PTPA PRODUCT CATALOGUE

The catalogue shall be considered as advertising reference material.
Please contact the Manufacturer for more detailed information.

ABOUT THE COMPANY

PTPA JSC is one of the leading manufacturers of pipeline valves that has been providing technical solutions since 1951.

Today PTPA is an industrial complex with its own design and testing bases, manufacturing workshops, marketing and sales divisions.

We are constantly developing our enterprise taking every new project as an opportunity to improve overall performance and fulfill our customers needs. Quality, engineering flexibility and broad production capabilities have always been the cornerstones of our business.

BRIEFLY ABOUT PTPA:

- **More than 60 years of experience:** the company is on the market of pipeline valves since 1951
- **Workshop area of 65 076 m²:** the company has impressive manufacturing workshops
- **Diameter range from 3/8" to 80":** broad product range
- **Full production cycle:** design and engineering, blank production, metalworking and assembling, quality control, painting and packing
- **Modern equipment:** nc machines, multifunction machining centers, shot-blasting chambers, cutting, overlaying, bandsawing machines and automated painting line
- **More than 35 countries:** expansive sales geography

MANUFACTURING PROCESS

The production process at PTPA goes through all technological stages: from design and engineering to assembling, testing of the final product. Own engineering capabilities ensure high quality and effective adjustment to new production technologies making it possible for PTPA to manufacture components of any complexity.

INVESTING IN FUTURE

- Constantly upgrading our machinery, welding equipment.
- Up-to date quality control methods.

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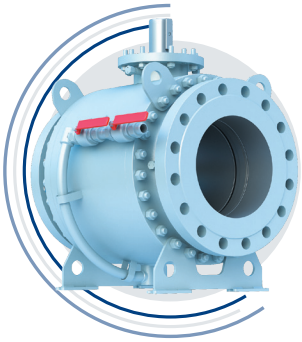
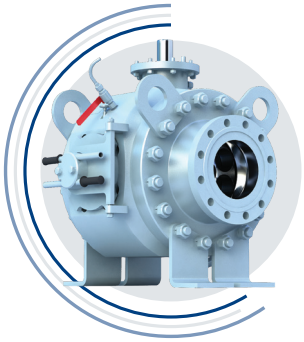
PRODUCT RANGE

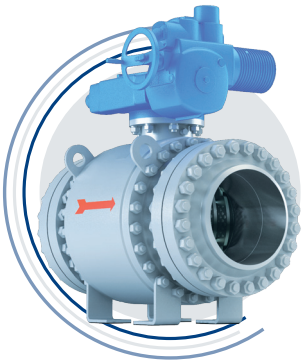


SPLIT BODY BALL VALVES
NPS 3/8″- 56″ Class 150-2500

FULLY WELDED BALL VALVES
NPS 4″- 56″ Class 150-900



PIG VALVES
NPS 6″- 20″ Class 150-900



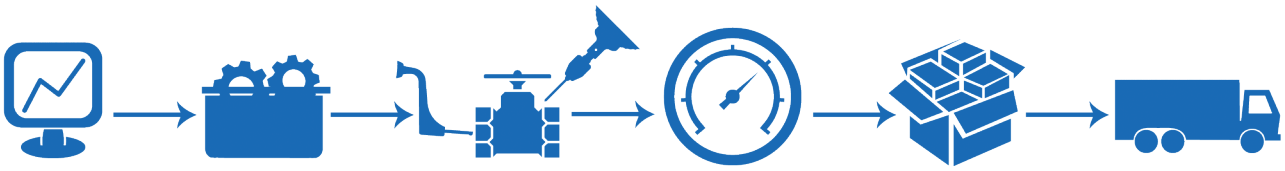
CONTROL VALVES
NPS 6″- 28″ Class 150-900

AXIAL CHECK VALVES
NPS 2″- 56″ Class 150-900

DESIGN AND ENGINEERING

PTPA is constantly working on advancement of existing product range and developing new designs for demanding working conditions and special types of medium. New equipment design and material selection are carried in accordance with customers' requirements.

PRODUCTION CYCLE



Automated design and engineering analysis → Blank production → Metalworking (machining) and assembling → Quality control and testing → Painting and packing → Shipping

SALES GEOGRAPHY

Today PTPA supplies products worldwide: CIS countries, Europe, Middle East, Africa and Latin America.

OUR KEY CUSTOMERS

GAZPROM, ROSNEFT, TRANSNEFT, LUKOIL OIL COMPANY, ROSATOM, NOVATEK, СНГ, EVRAZ, MAGNITOGORSK IRON & STEEL WORKS, SIBUR, Severstal, КазМунайГаз, BULGARTRANSGAZ, SAIL, PETROBRAS, USIMINAS, İSDEMİR, Tüpraş, PDVSA, concord group COKE ENGINEERING

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QUALITY AND SAFETY

PTPA's main goal is to manufacture high quality products complying with most demanding requirements of our clients and international standards such as **API 6D** and **European Directive 97/23/EC**.

Quality control is maintained according to **ISO 9001** and **API Spec.Q1** standards to ensure continuous improvement of every manufacturing process at our workshops.

We also strive to achieve accident-free working environment by meeting and exceeding the requirements of **OHSAS 18001** and **ISO 14001** health and safety standards.




TESTING AND INSPECTION

Positive material identification including visual and dimensional check, chemical composition analysis, tensile, hardness and impact testing and metallographic surveys at the **ISO 17025** accredited laboratory.

Non - destructive examination procedures including visual and dimensional process inspection as per **MSS SP-55**, dye penetrant, magnetic particle, ultrasonic and radiographic testing as per **ASME codes**, acoustic emission diagnostics, vacuum tightness testing on fugitive emission. All testing is performed by **ISO 9712** qualified personnel.

Acceptance testing. Pressure testing is held according to **API 6D, API 598** or **Client's standard** with possibility of direct witnessing either by Client's representative or a Third Party Inspector.

CERTIFICATES


АТОМ

BALL VALVES

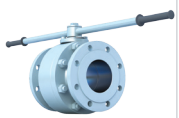
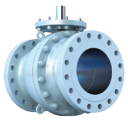
SPLIT BODY BALL VALVES

GASEOUS AND LIQUID MEDIA

NPS*	Class						
	150	300	400	600	900	1500	2500
3/8″	F	F	F	F	F	F	F
1/2″	F	F	F	F	F	F	F
3/4″	F	F	F	F	F	F	F
1″	F	F	F	F	F	F	F
1¼″	F	F	F	F	F	F	-
1½″	F	F	F	F	F	F	-
2″	F	F	T	T	T	T	T
3″	F	F	T	T	T	T	T
4″	F T	F T	T	T	T	T	T
6″	F T	F T	T	T	T	T	T
8″	F T	F T	T	T	T	T	T
10″	F T	F T	T	T	T	T	T
12″	T	T	T	T	T	T	T
14″	T	T	T	T	T	T	T
16″	T	T	T	T	T	T	T
18″	T	T	T	T	T	T	-
20″	T	T	T	T	T	T	-
24″	T	T	T	T	T	T	-
28″	T	T	T	T	T	-	-
30″	T	T	T	T	T	-	-
32″	T	T	T	T	T	-	-
34″	T	T	T	T	T	-	-
36″	T	T	T	T	T	-	-
40″	T	T	T	T	T	-	-
42″	T	T	T	T	T	-	-
48″	T	T	T	T	T	-	-
56″	T	T	T	T	T	-	-

Designation

T - Trunnion Mounted Ball **F** - Floating Ball

Body type	Split Body, Floating Ball			Split Body, Trunnion Mounted Ball		
						
Series	**PT39193**	**PT39164**	**PT39160**	**PT39150**	**PT39170**	**PT39168**
NPS*	3/8″-1½″	2″-4″	6″-10″	2″-3″	4″-6″	8″-56″
Class	150-2500	150-300	150-300	400-2500	150-2500	150-2500
Page	16	17	18	19	20-21	22-25

* Reduced bore is available upon Customer's request.

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FULLY WELDED BALL VALVES

GASEOUS AND LIQUID MEDIA

NPS	Class				
	150	300	400	600	900
4"	T	T	T	T	T
6″	T	T	T	T	T
8″	T	T	T	T	T
10″	T	T	T	T	T
12″	T	T	T	T	T
16″	T	T	T	T	T
20″	T	T	T	T	T
24″	T	T	T	T	T
28″	T	T	T	T	T
32″	T	T	T	T	T
36″	T	T	T	T	T
40″	T	T	T	T	T
42″	T	T	T	T	T
48″	T	T	T	T	T
56″	T	T	T	T	T

Designation

T - Trunnion Mounted Ball

Body type	Fully Welded Body, Trunnion Mounted Ball		
			
Series	**PT39169**	**PT39180**	**PT39167**
NPS	4″	6″-8″	10″-56″
Class	150-900	150-900	150-900
Page	26	26	27-28

BALL VALVES

NPS 3/8"-56" Class 150-2500

MAIN CHARACTERISTICS

Floating or trunnion mounted, side entry ball valves, split body or fully welded design.

Connection to the pipeline:
- **RF** or **RTJ** in accordance with **ASME 16.47, ASME 16.5**
- **BW** in accordance with **ASME 16.25**

API 6D design, antistatic feature and anti blowout stem system.

RATINGS: #150-#300-#600-#900-#1500-#2500

Medium characteristics and materials of main parts are specified in the table on **page 14.**

Seat inserts & seals material operating limits are specified in the table on **page 15.**

CLIMATIC CATEGORY

Climate categories:
- regions with temperate climate and ambient temperature from -40°C up to +40°C;
- regions with cold climate and ambient temperature from -60°C up to +40°C;
- regions with warm climate and ambient temperature from -10°C up to +50°C.

Ball valves with another climatic category can be manufactured upon Customer's request.

INSTALLATION TYPE

Installation type:
- **aboveground;**
- **underground.**

Removable metal jacket at extended stem of underground ball valves protects piping system from damage. The height of stem depends on Customer's requirements.

Flanged stem connection to ball valve is protected from ground waters penetration by elastomeric ring.

COATING AND PAINTING

Protective corrosion-resistant coating «AKRUS» (for aboveground ball valves), «FRUCS» and «BIURS» (for underground ball valves) and other is available upon Customer's request.

Ball valves can be painted with any colour upon Customer's request.

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ACTUATORS

Ball valves can be operated by any actuator type:

- piston actuators (pneumatic, gas-over-oil and electro-hydraulic);
- electric actuators with mechanical gear (or without gear);
- manual actuators with mechanical gear;
- levers, handwheels.

Upon Customer's request ball valves can be supplied **with actuators of any manufacturer.**

Ball valves for gas pipelines are usually equipped with gas-over-oil actuator. They can also be supplied with actuating units such as electro-pneumatic control unit, drive control unit, ball valve control unit for 24 Volts, 110 Volts, and 220 Volts.

Actuators for ball valves DN 400 and above can be equipped with valve emergency shutoff automatic device.

Actuators for ball valves can be operated by working medium and external source.

Actuator flange to stem (extended stem) connection complies with **DIN EN ISO 5211**.

INSTALLATION POSITION

Installation position:

- at horizontal pipelines (actuator upwards);
- at vertical pipelines (ball valves NPS 2"…28" above ground installation type with handweel or electric actuator).

Upon additional request other installation positions are possible.

Medium flow direction - any.

Connection to pipeline:

- **flanged;**
- **butt-welded.**

Upon Customer's request ball valves can be supplied with counter components (flanges, gaskets, fasteners).

Upon Customer's request can be supplied with pup pieces separated from the valve as well as welded to the valve.

OPERATIONAL CHARACTERISTICS

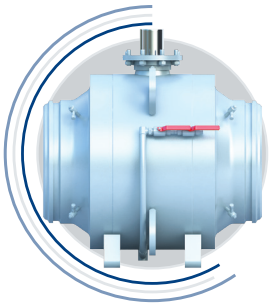
Reliability factors:

- **service life** - 30 years;
- **warranty period** – 24 months from the day of putting into operation.

DESIGN FEATURES

FULLY WELDED AND SPLIT BODY BALL VALVES

PTPA manufactures fully welded and split body ball valves.



Fully welded body design is more reliable for gas application. This design allows to minimize the risk of fugitive emissions.

Split body design increases ball valve maintainability, allows to use it for aggressive working medium and easily replace sealing element if necessary.

GREASE INJECTION SYSTEM

Valve seats can be equipped with a sealant injection system to provide emergency sealing between seat and ball and stem.

The system is designed to allow sealant grease injection while in service; the sealant is distributed at the seating surface between seat and ball.

DRAIN AND SAFETY RELIEF

Safety relief system is designed to prevent the pressure in the cavity from exceeding 1,33 times the valve pressure rating.

Drain pipe is installed to remove condensates or other impurities from the inner cavity of ball valve.

STEM DESIGN

Stem design allows replacing of the upper gasket while pipeline continues its operation.

Antistatic feature is provided in seals design.

FULL OR REDUCED BORE DESIGN

➤ Due to the full bore design cleaning or diagnostic tools can move freely through the pipeline.

➤ Reduced bore valves can be used in case a system does not require full bore to accommodate a pig and is not expected to operate at the full capacity of the pipe.

BYPASS CONNECTION

Ball valves 28" – 56" can be equipped with special bypass connection for pressure balance between ball valve inner cavity and pipeline.

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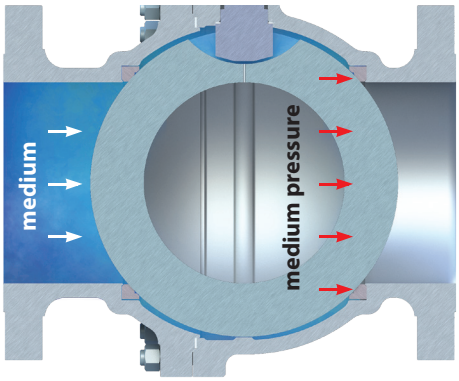
TIGHTNESS

FLOATING BALL

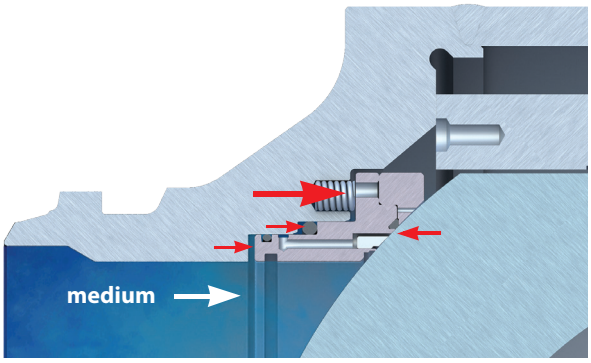
Seal tightness for ball valves with floating ball is provided by pressing the ball to the down-stream seat by the medium pressure.

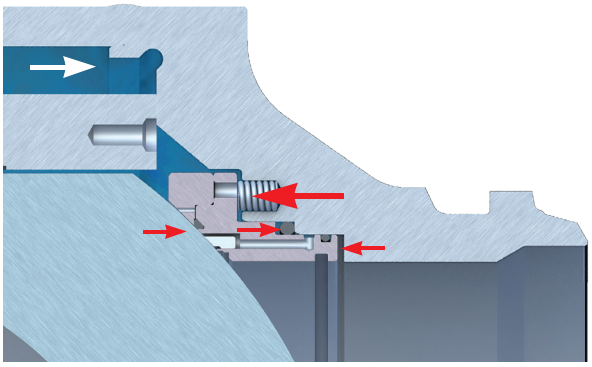
Seat design provides equal pressure distribution at the ball.



TRUNNION MOUNTED BALL

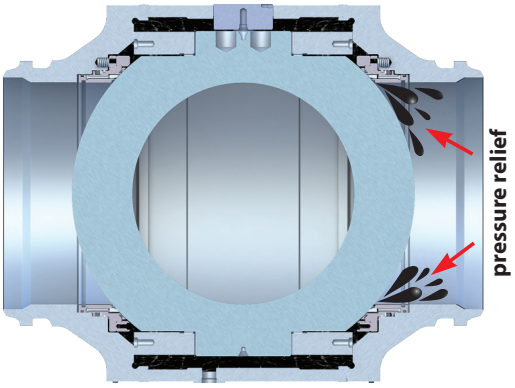
For trunnion-mounted ball valves seal tightness is provided by pressing the seats to the ball by the medium pressure and springs. Seats constantly contact the obturator protecting it from coke build-up and providing stable tightness class «Zero Leackage» for upstream and downstream service. Body cavity tightness is provided for ball valves for gaseous medium.





Ball valves for liquid media have the system of pressure relief from the body cavity.

When medium temperature is rising and pressure achieves 1,3 PN, the internal pressure is relieved at one of the pipeline ends (with the lowest pressure).

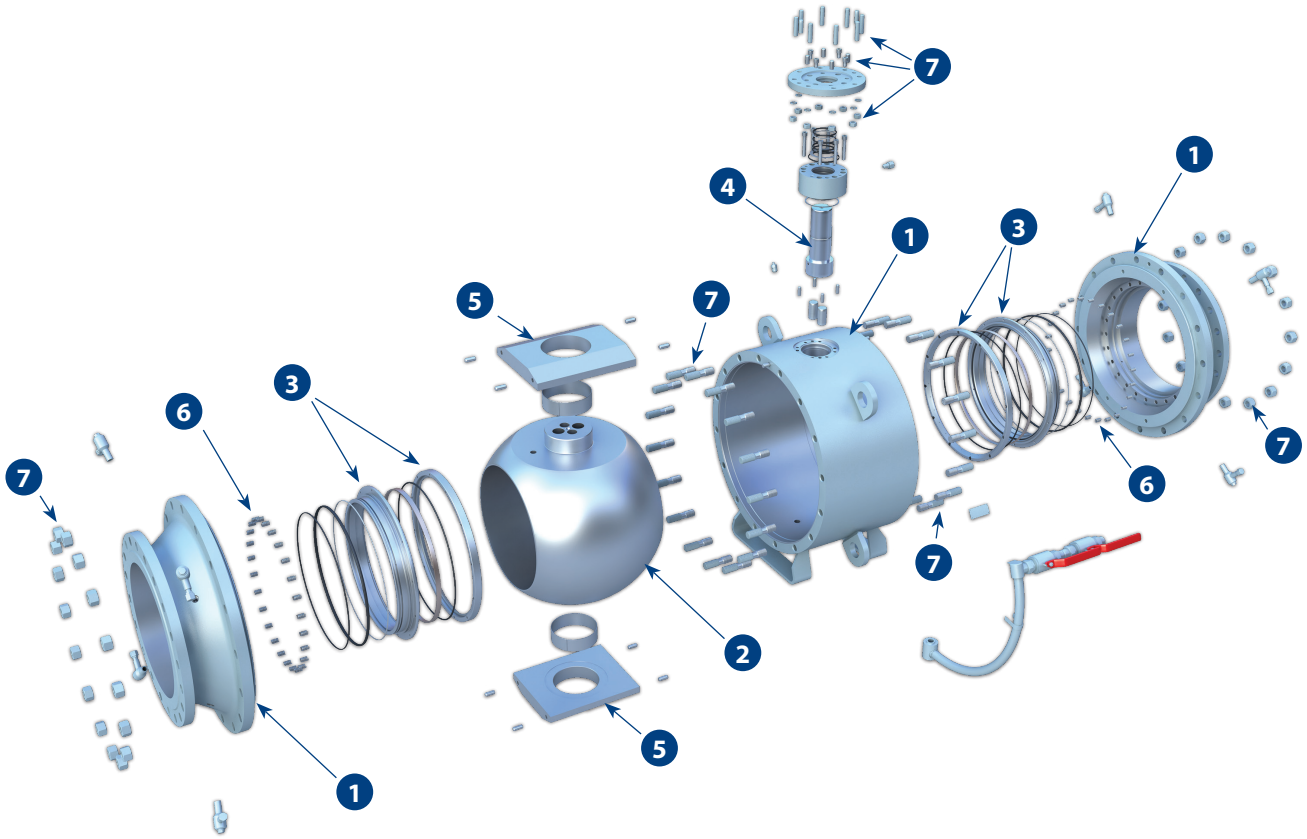


FIRE RESISTANCE API 6FA

Fire-proof ball valves can be manufactured upon Customer's request.

Variant of fire-proof ball valve	Ball valve operation parameters after fire effect with the temperature from +750°C up to +1000°C during 30 minutes
Fire-proof body design	- survivability - complete tightness relative to ambient environment
Fire-proof body, shut-off element and sealing design	- survivability - complete tightness relative to ambient environment - tightness relative to shut-off element

MATERIALS OF MAIN PARTS



№	Component	Basic Service	Basic Sour Service (NACE MR0175)	Basic Sour Service (NACE MR0175) up to - 60°C	Sour Service with SS piping or Cryogenic Application**	Severe Sour or Effluent Water Service**	High Temperature Service up to +550°C**
1	Body	A105 or A216WCB	A105 or A216WCB	A350LF2 or A352LCB	A182 F316 or A351 CF8M	A182 F53 or F55 (PREN>40)	A182 F316 or A351 CF8M
2	Ball	A105 + 25µm or 75µm ENP	A182 F316*	A182 F316*	A182 F316	A182 F53 or F55 (PREN>40)	A182 F316 + Tungsten or Chrome carbide overlaying
3	Seat***	A105 + 25µm or 75µm ENP	A182 F316	A182 F316	A182 F316	A182 F53 or F55 (PREN>40)	A182 F316 + Tungsten or Chrome carbide overlaying
4	Stem	A182 F6	A182 F316	A182 F316	A182 F316	A182 F53 or F55 (PREN>40)	A182 F316
5	Trunnion Plate	A105 + 25µm or 75µm ENP	A182 F316	A182 F316	A182 F316	A182 F53 or F55 (PREN>40)	A182 F316
6	Springs	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
7	Bolting	A193 B7 / A194 2H	A193 B7M / A194 2HM	A320 L7M	A193 B8M / A194 8M	A193 B8M / A194 8M	A193 B8M / A194 8M

* - 25µm and 75µm ENP coating for carbon steel ball is available as an alternative
** - not available for fully welded ball valves
*** - Details about seat insert given on page 15

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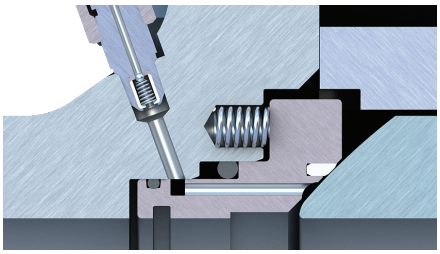
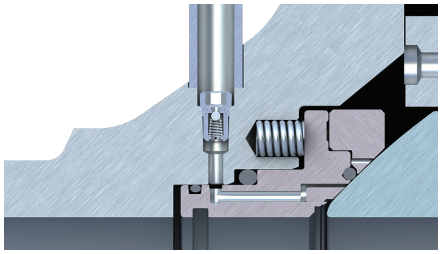
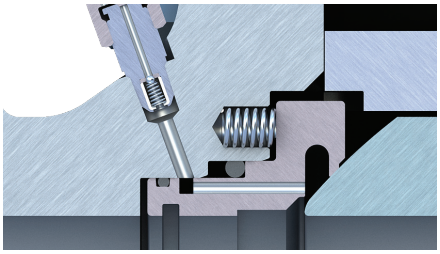
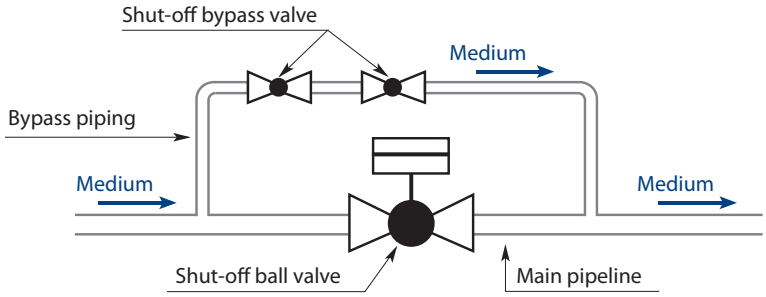
SEAT INSERTS & SEALS MATERIAL OPERATING LIMITS

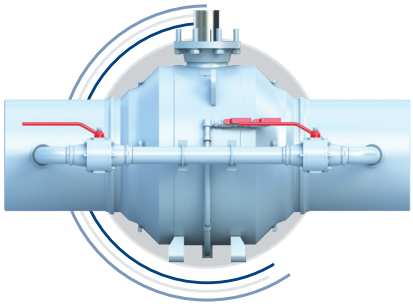




Material	Temperature, °C		Pressure Class		Size	
	MIN	MAX	Seat Insert	Seal	Seat Insert	Seal
NYLON	-40	+80	600	N/A	NPS 56	N/A
PEEK	-70	+250	2500	N/A	NPS 56	N/A
RPTFE	-100	+200	300	N/A	NPS 32	N/A
Viton	-45	+200	600	2500	NPS 56	NPS 56
HBNR Ecorubber	-35	+150	600	2500	NPS 56	NPS 56
QLC-PUR	-60	+100	600	2500	NPS 56	NPS 56
PCTFE	-196	+150	2500	N/A	NPS 32	N/A
PTFE + Elgiloy Springs	-196	+200	N/A	2500	N/A	NPS 32
Metal-to-metal (Tungsten or Chrome carbide overlaying)	-20	+550	2500	N/A	NPS 32	N/A

BYPASS CONNECTION

Ball valves series PT39167, PT39168 can be equipped with bypass system upon Customer's request. Connection points to pipeline (distance from ball valve joint edge to bypass piping) are discussed at the stage of the order.





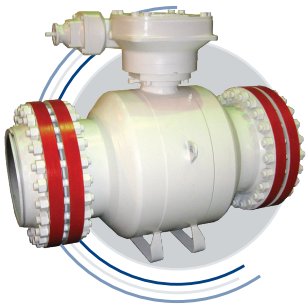
SCOPE OF SUPPLY

The package includes:

- Ball Valve according to inquiry specification;
- Set of tools and spare parts specified at the time of order;
- Supply documents package.

Following valve equipment is specified at the time of the order:

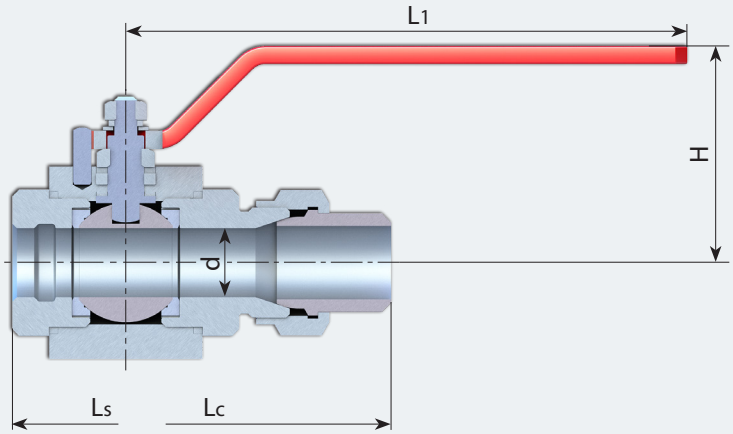
- Electric actuator/actuator of some specific manufacturer;
- Pup pieces;
- Jacket;
- Counter flanges, fasteners and gaskets.



MAIN DIMENSIONS

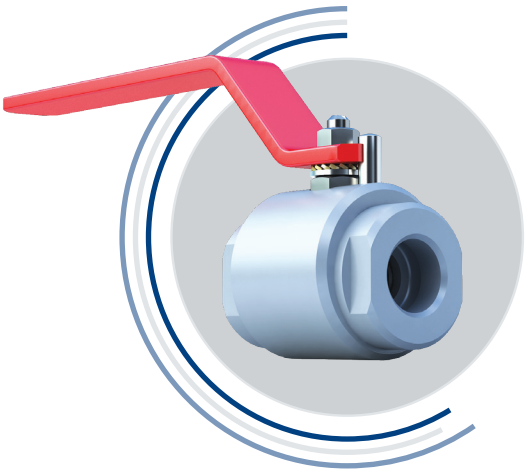
SPLIT BODY BALL VALVES, FLOATING BALL (choked and socket ends) PT39193

NPS 3/8“-1½“ Class 150-2500



NPS	Class	Dimensions, mm					Weight*, kg	
		d	L_s	L_c	L_1	H	Socket ends	Choked ends
3/8“	150-900	10	70	145	141	55	1,3	1,5
	1500-2500	11,1	100	300	195	100	3	3
1/2“	150-900	14	70	158	141	56	1,4	1,8
	1500-2500	11,1	100	300	195	100	3	3
3/4“	150-900	18	78	177	208	83	2,2	2,7
	1500-2500	15,5	125	325	195	107	4,8	4,8
1“	150-900	23	86	192	208	86	2,6	3,3
	1500-2500	21	140	340	260	121	7,7	7,7
1¼“	150-900	30	100	225	240	97	4	5,3
	1500	34	170	370	360	154	14	14
1½“	150-900	36	105	251	240	100	4,5	6,4
	1500	34	170	370	360	154	14	14

*Dimensions of connection to the pipeline may be changed upon Customer's request.



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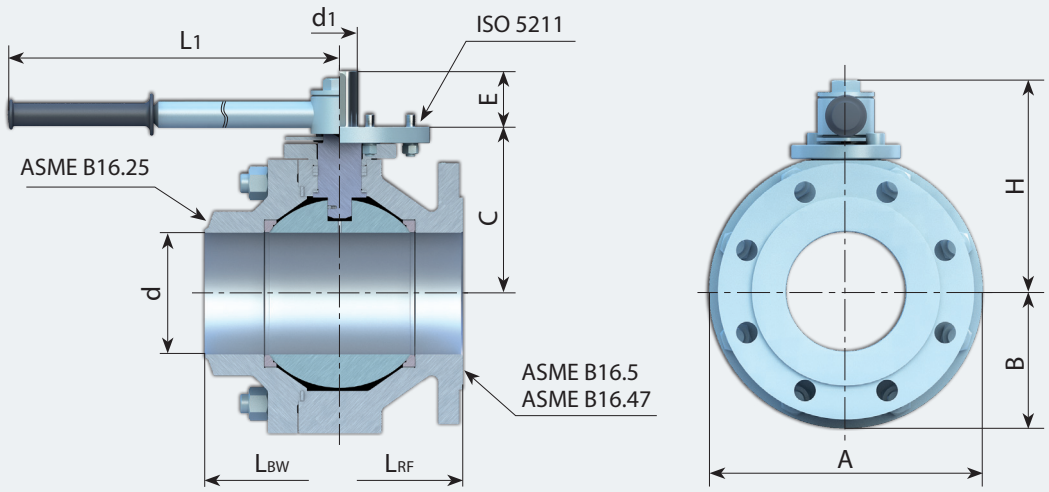
MAIN DIMENSIONS

SPLIT BODY BALL VALVES, FLOATING BALL PT39164

NPS 2“-4“ Class 150-300



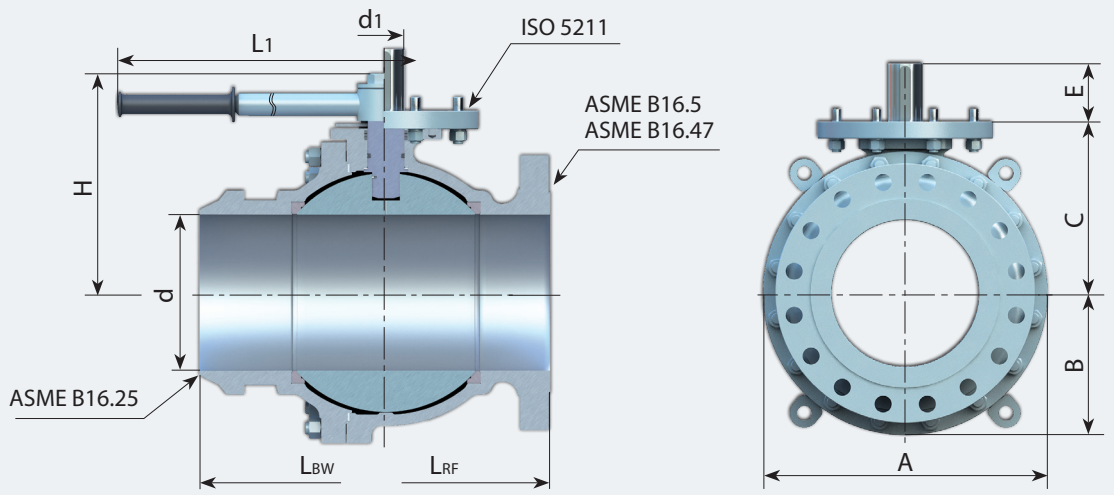
NPS	Class	Dimensions, mm										ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	H	L_{BW}	L_{RF}	L_1		BW	RF/RTJ
2“	150	130	65	114	49	-	-	114	216	178	638	Lever	10	15
	150	130	65	82	49	22	28	-	216	178	-	F07	9	14
	300	130	65	114	49	-	-	114	216	216	638	Lever	10	17
	300	130	65	82	49	22	28	-	216	216	-	F10	9	16
3“x2“	150	130	65	114	49	-	-	114	283	203	638	Lever	19	24
	150	130	65	82	49	22	28	-	283	203	-	F07	19	23
	300	130	65	114	49	-	-	114	283	283	638	Lever	19	27
	300	130	65	82	49	22	28	-	283	283	-	F10	19	26
3“	150	180	90	140	76	-	-	140	283	203	638	Lever	28	32
	150	180	90	112	76	28	35	-	283	203	-	F10	29	32
	300	180	90	140	76	-	-	140	283	283	638	Lever	28	36
	300	180	90	112	76	28	35	-	283	283	-	F10	29	36
4“x3“	150	180	90	140	76	-	-	140	305	229	638	Lever	34	41
	150	180	90	112	76	28	35	-	305	229	-	F10	35	42
	300	180	90	140	76	-	-	140	305	305	638	Lever	34	48
	300	180	90	112	76	28	35	-	305	305	-	F10	35	48
4“	150	232	116	-	100	-	-	187	305	229	648	Lever	39	50
	150	232	116	152	100	36	50	-	305	229	-	F12	41	52
	300	232	116	-	100	-	-	187	305	305	648	Lever	39	59
	300	232	116	152	100	36	50	-	305	305	-	F12	41	60
6“x4“	150	232	116	-	100	-	-	187	457	394	648	Lever	60	74
	150	232	116	152	100	36	50	-	457	394	-	F12	64	77
	300	232	116	-	100	-	-	187	457	403	648	Lever	63	89
	300	232	116	152	100	36	50	-	457	403	-	F12	82	101

*The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

MAIN DIMENSIONS

SPLIT BODY BALL VALVES, FLOATING BALL PT39160

NPS 6“-10“ Class 150-300



NPS	Class	Dimensions, mm										ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	H	L_{BW}	L_{RF}	L_1		BW	RF/RTJ
6“	150	322	161	-	150	-	-	252	457	394	858	Lever	80	97
	150	322	161	214	150	48	79	-	457	394	-	F16	86	102
	300	322	161	214	150	48	79	-	457	403	-	F16	86	118
8“x6“	150	322	161	-	150	-	-	252	521	457	858	Lever	124	142
	150	322	161	214	150	48	79	-	521	457	-	F16	127	144
	300	322	161	214	150	48	79	-	521	502	-	F16	127	165
10“x6“	150	322	161	-	150	-	-	252	559	533	858	Lever	170	193
	150	322	161	214	150	48	79	-	559	533	-	F16	173	196
	300	322	161	214	150	48	79	-	559	568	-	F16	173	222
8“	150	408	204	253	201	60	100	-	521	457	-	F25	167	186
	150	408	204	253	201	60	100	-	521	502	-	F25	167	211
10“	150	487	244	295	252	60	100	-	559	533	-	F25	259	289
	150	487	244	295	252	60	100	-	559	568	-	F25	259	326

*The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

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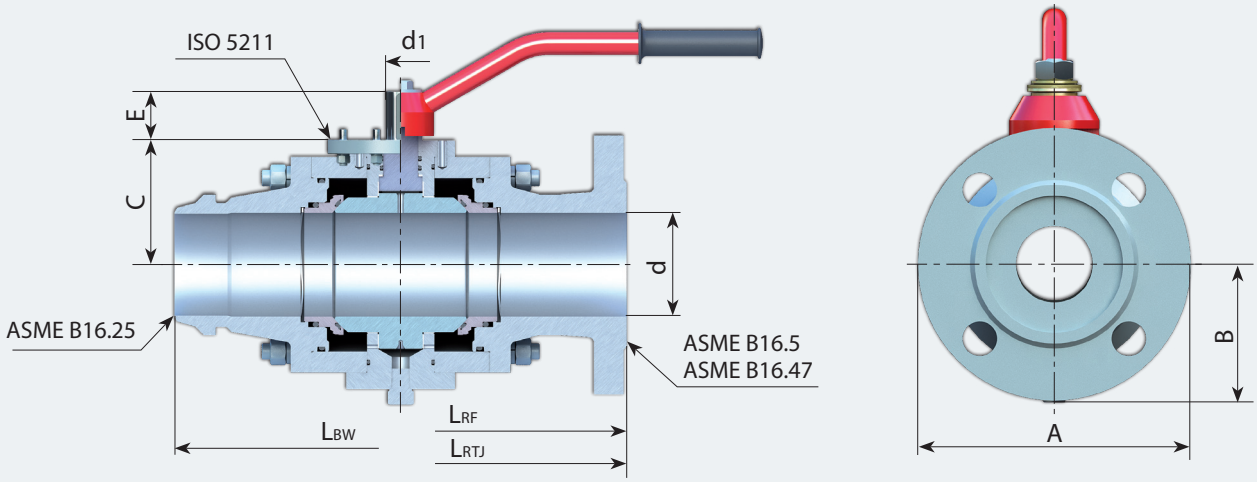
MAIN DIMENSIONS

SPLIT BODY BALL VALVES, TRUNNION MOUNTED BALL PT39150

NPS 2“-3“ Class 150-2500



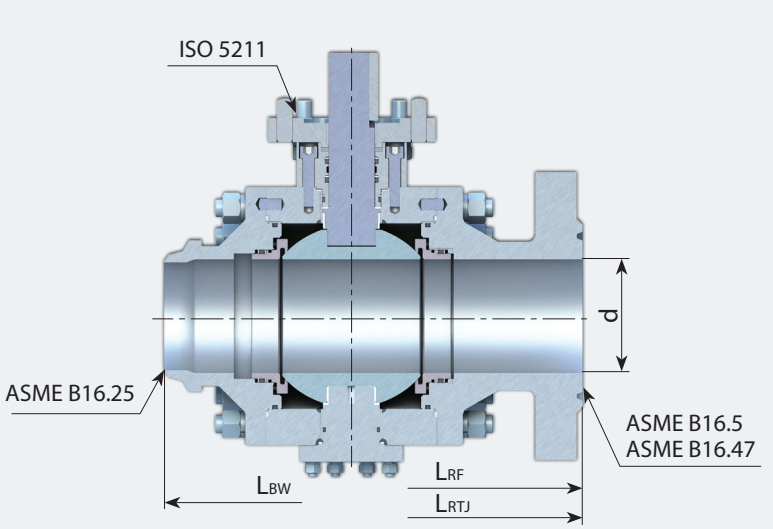
NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
2“	400	135	75	75	49	-	162	292	292	295	Lever	18,4	26,5
	400	135	75	171	49	27	40	292	292	295	F07**	19,7	27,8
	600	135	75	75	49	-	162	292	292	295	Lever	18,4	29,1
	600	135	75	171	49	27	40	292	292	295	F07**	19,7	27,8
	900	135	75	75	49	-	162	368	368	371	Lever	21,6	33,6
	900	135	75	171	49	27	40	368	368	371	F10**	21,1	33
	1500	190	115	134	49	36	40	368	368	371	F12**	40	57
	2500	230	175	182	42	36	50	451	451	454	F12**	75	112
3“x2“	400	135	75	75	49	-	162	292	292	295	Lever	18	27
	400	135	75	171	49	28	40	292	292	295	F07**	20	28
	600	135	75	75	49	-	162	292	292	295	Lever	18	29
	600	135	75	171	49	28	40	292	292	295	F07**	20	28
	900	135	75	75	49	-	162	368	368	371	Lever	22	34
	900	135	75	171	49	28	40	368	368	371	F10**	21	33
	1500	190	115	134	49	36	40	470	470	473	F12**	64	86
	2500	230	175	182	42	36	50	578	578	584	F12**	105	160
3“	400	192	106	106	81	-	212	356	356	359	Lever	41,9	53,1
	400	192	106	207	81	27	30	356	356	359	F10**	41,5	52,7
	600	192	106	106	81	-	212	356	356	359	Lever	41,9	57,8
	600	192	106	207	81	27	30	356	356	359	F10**	41,5	57,3
	900	192	106	106	81	-	212	381	381	384	Lever	44,3	61,2
	900	192	106	207	81	27	30	381	381	384	F12**	44,7	61,5
	1500	235	138	186	74	42	50	470	470	473	F14	88	115
	2500	275	195	212	62	42	50	578	578	584	F14	135	208
4“x3“	400	192	106	106	81	-	212	356	356	359	Lever	42	53
	400	192	106	207	81	28	30	356	356	359	F10**	42	53
	600	192	106	106	81	-	212	356	356	359	Lever	42	58
	600	192	106	207	81	28	30	356	356	359	F10**	42	57
	900	192	106	106	81	-	212	381	381	384	Lever	44	61
	900	192	106	207	81	28	30	381	381	384	F12**	45	62
	1500	235	138	186	74	42	50	546	546	549	F14	120	143
	2500	275	195	212	62	42	50	673	673	683	F14	145	238

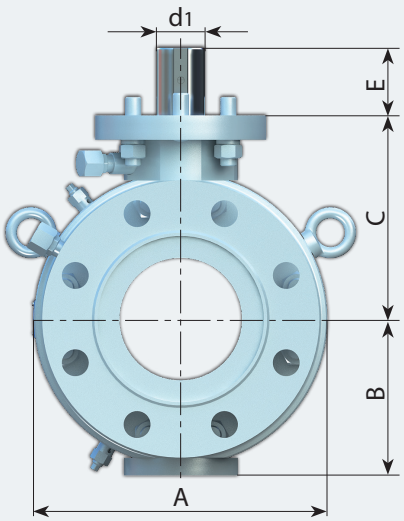
*The weight is indicated without the weight of actuator. ** Ball valves can be equiped with adapters F10 ISO 5211
Beveling, type of connecting flange may be changed upon Customer's request.

MAIN DIMENSIONS

SPLIT BODY BALL VALVES, TRUNNION MOUNTED BALL PT39170

NPS 4“-6“ Class 150-2500





NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
4“	150	361	152	201	100	48	67	305	229	241	F12	58	52
	300	361	152	201	100	48	67	305	305	321	F12	59	55
	400	361	152	201	100	48	67	406	406	410	F14	64	118
	600	361	152	201	100	48	67	432	432	435	F14	71	122
	900	361	152	201	100	48	67	457	457	460	F14	140	128
	1500	380	225	230	100	50	60	546	546	549	F16	152	171
	2500	395	240	250	87	60	70	673	673	683	F16	155	268
6“x4“	150	361	152	201	100	48	67	305	229	241	F12	58	52
	300	361	152	201	100	48	67	305	305	321	F12	59	55
	400	361	152	201	100	48	67	406	406	410	F14	64	118
	600	361	152	201	100	48	67	432	432	435	F14	71	122
	900	361	152	201	100	48	67	457	457	460	F14	140	128
	1500	380	225	230	100	50	60	705	705	711	F16	241	289
	2500	395	240	250	87	60	70	914	914	927	F16	325	508
6“	150	430	190	250	150	48	83	457	394	406	F16	145	102
	300	430	190	250	150	60	83	457	403	419	F16	145	118
	400	430	190	250	150	60	83	495	495	498	F16	148	235
	600	430	190	250	150	60	83	559	559	562	F16	152	250
	900	430	190	250	150	60	83	610	610	613	F16	230	260
	1500	455	290	277	144	60	75	705	705	711	F25	330	407
	2500	505	315	310	131	72	90	914	914	927	F25	495	748

*The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

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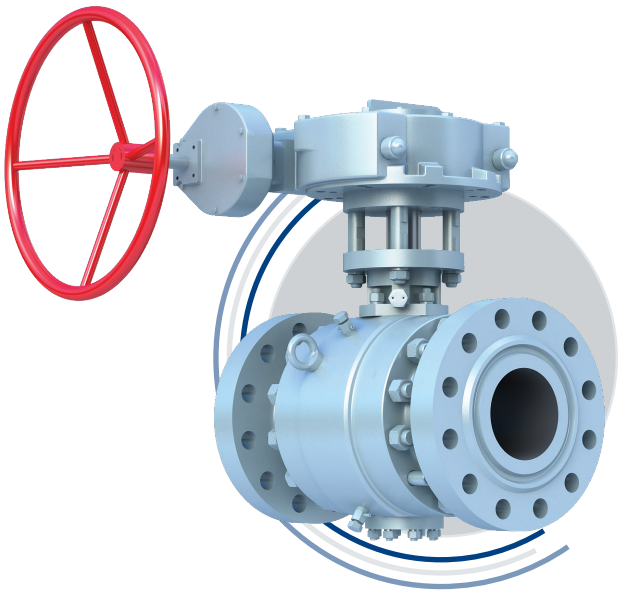
SPLIT BODY BALL VALVES, TRUNNION MOUNTED BALL PT39170

NPS 4“-6“ Class 150-2500

NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
8“x6“	150	430	190	250	150	48	83	521	457	470	F16	193	189
	300	430	190	250	150	60	83	521	502	518	F16	195	202
	400	430	190	250	150	60	83	597	597	600	F16	244	340
	600	430	190	250	150	60	83	660	660	664	F16	266	375
	900	430	190	250	150	60	83	737	737	740	F16	330	410
	1500	455	290	277	144	60	75	832	832	841	F25	473	571
	2500	505	315	310	131	72	90	1022	1022	1038	F25	800	1087
10“x6“	150	430	190	250	150	48	83	559	533	546	F16	233	196
	300	430	190	250	150	60	83	559	568	584	F16	233	222
	400	430	190	250	150	60	83	673	673	676	F16	276	383
	600	430	190	250	150	60	83	787	787	791	F16	286	455
	900	430	190	250	150	60	83	838	838	841	F16	395	485
	1500	455	290	277	144	60	75	991	991	1000	F25	628	764
	2500	505	315	310	131	72	90	1270	1270	1292	F25	1000	1464

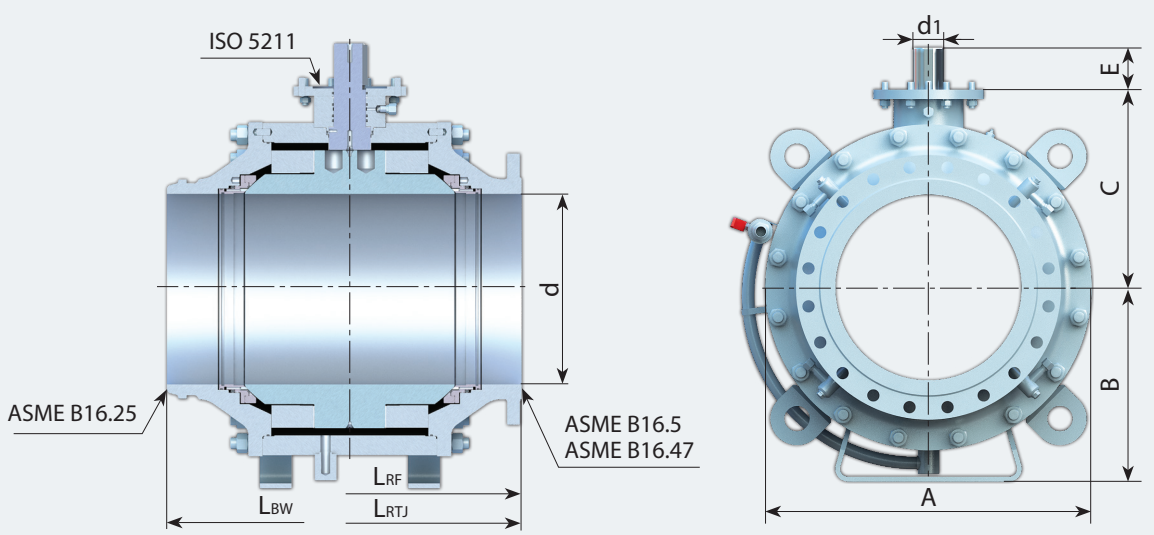
*The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.



MAIN DIMENSIONS

SPLIT BODY BALL VALVES, TRUNNION MOUNTED BALL PT39168

NPS 8“-14“ Class 150-2500



NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
8“	150	410	325	269	201	50	65	521	457	470	F16	240	275
	300	415	330	269	201	50	65	521	502	518	F16	244	285
	400	420	330	290	201	60	75	597	597	600	F16	340	445
	600	420	330	290	201	60	75	660	660	664	F16	380	500
	900	455	302	290	201	72	85	737	737	740	F25	430	560
	1500	475	360	344	192	80	100	832	832	841	F25	615	735
	2500	545	395	370	179	98	110	1022	1022	1038	F25	1105	1425
10“x8“	150	410	325	269	201	50	65	559	533	546	F16	280	282
	300	415	330	269	201	50	65	559	568	584	F16	282	306
	400	420	330	290	201	60	75	673	673	676	F16	372	488
	600	420	330	290	201	60	75	787	787	791	F16	400	580
	900	455	302	290	201	72	85	838	838	841	F25	495	635
	1500	475	360	344	192	80	100	991	991	1000	F25	770	928
	2500	545	395	370	179	98	110	1270	1270	1292	F25	1305	1803
12“x8“	150	410	325	269	201	50	65	635	610	622	F16	400	443
	300	415	330	269	201	50	65	635	648	664	F16	402	473
	400	420	330	290	201	60	75	762	762	765	F16	494	615
	600	420	330	290	201	60	75	838	838	841	F16	522	662
	900	455	302	290	201	72	85	965	965	968	F25	600	775
	1500	475	360	344	192	80	100	1130	1130	1146	F25	958	1143
	2500	545	395	370	179	98	110	1422	1422	1445	F25	1563	2213
10“	150	479	244	295	252	50	65	559	533	546	F16	320	289
	300	479	244	295	252	60	75	559	568	584	F25	320	326
	400	488	300	350	252	72	90	673	673	676	F25	404	530
	600	488	300	350	252	72	90	787	787	791	F25	420	660
	900	512	342	350	252	80	100	838	838	841	F25	560	710
	1500	560	400	392	239	100	130	991	991	1000	F30	925	1120
	2500	630	435	430	223	100	125	1270	1270	1292	F30	1505	2180
12“x10“	150	479	244	295	252	50	65	635	610	622	F16	440	450
	300	479	244	295	252	60	75	635	648	664	F25	440	493
	400	488	300	350	252	72	90	762	762	765	F25	526	658
	600	488	300	350	252	72	90	838	838	841	F25	542	742
	900	512	342	350	252	80	100	965	965	968	F25	665	850
	1500	560	400	392	239	100	130	1130	1130	1146	F30	1113	1335
	2500	630	435	430	223	100	125	1422	1422	1445	F30	1763	2590

*The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

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SPLIT BODY BALL VALVES, TRUNNION MOUNTED BALL PT39168

NPS 8"-14" Class 150-2500

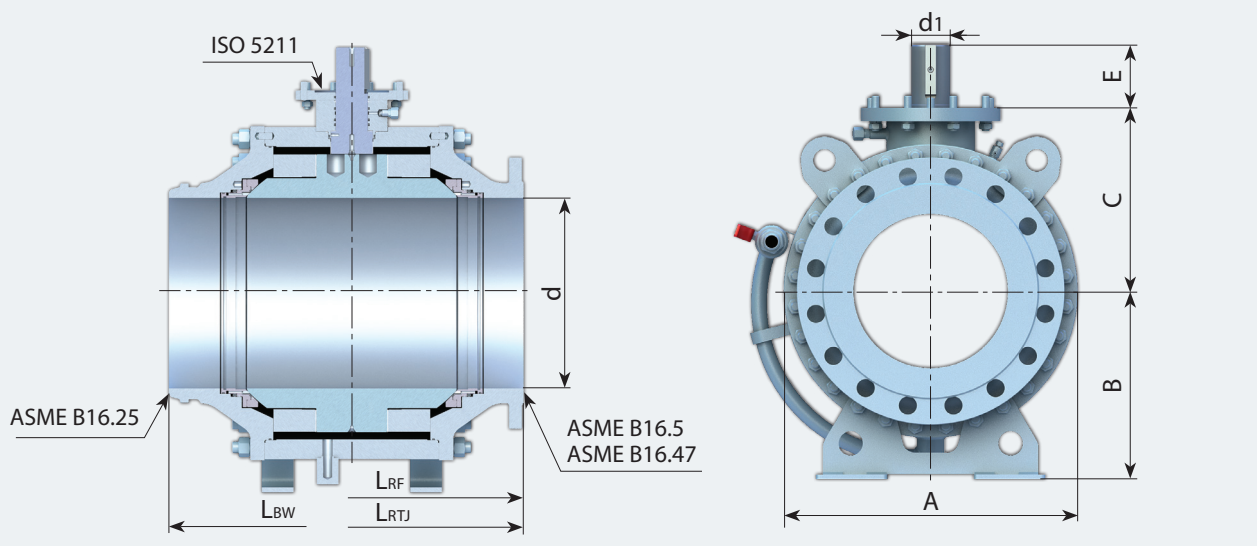
NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
14"x10"	150	479	244	295	252	50	65	762	686	699	F16	595	610
	300	479	244	295	252	60	75	762	762	778	F25	600	633
	400	488	300	350	252	72	90	889	889	892	F25	739	855
	600	488	300	350	252	72	90	889	889	892	F25	747	920
	900	512	342	350	252	80	100	1029	1029	1038	F25	880	1015
	1500	560	400	392	239	100	130	1257	1257	1276	F30	1263	1518
	2500	630	435	430	223	100	125	1480	1630	1630	F30	2153	2938
12"	150	549	344	368	303	60	75	635	610	622	F25	560	610
	300	549	344	368	303	72	85	635	648	664	F25	560	660
	400	569	355	378	303	80	95	762	762	765	F25	648	785
	600	569	355	378	303	80	95	838	838	841	F25	663	824
	900	598	419	386	303	80	100	965	965	968	F30	770	990
	1500	630	435	430	287	160	130	1130	1130	1146	F35	1300	1550
	2500	750	495	520	265	160	150	1422	1422	1445	F35	2020	3000
14"x12"	150	549	344	368	303	60	75	762	686	699	F25	715	770
	300	549	344	368	303	72	85	762	762	778	F25	720	800
	400	569	355	378	303	80	95	889	889	892	F25	861	983
	600	569	355	378	303	80	95	889	889	892	F25	869	1002
	900	598	419	386	303	80	100	1029	1029	1038	F30	985	1155
	1500	630	435	430	287	160	130	1257	1257	1276	F35	1450	1733
	2500	750	495	520	265	160	150	1480	1630	1630	F35	2410	3348
16"x12"	150	549	344	368	303	60	75	838	762	775	F25	962	1007
	300	549	344	368	303	72	85	838	838	854	F25	1008	1134
	400	569	355	378	303	80	95	902	902	905	F25	1052	1210
	600	569	355	378	303	80	95	991	991	994	F25	1218	1405
	900	598	419	386	303	80	100	1130	1130	1140	F30	1481	1733
	1500	630	435	430	287	160	130	1384	1384	1407	F35	1975	2388
	2500	750	495	520	265	160	150	1540	1815	1815	F35	2905	4268
14"	150	625	480	435	334	72	85	762	686	699	F25	870	930
	300	640	420	435	334	72	85	762	762	778	F25	880	940
	400	655	450	439	334	80	100	889	889	892	F30	1074	1180
	600	655	450	439	334	80	100	889	889	892	F30	1074	1180
	900	680	453	446	322	100	130	1029	1029	1038	F30	1200	1320
	1500	735	490	478	315	160	150	1257	1257	1276	F35	1600	1915
	2500	805	570	577	292	180	165	1480	1630	1630	F40	2800	3695
16"x14"	150	625	480	435	334	72	85	838	762	775	F25	1117	1167
	300	640	420	435	334	72	85	838	838	854	F25	1168	1274
	400	655	450	439	334	80	100	902	902	905	F30	1265	1408
	600	655	450	439	334	80	100	991	991	994	F30	1423	1583
	900	680	453	446	322	100	130	1130	1130	1140	F30	1696	1898
	1500	735	490	478	315	160	150	1384	1384	1407	F35	2125	2570
	2500	805	570	577	292	180	165	1540	1815	1815	F40	3295	4615
18"x14"	150	625	480	435	334	72	85	914	864	876	F25	1180	1260
	300	640	420	435	334	72	85	914	914	930	F25	1235	1345
	400	655	450	439	334	80	100	1092	1092	1095	F30	1417	1580
	600	655	450	439	334	80	100	1092	1092	1095	F30	1512	1685
	900	680	453	446	322	100	130	1219	1219	1232	F30	1785	1995
	1500	735	490	478	315	160	150	1537	1537	1559	F35	2270	2748
16"	150	750	502	488	385	72	114	838	762	775	F25	1364	1404
	300	760	502	488	385	98	133	838	838	854	F30	1456	1608
	400	760	502	488	385	98	133	902	902	905	F30	1456	1635
	600	780	518	490	385	160	181	991	991	994	F35	1772	1986
	900	820	540	517	385	180	207	1130	1130	1140	F40	2192	2475
	1500	830	550	525	360	180	207	1384	1384	1407	F40	2650	3225
	2500	900	625	620	333	180	207	1540	1815	1815	F40	3790	5535

*The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

MAIN DIMENSIONS

SPLIT BODY BALL VALVES, TRUNNION MOUNTED BALL PT39168

NPS 16“-56“ Class 150-2500



NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
18“x16“	150	750	502	488	385	72	114	914	864	876	F25	1427	1497
	300	760	502	488	385	98	133	914	914	930	F30	1523	1679
	400	760	502	488	385	98	133	1092	1092	1095	F30	1608	1808
	600	780	518	490	385	160	181	1092	1092	1095	F35	1861	2088
	900	820	540	517	385	180	207	1219	1219	1232	F40	2281	2573
	1500	830	550	525	360	180	207	1537	1537	1559	F40	2795	3403
20“x16“	150	750	502	488	385	72	114	991	914	927	F25	1700	1797
	300	760	502	488	385	98	133	991	991	1010	F30	1787	1983
	400	760	502	488	385	98	133	1054	1054	1060	F30	1908	2120
	600	780	518	490	385	160	181	1194	1194	1200	F35	2151	2439
	900	820	540	517	385	180	207	1321	1321	1334	F40	2681	3088
	1500	830	550	525	360	180	207	1664	1664	1686	F40	3583	4340
18“	150	775	505	481	436	80	100	914	864	876	F25	1490	1590
	300	795	520	485	436	98	100	914	914	930	F30	1590	1750
	400	820	490	505	436	100	130	1092	1092	1095	F30	1760	1980
	600	820	490	505	436	160	130	1092	1092	1095	F35	1950	2190
	900	855	524	535	423	160	180	1219	1219	1232	F40	2370	2670
	1500	920	580	575	406	160	180	1537	1537	1559	F40	2940	3580
20“	150	885	582	555	487	98	133	991	914	927	F30	2035	2190
	300	905	594	557	487	98	133	991	991	1010	F30	2117	2357
	400	905	594	557	487	160	181	1054	1054	1060	F35	2360	2605
	600	905	594	557	487	160	181	1194	1194	1200	F35	2530	2892
	900	945	617	584	487	180	181	1321	1321	1334	F40	3170	3700
	1500	985	665	646	454	180	200	1664	1664	1686	F40	4515	5455
24“	150	1035	617	628	589	98	133	1143	1067	1080	F30	3300	3700
	300	1065	627	630	589	160	181	1143	1143	1165	F35	3400	3800
	400	1065	627	630	589	160	181	1232	1232	1241	F35	3500	3900
	600	1065	630	644	589	180	207	1397	1397	1407	F40	3700	4200
	900	1065	670	644	589	220	257	1549	1549	1568	F48	4310	5230
	1500	1150	745	735	546	220	257	1943	1943	1972	F48	6540	7860

*The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

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SPLIT BODY BALL VALVES, TRUNNION MOUNTED BALL PT39168

NPS 16“-56“ Class 150-2500

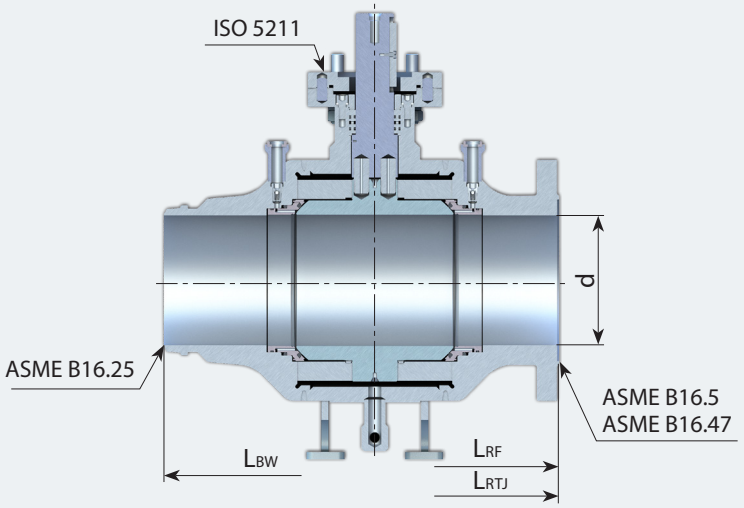
NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
28“	150	1170	697	695	684	160	181	1346	1245	1255	F35	4396	4526
	300	1170	697	695	684	160	181	1346	1346	1372	F35	4435	4941
	400	1197	702	709	684	180	207	1397	1397	1410	F40	4817	5345
	600	1197	702	709	684	180	207	1549	1549	1562	F40	5110	5950
	900	1252	742	739	684	220	257	1600	1660	1682	F48	6476	7792
30“	150	1265	800	756	735	160	150	1397	1295	-	F35	5015	5350
	300	1290	815	762	735	160	180	1397	1397	1422	F35	5075	5550
	400	1340	840	810	735	180	200	1651	1651	1664	F40	6450	7183
	600	1340	840	810	735	180	200	1651	1651	1664	F40	6450	7183
	900	1390	865	835	712	220	220	1660	1880	1902	F48	7310	8900
32“	150	1350	789	775	779	160	181	1524	1372	1382	F35	6300	6800
	300	1380	801	789	779	180	207	1524	1524	1553	F40	6950	7750
	400	1380	801	789	779	180	207	1651	1651	1667	F40	7105	7840
	600	1400	819	801	779	220	257	1778	1778	1794	F48	7990	8750
	900	1400	829	836	779	220	257	1760	1850	1872	F48	8470	10300
34“	150	1415	875	835	830	160	180	1626	1473	-	F35	6450	6880
	300	1440	890	870	830	180	200	1626	1626	1654	F40	6650	7050
	400	1480	910	875	830	220	220	1930	1930	1946	F48	9450	10924
	600	1480	910	875	830	220	220	1930	1930	1946	F48	9450	10924
	900	1540	940	930	808	220	250	1850	1950	1992	F48	10555	12790
36“	150	1490	915	870	874	180	208	1727	1524	-	F40	8045	8570
	300	1515	930	927	874	220	255	1727	1727	1756	F48	8250	8830
	400	1540	940	927	874	220	255	2083	2083	2099	F48	11350	12183
	600	1540	940	927	874	220	255	2083	2083	2099	F48	11350	12183
	900	1600	970	960	855	220	255	1950	2286	2315	F48	12965	15120
40“	150	1635	985	940	980	180	205	1780	1625	-	F40	10250	10880
	300	1650	995	985	980	180	205	2000	1850	-	F40	10500	11050
	400	1690	1015	1005	980	180	205	2000	2000	-	F40	13240	15355
	600	1690	1015	1005	980	220	255	2000	2000	-	F48	13240	15355
	900	1740	1020	1005	980	280	315	2000	2320	-	F60	13940	16774
42“	150	1695	1020	976	1020	180	208	1800	1700	-	F40	13750	14560
	300	1720	1030	1020	1020	220	255	2100	1900	-	F48	14075	14950
	400	1760	1050	1040	1020	220	255	2100	2100	-	F48	15420	18120
	600	1760	1050	1040	1020	280	315	2100	2100	-	F60	15420	18120
	900	1790	1050	1043	1020	280	208	2100	1950	-	F60	16465	19567
48“	150	1930	1145	1115	1174	180	208	2000	2060	-	F40	16750	17900
	300	1960	1160	1140	1174	220	255	2100	2180	-	F48	16950	18150
	400	2000	1170	1155	1174	220	255	2180	2400	-	F48	21050	22695
	600	2000	1170	1155	1174	280	315	2180	2400	-	F60	21050	22695
	900	2000	1270	1155	1174	280	315	2300	2480	-	F60	22060	27076
56“	150	2220	1290	1275	1360	280	310	2350	2160	-	F60	25750	27350
	300	2255	1310	1300	1360	280	310	2250	2300	-	F60	26120	27750
	400	2315	1330	1342	1360	280	310	2350	2540	-	F60	28675	29200
	600	2315	1330	1342	1360	280	310	2350	2540	-	F60	28675	29200
	900	2335	1330	1360	1360	280	310	2400	-	-	F60	29580	-

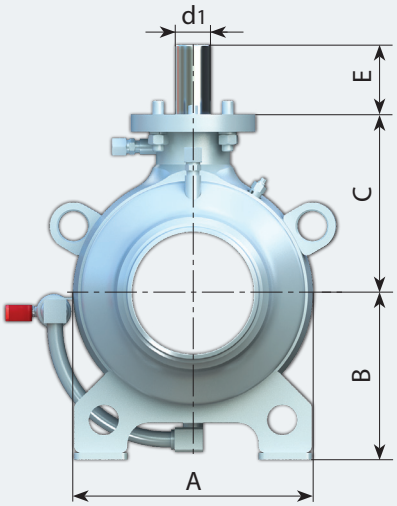
*The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

MAIN DIMENSIONS

FULLY WELDED BALL VALVES, TRUNNION MOUNTED BALL PT39169, PT39180

NPS 4“-8“ Class 150-900 for aboveground and underground* installation





Series PT39169

NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
4“	150	361	128	210	100	48	67	305	229	241	F14	58	69
	300	361	130	225	100	48	67	305	305	321	F14	59	78
	400	361	130	201	100	48	67	406	406	410	F14	64	88
	600	361	152	201	100	48	67	432	432	435	F14	71	115
	900	361	152	201	100	48	67	457	457	460	F14	100	125

Series PT39180

NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
6“	150	430	231	245	150	48	88	457	394	406	F16	145	170
	300	430	231	245	150	48	88	457	403	419	F16	145	178
	400	430	237	249	150	48	88	495	495	498	F16	148	198
	600	430	237	249	150	48	88	559	559	562	F16	158	208
	900	430	288	255	150	48	88	610	610	613	F16	230	286
8“	150	405	204	253	201	72	114	521	457	470	F25	245	186
	300	405	204	253	201	72	114	521	502	518	F25	245	211
	400	413	277	297	201	72	114	597	597	600	F25	289	362
	600	413	277	297	201	98	133	660	660	664	F30	295	378
	900	425	333	295	201	98	133	737	737	740	F30	345	440

* Dimensions and weight of ball valves for underground installation should be specified before manufacturing.
**The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

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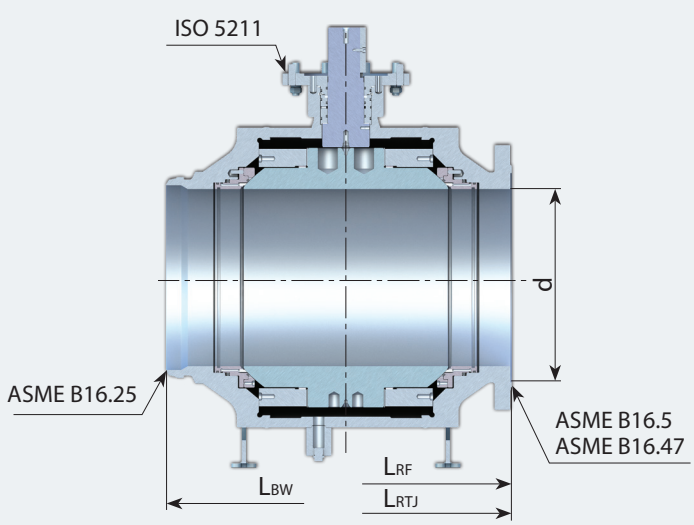
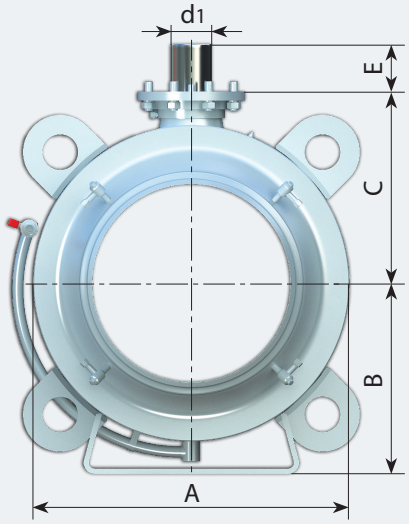
MAIN DIMENSIONS

FULLY WELDED BALL VALVES, TRUNNION MOUNTED BALL PT39167

NPS 10“-56“ Class 150-900 for aboveground and underground* installation





NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
10“	150	479	244	295	252	72	114	559	533	546	F25	320	289
	300	479	244	295	252	72	114	559	568	584	F25	320	326
	400	488	300	350	252	72	114	673	673	676	F25	404	530
	600	488	300	350	252	98	133	787	787	791	F30	420	660
	900	512	342	350	252	160	181	838	838	841	F35	560	710
12“	150	549	344	368	303	72	114	635	610	622	F25	560	610
	300	549	344	368	303	72	114	635	648	664	F25	560	660
	400	569	355	378	303	98	133	762	762	765	F30	648	785
	600	569	355	378	303	98	133	838	838	841	F30	663	824
	900	598	419	386	303	160	182	965	965	968	F35	770	990
16“	150	690	502	487	385	72	114	838	762	775	F25	1130	1242
	300	690	502	491	385	98	132	838	838	854	F30	1144	1301
	400	690	502	491	385	98	132	902	902	905	F30	1183	1348
	600	694	502	491	385	160	182	991	991	994	F35	1510	1574
	900	720	502	505	385	180	208	1130	1130	1140	F40	1653	1955
20“	150	826	572	556	487	98	132	991	914	927	F30	1772	1895
	300	826	572	556	487	160	132	991	991	1010	F35	1772	1940
	400	826	572	556	487	160	182	1054	1054	1060	F35	1870	2135
	600	830	572	556	487	160	182	1194	1194	1200	F35	1869	2425
	900	866	572	570	487	180	208	1321	1321	1334	F40	2615	3680
24“	150	968	574	629	589	98	132	1143	1067	1080	F30	2420	2525
	300	968	574	629	589	160	182	1143	1143	1165	F35	2420	2650
	400	968	580	629	589	160	182	1232	1232	1241	F35	2629	3003
	600	968	590	629	589	180	208	1397	1397	1407	F40	3057	3545
	900	968	590	643	589	180	208	1549	1549	1568	F40	3057	3545

* Dimensions and weights of ball valves for underground installation should be specified before manufacturing.
**The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

FULLY WELDED BALL VALVES, TRUNNION MOUNTED BALL PT39167

NPS 10“-56“ Class 150-900 for aboveground and underground* installation

NPS	Class	Dimensions, mm									ISO 5211	Weight*, kg	
		A	B	C	d	d_1	E	L_{BW}	L_{RF}	L_{RTJ}		BW	RF/RTJ
28“	150	1103	660	665	684	160	182	1346	1245	-	F35	3615	3902
	300	1103	660	665	684	160	182	1346	1346	1372	F35	3615	4151
	400	1107	662	675	684	180	208	1397	1397	1410	F40	3778	4336
	600	1133	677	675	684	220	208	1549	1549	1562	F40	4358	5255
	900	1173	700	714	684	220	254	1753	-	-	F48	5253	-
32“	150	1259	759	774	779	160	182	1524	1372	-	F35	5260	5503
	300	1259	759	787	779	180	208	1524	1524	1553	F40	5293	5968
	400	1283	769	787	779	180	208	1651	1651	1667	F40	5894	6629
	600	1299	779	835	779	220	255	1778	1778	1794	F48	6458	7232
	900	1299	779	835	779	220	255	1778	1778	1794	F48	6458	7232
36“	150	1392	840	844	874	180	208	1727	1524	-	F40	7152	7411
	300	1408	850	891	874	220	255	1727	1727	1756	F48	7888	7988
	400	1408	850	891	874	220	255	1880	1880	1895	F48	7888	8799
	600	1432	868	891	874	220	255	2083	2083	2099	F48	8929	10036
	900	1432	868	891	874	220	255	2286	2286	2315	F48	8929	10036
40“	150	1554	960	903	980	180	205	1750	1750	-	F40	9546	9805
	300	1554	960	903	980	180	205	1750	1820	-	F40	9546	9747
	400	1554	960	903	980	180	205	1750	1860	-	F40	9546	9929
	600	1590	980	938	980	220	255	1750	2020	-	F48	10668	11984
	900	1640	1010	975	980	280	315	2000	2320	-	F60	12940	15774
42“	150	1624	974	972	1020	180	208	1840	1900	-	F40	10631	11316
	300	1670	974	1022	1020	220	255	1840	1950	-	F48	12550	12548
	400	1670	974	1022	1020	220	255	2100	1950	-	F48	12650	13112
	600	1690	1010	1043	1020	280	315	2100	1950	-	F60	13465	14567
	900	1690	1010	1043	1020	280	208	2100	1950	-	F60	13465	14567
48“	150	1838	1185	1037	1174	180	208	2300	2300	-	F40	16586	17347
	300	1838	1185	1055	1174	220	255	2300	2300	-	F48	16710	17432
	400	1874	1210	1055	1174	220	255	2300	2300	-	F48	18220	18586
	600	1894	1225	1137	1174	280	315	2300	2300	-	F60	19355	21625
	900	1974	1270	1137	1174	280	315	2300	2480	-	F60	22060	27076
56“	150	2155	1280	1310	1360	280	310	2400	-	-	F60	23555	-
	300	2155	1280	1310	1360	280	310	2400	-	-	F60	23555	-
	400	2175	1290	1325	1360	280	310	2400	-	-	F60	24615	-
	600	2235	1320	1360	1360	280	310	2400	-	-	F60	28580	-
	900	2235	1320	1360	1360	280	310	2400	-	-	F60	28580	-

* Dimensions and weights of ball valves for underground installation should be specified before manufacturing.
**The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

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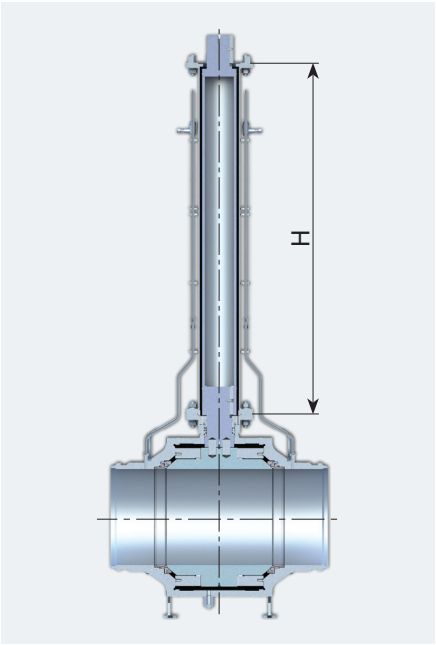
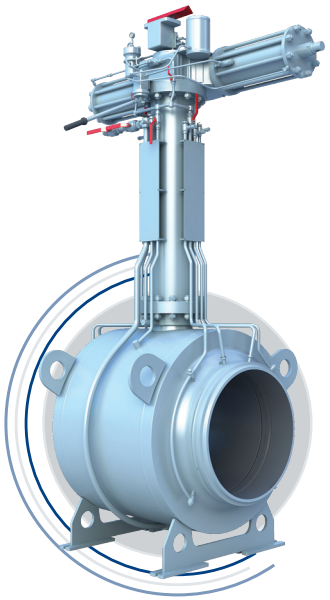
MAIN DIMENSIONS

BALL VALVES FOR UNDERGROUND INSTALLATION

NPS 10"-56" Class 150-900





NPS	Class	H, mm	Weight*, kg
4	150 - 900	2,0	205
6	150 - 900	2,0	295
8	150 - 900	2,0	357
12	150 - 600	2,0	925
16	150 - 300	2,0	1395
	400 - 600		1545
	900		2170
20	150 - 600	2,0	1926
	900		2334
24	150	1,8	2800
	300		2850
	400		3050
	600		3600
28	150 - 300	1,8	4025
	400		4305
	600		4885
	900		6020
32	150	1,8	5690
	300		5860
	400		6470
	600		7380
40	150 - 400	1,8	10380
	600		11950
	900		14400
48	150	1,6	17115
	300		17460
	400		19865
	600		20255
	900		23170
56	400	1,6	26365
	600		29685

Notes:

*The weight is indicated without the weight of actuator.

Ball valves DN 2" and 3" can be also designed for underground installation.

PIG VALVES

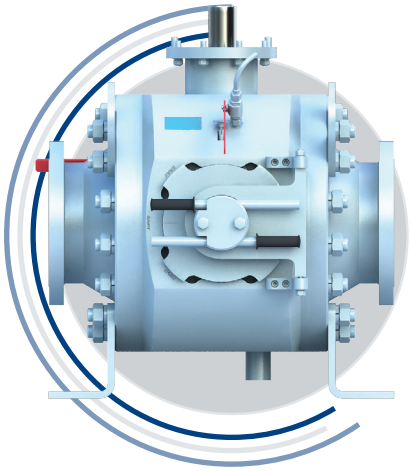
PIG VALVES
NPS 6" – 20" Class 150 - 900

APPLICATION

Pig valves are designed for loading and receiving cleaning pigs and detecting tools at pipelines transporting:

- **natural gas;**
- **oil products.**

Operating temperature of the medium can vary from -15 °C to +100 °C (upon Customer's request it can be extended up to +200°C).



CONNECTION TO THE PIPELINE

Installation position: at horizontal pipeline, actuator upwards.

Connection to the pipeline:

- **butt-welded**;
- **flanged.**

Pig valves can be supplied with pup pieces (separately from the valve as well as already welded to the valve).

Installation type: aboveground.

CLIMATIC CATEGORY

Climatic category:

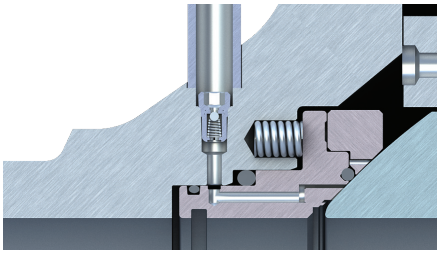
- regions with temperate climate and ambient temperature from -40°C up to +40°C,
- regions with cold climate and ambient temperature from -60°C up to +40°C,
- regions with warm climate and ambient temperature from -10°C up to +50°C.

Ball valves with another climatic category can be manufactured upon Customer's request.

TIGHTNESS CLASS

«A» (Zero-leakage) - without visible leakage.

Seal tightness is provided by pressing the seats to the ball by the medium pressure and springs.



Pig valve sealing

OPERATION

Pig valves can be operated by:

- **electric actuator;**
- **gear.**

Any international brand of actuator can be provided upon the Customer's request.

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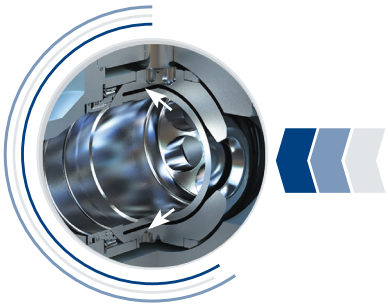
DESIGN FEATURES

BYPASS CAVITY



Pig valve ball has bypass cavity. It ensures working medium flow through ball valve in «closed» position (at the moment of loading or removing a pig). Bypass cross-section is about 25% from pipeline cross-section. Herewith medium pressure in the pipeline is not changed.

Ball valve can be supplied without bypass cavity in the ball upon Customer›s request.

TRUNNION MOUNTED BALL

Pig Valves are develope basis PTPA High Performance Trunnion Mounted Ball Valves having the same design, features and high reliability.

SAFETY

Launching and receiving cameras are equipped with pressure relief valves to ensure safe operation of the Pig Valve.

DRAIN & VENT

Drain connections are installed at ball valves for removal of condensate fluid from the body.

GREASE INJECTION

Ball valves are equipped with grease injection system for supply of grease to stem and seat sealing. It allows to extend service life of the valve.

SPLIT-BODY DESIGN

Split-body design increases valve maintainability, allows to use it at aggressive working medium and conduct:

- components replacement;
- maintenance without dismantling.

PIG VALVES ADVANTAGES

Pig valves have the following advantages in comparison with traditional means of pipeline cleaning with the use of pigging systems:

- Significant reduction of installation area;
- High effectiveness in cleaning pipelines from impurities;
- Contraction of volume of preventive maintenance and required spare parts in the process of operation;
- Pig valves retain all design advantages of ball valves: size-conscious design, ease of installation, stable tightness index of shut-down element, capability of use at different types of medium;
- Different pig types can be used: needle, scraping, spherical;
- Simple way of installation at operating pipelines and fewer expenses for installation.

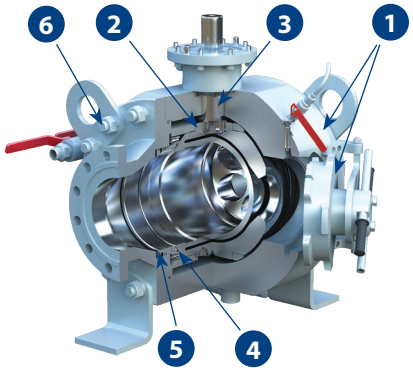
COMPARISON

Installation of launching and receiving system	Installation of Pig Valves (for launching and receiving)
1. To define and prepare the area for installation.	1. To isolate the pipeline section where the pig valves are supposed to be installed.
2. To isolate the pipeline section where the system is supposed to be installed.	2. To clean the pipeline section, if required to install the bypass line.
3. To install the main line isolation valve on Scraper Launcher/ Receiver Area, if there are none.	3. To install the pig valves at the pipeline.
4. To install the Scraper Launcher/Receiver Cameras on the prepared section in front of the isolation valve.	4. To adjust the valve along the pipeline axis and fix with supporting legs.
5. To connect Scraper Launcher/Receiver Cameras with main line; to adjust preliminary the cameras along the line axis.	
6. To install associated technological pipes near the Scraper Launcher/Receiver Cameras.	
7. To pressure up the Scraper Launcher/Receiver Cameras.	

Installation and maintenance of pig valves is more cost-effective comparing with traditional means of pipeline cleaning like pigging systems and do not require additional shut-off devices for bypass pipelines, valves, tees, flanges, as well as scope of welding operations.

MATERIAL SPECIFICATION

Main components are chosen individually in each specific case and depend on operation requirements and working medium characteristics (presence of aggressive components, temperature etc.). Main components can be changed in compliance with international safety standards and operational characteristics upon Customer's request.



№	Component	Material
1	Body, bonnet, flap	ASTM A 350 LF2
2	Ball	ASTM A 350 LF2
3	Stem	A182 F316
4	Seats	ASTM A 350 LF2
5	Seat Ring insert	Polyurethane or Elastomer
6	Bolting	ASTM A320 L7M/ A194 8M

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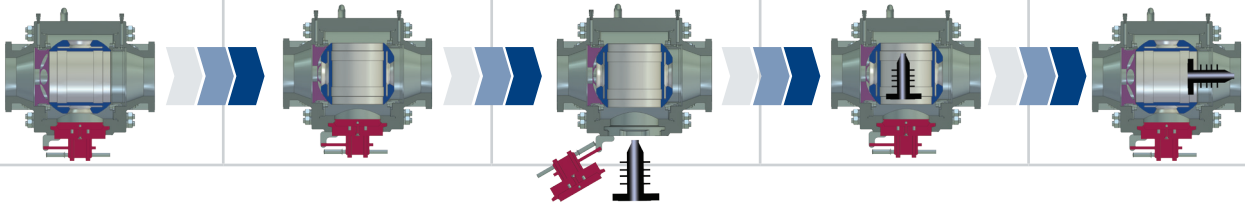
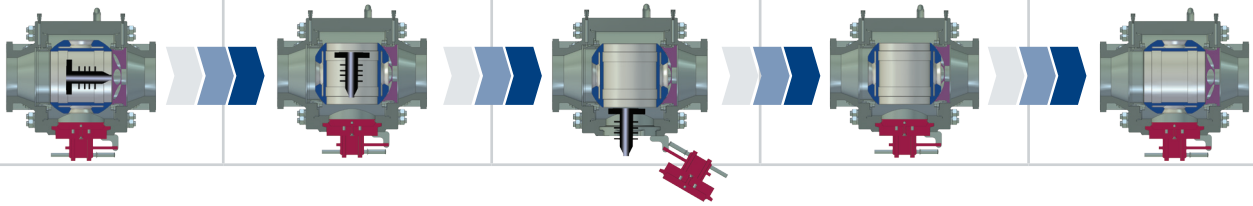
OPERATION

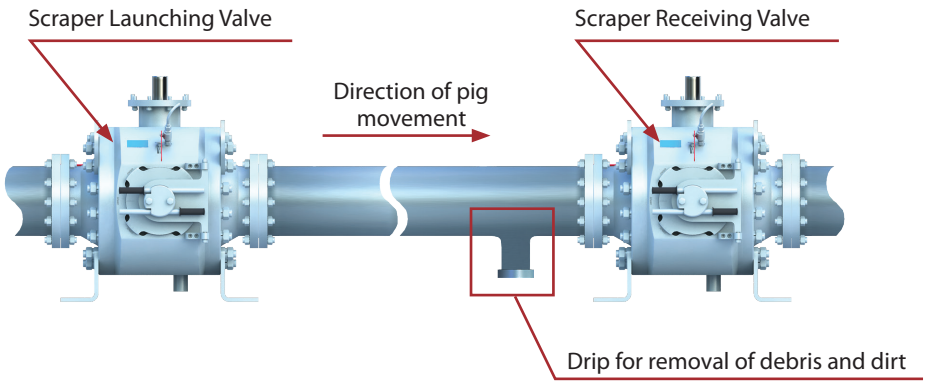
Scraper Launching

	Bypass valve design provides working medium passage through the valve, pressure is changed inconspicuously			
1. "Open" position, valve is ready for pig launching	2. Close the valve, relief pressure through the relief valve	3. Open the flap, Launch the pig	4. Close flap, move relief valve into "close" position	5. Open the valve, pig is moving through pipe with medium flow
				

Scraper Receiving

	Bypass valve design provides working medium passage through the valve, pressure is changed inconspicuously			
1. "Open" position, pig is stopped by special pig cage	2. Close valve, relief pressure through relief valve	3. Open the flap, take out the pig	4. 3Close the flap, move relief valve into "close" position	5. Open the valve. Valve is ready to receive next pig
				

INSTALLATION SCHEME



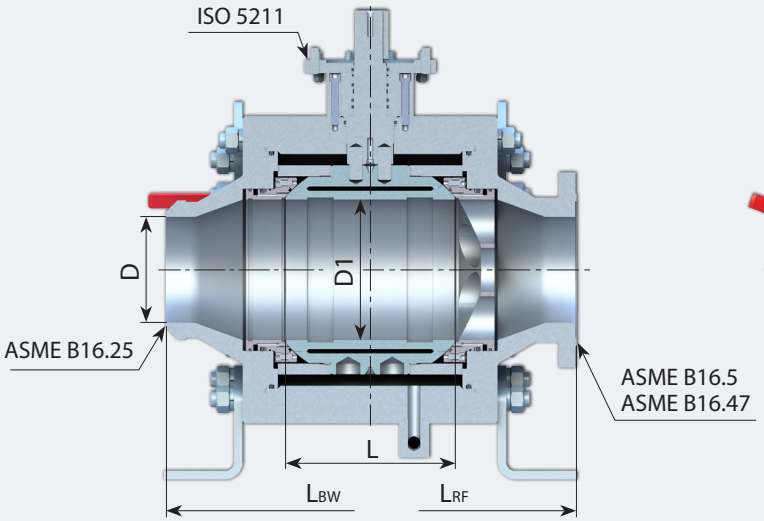
FIRE RESISTANCE

Fire-proof pig valves can be manufactured upon Customer's request.
Fire resistance is achieved by using thermal expanded graphite.

MAIN DIMENSIONS

PIG VALVES PT39140

NPS 6“-16“ Class 150-900



NPS	Series	Class	Dimensions, mm					Connection type according to ISO 5211	Weight*, kg
			D	D_1	L	L_{BW}	L_{RF}		
6“	PT39140	150-600	150	185	261	813	660	F16	470
		800-900				889	737	F25	510
8“	PT39140	150-300	200	235	408	1016	794	F16	1170
		400						F25	
		600				1092	889		
		800-900						F30	
10“	PT39140	150-300	240	320	386	1194	940	F25	1635
		400-600						F30	1735
		800-900				1295	1041	F35	1850
12“	PT39140	150-300	300	340	499	1372	1067	F25	1885
		400-600						F30	
		900				1499	1194	F35	
14“	PT39140	150-300	830	487	160	1194	1194	F35	1869
		400	866	487	180	1321	1321	F40	2615
		600-900	968	589	98	1143	1067	F30	2420
16“	PT39140	150-300	400	438	892	1778	1372	F25	2720
		400						F30	
		600-900				1905	1499	F35	

* The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

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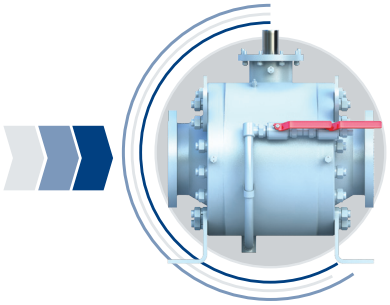
OPERATIONAL CHARACTERISTICS

Available operational modes:
- fully opened shut-off element;
- closed shut-off element.

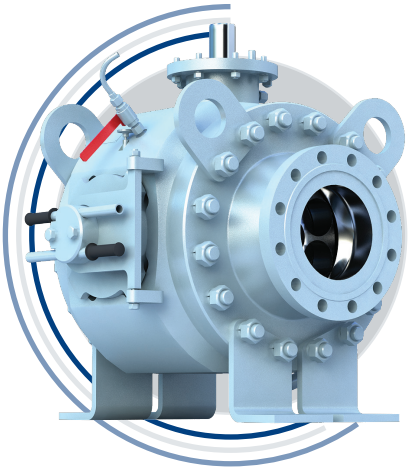


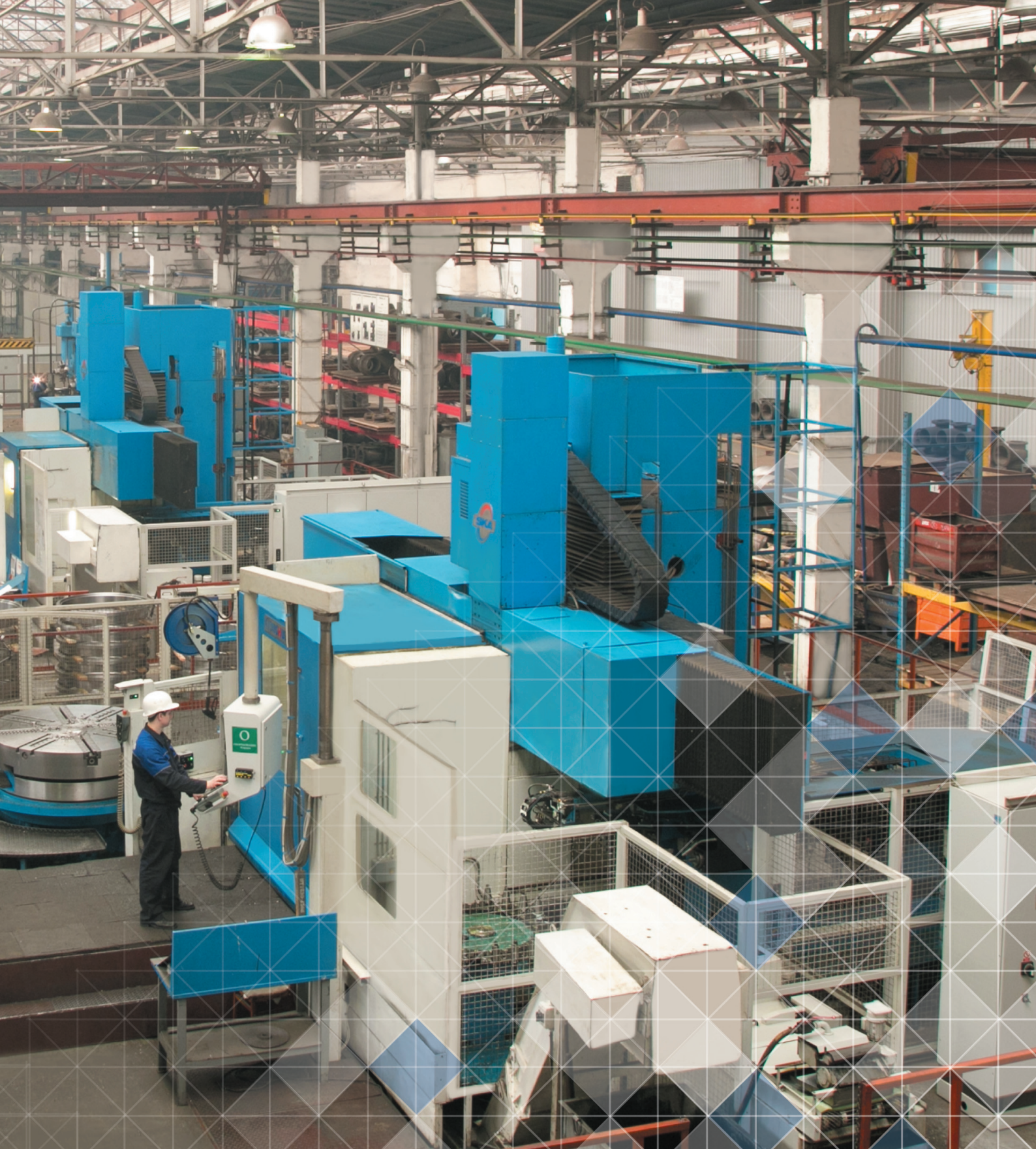
Reliability factors:
- **service life** - 30 years;
- **warranty period** - 18 months from the day of putting into operation.

SCOPE OF SUPPLY

The package includes:
- Fully assembled pig valve according to specification;
- Quick wear parts kit, tools and accessories specified at the time of order;
- Electric actuator with operation manual and documentation;
- Supply documents package.

Following valve equipment is specified at the time of the order:
- Pig;
- Electric actuator / actuator of some specific manufacturer;
- Counter flanges, fasteners and gaskets;
- Adapter rings (pup pieces);
- Pig arrival indicator.





CONTROL VALVES

CONTROL BALL VALVES
NPS 6" – 28" Class 150 - 900

APPLICATION

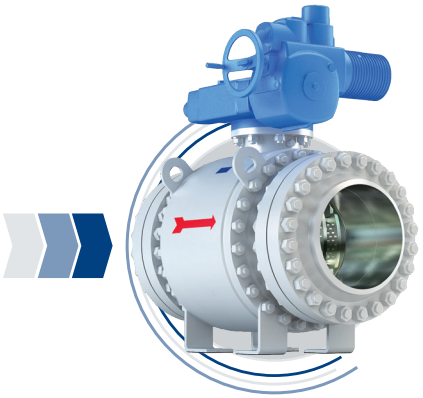
Control Ball Valves are designed to control working medium parameters (pressure, flowrate) by throttling flow at pipelines.

Depending on their application the following ball valves can be manufactured:

- Control ball valves;
- Shut-off control ball valves.

Working medium:

- natural gas at temperature from -15 °C to +100 °C;
- oil at temperature from -15 °C to +80 °C
- oil products at temperature from -15 °C to +60 °C.



CLIMATIC CATEGORY

Climatic categories:

- regions with temperate climate and ambient temperature from -40°C up to +40°C;
- regions with cold climate and ambient temperature from -60°C up to +40°C;
- regions with warm climate and ambient temperature from -10°C up to +50°C.

Ball valves with another climatic category can be manufactured upon Customer's request.

CONNECTION TO THE PIPELINE

Installation:

For Control Ball Valves without shut-off function – any (vertical, horizontal or sloping pipelines; actuator can be in upwards, downwards or slant position).

For Control Ball Valves with shut-off function – horizontal pipelines with actuator in upwards position. (Any other installation should be agreed.

The direction of the working medium is unidisectirnal and specified by the indicator at the body of Control Valve.

Connection to the pipeline:

- **butt-welded;**
- **flanged.**

Control Ball valves can be supplied with pup pieces (separately from the valve as well as already welded to the valve in the factory). Concentric reducers manufactured in accordance with the requirements documents of AK Transneft JSC are used for installation of shut-off control ball valve at pipelines of bigger diameter than the required nominal diameter of ball valves.

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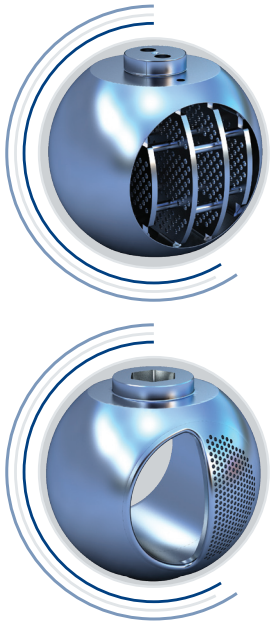
DESIGN FEATURES

UNIQUE DESIGN OF CONTROL VALVE CLOSURE



Control element of control valve (the ball) is designed to ensure a wide range of control and high flowrate capacity with minimal pipeline pressure reduction.

Low resistance factor is achieved by parallel leveling of the inner grids of the ball with working medium flow in the "open" position minimizing obstruction surface at the way of the flow. This design has been developed to allow smooth control of pressure drop while maintaining anti-cavitation effect, which allows to reduce significantly the noise levels.

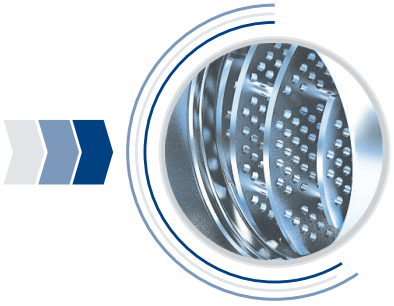
High flowrate is maintained due to the minimum resistance surface of the obturator to the working medium. System of protection against impurities inside the valve is provided by ball design: ball valve performs the function of self-cleaning by the medium flow in the "open" position.

Control valve has all the advantages of ball valves as a standard: reliability; ergonomic design, ease of installation, stable tightness index of shut-down element, and suitability for different types of medium.

CAVITATION-FREE OPERATION

Cavitation may appear during control valve operation. Cavitation is a process of vaporation and the following devaporation of air and gas bubbles in the liquid flow which are deteriorated coming to the area of high pressure. Cavitation may seriously damage hard surfaces and become the reason of loud noise. In order to solve this problem grid blocks are provided at the inner grids of the ball of PTPA shut-off control ball valves. These grid blocks divide medium flow and suppress cavitation effect.

Information concerning adjustable measure of valve cavitation in required technological conditions for all modes - Kcs should be submitted to manufacturer for identification of possible cavitation in control valves. Adjustable measure of the beginning of valve cavitation - Kc is identified by experiment or calculations while adjustment of a control ball valve.



The condition of cavitation-free operation of control valves is that cavitation measure does not exceed the factor of the appearing of cavitation in working conditions (for all modes):

$$Kcs < Kc$$

Methods of identification of control ball valve hydraulic and cavitational characteristics are based on ST Central Design Bureau of Automatic equipment 029. Methods of calculation of ball valve hydraulic and cavitational characteristics ensuring cavitation-free operation is based on ST Central Design Bureau of Automatic equipment 040.

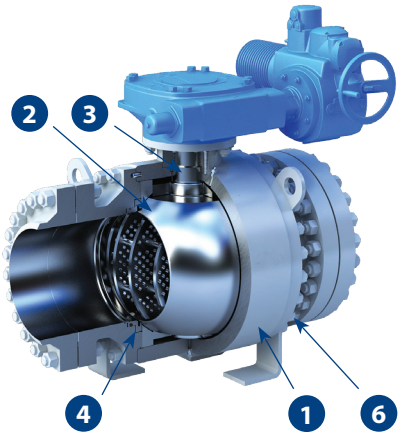
SPLIT-BODY DESIGN

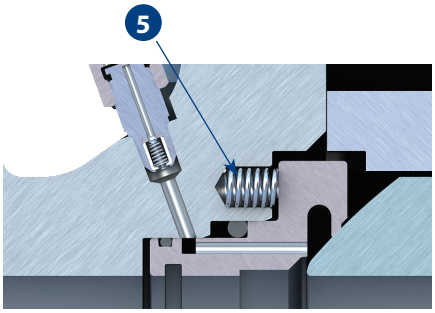
Split-body design increases valve maintainability, allows to use it for aggressive working medium and conduct:

- components replacement;
- maintenance without dismantling.

MATERIAL SPECIFICATION

Main components are chosen individually in each specific case and depend on operation requirements and working medium characteristics (presence of aggressive components, temperature etc.). Upon Customer's request main components can be changed in compliance with international safety standards and operational characteristics.





Metal-to-metal seats

№	Component	Material
1	Body	Carbon steel
2	Ball	ASTM A350-10 + Tungsten Carbide
3	Stem	A182 F316
4	Seats	ASTM A350-10 + Tungsten Carbide
5	Seat Spring	Inconel X-750
6	Bolting	ASTM A320 L7M/ A194 8M

ACTUATOR

Control Ball valves can be operated by electric actuator.

Specifying actuator-valve connection type it is necessary to take into account the fact that maximum torque rating of control ball valve should be increased at 25% (Max. torque * 1,25).

After electric actuator is switched off, ball valve control element retains its position.

Upon Customer's request Control ball valves can be supplied with actuators of other manufacturers.

HYDRAULIC PARAMETERS AND CHARACTERISTICS

Opening angle	Cavitation factor, Kc	Pressure build-up factor, F
10°	0,92	0,96
15°	0,92	0,96
20°	0,92	0,96
30°	0,92	0,96
40°	0,9	0,95
50°	0,87	0,94
60°	0,8	0,91
70°	0,64	0,84
80°	0,4	0,71
90°	0,25	0,55

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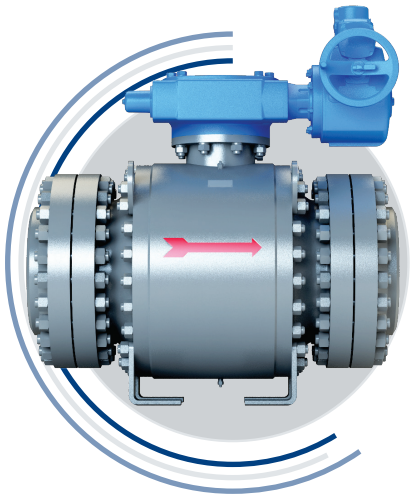
CAPACITY

NPS	Class	Flow performance	Nominal capacity in "open" position Kvy, m^3/hour	Minimum capacity Kvmin, m^3/hour
150	150-600	Equal Percentage	744	11
200	150-600		1206	18
250	150-600		1972	30
300	150-600		2744	41
350	150-600		3448	51
400	150-600		4689	70
500	150-600		7661	96,9
600	150-600		12533	187,63
700	150-600		17149	257

OPERATIONAL CHARACTERISTICS



Reliability factors:

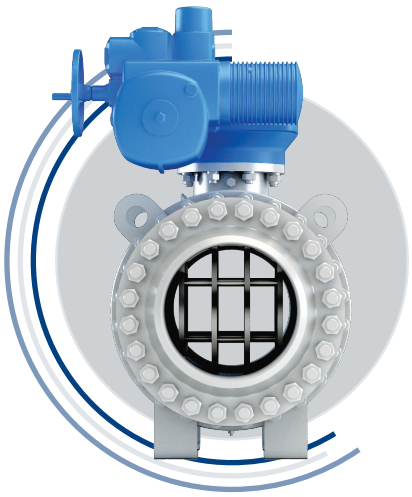
- **service life** - 30 years;
- **designed lifetime** of removable and component parts, gaskets - 15 years.
- **warranty period** - 24 months from the day of putting into operation.

Control ball valves of all sizes ensure operation if differential working pressure at closure is ΔP when opening and closing up to PN.

Specific differential working pressure at closure when opening and closing is specified in datasheets.

Full travel time of ball valve is selected in accordance with the requirements indicated in a datasheet.

SCOPE OF SUPPLY



The package includes:

- Fully assembled shut-off control ball valve according to specification;
- Quick wearing parts kit, tools and accessories specified at the time of order;
- Electric actuator with operation manual and documentation;
- Supply documents package.

Following valve equipment is specified at the time of the order:

- Electric actuator / actuator of some specific manufacturer;
- Counter flanges, fasteners and gaskets;
- Centering rings (coils).

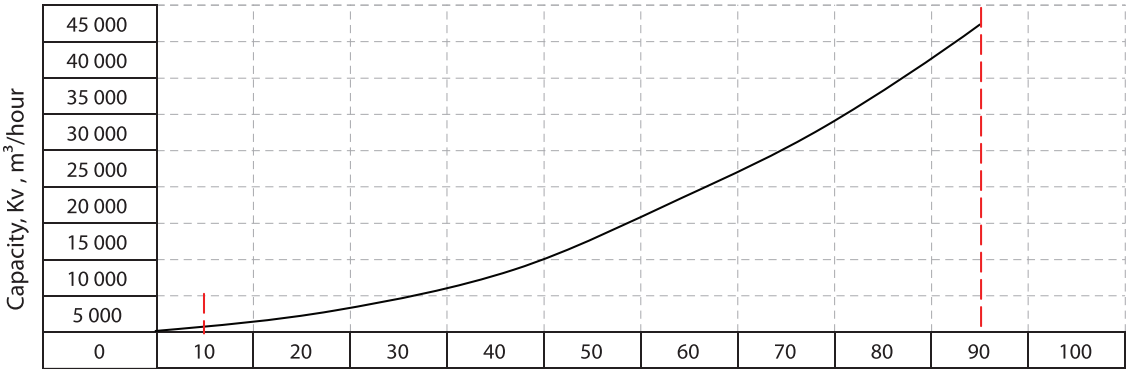
FLOWRATE CHARACTERISTICS

Nominal diameter of control valve is specified in accordance with the index of maximum (from all modes) rated discharge capacity of control valve i.e. so that nominal capacity of control valve should not be less than maximal for design conditions.

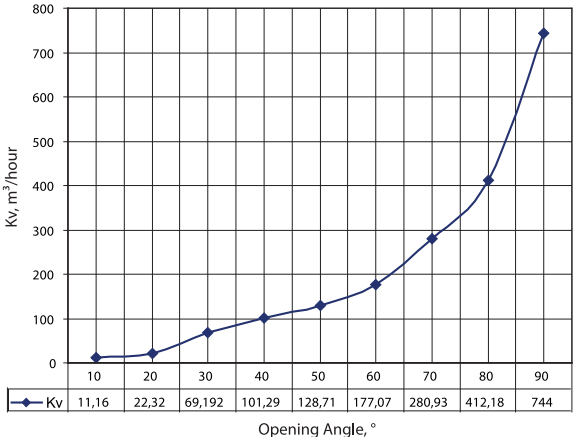
Dependence diagrams of discharge capacity from control element position are identified by experiment or calculations.

Control ball valves should ensure required metering characteristic in the range of ball turning from 25˚ to 90˚ from "closed" position.

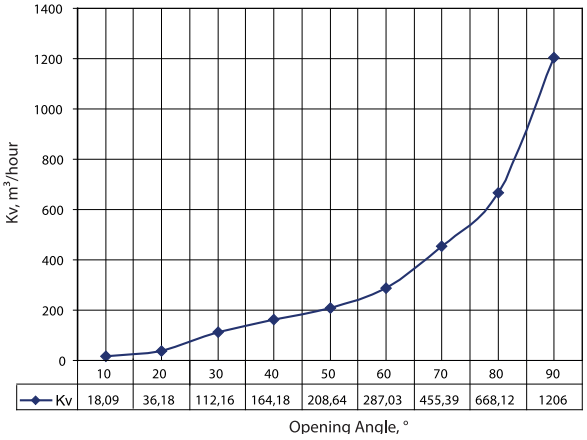
Valve flow performance to the obturator position



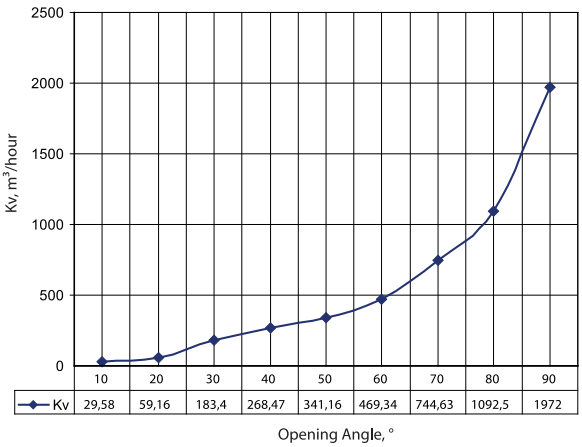
Valve flow performance, DN150



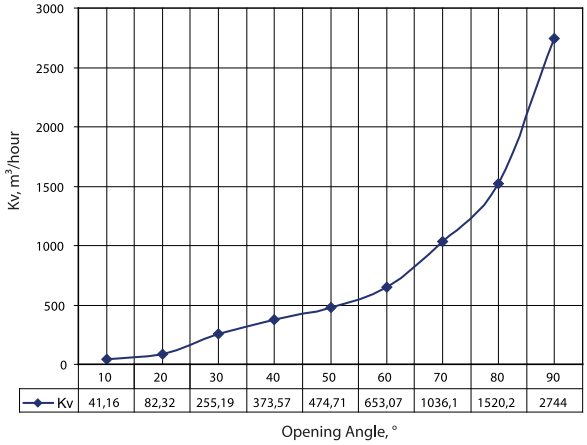
Valve flow performance, DN200



Valve flow performance, DN250



Valve flow performance, DN300



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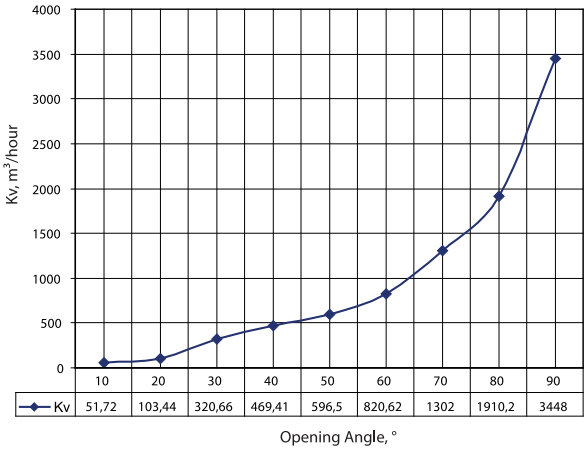
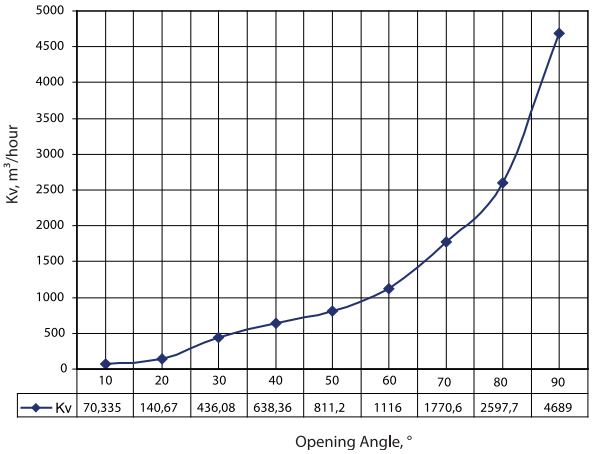
FLOWRATE CHARACTERISTICS

Valve flow performance, DN350



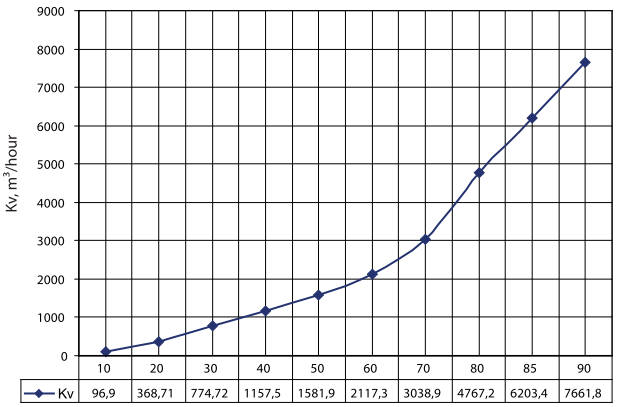
Opening Angle, °	10	20	30	40	50	60	70	80	90
Kv	51,72	103,44	320,66	469,41	596,5	820,62	1302	1910,2	3448

Valve flow performance, DN400



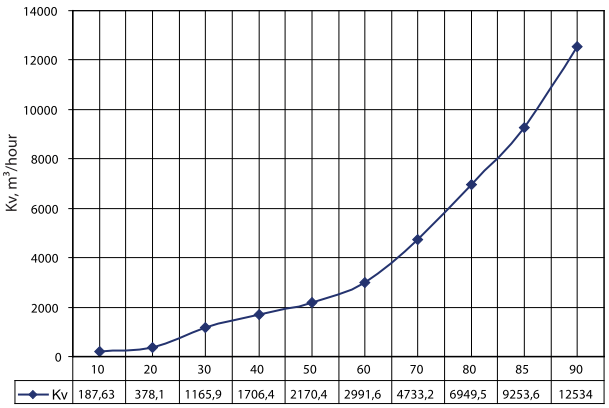
Opening Angle, °	10	20	30	40	50	60	70	80	90
Kv	70,335	140,67	436,08	638,36	811,2	1116	1770,6	2597,7	4689

Valve flow performance, DN500



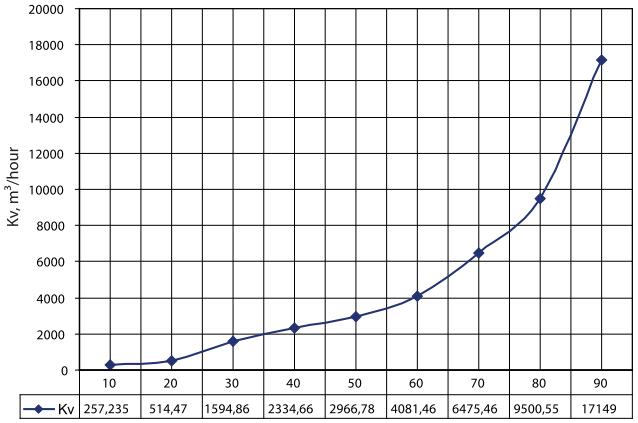
Opening Angle, °	10	20	30	40	50	60	70	80	85	90
Kv	96,9	368,71	774,72	1157,5	1581,9	2117,3	3038,9	4767,2	6203,4	7661,8

Valve flow performance, DN600



Opening Angle, °	10	20	30	40	50	60	70	80	85	90
Kv	187,63	378,1	1165,9	1706,4	2170,4	2991,6	4733,2	6949,5	9253,6	12534

Valve flow performance, DN700

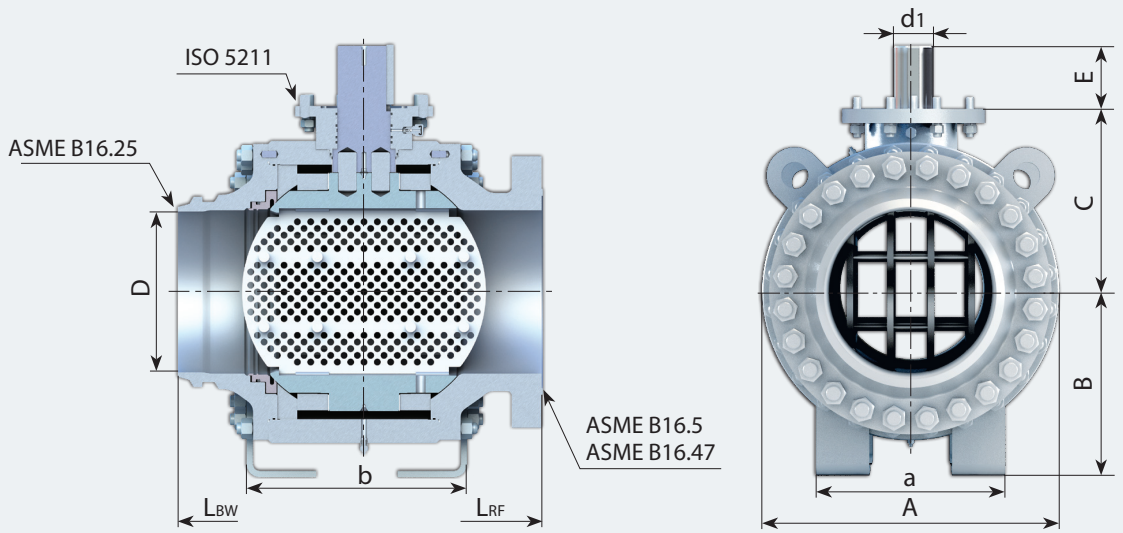


Opening Angle, °	10	20	30	40	50	60	70	80	90
Kv	257,235	514,47	1594,86	2334,66	2966,78	4081,46	6475,46	9500,55	17149

MAIN DIMENSIONS

CONTROL BALL VALVES

DN 6” – 28” Class 150 - 600 for liquid medium



NPS	Series	Class	Dimensions, mm									Weight*, kg	
			A	B	C	D	d	E	LBW	LRF	a x b	BW	RF
6“	PT60170	150	350	230	260	152	27	65	457	403	228x258	135	150
		400	370				40	80	559	559		240	285
		600											
8“	PT60170	150	480	300	329	205	60	83	675	675	400x440	465	505
		400					72	111	703	703		476	546
		600							723	723			568
10“	PT60168	150	530	353	362	252	60	80	688	688	557x487	745	799
		400					72	130	788	788		818	908
		600										824	964
12“	PT60168	150	615	390	406	303	72	107	444	444	470x527	825	877
		400	640	410	408		98	127	490	490	470x572	1070	1174
		600							509	509		1105	1285
14“	PT60168	150	682	425	431	335	98	127	762	762	500x613	1230	1312
		400	710	440	430		160	179	889	889		1405	1580
		600										1430	1679
16“	PT60168	150	762	480	472	385	98	127	838	838	550x652	1630	1734
		400	780	490	471		160	179	902	902	530x682	1874	2096
		600							991	991		1915	2247
20“	PT60168	150	905	555	538	487	160	179	1029	1029	670x809	2849	2993
		400	953		575		180	222	1134	1134		3222	3505
		600										3167	3595
24“	PT60168	150	1035	630	630	589	98	133	1067	1067	620x1011	3681	3876
		400	1065		644		180	207	1232	1232	626x1041	3925	4362
		600							1397	1397	526x1041	4074	4684
28“	PT60168	150	1310	779	768	684	220	244	1319	1319	730x915	7392	7656
		400	1345		803		280	310	1459	1459		8194	9054
		600											

* The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

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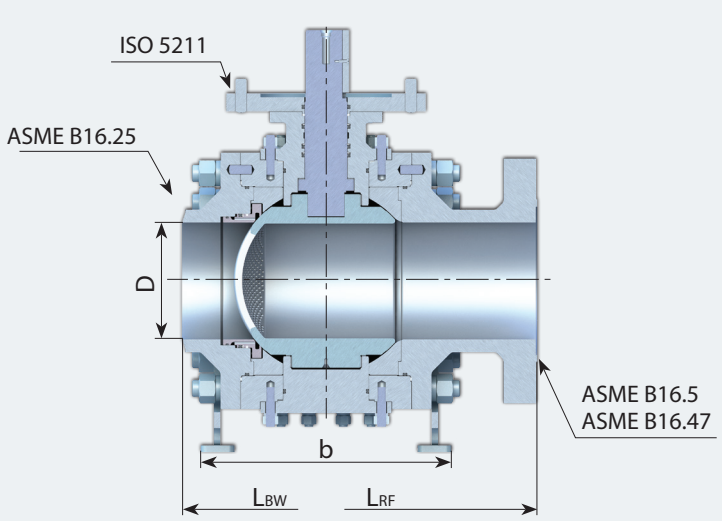
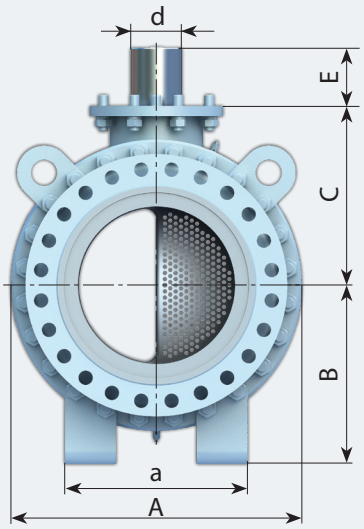
MAIN DIMENSIONS

CONTROL BALL VALVES

DN 8" – 28" Class 150 - 900 for gaseous medium





NPS	Series	Class	Dimensions, mm									Weight*, kg	
			A	B	C	D	d	E	LBW	LRF	a x b	BW	RF
8"	PT60170	150	480	300	329	205	60	83	675	675	400x440	465	505
		400					72	111	703	703		476	546
		600							723	723		476	568
		900							737	737		485	587
12"	PT60168	150	615	390	400	303	72	107	750	750	470x602	942	994
		400	640	410	409		98	127	795	795		1103	1207
		600							855	855		1131	1311
		900	655	400	401		160	208	890	890	470x607	1239	1439
16"	PT60168	150	762	480	472	385	98	127	843	843	560x682	1603	1707
		400	780	490	471		160	179	911	911		1831	2053
		600							959	959		1853	2185
		900	800		492		180	222	1021	1021	572x712	2034	2436
20"	PT60168	150	905	555	544	487	98	127	1029	1029	670x809	2708	2852
		400			538		160	179	1134	1134		2922	3205
		600										2860	3288
		900	928	572	547			177	1220	1220	712x827	3177	3773
28"	PT60168	150	1285	779	728	684	160	180	1260	1260	730x1015	7005	7269
		400			750		180	200	1460	1460		7141	8001
		600										7141	8001
		900							1580	1580		7399	8797

* The weight is indicated without the weight of actuator.
Beveling, type of connecting flange may be changed upon Customer's request.

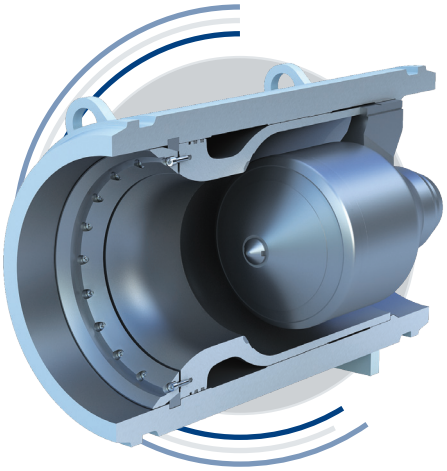
AXIAL CHECK VALVES

AXIAL CHECK VALVES
NPS 16" – 56" Class 150 - 900

APPLICATION

Designed to prevent medium return (back) flow for pipelines transporting **oil, natural gas, petrochemical products at the temperature up to +100°C.** Upon Customer's request valve can be manufactured **up to 250°C.**

DESIGN FEATURES



Axial flow check valve body is made of forgings or castings undergoing 100% ultrasonic testing.

Valve design is maintenance-free but all internal parts can be easily disassembled in case of general repair.

Damping system is used for non-slam operation. It consists of a camera filled with hydraulic liquid and a damping disk solidly connected with closure stem that moves inside the camera. Sealing system of the camera ensures its tightness and wouldn't require hydraulic liquid changing during full service life. Tight shut-off is provided by highly erosive-resistant stainless steel sealing (metal-to metal).

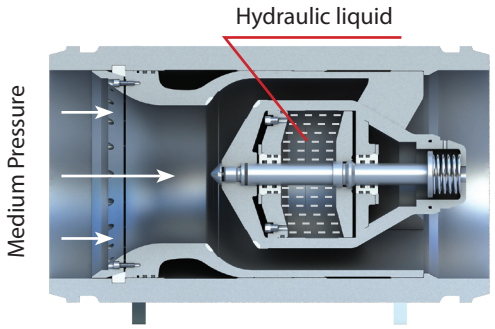
Valve can be manufactured without damping system upon Customer's request.

PRINCIPLE OF OPERATION

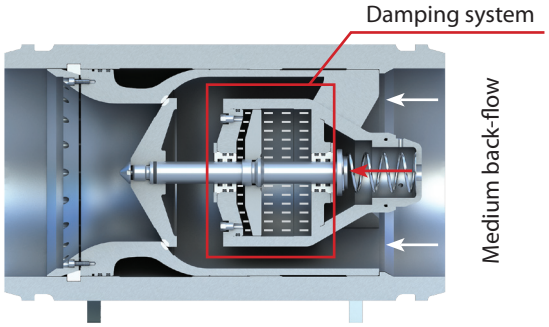
The opening of the Axial Check Valve occurs under the influence of input medium flow pressure on the locking element.

In case of medium back-flow the locking element is returned in «closed» position by spring action.

Position "Opened"



Position "Closed"



CLIMATIC CATEGORY

Climatic categories:

- regions with temperate climate and ambient temperature from -40°C up to +40°C;
- regions with cold climate and ambient temperature from -60°C up to +40°C;
- regions with warm climate and ambient temperature from -10°C up to +50°C.

Axial Check valves with another climatic category can be manufactured upon Customer's request.

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CONNECTION TO THE PIPELINE

Medium flow direction – according to the marking.

Installation position:
- at horizontal pipelines –any;
- at vertical pipelines (inclined) pipelines – inlet elbow downwards.

Connection to the pipeline:
- **flanged;**
- **butt-welded.**

Installation type: Axial check valve can be supplied with counter components (flanges, gaskets, fasteners)

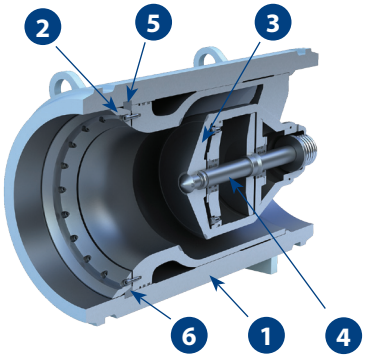
Axial check valve can be supplied with pup pieces separated from valve or welded to it.

Installation type:
- **aboveground;**
- **underground.**

MATERIAL SPECIFICATION

Material of basic components depends on Customer's requirements and is chosen individually in each case.

№	Component	Material
1	Body	A350LF2 or A352LCB
2	Seat	A352 LCC
3	Disc	A352 LCC
4	Stem	A182 F316
5	Seat overlay	Corrosion-resistant 13CR
6	Disc overlay	Corrosion-resistant 13CR



OPERATIONAL CHARACTERISTICS

Reliability factors:
- **service life** -30 years;
- **warranty period** – 24 months from the day of putting into operation.

SCOPE OF SUPPLY

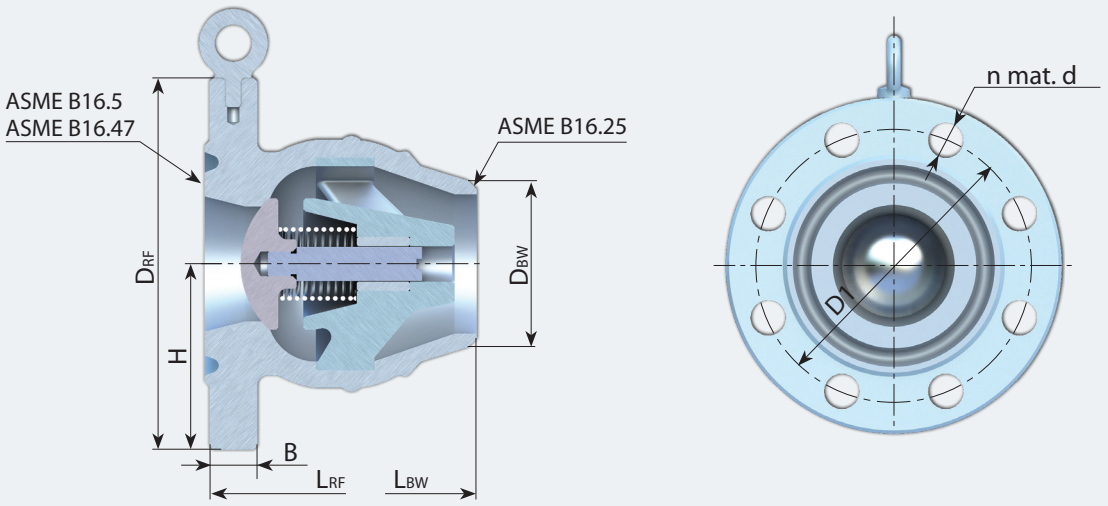
Scope of supply:
- Fully assembled axial check valve according to specification;
- Quick wear parts kit, tools and accessories specified at the time of the order;
- Supply documents package according to Customer's request.

Following valve equipment is specified at the time of the order:
- Counter flanges, fasteners and gaskets;
- Adapter rings (coils);
- Thermal jacket.

MAIN DIMENSIONS

AXIAL CHECK VALVES PT41001

NPS 2“-14“ Class 150-900



NPS	Class	Dimensions, mm									Weight, kg
		DRF	DBW	d	n	D1	LRF	LBW	H	B	
2“	150	160	58	18	4	125	320	216	80	17	41,7
	400	175	61	22		135	435	267	87,5	23	52,8
	600	195	64	26		145			97,5	25	
	900									27	
3“	150	195	91	18	8	160	435	282	97,5	19	60,7
	400	210		22		170	525	318	105	27	90
	600	230		26		180			115	31	
	900									33	
4“	150	230	110	22	8	190	550	305	115	21	130
	400	250	116	26		200	575	432	125	29	139
	600	265		30		210			132,5	35	
	900									37	
6“	150	300	160	26	8	250	695	403	150	25	180
	400	340	168	33		280	825	444	170	35	200
	600	350			12	290			145	43	
	900									47	
8“	150	360	223	26	12	310	785	419	180	27	250
	400	405	232	33		345	955	660	202,5	41	300
	600	430		39		360			215	51	
	900									57	
10“	150	425	262	30	12	370	940	457	212,5	29	300
	400	470		39		400	1120	622	235	45	320
	600	500				430			250	57	
	900									65	
12“	150	485	320	30	12	430	1090	502	242,5	32	516
	400	530	330	39		460	1300	711	265	50	530
	600	585		45	16	500			292,5	66	
	900									74	
14“	150	550	-	33	16	490	1230	-	275	36	630
	400	595		39		525	1250		297,5	56	650
	600-900	655		52		560			327,5	85,8	

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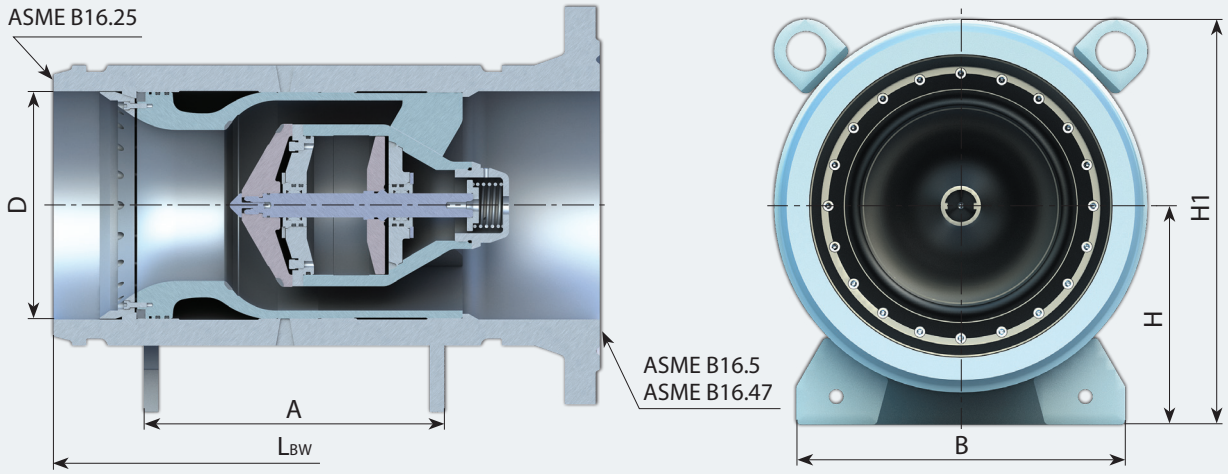
MAIN DIMENSIONS

AXIAL CHECK VALVES PT41001

NPS 16“-56“ Class 150-900



NPS	Class	Dimensions, mm						Weight, kg
		D	H	H_1	LBW	A	B	
16“	150-900	378	273	505	800	500	410	550
20“	150-900	487	330	622	850	550	451	785
28“	150-800	695	436	834	1150	750	667	1730
40“	150-800	992	580	1120	1650	1050	844	4350
48“	150-800	1160	675	1312	1500	900	968	4600
56“	150-800	1360	775	1512	1700	1100	1010	6350


5
4

DATA SHEETS

DATA SHEETS

Company:_____ Contact Person: _____
Phone:(_____)_____ E-mail: _____ Address: _____
Name of Project for valve installation:_____

DATA SHEET FOR BALL VALVES

General Properties	Valve type	**BALL VALVE**
	Quantity	
	Design document	☐ Specification API 6D ☐ STO Gazprom 2-4.1-212
	Nominal DN, inch	
	Nominal PN, MPa	
	Maximum operating pressure, MPa	
	Maximum differential pressure ΔP, MPa	
	Body design	☐ Fully welded body ☐ Side entry bolted body
	Material standards	☐ GOST R ☐ ANSI / ASTM
	Requirement of pressure relief from inner cavity	☐ yes ☐ no
	Grease injection fittings	☐ to seats ☐ to stem
	Sealing type	☐ soft sealing ☐ metal to metal
Service Requirements	Service medium (description + composition)	
	Temperature, °C (min, max)	
	Aggressive components	☐ no ☐ yes, please specify chemical composition_____
	Mechanical particles contaminants	☐ no ☐ yes, please specify weight percentage _____ , maximum size of mechanical particles _____ mm_____
Pipeline Connection	Climatic category	☐ «Cold Climate» ☐ «Temperate Climate» ☐ «Warm Climate» ☐ other _____
	Geographical region of project site	
	Pipeline material grade	
	Pipeline orientation	☐ horizontal ☐ vertical ☐ inclined, please specify angle ___
	Installation	☐ above ground ☐ underground, please specify stem extension from valve flange to actuator flange _____mm
	Connection to the pipeline	☐ flanged ☐ butt welded
	For flanged connection :	
	Flange design standard	
	Type of flange sealing surface	
	Are counter flanges required?	☐ no ☐ yes, please specify the type: ☐ butt welded, ☐ flat counter flange material _____
	For butt welded connection:	
	Pipeline size (ID×OD)	
	Pipe material grade	
	Are pup pieces required?	☐ no ☐ yes, please specify the length _____ mm
Actuating	Actuator type	☐ handweel ☐ gas-over-oil actuator ☐ pneumatic actuator ☐ electro hydraulic actuator ☐ electric actuator
	For pneumatic and « gas-over-oil» actuators please specify	Control: ☐ local ☐ remote; Control unit _____; Additionally: ☐ manual override ☐ ESD automation ☐ receiver tank; Control gas pressure _____; Control signal voltage _____ V; Operation time _____ sec; Power voltage _____ V; Control gas feed: ☐ from pipeline ☐ from other source
	For electric actuator please specify	Control: ☐ local ☐ remote; Operation time _____ sec.; Power voltage _____ V; Control signal voltage _____ V; Explosion safety type _____
	For electro-hydraulic actuator please specify	Add on: ☐ ESD automation ☐ electrical tracing; Operation time _____ sec.; Power voltage _____ V; Control signal voltage _____ V; Explosion proofing _____
	Additional requirements	
Additional Properties	Spare parts	☐ yes ☐ no
	External anticorrosion coating	☐ yes ☐ no
	Heat isolation cover	☐ yes ☐ no
	Fire safe design	☐ yes ☐ no
	Seismic resistance	☐ non resistant (up to 6 points) ☐ resistant (6-9 points) ☐ increased resistance (up to 10 points)
	Special requirements	

Data sheet should be accompanied by company details, including bank details.

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Company:_____ Contact Person: _____
Phone:(_____)_____ E-mail: _____ Address: _____
Name of Project for valve installation:_____

DATA SHEET FOR PIG VALVES

General Properties	Valve Type	**PIG VALVE**
	Function	☐ For pig launching ☐ For pig receiving ☐ A set of launching and receiving pig valves
	Quantity	
	Nominal DN, inch	
	Nominal PN, MPa	
	Maximum operating pressure, MPa	
	Maximum differential pressure ΔP, MPa	
	Bypass cavity in the ball	☐ yes ☐ no
	Grease injection fittings	☐ to seats ☐ to stem
Service Requirements	Service medium (description + composition)	
	Temperature, °C (min, max)	
	Aggressive components	☐ no ☐ yes, please specify chemical composition _____
	Mechanical particles contaminants	☐ no ☐ yes, please specify weight percentage _____%, maximum size of mechanical particles _____ mm
Pipeline Connection	Climatic category	☐ «Cold Climate» ☐ «Temperate Climate» ☐ «Warm Climate» ☐ other _____
	Geographical region of project site	
	Pipeline material grade	
	Pipeline orientation	☐ horizontal ☐ vertical ☐ inclined, please specify angle _____
	Connection to the pipeline	☐ flanged ☐ butt welded
	For flanged connection:	
	Flange design standard	
	Type of flange sealing surface	
	Are counter flanges required?	☐ no ☐ yes, please specify the type: ☐ butt welded ☐ flat counter flange material: _____
	For butt welded connection:	
	Pipeline size (ID×OD)	
	Pipe material grade	
	Are pup pieces required?	☐ no ☐ yes, please specify the length _____ mm
Actuating	Actuator type	☐ handweel ☐ electric
	For electric actuator please specify	Control: ☐ local ☐ remote; Operation time _____ sec.; Power voltage _____ V; Control signal voltage _____ V; Explosion proofing _____
	Additional requirements	
Additional Properties	Spare parts	☐ yes ☐ no
	External anticorrosion coating	☐ yes ☐ no
	Heat isolation cover	☐ yes ☐ no
	Pig arrival indicator	☐ yes ☐ no
	Pig	☐ yes ☐ no
	Fire safe design	☐ yes ☐ no
	Seismic resistance	☐ non resistant (up to 6 points) ☐ resistant (6-9 points) ☐ increased resistance (up to 10 points)
	Special requirements	

Data sheet should be accompanied by company details, including bank details.

DATA SHEETS

Company:_____ Contact Person: _____
Phone:(_____)_____ E-mail: _____ Address: _____
Name of Project for valve installation:_____

DATA SHEET FOR CONTROL BALL VALVES

General Properties	Type	**CONTROL BALL VALVE**		
	Quantity			
	Function	☐ Control ball valve ☐ Shut-off control ball valve		
	Nominal PN, MPa			
	Capacity Kv, m^3/h			
	Material standard	☐ GOST R ☐ ANSI / ASTM		
	Flow performance	☑ Equal Percentage		
	Seal tightness according to GOST R 54808-2011 (for shut-off control ball valves)	☐ «A», ☐ «B», ☐ «C»		
	Time of operation within regulation range, sec.			
Flow rate Characteristics		min	nom	max
	Inlet Pressure, MPa			
	Outlet Pressure, MPa			
	Flow rate, m^3/h			
	Cavitation, Kcs			
	Differential pressure at min flow rate, MPa			
	Differential pressure at max flow rate, MPa			
	Differential control pressure , Mpa			
Service Requirements	Service medium			
	Temperature, °C (min, max)			
	Density kg/m^3			
	Viscosity m^2/s			
	Saturation vapor pressure			
	Medium Composition			
	Mechanical particles contaminants			
	Maximum size of mechanical particles, mm			
Pipeline Connection	Climatic category	☐ «Cold Climate» ☐ «Temperate Climate» ☐ «Warm Climate» ☐ other _____		
	Geographical Region of project site			
	Pipeline material grade			
	Pipeline orientation	☐ horizontal ☐ vertical ☐ inclined, please specify angle _____		
	Installation	☐ aboveground ☐ underground, please specify stem extension from valve flange to actuator flange _____mm		
	Connection to the pipeline	☐ flanged ☐ butt welded		
	For flanged connection :			
	Flange design standard			
	Type of flange sealing surface			
	Are counter flanges required?	☐ no ☐ yes, please specify the type: ☐ butt welded ☐ flat counter flange material: _____		
	For «butt-welded» connection:			
	Pipeline size (ID×OD)			
	Pipe material grade			
Actuating	Actuator type	☑ electric actuator		
	For electric actuator please specify	Control: ☐ local ☐ remote; Operation time _____ sec.; Power voltage _____ V; Control signal voltage _____ V; Explosion proofing _____		
	Additional requirements			
Additional requirements	Spare parts	☐ yes ☐ no		
	External anticorrosion coating	☐ yes ☐ no		
	Heat isolation cover	☐ yes ☐ no		
	Concentric transitions	☐ yes ☐ no		
	Seismic resistance	☐ non resistant (up to 6 points) ☐ resistant (6-9 points) ☐ increased resistance (up to 10 points)		
	Special requirements			

Data sheet should be accompanied by company details, including bank details.

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Company:_____ Contact Person: _____
Phone:(_____)_____ E-mail: _____ Address: _____
Name of Project for valve installation:_____

DATA SHEET FOR AXIAL CHECK VALVES

General Properties	Valve Type	**AXIAL CHECK VALVE**
	Quantity	
	Nominal DN, inch	
	Nominal PN, MPa	
	Maximum operating pressure, MPa	
	Tightness	
	Damping System	☐ yes ☐ no
Service Requirements	Service medium (description + composition)	
	Temperature, °C (min, max)	
	Aggressive components	☐ no ☐ yes, please specify chemical composition _____
	Mechanical particles contaminants	☐ no ☐ yes, please specify weight percentage _____%, maximum size of mechanical particles _____ mm
Pipeline Connection	Climatic category	☐ «Cold Climate» ☐ «Temperate Climate» ☐ «Warm Climate» ☐ other _____
	Geographical Region of project site	
	Pipeline material grade	
	Pipeline orientation	☐ horizontal ☐ vertical ☐ inclined, please specify angle _____
	Installation	☐ above ground ☐ underground
	Connection to the pipeline	☐ flanged ☐ butt welded
	For flanged connection:	
	Flange design standard	
	Type of flange sealing surface	
	Are counter flanges required?	☐ no ☐ yes, please specify the type: ☐ butt welded ☐ flat counter flange material: _____
	For butt welded connection:	
	Pipeline size (ID×OD)	
	Pipe material grade	
	Are pup pieces required?	☐ no ☐ yes, please specify the length _____ mm
Additional Properties	Spare parts	☐ yes ☐ no
	External anticorrosion coating	☐ yes ☐ no
	Heat isolation cover	☐ yes ☐ no
	Seismic resistance	☐ non resistant (up to 6 points) ☐ resistant (6-9 points) ☐ increased resistance (up to 10 points)
	Special requirements	

Data sheet should be accompanied by company details, including bank details.

OTHER CATALOGUES AVAILABLE:

WEDGE GATE VALVES
NPS ½“ -48“ Class 150-2500

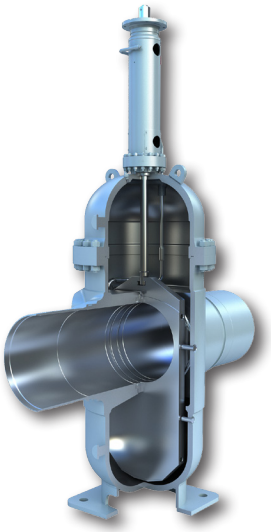
PARALLEL SLIDE GATE VALVES
NPS 1“-48“ Class 150-900

GLOBE VALVES
NPS ½“ -16“ Class 150 -2500

SWING CHECK VALVES
NPS ½“ -40“ Class 150- 2500

PISTON-CHECK VALVES
NPS 2“-12“ Class 150-900

BUTTERFLY VALVES
NPS 3“-80“ Class 150-900



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