



BALL
VALVES

Stainless steel ball- and control ballvalves



Planmix Oy

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COMPANY PROFILE

"Temper" LLC is a Russian manufacturer of steel ball valves of brand TEMPER.

The manufacture of ball valves is based on the technology of production of ball valves manufactured since 1993 by the Estonian company OÜ Temper - European manufacturer of pipe fittings for industrial use.

Temper's production plant is located in the city of Kurgan, Siberia where the factory has land surface area of about three hectares. The interior production area is 3500 m². The machinery consists of more than 50 pieces of different equipment. The number of employees is more than 130 people. Production takes place in two shifts.

The production process is organized on advanced, high-tech equipment with numerical control.

Raw materials (pipes and metal-roll products) are purchased from the Ural metallurgical enterprises.

Manufacturing of main parts, welding of the body, painting and other production steps are carried out in an automated way.

Temper has organized a multilevel Quality control system covering the whole production cycle. Temper has a production capacity of more than 300 000 pieces of ball valves per year.

In 2013 Temper started active marketing of its products to the Russian market by opening its own sales office in St. Petersburg. During 2014 Temper formed an effective dealer network covering all regions of Russia, from Kaliningrad to Vladivostok. The launch of the products to European market started in 2016.

ABOUT THE PRODUCT

TEMPER ball valves are manufactured in accordance with PED 97 | 23EC.

The quality management system is certified by Bureau Veritas in accordance with ISO 9001.

TECHNICAL CHARACTERISTICS

TEMPER ball valves are designed for application in district heating and natural gas transportation pipelines as well as for heat supply industry and many other various operating systems.

OPERATING CONDITIONS

- Working medium: DH water, natural gas, petroleum products, combustible and lubricating materials as well as other fluids free from abrasive contaminants.
- Working mediums for stainless steel valves must be non-aggressive towards valve materials.
- Diameter range: 15 mm to 500 mm
- Working pressure: 1.6 MPa to 4.0 MPa
- Temperature of working medium: -60°C to +200°C
- Ambient temperature -60°C to +60°C
- Connection types: Female threads, Welded, Flanged and their combinations, fully welded construction.
- Versions for regulation, insulation and underground installation of the valve.

CONTROLS

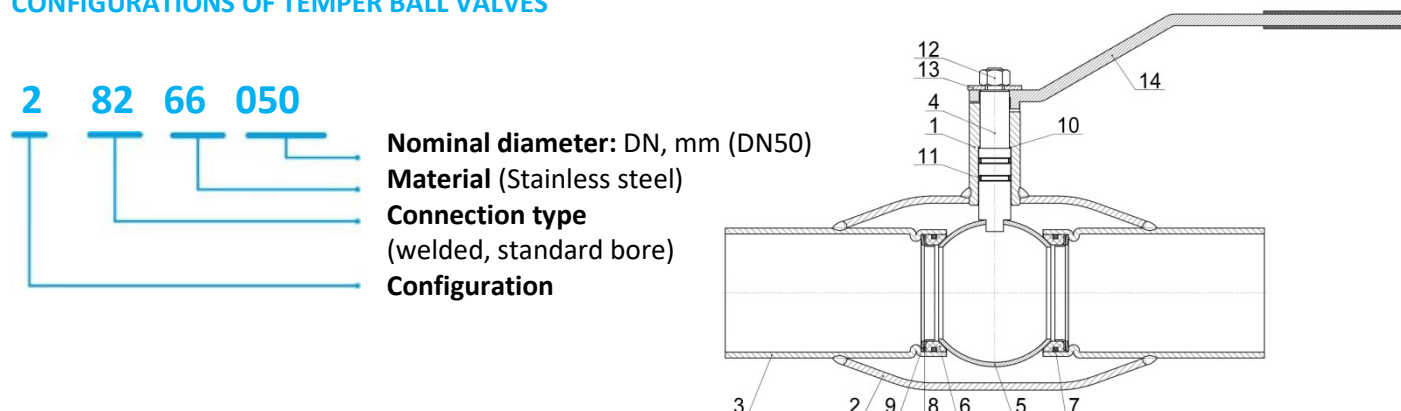
Temper ball valves may be operated with handle, gearbox, pneumatic or electric actuator directly or remotely. Ball valves of DN 125 - 500 are equipped with ISO flange for actuator.

ADVANTAGES

- High quality seamless steel.
- Serial valves for cold climatic performance.
- Powder painted for additional corrosion protection.
- Long service life verified by multiple tests and operational experience.
- Extended valve stem for easy insulation of the valve.
- No maintenance, suspenders or lubrication required.
- Maximum tightness class throughout the range of operating temperatures.
- Ball valves of above DN 125 - 500 are equipped with ISO flange for actuator.

Configurations	Connection types		Materials	Nominal diameters
	Standard bore	Full bore		
2 – Main type (basic stem) 4 – Extended stem 5 – Extended stem with hard insulation of Protegol 6 – Ball valves for regulation	80 – Female threads 81 – Female threads / Welded 82 – Welded 83 – Flanged 84 – Flanged Pn25 85 – Choke-nipple 86 – Flanged (short length) 87 – Flanged PN25 (short length) 88 – Flanged PN25 / Welded 89 – Flanged / Welded	90 – Female threads 91 – Female threads / Welded 92 – Welded 93 – Flanged 94 – Flanged PN25 98 – Flanged PN25 / Welded 99 – Flanged / Welded	20 – Carbon steel 45 – Alloy P235GH 66 – Stainless steel	DN15 – DN500

CONFIGURATIONS OF TEMPER BALL VALVES



MATERIAL OF KEY COMPONENTS

Nº	Component	20 (Carbon steel)	45 (Alloy)	66 (Stainless steel)
1	Neck	1.1151	P235GH	1.4541
2	Body	1.1151	P235GH	1.4541
3	Welding ends	1.1151	P235GH	1.4541
4	Stem	1.4021	1.4021	1.4541
5	Ball	1.4301	1.4301	1.4541
6	Seat	PTFE+C	PTFE+C	PTFE+C
7	Round profile O-ring	FVMQ	FVMQ	FVMQ
8	L – Supporting ring	1.4301	1.4301	1.4541
9	Plate spring	66Mn4	66Mn4	1.4541
10	O-Ring	PTFE+C	PTFE+C	PTFE+C
11	Neck assembly seal	FVMQ	FVMQ	FVMQ
12	Nut	Steel	Steel	Steel
13	Spacer	Steel	Steel	Steel
14	Handle	Steel	Steel	Steel

FLOW RATE VALUES OF TEMPER BALL VALVE, KV, M³/H

Standard bore ball valves

DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150	DN 200	DN 250	DN 300	DN 400	DN 500
8	14	25	41	68	107	183	317	471	832	1150	1760	3200	4610	13350	18780

Full bore ball valves

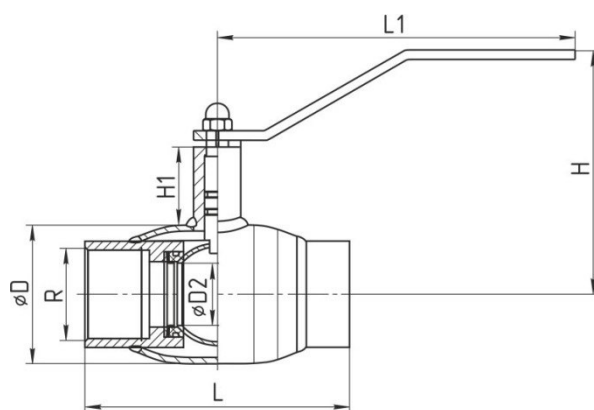
DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150	DN 200	DN 250	DN 300	DN 400
20	42	67	87	138	212	356	532	965	1477	2150	3880	5640	25470	48700

STANDARD BORE

BALL VALVE SS

280

FEMALE THREADS CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**

«PRESSURE-TEMPERATURE»
DIAGRAM



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	R	D2
15	40	28066015	135	148	132	49	38	1/2	10
20	40	28066020	135	148	135	50	42	3/4	15
25	40	28066025	135	148	138	50	48	1	20
32	40	28066032	135	148	142	50	57	1 1/4	25
40	40	28066040	155	235	145	44	76	1 1/2	32
50	40	28066050	170	235	154	46	89	2	40
65	25	28066065	190	235	162	42	108	2 1/2	50
80	25	28066080	200	283	200	66	133	3	65
100	25	28066100	240	283	209	63	159	4	80

* It is also possible to manufacture Temper ball valves of the following connection type: FEMALE THREADS / WELDED - 281 type.

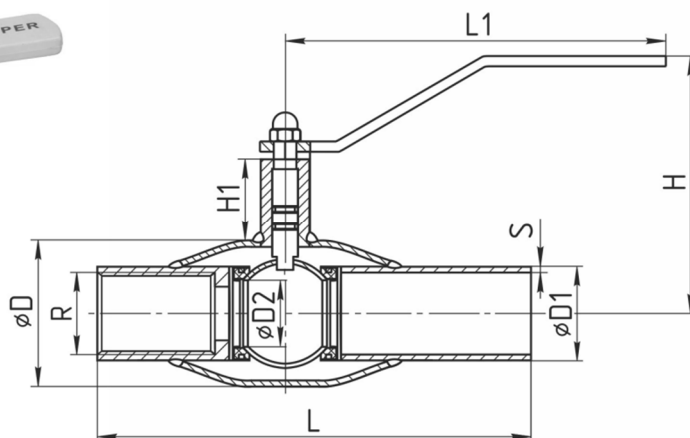
** Subject to the rules of operation

STANDARD BORE

BALL VALVE SS

281

FEMALE THREADS / WELDED CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

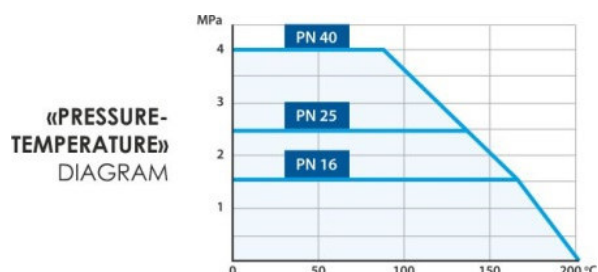
Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	S	R
15	40	28166015	183	148	132	49	38	21,3	10	2,0	1/2
20	40	28166020	183	148	135	50	42	26,9	15	2,3	3/4
25	40	28166025	183	148	138	50	48	33,7	20	2,6	1
32	40	28166032	198	148	142	50	57	42,4	25	2,6	1 1/4
40	40	28166040	208	235	145	44	76	48,3	32	2,6	1 1/2
50	40	28166050	235	235	154	46	89	60,3	40	2,9	2
65	25	28166065	245	235	159	42	108	76,1	50	2,9	2 1/2
80	25	28166065	250	283	200	66	133	88,9	65	3,2	3
100	25	28166100	283	283	209	63	159	114,3	80	3,6	4

* It is also possible to manufacture Temper ball valves of the following connection types: FLANGED PN 25 / WELDED - 288 type and FLANGED / WELDED - 289 type.

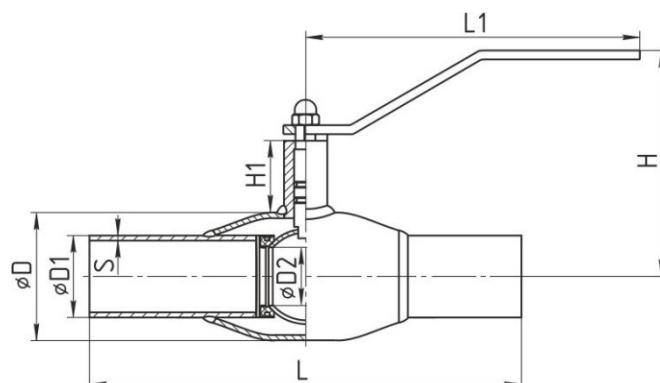
** Subject to the rules of operation

STANDARD BORE

BALL VALVE SS

282

WELDED CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, ethanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**

«PRESSURE-
TEMPERATURE»
DIAGRAM



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	S
15	40	28266015	230	148	132	49	38	21,3	10	2,0
20	40	28266020	230	148	135	50	42	26,9	15	2,3
25	40	28266025	230	148	138	50	48	33,7	20	2,6
32	40	28266032	260	148	142	50	57	42,4	25	2,6
40	40	28266040	260	235	145	44	76	48,3	32	2,6
50	40	28266050	300	235	154	46	89	60,3	40	2,9
65	25	28266065	300	235	159	42	108	76,1	50	2,9
80	25	28266065	300	283	200	66	133	88,9	65	3,2
100	25	28266100	325	283	209	63	159	114,3	80	3,6

* It is also possible to manufacture Temper ball valves of the following connection types: FEMALE THREADS / WELDED - 281 type, FLANGED PN 25 / WELDED - 288 type and FLANGED / WELDED - 289 type.

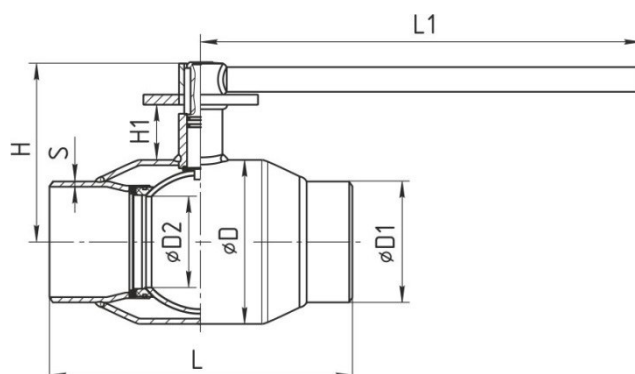
** Subject to the rules of operation

STANDARD BORE

BALL VALVE SS

282 (equipped with ISO flange for actuator)

WELDED CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

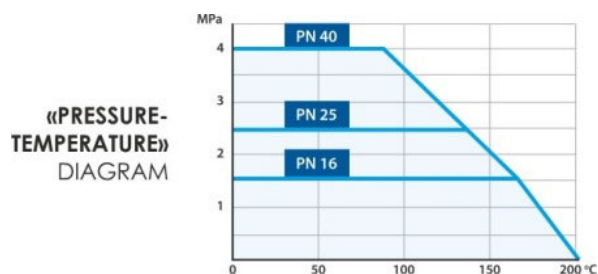
Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	S
125	25	28266125	325	525	195	51	180	139,7	100	4,0
150	25	28266150	350	525	210	58	219	168,3	125	4,5
200	25	28266200	400	625	225	55	273	219,1	150	4,5
250	25	28266250	530	625	270	51	351	273,0	200	5,0

* It is also possible to manufacture Temper ball valves of the following connection types: FEMALE THREADS / WELDED - 281 type, FLANGED PN 25 / WELDED - 288 type and FLANGED / WELDED - 289 type.

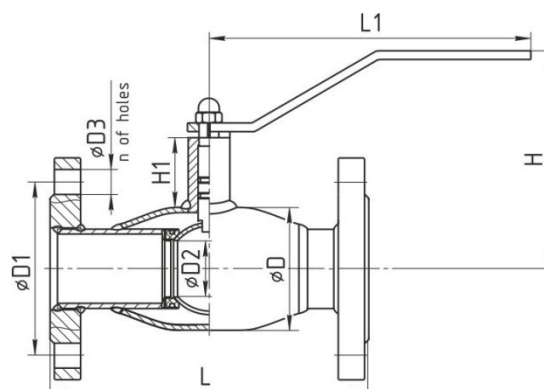
** Subject to the rules of operation

STANDARD BORE

BALL VALVE SS

283

FLANGED CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**

«PRESSURE-
TEMPERATURE»
DIAGRAM



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	D3	n of holes
15	40	28366015	130	148	132	49	38	65	10	14	4
20	40	28366020	150	148	135	50	42	75	15	14	4
25	40	28366025	160	148	138	50	48	85	20	14	4
32	40	28366032	180	148	142	50	57	100	25	18	4
40	40	28366040	200	235	145	44	76	110	32	18	4
50	40	28366050	230	235	154	46	89	125	40	18	4
65	16	28366065	270	235	159	42	108	145	50	18	8
80	16	28366080	280	283	200	66	133	160	65	18	8
100	16	28366100	300	283	209	63	159	180	80	18	8

* It is also possible to manufacture Temper ball valves of the following connection type: FLANGED / WELDED - 289 type.

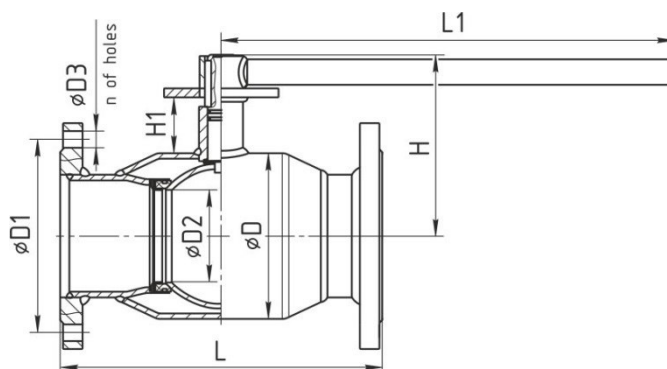
** Subject to the rules of operation

STANDARD BORE

BALL VALVE SS

283 (equipped with ISO flange for actuator)

FLANGED CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

Min. temperature (T) °C.: -60

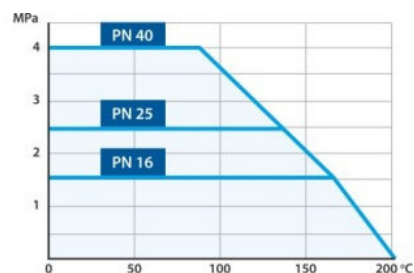
Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**

«PRESSURE-
TEMPERATURE»
DIAGRAM



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	D3	n of holes
125	16	28366125	325	525	195	51	180	210	100	18	8
150	16	28366150	350	525	210	58	219	240	125	22	8
200	16	28366200	400	625	225	55	273	295	150	22	12
250	16	28366250	500	625	270	51	351	355	200	26	12

* It is also possible to manufacture Temper ball valves of the following connection type: FLANGED / WELDED - 289 type.

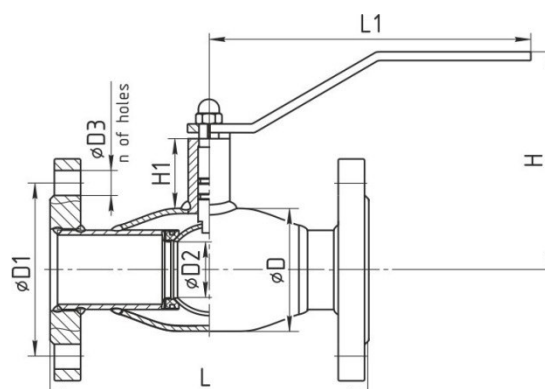
** Subject to the rules of operation

STANDARD BORE

BALL VALVE SS

284*

FLANGED CONNECTION* PN25



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

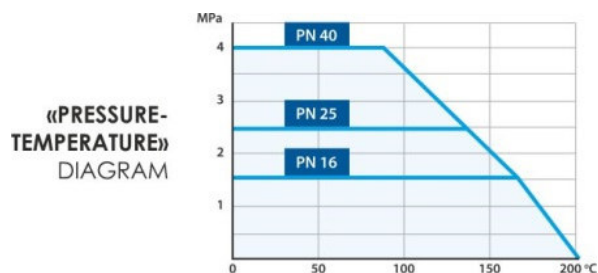
Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	D3	n of holes
65	25	28466065	270	235	159	42	108	145	50	18	4
80	25	28466080	280	283	200	66	133	160	65	18	8
100	25	28466100	300	283	209	63	159	190	80	22	8

* It is also possible to manufacture Temper ball valves of the following connection type: FLANGED PN 25 / WELDED - 288 type.

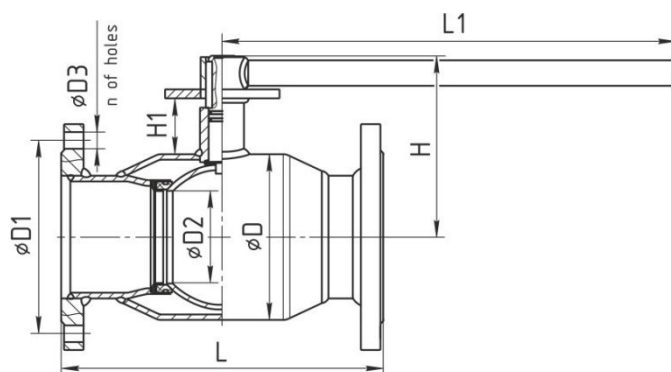
** Subject to the rules of operation

STANDARD BORE

BALL VALVE SS

284* (equipped with ISO flange for actuator)

FLANGED CONNECTION* PN25



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

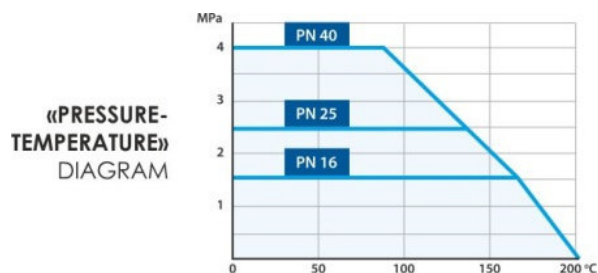
Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	D3	n of holes
125	25	28466125	350	525	195	51	180	220	100	26	8
150	25	28466150	380	525	210	58	219	250	125	26	8
200	25	28466200	450	625	225	55	273	310	150	26	12
250	25	28466250	530	625	270	51	351	370	200	30	12

* It is also possible to manufacture Temper ball valves of the following connection type: FLANGED PN 25 / WELDED - 288 type.

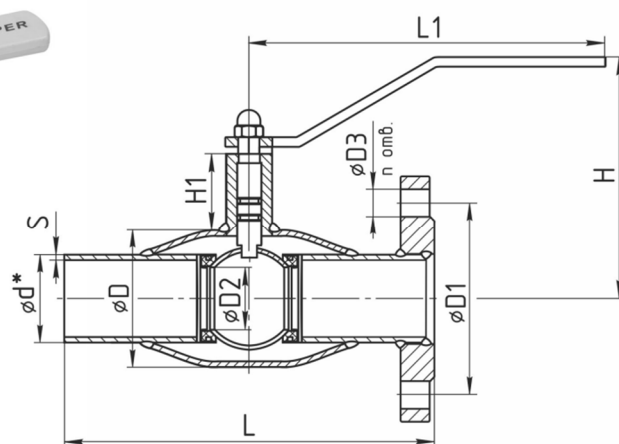
** Subject to the rules of operation

STANDARD BORE

BALL VALVE SS

289

FLANGED / WELDED CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

Min. temperature (T) °C.: -60

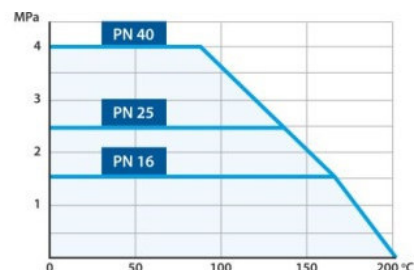
Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**

«PRESSURE-
TEMPERATURE»
DIAGRAM



DN	PN	PRODUCT NUMBER	L	L1	H	H1	S	d*	D	D1	D2	D3	n of holes
15	40	28366015	180	148	132	49	2,0	2,0	38	65	10	14	4
20	40	28366020	190	148	135	50	2,3	2,3	42	75	15	14	4
25	40	28366025	195	148	138	50	2,6	2,6	48	85	20	14	4
32	40	28366032	220	148	142	50	2,6	2,6	57	100	25	18	4
40	40	28366040	230	235	145	44	2,6	2,6	76	110	32	18	4
50	40	28366050	265	235	154	46	2,9	2,9	89	125	40	18	4
65	16	28366065	285	235	159	42	2,9	2,9	108	145	50	18	8
80	16	28366080	290	283	200	66	3,2	3,2	133	160	65	18	8
100	16	28366100	313	283	209	63	3,6	3,6	159	180	80	18	8

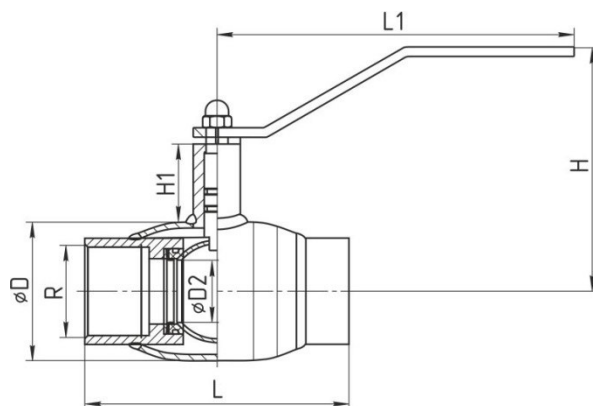
* It is also possible to manufacture Temper ball valves of the following connection type: FLANGED / WELDED - 289 type.

** Subject to the rules of operation

FULL BORE
BALL VALVE SS

290*

FEMALE THREADS CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

Min. temperature (T) °C.: -60

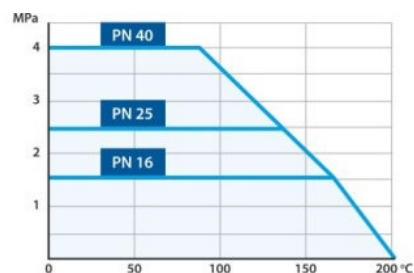
Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**

«PRESSURE-
TEMPERATURE»
DIAGRAM



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	R	D2
15	40	29066015	135	148	135	50	42	1/2	15
20	40	29066020	135	148	138	50	48	3/4	20
25	40	29066025	135	148	142	50	57	1	25
32	40	29066032	155	235	145	44	76	1 1/4	32
40	40	29066040	170	235	154	46	89	1 1/2	40
50	40	29066050	190	235	159	42	108	2	50
65	25	29066065	200	283	200	66	133	2 1/2	65
80	25	29066080	240	283	209	63	159	3	80

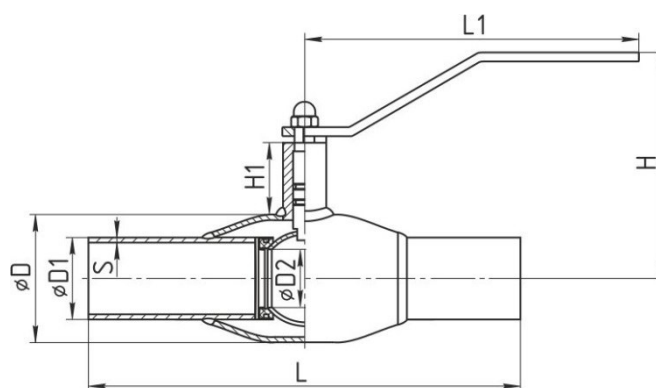
* It is also possible to manufacture Temper ball valves of the following connection type: FEMALE THREADS / WELDED - 291 type.

** Subject to the rules of operation

FULL BORE
BALL VALVE SS

292*

WELDED CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

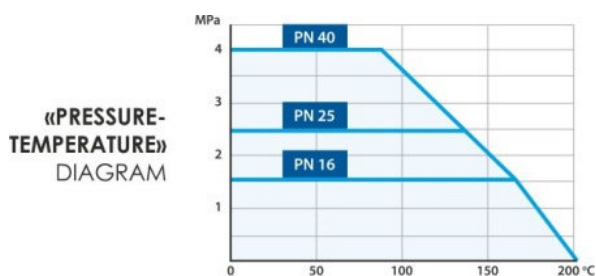
Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	S
15	40	29266015	210	148	135	50	42	21,3	15	3
20	40	29266020	230	148	138	50	48	26,9	20	3,5
25	40	29266025	230	148	142	50	57	33,7	25	3,5
32	40	29266032	260	235	145	44	76	42,4	32	4
40	40	29266040	260	235	154	46	89	48,3	40	4
50	40	29266050	300	235	159	42	108	60,3	50	4
65	25	29266065	360	283	200	66	133	76,1	65	4
80	25	29266080	370	283	209	63	159	88,9	80	5

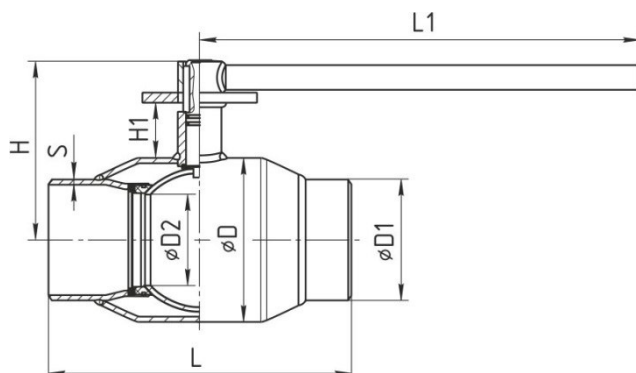
* It is also possible to manufacture Temper ball valves of the following connection types: FEMALE THREADS / WELDED - 291 type, FLANGED PN 25 / WELDED - 298 type and FLANGED / WELDED - 299 type.

** Subject to the rules of operation

FULL BORE
BALL VALVE SS

292* (equipped with ISO flange for actuator)

WELDED CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

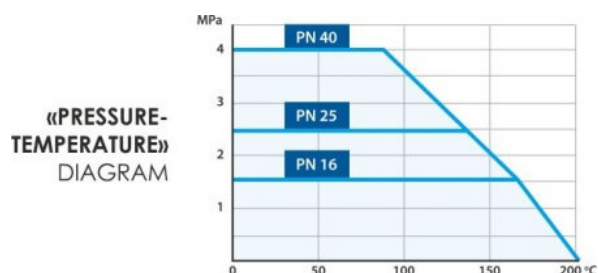
Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**



DN	PN	TUOTENUMERO	L	L1	H	H1	D	D1	D2	S
100	25	29220100	330	525	195	51	180	114,3	100	6
125	25	29220125	360	525	210	51	180	139,7	125	6
150	25	29220150	430	525	225	58	219	168,3	150	8
200	25	29220200	510	625	270	55	273	219,1	200	8
250**	16	29220250	730	-	329	98	426	273	250	8
300**	16	29220300	730	-	373	98	530	323,9	300	8
400**	16	29220400	970	-	435	98	630	406.4	390	10

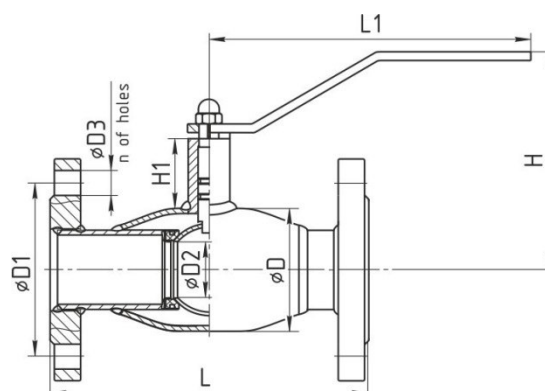
* It is also possible to manufacture Temper ball valves of the following connection types: FEMALE THREADS / WELDED - 291 type, FLANGED PN 25 / WELDED - 298 type and FLANGED / WELDED - 299 type.

** Subject to the rules of operation

FULL BORE
BALL VALVE SS

293*

FLANGED CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, ethanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

Min. temperature (T) °C.: -60

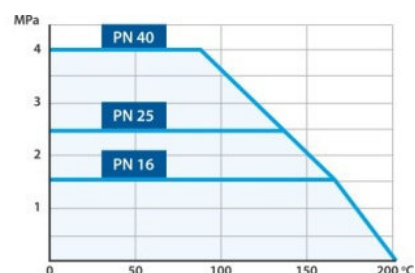
Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**

«PRESSURE-
TEMPERATURE»
DIAGRAM



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	D3	n of holes
15	40	29366015	130	148	132	49	38	65	15	14	4
20	40	29366020	150	148	135	50	42	75	20	14	4
25	40	29366025	160	148	138	50	48	85	25	14	4
32	40	29366032	180	148	142	50	57	100	32	18	4
40	40	29366040	200	235	145	44	76	110	40	18	4
50	40	29366050	250	235	154	46	89	125	50	18	4
65	16	29366065	270	235	159	42	108	145	65	18	4
80	16	29366080	290	283	200	66	133	160	80	18	8

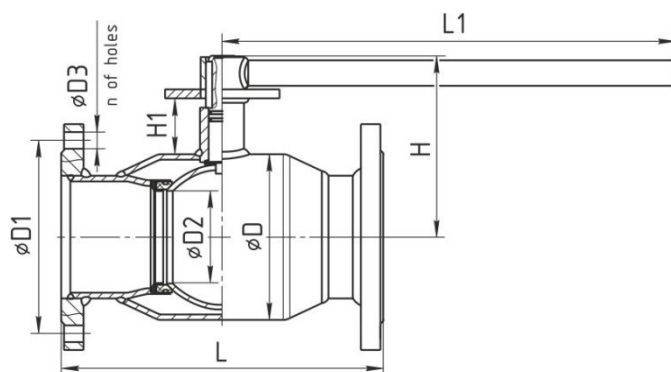
* It is also possible to manufacture Temper ball valves of the following connection type: FLANGED / WELDED - 299 type.

** Subject to the rules of operation

FULL BORE
BALL VALVE SS

293* (equipped with ISO flange for actuator)

FLANGED CONNECTION*



Working medium

Heating and cooling systems, open and close water systems, ethanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

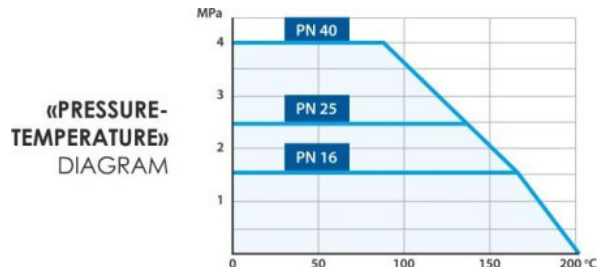
Min. temperature (T) °C.: -60

Body materials: 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	D3	n of holes
100	16	29366100	350	525	195	51	180	180	100	18	8
125	16	29366125	380	525	210	51	180	210	125	22	8
150	16	29366150	410	525	225	58	219	240	150	22	12
200	16	29366200	530	625	270	55	273	295	200	26	12

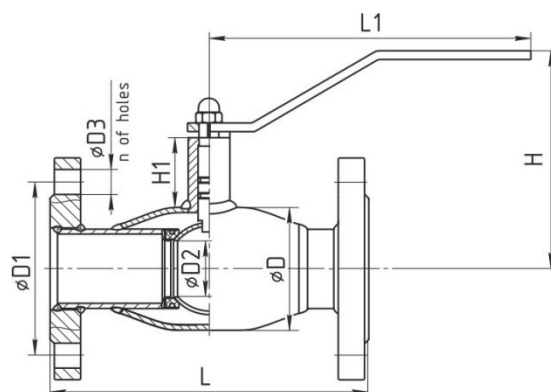
* It is also possible to manufacture Temper ball valves of the following connection type: FLANGED / WELDED - 299 type.

** Subject to the rules of operation

FULL BORE
BALL VALVE SS

294*

FLANGED CONNECTION* PN25



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

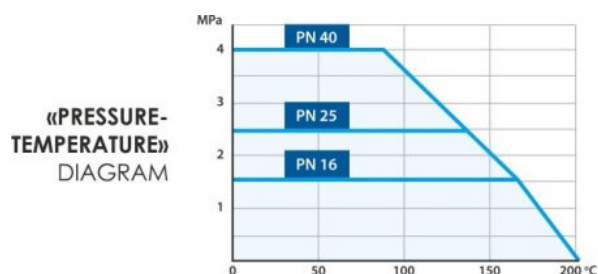
Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	D3	n of holes
65	25	29466065	270	235	159	42	108	145	65	18	4
80	25	29466080	290	283	200	66	133	160	80	18	8

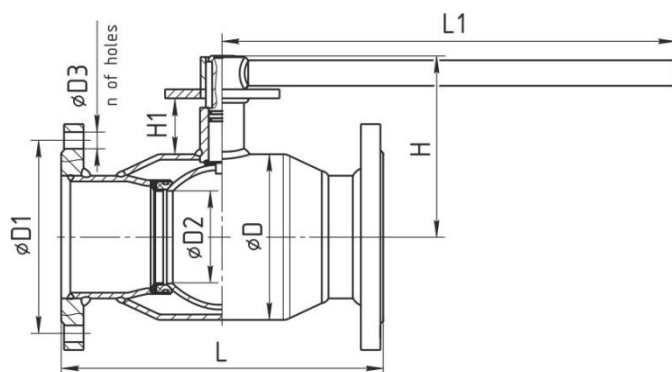
* It is also possible to manufacture Temper ball valves of the following connection type: FLANGED PN 25 / WELDED - 298 type.

** Subject to the rules of operation

FULL BORE
BALL VALVE SS

294* (equipped with ISO flange for actuator)

FLANGED CONNECTION* PN25



Working medium

Heating and cooling systems, open and close water systems, etanol, methanol, glycol, petroleum products, etc.

Technical characteristics

Max. temperature (T) °C.: +200

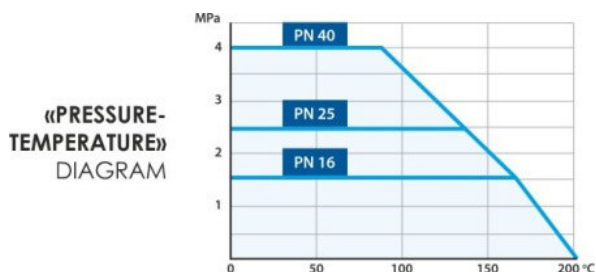
Min. temperature (T) °C.: -60

Body material : 1,4541

Valve gate tightness rating: Class "A"

Warranty period: 3 years or 10 000 cycles**

Service life: At least 25 years**



DN	PN	PRODUCT NUMBER	L	L1	H	H1	D	D1	D2	D3	n of holes
100	25	29466100	350	525	195	51	180	190	100	22	8
125	25	29466125	380	525	195	51	180	220	125	26	8
150	25	29466150	410	525	210	58	219	250	150	26	8
200	25	29466200	530	625	225	55	273	310	200	26	12

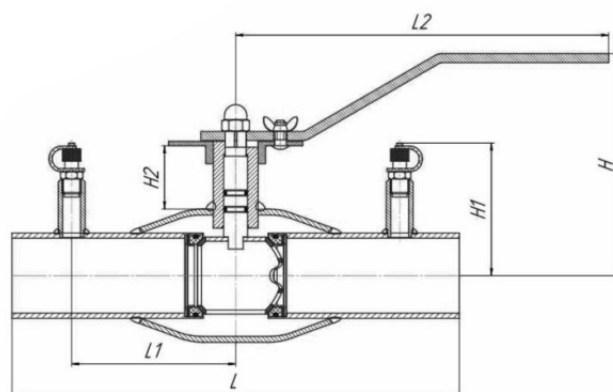
* It is also possible to manufacture Temper ball valves of the following connection type: FLANGED PN 25 / WELDED - 298 type.

** Subject to the rules of operation

BALANCING BALL VALVE SS

682/692

WELDED CONNECTION*



Temper balancing ball valves are designed for regulation (balancing) of the working fluid flow in heating, cold supply and ventilation systems. The ball has a special orifice and the valve is equipped with a scale of values. Regulation is carried out by turning the handle with the pointer. The selected position of the handle is fixed with a bolt and a nut-butterfly.

BALANCING BALL VALVE DIMENSIONS



DN	PN	PRODUCT NUMBER	L	L1	L2	H	H1	H2
20	40	68266020	230	65	175	135	74	45
25	40	68266025	230	65	175	138	76	45
32	40	68266032	260	80	175	140	79	45
40	40	68266040	260	90	250	148	84	43
50	40	68266050	300	110	250	148	88	40
65	25	68266065	360	120	250	152	98	36
80	25	68266080	370	135	300	186	138	49
100	25	68266100	390	135	300	194	148	43
125**	25	68266125	330	115	-	-	158	51
150**	25	68266150	360	125	-	-	168	58

RATE VALUES OF TEMPER BALANCING BALL VALVE, KV, M³/H

The value of the valve scale	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150
1	-	-	-	0,42	0,57	1,30	2,45	3,38	6,55	8,75	14,30
2	0,16	0,16	0,50	0,79	1,50	2,76	4,82	7,45	12,62	18,50	26,14
3	0,40	0,40	1,20	1,50	2,65	4,45	8,10	12,95	20,20	31,10	45,14
4	0,82	0,82	1,90	2,23	4,10	6,80	11,80	19,20	28,76	45,80	66,47
5	1,19	1,19	2,80	3,50	5,85	9,78	16,25	27,62	42,92	65,84	98,30
6	1,90	1,90	4,60	5,20	8,50	14,20	26,10	39,10	61,20	98,60	145,20
7	3,10	3,10	6,50	7,12	12,41	20,10	33,72	54,20	91,10	143,20	243,00
8	4,30	4,30	9,10	9,88	17,20	26,70	46,15	76,12	134,20	206,10	341,10
9	5,72	5,72	12,20	13,20	22,30	34,40	61,40	106,70	214,25	289,80	458,20

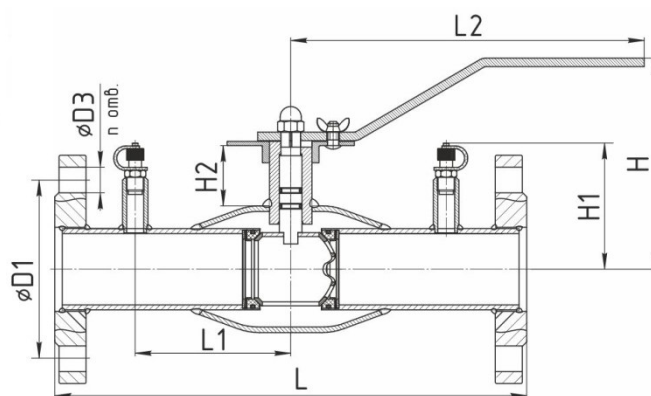
* It is also possible to manufacture Temper regulating ball valves of the following connection types: FEMALE THREADS / WELDED - 281 type, FLANGED - 683/693 and 684/694 types, or combined - 681/691, 688/698 and 689/699 types.

** These diameters are supplied with gearboxes

BALANCING BALL VALVE SS

683/693

FLANGED CONNECTION*



Temper balancing ball valves are designed for regulation (balancing) of the working fluid flow in heating, cold supply and ventilation systems. The ball has a special orifice and the valve is equipped with a scale of values. Regulation is carried out by turning the handle with the pointer. The selected position of the handle is fixed with a bolt and a nut-butterfly.

BALANCING BALL VALVE DIMENSIONS



DN	PN	PRODUCT NUMBER	L	L1	L2	H	H1	H2	D1	D3	n of holes
20	40	68366020	150	50	175	135	74	45	65	14	4
25	40	68366025	160	50	175	138	76	45	75	14	4
32	40	68366032	180	55	175	140	79	45	85	14	4
40	40	68366040	200	65	250	148	84	43	100	18	4
50	40	68366050	230	70	250	148	88	40	110	18	4
65	25	68366065	270	85	250	152	98	36	125	18	4
80	25	68366080	280	95	300	186	138	49	145	18	8
100	25	68366100	300	105	300	194	148	43	160	18	8
125**	25	68366125	350	115	-	-	158	51	210	18	8
150**	25	68366150	380	125	-	-	168	58	240	22	8

RATE VALUES OF TEMPER BALANCING BALL VALVE, KV, M³/H

The value of the valve scale	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150
1	-	-	-	0,42	0,57	1,30	2,45	3,38	6,55	8,75	14,30
2	0,16	0,16	0,50	0,79	1,50	2,76	4,82	7,45	12,62	18,50	26,14
3	0,40	0,40	1,20	1,50	2,65	4,45	8,10	12,95	20,20	31,10	45,14
4	0,82	0,82	1,90	2,23	4,10	6,80	11,80	19,20	28,76	45,80	66,47
5	1,19	1,19	2,80	3,50	5,85	9,78	16,25	27,62	42,92	65,84	98,30
6	1,90	1,90	4,60	5,20	8,50	14,20	26,10	39,10	61,20	98,60	145,20
7	3,10	3,10	6,50	7,12	12,41	20,10	33,72	54,20	91,10	143,20	243,00
8	4,30	4,30	9,10	9,88	17,20	26,70	46,15	76,12	134,20	206,10	341,10
9	5,72	5,72	12,20	13,20	22,30	34,40	61,40	106,70	214,25	289,80	458,20

* It is also possible to manufacture Temper regulating ball valves of the following connection types: FEMALE THREADS / WELDED - 281 type and 684/694 types, or combined - 681/691, 688/698 and 689/699 types.

** These diameters are supplied with gearboxes

OPERATION MANUAL

1. During the operation TEMPER ball valves must be fully opened until it stops, or completely closed.
WARNING: It is prohibited to use TEMPER shut-off ball valves as control ball valves.
2. TEMPER shut-off ball valves are allowed to operate under conditions that do not exceed those specified in this data sheet. It is prohibited the use TEMPER ball valves for steam.
3. To avoid water hammer effect valve should be opened and closed smoothly without hitching.
4. It is prohibited to dismantle valves or tighten flanges while working medium is present and pipeline is pressurized.
5. It is prohibited to operate valve using any extensions of valve handle.
6. Do not mount the valve on working medium containing abrasive components.
7. Valves should not have loads of the pipeline such as bending, compression, tension, torsion, distortions, the uneven tightening fasteners. If necessary it shall be provided support or expansion joints relieving the load on the valve from the line.

INSTALLATION MANUAL

1. When welding valve on horizontal pipeline the valve should be fully opened.
2. Prior to welding of the valve to pipeline and the pipeline should be cleaned from any dirt, sand, scale, etc.
3. It shall be prohibited fixing and / or seizure of the handles, steering wheels or gears of the electric and pneumatic actuators when lifting and / or transporting the ball valves with mechanical lifting devices.
4. TEMPER ball valves should be connected to pipeline with electric welding. Gas welding can be used for small DN sizes.
5. While welding it is advised to avoid overheating of the valve body. The body is considered to be overheated if the surface temperature of the body in the seat of the valve for welding exceeds 100 ° C. It is advised to cool the valve body during the welding time. Do not open or close the valve after welding until it is cooled!
6. It is forbidden to decrease the length of the ball valve weld end as this length is specifically designed to avoid overheating of the seal of the ball during welding period.
7. When installing TEMPER threaded valves it is necessary to inspect the surface of the thread valve and mating pipe. On the thread should not be nicks, dents and burrs that prevent screwing the valve. When screwing the valve it is forbidden to use a non-standard tools.
8. The sealing surfaces of the flanges must be inspected before mounting. They should not have dents, cavities, burrs, and other surface defects. Assembling flanges should be made by the calculated torque wrenches. Tightening of the bolt flange connections should be made "crosswise" in three stages: 50%, 80% and 100% of torque of the key.
9. It is forbidden to remove distortions of pipe flanges by tightening of the flanges of the valve.
10. Tolerance of pipeline and valve sealing faces alignment is no more than 0.2 mm.
11. The valve body and the stem must be separated from the external environment in order to avoid corrosion of the outer wall surface of the valve when installing ball valves in wet areas, outside buildings or underground utilities on (rod).
12. Do not modify the structure of TEMPER ball valves without consulting the manufacturer.

SECURITY MEASURES

1. It is allowed to install the pipeline and service the valves only by qualified working staff.
2. It is prohibited to use shut of valves as regulating devices.
3. When installing valves for venting it is recommended to install the tube stubs.

MAINTENANCE

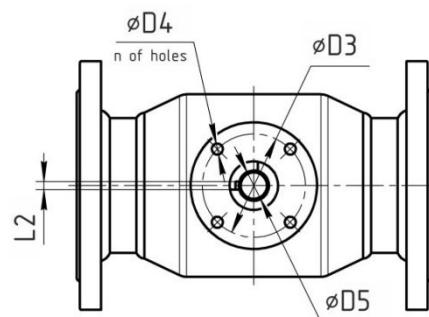
1. TEMPER ball valves are not required of special maintenance.
2. To prevent formation of deposits on ball surface (valve jamming)
2-3 open-close cycles should be performed once a year.

TORQUES, N*M

DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150	DN 200	DN 250	DN 300	DN 400	DN 500
10	20	22	25	32	35	50	90	130	170	210	420	1100	2400	5000	12000

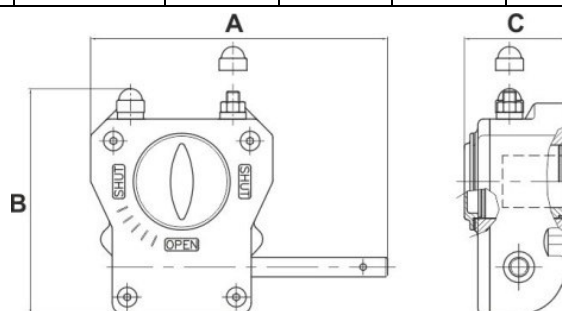
CONNECTING DIMENSIONS OF ISO FLANGE

DN	Designation ISO 5211	D3	D4	D5	n of holes	L2
125 standard bore, 100 full bore	F10	102	11	30	4	8
150 standard bore, 125 full bore	F10	102	11	30	4	8
200 standard bore, 150 full bore	F10	102	11	30	4	8
250 standard bore, 200 full bore	F12	125	13	35	4	10
300 standard bore, 250 full bore	F16	165	22	50	4	14
400 standard bore, 300 full bore	F25	254	22	50	4	14
500 standard bore, 400 full bore	F30	298	22	55	8	16



SELECTION OF GEARBOX* FOR TEMPER BALL VALVES

DN	Torque	Flange ISO 5211	Gearbox type -25 +110	Gearbox type -40 +110	Gearbox type -55 +110	Gearbox weight, kg	Dimensions (without handwheel), mm			Handwheel diameter, mm
							A	B	C	
125	200	F10	X-61	X-61 LT	Q-400 LLT	3	225	170,5	77	200
150	400	F10	X-61	X-61 LT	Q-800 LLT	3	225	170,5	77	200
200	600	F10	Q-800	Q-800 GGG 40	Q-800 LLT	7,9	380,5	187,5	90,5	200
250	1600	F12	Q-1500	Q-1500 GGG 40	Q-1500 LLT	14	292	206	97	300
300	4000	F16	Q-4000	Q-4000 GGG 40	Q-4000 LLT	33,7	441	326	128	300



Note: When placing an order on the ball valve with a gearbox, it is installed with a gearbox of temperature range from -25°C to +110°C by default. Lower temperature ranges (T = -40°C, -55°C) are installed on request.

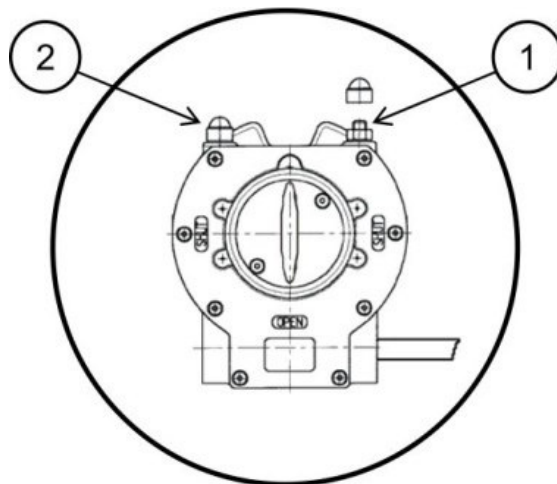


Attention! The Company reserves the right to make design changes.

* Pro-Gear gearboxes (Pro-Gear GmbH, Germany) are used by default.

Manual installation of gearbox on TEMPER ball valve

1. Prior to installation of gearbox ensure that TEMPER valve stem head, flange faces, mounting holes and counterpart of gearbox are clean and free from burrs.
 2. Set TEMPER ball valve in open position. In open position the indication mark on valve stem head or line between stem head dowels is positioned along the longitudinal axis.
 3. Set the gearbox in "open" position - position indicator must be pointed towards the respective mark (OPEN).
 4. Install coupling into gearbox. Apply small amount of oil or other lubricant on gearbox opening to facilitate engagement with coupling. In the course of installation avoid misalignment of coupling against the centerline of gearbox opening. Pre-tensioned installation of coupling in gearbox is allowed to reduce free play.
 5. Set TEMPER ball valve stem in vertical position.
 6. Apply small amount of oil or other lubricant on stem head to facilitate engagement.
 7. Install gearbox on TEMPER ball valve matching the position indicator in "OPEN" state with longitudinal axis of valve.
- In the course of installation avoid misalignment of gearbox against the plane of TEMPER ball valve connecting flange.
- Avoid the dowel (if any) falling out of the stem slot. If necessary, apply grease below the dowel to prevent it from falling out in the course of gearbox engagement.
8. Fix the gearbox on the mating flange of TEMPER valve with bolts and flanges. For better gearbox engagement bolts should be tightened crosswise.
 9. Fix the handwheel on the input shaft of gearbox using the steel spring pin (supplied with gearbox) with slot. In the event of critical over torque (e.g. in case of jamming) the pin collapses preventing damage of gearbox DO NOT fix handwheel with solid pins, bolts, etc.
 10. Adjustment of end limiting supports:
 - 10.1 Remove protective cap from lock nut of end limiting support. Unscrew limiting supports 1 and 2.
 - 10.2 Set TEMPER ball valve in "open" position and screw limiting support 1 till it contacts the gearbox square (until tight). Tighten the lock nut of limiting support without turning the support itself.
 - 10.3 Set TEMPER ball valve in "closed" position and screw limiting support 2 till it contacts the gearbox square (until tight). Tighten the lock nut of limiting support without turning the support itself.
 11. Perform test opening/closing of valve.



Gearbox in "CLOSED" position – position indicator axis perpendicular to valve axis (A)
Gearbox in "OPEN" position – indicator directed towards "OPEN" mark (B)