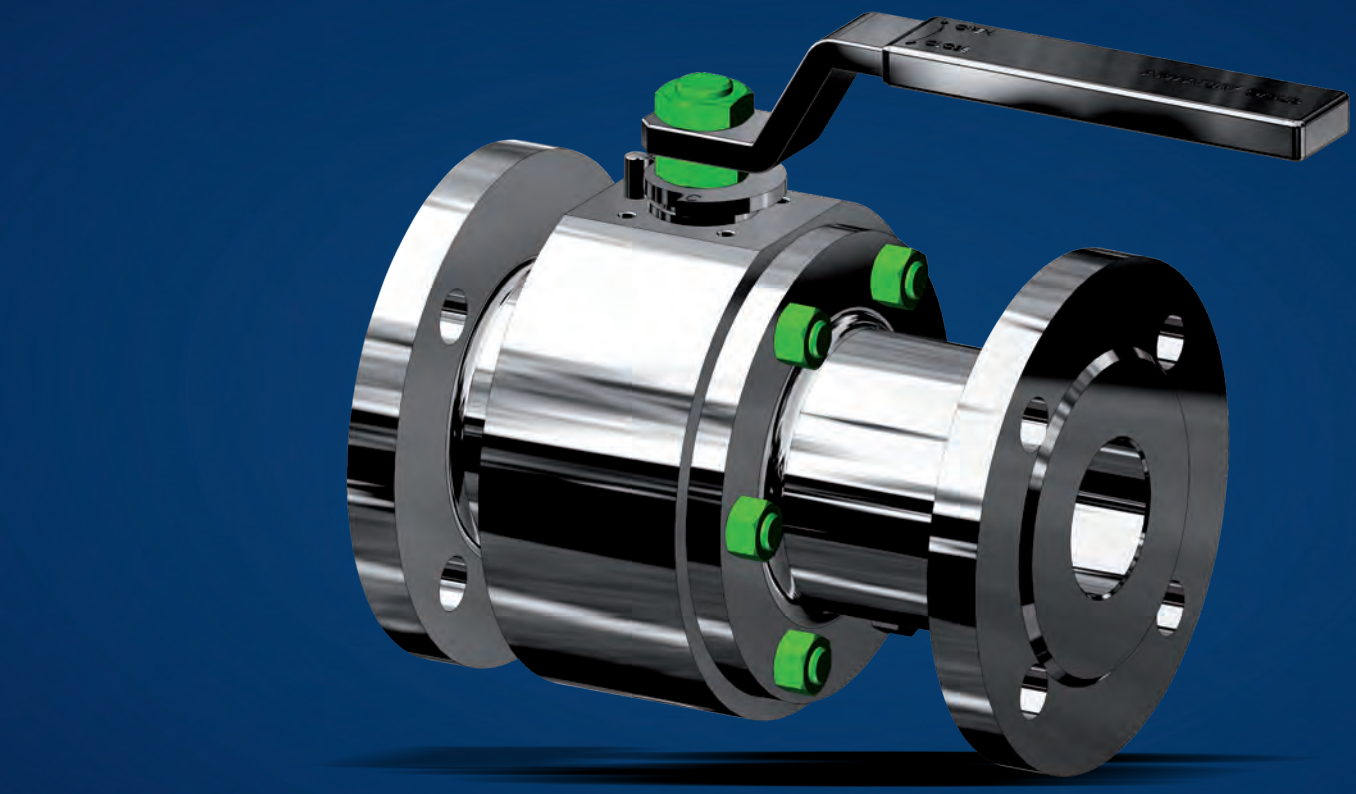

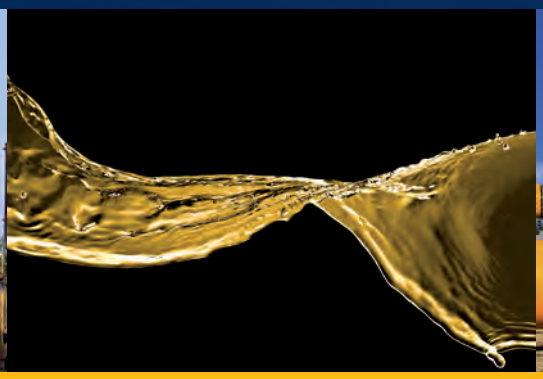

BALL VALVES WITH FLOATING BALL

Multiplex ENGINEERING

In partnership with

ARMATURY Group / VEXVE ARMATURY GROUP

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ARMATURY® Group

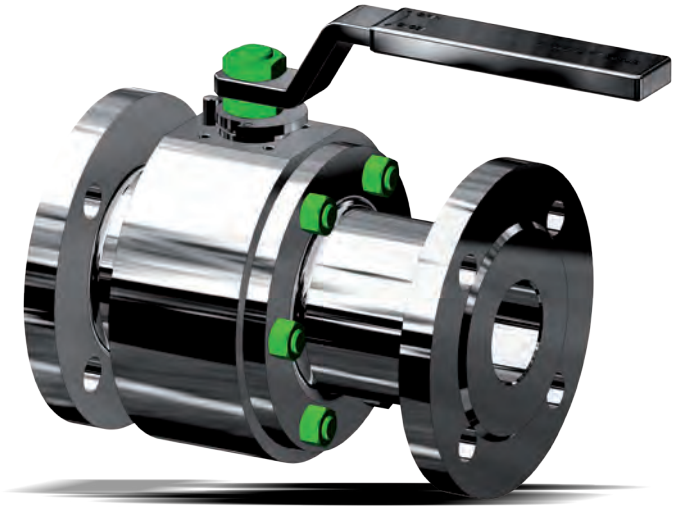
VEXVE ARMATURY GROUP

COMPANY PROFILE

The company ARMATURY Group a.s. is a leading European manufacturer of industrial valves and distributor of pipings, technological units and accessories. The company started its operations on January 2000, however, the tradition of this dynamically developing company is closely related to the 50-year history of valve production in Moravia and Silesia.

Since 2019, ARMATURY Group has been part of the Vexve Armatury Group, which offers an extensive portfolio of valves for a wide range of industrial applications. ARMATURY Group specializes in tailor-made solutions for the gas, power and metallurgical sectors, Vexve supplies valves solutions for heating and cooling systems and ZMK Technologies is a globally leading designer and supplier of the most critical valves to the petrochemical industry.

All companies, ARMATURY Group, Vexve and ZMK Technologies are known for the superior quality of their products, fast delivery times combined with first-class customer service. The companies deliver their products to over 70 countries and employ around 800 people with factories in Czech Republic, Finland, Germany and Russia. The combined turnover of the Vexve Armatury Group is over €130m. The group is owned by DevCo Partners Oy, a long-term investor, which is dedicated to building world´s leading companies in selected niche markets.



CONTENT

Application

Ball valves are designed to open fully or close fully the passage for a fluid in the piping system. They find their application in power engineering, water-supply engineering, paper industry, chemical and petrochemical industries, in cryogenic applications, etc. Some design configurations enable to use the valves for short-time throttling. However, the process of throttling in combination with a service fluid containing mechanical impurities can result in loss of tightness of the valve obturator.
Design pressure is from 0 to the specified pressure class (Class, PN) for the relevant body material and sealing elements used.

Working temperature

Ambient temperature ranges from -60 °C to +80 °C.
Temperature of the working medium can range from -196 °C to +400 °C.

Working medium

- gas, water, petroleum

Technical description

The ball valve design meets the requirements of API Spec 6D and EN 14141 as well as those of the related normative documents. The valve construction has been tested in accordance with relevant normative documents and special regulations for fire safety (FIRE SAFE), resistance to wear caused by clean gas and wear in contaminated service, low emission (TA – Luft), seismic resistance, climatic resistance, functional safety (SIL), etc.

Operation

- manual (lever, T-lever)
- gear operator
- electric actuator
- pneumatic, hydraulic, electrohydraulic actuator
- other

Body construction
The valve body is made of forgings and consists of two or three pieces. The body parts are connected:

- in a dismantleable way by means of bolted joints to make a SPLIT BODY (SB)
- in an indivisible way by means of welded joints to make a FULLY WELDED BODY (FW)
- in a dismantleable way by means of threaded joints

The body construction, in combination with non-destructive tests and examinations of the body parts, guarantees constant external tightness of the valve body.

Ball construction and support
The ball is made of a single piece of wrought or cast material. The ball is mounted free (floating ball) and pressure acting on the ball is taken up by the seats.

Seat construction

- **Soft-seated seats**

The soft seals are made of PTFE, PEEK, NYLON, etc. The seats are suitable for gases and liquids with very low content of mechanical impurities.

- **Metal-to-metal seats**

The seating surfaces of seats are covered with tungsten carbide with a thickness of 0.15-0.20 mm. Then the seats are lapped together with the ball to achieve metallic tightness and marked jointly. Tightness between the seat and the body cap is provided by an O-ring (up to 220°C maximum) or a graphite packing (up to 400°C maximum). This type of seats is suitable for all service fluids containing mechanical impurities.

Stem construction and support
The standard design of the stem support meets the ANTI BLOW OUT requirements (the stem cannot be ejected from the valve body by pressure of the fluid). The stem is both radially and axially supported so that no load is applied to the sealing rings. The stem is sealed with O-rings, a graphite packing or a combination of several seals that are independent of each other.

Specification of additional design features
Antistatic design (ANTISTATIC)
This design provides for electrical continuity (conductive interconnection) between the ball, the stem and the body of the ball valve.

Fire safety (FIRE-SAFE)
Fire safety has been proved for many ball valves according to the following standards: API 607, API 6FA, ISO 10497, BS 6755, and STO 2-4.1-212-2008.

Seismic and vibration resistance
Resistance has been proved by special tests according to GOST 30546.

Design according to TA-Luft
This design guarantees resistance to emission effects.

Service safety
The ball valves have been checked for service safety SIL 3 according to ČSN EN 61508 -1,2 a6 -2011.


Electric actuator


Gear-box


Pneumatic actuator


T-lever

Possible ball valve accessories

- draining (DN ≥ 200 only)
- venting (DN ≥ 200 only)
- stem extension
- locking device
- end position sensors

Testing

The ball valves are subjected to following tests (acc. to ASME, EN or other standards):

- pressure tests
- functional tests
- non-destructive tests and examinations

The scope of testing is specified by requirements of the customer.
Inspection certificates according to EN 10204, type 3.1 or type 3.2.

Connection to the piping

- flanged ends (RF, RTJ) according to ASME B16.5, ASME B16.47, EN 1092-1, GOST 12815-80, etc.
- butt-welding ends (BW) according to ASME B16.25 or EN 12627
- flanged ends with counterflanges, bolting material and sealing elements
- butt-welding ends with pup pieces
- combined with one flanged end and one welding end
- threaded ends according to ISO 228-1, ASME B1.20.1

Minimum valve bore

- full bore according to manufacturer's standard
- reduced bore according to manufacturer's standard with bore reduction as required by the customer

Face-to-face and end-to-end dimensions according to:

- API Spec. 6D / ISO 14313
- ASME B16.10
- EN 558-1 (flanged ends)
- EN 12982 (butt-welding ends)
- ČSN 13 3046

Installation

Ball valves may be installed into any piping (horizontal, vertical, inclined), but taking account of instructions applicable to installation of the actuator. Ball valves DN ≥ 200 are equipped with a foundation plate and lifting eyes as a standard.

Advantages

- many variants of design configurations
- full and smooth bore resulting in very low pressure loss and piggability
- long-term reliability and maintenance-free service
- possibility of use of different actuators with attachment according to ISO 5211
- stiffness and compactness of construction and ability to transfer external forces

Materials

The selection of materials of individual components depends on service conditions (fluid, pressure, temperature).
For pressure-containing parts within the meaning of definition in API 6D, inspection certificates 3.1 according to EN 10204 are used as a standard or inspection certificates 3.2 according to EN 10204 upon request. For other materials, inspection certificates according to manufacturer's standard or customer's specification are used

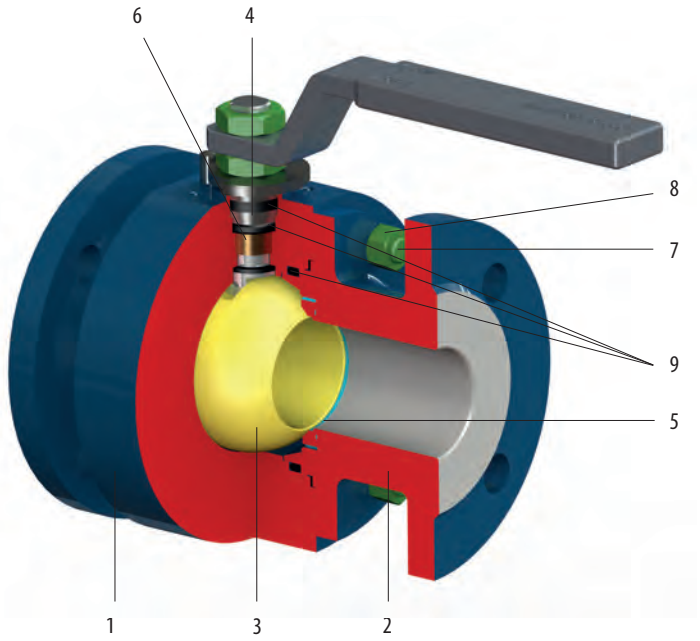
Production range

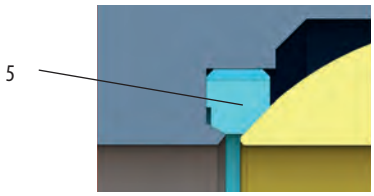
Type	PN / Class		DN / NPS												
			10	15	20	25	32	40	50	65	80	100	125	150	200	250
			3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"
K 91.11	16, 25	150	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	40	300	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	63, 100	600	•	•	•	•	•	•	•	•	•	•	•	•		
K91.12	16, 25	150	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	40	300	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	63, 100	600	•	•	•	•	•	•	•	•	•	•	•	•	•	
	160	900	•	•	•	•	•	•	•	•	•	•	•	•	•	
K 91.21	16, 25	150	•	•	•	•	•	•	•	•	•	•				
	40	300	•	•	•	•	•	•	•	•	•	•				
	63	400	•	•	•	•	•	•	•	•	•	•				
	100	600	•	•	•	•	•	•	•	•	•	•				
	160	900	•	•	•	•	•	•	•							
	250	1500	•	•	•	•	•	•	•							
	400	2500	•	•	•	•										
K 91.41	16, 25	150	•	•	•	•	•	•	•	•						
	40	300	•	•	•	•	•	•	•	•						
	63	400	•	•	•	•	•	•	•	•						
	100	600	•	•	•	•	•	•	•	•						
	160	900	•	•	•	•	•	•	•							
	250	1500	•	•	•	•	•	•	•							
	400	2500	•	•	•	•										
K 91.51	16, 25	150		•	•	•	•	•	•	•	•	•	•	•	•	
	40	300		•	•	•	•	•	•	•	•	•	•	•	•	
	63	400		•	•	•	•	•	•	•	•	•	•	•	•	
K 91.61	16, 25	150				•		•	•		•	•		•	•	
	40	300				•		•	•		•	•		•	•	
K 91.C1	16, 25	150				•	•	•	•	•	•	•	•	•		
	40	300				•	•	•	•	•	•	•	•	•		
	63, 100	600				•	•	•	•	•	•	•	•			
K 91.92	16, 25	150				•	•	•	•	•	•	•	•	•		
	40	300				•	•	•	•	•	•	•	•	•		
	63, 100	600				•	•	•	•	•	•	•	•	•		

Catalogue sheets for ball valves with pressure over PN 250 will be sent on request.
Production of sizes DN 65 a 125 are running out and these sizes are not used for new projects any longer.

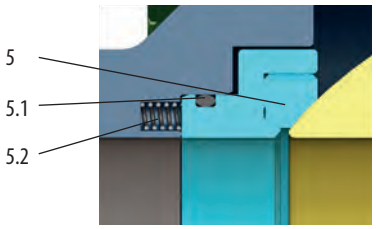
Design:

- SPLIT BODY
- two-pieces (DN 10-150)
- three-pieces (DN 200-250)
- forged





Soft seat (up to DN 150)



Soft floating seat (from DN 200)

Standard material

Position	Component	Carbon steel		Stainless steel
		For normal temperature -29 °C - +200 °C	For low temperatures -46°C (-60°C) - +200°C	Austenitic and martensitic -60 °C - +200 °C
1	Body	A105 , 1.0577, S355J2G3	A350 LF2 , 1.0566, P355NL1	A182 F304 , 1.4541 A182 F316 , 1.4571
2	Cover			
3	Ball	A182 F304, A182 F316, A351 CF8		A182 F316, 1.4571, A351 CF8
4	Stem	1.4021, A182 F6a	1.4571, A182 F316 1.4542	1.4571, A182 F316 1.4542
5	Seat	filled PTFE, NYLON, PEEK		
5.1	Seat seal	HNBR, VITON, GRAPHITE		
5.2	Springs	AISI 302, Inconel X750		Inconel X750
6	Bearings	CS+PTFE, SS+PTFE		SS+PTFE
7	Bolts	A320 L7		A193 B8
8	Nuts	A194 Gr.4		A194 Gr.8
9	Seals	HNBR, VITON, PTFE, GRAPHITE, LIPSEAL		

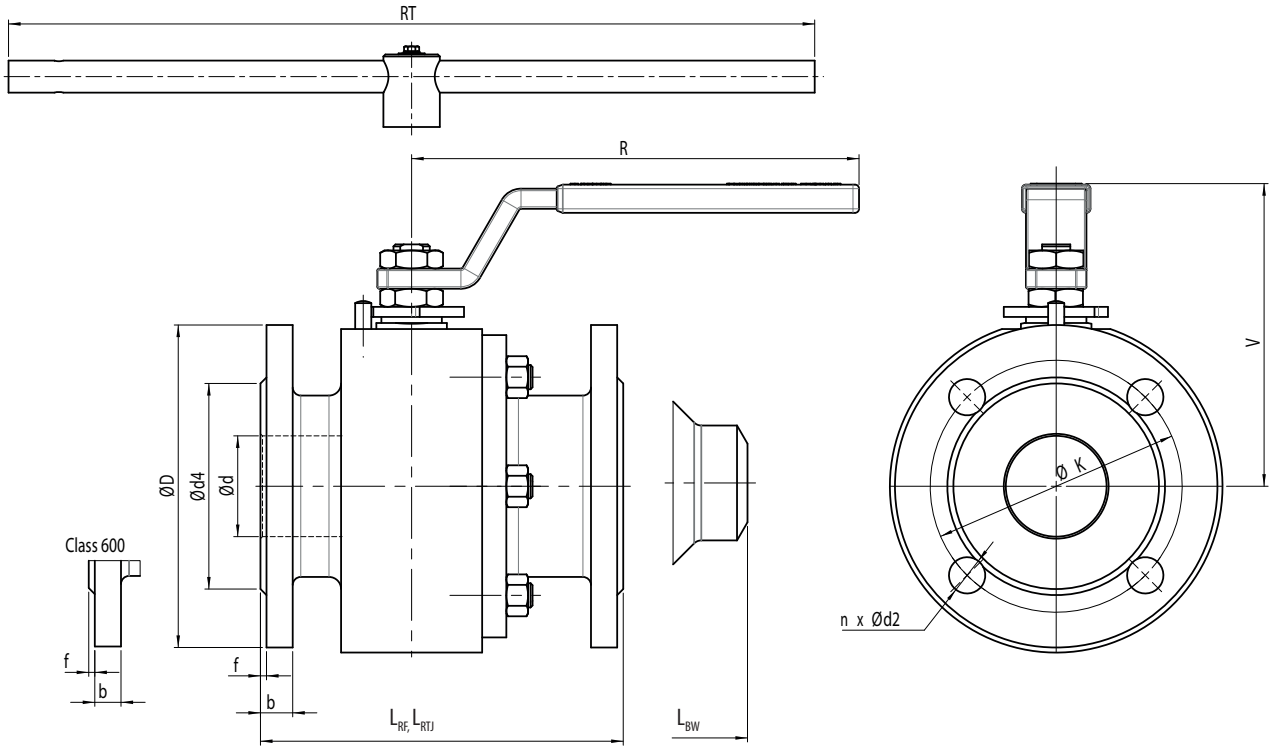
CS – carbon steel, SS – stainless steel
The temperature range can be limited, it depends on the seal material.
Other materials on request

DN 10-250 • PN 16-100 • Tmax 200°C

Design:

- SPLIT BODY
- forged

Connection: EN 1092-1 FLANGED ENDS
EN 12627 WELDED ENDS



PN 16

DN	Dimensions of flanges							L		V	Lever		ISO 5211	kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}		R	RT		RF	BW
10-40	See dimensions for PN 40														
50	50	165	18	125	102	3	4 x 18	180	216	150	220	-	F05	19,3	15
65	62	185	18	145	122		8 x 18	200	241	153	300	-	F07	24,3	17,6
80	76	200	20	160	138		8 x 18	210	283	184	350	-	F07	35,2	32
100	98	220	20	180	158		8 x 18	230	305	234	-	650	F10	54,5	52
125	120	250	22	210	188		8 x 18	325	381	256	-	650	F10	102	100
150	145	285	22	240	212		8 x 22	350	457	300	-	800	F14	154,2	150
200	190	340	24	295	268		12 x 22	400	521	-	*		F14	252,5	237
250	245	405	26	355	320		12 x 26	450	559	-	*		F16	362	350

PN 25

DN	Dimensions of flanges							L		V	Lever		ISO 5211	kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}		R	RT		RF	BW
10-150	See dimensions for PN 40														
200	190	360	30	310	278	3	12 x 26	550	521	-	*		F14	270	237
250	248	425	32	370	335		12 x30	650	559	-	*		F16	395	350

* with gear

DN 10-250 • PN 16-100 • Tmax 200°C

Connection: EN 1092-1 FLANGED ENDS
EN 12627 WELDED ENDS

Design:

- SPLIT BODY
- forged

PN 40

DN	Dimensions of flanges							L		V	Lever		ISO 5211	kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}		R	RT		RF	BW
10	9,5	90	16	60	40	2	4 x 14	130	-	103	150	-	F04	2,2	-
15	14	95	16	65	45		4 x 14	130	270	103	150	-	F04	4,3	3,2
20	20	105	18	75	58		4 x 14	150	270	108	150	-	F04	5	4,4
25	25	115	18	85	68		4 x 14	160	270	116	150	-	F05	8,7	6,8
32	30	140	18	100	78		4 x 18	180	270	120	220	-	F05	11,3	9,2
40	38	150	18	110	88	3	4 x 18	200	270	131	220	-	F05	15,3	11,8
50	50	165	20	125	102		4x 18	230	216	150	220	-	F05	21,5	15
65	62	185	22	145	122		8 x 18	290	241	153	300	-	F07	29,5	17,6
80	76	200	24	160	138		8 x 18	310	283	184	350	-	F10	46,4	32
100	98	235	24	190	162		8 x 22	350	305	234	-	650	F10	65,8	52
125	119	270	26	220	188		8 x 26	400	381	256	-	1000	F14	118,7	100
150	145	300	28	250	218		8 x 26	480	457	-	*		F14	167,9	150
200	190	375	34	320	285		12 x 30	550	521	-	*		F16	290	250
250	245	450	38	385	345		12 x 33	650	559	-	*		F25	410	350

PN 63

DN	Dimensions of flanges							L		V	Lever		ISO 5211	kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}		R	RT		RF	BW
10-40	See dimensions for PN 100														
50	50	180	26	135	102	3	4x 22	230	292	174	350	-	F07	34,2	29
65	62	205	26	160	122		8x 22	290	330	202	-	650	F10	45	40
80	76	215	28	170	138		8 x 22	310	356	236	-	800	F12	83,5	76
100	95	250	30	200	162		8 x 26	350	432	265	-	800	F14	114	110
125	119	295	34	240	188		8 x 30	400	508	-	*		F14	130	130
150	145	345	36	280	218		8 x 33	480	559	-	*		F14	151	160

PN 100

DN	Dimensions of flanges							L		V	Lever		ISO 5211	kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}		R	RT		RF	BW
10	10	100	20	70	40	2	4 x 14	130	-	103	150	-	F05	4,7	-
15	14	105	20	75	45		4 x 14	130	270	103	150	-	F05	5,1	3,2
20	20	130	22	90	58		4 x 18	150	270	108	150	-	F05	7,7	4,4
25	25	140	24	100	68		4 x 18	160	270	120	220	-	F05	11	7,2
32	30,5	155	24	100	78		4x 18	180	270	125	220	-	F05	13,3	11
40	38	170	26	110	88	3	4x 22	200	270	137	300	-	F07	21,3	16
50	50	195	28	145	102		4 x 26	230	292	195	350	-	F07	37	29
65	62	220	30	145	122		8 x 26	290	330	202	-	650	F10	52	40
80	76	230	32	180	138		8 x 26	310	356	-	*		F12	83,5	76
100	95	265	36	210	162		8 x 30	350	432	-	*		F14	120	110
125	119	315	40	250	188		8 x 33	400	508	-	*		F14	152	130
150	145	355	44	290	218		12 x 33	480	559	-	*		F16	180	170

* with gear

NPS 1/2"-10" • Class 150-600 • Tmax 200°C

Design:

- SPLIT BODY
- forged

Connection: ASME B16.5 FLANGED ENDS
ASME B16.25 WELDED ENDS

Class 150

NPS	Dimensions of flanges							L			V	Lever		ISO 5211	kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{RTJ}	L_{BW}		R	RT		RF	BW
1/2"	14	90	11,2	60,3	34,9		4x16	108	-	270	103	150	-	F04	3,5	3,2
3/4"	20	100	12,7	69,9	42,9		4x16	117	-	270	108	150	-	F04	5	4,4
1"	25	110	14,3	79,4	50,8		4x16	127	140	270	116	150	-	F04	6,1	6,8
1 1/4"	30	115	15,9	88,9	63,5		4x16	140	153	270	120	220	-	F05	9,9	9,2
1 1/2"	38	125	17,5	98,4	73,2		4x16	165	178	270	132	220	-	F05	12,6	11,8
2"	50	150	19,5	120,7	92,1		4x19	178	191	216	150	220	-	F05	18,4	15
2 1/2"	62	180	22,7	139,7	104,8	2	4x19	191	203	241	153	300	-	F07	25	17,6
3"	76	190	23,9	152,4	127		4x19	203	216	283	184	350	-	F07	34,8	32
4"	98	230	24,3	190,5	157,2		8x19	229	241	305	234	-	650	F10	56,9	56
5"	120	255	24,3	215,9	185,7		8x22	356	368	381	256	-	650	F10	106	100
6"	145	280	25,9	241,3	215,9		8x22	394	406	457	300	-	800	F14	165	150
8"	190	345	29	298,5	269,9		8x22	457	470	521	-	*		F14	240	250
10"	245	405	30,6	362	323,8		12x25	533	546	559	-	*		F16	393	350

Class 300

NPS	Dimensions of flanges							L			V	Lever		ISO 5211	kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{RTJ}	L_{BW}		R	RT		RF	BW
1/2"	14	95	14,3	66,7	34,9		4 x 16	140	-	270	103	150	-	F04	4,3	3,2
3/4"	20	115	15,9	82,6	42,9		4 x 19	152	-	270	108	150	-	F04	4,4	4,4
1"	25	125	17,9	88,9	50,8		4 x 19	165	178	270	116	150	-	F05	9,2	6,8
1 1/4"	30	135	19,5	98,4	63,5		4 x 19	178	191	270	120	220	-	F05	12	9,2
1 1/2"	38	155	21,1	114,3	73		4 x 22	191	204	270	131	220	-	F05	15,8	11,8
2"	50	165	22,7	127	92,1		8x 19	216	232	216	150	220	-	F05	21,5	15
2 1/2"	62	190	25,9	149,2	104,8	2	8 x 22	241	257	241	153	300	-	F07	30	17,6
3"	76	210	29	168,3	127		8 x 22	283	298	283	184	350	-	F10	47,2	32
4"	98	255	32,2	200	157,2		8 x 22	305	321	305	234	-	650	F12	77,1	56
5"	120	280	35,4	235	185,7		8 x 22	381	384	381	256	-	1000	F14	124,5	100
6"	145	320	37	269,9	215,9		12 x 22	403	419	457	-	*		F14	171,3	150
8"	190	380	41,7	330,2	269,9		12 x 25	502	518	521	-	*		F16	290	250
10"	245	445	48,1	382,4	323,8		16 x 27	568	584	559	-	*		F25	410	350

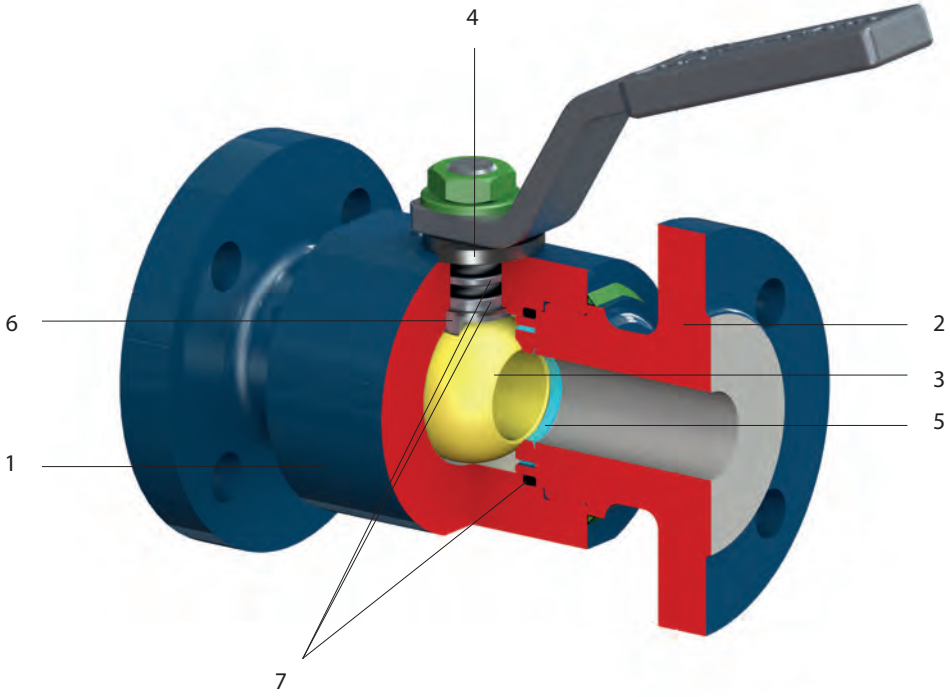
Class 600

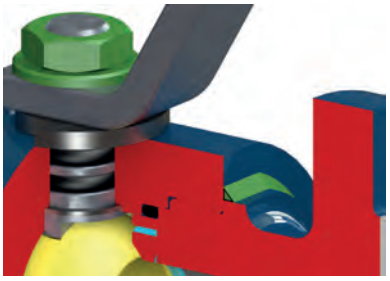
NPS	Dimensions of flanges							L			V	Lever		ISO 5211	kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{RTJ}	L_{BW}		R	RT		RF	BW
1/2"	14	95	14,3	66,7	35,1		4 x 19	165	-	270	103	150	-	F04	5,1	3,2
3/4"	20	115	15,9	82,6	42,9		4 x 19	191	191	270	108	150	-	F05	7,7	4,4
1"	25	125	17,5	88,9	50,8		4 x 19	216	216	270	120	220	-	F05	11	7,2
1 1/4"	30,5	135	20,7	98,4	63,5		4 x 19	229	229	270	125	220	-	F05	15	11
1 1/2"	38	155	22,3	114,3	73,2		4x 22	241	241	270	137	300	-	F07	20	16
2"	50	165	25,4	127	92,1	7	8 x 19	292	295	292	171	350	-	F10	35,9	29
2 1/2"	62	190	28,6	149,2	104,6		8 x 22	330	333	330	220	-	650	F10	47,1	40
3"	76	210	31,8	168,3	127		8 x 22	356	359	356	-	*		F12	79,3	76
4"	95	275	38,1	215,9	157,2		8 x 25	432	435	432	-	*		F14	127	110
5"	120	330	44,5	266,7	185,7		8 x 29	508	514	508	-	*		F14	150	130
6"	145	355	47,7	292,1	215,9		12 x 29	559	562	559	-	*		F16	190	170

* with gear

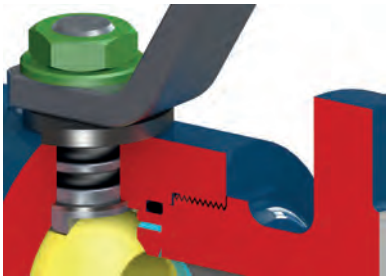
Design:

- FULLY WELDED OR THREADED BODY
- two-pieces
- forged





FULLY WELDED BODY



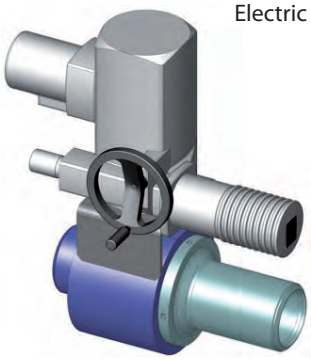
THREADED BODY

Standard material

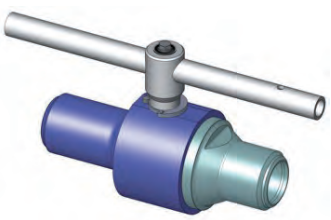
Position	Component	Carbon steel		Stainless steel
		For normal temperatures -29 °C - +200 °C	For low temperatures -46°C (-60°C) - +200°C	Austenitic and martensitic -60 °C - +200 °C
1	Body	A105, 1.0577, S355J2G3	A350 LF2, 1.0566, P355NL1	A182 F316, 1.4541, A182 F304, 1.4571
2	Cover			
3	Ball	A182 F304, A182 F316, A351 CF8		A182 F316, 1.4571, A351 CF8
4	Shaft	1.4021, A182 F6a	1.4571, A182 F31 1.4542	1.4571+ ENP Ni, A182 F316 + ENP Ni 1.4542 + ENP Ni
5	Seat	Filled PTFE, NYLON, PEEK		
6	Seal	Filled PTFE, NYLON, PEEK		
7	O-ring	HNBR, VITON		

The temperature range can be limited, it depends on the seal material.
Other materials on request

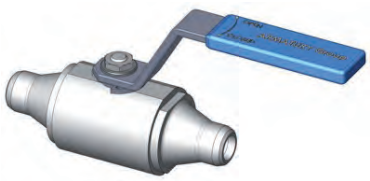
Electric actuator



T - lever



Lever

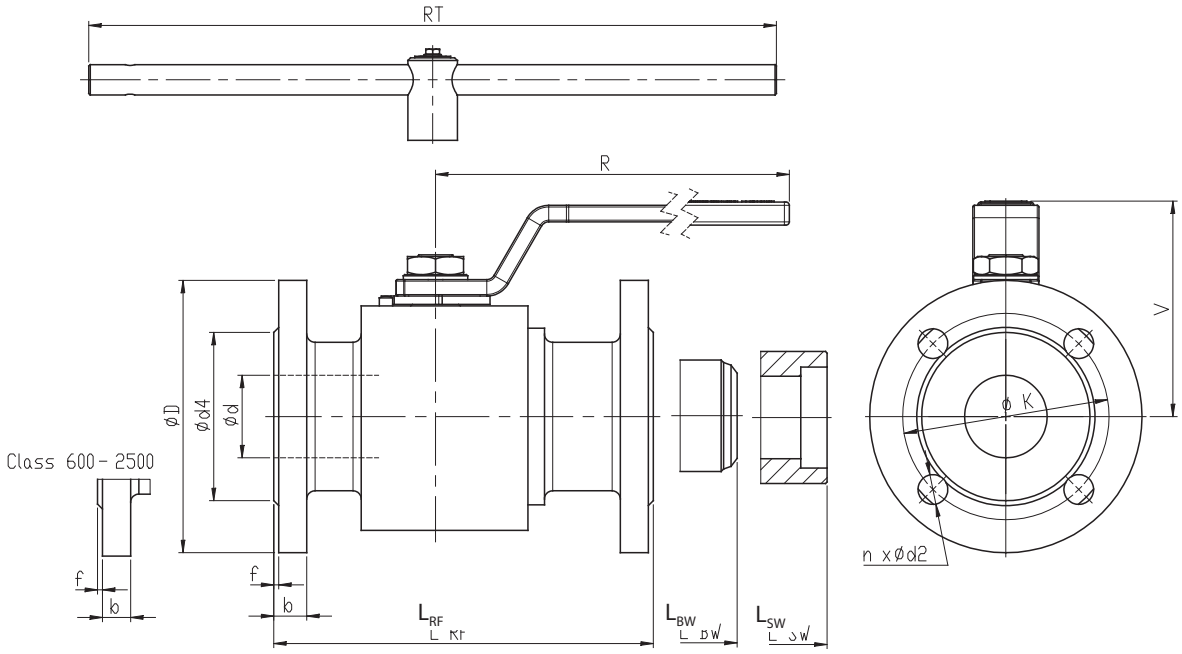


DN 10-65 • PN 16-400 • Tmax 150°C (200°C)

Design:

- FULLY WELDED OR THREADED BODY
- forged

Connection: EN 1092-1 FLANGED ENDS
EN 12627, ASME B16.25 WELDED ENDS
ASME B16.11 SOCKET WELD



PN 16

DN	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
10-40	See dimensions for PN 40													
50	50	165	18	125	102	3	4 x 18	216	292	131	350	-	19,5	15
65	62	185	18	145	122		8 x 18	241	330	166	-	500	28	23

PN 25, 40

DN	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
10	9,5	90	16	60	40	2	4 x 14	140	216	85	150	-	2,2	2
15	14	95	16	65	45		4 x 14	140	216	122	150	-	3,4	2,1
20	20	105	18	75	58		4 x 14	152	229	129	150	-	4,6	3,5
25	25	115	18	85	68		4 x 14	165	254	132	150	-	5,6	4,6
32	30	140	18	100	78		4 x 18	178	229	134	150	-	7,9	4,5
40	38	150	18	110	88	3	4 x 18	190	241	140	300	-	13,6	9,8
50	50	165	20	125	102		4x 18	216	292	131	350	-	21	15
65	62	185	22	145	122		8 x 18	241	330	166	-	500	29	23

PN 63

DN	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
10-40	See dimensions for PN 100													
50	50	180	26	135	102	3	4x 22	292	292	131	350	-	25	15
65	62	205	26	160	122		8x 22	330	330	202	-	650	53	40

DN 10-65 • PN 16-400 • Tmax 150°C (200°C)

Design:

- FULLY WELDED OR THREADED BODY
- forged

Connection:
- EN 1092-1 FLANGED ENDS
- EN 12627, ASME B16.25 WELDED ENDS
- ASME B16.11 SOCKET WELD

PN 100

DN	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
10	10	100	20	70	40	2	4 x 14	165	216	85	150	-	3,2	2
15	14	105	20	75	45		4 x 14	165	216	122	150	-	3,5	2,1
20	20	130	22	90	58		4 x 18	190	229	129	150	-	8,6	3,5
25	25	140	24	100	68		4 x 18	216	254	132	150	-	9,5	4,6
32	30,5	155	24	100	78		4x 18	229	229	134	150	-	10,5	4,5
40	38	170	26	110	88	3	4x 22	241	241	140	300	-	18	9,8
50	50	195	28	145	102		4 x 26	292	292	131	350	-	27	15
65	62	220	30	145	122		8 x 26	330	330	202	-	650	58	40

PN 160

DN	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
10	10	100	20	70	40	2	4 x 14	216	216	85	150	-	3,2	2
15	14	105	20	75	45		4 x 14	216	216	122	150	-	4,9	2,1
20	-	-	-	-	-		-	-	229	129	150	-	-	3,5
25	25	140	24	100	68		4 x 18	254	254	132	150	-	9,5	4,6
32	-	-	-	-	-		-	-	229	134	150	-	-	4,5
40	38	170	28	110	88	3	4x 22	305	241	140	300	-	18	9,8
50	50	195	30	145	102		4 x 26	368	292	131	350	-	27	15

PN 250

DN	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
10-40	See dimensions for PN 320													
25	25	150	28	105	68	2	4 x 22	254	254	132	150	-	11,3	4,6
32	-	-	-	-	-		-	-	279	142	350	-	-	5,6
40	38	185	34	135	88	3	4 x 26	305	305	179	-	600	22	12
50	50	200	38	150	102		8 x 26	368	368	212	-	600	33	21

PN 320

DN	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
10	10	125	24	85	40	2	4 x 18	264	264	103	150	-	6	3
15	14	130	26	90	45		4 x 18	264	264	120	-	400	7,5	3,2
25	25	160	34	115	68		4 x 22	308	308	120	-	400	30	15

PN 400

DN	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
10	10	125	28	85	40	2	4 x 18	264	264	103	150	-	7	3
15	14	145	30	100	45		4 x 22	264	264	120	-	400	9	3,2
25	25	180	38	130	68		4 x 26	308	308	120	-	400	45	15

NPS ½"- 2 ½" • Class 150-2500 • Tmax 150°C (200°C)

Connection: ASME B16.5 FLANGED ENDS
ASME B16.25 WELDED ENDS
ASME B16.11 SOCKED ENDS

Design:

- FULLY WELDED OR THREADED BODY
- forged

Class 150

NPS	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
1/2"	14	90	11,2	60,3	34,9	2	4x16	140	216	122	150	-	2,5	2,1
3/4"	20	100	12,7	69,9	42,9		4x16	152	229	129	150	-	4,6	3,5
1"	25	110	14,3	79,4	50,8		4x16	165	254	132	150	-	5,6	4,6
1 1/4"	30	115	15,9	88,9	63,5		4x16	178	229	134	150	-	6,4	4,5
1 1/2"	38	125	17,5	98,4	73,2		4x16	190	241	140	300	-	11,7	9,8
2"	50	150	19,5	120,7	92,1		4x19	216	292	131	350	-	16	15
2 1/2"	62	180	22,7	139,7	104,8		4x19	241	330	166	-	500	27	23

Class 300

NPS	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
1/2"	14	95	14,3	66,7	34,9	2	4 x 16	140	216	122	150	-	3	2,1
3/4"	20	115	15,9	82,6	42,9		4 x 19	152	229	129	150	-	5,5	3,5
1"	25	125	17,9	88,9	50,8		4 x 19	165	254	132	150	-	6,6	4,6
1 1/4"	30	135	19,5	98,4	63,5		4 x 19	178	229	134	150	-	7,2	4,5
1 1/2"	38	155	21,1	114,3	73		4 x 22	190	241	140	300	-	14	9,8
2"	50	165	22,7	127	92,1		8 x 19	216	292	131	350	-	21	15
2 1/2"	62	190	25,9	149,2	104,8		8 x 22	241	330	166	-	500	29	23

Class 600

NPS	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
1/2"	14	95	14,3	66,7	34,9	7	4 x 19	165	216	122	150	-	3,5	2,1
3/4"	20	115	15,9	82,6	42,9		4 x 19	190	229	129	150	-	6,5	3,5
1"	25	125	17,5	88,9	50,8		4 x 19	216	254	132	150	-	7,9	4,6
1 1/4"	30,5	135	20,7	98,4	63,5		4 x 19	229	229	134	150	-	9,5	4,5
1 1/2"	38	155	22,3	114,3	73		4 x 22	241	241	140	300	-	15,1	9,8
2"	50	165	25,4	127	92,1		8 x 19	292	292	131	350	-	27	15
2 1/2"	62	190	28,6	149,2	104,8		8 x 22	330	330	202	-	650	58	40

Class 900, 1500

NPS	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
1/2"	14	120	22,3	82,6	34,9	7	4 x 22	216	216	122	150	-	4,9	2,1
3/4"	20	130	25,4	88,9	42,9		4 x 22	229	229	129	150	-	8,8	3,5
1"	25	150	28,6	101,6	50,8		4 x 25	254	254	132	150	-	11,6	4,6
1 1/4"	30,5	160	28,6	111,1	63,5		4 x 25	279	279	142	350	-	13	5,6
1 1/2"	38	180	31,8	123,8	73		4 x 29	305	305	179	-	600	22	12
2"	50	215	38,1	165,1	92,1		8 x 25	368	368	212	-	600	30	21

Class 2500

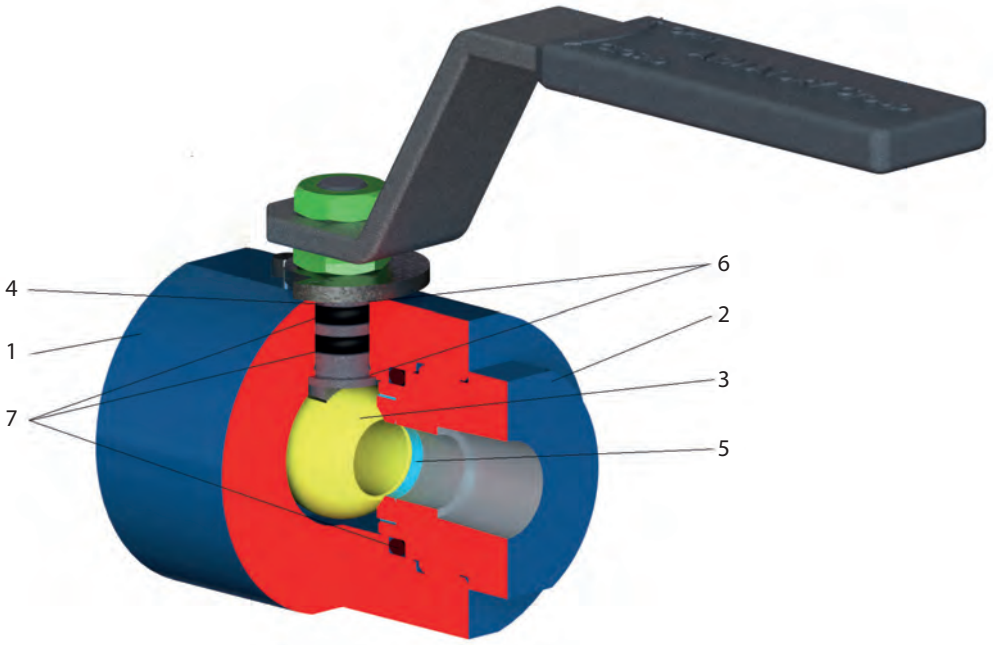
NPS	Dimensions of flanges							L		V	Lever		kg	
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{SW}, L_{BW}		R	RT	RF	BW
1/2"	14	135	30,2	88,9	34,9	7	4 x 22	264	264	120	150	-	15	10
3/4"	20	140	31,8	95,2	42,9		4 x 22	273	273	120	-	400	18	12
1"	25	160	35	108	50,8		4 x 25	308	308	120	-	400	45	15

DN 10-50 • PN 16-320 • NPS 3/8"-2" • Class 150-1500 • Tmax 150 °C (200 °C)
Higher PN (Class) on request

Connection: ISO 228-1, ASME B1.20.1
INSIDE THREADED DESIGN

Design:

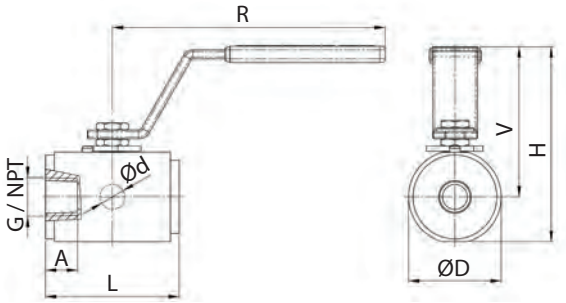
- THREADED OR FULLY WELDED BODY



Standard material

Position	Component	Carbon steel		Stainless steel
		For normal temperature from -20°C to +200°C	For low temperarure from -46°C to +200°C	For temperarure from -60°C to +200°C
1	Body	1.0577, S355J2	1.0565, A350 LF2	1.4541, A182 F321 1.4571, A182 F316
2	Closure			
3	Ball	1.4571, A182 F316, A351 CF8M, ČSN 17 027		
4	Stem	1.4021, ČSN 17 027	1.4541, A182 F321	1.4541, A182 F321 1.4571, A182 F316
5	Seat	PTFE, PTFE+C, PEEK		
6	Gasket	Grafit		
7	O-ring	NBR, HNBR, EPDM, FPM, FPM+FEP		

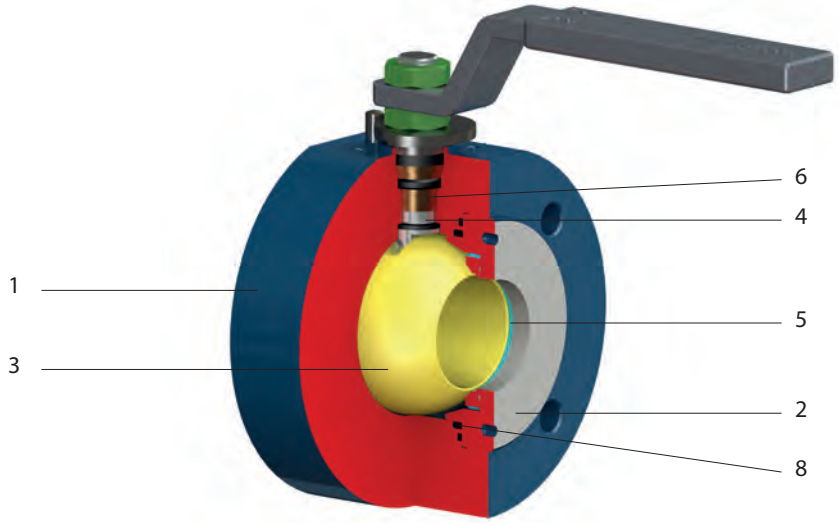
The temperature range can be limited, it depends on the seal material.
Other materials on request



PN / Class	DN	NPS	G	NPT	A	L	ød	R	V	H	øD	kg
PN 16 ÷ 250 CLASS 150 ÷ 1500	10	3/8"	3/8"	3/8-18	13	60	9,5	115	63	85	44	0,8
	15	½"	½"	½-14	15	75	13	115	70	96	53	1,3
	20	¾"	¾"	¾-14	16,5	80	19	120	75	105	59	1,5
	25	1"	1"	1-11,5	19,5	90	25	150	104	140	73	2,5
	32	1¼"	1¼"	1¼-11,5	21,5	110	30	150	106	145	78	3,3
	40	1½"	1½"	1½-11,5	23	120	38	250	123	172	98	6,2
	50	2"	2"	2-11,5	26	140	50	250	133	192	118	9,6

Design:

- WAFER TYPE
- two-pieces
- forged

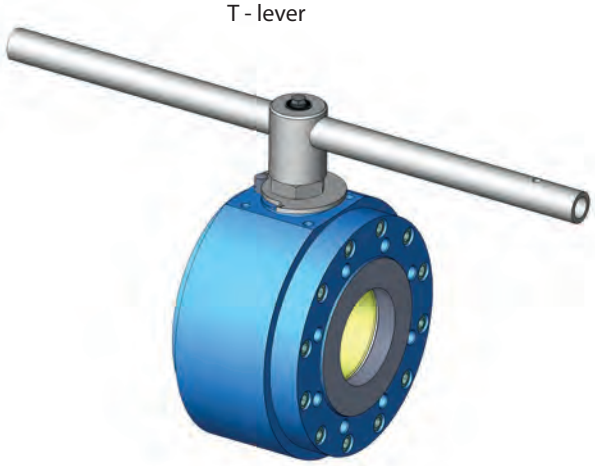


Standard material

Position	Component	Carbon steel		Stainless steel
		For normal temperatures -29 °C - +200 °C (+400 °C)	For low temperatures -46°C (-60°C) - +200°C	Austenitic and martensitic -60 °C - +200 °C
1	Body	A105, 1.0577, S355J2G3	A350 LF2, 1.0566, P355NL1	A182 F316, 1.4541, A182 F304, 1.4571
2	Insert			
3	Ball	A182 F304, A182 F316, A351 CF8		A182 F316, 1.4571, A351 CF8
4	Stem	1.4021, A182 F6a	1.4571, A182 F316 1.4542	1.4571, A182 F316 1.4542
5	Seat	Filled PTFE, NYLON, PEEK		
6	Bearings	CS+PTFE, SS+PTFE		SS+PTFE
7	Bolts	A320 L7		A193 B8
8	Seals	HNBR, VITON, PTFE, GRAPHITE		

The temperature range can be limited, it depends on the seal material.
Other materials on request

T - lever

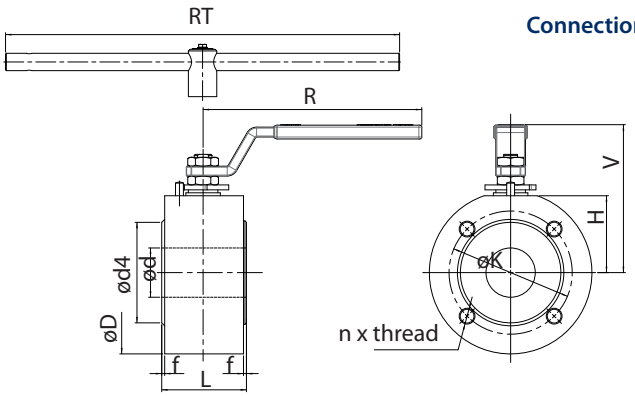


Electric actuator

DN 15-200 • PN 16-63 • Tmax 200 °C

Design:

- WAFER TYPE
- two-pieces
- forged



Connection: EN 1092-1 WAFER TYPE

PN 16

DN	Dimensions of flanges						L	H	V	Lever		ISO 5211	kg
	ød	øD	øK	ød4	f1	n x thread				R	RT		
15-40	See dimensions for PN 40												
50	50	165	125	102	2	4 x M16	86	78	150	220	-	F05	12,6
65	62	185	145	122		8 x M16	105	85	150	300	-	F07	18,7
80	76	214	160	138		8 x M16	126	100	184	350	-	F07	29,6
100	98	262	180	158		8 x M16	156	123	234	-	650	F10	49,9
125	120	250	210	188		8 x M16	170	168	258	-	650	F10	80
150	145	285	240	212		8 x M20	202	168	290	-	800	F12	91
200	190	400	295	268		12 x M20	310	298	-	*		F14	204

PN 25

DN	Dimensions of flanges						L	H	V	Lever		ISO 5211	kg
	ød	øD	øK	ød4	f1	n x thread				R	RT		
15-150	See dimensions for PN 40												
200	190	400	310	278	2	12xM24	310	298	-	*		F16	208

PN 40

DN	Dimensions of flanges						L	H	V	Lever		ISO 5211	kg
	ød	øD	øK	ød4	f1	n x thread				R	RT		
15	14	95	65	45	2	4 x M12	38	50	73	150	-	F04	1,8
20	20	105	75	58		4 x M12	38	57	80	150	-	F04	2,5
25	25	115	85	68		4 x M12	56	50	116	150	-	F05	4,1
32	30	130	100	78		4 x M16	62	53,5	120	220	-	F05	5,2
40	38	140	110	88		4 x M16	74	62	134	220	-	F05	7,9
50	50	165	125	102		4 x M16	86	78	150	220	-	F05	12,6
65	62	185	145	122		8 x M16	105	85	153	300	-	F07	18,8
80	76	218	160	138		8 x M16	126	100	184	350	-	F10	33
100	98	262	190	162		8 x M20	156	123	234	-	650	F10	51
125	120	308	220	188		8 x M24	175	142	-	*	F14	85	85
150	145	365	250	218		8 x M24	202	168	-	*		F14	91
200	190	400	320	285		12 x M27	310	298	-	*		F16	210

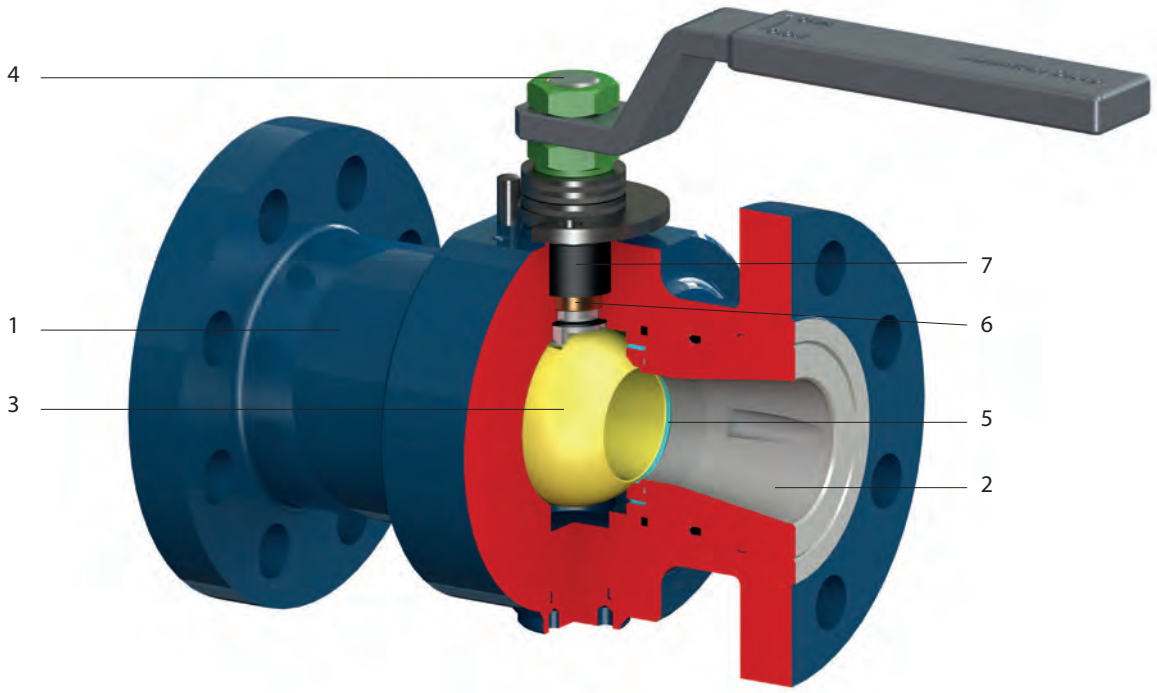
PN 63

DN	Dimensions of flanges						L	H	V	Lever		ISO 5211	kg
	ød	øD	øK	ød4	f1	n x thread				R	RT		
15	14	105	75	45	2	4 x M12	40	55	92	150	-	F05	4,2
20	20	130	90	58		4 x M16	40	64	110	150	-	F05	6
25	25	140	100	68		4 x M16	56	74	120	220	-	F05	8,2
32	30,5	155	110	78		4 x M20	62	83	126	220	-	F05	12
40	38	156	125	88		4 x M20	74	68	137	300	-	F07	16
50	50	198	135	102		4 x M20	115	90	174	350	-	F07	25
65	62	214	160	122		8 x M20	126	95	202	-	650	F10	38
80	76	265	170	138		8 x M20	136	120	233	-	800	F12	62
100	95	292	200	162		8 x M24	194	133	265	-	800	F14	88
125	119	295	240	188		8 x M27	200	**	-	*		F14	97
150	145	345	280	218		8 x M30	250	**	-	*		F14	123
200	190	**	345	285		12 x M33	**	**	-	*		**	**

*with gear, **on request

Design:

- ONE PIECE DESIGN WITH INSERT
- screwed insert into the body
- one piece
- forged



Standard material

Position	Component	Carbon steel		Stainless steel
		For normal temperature -29 °C - +200 °C	For low temperatures -46°C (-60°C) - +200°C	For temperature -60 °C - +200 °C
1	Body	A105 , 1.0577, S355J2G3	A350 LF2 , 1.0566, P355NL1	1.4541, A182 F304 1.4571, A182 F316
2	Insert			
3	Ball	A182 F304, A182 F316, A351 CF8		A182 F316, 1.4571, A351 CF8
4	Stem	1.4021, A182 F6a	1.4571, A182 F316 1.4542	1.4571, A182 F316 1.4542
5	Seat	Filled PTFE		
6	Bearings	CS+PTFE, SS+PTFE		SS+PTFE
7	Gasket	HNBR, VITON, PTFE, GRAPHITE		

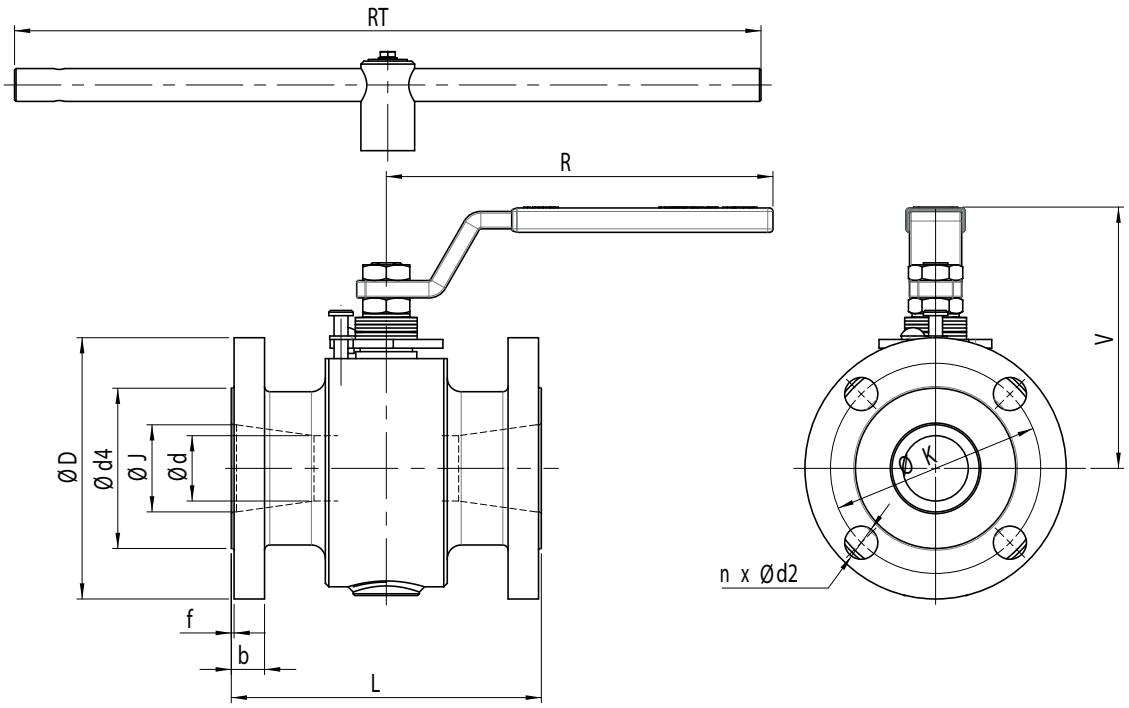
CS – carbon steel
SS – stainless steel
The temperature range can be limited, it depends on the seal material.
Other materials on request

NPS 1"-8" • Class 150-300

Connection: ASME B16.5 FLANGED ENDS

Design:

- ONE PIECE DESIGN WITH INSERT
- forged



Class 150

NPS (DN)	Dimensions of flanges									V	Lever		ISO 5211	kg
	ød	øD	b	øK	ød4	øJ	f1	n x ød2	L		R	RT		
1" (25)	20	110	14,7	79,4	50,8	25		4 x 16	127	125	180	-	F04	5,8
1 1/2" (40)	30	125	16,3	98,4	73	40		4 x 16	165	141	220	-	F05	12
2" (50)	37,5	150	19,5	120,7	92,1	50		4 x 19	178	160	220	-	F05	14,9
3" (80)	58	190	24,3	152,4	127	78	2	4 x 19	203	165	300	-	F07	27,5
4" (100)	76	230	24,3	190,5	157,2	100		8 x 19	229	229	350	-	F10	48,4
6" (150)	98	280	25,9	241,3	215,9	150		8 x 22	267	-	-	800	F10	85,5
8" (200)	145	345	29	298,5	269,9	201		8 x 22	292	-	*		F12	181,7

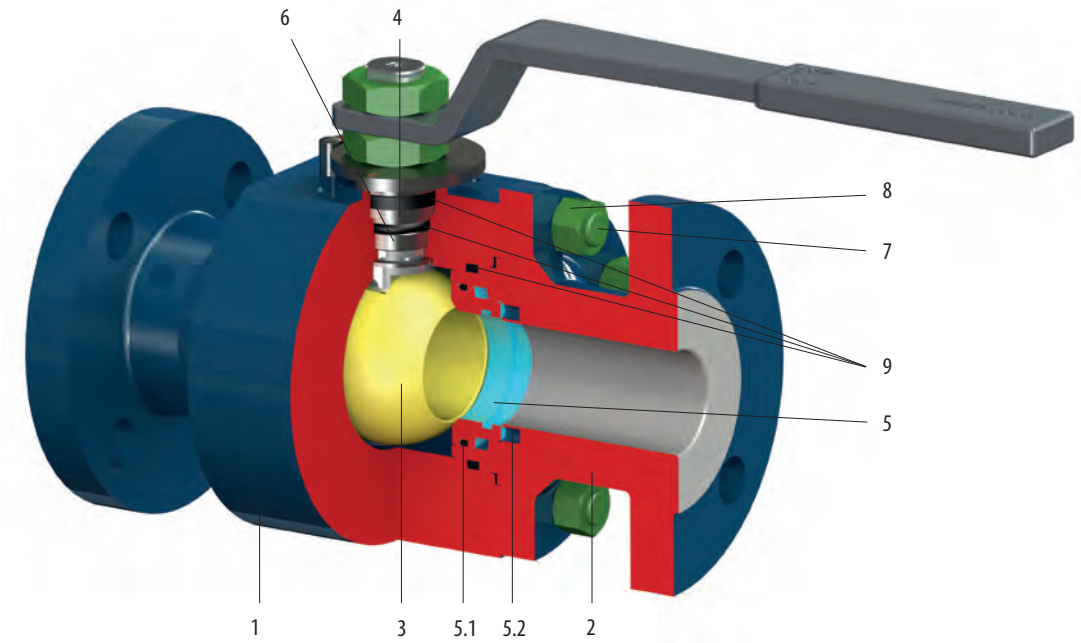
Class 300

NPS (DN)	Dimensions of flanges									V	Lever		ISO 5211	kg
	ød	øD	b	øK	ød4	øJ	f1	n x ød2	L		R	RT		
1" (25)	20	125	17,9	88,9	50,8	25		4x 19	165	125	180	-	F05	7,3
1 1/2" (40)	30	155	21,1	114,3	73	40		4x 22	190	141,5	220	-	F05	15,1
2" (50)	37,5	165	22,7	127	92,1	50		8 x 19	216	160	220	-	F05	14,9
3" (80)	58	210	29	168,3	127	78	2	8 x 22	283	165	300	-	F07	27,5
4" (100)	76	255	32,2	200	157,2	100		8 x 22	305	229	350	-	F10	64,6
6" (150)	98	320	37	269,9	215,9	150		12 x 22	403	-	*		F12	146,1
8" (200)	145	380	41,7	330,2	269,9	201		12 x 25	419	-	*		F14	241,2

* with gear

Design:

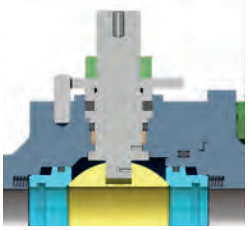
- SPLIT BODY
- two-pieces (DN 10-125)
- three-pieces (DN 150-250)
- forged



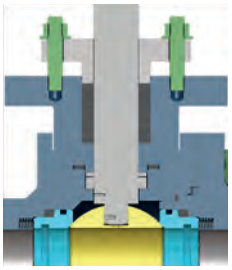
Standard material

Position	Component	Carbon steel		Stainless steel
		For normal temperature -29 °C - +200 °C	For low temperatures -46°C (-60°C) - +200°C	Austenitic and martensitic -60 °C - +200 °C
1	Body	A105 , 1.0577, S355J2G3	A350 LF2 , 1.0566, P355NL1	A182 F304 , 1.4541 A182 F316 , 1.4571
2	Cover			
3	Ball	A182 F304 + HF, A182 F316 + HF, A351 CF8 + HF, 1.4021 + HF, A182 F6A + HF		A182 F316 + HF, 1.4571 + HF, A351 CF8 + HF
4	Stem	1.4021, A182 F6a	1.4571, A182 F316 1.4542	1.4571, A182 F316 1.4542
5	Seat	1.4021 + HF, A182 F6a + HF 1.4571 + HF, A182 F316 + HF		
5.1	Seat seal	HNBR, VITON, GRAPHITE		
5.2	Springs	AISI 302, Inconel X750		Inconel X750
6	Bearings	CS+PTFE, SS+PTFE		SS+PTFE
7	Bolts	A320 L7		A193 B8
8	Nuts	A194 Gr.4		A194 Gr.8
9	Seals	HNBR, VITON, PTFE, GRAPHITE, LIPSEAL		

CS – carbon steel, SS – stainless steel
The temperature range can be limited, it depends on the seal material.
Other materials on request



Design of stem and bonnet joint for temperatures 200 °C max.



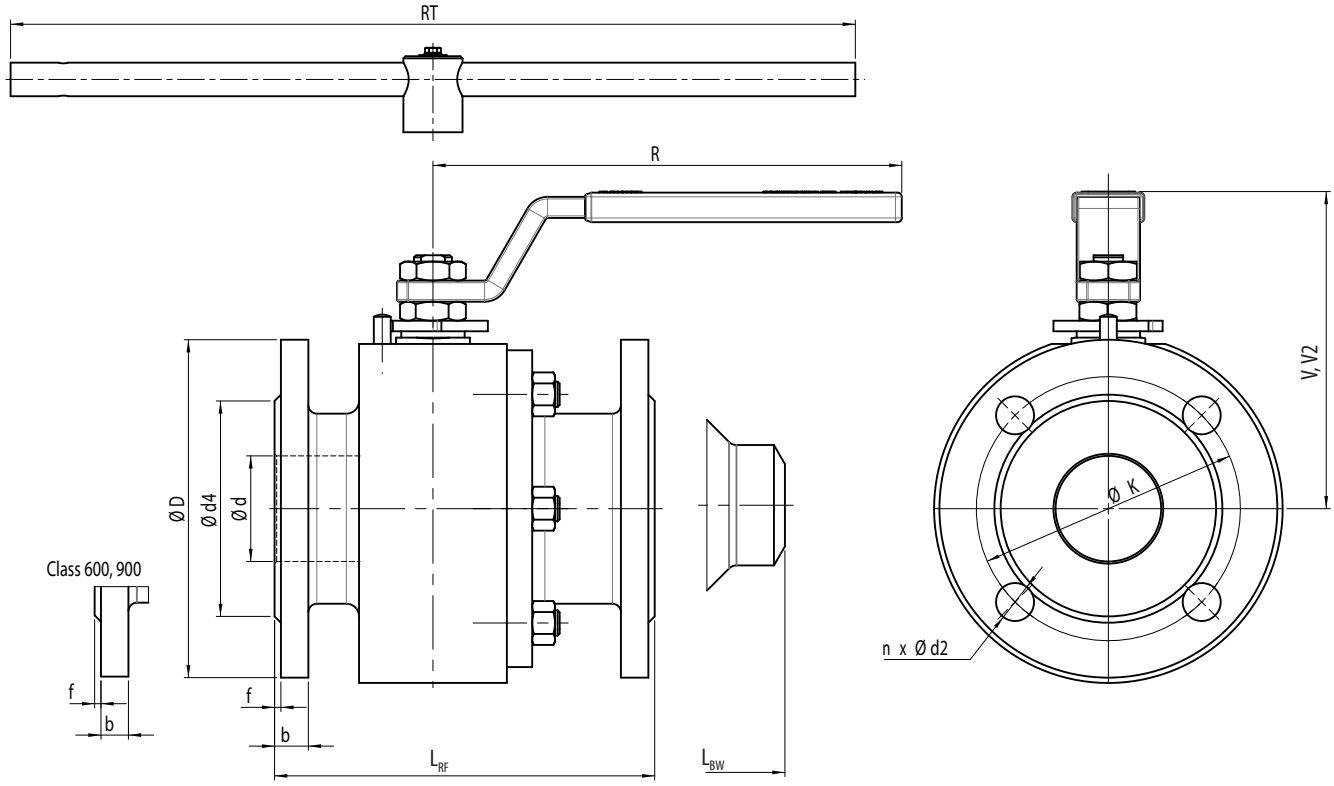
Design of stem and bonnet joint for temperatures 400 °C max.

DN 15-250 • PN 16-160 • Tmax 200°C (400°C)

Design:

- SPLIT BODY
- forged

Connection: EN 1092-1 FLANGED ENDS
EN 12627 WELDED ENDS



PN 16

DN	Dimensions of flanges							L		V	V2 •	Lever		ISO 5211	kg			
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}			R	RT		RF	RF2 •	BW •	BW2
15-40	See dimensions for PN 40																	
50	50	165	18	125	102	3	4 x 18	216	216	160	293	350	-	F07		38	25,5	33
65	62	185	18	145	122		8 x 18	241	241	160	293	350	-	F10	39	47	33,5	33,5
80	76	200	20	160	138		8 x 18	283	283	223	350	-	800	F12	72,6	71	66	65
100	98	220	20	180	158		8 x 18	305	305	234	373	-	800	F14	82	96	73	87
125	120	250	22	210	188		8 x 18	381	381	256	375	-	800	F14	102	115	95	108
150	145	285	22	240	212		8 x 22	403	457	-	-	*		F16	135,8	135	124	123
200	190	340	24	295	268		12 x 22	502	521	-	-	*		F25	262,5	320	245	228
250	245	405	26	355	320		12 x 26	568	559	-	-	*		F25	320	337	300	317

PN 25

DN	Dimensions of flanges							L		V	V2 •	Lever		ISO 5211	kg			
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}			R	RT		RF	RF2 •	BW •	BW2
15-150	See dimensions for PN 40																	
200	190	360	30	310	278	3	12 x 26	502	521	-	-	*		F25	273	331	245	303
250	248	425	32	370	335		12 x30	568	559	-	-	*		F25	332	349	300	317

• with packing
* with gear

DN 15-250 • PN 16-160 • Tmax 200°C (400°C)

Design:

- SPLIT BODY
- forged

Connection: EN 1092-1 FLANGED ENDS
EN 12627 WELDED ENDS

PN 40

DN	Dimensions of flanges							L		V	V2 •	Lever		ISO 5211	kg			
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}			R	RT		RF	RF2 •	BW •	BW2
15	14	95	16	65	45	2	4 x 14	165	270	134	136	150	-	F04	9,5	9,5	8,8	8,8
20	20	105	18	75	58		4 x 14	165	270	134	136	150	-	F04	10	10	9	9
25	25	115	18	85	68		4 x 14	165	270	116	151	220	-	F05	10,5	13,2	9,5	12,2
32	30	140	18	100	78		4 x 18	178	270	120	156	220	-	F05	15	18	12,5	13,5
40	38	150	18	110	88	3	4 x 18	191	270	135	180	300	-	F05	21,6	28	18	25
50	50	165	20	125	102		4x 18	216	216	160	293	350	-	F07	30,3	38	25,5	33
65	62	185	22	145	122		8 x 18	241	241	160	293	350	-	F10	41,5	42	33,5	33,5
80	76	200	24	160	138		8 x 18	283	283	223	350	-	800	F12	74,2	71	66	65
100	98	235	24	190	162		8 x 22	305	305	-	-	*		F14	86	91	73	87
125	119	270	26	220	188		8 x 26	381	381	-	-	*		F14	127,5	130	95	108
150	145	300	28	250	218		8 x 26	403	457	-	-	*		F16	144	135	124	123
200	190	375	34	320	285		12 x 30	502	521	-	-	*		F25	282	339	245	228
250	245	450	38	385	345		12 x 33	568	559	-	-	*		F25	380	448	300	330

PN 63

DN	Dimensions of flanges							L		V	V2 •	Lever		ISO 5211	kg			
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}			R	RT		RF	RF2 •	BW •	BW2
15-40	See dimensions for PN 100																	
50	50	180	26	135	102	3	4x 22	292	292	160	293	350	-	F10	35	37	29	31
65	62	205	26	160	122		8x 22	330	330	202	293	-	800	F12	51	52	43	44
80	76	215	28	170	138		8 x 22	356	356	223	310	-	800	F12	79,2	76	64	61
100	95	250	30	200	162		8 x 26	432	432	-	-	*		F14	120	125	95	100
125	119	295	34	240	188		8 x 30	508	508	-	-	*		F16	140	143	120	123
150	145	345	36	280	218		8 x 33	559	559	-	-	*		F16	200	230	190	229
200	190	415	42	345	284		12 x 36	660	660	-	-	*		F25	385	428	325	368

PN 100

DN	Dimensions of flanges							L		V	V2 •	Lever		ISO 5211	kg			
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}			R	RT		RF	RF2 •	BW •	BW2
15	14	105	20	75	45	2	4 x 14	216	270	134	134	150	-	F05	10	9,5	8,8	8,8
20	20	130	22	90	58		4 x 18	216	270	134	134	150	-	F05	11	10	9	9
25	25	140	24	100	68		4 x 18	216	270	120	151	220	-	F05	13,6	13,5	9,5	9,5
32	30,5	155	24	100	78	3	4x 18	229	270	125	156	220	-	F05	18	19	13	14
40	38	170	26	110	88		4x 22	241	270	134	180	300	-	F07	22,1	28	16	25
50	50	195	28	145	102		4 x 26	292	292	160	293	350	-	F10	38	40	29	31
65	62	220	30	145	122		8 x 26	330	330	202	293	-	800	F12	54	55	43	44
80	76	230	32	180	138		8 x 26	356	356	-	-	*		F14	83	80	64	61
100	95	265	36	210	162		8 x 30	432	432	-	-	*		F14	113	118	95	100
125	119	315	40	250	188		8 x 33	508	508	-	-	*		F16	152	157	120	125
150	145	355	44	290	218		12 x 33	559	559	-	-	*		F25	250	279	210	249
200	190	430	52	360	284		12 x 36	660	660	-	-	*		F30	405	448	330	373

PN 160

DN	Dimensions of flanges							L		V	V2 •	Lever		ISO 5211	kg			
	ød	øD	b	øK	ød4	f	n x ød2	L_{RF}	L_{BW}			R	RT		RF	RF2 •	BW •	BW2
15	14	105	20	75	45	2	4 x 14	216	216	136	136	150	-	F07	10,6	10,6	8,8	8,8
25	25	140	24	100	68		4 x 18	254	254	126	126	300	-	F07	17,9	17,9	13,5	13,5
40	38	170	28	125	88	3	4 x 22	305	305	194	194	350	-	F12	32	32	26	26
50	50	195	30	145	102		4 x 26	368	368	213	293	-	800	F12	69,5	72	43	45
65	62	220	34	170	122		8 x 26	419	419	-	-	*		F14	**	**	**	**
80	76	230	36	180	138		8 x 26	381	381	-	-	*		F14	87,4	85	68	66
100	95	265	40	210	162		8 x 30	457	457	-	-	*		F16	**	**	**	**
125	119	315	44	250	188		8 x 33	559	559	-	-	*		F25	**	**	**	**
150	145	355	50	290	218		12 x 33	610	610	-	-	*		F30	**	**	**	**
200	190	430	60	360	285		12 x 36	737	737	-	-	*		F35	550	**	443	**

• with packing, * with gear, **on request

NPS 1/2"-10" • Class 150-900 • Tmax 200°C (400°C)

Connection: ASME B16.5 FLANGED ENDS
ASME B16.25 WELDED ENDS

Design:

- SPLIT BODY
- forged

Class 150

NPS	Dimensions of flanges							L_{RF}	L_{BW}	V	V2 •	Lever		ISO 5211	kg			
	ød	øD	b	øK	ød4	f	n x ød2					R	RT		RF	RF2 •	BW •	BW2
1/2"	14	90	11,2	60,3	34,9		4x16	165	270	134	136	150	-	F04	9,2	9,2	8,8	8,8
3/4"	20	100	12,7	69,9	42,9		4x16	165	270	134	136	150	-	F04	10	10	9	9
1"	25	110	14,3	79,4	50,8		4x16	165	270	116	151	220	-	F05		13,2	9,5	12,2
1 1/4"	30	115	15,9	88,9	63,5		4x16	178	270	120	156	220	-	F05	15	18	12,5	13,5
1 1/2"	38	125	17,5	98,4	73,2		4x16	191	270	135	180	300	-	F05	21,6	28	18	25
2"	50	150	19,5	120,7	92,1		4x19	216	216	160	293	350	-	F07	29,2	37	25,5	33
2 1/2"	62	180	22,7	139,7	104,8	2	4x19	241	241	160	293	350	-	F10	40	40,5	33,5	33,5
3"	76	190	23,9	152,4	127		4x19	283	283	223	350	-	800	F12	76	73	66	65
4"	98	230	24,3	190,5	157,2		8x19	305	305	-	-	*		F14	88,8	93,8	73	87
5"	120	255	24,3	215,9	185,7		8x22	381	381	-	-	*		F14	130,5	133	95	108
6"	145	280	25,9	241,3	215,9		8x22	403	457	-	-	*		F16	144	135	124	123
8"	190	345	29	298,5	269,9		8x22	502	521	-	-	*		F25	283	340	245	228
10"	245	405	30,6	362	323,8		12x25	568	559	-	-	*		F25	395	461	300	330

Class 300

NPS	Dimensions of flanges							L_{RF}	L_{BW}	V	V2 •	Lever		ISO 5211	kg			
	ød	øD	b	øK	ød4	f	n x ød2					R	RT		RF	RF2 •	BW •	BW2
1/2"	14	95	14,3	66,7	34,9		4 x 16	165	270	134	136	150	-	F04	9,6	9,6	8,8	8,8
3/4"	20	115	15,9	82,6	42,9		4 x 19	165	270	134	136	150	-	F04	11	11	9	9
1"	25	125	17,9	88,9	50,8		4 x 19	165	270	116	151	220	-	F05		14,2	9,5	12,2
1 1/4"	30	135	19,5	98,4	63,5		4 x 19	178	270	120	156	220	-	F05	16	19	12,5	13,5
1 1/2"	38	155	21,1	114,3	73		4 x 22	191	270	135	180	300	-	F05	23	29,5	18	25
2"	50	165	22,7	127	92,1		8x 19	216	216	160	293	350	-	F07	32	40	25,5	33
2 1/2"	62	190	25,9	149,2	104,8	2	8 x 22	241	241	160	293	350	-	F10	42	42,5	33,5	33,5
3"	76	210	29	168,3	127		8 x 22	283	283	223	350	-	800	F12	80	77	66	65
4"	98	255	32,2	200	157,2		8 x 22	305	305	-	-	*		F14	96	100	73	87
5"	120	280	35,4	235	185,7		8 x 22	381	381	-	-	*		F14	144	146	95	108
6"	145	320	37	269,9	215,9		12 x 22	403	457	-	-	*		F16	153	144	124	123
8"	190	380	41,7	330,2	269,9		12 x 25	502	521	-	-	*		F25	298	355	245	228
10"	245	445	48,1	382,4	323,8		16 x 27	568	559	-	-	*		F25	440	488	300	330

Class 600

NPS	Dimensions of flanges							L_{RF}	L_{BW}	V	V2 •	Lever		ISO 5211	kg			
	ød	øD	b	øK	ød4	f	n x ød2					R	RT		RF	RF2 •	BW •	BW2
1/2"	14	95	14,3	66,7	35,1		4 x 19	165	270	134	134	150	-	F05	10	9,5	8,8	8,8
3/4"	20	115	15,9	82,6	42,9		4 x 19	191	270	134	134	150	-	F05	11	10	9	9
1"	25	125	17,5	88,9	50,8		4 x 19	216	270	120	151	220	-	F05		12,2	9,5	9,5
1 1/4"	30,5	135	20,7	98,4	63,5		4 x 19	229	270	125	156	220	-	F05	17	18	13	14
1 1/2"	38	155	22,3	114,3	73,2		4x 22	241	270	134	180	300	-	F07	21,5	27,5	16	25
2"	50	165	25,4	127	92,1		8 x 19	292	292	160	293	350	-	F10	35	37	29	31
2 1/2"	62	190	28,6	149,2	104,6	7	8 x 22	330	330	202	293	-	800	F12	51	52	43	44
3"	76	210	31,8	168,3	127		8 x 22	356	356	-	-	*		F14	80	77	64	61
4"	95	275	38,1	215,9	157,2		8 x 25	432	432	-	-	*		F14	124	129	95	100
5"	120	330	44,5	266,7	185,7		8 x 29	508	508	-	-	*		F16	169	174	120	125
6"	145	355	47,7	292,1	215,9		12 x 29	559	559	-	-	*		F25	250	279	210	249
8"	190	420	55,6	349,2	269,9		12 x 32	660	660	-	-	*		F30	420	463	330	373

Class 900

NPS	Dimensions of flanges							L_{RF}	L_{BW}	V	V2 •	Lever		ISO 5211	kg			
	ød	øD	b	øK	ød4	f	n x ød2					R	RT		RF	RF2 •	BW •	BW2
1/2"	14	120	22,3	82,6	35,1		4 x 22	216	216	136	136	150	-	F07	10,6	10,6	8,8	8,8
1"	25	150	28,6	101,6	50,8		4 x 25	254	254	126	126	300	-	F07	17	17	13,5	13,5
1 1/4"	30,5	160	28,6	111,1	63,5		4 x 25	279	279	130	161	350	-	F07		25	17	18
1 1/2"	38	180	31,8	123,8	73,2		4x 29	305	305	194	194	350	-	F12	32	32	26	26
2"	50	215	38,1	165,1	91,9		8 x 25	368	368	213	293	-	800	F12	69,5	72	43	45
2 1/2"	62	245	41,3	190,5	104,6	7	8 x 29	419	419	-	-	*		F14	**	**	**	**
3"	76	240	38,1	190,5	127		8 x 26	381	381	-	-	*		F14	87,4	85	68	66
4"	95	290	44,5	235	157,2		8 x 32	457	457	-	-	*		F16	**	**	**	**
5"	119	350	50,8	279,4	185,7		8 x 35	559	559	-	-	*		F25	**	**	**	**
6"	145	380	55,6	317,5	215,9		12 x 32	610	610	-	-	*		F30	**	**	**	**
8"	190	470	63,5	393,7	269,9		12 x 38	737	737	-	-	*		F35	**	**	**	**

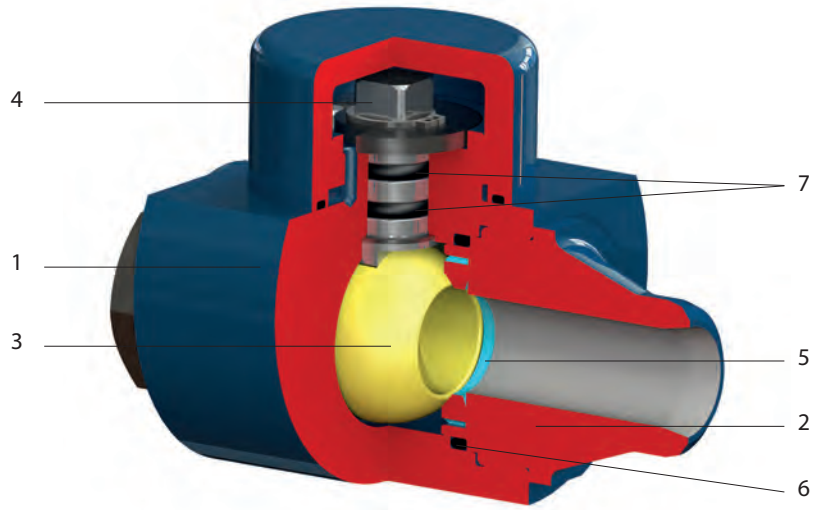
• with packing, * with gear, **on request

DN 15-50 • PN 16-320 • NPS 1/2"-2" • Class 150-1500

Design:

- **THREADED OR FULLY WELDED**

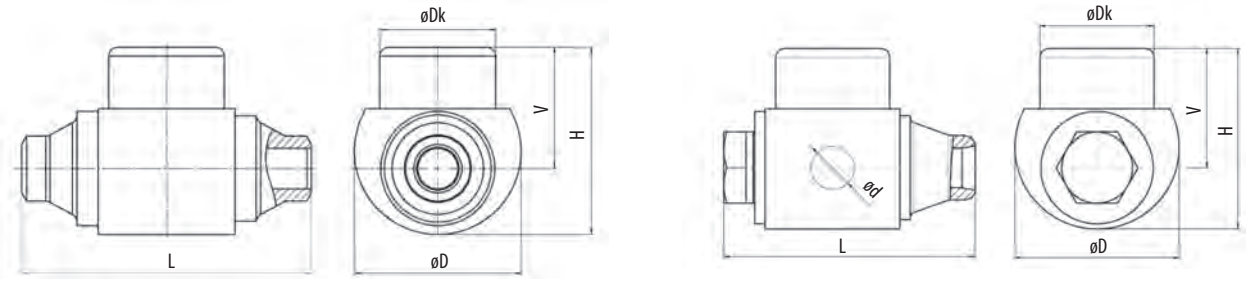
Connection:
- **EN 12627, ASME B16.25 WELDED ENDS**
- **B16.11 SOCKET WELD**
- **ISO 228-1, ASME B1.20.1 INSIDE THREADED DESIGN**



Standard material

Position	Component	Carbon steel		Stainless steel
		For normal temperature from -29°C to +200°C	For low temperarure from -46°C (-60°C) to +200°C	Austenitic steel from -60°C to +200°C
1	Body	A105, 1.0577, S355J2G3	A350 LF2, 1.0566, P355NL1	A182 F316 , 1.4541, A182 F304 , 1.4571
2	Closure			
3	Ball	A182 F304, A182 F316, A351 CF8		A182 F316, 1.4571, A351 CF8
4	Stem	1.4021, A182 F6a	1.4571, A182 F316, 1.4542	1.4571+ ENP Ni, A182 F316 + ENP Ni 1.4542 + ENP Ni
5	Seat	Filled PTFE, NYLON, PEEK		
6	Gasket	Filled PTFE, NYLON, PEEK		
7	O-ring	HNBR, VITON		

The temperature range can be limited, it depends on the seal material.
Other materials on request



PN / Class *	DN	NPS	L *	ød	øDk	V	H	øD	kg
PN 16-320 Class 150-1500	15	½"	130	14	58	54	80	72	2,1
	20	¾"	150	19	66	62	98	87	3,6
	25	1"	160	25	66	69	107	95	5,0
PN 16-160 Class 150-900	50	2"	247	25	94	104	171	155	17,1

* Higher PN (Class) are supplied on request.
Standard face to face dimensions acc. to the table. Other end to end dimensions on request.

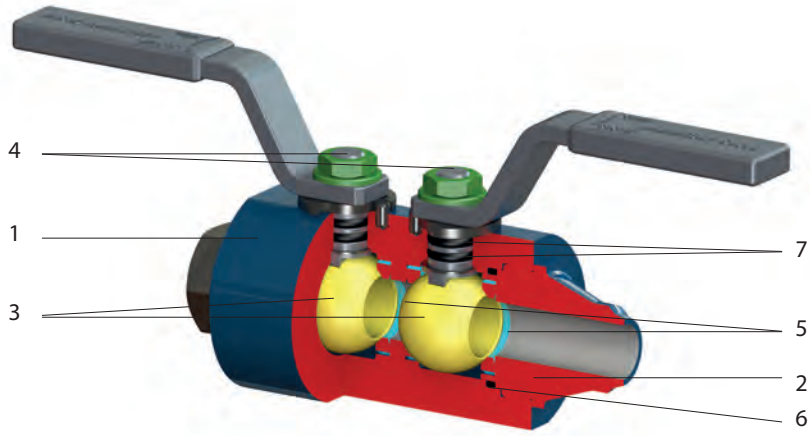
DN 15-50 • PN 16-320 • NPS 1/2"-2" • Class 150-1500

Design:

- THREADED OR FULLY WELDED
- Higher DN on request
- Application
  - oil and gas
  - draining
  - sea platform

Double block and bleed design and metal seated design on request.

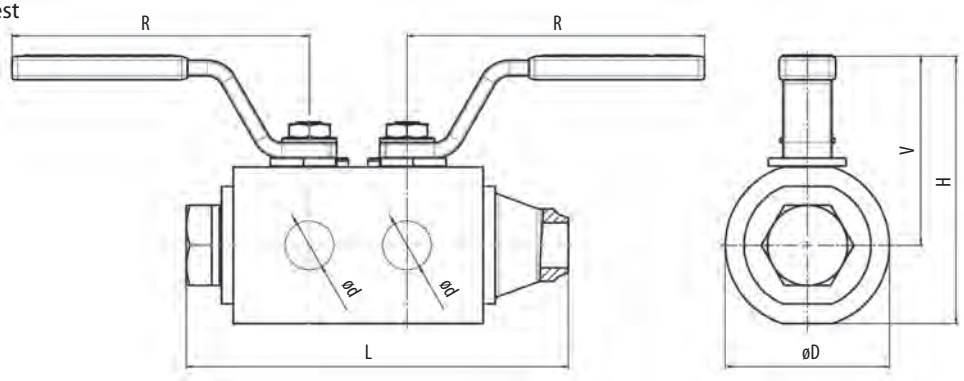
Connection:
- EN 12627, ASME B16.25 WELDED ENDS
- B16.11 SOCKET WELD
- ISO 228-1, ASME B1.20.1 OUTSIDE OR INSIDE THREADED DESIGN



Standard material

Position	Component	Carbon steel		Stainless steel
		For normal temperature from -29°C to +200°C	For low temperarure -46°C (-60°C) - +200°C	Austenitic steel from -60°C to +200°C
1	Body	A105, 1.0577, S355J2G3	A350 LF2, 1.0566, P355NL1	A182 F316, 1.4541, A182 F304 , 1.4571
2	Closure			
3	Ball	A182 F304, A182 F316, A351 CF8		A182 F316, 1.4571, A351 CF8
4	Stem	1.4021, A182 F6a	1.4571, A182 F316, 1.4542	1.4571+ ENP Ni, A182 F316 + ENP Ni 1.4542 + ENP Ni
5	Seat	Filled PTFE, NYLON, PEEK		
6	Gasket	Filled PTFE, NYLON, PEEK		
7	O-ring	HNBR, VITON		

The temperature range can be limited, it depends on the seal material.
Other materials on request



PN / Class *	DN	NPS	LBW *	ød	R	V	H	øD	kg
PN 16-320 Class 150-1500	15	½"	150	14	152	90	115	62	3,1
	20	¾"	170	19	152	100	131	79	4,8
	25	1"	196	25	152	103	137	84	6,3
PN 16-160 Class 150-900	50	2"	347	50	400	131	189	138	25,5

* Higher PN (Class) are supplied on request.
Standard face to face dimensions acc. to the table. Other end to end dimensions on request.

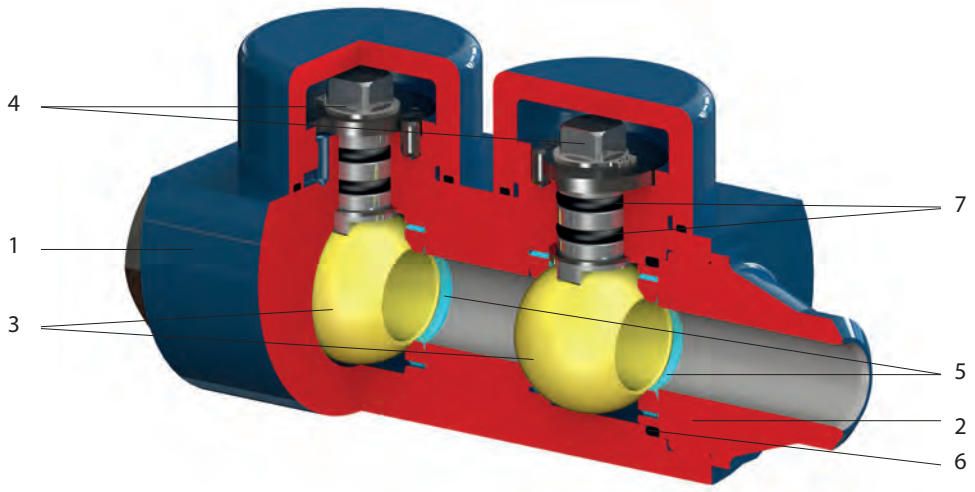
DN 15-50 • PN 16-320 • NPS 1/2"-2" • Class 150-1500

Design:

- THREADED OR FULLY WELDED

Connection:
- EN 12627, ASME B16.25 WELDED ENDS
- B16.11 SOCKET WELD
- ISO 228-1, ASME B1.20.1 OUTSIDE OR INSIDE THREADED DESIGN

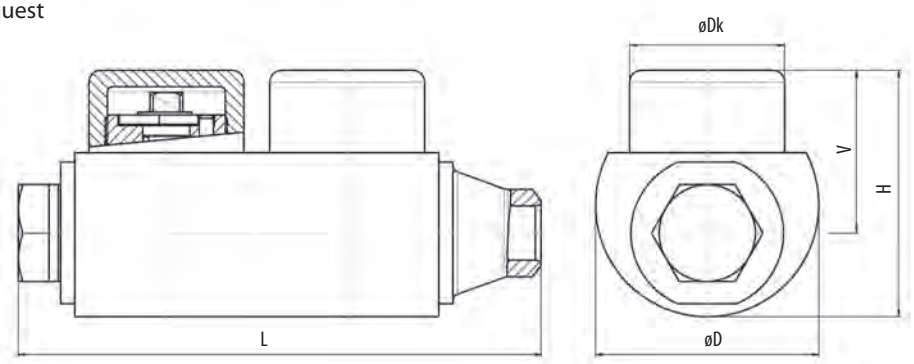
Double block and bleed design and metal seated design on request.



Standard material

Position	Component	Carbon steel		Stainless steel
		For normal temperature from -29°C to +200°C	For low temperarure -46°C (-60°C) - +200°C	Austenitic steel from -60°C to +200°C
1	Body	A105, 1.0577, S355J2G3	A350 LF2, 1.0566, P355NL1	A182 F304, 1.4541 A182 F316, 1.4571
2	Closure			
3	Ball	A182 F304, A182 F316, A351 CF8		A182 F316, 1.4571, A351 CF8
4	Stem	1.4021, A182 F6a	1.4571, A182 F316, 1.4542	1.4571+ ENP Ni, A182 F316 + ENP Ni 1.4542 + ENP Ni
5	Seat	Filled PTFE, NYLON, PEEK		
6	Gasket	Filled PTFE, NYLON, PEEK		
7	O-ring	HNBR, VITON		

The temperature range can be limited, it depends on the seal material.
Other materials on request



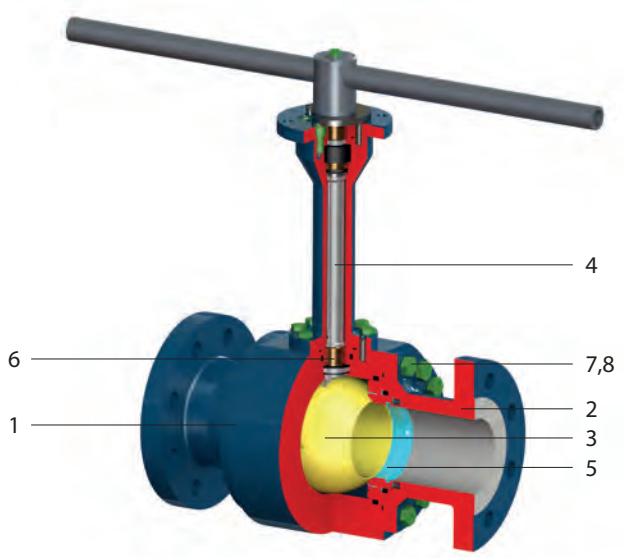
PN / Class *	DN	NPS	L *	ød	øDk	V	H	øD	kg
PN 16-320 Class 150-1500	15	½"	194	14	58	54	80	72	4,2
	20	¾"	215	19	66	62	98	87	5,4
	25	1"	223	25	66	69	105	95	8,2
PN 16-160 Class 150-900	50	2"	381	50	94	104	171	155	35

* Higher PN (Class) are supplied on request.
Standard face to face dimensions acc. to the table. Other end to end dimensions on request.

DN 25-150 • PN 16-100 • NPS 1"-6" • Class 150-600

Design:

- Cryogenic ball valve is applied for design temperature. below -60°C.
- Dimensions on customer´s request



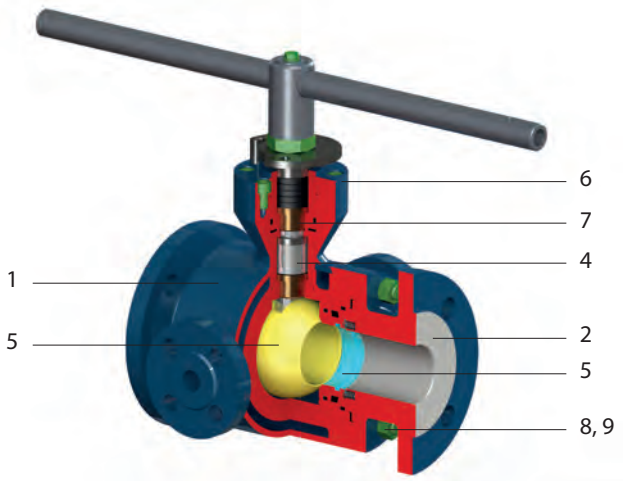
Standard material

Position	Component	Stainless steel	
		For temperatures from -60°C to -105°C	For temperatures from -105°C to -196°C
1	Body	A182 F304, 1.4541, A182 F316, 1.4571	
2	Bonnet		
3	Ball	A182 F316, A351 CF8, 1.4571	
4	Stem	A182 F316, 1.4571, 1.4542	
5	Seat	Filled PTFE	PCTFE (KEL-F)
5.1	Seat seal	Lip-seal Stainless Steel+PTFE	
5.2	Spring	Inconel X750	
6	Bearing	SS+PTFE	
7	Bolt	A193 B8M Cl2	
8	Nut	A194 8M	
9	Packing	Lip-seal Stainless Steel+PTFE, Graphite	

DN 15, 25, 40, 50, 100 • PN 16-40

Design:

- Ball valve is equipped with heating jacket for supply of heating medium.
- Dimensions on customer´s request



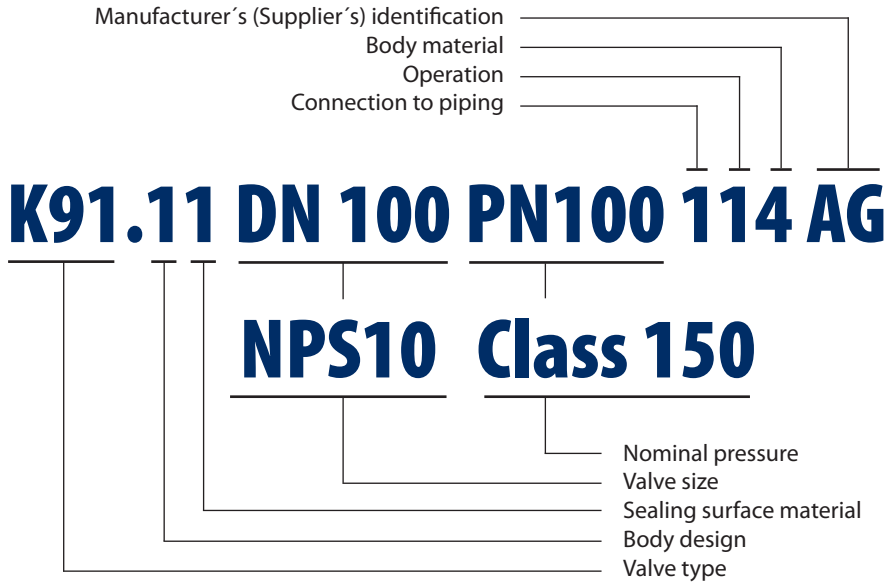
Standard material

Position	Component	Carbon steel		Stainless steel	
		from -20 to 200 °C	from 200 to 400 °C	from -20 to 200 °C	from 200 to 400 °C
1	Body	A105, 1.0566		A182 F304, 1.4541, A182 F316, 1.4571, A182 F6a, 1.4201	
2	Cover	A105, 1.0566			
3	Ball	A304, A316, 13%Cr + HF			
4	Control Stem	AISI 410, A182 F6a, A304, A316, A351-CF8			
5	Seat	Stainless steel + HF			
6	Flange	A105, 1.0566		A182 F304, 1.4541, A182 F316, 1.4571, A182 F6a, 1.4201	
7	Bearings	SS + PTFE			
8	Bolt	A 320 L7		A193 B8	
9	Nut	A 194 Gr.4		A194 G8	
10	Packing	Graphite			

The temperature range can be limited, it depends on the seal material.
Other materials on request

TYPE NUMBER COMPOSITION

Type number uniquely describes the valve.
Type number is fixed by the manufacturer (supplier).
Type number serves to customers in subsequent communication with the manufacturer (supplier) valve.



Valve type
K91 – ball valve with floating ball

Body design
1 – forged body, split design
2 – forged body, fully welded design
4 – forged body, threaded design
5 – forged body, wafer type
6 – forged body, one piece design
9 – forged body, design with heating jacket
C – forged body, cryogenic design

Sealing surface material
1 – soft-seated
2 – metal-metal

Connection to piping
1 – flanged ends
2 – welded ends
3 – threaded ends
7 – wafer type

Operation
1 – lever
2 – gear-box
3 – electric actuator
4 – pneumatic actuator
5 – bare shaft
9 – pressure cover

Body material
0 – stainless steel
2 – alloy cast steel
3 – forged alloy steel
4 – forged carbon steel
5 – carbon cast steel

Manufacturer´s (Supplier´s) identification
AG – ARMATURY Group a.s.

Data mentioned in the catalogue are not subject to changes, for an order and delivery of the goods are obligatory the data mentioned in respective specifications.

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