	787	533	350	889	533	350	889	533
16	400	864	572	400	902	572	400	991	572
18	450	978	660	450	1016	660	450	1092	660
20	500	978	800	500	1054	800	500	1194	800
24	600	1295	980	600	1397	980	600	1397	980
28	700	1448	1168	700	1600	1168	700	1600	1168
30	750	1524	1250	750	1651	1250	750	1651	1250
32	800	/	1350	800	1778	1350	800	1778	1350
36	900	1956	1482	900	2083	1482	900	2083	1482

注：短型结构长度为企业标准，定制结构长度请与自高技术部联系。

GDQ
轨道式球阀（强制密封球阀）
TRACK BALL VALVE

阀门类型——口径——压力——端部连接

举例:
GDQ-DN650-PN63-RF
阀门类型：GDQ—轨道式球阀（强制密封球阀）；DN650—口径；PN63—压力；RF—法兰端RF面

GDQ强制密封球阀 Forced seal ball valve

GDQ强制密封球阀（轨道式无摩擦球阀）是自高阀门制造的一种具备高可靠性、主动密封性和长寿命的阀门产品，通过阀杆底部楔形面与导轨槽和导轨销相互配合，使开关过程中球体远离阀座并无摩擦转动，满足各种严苛工况下对阀门的寿命以及密封性要求。

阀门开启时，球体远离阀座，独特的流线形阀座密封面设计，介质沿密封面360°环形冲洗，带走杂质，防止杂质沉积，保持阀座清洁。球体转动至全开位置时，具有很高的CV值，提高了流动效率并降低了介质冲刷腐蚀率，整体寿命得到提高。

阀门关闭时，阀杆楔形面机械力推动球体紧压阀座，实现可靠的密封。

GDQ forced seal ball valve (track type non friction ball valve) is a kind of valve product with high reliability, active sealing and long service life, which is manufactured by self-contained valve. Through the mutual cooperation of wedge-shaped surface at the bottom of valve rod, guide rail groove and guide rail pin, the ball is far away from the valve seat and rotates without friction during the switching process, so as to meet the service life and sealing requirements of valves under various severe working conditions.

When the valve is opened, the ball body is far away from the valve seat. The unique streamlined valve seat sealing surface design, the medium is flushed 360° along the sealing surface to remove impurities, prevent impurities from depositing, and keep the valve seat clean. When the ball rotates to the full open position, it has a high CV value, which improves the flow efficiency and reduces the erosion corrosion rate of the medium, and improves the overall life.

When the valve is closed, the mechanical force of the wedge surface of the valve rod pushes the ball to press the valve seat tightly to achieve reliable sealing.

产品制造范围 Product manufacturing scope

- 尺寸：NPS2"~24"（DN50~600）
- 压力等级：ASME CL150~CL2500Lb（PN10~PN420）
- 流道孔形式：全通径&缩径

- size: NPS2 "~ 24" (DN50 ~ 600)
- Pressure: ASME CL150~CL2500Lb（PN10~PN420）
- Channel Hole Type: full bore & reduced bore

设计制造标准 Design and manufacturing standards

- 设计标准：API 6D、ASME B16.34
- 检测标准：API 6D、API 598
- 结构长度：API 6D、ASME B16.10
- 耐火试验标准：API 6FA
- 防腐蚀标准：NACE MR0175、NACE MR0101 ISO15156、ISO17495

- Design Standard: API 6D, ASME B16.34
- Test Standard: API 6D, API 598
- Structura lLength: API 6D, ASME B16.10
- Fire Test Standard: API 6FA
- Anti Corrosion Standard: NACE MR0175、NACE MR0101 ISO15156、ISO17495

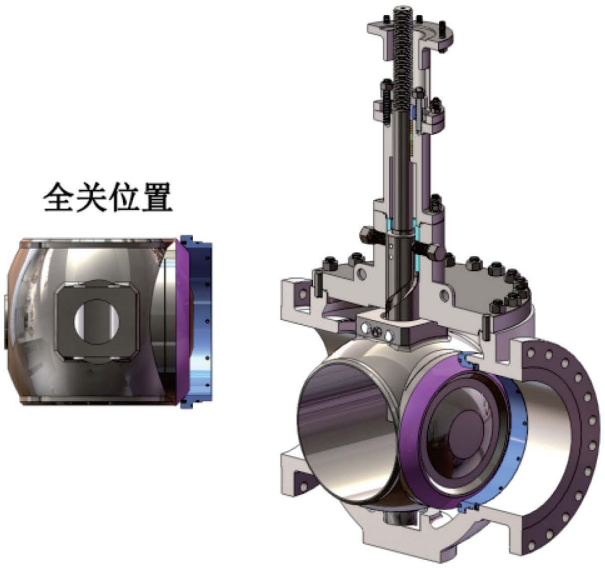
适用工况 Applicable working condition

- 介质温度：-46℃~425℃
- 适用介质：原油、成品油、原料气、天然气 煤气、烃类、烷类、轻质油和污水

- Medium Temperature: - 46 ℃ ~ 425 ℃
- Applicable Media: crude oil, product oil, feed gas, natural gas Gas, hydrocarbon, alkane, light oil, sewage

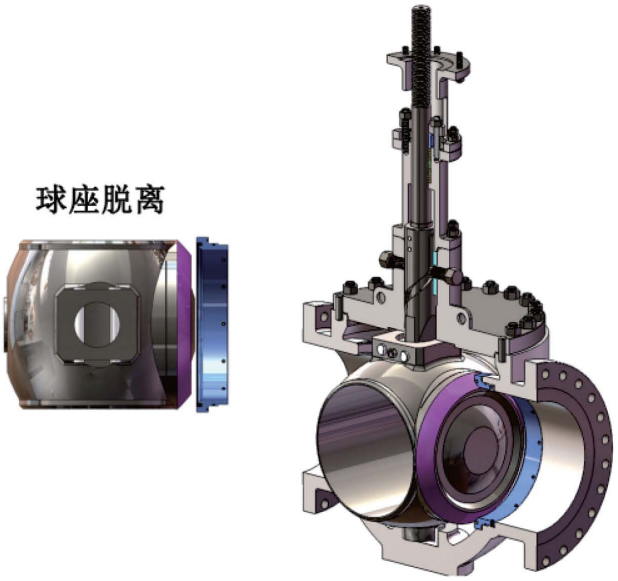
开关动作原理 Operation principle of switch

开启过程 Opening process



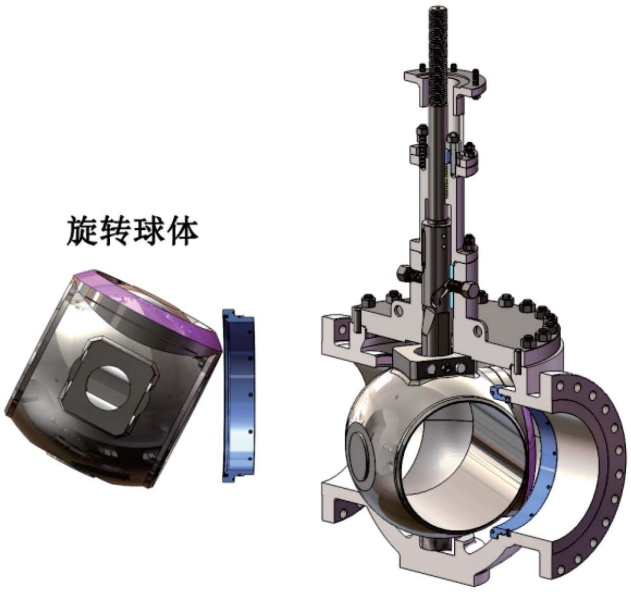
■ 阶段1

在关闭位置，阀杆楔形面机械力推动球体紧压阀座实现密封。



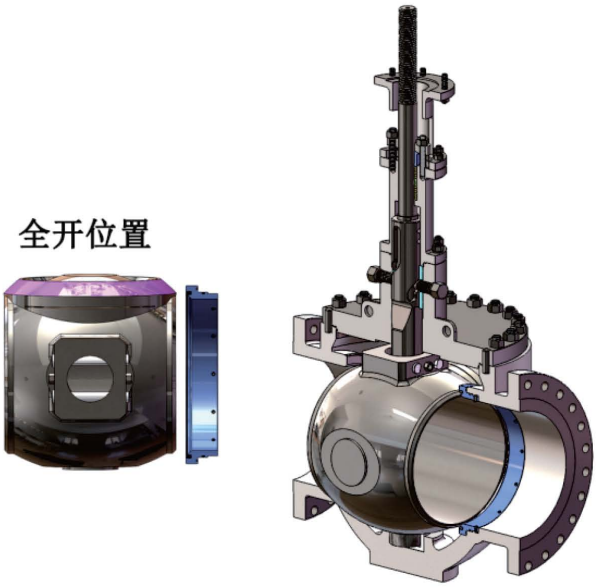
■ 阶段2

逆时针转动手轮，阀杆向上提升，楔形面机械力使得球体远离阀座。



■ 阶段3

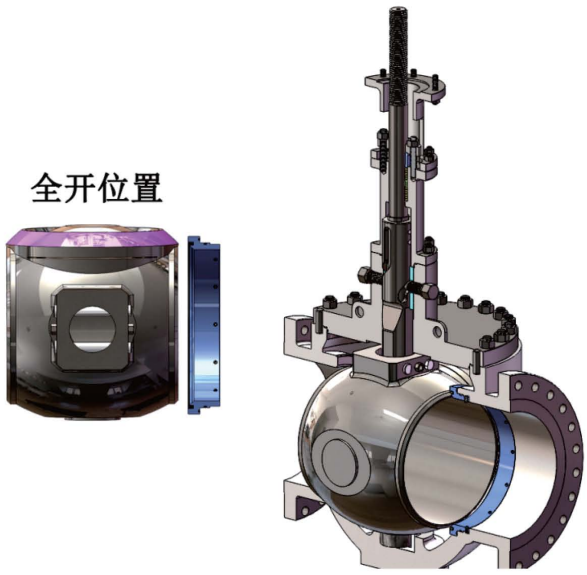
阀杆继续向上提升，结合阀杆螺旋导轨槽与导向销的相互作用，带动球体无摩擦旋转。



■ 阶段2

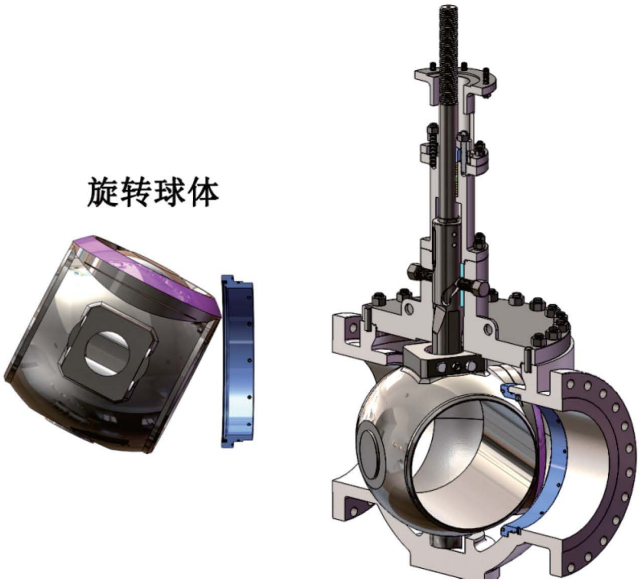
逆时针转动手轮，阀杆向上提升，楔形面机械力使得球体远离阀座。

关闭过程 Closing process



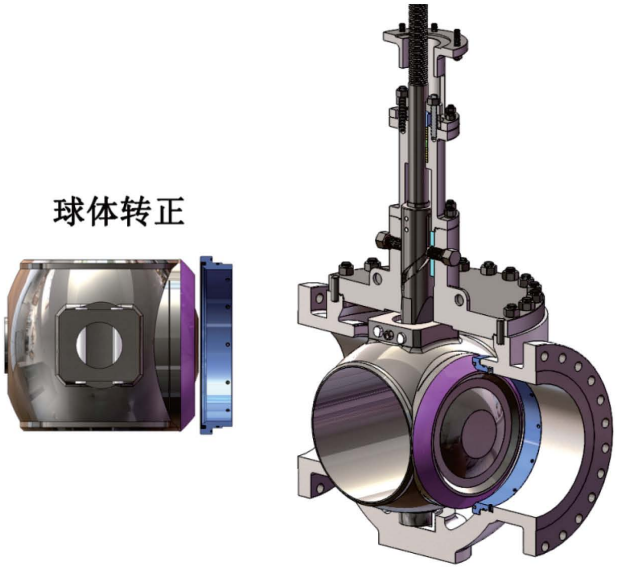
■ 阶段5

关闭阀门时，顺时针转动手轮，阀杆开始下降，球体准备旋转。



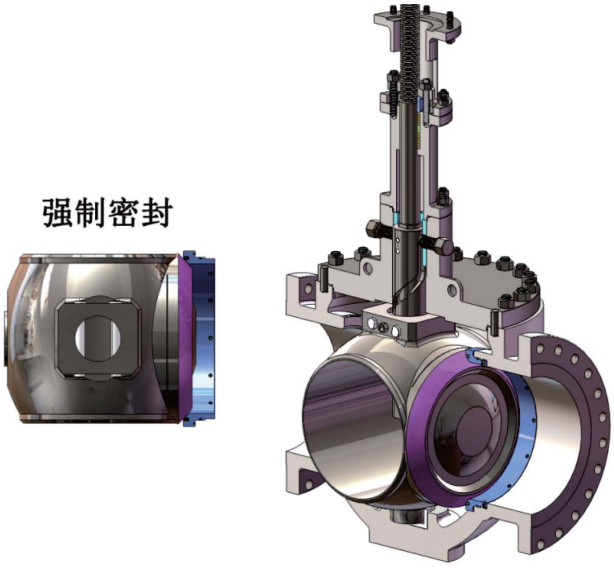
■ 阶段6

阀杆继续下降，结合阀杆螺旋导轨槽与导向销的相互作用，带动球体无摩擦旋转。



■ 阶段7

继续顺时针关闭阀门，阀杆在向下运动到直槽导向段时，阀杆带动球体下好转到全关位置。

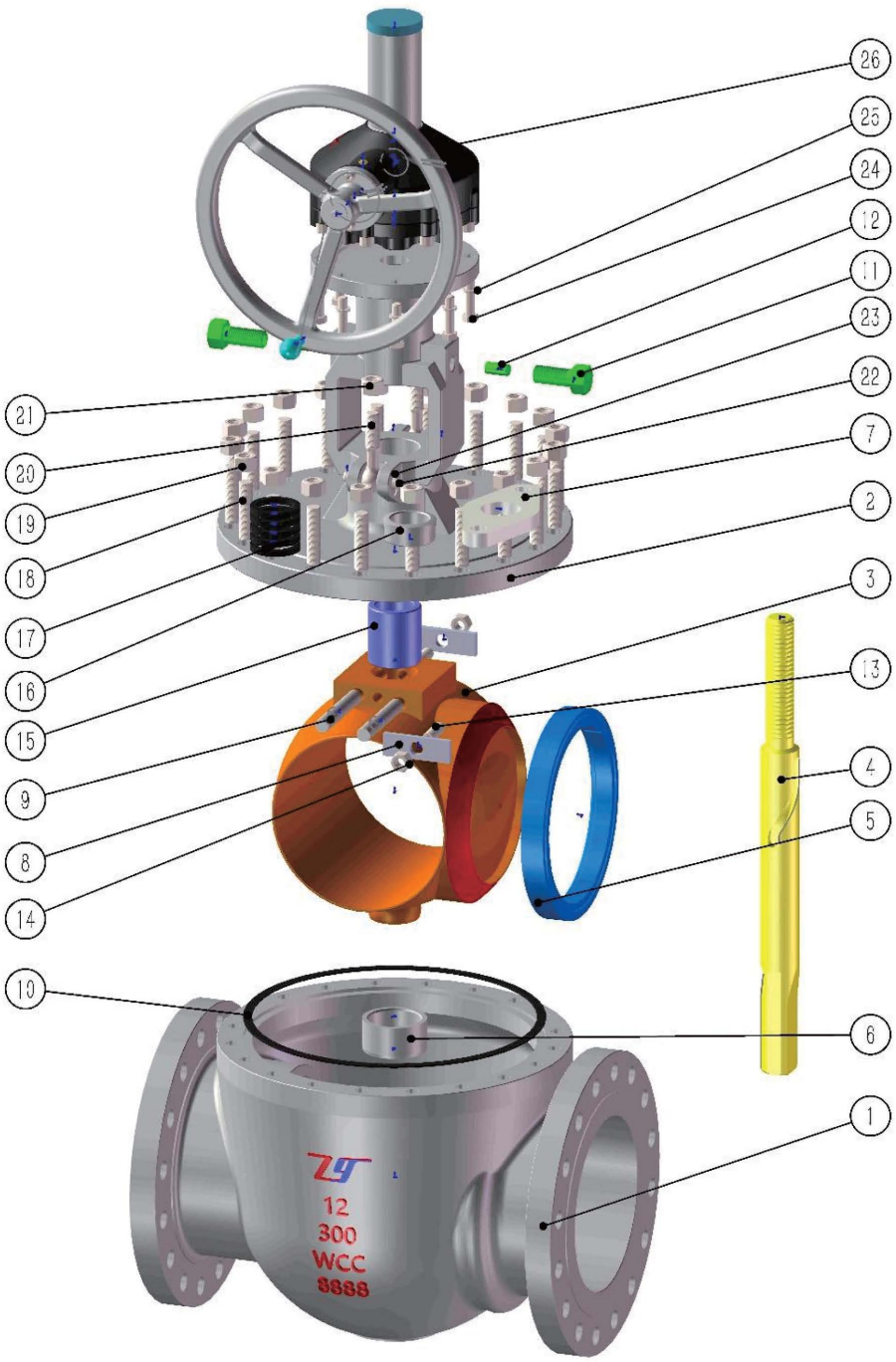


■ 阶段8

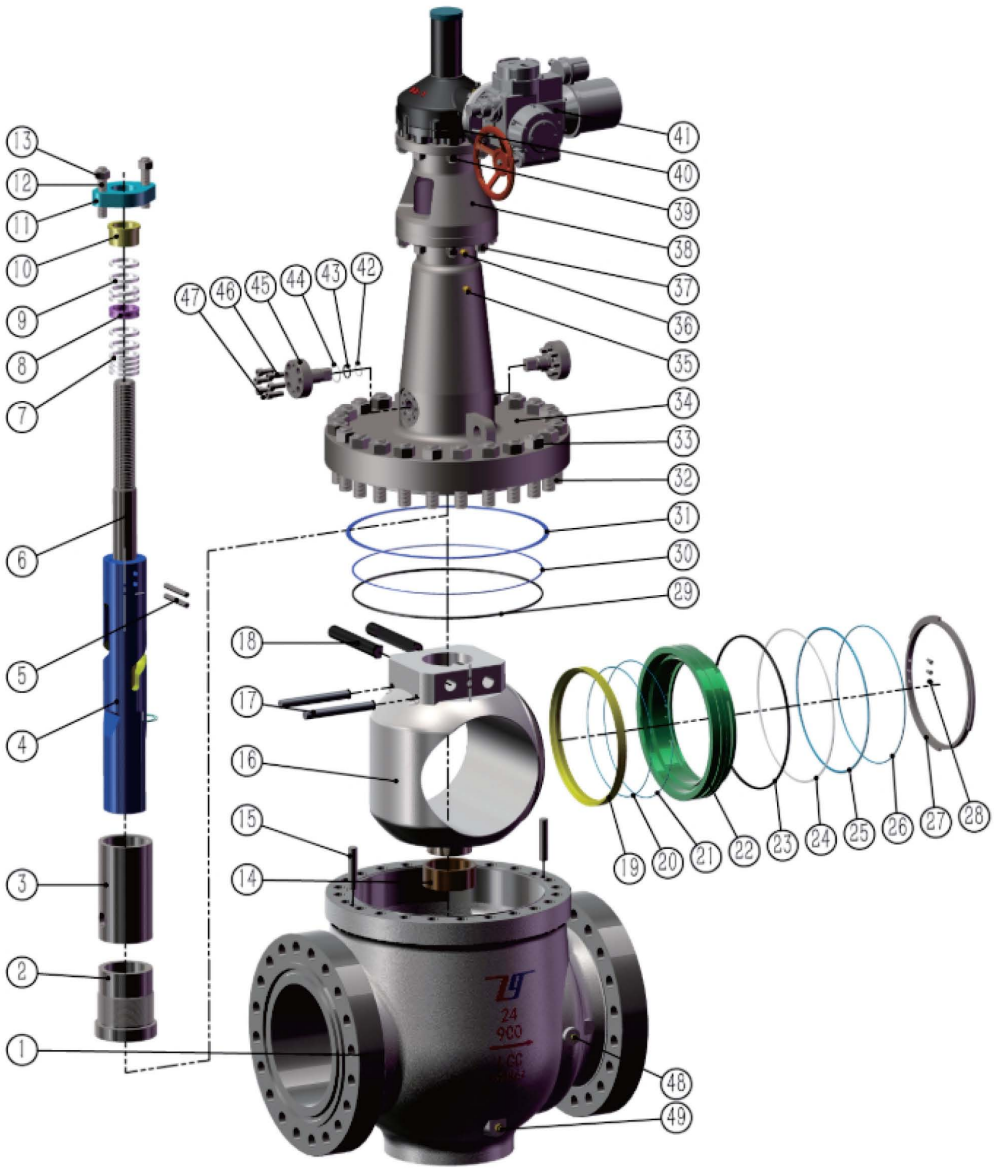
继续强制施加外力推动阀杆，迫使阀杆下部的楔形力持续增加到球体，使其紧密地压在阀座上，强制外力达到阀门完全密封。

零配件装配图 Assembly drawing

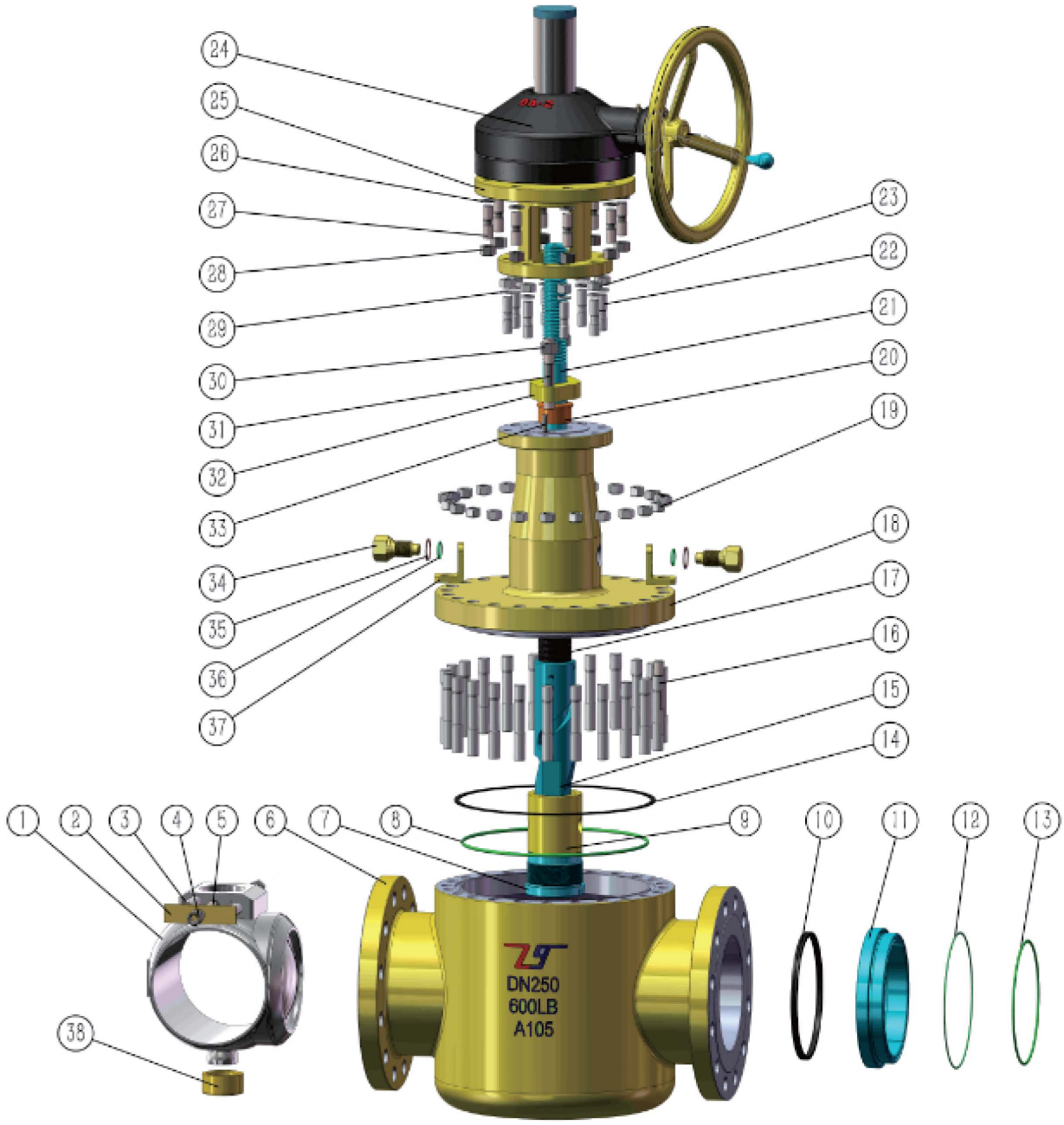
1. 阀体Body
2. 阀盖Bonnet
3. 球体Bal
4. 阀杆Stem
5. 阀座Seat
6. 下轴套Lower axle sleeve
7. 填料压盖Packing gland
8. 挡板baffle
9. 圆轴销Pin
10. 密封垫片Gasket
11. 导向螺栓Guide bolt
12. 导向销Pin
13. 螺钉Screw
14. 螺母 Nut
15. 上轴套Up axle sleeve
16. 填料压环Packing ring
17. 填料Packing
18. 螺柱Stud
19. 螺母Nut
20. 活结螺栓Slip bolt
21. 螺母Nut
22. 带孔销Pin
23. 插销Bolt pin
24. 六角螺栓Hexagon bolt
25. 弹簧垫圈Spring washer
26. 蜗轮箱Gear



组合式阀杆阀门分解图示



1	阀体	11	填料压板	21	O型圈	31	金属缠绕垫片	41	电动头
2	下轴套	12	全螺纹螺柱	22	阀座支承圈	32	全螺纹螺柱	42	挡圈
3	上轴套	13	六角螺母	23	O型圈	33	六角螺母	43	O型圈
4	楔形轴	14	球体轴套	24	挡圈	34	阀盖	44	垫片
5	圆柱销	15	圆柱销	25	O型圈	35	注脂阀	45	导向轴
6	阀杆	16	球体	26	O型圈	36	注脂阀	46	内六角螺钉
7	下填料	17	圆柱销	27	四开环	37	螺柱/螺母	47	圆柱销
8	隔环	18	楔形柱销	28	内六角螺钉	38	支架	48	检漏口堵头
9	上填料	19	阀座	29	O型圈	39	螺柱/螺母	49	排污阀
10	填料压套	20	O型圈	30	挡圈	40	伞齿轮箱		



1	球体	9	上阀套 I	17	填料	25	支架	33	O型密封圈
2	档板	10	阀座	18	阀盖	26	弹簧垫圈	34	导向螺栓
3	圆柱销	11	阀座支承圈	19	六角螺母	27	六角螺母	35	密封垫片
4	六角螺母	12	O型密封圈	20	填料压环	28	双头螺柱	36	O型密封圈
5	紧定螺钉	13	O型密封圈	21	上阀杆	29	填料压板	37	吊耳
6	阀体	14	金属缠绕垫片	22	双头螺柱	30	圆柱销	38	下轴套
7	上阀套II	15	楔形阀杆	23	六角螺母	31	导向螺栓		
8	O型密封圈	16	双头螺柱	24	伞齿轮操作器	32	密封垫圈		

主要部件材料 Main component materials

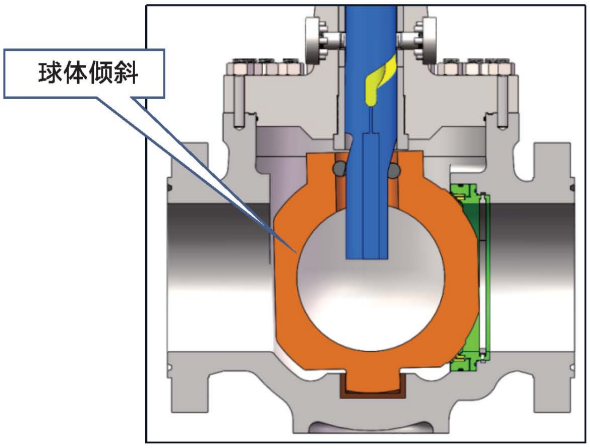
部件名称 Part name	部件材料 Part material				
	无腐蚀介质工况 Non-corrosive media conditions		酸性介质工况 Acid medium conditions		普通腐蚀工况 Normal corrosion condition
	常温(-29C°~120C°)	低温(-46C°~120C°)	常温(-29C°~120C°)	低温(-46C°~120C°)	-46C°~120C°
阀体 Body	ASTM A216 WCB/WCC ASTM A105	ASTM A352 LCB/LCC ASTM A350 LF2	ASTM A216 WCB/WCC ASTM A105 (FOR NACE)	ASTM A352 LCB/LCC ASTM A350 LF2 (FOR NACE)	ASTM A351 CF8/CF3/CF8M/CF3M ASTM A182 F304/F304L/F316/F316L
阀盖 Bonnet	ASTM A216 WCB/WCC ASTM A105	ASTM A352 LCB/LCC ASTM A350 LF2	ASTM A216 WCB/WCC ASTM A105 (FOR NACE)	ASTM A352 LCB/LCC ASTM A350 LF2 (FOR NACE)	ASTM A351 CF8/CF3/CF8M/CF3M ASTM A182 F304/F304L/F316/F316L
球体 Ball	ASTM A216 WCB/WCC ASTM A105	ASTM A352 LCB/LCC ASTM A350 LF2	ASTM A216 WCB/WCC ASTM A105 (FOR NACE)	ASTM A352 LCB/LCC ASTM A350 LF2 (FOR NACE)	ASTM A351 CF8/CF3/CF8M/CF3M ASTM A182 F304/F304L/F316/F316L
阀座 Seat	ASTM A105	ASTM A350 LF2	ASTM A105 (FOR NACE)	ASTM A350 LF2 (FOR NACE)	ASTM A182 F304/F304L/F316/F316L
阀杆 Stem	17-4PH	17-4PH	FXM-19	FXM-19	FXM-19
导向螺栓 Guide bolt	AISI 4140	AISI 4140	AISI 4140	AISI 4140	FXM-19
导向销 Pin	40Cr	40Cr	40Cr	40Cr	FXM-19

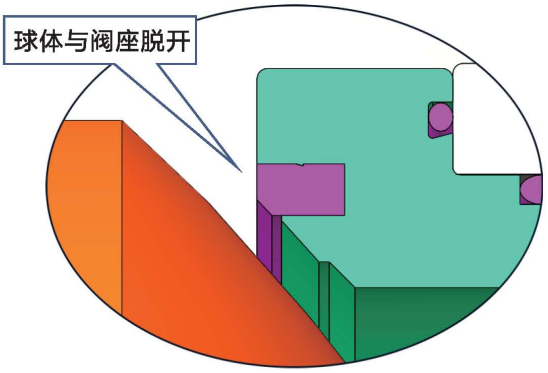
注：表中阀门主要零部件的常规材料配置，根据实际工况可能会有所调整，特别如硫化氢等危险工况，需明确组份含量进行针对性选材，详询自高阀门。

关键结构设计及技术特点

● 开关无摩擦运行

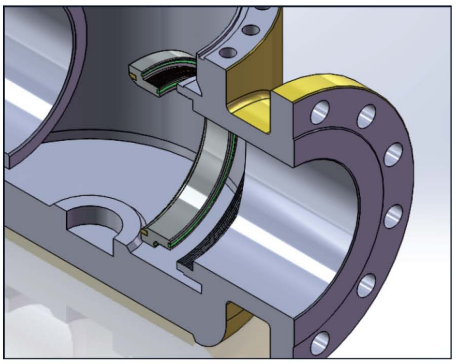
阀体底座孔采用偏心设计，使导向销在阀杆直槽内运动时，球体在底座孔内能够发生倾斜，从而使球体密封面与阀座密封面间产生间隙，这一功能完全解决了传统阀门因密封面之间相互摩擦而影响密封的问题。使阀门启闭过程中无摩擦，扭矩小，操作更灵活，保证了阀门密封体的长寿命。而且在产生间隙时介质可以将密封面清洗干净，实现阀座的自洁功能。



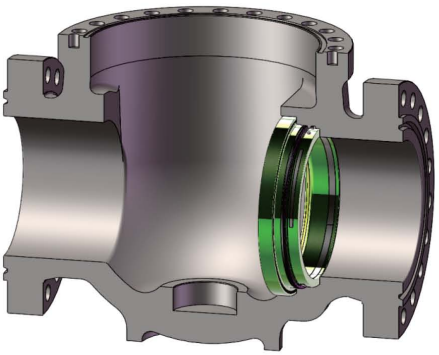


● 顶装固定式可换单阀座

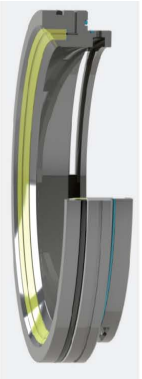
整体式上装阀体，可采用铸件或锻件。可换式固定单阀座采用螺纹式、压入式、卡环限位形结构等。特别是我公司设计的卡环式结构便于在线维修与更换。



螺纹型式

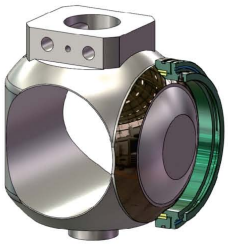


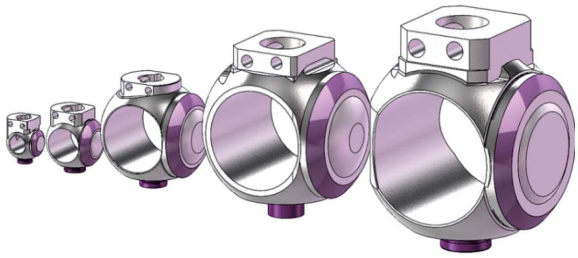
卡环限位型



● 金属或复合密封

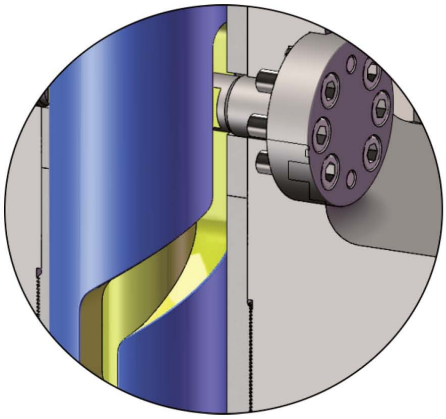
阀座密封结构采用金属硬密封，或金属与弹性密封件组合的复合密封。阀球表面堆焊了一层硬质抛光密封面，具有超强的硬度与良好的耐磨性，因此即使在高压差、频繁开关和介质中带有颗粒杂质的苛刻工况，也可确保阀座的紧密密封和零泄漏。

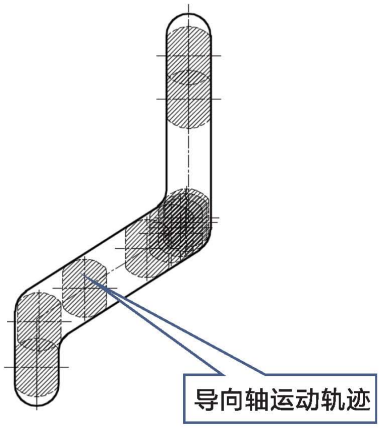




● 宽、窄导向槽导轨创新技术

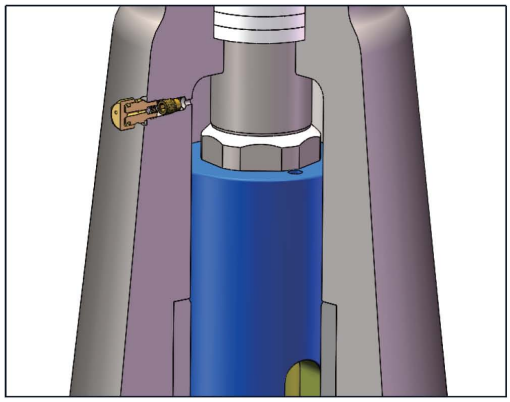
☆导向轴导向段采用扁方和圆弧设计，导向槽采用了宽、窄槽组合设计。
☆与宽槽配合实现90°平滑回转。
☆与直窄槽配合增大接触面积，减小接触挤压应力。
☆解决了导向槽和导向轴过大挤压应力、剪切应力而拉伤或扭断技术问题。

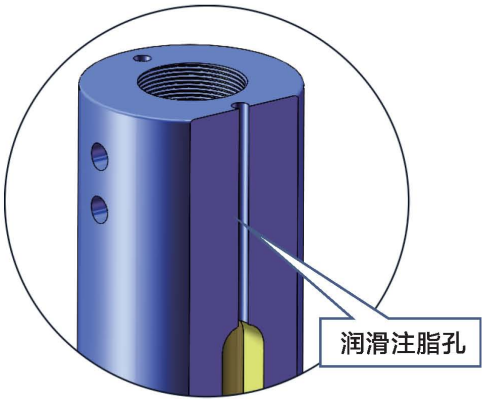




● 楔形轴轨导润滑先进技术

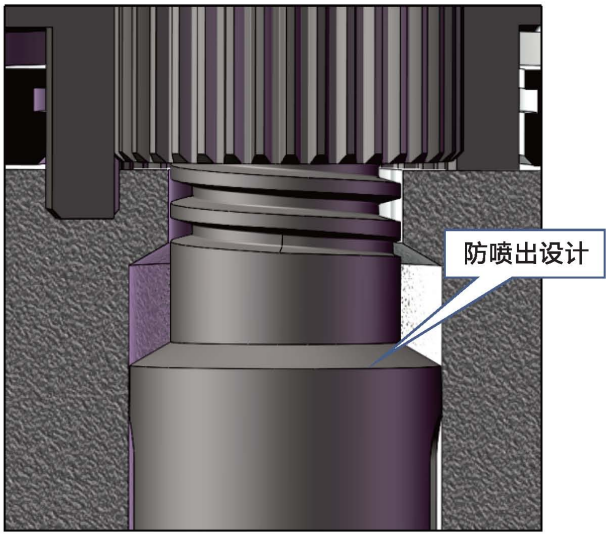
导轨槽可实时添加润滑脂，减小导轨槽与导轨销间的摩擦力，降低开关扭矩，延长阀门使用寿命。

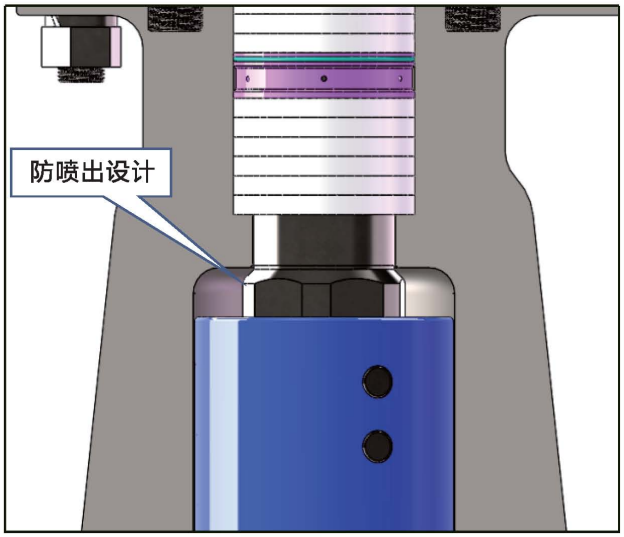




● 阀杆防爆喷设计

阀门阀杆不管整体不还是组合式阀杆头部设计有防喷出凸斜面，可阻挡因介质力作用阀杆向外推力，确保使用更安全。

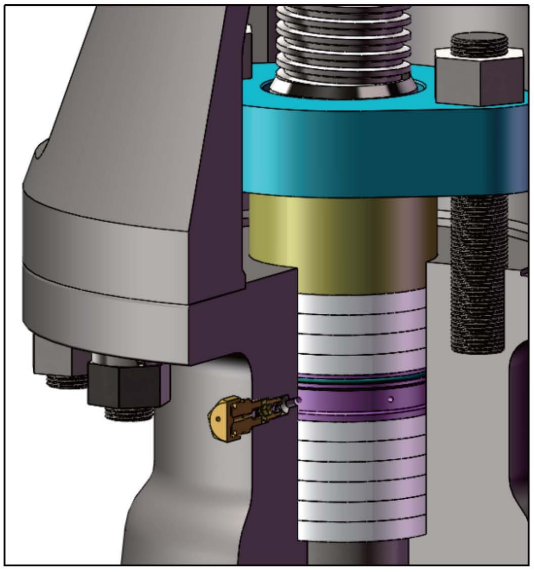


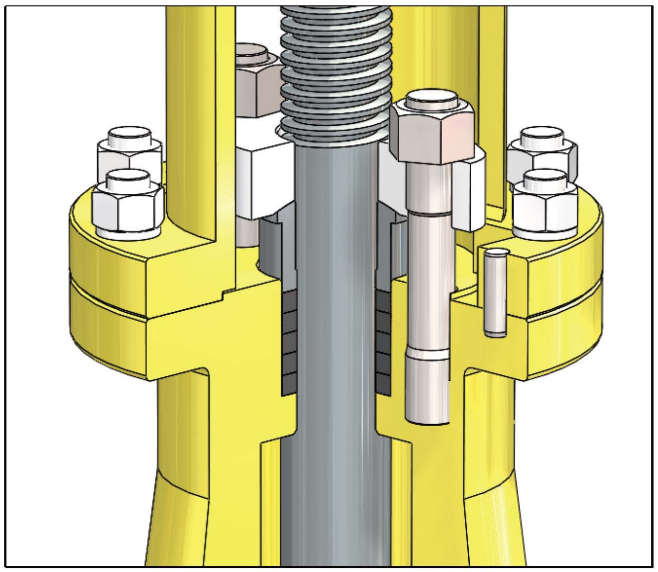


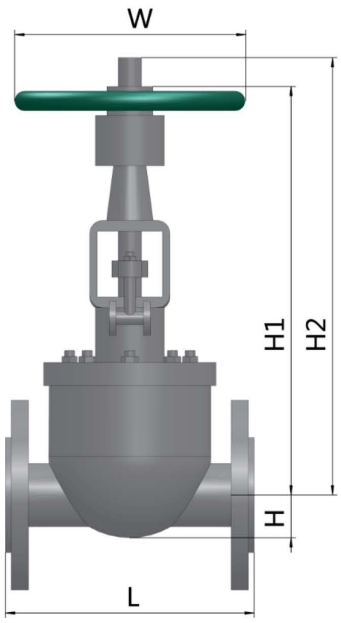
● 阀杆密封结构

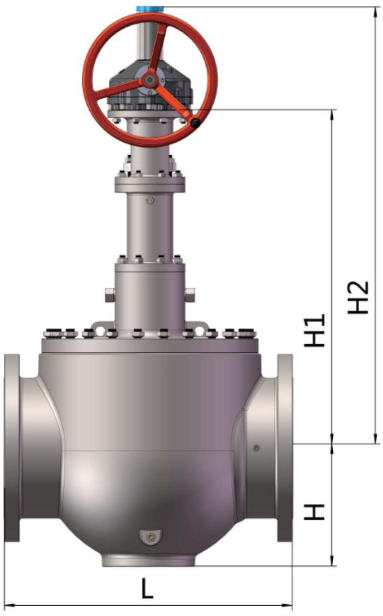
☆可调式填料压盖，密封结构比较简单。填料装入填料腔以后，经压盖螺丝对它作轴向压缩，当轴与填料有相对运动时，由于填料的塑性，使它产生径向力，并与阀杆紧密接触。

☆ 紧急密封，当阀门出现泄漏时，即可通过注脂阀向阀门的阀杆和阀座密封面注入密封脂，实现紧急密封。





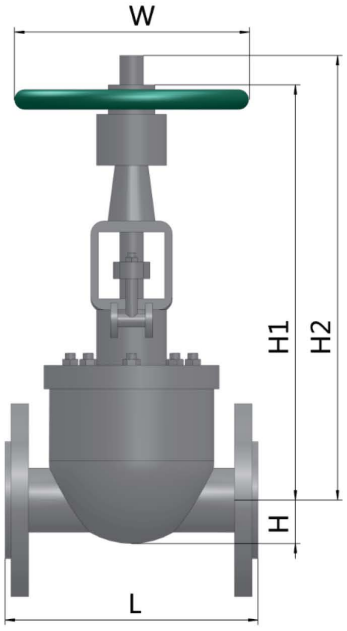


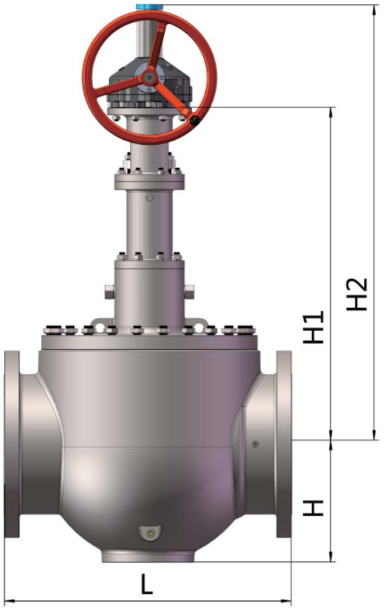


(unit):mm

公称直径		ASME CLass150&300						ASME CLass400&600					
		L		H	H1	H2	W	L		H	H1	H2	W
NPS	DN	RF铸	RF锻					RF	RJ				
2	50	216	292	83	380	445	250	292	295	83	380	445	250
3	80	283	356	105	470	560	300	356	359	110	480	580	350
4	100	305	432	130	485	580	300	432	435	140	560	680	400
6	150	403	559	160	600	720	400	559	562	200	670	945	400
8	200	502	660	225	720	1050	460	660	664	225	745	1075	460
10	250	568	787	270	770	1100	460	787	791	270	840	1170	460
12	300	648	838	310	800	1130	460	838	841	310	865	1265	520
14	350	762	889	340	950	1350	520	889	892	350	970	1370	520
16	400	838	991	350	980	1380	520	991	994	380	1050	1510	600
18	450	914	1092	400	1100	1500	520	1092	1095	420	1140	1615	650
20	500	991	1194	470	1400	1800	520	1194	1200	490	1320	1825	700
24	600	1143	1397	580	1600	2060	600	1397	1407	600	1720	2280	700
28	700	1346	1549	660	1880	2440	700	–	–	–	–	–	–

注：阀门重量数据与法兰端、驱动方式等有关，如有需要请咨询我公司。（300Lb ≥NPS8 600Lb ≥NPS6采用伞齿轮手动装置时的尺寸）





公称直径		ASME CLass900						ASME CLass1500						ASME CLass2500					
		L		H	H1	H2	W	L		H	H1	H2	W	L		H	H1	H2	W
NPS	DN	RF	RJ					RF	RJ					RF	RJ				
2	50	368	371	108	450	535	300	368	371	108	450	535	300	451	454	118	455	545	300
3	80	381	384	120	480	580	350	470	473	130	485	590	350	578	584	160	500	600	400
4	100	457	460	145	560	680	400	546	549	155	570	695	500	673	683	180	580	700	460
6	150	610	613	200	670	1000	460	705	711	200	670	1000	460	914	927	245	670	1070	520
8	200	737	740	235	740	1070	460	832	841	245	750	1080	460	1022	1038	280	750	1210	600
10	250	838	841	290	760	1160	520	991	1000	300	800	1200	520	–	–	–	–	–	–
12	300	965	968	320	900	1300	520	1130	1146	350	950	1410	600	–	–	–	–	–	–
14	350	1029	1038	360	1050	1510	600	1257	1276	400	1100	1605	700	–	–	–	–	–	–
16	400	1130	1140	400	1100	1575	650	–	–	–	–	–	–	–	–	–	–	–	–
18	450	1219	1232	450	1320	1825	700	–	–	–	–	–	–	–	–	–	–	–	–
20	500	1321	1334	490	1600	2105	700	–	–	–	–	–	–	–	–	–	–	–	–
24	600	1549	1568	640	2195	2790	800	–	–	–	–	–	–	–	–	–	–	–	–

注：阀门重量数据与法兰端、驱动方式等有关，如有需要请咨询我公司。（300Lb ≥NPS8 600Lb ≥NPS6采用伞齿轮手动装置时的尺寸）

PGV
清管阀
PIGGING VALVE

阀门类型——口径——压力——端部连接——操作方式

举例：

PGV-DN300-PN40-RF-3

阀门类型：PGV—清管阀；DN300—口径；PN40—压力；RF—法兰；3—蜗轮操作

清管阀 Pigging valve

清管阀是一种作为清管器发射和接收装置的新型阀门，它同时也具有通用两位式截断球阀的功能，使用我公司提供的清管阀并配合相应的清管器，可以更轻松地完成管道清洁、排空、隔离和按序输送介质、检测管道系统等工作。该类清管阀能够完全替代传统使用的以清管器收发筒为核心的复杂的清管器发射、接收装置。

As a new type of pig launching and receiving device,pig ball valve also can be used as two position shut-off ball valve.the pig ball valve with matched pigs can be more easily for pipe cleaning,discharging,se-parating,sequential transportation medium and inspection.pig ball valve can completely take the place of pig launcher and receiver who's core is launching and receiving barrel.

- 公称通径（DN）:2"(50)-24"(600mm)
- 压力等级（PN）:ANSI 150-1500(PN16-220)

- Size（DN）:2"(50)-24"(600mm)
- Pressure（PN）:ANSI 150-1500(PN16-220)

主要设计特点 Design features

● 快开盲板 Port Cover:

快开盲板与阀体间采用牙嵌式连接，操作方便；较大尺寸阀门的快开盲板是与固定在阀体上的摇臂铰链相连接的，因此即便是很大尺寸阀门的快开盲板的拆卸和安装都不至于太困难。

The port cover is easy to operate by adopting tooth-pattern embedding connection with the valve body;for major dimensioned valve the cover is connected with the rocker gemel fixed the valve body,so even the on-off of the portcover for quite major dimensioned valve can be completed easily.

● 联锁设计 Inter-locking Design:

放空阀与快开盲板锁定销联锁，在放空阀没有打开泄压之前不可能打开快开盲板，保证了操作的安全性。

The vent valve is coupled with the interlock of the bayonet closure.the portcover can notbe opened only afteropening the vent valve,thus ensuring the safe operation.

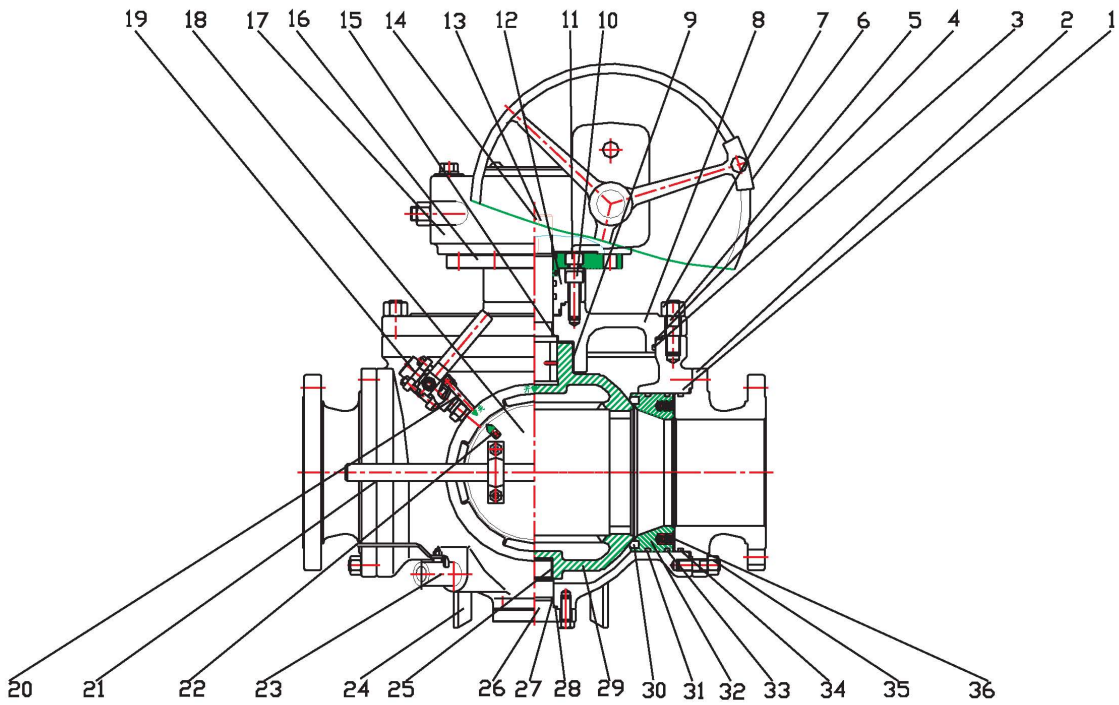
● 清洗设计 Cleanout Design:

阀体上可安装一注水阀，当输送有毒介质时通过带有一个喷头的注水阀冲洗阀门体腔，并通过排污阀排放到污水罐。

Flushing valve can be equipped on the valve body.when toxic media are being transported,with the aid of flushing valve with a nozzle,the toxic media can be drained through the drain valve to the sewage pot.

防火防静电等特点参见常规球阀特点描述。
注：“●”符号标示的功能需定货时指定。
Note:“●” means users should appoint this function when order.

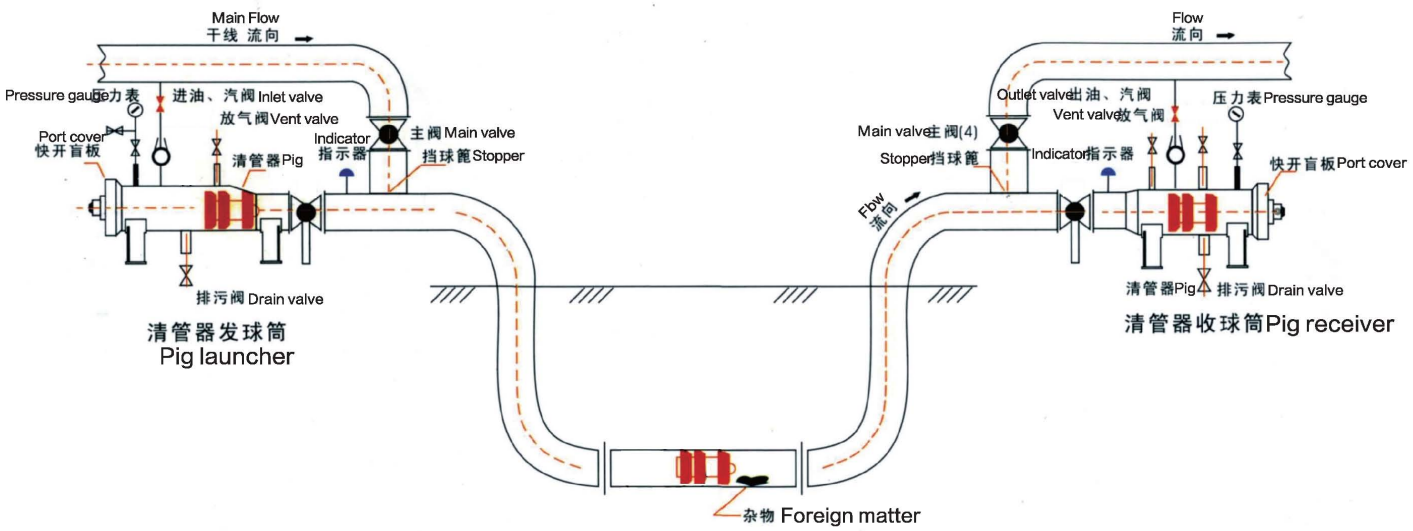
清管阀外形结构 External structure



序号 Item	部件 Parts	材料 Material	序号 Item	部件 Parts	材料 Material
1	阀体Body	ASTM A216-WCB	19	放空阀Vent Valve	25#
2	法兰Flange	ASTM A216-WCB	20	联锁销Interlocking Pin	1Cr13
3	O形圈O-ring	NBR	21	操作杆Operating Bar	ANSI 1045+HCr
4	垫圈Gasket	304+ Graphite	22	指示开关Indicator	304
5	螺柱Stud	ASTM A193-B7	23	排污阀Drain Valve	25#
6	手轮Hand Wheel	20#	24	脚架Horse	ASTM A216-WCB
7	螺母Nut	ASTM A194-2H	25	滑动轴承Slide Bearing	304+PTFE
8	阀盖Bonnet	ASTM A216-WCB	26	底盖Bottom Cover	25#
9	滑动轴承Slide Bearing	304+PTFE	27	O形圈O-ring	NBR
10	螺栓Bolt	35CrMoA	28	垫圈Gasket	304+Graphite
11	螺栓Bolt	35CrMoA	29	球体Ball	ASTM A216-WCB
12	支管Pipeline Branches	ANSI 1045	30	阀座Seat	PTFE
13	阀杆Stem	ASTM A182-F6a	31	O形圈O-ring	NBR
14	键Key	ANSI 1045	32	阀座支承Seat Retainer	ASTM A182-F6a
15	上推轴承Thrust Bearing	304+PTFE	33	O形圈O-ring	NBR
16	接盘Adaptor Plate	25#	34	O形圈O-ring	NBR
17	齿轮箱Gear Box	ASTM A216-WCB	35	螺母Nut	ASTM A194-2H
18	快开盲板Port Cover	ASTM A216-WCB	36	弹簧Spring	ANSI 9260

※ 此表公列举了碳钢系列材料，不锈钢及特殊合金系列可致电我公司。
This table shows list for carbon steel series materials,stainless steel and special materials lists shall call us.

PIG阀与传统收发球筒的比较 Comparison with Conventional Pig launcher and Receiver

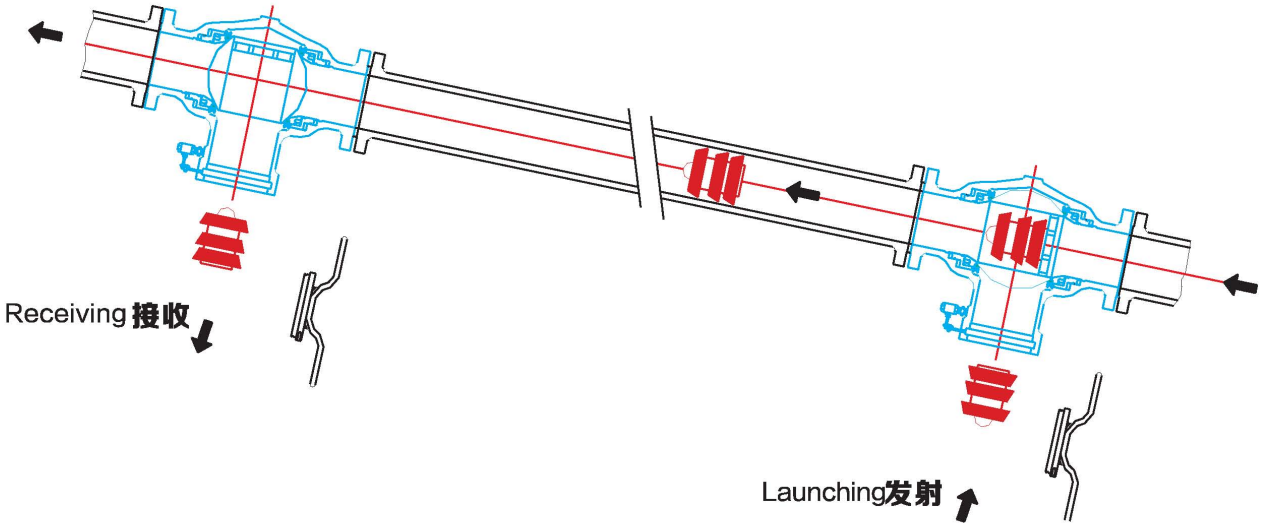


传统收发球筒清管工艺系统图

Process Flow Diagram of Conventional Pig launcher and Receiver

比较Comparison	传统收发球筒Conventional Pig launcherand Receiver
A、系统比较System	两个截断阀、两根旁通管线、一个收球筒、一个发球筒。 Two shut-off ball valve,two by pass pipelines,a barrel for launching Pig,a barrel for receiving Pig.
B、安装空间Installation Space	收发球筒长约2.25m+旁通管线安装空间+安装基础（210×240水泥墩两个）。 The Pig launcher and Receiver is about 2.25m,the space for by pass pipeline,installation base(two cement footers 210 by 240).
C、操作比较Operation	需要在2m多长的空间走动，依次打开（关闭）主截断阀、排污阀、放空阀、快开门等，再把清管器提到高高的筒口装入，熟练工也需要8～10分钟。 Need to get about 2 meters to open/close the main shut-off valve,drain valve,vent valve and port cover and so on inturn,then insert Pig from the high barrel,it takes a skilled worker about 8 to 10 minutes.
D、维护保养Maintenance	属于压力容器，需要定期检查，使用前需要办理各种相关手续和证书。 Pressure vessel,shall inspect periodically and go through many procedures and certificates before putting into effect.

※ 上面所有数据均以DN200的清管阀或收发球筒为例。
All the datas above is took DN200 PIG Valve or for example.



清管阀清管工艺系统图

Pigging Process Flow Diagram of PIG Valve

清管阀PIG Valve	比较结果Results
一个发球阀一个收球阀。 One Pig launching valve one Pig receiving valve.	系统简化。 Simplification
长0.79m，自带安装底架。 Just 0.79 meters long and with installing braclet.	节省空间（尤其适用于海上平台和港口等空间有限的地方），节省投资。 Save space(especially applied to offshore platform and harbors and some other limited space).Save investment.
在一个工位完成前述所有工作，操作轻便，普通工人3分钟完成全部工作。 It takes a general work just 3 minutes to finish all the fore mentioned work.	操作方便节省时间。 Easy operation andsave time
免维护设计。 Free of maintenance	大大降低成本。 Deeply reduce cost

注：锻造可能采用等同的标准材料。

Note:Equivalent materials may be used for forging.

清管阀设计规范 Design Specification

设计规范 Design Specification	ANSI B16.34 API 6D
结构长度 Face-to-face	详见样本
法兰形式和尺寸 Flange Dimension	ANSI B16.5、GB、JB、HG
对焊连接 Buttweld	ANSI B16.25 GB12224
材料 Material	ASTM、GB
	抗硫（Sulfur-resistant) NACE MR01-75
检验与试验 Testing & Inspection	API 6D API598 GB13927

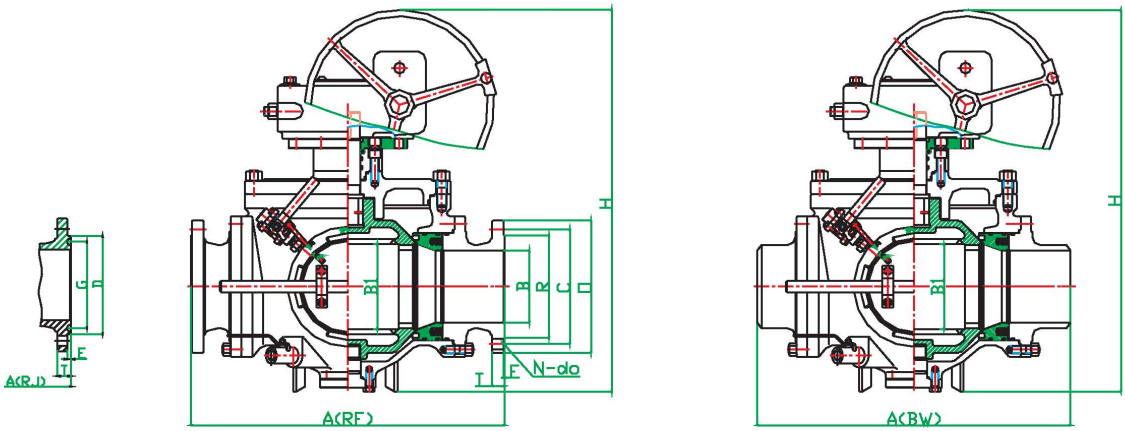
清管阀材质 Materials for main parts

PIG阀针对油气输送工况主要采用碳钢和低温钢和特殊材料系列，并分为普通和抗硫系列。抗硫阀门的制造符合NACE MR01-75-2002的规定。碳钢系列适用温度为-29℃～+180℃，低温钢系列适用温度为-46℃～+121℃。

As to the fact that carbon steel and low temperature steel are mainly used in oil & gas transportation,PIG valve can be divided into general and sulfur resisting series. The manufacturing of the sulfur resisting valves is in accordance with the requirements of NACE MR01-75 2002.The working temperature for carbon steel series is range from-29℃ ~ +180℃ and low temp.steel is range form-46℃～+121℃.

零件名称 Parts	碳钢系列 Carbonsteel Series		低温钢系列 Low Temp Steel Series		特殊材料系列 Special Material	不锈钢系列 Stainless Steel
	普通 General	抗硫 Sulfur-resistant	普通 General	抗硫 Sulfur-resistant		
阀体、阀盖 Body\Bonnet	A216-WCB	A216-WCB	A352-LCC	A352-LCC	2205、Hastelloy Monel	A351-CF8/CF8M /CF3/CF3M
球体 Ball	A105+HCr A216-WCB+HCr	A182-F316 A105/A216-WCB+ENP	A350-LF2+HCr A352-LCC+HCr	A182-F316 A105/A352-LCC+ENP	HVOF Co-Cr-W HVOF Ni-Cr	A351-CF8/CF8M /CF3/CF3M
阀杆 Stem	A182-F6a ANSI 1040+HCr	A182-F316 ANSI 1040+ENP	A182-F6a ANSI 1040+HCr	A182-F316 ANSI 1040+ENP	2205、Hastelloy Monel	304/316/304L/316L
阀座插件 Seat Plug-in	PTFE NYLON VITON PPL					
阀座 Seat	A182-F6a	A182-F316	A182-F6a	A182-F6a	HVOF Co-Cr-W HVOF Ni-Cr	304/316/304L/316L
弹簧 Spring	ANSI 9260	Inconel 750	F304	Inconel X-750	Inconel X-750	Inconel X-750
螺栓 Bolt	A193-B7	A193-B7M	A320-L7	A352-L7M	A193-B8M	A193-B8/B8M
螺母 Nut	A194-2H	A194-2HM	A194-4、7	A194-7M	A194-8	A194-8

Pig阀外形尺寸 External Dimensions



ANSI Class150 (PN2.0)

法兰按 ANSI B16.5
Flange according to ANSI B16.5

公称通径 Nominal Diamiter		B	B1		A		R	C	O	F	T	N-d	螺栓直径 Bolt Diamiter (in)	E	D	G	密封环号	H
NPS(in)	DN(mm)		C B	S	RF BW	RJ												
2	50	51	64	55	330	343	92	102.5	152	1.6	15.9	4-19	5/8	6.4	102	82.55	R22	600
3	80	76	102	85	445	458	127	152.5	190	1.6	19.1	4-19	5/8	6.4	133	114.30	R29	640
4	100	102	120	108	508	521	157	190.5	229	1.6	23.9	8-19	5/8	6.4	171	149.23	R36	700
6	150	152	180	162	660	673	216	241.5	279	1.6	25.4	8-22	3/4	6.4	219	193.68	R43	885
8	200	203	235	213	794	807	270	298.5	343	1.6	28.6	8-22	3/4	6.4	273	247.65	R48	950
10	250	254	305	267	940	953	324	362.0	406	1.6	30.2	12-25	7/8	6.4	330	304.80	R52	1008
12	300	305	337	320	1067	1080	381	432.0	483	1.6	31.8	12-25	7/4	6.4	406	381.00	R56	1238
14	350	337	387	356	1143	1156	413	476.0	533	1.6	35.0	12-29	1	6.4	425	396.88	R59	1265
16	400	387	438	406	1372	1385	470	539.5	597	1.6	36.6	16-29	1	6.4	483	454.03	R64	1336
18	450	438	489	457	1524	1537	533	578.0	635	1.6	39.7	16-32	11/8	6.4	546	517.53	R68	1416
20	500	489	540	508	1676	1689	584	635.0	698	1.6	42.9	20-32	11/8	6.4	597	558.80	R72	1510
22	550	540	591	559	1829	1842	641	692.0	749	1.6	46.0	20-35	11/4	6.4	660	615.95	R80	1638
24	600	591	641	616	1981	1994	692	749.5	813	1.6	47.7	20-35	11/4	6.4	711	673.10	R76	1780

ANSI Class300 (PN5.0)

法兰按ANSI B16.5
Flange according to ANSI B16.5

公称通径 Nominal Diamiter		B	B1		A		R	C	O	F	T	N-d	螺栓直径 Bolt Diamiter (in)	E	D	G	密封环号	H
NPS(in)	DN(mm)		C B	S	RF BW	RJ												
2	50	51	64	55	330	346	92	127.0	165	1.6	22.3	8-19	5/8	8	108	82.55	R23	600
3	80	76	102	85	445	356	127	168.0	210	1.6	28.6	8-22	3/4	8	146	123.83	R31	640
4	100	102	120	108	508	524	157	200.0	254	1.6	31.8	8-22	3/4	8	175	149.23	R37	700
6	150	152	180	162	660	676	216	270.0	318	1.6	36.6	12-22	3/4	8	241	211.14	R45	885
8	200	203	235	213	794	810	270	330.0	381	1.6	41.3	12-25	7/8	8	302	269.88	R49	950
10	250	254	305	267	940	956	324	387.5	444	1.6	47.7	16-29	1	8	356	323.85	R53	1008
12	300	305	337	320	1067	1083	381	451.0	521	1.6	50.8	16-32	11/8	8	413	381.00	R57	1238
14	350	337	387	356	1143	1159	413	514.5	584	1.6	54.0	20-32	11/8	8	457	419.10	R61	1265
16	400	387	438	406	1372	1388	470	571.5	648	1.6	57.2	20-35	11/4	8	508	469.90	R65	1336
18	450	438	489	457	1524	1540	533	628.5	711	1.6	60.4	24-35	11/4	8	575	533.40	R69	1416
20	500	489	540	508	1676	1695	584	686.0	775	1.6	63.5	24-35	11/4	9.6	635	584.20	R73	1510
22	550	540	591	559	1829	1851	641	743.0	838	1.6	66.5	24-42	11/2	11.2	686	635.00	R81	1638
24	600	591	641	616	1981	2003	692	813.0	914	1.6	70.0	24-42	11/2	11.2	749	692.15	R77	1780

注：更多口径的球阀可定制，详询自高阀门技术部。
Note: more ball valves can be customized. Please refer to the zi gao valve co.,ltd.

ANSI Class400 (PN6.3)

法兰按ANSI B16.5
Flange according to ANSI B16.5

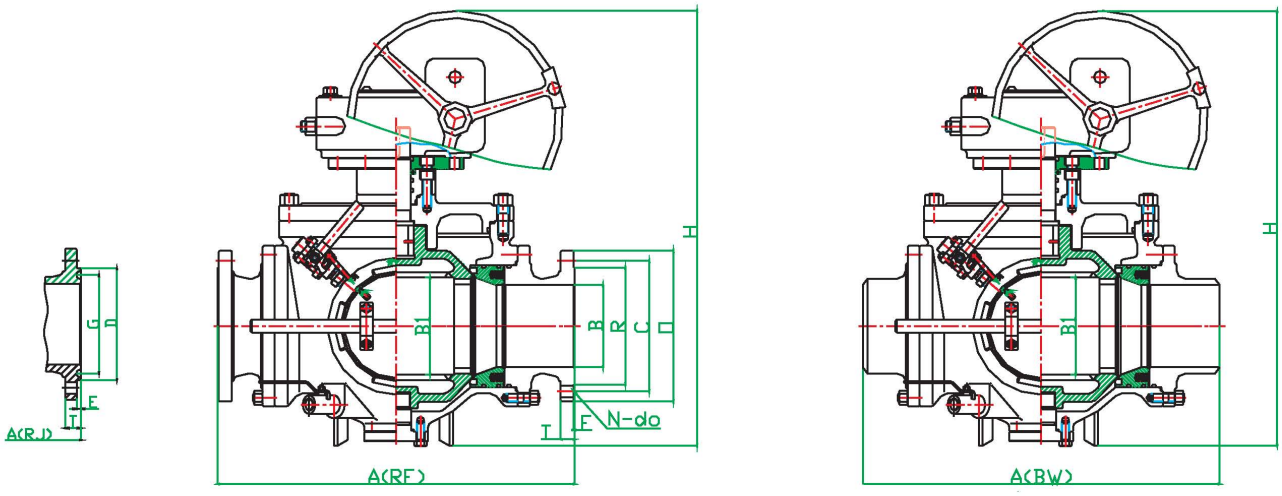
公称通径 Nominal Diamiter		B	B1		A		R	C	O	F	T	N-d	螺栓直径 Bolt Diamiter (in)	E	D	G	密封环号	H
NPS(in)	DN(mm)		C B	S	RF BW	RJ												
2	50	51	64	55	330	333	92	127.0	165	6.4	25.4	8-19	5/8	8	108	82.55	R23	600
3	80	76	102	85	445	448	127	168.0	210	6.4	31.8	8-22	3/4	8	146	123.83	R31	640
4	100	102	120	108	508	511	157	200.0	254	6.4	35.0	8-25	7/8	8	175	149.23	R37	700
6	150	152	180	162	660	663	216	270.0	318	6.4	41.5	12-25	7/8	8	241	211.14	R45	885
8	200	203	235	213	794	797	270	330.0	381	6.4	48.0	12-29	1	8	302	269.88	R49	1060
10	250	254	305	267	940	943	324	387.5	444	6.4	54.0	16-32	11/8	8	356	323.85	R53	1170
12	300	305	337	320	1067	1070	381	451.0	521	6.4	57.5	16-35	11/4	8	413	381.00	R57	1238
14	350	337	387	356	1143	1146	413	514.5	584	6.4	60.5	20-35	11/4	8	457	419.10	R61	1316
16	400	387	438	406	1372	1375	470	571.5	648	6.4	63.5	20-39	13/8	8	508	469.90	R65	1418
18	450	438	489	457	1524	1527	533	628.5	711	6.4	67.0	24-39	13/8	8	575	533.40	R69	1536
20	500	489	540	508	1676	1682	584	686.0	775	6.4	70.0	24-42	11/2	9.6	635	584.20	R73	1650
22	550	540	591	559	1829	1839	641	743.0	838	6.4	73.2	24-45	15/8	11.2	686	635.00	R81	1760
24	600	591	641	616	1981	1991	692	813.0	914	6.4	76.5	24-48	13/4	11.2	749	692.15	R77	1880

ANSI Class600 (PN10.0)

法兰按ANSI B16.5
Flange according to ANSI B16.5

公称通径 Nominal Diamiter		B	B1		A		R	C	O	F	T	N-d	螺栓直径 Bolt Diamiter (in)	E	D	G	密封环号	H
NPS(in)	DN(mm)		C B	S	RF BW	RJ												
2	50	51	64	55	330	333	92	127.0	165	6.4	25.4	8-19	5/8	8	108	82.55	R23	600
3	80	76	102	85	445	448	127	168.0	210	6.4	31.8	8-22	3/4	8	146	123.83	R31	640
4	100	102	120	108	508	511	157	216.0	273	6.4	38.1	8-25	7/8	8	175	149.23	R37	700
6	150	152	180	162	660	663	216	292.0	356	6.4	47.7	12-29	1	8	241	211.14	R45	885
8	200	203	235	213	794	797	270	349.0	419	6.4	55.6	12-32	11/8	8	302	269.88	R49	1060
10	250	254	305	267	940	943	324	432.0	508	6.4	63.5	16-35	11/4	8	356	323.85	R53	1170
12	300	305	337	320	1067	1070	381	489.0	559	6.4	66.7	20-35	11/4	8	413	381.00	R57	1238
14	350	337	387	356	1143	1146	413	527.0	603	6.4	70.0	20-39	13/8	8	457	419.10	R61	1316
16	400	387	438	406	1372	1375	470	603.0	686	6.4	76.2	20-42	11/2	8	508	469.90	R65	1418
18	450	438	489	457	1524	1527	533	654.0	743	6.4	82.6	20-45	15/8	8	575	533.40	R69	1536
20	500	489	540	508	1676	1682	584	724.0	813	6.4	89.0	24-45	15/8	9.5	635	584.20	R73	1650
22	550	540	591	559	1829	1839	641	778.0	870	6.4	95.3	24-48	13/4	11.2	686	635.00	R81	1760
24	600	591	641	616	1981	1991	692	838.0	940	6.4	102.0	24-52	17/8	11.2	749	692.15	R77	1880

注：更多口径的球阀可定制，详询自高阀门技术部。
Note: more ball valves can be customized. Please refer to the zi gao valve co.,ltd.



ANSI Class900 (PN15.0)

法兰按ANSI B16.5
Flange according to ANSI B16.5

公称通径 Nominal Diamiter		B	B1		A		R	C	O	F	T	N-d	螺栓直径 Bolt Diamiter (in)	E	D	G	密封环号	H
NPS(in)	DN(mm)		C B	S	RF BW	RJ												
2	50	51	64	55	381	384	92	165.0	216	6.4	38.1	8-25	7/8	8	124	95.25	R24	618
3	80	76	102	85	470	473	127	190.5	241	6.4	38.1	8-25	7/8	8	156	123.83	R31	660
4	100	102	120	108	559	562	157	235.0	292	6.4	44.5	8-32	11/8	8	181	149.23	R37	860
6	150	152	180	162	711	740	216	317.5	381	6.4	56.0	12-32	11/8	8	241	211.14	R45	980
8	200	203	235	213	889	892	270	393.5	470	6.4	63.5	12-39	13/8	8	308	269.88	R49	1120
10	250	254	305	267	1041	1044	324	470.0	545	6.4	70.0	16-39	13/8	8	362	323.85	R53	1280
12	300	305	337	320	1194	1197	381	533.5	610	6.4	79.5	20-39	13/8	8	419	381.00	R57	1436
14	350	324	387	356	1346	1356	413	559.0	640	6.4	86.0	20-42	11/2	11.2	467	419.10	R62	1620
16	400	375	438	406	1499	1509	470	616.0	705	6.4	89.0	20-45	15/8	11.2	524	469.90	R66	1760
18	450	425	489	457	1651	1664	533	686.0	785	6.4	102.0	20-51	17/8	12.7	594	533.40	R70	1920
20	500	473	540	508	1803	1816	584	749.5	855	6.4	108.0	20-54	2	12.7	648	584.20	R74	2080
24	600	572	641	616	2159	2178	692	901.5	1040	6.4	140.0	20-67	21/2	15.9	772	692.15	R78	2220

ANSI Class1500 (PN25.0)

法兰按ANSI B16.5
Flange according to ANSI B16.5

公称通径 Nominal Diamiter		B	B1		A		R	C	O	F	T	N-d	螺栓直径 Bolt Diamiter (in)	E	D	G	密封环号	H
NPS(in)	DN(mm)		C B	S	RF BW	RJ												
2	50	51	64	55	432	435	92	165.0	216	6.4	38.5	8-25	7/8	8	124	95.25	R24	660
3	80	76	102	85	559	562	127	203.0	267	6.4	48.0	8-32	11/8	8	168	123.83	R31	690
4	100	102	120	108	711	714	157	241.5	311	6.4	54.0	8-35	11/4	8	194	149.23	R37	960
6	150	146	180	162	889	895	216	317.5	394	6.4	83.0	12-29	13/8	9.6	248	211.14	R46	1239
8	200	194	235	213	1067	1077	270	393.5	483	6.4	93.0	12-45	15/8	11.2	318	269.88	R50	1360
10	250	241	305	267	1245	1255	324	482.5	585	6.4	108.0	12-51	17/8	11.2	371	323.85	R54	1520
12	300	289	337	320	1422	1438	381	571.5	675	6.4	124.0	16-54	2	14.3	438	381.00	R58	1680
14	350	318	387	356	1600	1619	413	635.0	750	6.4	133.5	16-61	21/4	15.9	489	419.10	R63	1850
16	400	362	438	406	1778	1800	470	705.0	825	6.4	146.5	16-67	21/2	17.5	546	469.90	R67	2016

- 由于清管阀操作力矩小，我们一般选用齿轮装置作为执行机构；同时我们还根据客户需要，配置电动、气动等其他执行机构。
- We usually choose gearbox because of the low torque of PIG valvemeanwhile,upon customer`s,request actuators such as electrically-operated,pneumatic operated are also practical.

TBV
内螺纹球阀
THREAD BALL VALVE

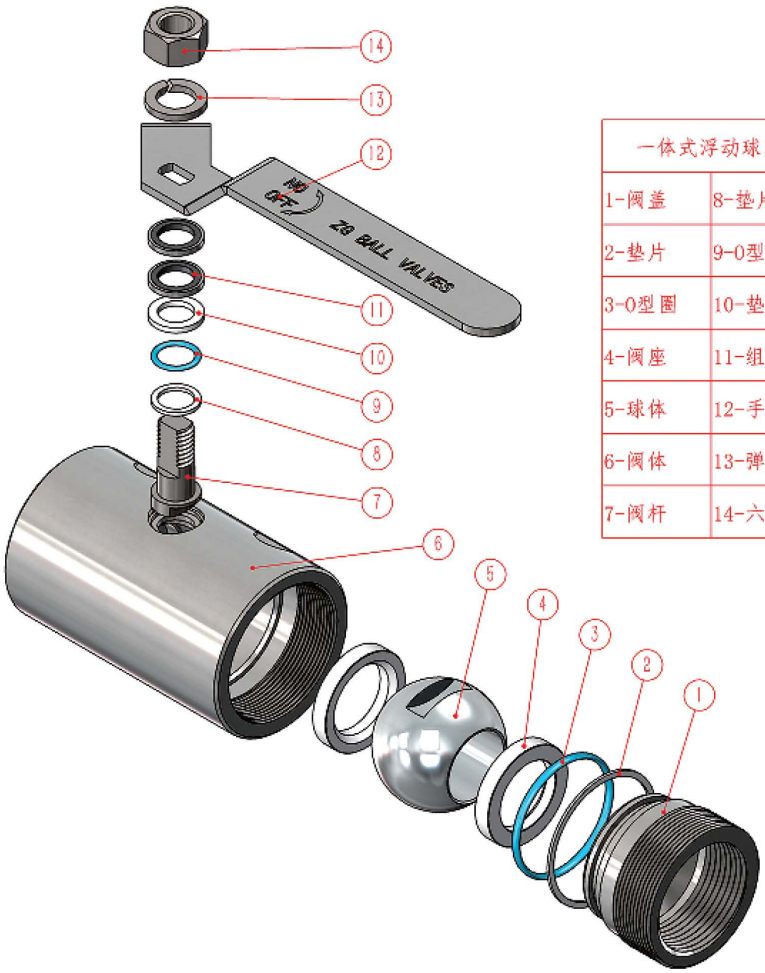
阀门类型——口径——压力——端部连接——操作方式

举例：

TBV-DN25-PN16-1/2

阀门类型：TBV-内螺纹球阀；DN25-口径；PN16-压力；1/2-内螺纹/外螺纹

内螺纹球阀 Thread Ball Valve



一体式浮动球阀零件表	
1-阀盖	8-垫片
2-垫片	9-O型圈
3-O型圈	10-垫片
4-阀座	11-组合垫片
5-球体	12-手柄
6-阀体	13-弹簧垫圈
7-阀杆	14-六角螺母

1、自高一体式内螺纹球阀的结构设计进行了完全创新，阀体材质由原铸钢或者玛钢更改为20#锻钢，壳体材料杜绝了铸造或玛钢的潜在缺陷，性能更加优越；同时阀体采用一体式焊接成型，阀体绝无外漏点。

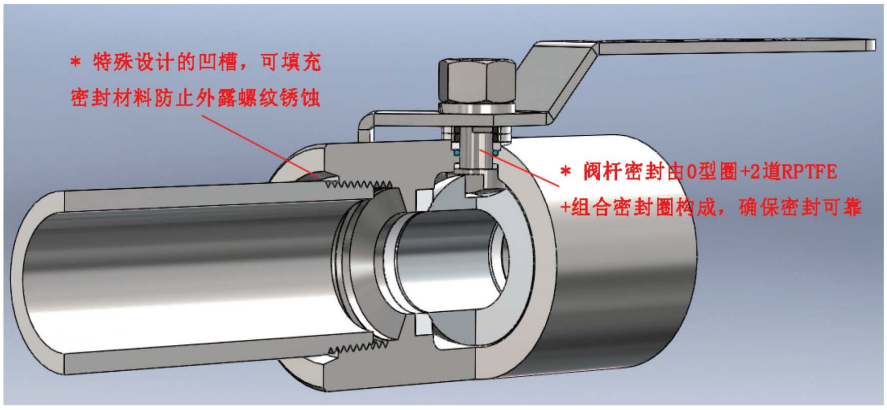
2、阀座的可靠密封设计采用了增强型聚四氟乙烯RPTFE阀座与O型圈辅助密封设计，充分确保阀门的密封性能，且阀座均带座孔槽，防止阀门长期使用因阀座配合所产生的变形。

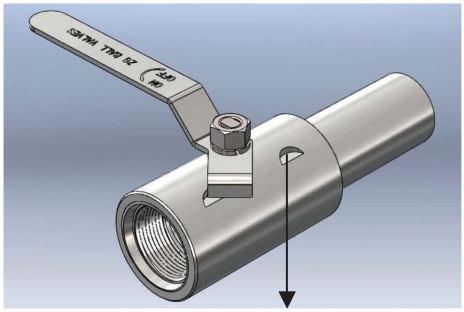
3、阀杆采用3重密封（一层O型圈+两层RPTFE密封圈），PTFE止推垫片也能起到辅助密封的作用，保证了阀杆的可靠密封性能，且可以实现在线更换密封件。

4、阀门开关位置限位采用特殊设计，充分保证开关位置的精确性及可靠性。

5、填料压环为钢环+弹性橡胶的复合件，减少启闭摩擦，开关便捷，经久耐用。

6、经许多燃气公司建议，我公司在内螺纹球阀端部特殊设计了一凹槽，以保护端部螺纹，避免了以往螺纹球阀由于露空螺纹部分锈蚀或者损坏而导致阀门无法拆卸下管道的弊端。





特殊设计的开关位置限位，能精确定位阀门的开关位置，确保阀门精确密封。

MMBV
金属硬密封球阀
METAL TO METAL BALL VALVE

阀门类型——口径——压力——端部连接——操作方式

举例：

MMBV-DN200-PN100-RF-3

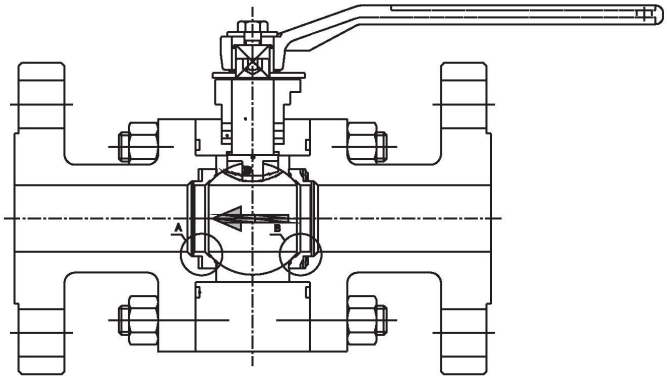
阀门类型：MMBV—金属硬密封球阀；DN200—口径；PN100—压力；RF—法兰；3—蜗轮操作

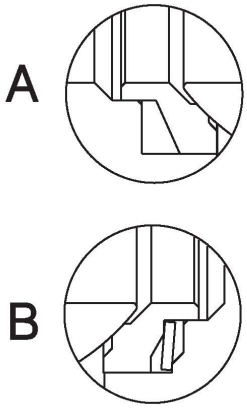
金属硬密封球阀 Dimensions data

自高所制造的金属硬密封球阀，主要应用高温、浆体、粉尘类物质的输送。自高金属硬密封球阀针对各类复杂工况，在材料的选用和结构设计上均有独特之处，自高提供的产品可以保证阀门在75μm-50mm的介质中长时间可靠的运行。

ZIGAO metal to metal seat ball valve is mainly applied to the delivery of high temperature,slurry,dust substance etc.

- 公称通径（DN）:1/2"(15)-28"(700mm)
- 压力等级（PN）:ANSI 150-2500(PN16-420)
- Size（DN）:1/2"(15)-28"(700mm)
- Pressure（PN）:ANSI 150-2500(PN16-420)





主要设计特点 Design features

☆长寿命球体、阀座:阀座密封面为司太立合金,球体密封面为司太立合金、钨钛合金、镀硬铬三种形式，对各级使用温度和摩擦性介质的管线输送，具有相当的耐磨性和长久的使用使用。

☆Long life ball&seat.The seat is of STL,and the ball sealing face is of three forms as hard chrome plating,vacuum coating and tun-gsten-titanium and STL.It owns good friction-resistance and long life.

☆高密封性球体与阀座:自高金属硬密封球阀采用弹簧预紧阀座,保证低压时的密封性,高压密封由阀座活塞效应保证,先进的阀座结构,精确的加工,使得阀门有着良好的密封性能.

☆ZIGAO metal to metal seat ball valve has high tightness.It ensures the tightness via spring prepressing seat in case of low pres-sure;in case of high pressure,the tightness is secured via swat plunger effect.

☆应用范围广泛的金属阀座:一般的阀座,半开状态容易损伤阀座、有的流体不可使用、温度范围狭窄、用途受限。自高金属密封球阀适用于高温流体、高摩擦性粉尘、浆体、含撞击物介质、固形异物混入等，几乎所有流体均可使用。

☆ The ordinary flexible seat is easy to damage when in half-open position,while it can not be applied for certain liquids,with narrow range of temperature and restricted use.ZIGAO metal to metal seat ball valve with high hardness metal seat is applicable for high temperature liquid,high friction dust,slurry,transmitter with impacting substances and solid mixtures etc.It is nearly applicable for all liquids.

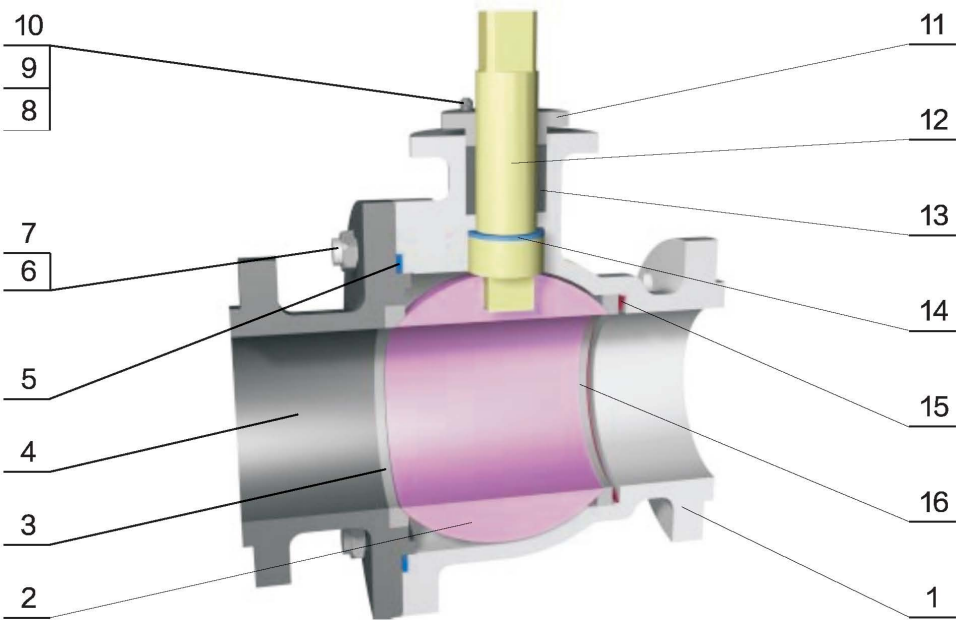
☆安全防火静电的最理想阀门：金属阀座，耐500℃极限高温,具有天然的防火防静电功能。

☆Metal seat is resistant to extremely high temperature of 500℃，with the function of fire and static resistance.

☆兼备球阀的所有特征:比较闸阀、截止阀，具有更多特点的自高金属硬密封球阀,流阻小,操作阀杆转动90°即可实现快速关闭,手动自动的转换容易，便于自动化控制。

☆Compared with gate valves and globe valves,ZIGAO ball valve with metal seat bears more advantages.It has all features a ball valve may have,such as small flow resistance,90°.Operating valve lever for quick close.easy shift between manual and automa-tic operation etc.,which facilitates the auto control.

金属硬密封球阀 Metal hard seal ball valve

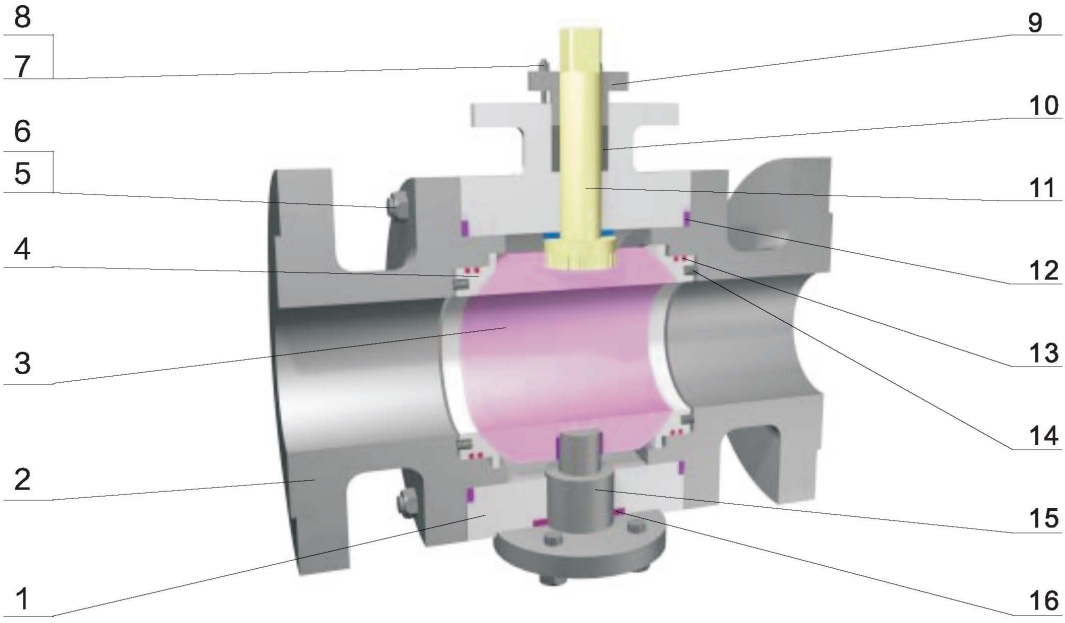


材料表 Material list

Item 序号	Description 名称	Material/材料				
		A216 WCB	A217 WC6	A217 WC9	A351 CF8M	A890 4A
1	Body/阀体②	A216 WCB	A217 WC6	A217 WC9	A351 CF8M	A890 4A
2	Ball/球体①	A105	A182 F11	A182 F22	A182 F316	A182 F51
3	Seat/阀座①	A105	A182 F11	A182 F22	A182 F316	A182 F51
4	Bonnet/阀盖②	A216 WCB	A217 WC6	A217 WC9	A351 CF8M	A890 4A
5	Gasket/垫片	316/Grafoil	316/Grafoil	316/Grafoil	316/Grafoil	316/Grafoil
6	Body Nut/阀体螺母	A194 2H	A194 7	A194 7	A194 8M	A194 8M
7	Body Stud/阀体螺栓	A193 B7	A193 B16	A193 B16	A193 B16	A193 B16
8	Gland Nut/压盖螺母	A194 2H	A194 2H	A194 2H	A194 8M	A194 8M
9	Gland Stud/压盖螺栓	A193 B7	A193 B7	A193 B7	A193 B8M	A193 B8M
10	Gland Spring/压盖弹簧	AISI 302	AISI 302	AISI 302	AISI 302	AISI 302
11	Gland/压盖	A105/H.F.	A182 F11/H.F.	A182 F22/H.F.	A182 F316/H.F.	A182 F51/H.F.
12	Stem/阀杆	A182 F6a/H.F.	A182 F6a/H.F.	A182 F6a/H.F.	A182 F316/H.F.	A182 F51/H.F.
13	Packing/填料	316 MESH/Grafoil	316 MESH/Grafoil	316 MESH/Grafoil	316 MESH/Grafoil	316 MESH/Grafoil
14	Bearing/阀杆轴承	431/H.F.	431/H.F.	431/H.F.	431/H.F.	431/H.F.
15	Butterfly Spring/蝶簧	Inc718	Inc718	Inc718	Inc718	Inc718
16	Seat Pusher/上游阀座	A105/H.F.	A182 F11/H.F.	A182 F22/H.F.	A182 F316/H.F.	A182 F51/H.F.

注：①球、下游阀座，密封面硬化根据工况条件采用相应的材质和硬化工艺。
②硬密封球阀可根据用户要求选用铸钢或者锻钢材料。

金属硬密封球阀 Metal hard seal ball valve



材料表 Material list

Item 序号	Description 名称	Material/材料				
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2	Bonnet/阀盖②	A216 WCB	A217 WC6	A217 WC9	A351 CF8M	A890 4A
3	Ball/球体①	A105	A182 F11	A182 F22	A182 F316	A182 F51
4	Seat/阀座①	A105	A182 F11	A182 F22	A182 F316	A182 F51
5	Body Nut/阀体螺母	A194 2H	A194 7	A194 7	A194 8M	A194 8M
6	Body Stud/阀体螺栓	A193 B7	A193 B16	A193 B16	A193 B8M	A193 B8M
7	Gland Nut/压盖螺母	A194 2H	A194 2H	A194 2H	A194 8M	A194 8M
8	Gland Stud/压盖螺栓	A193 B7	A193 B7	A193 B7	A193 B8M	A193 B8M
9	Gland/压盖	A105	A182 F11	A182 F22	A182 F316	A182 F51
10	Packing/填料	316 MESH/Grafoil	316 MESH/Grafoil	316 MESH/Grafoil	316 MESH/Grafoil	316 MESH/Grafoil
11	Stem/阀杆	A182 F6a/H.F.	A182 F6a/H.F.	A182 F6a/H.F.	A182 F316/H.F.	A182 F51/H.F.
12	Gasket/垫片	316/Grafoil	316/Grafoil	316/Grafoil	316/Grafoil	316/Grafoil
13	Seal Ring/密封圈	VITON(Grafoil)	VITON(Grafoil)	VITON(Grafoil)	VITON(Grafoil)	VITON(Grafoil)
14	Spring/弹簧	Inc750	Inc750	Inc750	Inc750	Inc750
15	Trunnion Support/支撑轴	A182 F6a/H.F.	A182 F6a/H.F.	A182 F6a/H.F.	A182 F316/H.F.	A182 F51/H.F.
16	Gasket/垫片	316/Grafoil	316/Grafoil	316/Grafoil	316/Grafoil	316/Grafoil

注：①球、下游阀座，密封面硬化根据工况条件采用相应的材质和硬化工艺。
②硬密封球阀可根据用户要求选用铸钢或者锻钢材料。
③可选项。

FSV
三通/四通阀
3&4 WAY BALL VALVE

阀门类型——口径——压力——端部连接——操作方式

举例：

FSV-DN350-PN50-RF-9

阀门类型：FSV—三通/四通阀；DN350—口径；PN50—压力；RF—法兰；9—电动

L型和T型三通球阀 Type L and T 3-way ball valve

自高具有新颖独特的结构和专门的控制系统设计，我公司根据流道形式分为L型与T型三通球阀及X型四通球阀。L型三通球阀用于管路中介质流向的切换，能使相互垂直的两个流道连通。T型三通球阀可用于介质的分流、合流及流向切换，T型球体通道可以使三个通道互相连通或使其中的两个通道连通，T型三通球阀可以实现其中的两种、三种或四种功能，但要实现的功能不同，阀门的设计有一定的差异，因此，对于T型三通球阀,用户在选用和订货时，需要对使用要求作详细的描述，以便我公司正确的设计与配置，对于普通的浮动球三通球阀，某些工况不适合使用，用户在选用时需特别注意。自高独特的结构设计可以满足用户一些特别工况和特殊要求。

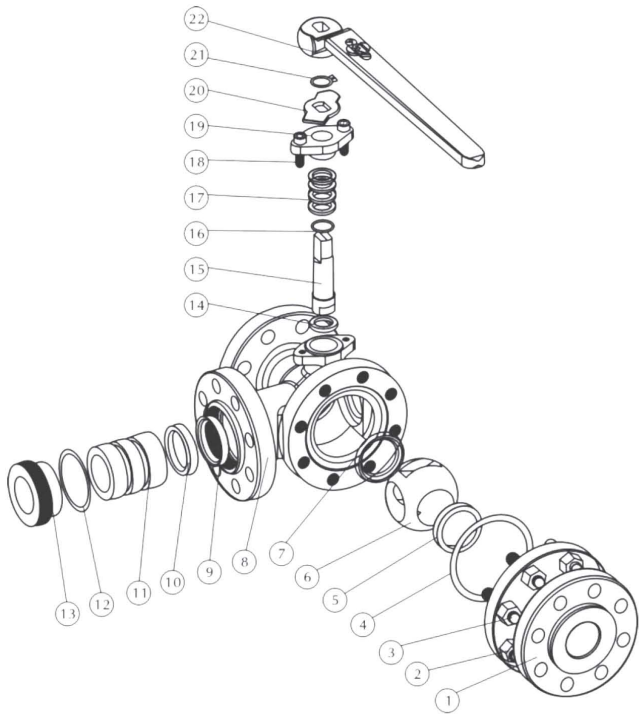
ZIGAO 3-Way/4-Way ball valve features novel construction and special design of control system.It is compatible with instruments with air-driven and electric-driven control function combined,and is extensively applied to automation systems and employed by a wide range of industries.Subject to the patterns of flow path,Zigao have the type(L&T).

特征 Features

- 四面座三通型球阀，流道形式有L型（3-way 2port）和T型（3-way 3port）两类，具体根据用途来选择。
- 密封阀座采用增强PTFE、PPL或VITON-HARD双密封阀座。
- 操作方式：手柄，蜗轮，气动，电动等各类形式。

- 4-side seat 3-way ball valve has two categories of flow passage pattern:Type L(3-way 2-port)and type T(3way 3-port),the right option is subject to your application.
- Reinforced TFE,PPL,or VH seats with dual sealing.
- A variety of actuating modes,such as by hander,air or electric-driven.

序号 S/N	零件名称 Name of Part	主要部分材质 Material of Main Parts		
1	阀体Body	WCB	CF8	CF8M
2	阀盖Cap	WCB	CF8	CF8M
3	球体Ball	Cr13	304	316
4	阀座Seat	PTFE、PPL、HR	PTFE、PPL、HR	PTFE、PPL、HR

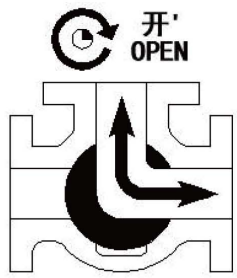
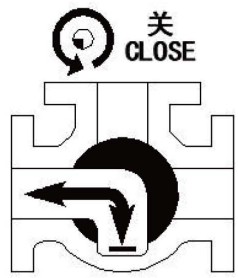
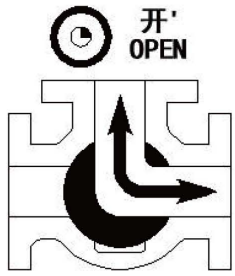
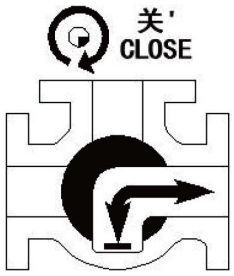
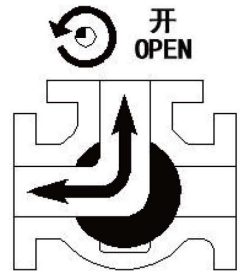
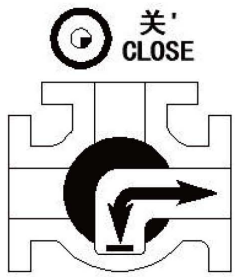
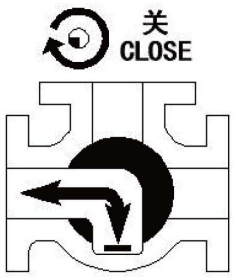
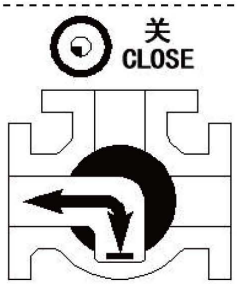
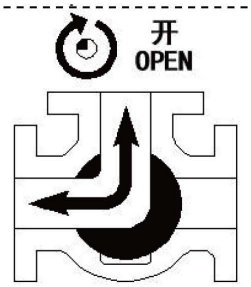
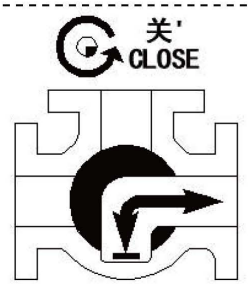


序号 S/N	零件名称 Name of Part
1	阀盖 Bonnet
2	螺母 Nut
3	螺栓 Bolt
4	垫片 Gasket
5	1#阀座环 Seat Ring 1
6	球体 Ball
7	2#阀座环 Seat Ring 2
8	阀体 Body
9	3#阀座环 Seat Ring 3
10	4#阀座环 Seat Ring 4
11	阀座 Seat
12	O形圈 O-ring
13	内嵌接头 Insert Plug
14	阀杆垫片 Stem Washer
15	阀杆 Stem
16	阀杆O形圈 Stem O-ring
17	阀杆填料 Stem Packing
18	压盖螺栓 Gland Bolt
19	压盖 Gland
20	限位块 Stop Plate
21	止动环 Snap Ring
22	手柄 Lever

L型三通球阀流向方案 L-type three way ball valve flow scheme

L型流道的三通球阀用于切换及阻断流路工况使用，以出厂位置计算，共有4种流向方案可供选择，该种球阀广泛应用于石油、化工、天然气、冶金、造纸、制药、食品、供排水系统等行业和领域。

The three-way ball valve with L-shaped flow passage is used to switch and block the flow passage working condition. Based on the factory location, there are four flow direction schemes to choose. The ball valve is widely used in industries and fields such as petroleum, chemical industry, natural gas, metallurgy, papermaking, pharmacy, food, water supply and drainage system, etc.

方案号	出厂位置	顺时针旋转 90°	逆时针旋转 90°
L-1			
L-2			
L-3			
L-4			

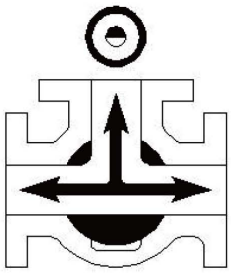
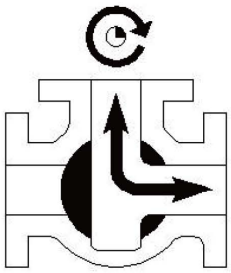
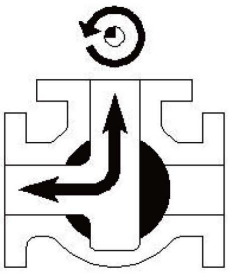
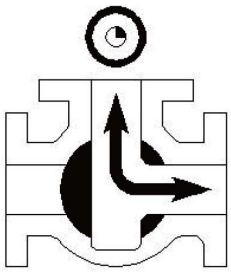
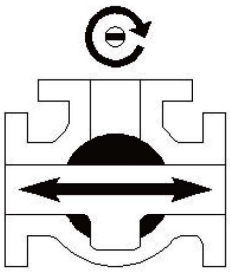
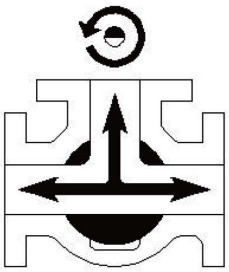
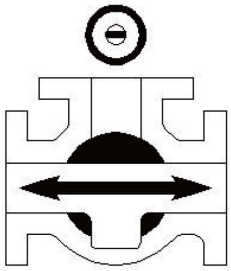
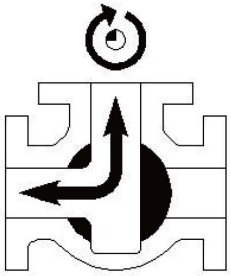
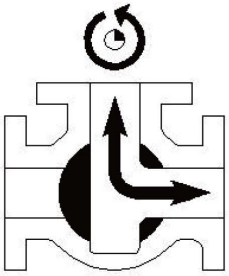
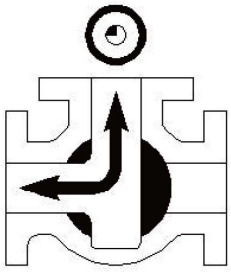
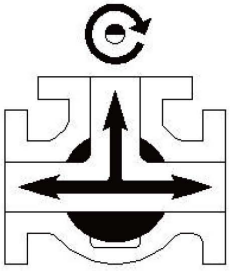
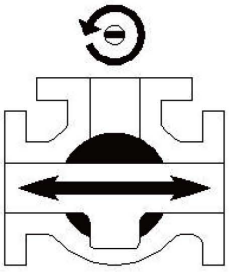
注：订货时可注明上述方案代号，出厂时阀门按方案号进行设置。

the above scheme code can be indicated when ordering, and the self-contained valve shall be set according to the scheme number when leaving the factory.

T型三通球阀流向方案 T-type three way ball valve flow scheme

T型流道的三通球阀，用于流路切换或切断工况使用，可切换至三条管道同时接通或管道两通一断的工作方式。以出厂位置计算，共有4种流向方案可供选择，该种球阀广泛应用于石油、化工、天然气、冶金、造纸、制药、食品、供排水系统等行业和领域。

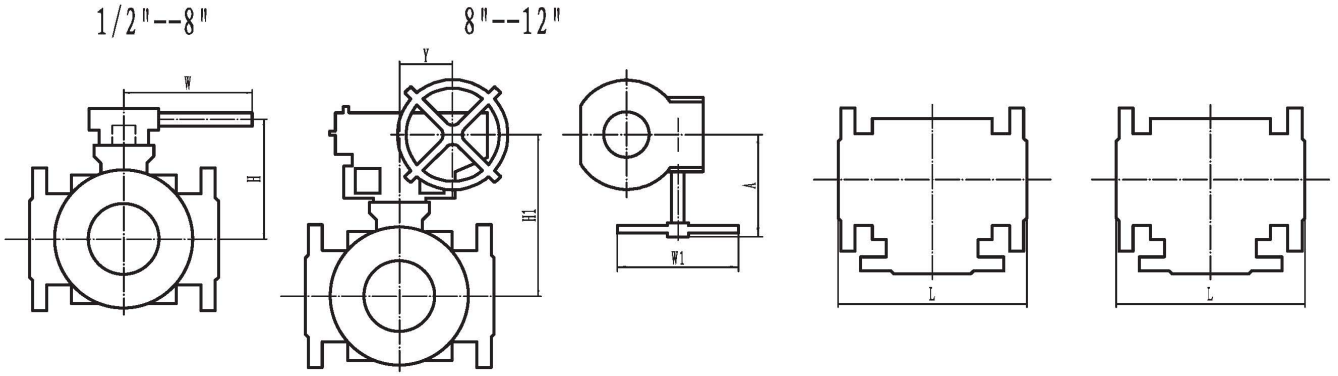
The tee ball valve with T-shaped flow passage is used for flow path switching or cutting off conditions. The switching mode of three pipes on or two pipes on and one off can be selected. According to the factory location, there are four flow direction schemes to choose from. The ball valve is widely used in petroleum, chemical industry, natural gas, metallurgy, paper making, pharmaceutical, food, water supply and drainage system and other industries and fields.

方案号	出厂位置	顺时针旋转 90°	逆时针旋转 90°
T-1			
T-2			
T-3			
T-4			

注：订货时可注明上述方案代号，出厂时阀门按方案号进行设置。

the above scheme code can be indicated when ordering, and the self-contained valve shall be set according to the scheme number when leaving the factory.

尺寸表 Dimension table



通径Size		L		H	H1	Y	A	W	W1
mm	INCH	150LB	300LB						
15	1/2"	70	--	45	--	--	--	150	--
20	3/4"	165	--	76	--	--	--	180	--
25	1"	165	--	76	--	--	--	180	--
40	1 1/2"	250	--	118	--	--	--	650	--
50	2"	260	260	128	--	--	--	650	--
65	2 1/2"	320	--	165	--	--	--	1100	--
80	3"	350	380	162	--	--	--	650	--
100	4"	390	--	--	227	85	294	--	450
125	5"	510	--	--	248	85	294	--	450
150	6"	580	680	--	396	115.5	350	--	600
200	8"	670	715	--	426	115.5	350	--	600
250	10"	740	780	--	476	144.5	437	--	600
300	12"	864	910	--	501	144.5	437	--	600

端法兰连接尺寸按 ASME CLASS 150Lb;GB,JB,HG
The size of end flange coupling shall be subject to the ASME CLASS 150Lb;GB,JB,HG
“*”涡杆－涡轮操作器操作；气动、电动驱动详见另册或询自高技术部。
*stands for the worm and whorl-driven actuating.

X型四通球阀 Type L and T 3-way ball valve

特征 Features

四通球阀，流道形式为X型（2位-四通）。
密封阀座采用增强TFE、PPL或HR双密封阀座。
操作方式：手柄、蜗轮、气动、电动等各类形式。
开闭位置点可以锁定，防止误操作。

4-way ball valve with X-shape flow passage(2way and 4port)
Reinforced TFE,PPL or HR seats with dual sealing
A variety of actuating modes.
The open or close location can be locked.

主要部件材质 Material

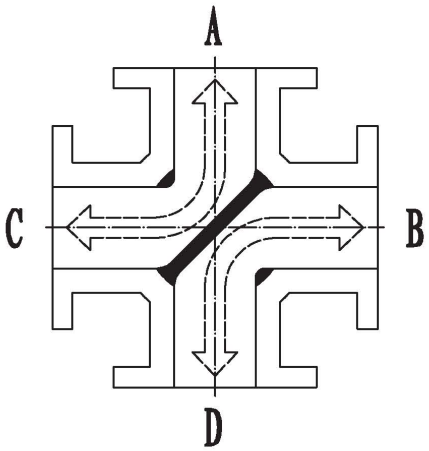
序号 S/N	零件名称 Name of Part	主要部分材质 Material of Main Parts		
1	阀体 Body	WCB	CF8	CF8M
2	阀盖 Cap	WCB	CF8	CF8M
3	球体 Ball	Cr13	304	316
4	阀座 Seat	PTFE、PPL、HR	PTFE、PPL、HR	PTFE、PPL、HR

工作形式 Operating mode

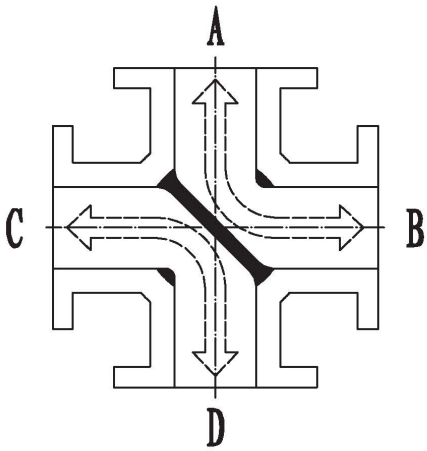
X型流道的四通四面阀座球阀，可实现工况1至工况2的转换，采用四面阀座，受力平衡。广泛用于石油、化工、天然气、冶金、造纸、制药、食品、供排水系统等行业和领域，主要用于流路的换向。

4-side seat 2-way ball valve with x-shaped port can change over between the working conditions from stage 1 to stage 2.Thanks to the use of 4-side seat,force is evenly exerted on the valve.It is extensively applied to a wide range of fields or industries,such as petroleum,chemical,natural gas,paper-making,pharmaceutical,food processing,water supply and drainage system,etc.Its main purpose to divert flow passage.

（1）、以A（C）为入口时，能够实现A→B（C→D）或A→C（C→A）两组连通切换。
（2）、以B（D）为入口时，能够实现B→A（D→C）或B→D（D→B）两组连通切换。
（3）、不能实现A→D（C→B）或D→A（B→C）。



工况1 stage 1

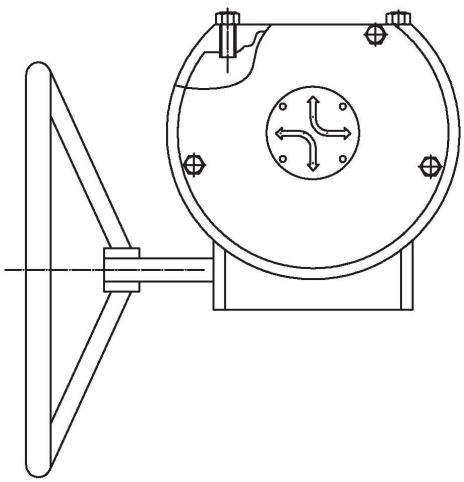


工况2 stage 2

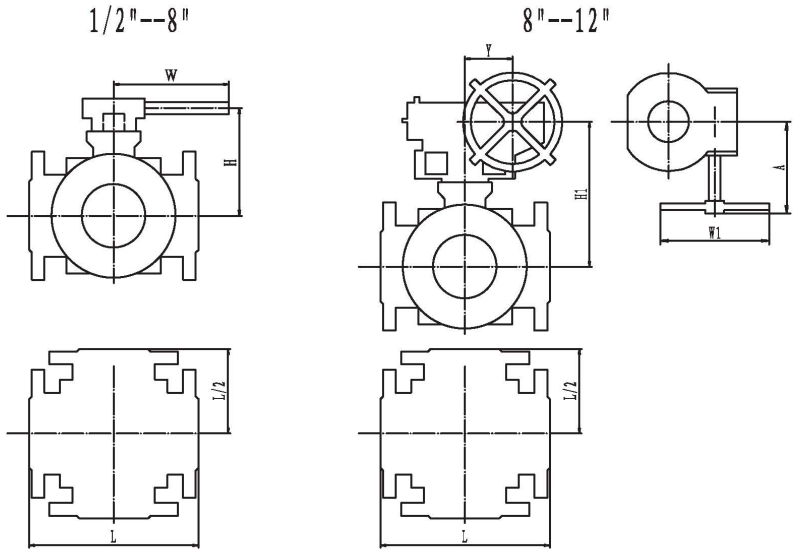
流向位置的判定 Determination of Flow direction

阀门通过手柄、手轮操作时，流向状态可根据阀杆顶端的刻线记号来区分。用手操器时有待箭头的标牌指示。

The flow direction can be determined by the scale marked on the top of the stem when the valve is operated by hander and hand wheel.When it is operated by hand,the direction is indicated by the nameplate with an arrow.



尺寸表 Dimension table



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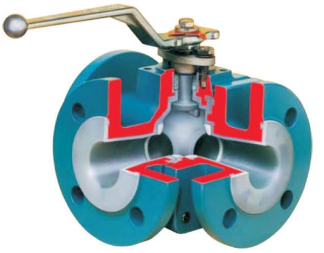
15	1/2"	70	--	45	--	--	--	150	--
20	3/4"	165	--	76	--	--	--	180	--
25	1"	165	--	76	--	--	--	180	--
40	1 1/2"	250	--	118	--	--	--	650	--
50	2"	260	260	128	--	--	--	650	--
65	2 1/2"	320	--	165	--	--	--	1100	--
80	3"	350	380	162	--	--	--	650	--
100	4"	390	--	--	227	85	294	--	450
125	5"	510	--	--	248	85	294	--	450
150	6"	580	680	--	396	115.5	350	--	600
200	8"	670	715	--	426	115.5	350	--	600
250	10"	740	780	--	476	144.5	437	--	600
300	12"	864	910	--	501	144.5	437	--	600

端法兰连接尺寸按 ASME CLASS 150Lb;GB,JB,HG
The size of end flange coupling shall be subject to the ASME CLASS 150Lb;GB,JB,HG
“*”涡杆－涡轮操作器操作；气动、电动驱动详见另册或询自高技术部。
*stands for the worm and whorl-driven actuating.



VBV
V型球阀
V-TYPE BALL VALVE

阀门类型——口径——压力——端部连接——操作方式

举例：

VBV-DN100-PN16-RF-6

阀门类型：VBV—V型球阀；DN100—口径；PN16—压力；RF—法兰；6—气动

自高V型球阀 Zigao V Type Ball Valve

V型球阀是一种直角回转型的高级控制阀，其主要作调节阀使用，也可以作为截断阀使用。V型阀阀芯设计成带特殊形状的V型缺口，所以具有很大的剪切力及自洁功能，尤其适用于含纤维或微小固体颗粒状介质的控制。因此本产品在化工、造纸、石油、电力、燃气等领域得到广泛应用，性能优越。

The ball of valve is "V" pattern.Applicable for the fluid containing fibers,the high-viscosity fluid containing solid particles,the special fluid control and flow regulating;it can also be used as the isolating valve for its reliable sealing.It is widely used in chemical industry,paper-making,petroleum.electric,gas,etc.It has excellent performance.

特征 Features

一体式阀体（one piece body）

一体式球形外壳阀体，强度高，抗应力变形强，无中部法兰泄漏点，流道无弯曲过渡，不起垢，无阻塞，对流体影响小。

Enclosure body of integral body,the strength is high,stress deformation resistance is strong,has no central flange,confinement reliability is improved,has no bending transition at the flow passage,not accumulate,not block,has little influence upon the fluid.

可靠的阀座密封 Reliable seat sealing

V型球阀阀座采用预紧力弹簧，使阀座始终与阀芯贴合，密封性能好。对于不同的介质、温度可提供软密封与金属阀座。

According to the medium,temperature,zigao can offer the metal to metal seat and soft seat.

阀芯 Ball

V型球阀阀芯设计为V型缺口，这样的设计利于流量的精确控制，又可在关闭时实现对纤维质流体及颗粒流体的剪切作用。

The ball is V pattern,both the two ends are v pattern,which is easy to precise control for flow also can realize the shearing action for the fluid containing cellulosic,the high-viscosity fluid containing solid particles when shutting.

传动·轴承 Transmission·Bearing

阀杆与阀芯之间采用花键连接，承载扭矩大，使用寿命长。阀杆轴承选用自润滑金属衬TFE或PPL,摩擦小，开关灵活。

The ball connects with the stem by adopting wedge shape pin key linking and key linking.The structure design is convenient for valve making, decomposing and maintaining.The stem bearing adopts the self-lubricating metal gasket,TFE or PPL,because of its little friction and smart switcher.

V形切口球

提供高超的剪切能力

减少了密封件的移动

延长了密封件和阀的

使用寿命

微型切口球

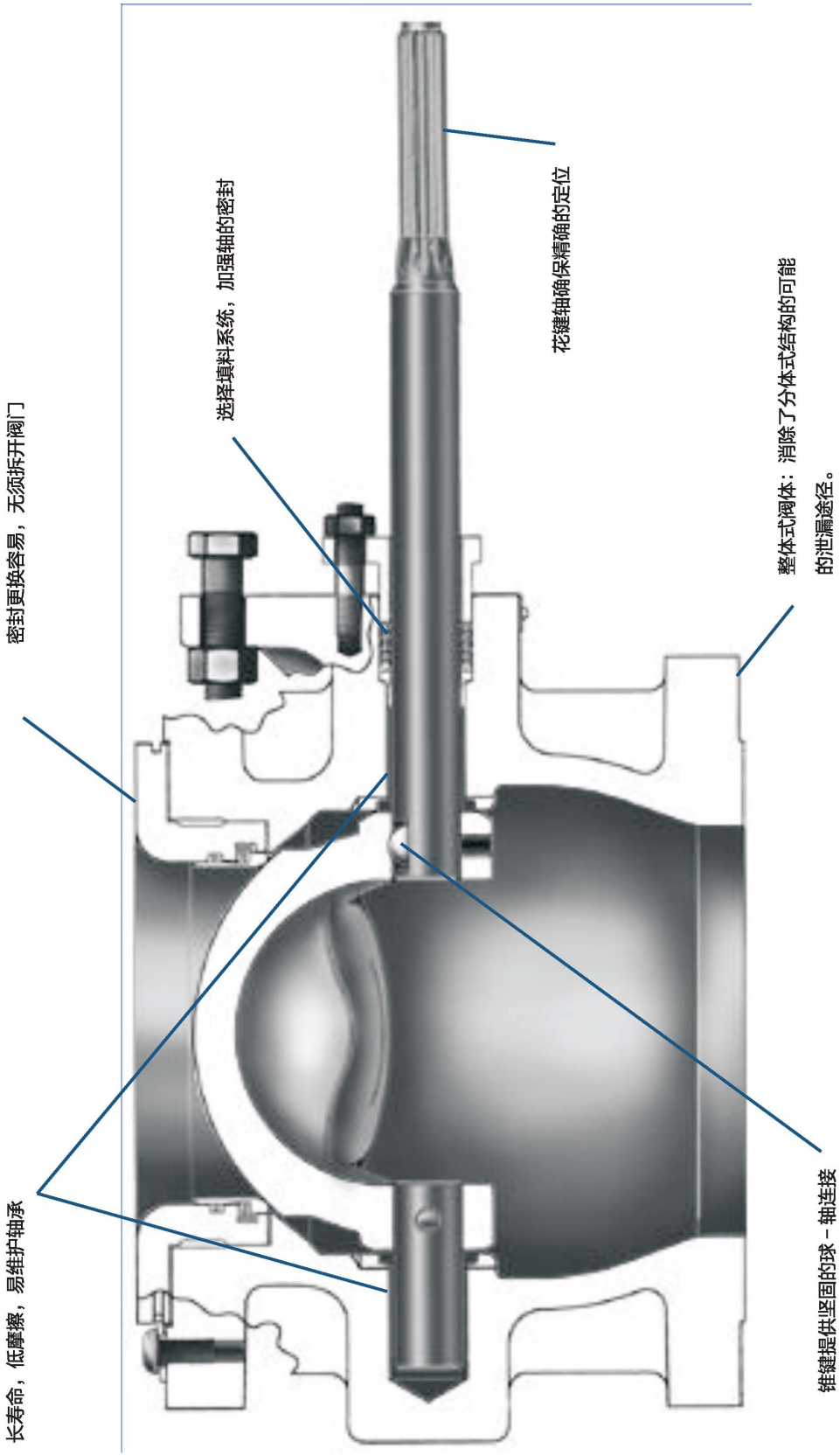
控制微小流量

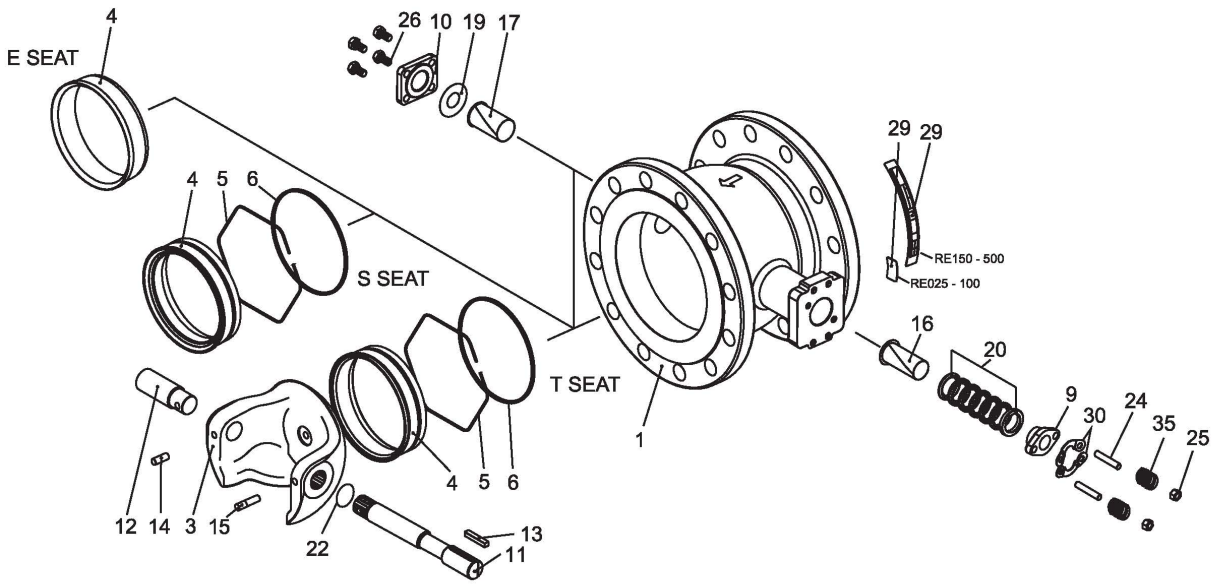
阻尼球

减少恶劣工况下的

液相气蚀和

气相噪声


长寿命，低摩擦，易维护轴承
密封更换容易，无须拆开阀门
选择填料系统，加强轴的密封
花键轴确保精确的定位
整体式阀体：消除了分体式结构的可能的泄漏途径。
锥键提供坚固的球－轴连接



序号 S/N	部件名称 Name of Part	阀门材质 Body Material	
		不锈钢Stainless Steel	碳钢Carbon Steel
1	阀体Body	ASTM A351 gr. CF8M	ASTM A216 gr.WCB
3	球体Ball	CF8,CF8M+镀硬铬或喷司太立	WCB,LCB
4	阀座Seat	硬密封或VITON,PTFE	硬密封或VITON,PTFE
5	压簧Lock Spring	INCONEL 625	INCONEL 625
6	后阀座密封Back Seal	SS Eligiloy spring+PTFE	SS Eligiloy spring+PTFE
9	压盖法兰Gland Follower	ASTM A351 gr. CF8M	ASTM A351 gr. CF8M
10	底盖法兰Blind Flang	ASTM A351 gr. CF8M	ASTM A351 gr. CF8M
11	阀杆Stem	SIS 2324/AISI 329 duplex SS	SIS 2324/AISI 329 duplex SS
12	下阀杆Lower Stem	17-4PH,316SS	ASTM A105
13	键Key	17-4PH,316SS	SS304,45#
14	圆柱销Cylindrical Pin	304SS,316SS	304SS,316SS
15	锥形销Taper Pin	304SS,316SS	304SS,316SS
16	轴承Bearing	PTFE + SS net	PTFE + SS net
17	轴承Bearing	PTFE + SS net	PTFE + SS net
19	密封垫Sealing Plate	PTFE	PTFE
20	填料Packing	PTFE/Graphite 1	PTFE/Graphite 1
22	垫环Filling Ring (only low Cv 1"/DN25)	Stainless Steel AISI 316	Stainless Steel AISI 316
24	螺栓Bolt	ISO 3506 A4-80/B8M	ISO 3506 A4-80/B8M
25	螺帽Nut	ISO 3506 A4-80/B8M	ISO 3506 A4-80/B8M
26	六角头螺栓Hexagon Bolt	ISO 3506 A4-80/B8M	ISO 3506 A4-80/B8M
29	铭牌Nameplate	AISI 304	AISI 304
30	限位块Stop Plate	AISI 316	AISI 316
35	弹簧Spring	17-7PH	17-7PH

技术参数 Technical specifications

口径 SIZE

Inch 1", 11/2", 2", 2 1/2", 3", 4", 6", 8", 10", 12", 14", 16", 20"
DN 25, 40, 50, 65, 80, 100, 150, 200, 250, 300, 350, 400, 500

端部连接 END-CONNECTIONS

法兰式，对夹式
Flanged,Wafer type

温度范围 TEMPERATURE RANGE

-40℃...+250℃/-40...+480℃

压力测试 PRESSURE TEST

阀体水压测试为最大工作压力的1.5倍,密封测试为1.1倍，低压气密封为0.6Mpa。

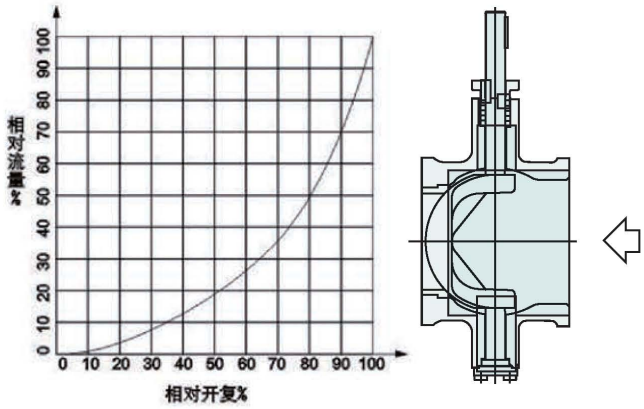
The test pressure of valve body is 1.5×the pressure rating and the standard test pressure of seat is 1.1 × the maximum permissible shut-off pressure or lower depending on size and material.

泄漏量 SHUT-OFF CLASSIFICTION

V型球阀泄漏量应需满足下表中规定，这一标准值相当于美标ANSI/FCL 70.2Class IV级的1/50。

IEC 60534-4/ANSI/FCI 70.2 Class IV, optionally Class V.
10 x ISO 5208 Rate D.

V型调节阀固有的流量特性为近似等百分比特性，如图所示。

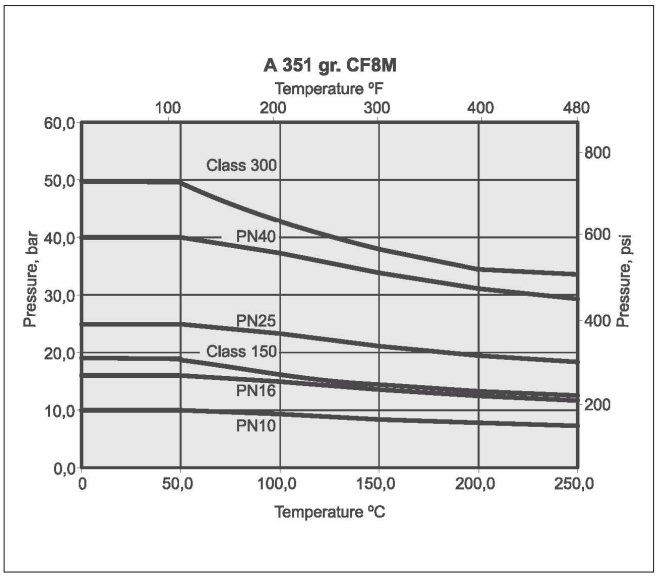


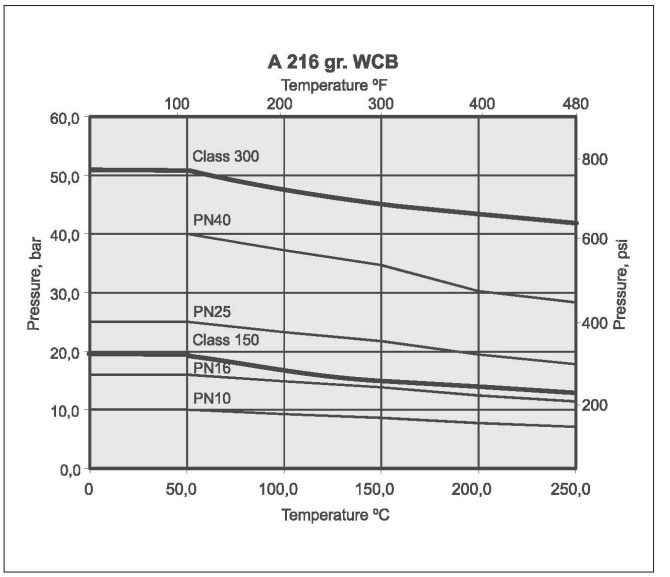
最大允许泄漏量Maximum Allowable Leakage		
口径 DN/inch	金属阀座Metal Seat	软阀座Soft Seat
25 / 1	1.50 ml/min	0.15 ml/min
40 / 1½	2.40 ml/min	0.24 ml/min
50 / 2	3.00 ml/min	0.30 ml/min
65 / 2½	3.90 ml/min	0.39 ml/min
80 / 3	4.80 ml/min	0.48 ml/min
100 / 4	6.00 ml/min	0.60 ml/min
150 / 6	9.00 ml/min	0.90 ml/min
200 / 8	12.00 ml/min	1.20 ml/min
250 / 10	15.00 ml/min	1.50 ml/min
300 / 12	18.00 ml/min	1.80 ml/min
350 / 14	21.00 ml/min	2.10 ml/min
400 / 16	24.00 ml/min	2.40 ml/min
500 / 20	30.00 ml/min	3.00 ml/min

最大额定Cv值 Maximum Cv and resistance coefficients

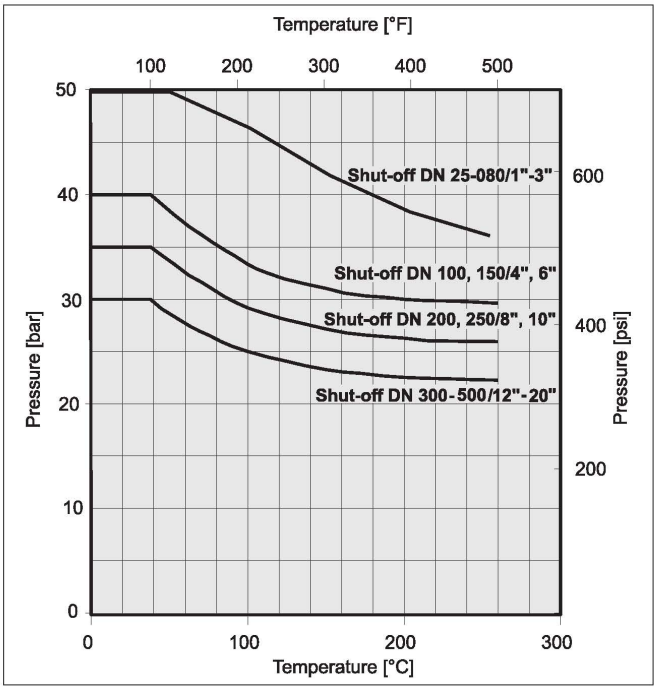
Valve Size DN	Valve Size inch	硬密封Metal-seated valve			软密封Soft-seated valve	
		Standard valve		Q-R-valve	Standard valve	
		Cv 100%[1]	ξ 100%[1]	Cv 100%[2]	Cv 100%[1]	ξ100%
25	1	45	0.41	-	21	1.83
40	1 1/2	110	0.45	-	61	1.47
50	2	180	0.41	47	110	1.10
65	2 1/2	280	0.49	96	215	0.83
80	3	420	0.50	160	340	0.76
100	4	620	0.56	250	520	0.79
150	6	1260	0.68	540	1070	0.94
200	8	2030	0.83	880	1760	1.10
250	10	3210	0.81	1510	2830	1.04
300	12	4490	0.86	2140	4080	1.04
350	14	6440	0.77	3160	5750	0.97
400	16	8510	0.76	4180	7630	0.94
500	20	13020	0.79	6600	-	-

阀体压力曲线图 Body Pressure Ratings

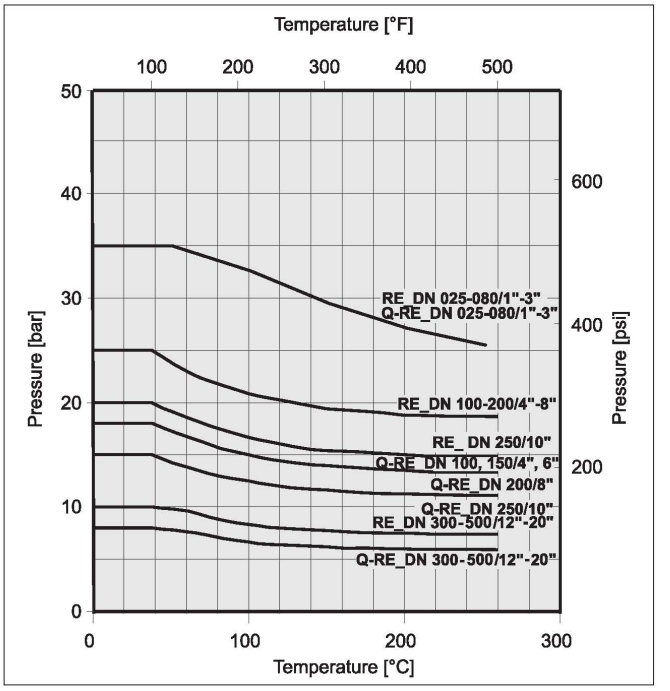




differential in shut-off service

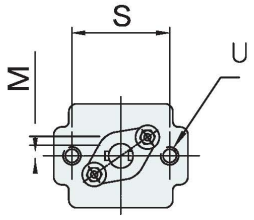


differential in control service

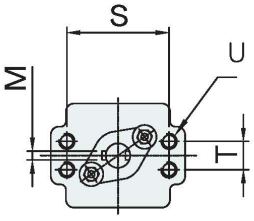


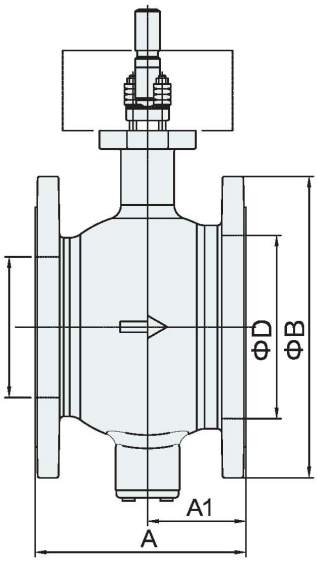
尺寸 Dimensions

DN25...100

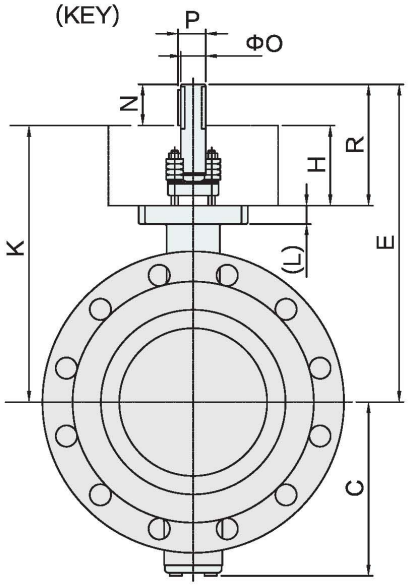


DN150...400





RE_A DN25...400
(KEY)



阀门显示在关位Valve is shown in closed position

DN/inch	Dimensions, mm										Stem dimensions, mm					
											RE_A (Key)					
	A1	A	C	ΦD	K	S	T	U	L	H	E	R	ΦO	M	P	N
25/1"	51	102	56	33	182	70	–	M10	15.5	80	207	105	15	4.76	17	25
40/ 1 1/2"	57	114	65	49	188.5	70	–	M10	15.5	80	213.5	105	15	4.76	17	25
50/2"	62	124	91	60	210	70	–	M10	15.5	80	224.5	105	15	4.76	17	25
65/ 2 1/2"	72.5	145	97	75	216	70	–	M10	15	80	230	105	15	4.76	17	25
80/3"	82.5	165	108	89	232	90	–	M12	16	90	267	125	20	4.76	22.2	35
100/4"	97	194	120	113	241	90	–	M12	16	90	276	125	20	4.76	22.2	35
150/6"	114.5	229	174	164	290	110	32	M12	22	90	335	135	25	6.35	27.8	46
200/8"	111.5	243	201	205	345	130	32	M12	22	110	395	160	30	6.35	32.9	51
250/10"	138.5	297	251	259	387	130	32	M12	26	110	445	168	35	9.53	39.1	58
300/12"	154	338	269	300	445	160	40	M16	26	120	513	188	40	9.53	44.2	68
350/14"	175	400	311	350	486	160	40	M16	29	120	566	200	45	12.70	50.4	80
400/16"	160	400	353	400	553	160	55	M20	29	140	643	230	50	12.70	55.5	90
500/20"	182	457	420	500	618	230	90	M27	40	150	768	292	70	19.05	78.2	119

DN/inch	Flange dimensions (B) and weights											
	ASME 150		ASME 300		PN 10		PN 16		PN 25		PN 40	
	ΦB	Kg	ΦB	Kg	ΦB	Kg	ΦB	Kg	ΦB	Kg	ΦB	Kg
25/1"	108	3.6	124	4.9	115	4.6	115	4.6	115	4.6	115	4.6
40/ 1 1/2"	127	4.6	155	7.5	150	6.2	150	6.2	150	6.2	150	6.2
50/2"	152	7.4	165	9.5	165	8.8	165	8.8	165	8.8	165	8.8
65/ 2 1/2"	185	13	185	13	185	13	185	13	185	13	–	–
80/3"	191	14	210	19	200	16	200	16	200	16	200	16
100/4"	229	21	254	29	220	18	220	18	235	21	235	21
150/6"	279	39	318	54	285	37	285	37	300	42	300	42
200/8"	343	62	381	83	340	56	340	60	360	64	375	71
250/10"	406	91	450	139	405	85	405	84	425	101	450	125
300/12"	483	142	520	199	460	124	460	123	485	148	520	182
350/14"	534	203	584	284	505	178	520	183	555	223	580	266
400/16"	597	264	648	355	565	234	580	239	620	290	660	346
500/20"	699	430	–	–	670	415	715	435	730	530	–	–

注：更多口径的球阀可定制，详询自高阀门技术部。
Note: more ball valves can be customized. Please refer to the zi gao valve co.,ltd.

SDBV
水电球阀
HYDROPOWER BALL VALVE

阀门类型——口径——压力——端部连接——操作方式

举例：

SDBV-DN800-PN100-FM

阀门类型：SDBV-水电球阀；DN800-口径；PN100-压力；FM-凹面法兰

水电球阀 Hydropower ball valve

1、产品简介

水电球阀是水利发电主要控制设备之一、适用于输送泥沙含量较高水质情况下的球阀。该类球阀在水轮机进水管道上作为启闭装置，只能全开、全关，不能作调节用，具有流阻小、启闭灵活、安全可靠、操作方便等优点。阀门通常采用液动驱动（也可以根据工况情况选用电动），可实现就地手动或远程程控操作。

2、阀门及其控制附属件

进水专用球阀及其附属设备包括：进水主球阀、固定缸液压接力器、伸缩节、伸缩节反法兰、阀前短管、旁通管路（含手动检修球阀、电动旁通球阀、无缝钢管、无缝弯头、法兰、紧固件及密封件）、阀体排污阀、伸缩节排水阀、空气阀、蓄能式液压站、PLC控制柜、自动化元件（包括充压阀、锁锭、仪表、信号器和平压监测压力变送器或压力开关等）、设备之间的连接管路、线缆、附件、基础螺栓、上下游侧法兰联接所需的全部螺栓、螺帽、填料、垫圈、垫板等。

3、阀门主要特点

3.1 全通径设计，流阻系数非常小。

3.2 阀门卧轴布置、便于现场操作和观察。

3.3 阀门分设工作密封和检修密封，机械安全锁定，具有在线维护功能。

3.4 金属密封结构，液压控制止水环投入或脱离密封，有效保护工作密封面。

3.5 适用于水循环下工作的止水环采用不锈材料、与阀体、端盖上相对滑动面均堆焊有防锈蚀不锈钢层，以保证止水环密封可靠、运行稳定。

3.6 旁通系统有效缓解阀门启闭时产生的动水振动。

3.7 伸缩节允许阀体沿着蜗壳进水直管的轴线移动，同时便于阀的安装和拆卸。

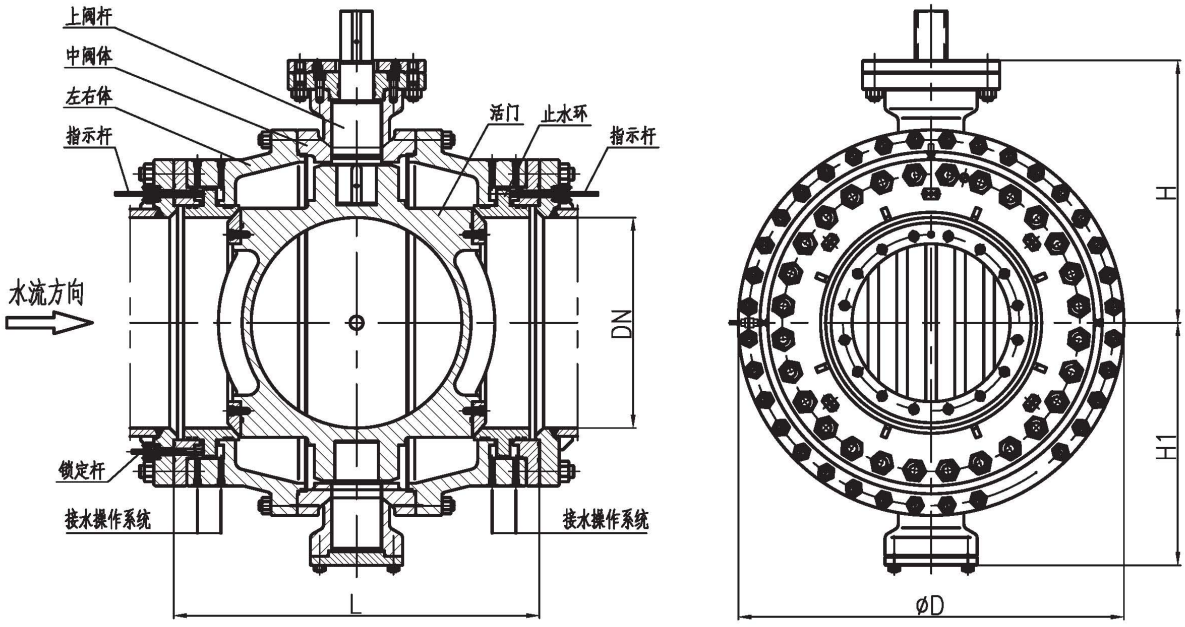
3.8 伸缩节顶部设置有空气阀，为自适应式，能够将充水时水面上的空气排除。

3.9 主球阀底部和伸缩节底部分别设置有较大排污手动球阀，在检修水轮机等时充分排除阀门体腔内的污物和蜗壳内的积水。

3.10 阀杆采用不锈钢材料，轴承前设有抗泥沙磨损密封圈，防止阀杆运行出现磨咬伤的情况。

3.11 采用微机监控液动水电球阀，经控制箱信号指令（电磁阀）、各部位行程开关、差压系统、实现程控操作，运行性能可靠，扭矩非常小。

3.12 阀门阀体及支撑底座设计强度高，满足可能出现极限水头下系统正常运行。



ZIGAO VALVE

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