URAL SPECIAL
VALVE PLANT

BALL VALVES

USVP product catalogue

URAL SPECIAL
VALVE PLANT

Content

Abbreviation list

DN	Nominal diameter
pH	Fluid acidity
PN	Nominal pressure
ПГП	Pneumatic/hydraulic actuator
ПП	Pneumatic actuator
НЗ	Above ground installation
ПЗ	Underground installation
РУ	Manual control
Св	Welded connection
ТУ	Specifications
У	Moderate climate construction
ХЛ	Cold climate construction
Ф	Flanged connection
ЭГП	Electric/hydraulic actuators
ЭП	Electric actuator

URAL SPECIAL VALVE PLANT

About the plant

USVP is an enterprise established for localization of special-purpose ball valves manufacture, which are applied in gas industry during production and transportation of gas, in gas treatment, processing and storage facilities. High-accurate and high-tech equipment is used for manufacturing the products as per the specifications and requirements of the Customer. The specifications fully comply with STO Gazprom 2-4.1-212-2008, STO Gazprom 2-4.1-1108-2017 and are in line with requirements of international and Russian standards.

General information

Catalogue contains the information about the name of the products, the designation, fields of application and technical parameters.

The ball valve material design and construction fully comply with the operational conditions and the requirements of local and international standards.

While ordering the valves, it is necessary to specify the pipeline and fluid parameters as well as additional tests for:

- intergranular corrosion;
- sulphide cracking;
- impact strength test at low temperature;
- and other kinds of tests as agreed, if necessary.

The resistance coefficient for full-bore valves is not more than 0.1, and for reduced-bore valves — not more than 0.5.

Ball valves can be manufactured for above-ground and underground installation.

Stem extension column length (the distance between the valve body flange and the actuator body flange) in buried valves shall be:

- DN 50-500 — 2 m;
- DN 700,1000 — 1.8 m.

As requested by Customer the length of the column can be changed.

Figures and sketches, included in the catalogue, provide general overview about the products and parts design. The actual manufactured products can differ from what is presented on the pictures.

Insignificant changes after design upgrades, not influencing the products quality, may not be present in the catalogue.

The products designations in the catalogue are established by the manufacturer for ordering. The explanation of the designations are given in each section.

USVP ball valves are manufactured both with full and reduced bore. The reduced bore valves have lower dimensions, weight and torque on stem, but have increased hydraulic resistance coefficient.

As for the type of closing member, the ball valves are manufactured both with ball set between seal rings (with floating ball) and with trunnion ball (upper and lower trunnion). Seal in the gate can be “elastic” or “metal-to-metal”. Stem seal can be gland or lip-seal. The type of connection to pipeline can be welded, flanged or combined. The valve to pipeline connection type can be made in accordance with the Customer’s request per the requirements of GOST, DIN, ASME. By default, the face-to-face dimensions are per GOST 28908. It is possible to manufacture the products per API6D and DIN as requested specially by Customer. Seat leakage is in accordance with Class A, GOST 9544.

Both general industrial and explosion proof valves can be operated manually (with hand wheel or gear), with pneumatic actuator, pneumatic hydraulic actuator, electric hydraulic actuator or electric actuator. Operational position of ball valve on horizontal pipeline is with hand wheel or actuator upwards (45° deviation in any side is allowed), on vertical pipeline any position is possible. While installing a valve on a pipeline, it is necessary to provide additional support for gear or actuator. The designated service live of USVP ball valves is 30 years. The direction of fluid flow for ball valves is bilateral or unilateral. An indicator on a unilateral ball valve’s body indicates the direction of fluid.

Manufacture and supply of USVP ball valves is carried out as per:

- specification ТУ 3742-034-75432272-2016 (for standard application);
- specification ТУ 3742-031-75432272-2016 (for special application);
- specification ТУ 3742-032-75432272-2017 (for cryogenic application).

Valve design according to working fluid properties

Standard design

Non-aggressive natural gas containing liquid hydrocarbons (condensate), ethylene glycol, turbine oils, methanol (CH30H), water and solid particles with the following properties:

- hydrocarbon mass concentration — less than 7 mg/m^3;
- mercaptan sulfur mass concentration — less than 0.036 g/m^3;
- oxygen molar fraction — less than 1%;
- carbon dioxide molar fraction — less than 2.5 %;
- solid particles mass concentration — less than 0.01 g/m^3 with the size of some particles up to 1 mm;
- humidity and condensate mass concentration — up to 1500 mg/m^3 *;
- sodium and potassium mass concentration — less than 1 mg/m^3*.

Special design

- Gas phase carbon dioxide partial pressure exceeding 20 kPa;
- Gas phase hydrogen sulfide partial pressure exceeding 0.3 kPa;
- fluid acidity below pH7;
- methanol concentration in fluid liquid phase exceeding 6 % (molar);
- moisture content in excess of 3.5 mg/m^3;
- solid particles content with the grain size higher or equal to 1 mm;
- temperature exceeding 150° C;
- temperature from — 50° C to -196° C;
- pressure:
  1) for DN through 800: over 16 MPa (160 bar);
  2) for DN over 800: over 12.5 MPa (125 bar).

* At normal climatic conditions per GOST 15150. Working fluid flow temperature: from -10° C to 150° C. Water dew point temperature at absolute pressure 3.92 MPa — less than -10° C. Hydrocarbon dew point temperature at absolute pressure from 2.5 MPa to 7.5 MPa — less than -2° C.

Part I. Standard ball valves

(for non-aggressive natural gas)

Nominal diameters DN 25-1000
Pressure rating PN 10-160 kgf/cm²

Climatic condition of valve operation per GOST 15150 shall comply to climatic design "ХЛ" or "У", environmental class 1.

Ambient Temperature:

- У1: for areas with a moderate climate between -40° C and 50° C;
- ХЛ1: for areas with a cold climate between -60° C and +45° C and average annual temperature of -62° C in certain areas.

Seismicity of valve operation area is in accordance with 12-degree seismic scale MSK-64 – in accordance with GOST 30546.1 – from 6 to 9 points.

Relative humidity of ambient air is 100% at valve operation at 25° C.

Seat leakage is in accordance with Class A, GOST 9544.

While ordering valves, it is necessary to specify the following parameters:

- working fluid;
- valve type (ball valve);
- nominal diameter, DN;
- nominal pressure, PN, MPa;
- pipeline connection type (welded or flanged);
- type of valve operation (manual actuator, pneumatic actuator, pneumatic-hydraulic actuator, electric hydraulic actuator, electric actuator);
- type of protective coating;
- type of installation underground (ПЗ), above ground (НЗ);
- Climatic design per GOST 15150 (Т1, У1 or ХЛ1);
- Seismicity of installation area.

Additionally when ordering it is necessary to specify the following information in the data sheet:

- working fluid temperature;
- connected pipe dimensions, pipe material strength class, reference document name, in accordance with which the pipe is manufactured;
- availability and dimensions of adapter rings
- or adapters on valve under the separate order;
- face-to-face dimensions;
- in case of the presence of the aggressive components, specify the composition of transported fluid;
- information about the content and the size of abrasive particles and their presence in the fluid.

The data sheet shall content the following information in the ball valve design documentation and while ordering:

- Valve Type (КШ – ball valve);
- Nominal diameter DN;
- Pressure rating PN, kgf/cm²;
- Type of actuator:
  РУ – manual control;
  ЭП – electric actuator;
  ПП – pneumatic actuator;
  ПГП – pneumatic hydraulic actuator;
- Type of pipeline connection:
  Св – welded;
  Ф – flange;
  К – combined;
- Place of installation:
  НЗ – above ground;
  ПЗ – underground;
- Seismic Construction:
  СО – no seismic requirements;
  Х – seismic construction
  (instead of Х specify the value of seismic activity scale MSK-64, for example: С9);
- Climatic design as per GOST 15150 (У1, ХЛ1, etc.).

Designation pattern of standard ball valve for ordering and in design documentation legend

КШ-DNXXX-PNXX-XX-XX-XX-XX-XX ТУ 3742-034-75432272-2016

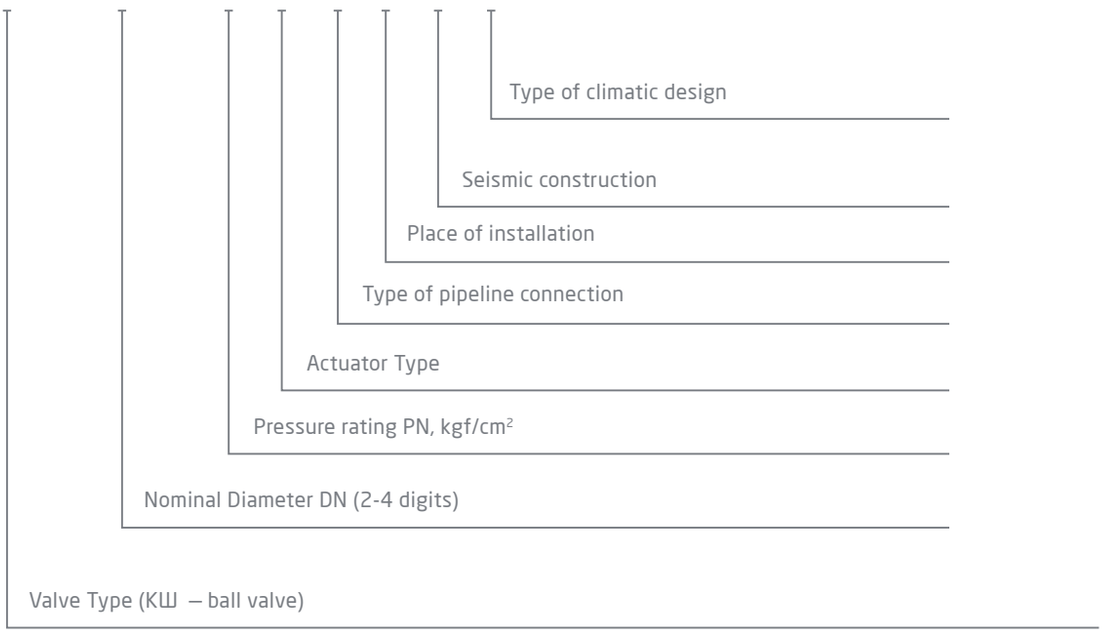


Figure 1. Designation patterns of ball valve

Designation example of a USVP ball valve with a nominal diameter DN 400, a pressure rating of PN 100, an electric actuator, a flanged pipeline connection, above ground installation, seismic construction – intensity of 8, for a cold climate:

Кран КШ-DN400-PN100-ЭП-Ф-НЗ-С8-ХЛ1 ТУ 3742-034-75432272-2016

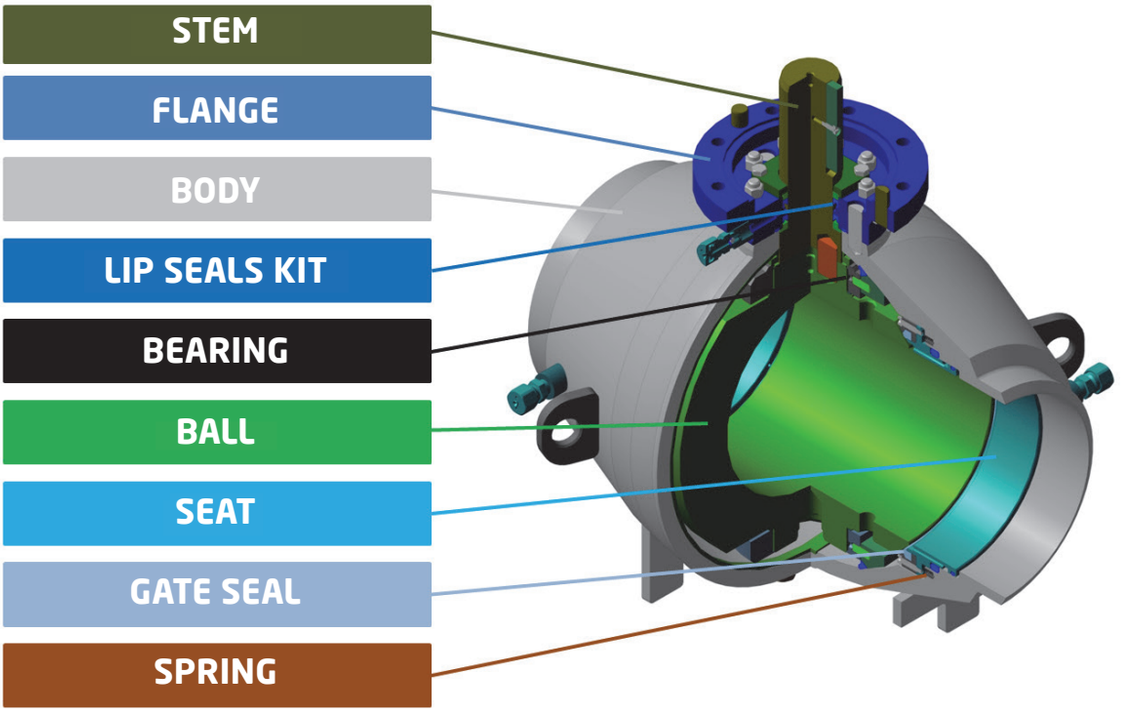
Designation example of a USVP ball valve with a nominal diameter DN 150, a pressure rating of PN 63, a manual actuator, a welded pipeline connection, underground installation, non-seismic construction, for a moderate climate:

Кран КШ-DN150-PN63-РУ-Св-ПЗ-С0-У1 ТУ 3742-034-75432272-2016

If needed, additional requirements and parameters may be specified after the designation, including:

- body type (full-bore or reduced-bore) or effective diameter;
- body component design;
- body material;
- matching flanges, fasteners, and gaskets, if any;
- technical requirements for actuator.

Ball valve in fully-welded body for non-aggressive fluids



Ball valves of such design consist of fully-welded stamped body made of two parts, ball valve, stem, stem seal, ball seal. Elastic ball seal.

Figure 2. Ball valve in fully-welded body for non-aggressive fluids.

The advantages of the ball valves with the fully-welded bodies are high reliability and easy operation. This type of construction provides complete leak tightness against external environment.

Figure 3. Ball valve with the fully-welded body and gear for above ground installation.

Structural designs of the ball valves with the fully-welded body

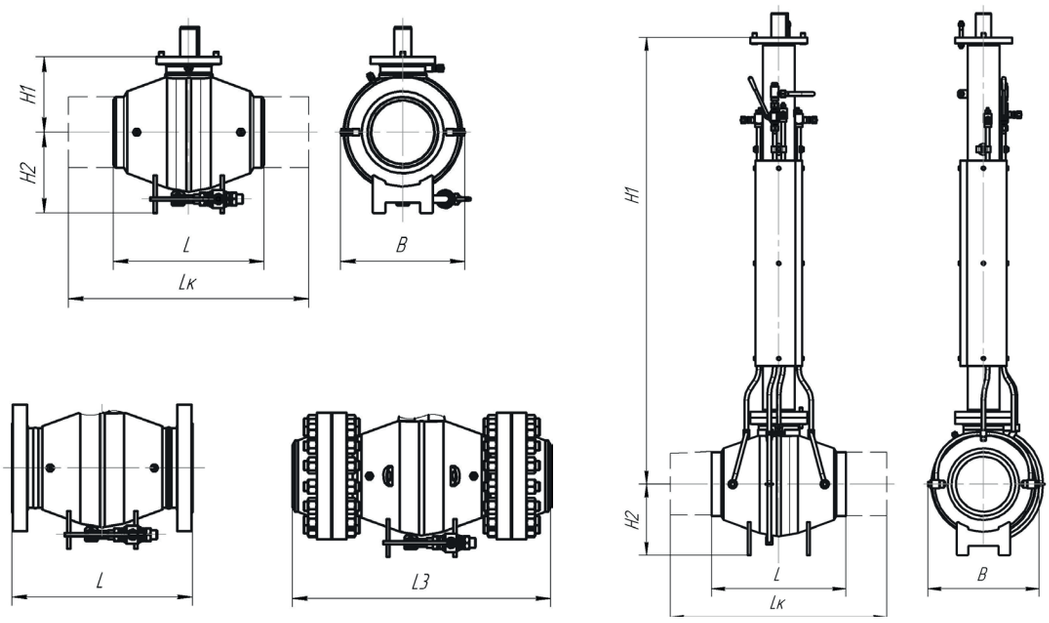


Figure 4. The structural design of the ball valves with the fully-welded body. The face-to-face dimension with Lк adapters and their material as well as the length Lф and L3 are determined while ordering.

PRIMARY DIMENSIONS OF MANUFACTURED BALL VALVES WITH FULLY-WELDED BODIES								
PN, kgf/cm²	DN	L, mm*	Lф, mm*	L3, mm*	H1, mm	H2, mm	H3, mm	H3, mm
80	150	490	600	855	218	198	2220	295
	200	500	per specification	per specification	274	250	2274	395
	250	787	per specification	per specification	310	345	2310	490
	300	700	per specification	per specification	350	345	2350	545
	400	860	per specification	per specification	463	470	2463	750
	500	1020	per specification	per specification	540	550	2540	910
	700	1360	per specification	per specification	700	740	2500	1270
	1000	1780	per specification	per specification	916	984	2716	1725
	1200	2300	per specification	per specification	1125	1232	2725	2315
	1400	2500	per specification	per specification	1250	1374	2850	2580
100	150	490	600	855	218	198	2220	295
	200	500	per specification	per specification	274	250	2274	395
	250	787	per specification	per specification	310	345	2310	490
	300	700	per specification	per specification	350	345	2350	545
	400	860	per specification	per specification	463	470	2463	750
	500	1020	per specification	per specification	540	550	2540	910
	700	1360	per specification	per specification	700	740	2500	1270
	1000	1780	per specification	per specification	916	984	2716	1725
	1200	2300	per specification	per specification	1125	1232	2725	2315
	1400	2500	per specification	per specification	1250	1374	2850	2580
125	150	490	600	855	218	198	2220	295
	200	500	per specification	per specification	274	250	2274	395
	250	787	per specification	per specification	310	345	2310	490
	300	700	per specification	per specification	350	345	2350	545
	400	860	per specification	per specification	463	470	2463	750
	500	1020	per specification	per specification	540	550	2540	910
	700	1360	per specification	per specification	700	740	2500	1270
	1000	1780	per specification	per specification	916	984	2716	1725
	1200	2300	per specification	per specification	1125	1232	2725	2315
	1400	2500	per specification	per specification	1250	1374	2850	2580
160	150	490	600	855	218	198	2220	295
	200	500	per specification	per specification	274	250	2274	395
	250	787	per specification	per specification	310	345	2310	490
	300	700	per specification	per specification	350	345	2350	545
	400	860	per specification	per specification	463	470	2463	750
	500	1020	per specification	per specification	540	550	2540	910
	700	1360	per specification	per specification	700	740	2500	1270
	1000	1780	per specification	per specification	916	984	2716	1725
	1200	2300	per specification	per specification	1125	1232	2725	2315
	1400	2500	per specification	per specification	1250	1374	2850	2580

* Determination pattern of face-to-face dimensions is shown on figure 4

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Part II. Special-purpose ball valves

Nominal diameter DN 25-1000 (DN 25-900 for cryogenic application). Pressure range PN 10-500 kgf/cm²

Climatic condition of valve operation per GOST 15150 shall comply with climatic design "ХЛ" or "У", environmental class 1.

Working fluid temperature (T) for ball valves with metal-to-metal sealing is -196° C through + 450° C.

Working fluid temperature (T) for ball valves with soft sealing is -196° C through +200° C.

Ambient Temperature:

- У1: for areas with a moderate climate between -40° C and 50° C;
- ХЛ1: for areas with a cold climate between -60° C and 45° C and an average annual temperature of -62° C in certain areas.

Relative humidity:
100% at a temperature of +25° C.

Valve operation area seismicity in accordance with 12 intensity degrees MSK-64 – in accordance with GOST 30546.1 – from 6 to 9.

It is necessary to specify the following information in the ball valve design documentation and while ordering:

- Valve Type (КШС, special ball valve);
- Fluid properties:
  1 - Sour fluid (PH_2S > 0.3 kPa);
  2 - Fluid containing gaseous carbon dioxide (P_{CO2} > 20 kPa);
  3 - Methanol concentration in fluid liquid phase exceeding 6% (molar);
  4 - Fluid with acidity pH < 5;
  5 - Fluid with moisture content in excess of 3.5 mg/m³;
  6 - Fluids with particulate size of 1 mm or more;
  7 - Fluids with temperatures exceeding 150° C;
  8 - Fluids with temperatures below -50° C up to -196° C;

- Nominal diameter DN;
- Pressure Nominal PN, bar;
- Type of actuator:
  РУ – manual control;
  ЭП – electric actuator;
  ПП – pneumatic actuator;
- Type of pipeline connection:
  Св – welded;
  Ф – flange;
  К – combined;
- Place of installation:
  Н – above ground;
  ПЗ – underground;
- Seismic Construction:
  С0 – no seismic requirements;
  СХ – seismic construction (X is replaced with a value on the MSK-64 seismic scale, such as С9);
- Climatic design as per GOST 15150 (У1, ХЛ1, etc.).

The designation pattern of special ball valve for ordering and in design documentation legend is shown in Figure 5.

Note:
fluids with several properties shall have all possible combinations listed, such as: 1-5 for fluids with PH_2S > 0.3 kPa and moisture content above 3.5 mg/m³.

КШС-Х-DNXXX-PNXX-XX-XX-XX-XX-XX ТУ 3742-031-75432272-2016

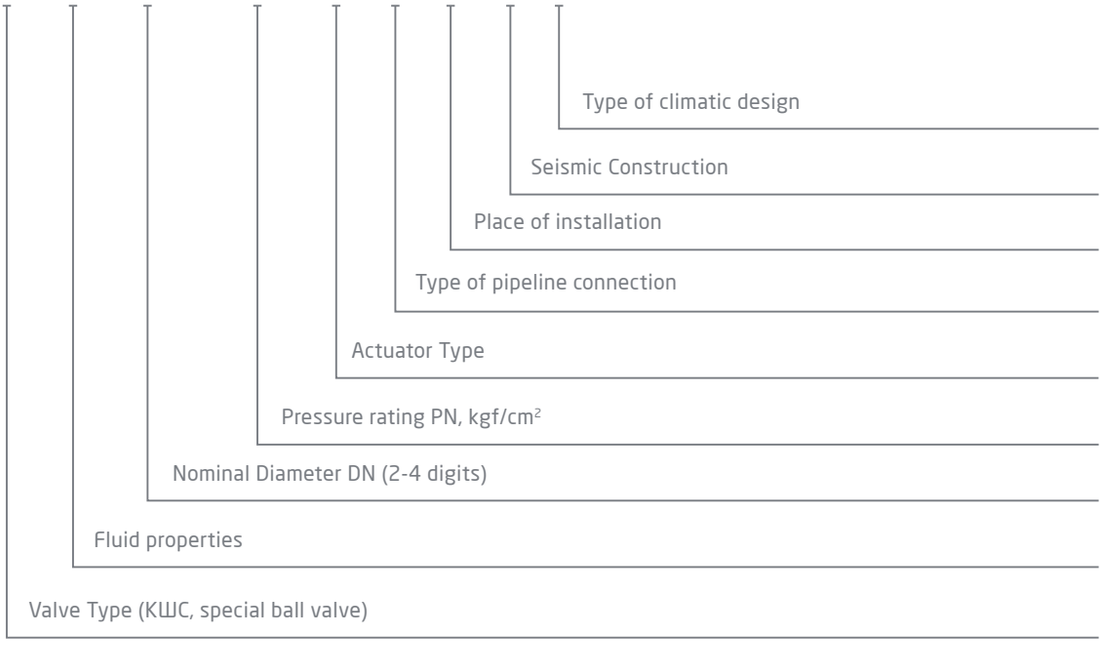


Figure 5. Designation patterns of special ball valve.

Designation example of a USVP special ball valve for a fluid with a hydrogen sulfide partial pressure over 0.3 kPa and solid particles content with the size of over 1 mm, with a nominal diameter DN 400, a pressure rating of PN 100, an electric actuator, a flanged pipeline connection, above ground installation, seismic construction with the intensity of 8, for cold climate:

Кран КШС-1-6-DN400-PN100-ЭП-Ф-НЗ-С8-ХЛ1 ТУ 3742-031-75432272-2016

Designation example of a special ball valve for cryogenic service with a nominal diameter DN 150, a pressure rating of PN 63, a manual actuator, a welded pipeline connection, underground installation, non-seismic construction, for a moderate climate:

Кран КШС-8-DN150-PN63-РУ-Св-ПЗ-С0-У1 ТУ 3742-031-75432272-2016

If needed, additional requirements and parameters may be specified after the designation, including:

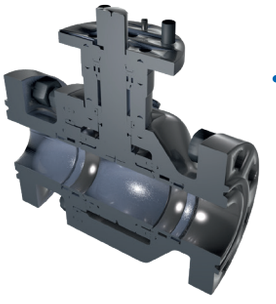
- maximum and minimum fluid temperatures;
- body design (full-bore or reduced-bore, side entry or top entry);
- matching flanges, fasteners, and gaskets, if any;
- type of actuator and technical requirements to it;
- connected pipe dimensions.

As for the type of closing member, the ball valves are manufactured both with ball installed between seal rings (with floating ball) and with trunnion ball (upper and lower trunnion).

Body of the valve may be cast or forged and consist of two or three pieces.

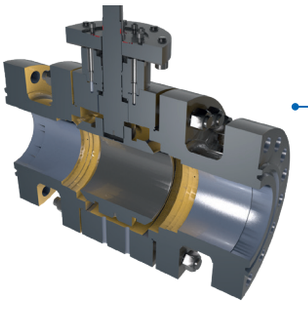
As per customer's request, the metal-to-metal or elastic seal may be applied to the ball.

Types of special-purpose ball valves:



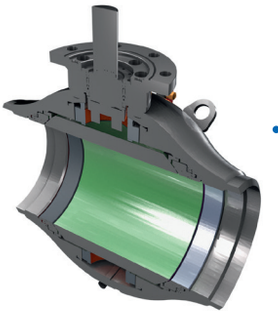
Two-piece design

Gate seal type:
- elastic
- metal-to-metal



Three-piece design

Gate seal type:
- elastic
- metal-to-metal



Two-piece, fully-welded

Gate seal type:
- elastic

Figure 6. Types of special-purpose ball valves:

The examples of USVP ball valve construction

The two-piece split body ball valve with metal-to-metal seat. It is intended for fluids with the high hydrogen sulphide content (H_2S over 25% molar) and high content of solid particles

The advantages of the split body ball valves consisting of two pieces with the metal-to-metal seat are their high resistance to hydrogen sulfide, absolute leak tightness in the conditions of high abrasive components content, repairability, reliability, simplicity of maintenance and minimal quantity of connections on the body, which decreases the loss of tightness risk relative to external environment to minimal level.

The special corrosion-resisting alloy is applied to the valve components coming in contact with aggressive fluids, and then the automatic mechanical machining of the parts is performed. The advanced technology for lapping of ball and seat is applied for manufacturing of metal-to-metal gate to provide the highest leak tightness class in operation conditions.

Figure 7. Two-piece split body ball valve for the fluids with high hydrogen sulphide content (H2S) over 25% molar,

Three-piece split body ball valve with metal-to-metal seal

The modern method for applying extra high tensile alloys on the sealing surface of a seat and ball, automated machining and lapping processes for closing members allow for the provision of the highest class of leak tightness in operation conditions.

The valve is equipped with the drain valve for the removal of condensate and contaminants from the valve cavity as well as leak control valve and air relief valve during testing.

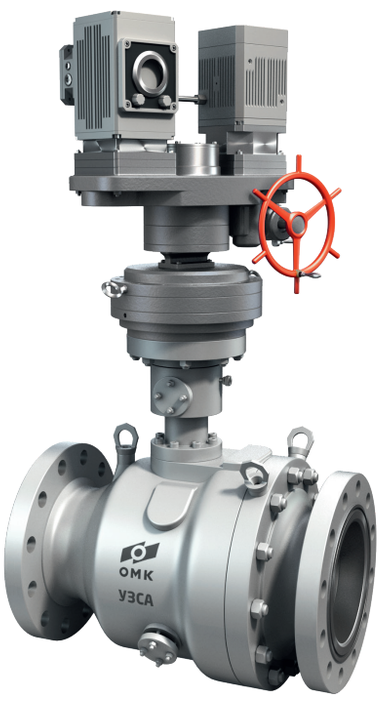
The stem has a blow-out proof design. The seal surface coating hardness is over ll00Hv.

The thickness of the coating: 0.15-0.5 mm.

Figure 8. The three-piece split body ball valve with metal-to-metal seal for the gaseous fluids with the temperature up to 450° C.

Cryogenic ball valves

a)



b)

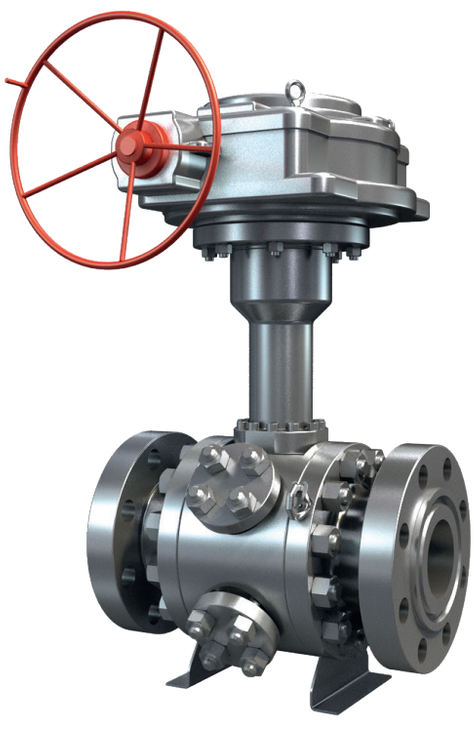


Figure 9. Cryogenic ball valves: a) two-piece; b) three-piece.

Cryogenic ball valves are designed for cutting the fluid flow in the pipelines with the transfer temperature from -50° C to -196° C.

The cryogenic ball valve has the split body made of two or three pieces. The valves are made in accordance with the modern technology with the seal design, which allows retaining high leak tightness of the gate even at the extremely cold temperature. This kind of valves are used in the natural gas treatment, processing and liquefaction facilities, refrigerator plants and other facilities.

The advantages of the cryogenic ball valves are the simplicity of maintenance, high reliability and absolute resistance of their components to low temperatures.

Three-piece split body ball valve

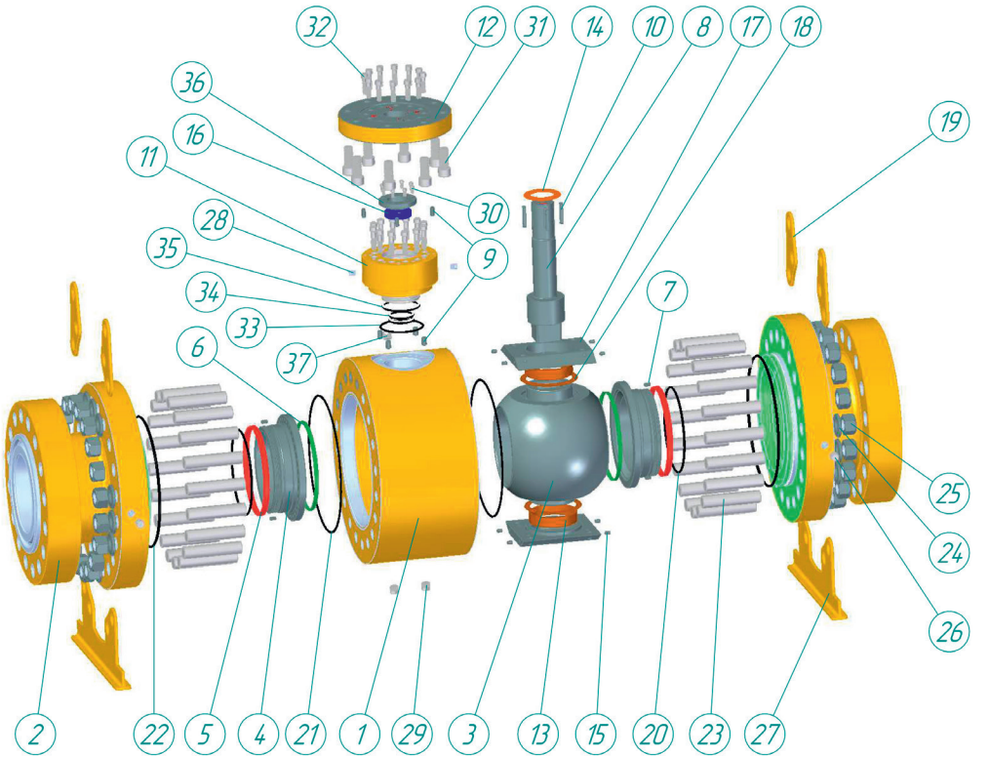


Figure 10. Three-piece split body ball valve.

1. Body
2. Closure
3. Ball
4. Seat
5. O-ring
6. O-ring
7. Spring
8. Stem
9. Pin
10. Key
11. Bonnet
12. Adapter plate
13. Bearing
14. Bearing
15. Pin
16. Stem seal
17. Base plate
18. Bearing
19. Lug
20. O-ring
21. Gasket
22. O-ring
23. Stud bolt
24. Washer
25. Nut
26. Drain plug
27. Support
28. Drain plug
29. Gasket
30. O-ring
31. O-ring
32. Cap screw
33. Gland bush
34. Cap screw
35. Cap screw
36. Cap screw
37. Pin

Two-piece split body ball valve

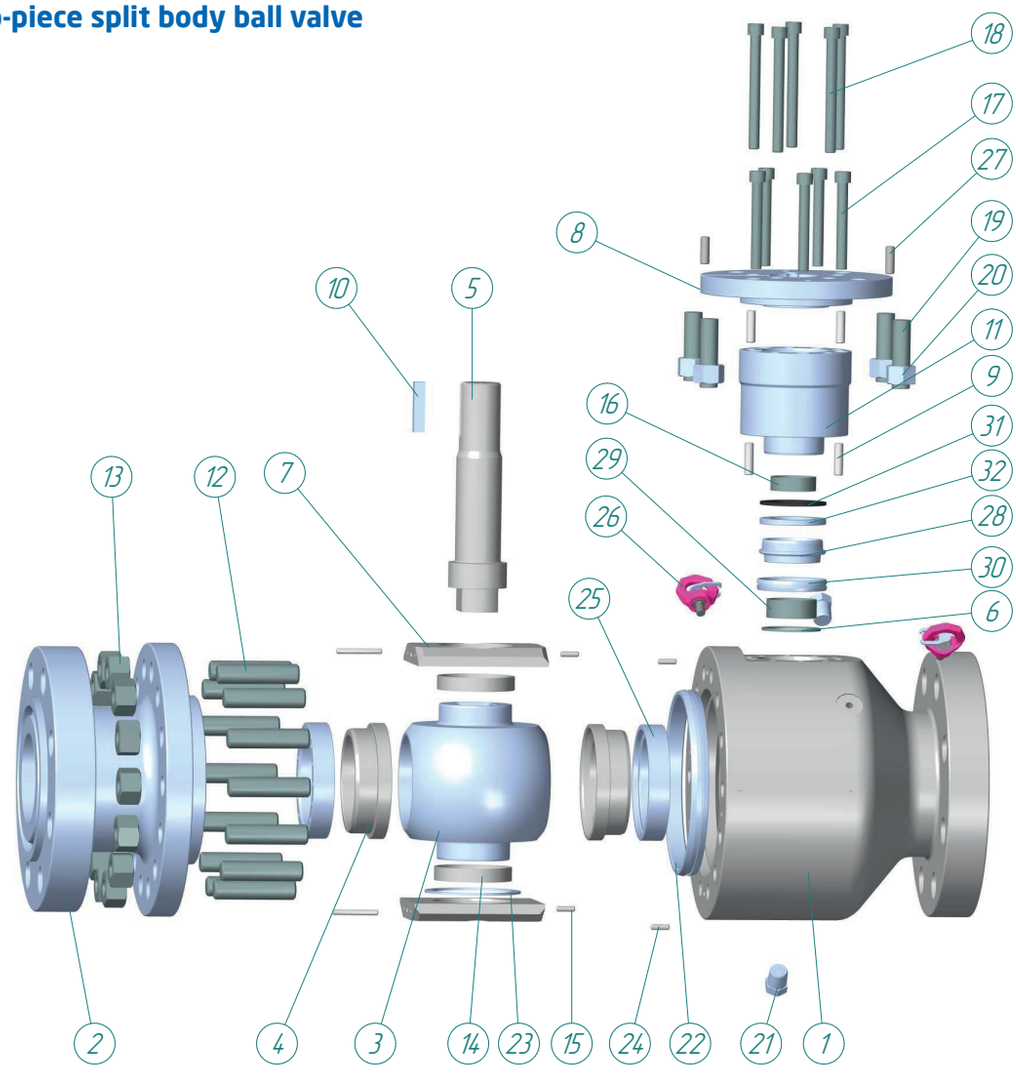


Figure 11. Two-piece split body ball valve.

1. Body
2. Closure
3. Ball
4. Seat
5. Stem
6. Stem thrust washer
7. Ball plate
8. Adapter plate
9. Gland trunnion pin
10. Key
11. Gland trunnion
12. Stud bolt
13. Nut
14. Ball plate bearing
15. Plate pin
16. Stem seal
17. Cap screw
18. Cap screw
19. Stud bolt
20. Nut
21. Drain bleeder fitting
22. Body seal
23. Ball thrust washer
24. Body pin
25. Spring carrier
26. Lifting eye bolt
27. Adapter plate pin
28. Lantern ring
29. Stem bearing
30. Metallic gasket
31. Fire safe gasket
32. Spacer ring

Two-piece split body ball valve

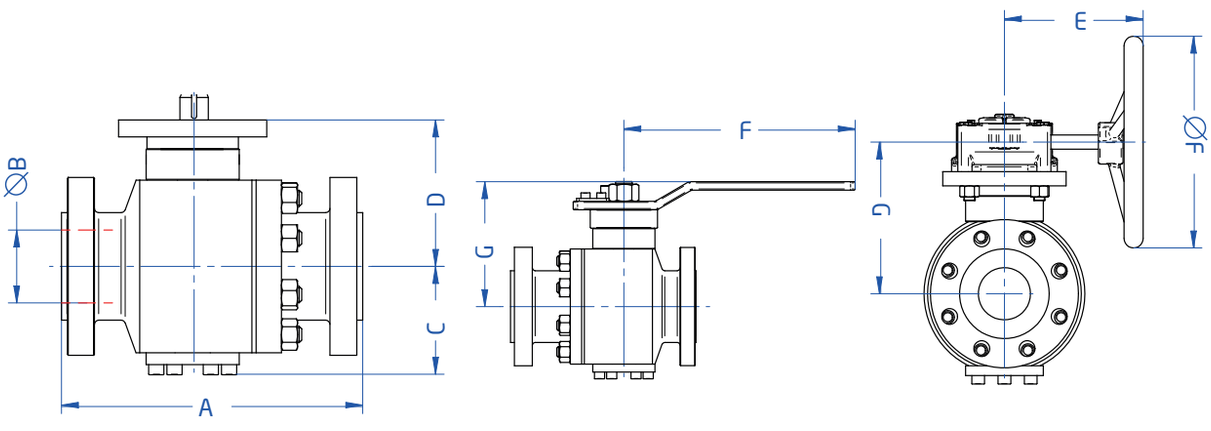


Figure 11. Two-piece split body ball valve

THE LIST OF MANUFACTURED TWO-PIECE SPLIT BODY BALL VALVES						
DN	**PN, bar / Class**					
	16 / 150	**40 / 300**	**100 / 600**	**160 / 900**	**250 / 1500**	**420 / 2500**
50	**Р, П, Э**	Р, П, Э	Р, П, Э	Р, П, Э	РР, П, Э	РР, П, Э
80	**Р, П, Э**	Р, П, Э	РР, П, Э	РР, П, Э	РР, П, Э	РР, П, Э
100	**Р, П, Э**	РР, П, Э	РР, П, Э	РР, П, Э	РР, П, Э	РР, П, Э
50x40	**Р, П, Э**	Р, П, Э	Р, П, Э	Р, П, Э	РР, П, Э	–
80x50	**Р, П, Э**	Р, П, Э	Р, П, Э	Р, П, Э	РР, П, Э	–
100x80	**Р, П, Э**	Р, П, Э	РР, П, Э	РР, П, Э	РР, П, Э	–
150x100	**Р, П, Э**	РР, П, Э	РР, П, Э	РР, П, Э	РР, П, Э	–

- «–» – general design valves
- «Р» – handwheel operated ball valves
- «РР» – gear operated ball valves
- «П» – valves with pneumatic actuator
- «Э» – valves with electric actuator
- DN and PN, kgf/cm^2 that are not specified in the table are provided by the request of the Customer.

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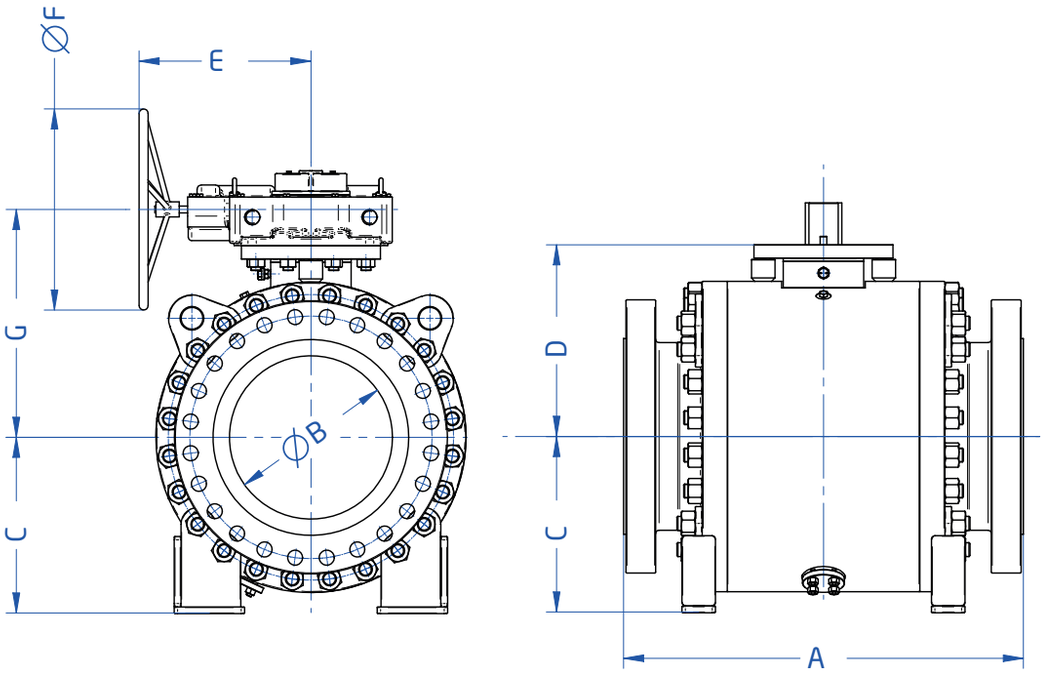
THE GENERAL DIMENSIONS OF MANUFACTURED TWO-PIECE SPLIT BODY BALL VALVES

DN	PN. Bar / Class	A, mm		B, mm	C, mm	D, mm	Fastening area per ISO 5211	Weight without gear, kg	E, mm	F, mm	G, mm	Weight with gear, kg
		Protrusion	for octagonal gasket									
50		178	191	49	100	110	F10	35	Lever	200	160	40
80	**16/150**	203	216	74	120	130	F10	55	Lever	300	180	60
100		229	241	100	160	170	F10	95	Lever	600	220	100
50		216	232	49	100	120	F10	40	Lever	300	170	40
80	**40/300**	283	298	74	120	130	F10	70	Lever	500	180	70
100		305	321	100	150	160	F14	115	225	300	200	130
50		292	295	49	100	120	F10	50	Lever	400	170	50
80	**100/600**	356	359	74	130	140	F14	95	225	300	180	110
100		432	435	100	160	160	F14	160	225	300	200	170
50		368	371	49	110	120	F10	60	Lever	600	170	60
80	**160/900**	381	384	74	130	140	F14	110	225	300	180	120
100		457	460	100	160	170	F14	185	225	300	210	200
50		368	371	49	110	120	F14	75	225	300	160	90
80	**200/1500**	470	473	74	140	150	F14	150	225	300	190	160
100		546	549	100	180	180	F16	260	345	500	230	290
50		451	454	42	120	120	F14	110	225	300	160	120
80	**420/2500**	578	584	62	170	170	F14	270	225	300	210	280
100		673	683	87	210	220	F16	460	345	500	270	490
REDUCED-BORE VALVES												
50 x 40		178	191	49	100	110	F10	40	Lever	200	160	40
80 x 50	**16/150**	203	216	74	100	110	F10	45	Lever	200	160	45
100 x 80		229	241	100	120	130	F10	65	Lever	300	180	65
150 x 100		394	406	150	160	170	F10	145	Lever	600	220	145
50 x 40		216	232	49	100	120	F10	45	Lever	300	170	45
80 x 50	**40/300**	283	298	74	100	120	F10	55	Lever	300	170	55
100 x 80		305	321	100	120	130	F10	90	Lever	500	180	90
150 x 100		403	419	150	150	160	F14	170	225	300	200	180
50 x 40		292	295	49	100	120	F10	60	Lever	400	170	60
80 x 50	**100/600**	356	359	74	100	120	F10	70	Lever	400	170	70
100 x 80		432	435	100	130	140	F14	125	225	300	180	135
150 x 100		559	562	150	160	160	F14	245	225	300	200	255
50 x 40		368	371	49	110	120	F10	80	Lever	600	170	80
80 x 50	**160/900**	381	384	74	110	120	F10	85	Lever	600	170	85
100 x 80		457	460	100	130	140	F14	145	225	300	180	155
150 x 100		610	613	150	160	170	F14	300	225	300	210	310
50 x 40		368	371	49	110	120	F10	90	225	300	160	95
80 x 50	**200/1500**	470	473	74	110	120	F14	110	225	300	160	120
100 x 80		546	549	100	140	150	F14	190	225	300	190	200
150 x 100		705	711	144	180	180	F16	405	345	500	230	430

Three-piece split body ball valve



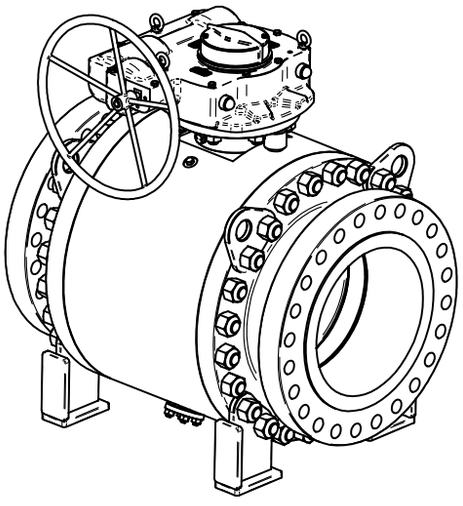


Figure 12. Three-piece split body ball valve

URAL SPECIAL VALVE PLANT

THE GENERAL DIMENSIONS OF MANUFACTURED THREE-PIECE SPLIT BODY BALL VALVES

DN	PN, bar / Class	A, mm		B, mm	C, mm	D, mm	Fastening area per ISO 5211	weight without gear, kg	E, mm	F, mm	G, mm	Weight with gear, kg
		B, E, F GOST 33259 / RF, MF, FF ASME B16.5	J GOST 33259 / RTJ ASME B16.5									
150		394	–	150	200	240	F14	210	225	300	280	220
200		457	–	201	240	280	F16	330	345	500	330	360
250		533	–	252	270	320	F16	465	345	500	370	490
300		610	–	303	310	350	F16	700	345	500	400	730
350		686	–	334	340	380	F16	900	330	500	452	930
400		762	–	385	380	430	F16	1250	425	700	493	1300
450	16/150	864	–	436	430	480	F16	1780	540	700	543	1830
500		914	–	487	470	520	F25	2220	560	700	587	2280
600		1067	–	589	560	600	F30	3470	560	700	667	3530
650		1143	–	633	590	640	F30	4250	603	700	736	4350
700		1245	–	684	640	670	F30	5040	603	700	766	5140
750		1295	–	735	680	720	F30	6020	603	700	816	6120
900		1524	–	874	800	820	F30	9370	585	700	916	9510
150		403	–	150	200	240	F14	225	225	300	280	240
200		502	–	201	240	280	F16	370	345	500	330	400
250		568	–	252	270	310	F16	520	345	500	360	550
300		648	–	303	310	360	F16	770	425	700	423	820
350		762	–	334	340	390	F16	1050	540	700	453	1100
400		838	–	385	380	430	F16	1440	540	700	493	1490
450	40/300	914	–	436	430	490	F30	2020	560	700	557	2080
500		991	–	487	480	520	F30	2610	560	700	587	2670
600		1143	–	589	570	610	F30	4230	603	700	706	4330
650		1245	–	633	610	660	F30	5070	603	700	756	5170
700		1346	–	684	660	690	F30	6330	585	700	786	6470
750		1397	–	735	700	730	F30	7350	585	700	826	7490
900		1727	–	874	820	840	F30	11590	585	700	936	11730
150		–	562	150	200	240	F16	310	345	500	290	340
200		–	664	201	250	290	F16	560	345	700	340	590
250		–	791	252	280	330	F16	760	540	700	393	810
300		–	841	303	320	370	F16	1080	540	700	433	1130
350		–	892	334	360	400	F25	1360	560	700	467	1420
400		–	994	385	400	440	F30	1740	560	700	507	1800
450	100/600	–	1095	436	460	500	F30	2680	603	700	596	2780
500		–	1200	487	510	550	F30	3500	603	700	646	3600
600		–	1407	589	600	640	F30	5560	603	700	736	5660
650		–	1461	633	640	680	F30	6700	585	700	776	6840
700		–	1562	584	690	720	F30	7960	585	700	816	8100
750		–	1664	735	740	770	F30	9620	585	700	866	9760
900		–	2099	874	860	880	F40	15320	660	700	1013	15710

THE GENERAL DIMENSIONS OF MANUFACTURED THREE-PIECE SPLIT BODY BALL VALVES												
DN	PN, bar / Class	A, mm		B, mm	C, mm	D, mm	Fastening area per ISO 5211	weight without gear, kg	E, mm	F, mm	G, mm	Weight with gear, kg
		B, E, F GOST 33259 / RF, MF, FF ASME B16.5	J GOST 33259 / RTJ ASME B16.5									
150	160/900	–	613	150	190	230	F16	295	345	500	280	320
200		–	740	201	240	290	F16	600	425	700	353	650
250		–	841	252	290	330	F16	950	540	700	393	1000
300		–	968	303	340	380	F30	1380	560	700	447	1440
350		–	1038	322	360	400	F30	1680	560	700	467	1740
400		–	1140	373	420	450	F30	2340	603	700	546	2440
450		–	1232	423	460	490	F25	3170	603	700	586	3270
500		–	1334	474	520	550	F30	4240	585	700	646	4380
600		–	1568	570	630	660	F30	7520	585	700	756	7660
150	250/1500	711	711	144	210	250	F16	465	330	500	322	500
200		841	841	192	270	320	F16	870	540	700	383	920
250		1000	1000	239	360	400	F30	1470	560	700	467	1530
300		1146	1146	287	370	420	F30	2230	560	700	487	2290
350		1276	1276	315	420	450	F30	3000	603	700	546	3100
400		1407	1407	360	470	510	F30	4070	603	700	606	4170
450		1559	1559	406	520	570	F30	5690	585	700	666	5830
500		1686	1686	454	640	720	F30	9100	585	700	816	9240
600		1702	1702	530	750	780	F40	12810	660	700	913	13200
150	420/2500	927	927	131	260	310	F16	870	540	700	373	920
200		1038	1038	179	350	440	F30	1400	560	700	507	1460
250		1292	1292	223	490	550	F30	2670	560	700	617	2730
300		1445	1445	265	530	600	F30	5150	603	700	696	5250
350		1650	–	292	540	620	F30	3720	585	700	716	3860
400		1683	–	333	630	650	F30	6990	585	700	746	7130
450		1800	–	374	670	690	F30	8670	585	700	786	8810
500		1900	–	570	730	800	F40	11890	660	700	933	12280

URAL SPECIAL VALVE PLANT

THE GENERAL DIMENSIONS OF MANUFACTURED THREE-PIECE SPLIT BODY BALL VALVES
REDUCED-BORE VALVES

DN	PN, bar / Class	A, mm		B, mm	C, mm	D, mm	Fastening area per ISO 5211	weight without gear, kg	E, mm	F, mm	G, mm	Weight with gear, kg
		B, E, F GOST 33259 / RF, MF, FF ASME B16.5	J GOST 33259 / RTJ ASME B16.5									
200x150		457	–	201	200	240	F14	260	225	300	280	270
250x200		533	–	252	240	280	F16	400	345	500	330	430
300x250		610	–	303	270	320	F16	560	345	500	370	590
350x300		686	–	334	270	320	F16	820	345	500	370	750
400x300		762	–	385	310	350	F16	1012	345	500	400	1045
450x350	16/150	864	–	436	340	380	F16	1190	330	500	452	1220
500x400		914	–	487	380	430	F16	1570	425	700	493	1620
600x500		1067	–	589	470	520	F25	2630	560	700	587	2690
700x600		1245	–	684	560	600	F30	2380	560	700	667	2440
750x600		1295	–	735	560	600	F30	2618	560	700	667	2684
900x750		1524	–	874	680	720	F30	3410	603	700	816	3510
200x150		502	–	201	200	240	F14	300	225	300	280	310
250x200		568	–	252	240	280	F16	460	345	500	330	490
300x250		648	–	303	270	310	F16	650	345	500	360	680
350x300		762	–	334	270	310	F16	1030	345	500	360	1080
400x300		838	–	385	310	360	F16	1243	425	700	423	1298
450x350	40/300	914	–	436	340	390	F16	1450	540	700	453	1500
500x400		991	–	487	380	430	F16	1900	540	700	493	1950
600x500		1143	–	589	480	520	F30	3230	560	700	587	3290
700x600		1346	–	684	570	610	F30	5000	603	700	706	5100
750x600		1397	–	735	570	610	F30	5500	603	700	706	5610
900x750		1727	–	874	700	730	F30	9270	585	700	826	9410
200x150		–	664	201	200	240	F16	410	345	500	290	440
250x200		–	791	252	250	290	F16	740	330	500	362	770
300x250		–	841	303	280	330	F16	910	540	700	393	960
350x300		–	892	334	280	330	F16	1290	540	700	393	1340
400x300		–	994	385	320	360	F16	1639	540	700	423	1694
450x350	100/600	–	1095	436	360	400	F25	1960	560	700	467	2020
500x400		–	1200	487	400	440	F30	2620	560	700	507	2680
600x500		–	1407	598	510	550	F30	4460	603	700	646	4560
700x600		–	1562	684	600	630	F30	6540	585	700	726	6680
750x600		–	1664	735	600	630	F30	7194	585	700	726	7348
900x750		–	2099	874	740	770	F30	12680	585	700	866	12820

THE GENERAL DIMENSIONS OF MANUFACTURED THREE-PIECE SPLIT BODY BALL VALVES
REDUCED-BORE VALVES

DN	PN, bar / Class	A, mm		B, mm	C, mm	D, mm	Fastening area per ISO 5211	weight without gear, kg	E, mm	F, mm	G, mm	Weight with gear, kg
		B, E, F GOST 33259 / RF, MF, FF ASME B16.5	J GOST 33259 / RTJ ASME B16.5									
200x150	160/900	–	740	201	190	230	F16	470	345	500	280	500
250x200		–	841	252	240	290	F16	800	425	700	353	850
300x250		–	968	303	290	330	F16	1190	540	700	393	1240
350x300		–	1038	322	290	330	F16	1670	540	700	393	1730
400x300		–	1140	373	340	380	F30	2057	560	700	447	2123
450x350		–	1232	423	360	400	F30	2470	560	700	467	2530
500x400		–	1334	474	420	450	F30	3290	603	700	546	3390
600x500		–	1568	570	520	550	F30	5840	585	700	646	5980

* HUB-ends ball valves. Manufactured per customized order

The dimensions not specified in the catalogue are provided upon request.

URAL SPECIAL VALVE PLANT

Certification

The products are manufactured in accordance with the Customer's requirements, specifications fully comply with STO Gazprom 2-4.1-212-2008 (General Technical Requirements for Pipeline Valves as well as new STO Gazprom 2-4.1-1108-2017 (Special ball valves) and comply with the leading international and Russian standards.

Corresponds to STO GAZPROM 2-4.1-1108-2017 requirements

Corresponds to STO GAZPROM 2-4.1-212-2015 requirements

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