

PGV 清管阀 PIGGING VALVE



清管阀 Piggig 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, separating, 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 port cover 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 port cover can not be opened only after opening 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。

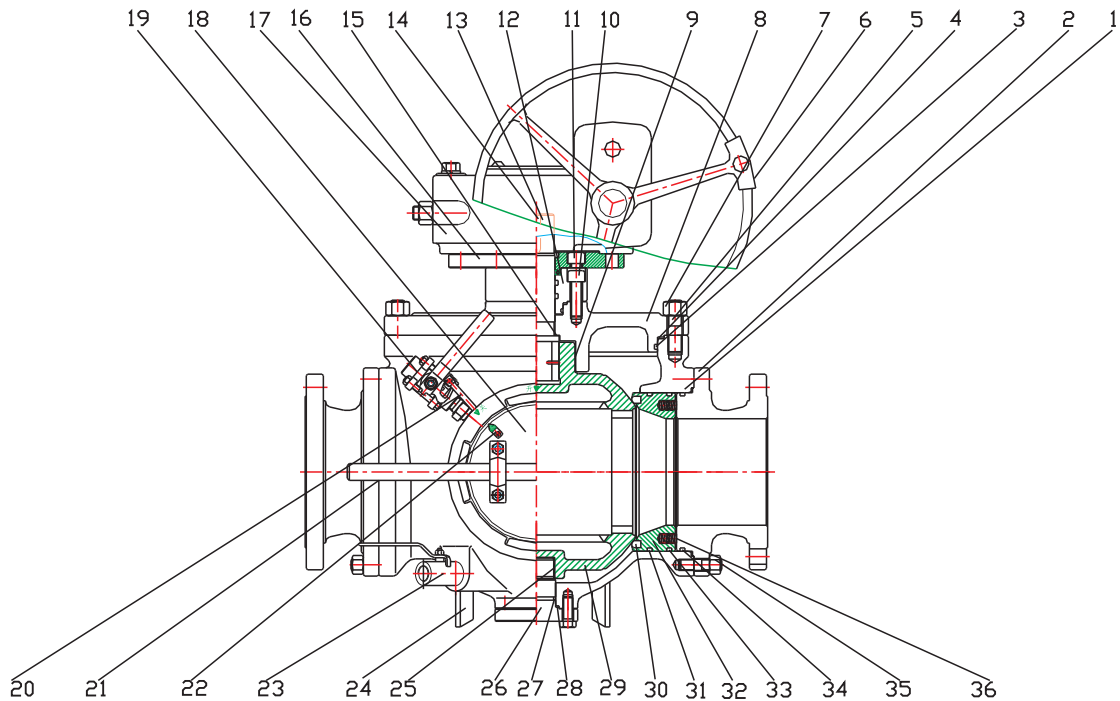
Flushing valve can be equipped on the valve body. when toxic media are being transported, with the aid of flushing valve with a nozzle, the toxic media can be drained through the drain valve to the sewage pot.

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.

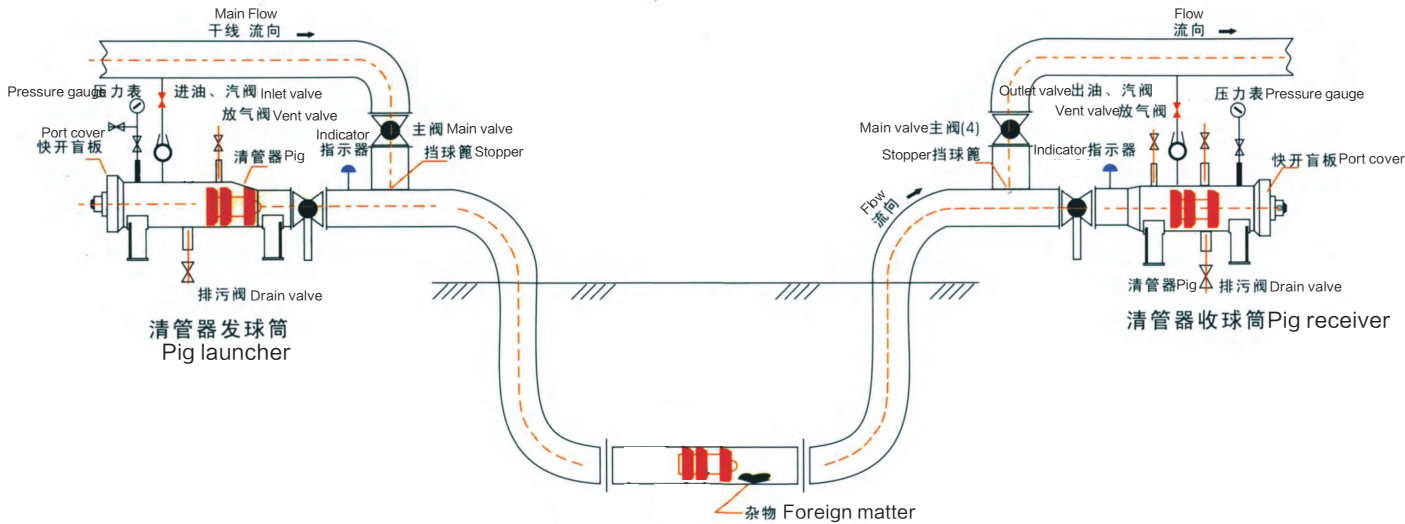
清管阀外形结构 External structure



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 Handwheel	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	止推轴承 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.

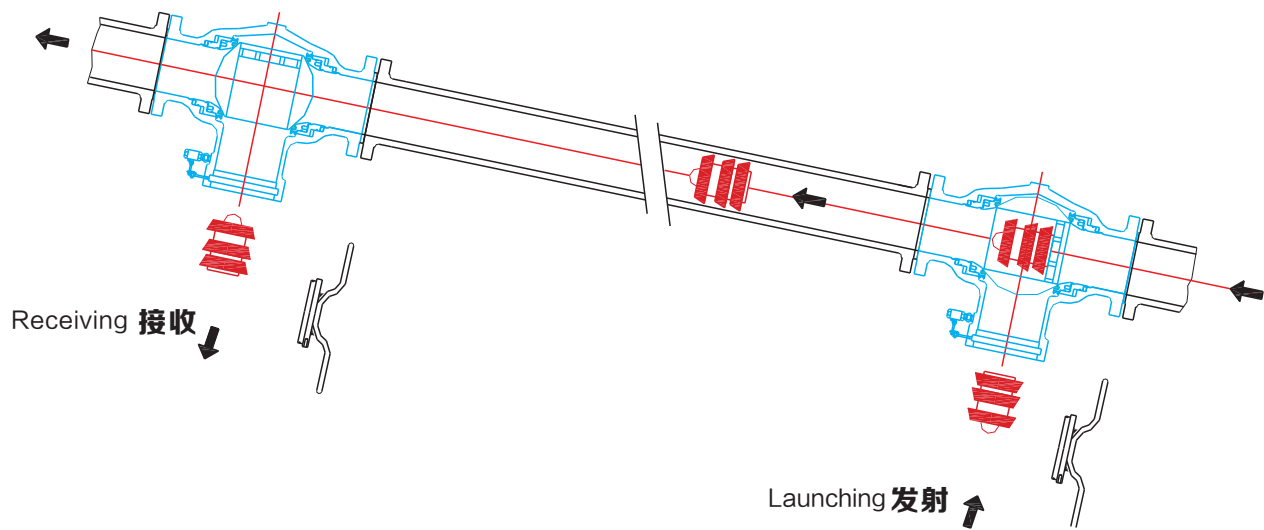
PIG阀与传统收发球筒的比较 Comparison with Conventional Pig launcher and Receiver



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 bracket.	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



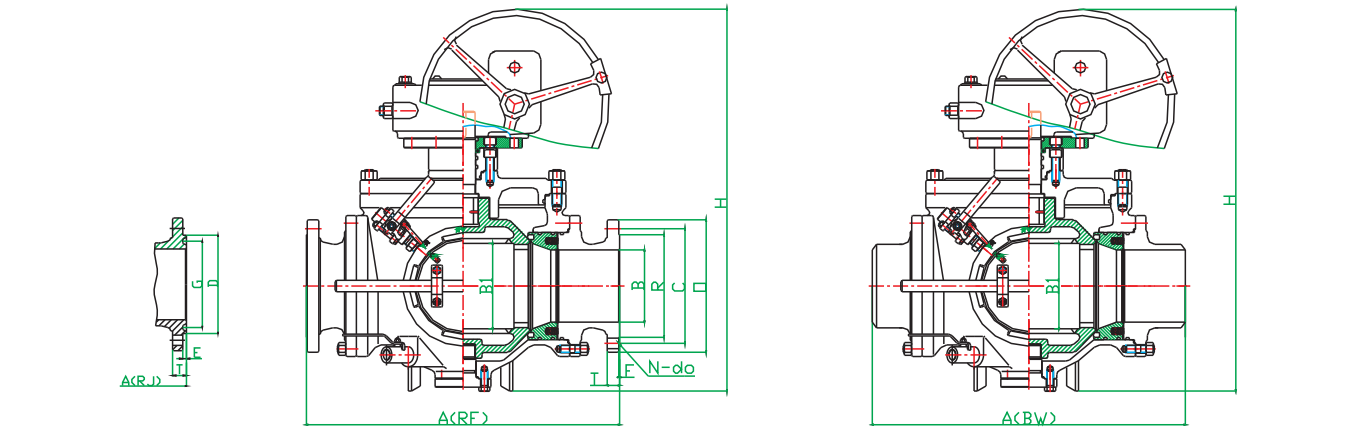
清管阀材质 Materials for main parts

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 Materials	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 Mone1	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 Mone1	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



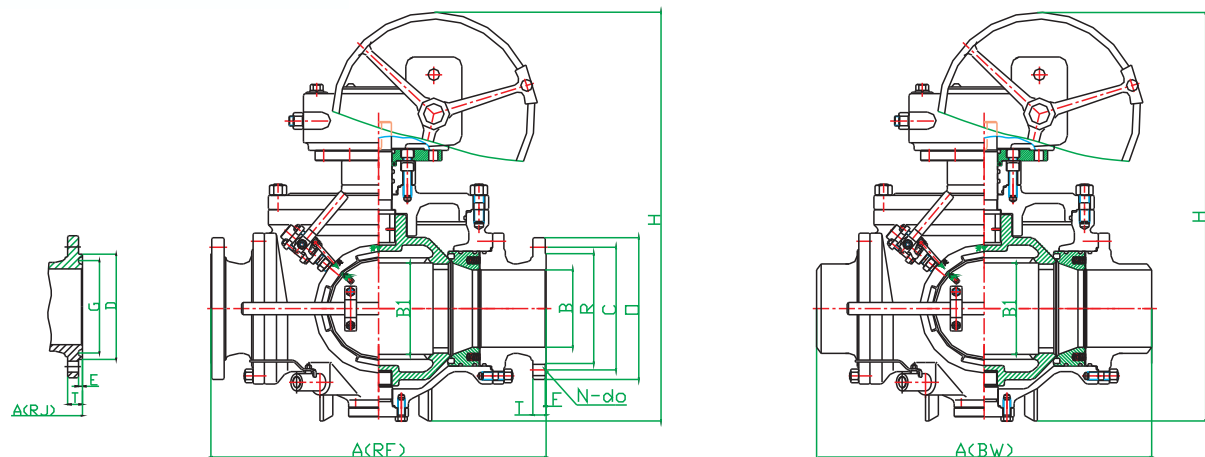
公称通径 Nominal Diameter		B1			A		R	C	O	F	T	N-d	螺栓 直径 Bolt Diameter (in)	E	D	G	密封 环号	H
NPS(in)	DN (mm)	B	C B	S	RF BW	RJ												
2	50	51	64	55	330	343	92	102.5	152	1.6	15.9	4-19	5/8	6.4	102	82.55	R22	600
3	80	76	102	85	445	458	127	152.5	190	1.6	19.1	4-19	5/8	6.4	133	114.30	R29	640
4	100	102	120	108	508	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

公称通径 Nominal Diameter		B1			A		R	C	O	F	T	N-d	螺栓 直径 Bolt Diameter (in)	E	D	G	密封 环号	H
NPS(in)	DN (mm)	B	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



公称通径 Nominal Diameter		B1			A		R	C	O	F	T	N-d	螺栓 直径 Bolt Diameter (in)	E	D	G	密封 环号	H
NPS (in)	DN (mm)	B	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

公称通径 Nominal Diameter		B1			A		R	C	O	F	T	N-d	螺栓 直径 Bolt Diameter (in)	E	D	G	密封 环号	H
NPS (in)	DN (mm)	B	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



ANSI Class900 (PN15.0)

公称通径 Nominal Diameter		B	B1		A		R	C	O	F	T	N-d	螺栓 直径 Bolt Diameter (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)

公称通径 Nominal Diameter		B	B1		A		R	C	O	F	T	N-d	螺栓 直径 Bolt Diameter (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 valve meanwhile, upon customer's request actuators such as electrically-operated, pneumatic operated are also practical.

