



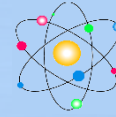
Range DN: 65 ~ 300



Range PN: 10 ~ 250



HIGH PRESSURE
DESIGN



NUCLEAR
DESIGN

Connection to the pipeline: **Butt-Welded**



Application

- Shut-off valves A00 and A01 are designed for fully open or close the flow, can be operated at full pressure drop on the cap with the bi-directional fluid flow. Gate valves A00 is a classic shut-off valve, gate valves A01 is a quick-acting valve with a multi-pass thread.
- **Fluids**
According to NP-068-05.
- **Industry**
Nuclear power plants with VVER reactors.
- **Environments**
Mild, harsh, seismic resistance class 1a.

Technical description

- Gate valves are made of carbon steel or corrosion resistant steel.
- Forged body and cover.
- Seats are inserted into the body with the overlap, welded with the seal weld.
- Split wedge, its function is ensured by the guidance placed in the groove.
- Sealing surfaces of the seat and plug are hardfaced with cobalt-free alloy.
- Sealing of the stem is ensured by a single or two-part sucked gland with the organized drain of leakage.
- Sealing the main dividing plane between the body and the lid with a sealing ring (expanded graphite, spiral-wound or serrated gaskets).
- Rising stem non-rotating.
- Stem nut placed on two bearings.
- Bi-directional flow of the operating fluid.

Connection

- Welding ends.
- Other connection on customer's request.

By-pass

- Standard delivery without by-pass.
- By-passes on customer's request.

Central cavity equalization

- Carried out where necessary or on customer's request.

Installation

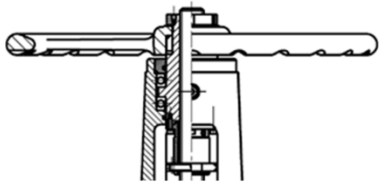
- The valves can be installed in any position.

Operating conditions

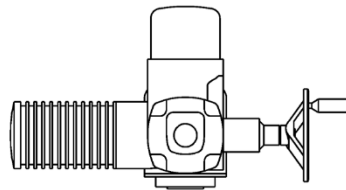
- **NP-068-05** – General Technical Requirements for purpose-made valves for NPP
- **NTD ASI Section I** - Welding of NPP equipment and piping.
- **NTD ASI Section II** - Materials for NPP equipment and piping.
- **NTD ASI Section III** - Strength evaluation of NPP equipment and piping.
- **NTD ASI Section IV** - Aging and durability evaluation of NPP equipment.
- **NTD ASI Section V** - Materials Testing.
- **NTD ASI Section VII** - NTD NPP Inspections.
- **NTD ASI Section IX** - Design, Construction, Fabrication and Installation of NPPs.
- **Decree No. 329/2017** - Requirements for the design of a nuclear installation.

Operation

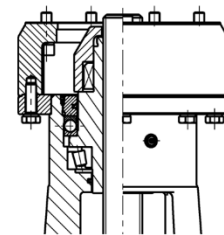
- Manual operation (hand wheel with stop), with locking device option
- Electric actuator – with location outside or inside the hermetic zone
- Spur gear
- Bevel gear
- Direct remote control
- Connection of the electric actuator or gear to the valve according to ISO 5210



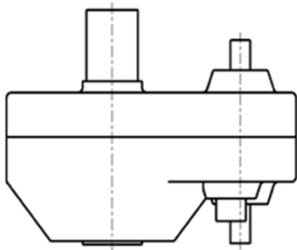
Hand wheel



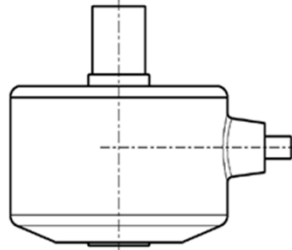
Electric actuator



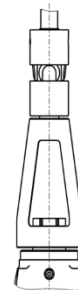
Connection for the electric actuator and reducer



Spur gear



Bevel gear

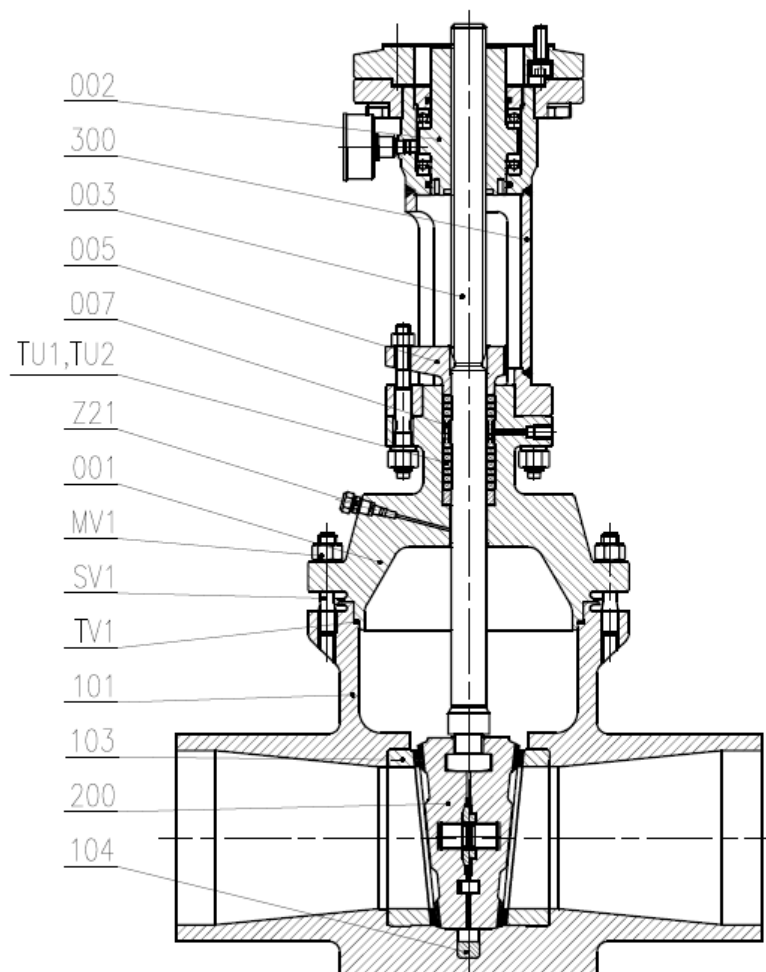


Direct remote control

Table of designed and maximum operating parameters

Gate valve		Connection ends	
Max. pressure MPa	Max. temperature °C	Max. pressure MPa	Max. temperature °C
Gate valves DN 200-400, Pp to 4 MPa, carbon and stainless steel			
4	250	2,5	250
		4	250
Gate valves DN 200-300, Pp over 4 to 9,2 MPa, carbon and stainless steel			
9,2	300	6	275
		8,6	300
		9,2	300
Gate valves DN 65-150, Pp to 9,2 MPa, carbon and stainless steel			
9,2	300	2,5	250
		4	250
		6	275
		8,6	300
		9,2	300
Gate valves DN 200-350, Pp over 9,2 to 12 MPa, carbon steel			
12	300	11	300
		12	250
Gate valves DN 200-350, Pp over 9,2 to 14 MPa, stainless steel			
14	335	11	300
		14	335
Gate valves DN 65-150, Pp to 12 MPa, carbon steel			
12	300	2,5	250
		4	250
		6	275
		8,6	300
		9,2	300
		12	250
Gate valves DN 65-150, Pp to 14 MPa, stainless steel			
14	335	2,5; 4	250
		9,2; 11	300
		12	250
		12	300
		14	335
Gate valves DN 80/75, Pp over 14 to 25 MPa, stainless steel			
18	350	18	350
20	300	20	300
25	250	25	250
Gate valves DN 250-300/350, Pp over 14 to 20 MPa, stainless steel			
18	350	18	350
20	300	20	300
Gate valves DN 400 – 600, Pp to 12 MPa, carbon steel (classification marking 3C)			
4,4	256	4,4	256
6,8	220	6,8	220
7,2	220	7,2	220
8,6	300	8,6	300
12	300	12	300

Main parts materials



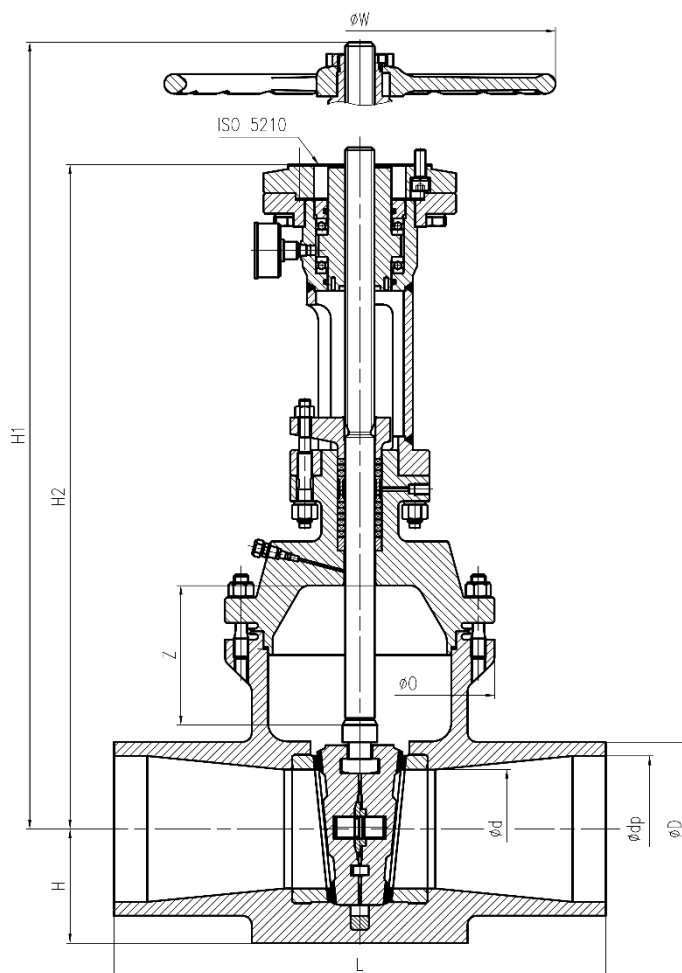
Pos.	Name	Material	
101	Body	P265 GH (11 416)	1.4571 (08CH18N10T)
103	Seat		
001	Bonnet		
200	Wedge		
Z21	Stopper	1.4541 (1.4571, 08CH18N10T)	
003	Stem	1.4057 (X17CrNi16-2), 1.4922 (X20CrMoV11-1) 1.4923 (X22CrMoV12-1), 14Ch17N2	
104	Wedge guidance	11 523.1 (P265 GH, 11 416, S235 J2G3)	17 021.4 (1.4923, 17 134)
300	Yoke	P265 GH (11 416)	1.4571 (08CH18N10T)
005	Gland lid	P265 GH (11 416)	1.4571 (08CH18N10T)
002	Stem nut	42 3046.02	
SV1	Bolt	15 320.6	A4-80 (1.4923)
MV1	Nut	15 326	A4-80 (1.4923)
007	Ring	1.4541 (1.4571, 08CH18N10T)	
TU1	Sealing rings	Expanded graphite	
TU2			
TV1			

NOTE:

Sealing surfaces of the seat and wedge are hardfaced with cobalt-free alloy.

Recommended spare parts to order: sealing rings (TU1, TU2, TV1), spindle (003), spindle nut (002), wedge (200).

➤ Dimensions



DN 65 – 300, Pp to 9,2 MPa

Gate valves with the hand wheel for the electric actuator and the reducer

DN	Pp MPa	ØD	Ødp	Ød	ØW	H	L	ØØ	H1	Z	m1 Kg	H2	m8 kg
65/60	to 9,2	Connection dimensions according to TP		60	300	70	330	189	504	80	48	534	55
80/75				75	300	100	360	200	581	113	82	612	96
100/90				90	300	100	400	200	581	113	79	612	93
125/110				110	500	126	400	294	746	1544	174	766	179
150/130				130	500	126	400	294	742	157	176	766	181
200/170	to 4			170	500	155	550	306	850	182	237	855	240
250/250				250	710	210	650	420	1095	259	433	1098	442
300/250				250	710	210	750	410	1095	259	554	1098	562
200/140				over 4 to 9,2	140	630	157	550	308	860	159	318	870
250/225	225				800	245	650	435	1169	242	776	1195	787
300/225	225				800	245	750	435	1169	242	870	1195	881

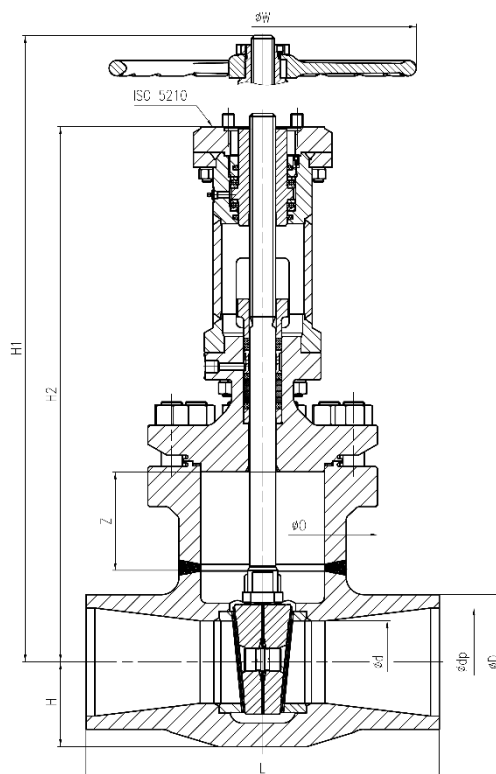
Quick-acting gate valves with the electric actuator

DN	Pp MPa	ØD	Ødp	Ød	Connection with EA	H	L	ØØ	Z	H2	m8 kg
200/170	2,5	Connection		170	ISO 5210	155	550	300	180	854	219
200/170	4	dimensions according		170		155	550	300	180	854	219
250/225	4	to TP		225		235	650	435	242	242	576

NOTE:

Other types of connection on customer's request.
Weight m1 for handwheel version, m8 for flange version.

➤ Dimensions



DN 65 – 350, Pp over 9,2 Mpa to 25 MPa

Gate valves with the hand wheel for the electric actuator and the gear

DN	Pp MPa	ØD	Ødp	Ød	ØW	H	L	ØO	H1	Z	m1 Kg	H2	m8 kg
65/55	to 14	Connection dimensions according to TP		55	320	70	360	210	585	60	69	607	82
80/75				75	400	90	450	270	635	90	108	650	120
100/75				75	400	90	450	270	635	90	124	650	135
125/110				110	500	130	500	350	830	130	271	835	275
150/110				110	500	130	550	350	830	130	284	835	285
200/140	over 9,2 to 14			140	630	155	650	390	930	171	393	945	398
225/200				200	800	235	750	560	1345	250	1072	1335	1080
250/225				225	800	235	800	560	1348	251	1090	1336	1103
300/225	over 14 to 20			225	800	235	900	560	1348	251	1214	1336	1220
125-150/110				110	500	128	450	335	883	130	366	885	283
250/225				225		235	800	560		255		1340	1177
300/225				225	ISO	235	900	560		255		1340	1352
300-350/225				225	5210	235	900	560	-	255	-	1340	1352
300-350/225				225		235	900	560		255		1340	1445
80/75	over 14 to 25					75	500	130	450	350	870	90	230

Quick-acting gate valves with the electric actuator

DN	Pp MPa	ØD	Ødp	Ød	Connection with EA	H	L	ØO	Z	H2	m8 kg
150/110	to 14	Connection dimensions according to TP		110	ISO 5210	130	500	350	130	890	220
200/140				140		155	650	390	170	945	398
250/200	11/7 (2)			200		235	800	560	250	1335	1090
300/225				225		235	900	560	250	1360	1230
300/225	18/6			225		235	900	560	251	1360	1352
125-150/110	18/18 (2)			110		130	560	335	130	885	294
125/110	14/14 (3)			110		130	560	335	130	780	294
300-350/265	18/6,5 (3)			265		263	990	632	296	1764	1726

NOTE:

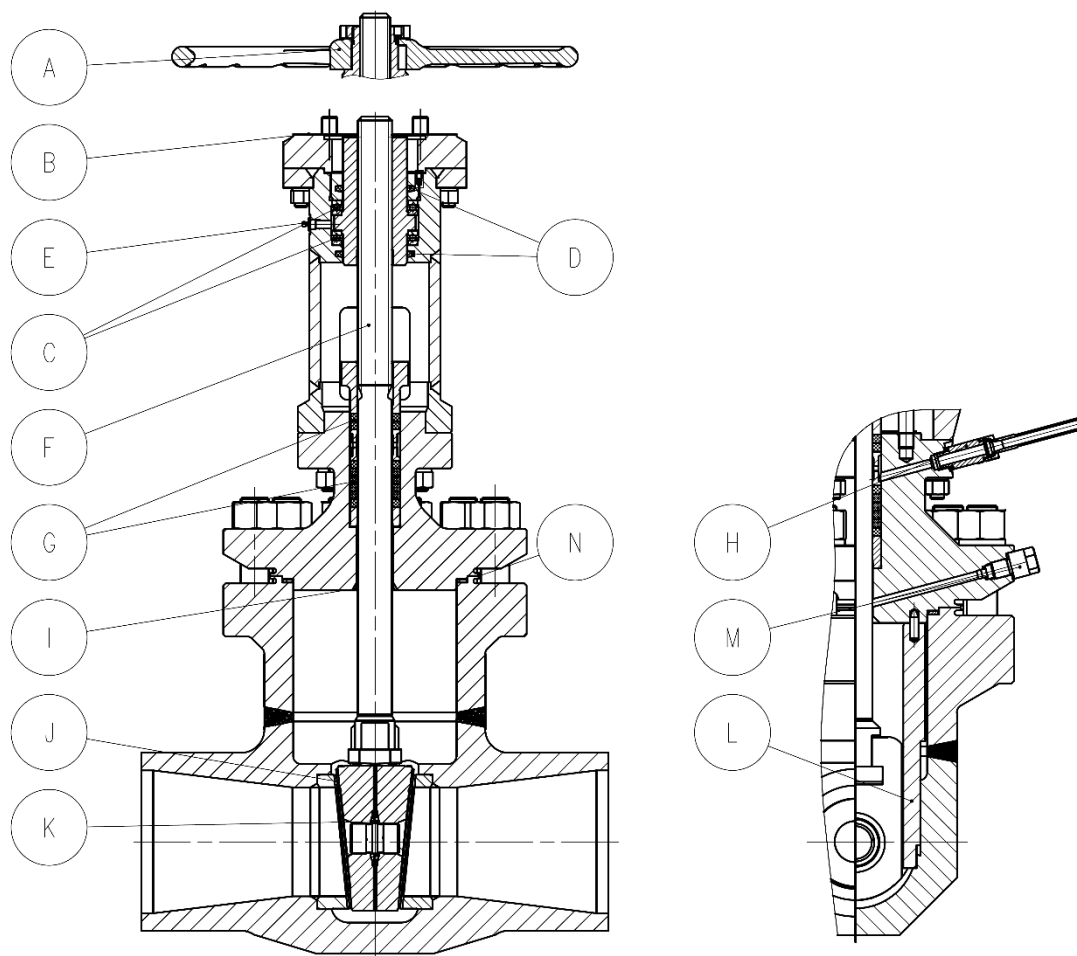
Other types of connection on request.

(2) CAOP

(3) CAO3

Weight m1 for handwheel version, m8 for flange version.

Advantages of construction



A	Hand wheel with the stop: Suitable for lack of space and to achieve the required control effect.
B	Unified connection for the actuator and gear according to ISO 5210: Possibility of using control elements from different manufacturers.
C	Stem nut placed on two roller bearings: Simplifies control.
D	Dust rings: Protection of bearings from dirt.
E	Pressure lubrication: Simplifies control, extends bearings lifetime.
F	Rising non-rotating stem More reliable sealing of the stem in the gland.
G	Stem gland – expanded graphite with side wiper rings: Reliable tightness, ecological material.
H	Stem gland with suction: Emergency protection against the release of radioactive substances into the air.
I	Stem backseat: Additional sealing by the stem to replace the gland.
J	Sealing surfaces are hardfaced with the cobalt-free alloy: Long-term durability, wear resistance.
K	Wedge with inclined plates: Reliable fit and sealing.
L	Demountable guidance of the wedge: Simple replacement and removal during seats replacing.
M	Opening with the lid: Allows emergency sealing of the stuffing box, installation of the pressure gauge during testing and release of the air.
N	Bonnet with tabs: Allows triple additional sealing by welding the tabs.