



Type K02

DN 65 - 400
PN 63 - 400

**Forged Gate Valve
with Pressure Sealed Bonnet**
Butt-Welded, Flanged

Data Sheet

Edition: EN 9 / 2015

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Application

- Shut-off valve
- **Fluids**
Water, water steam and other fluids based on material selection
- **Industry**
Power engineering, chemical industry, nuclear power
- **Environments**
Normal, tropical, explosive, seismic

Technical description

- Valve body is die or free forgings
- Yokes are cast or fabricated
- Seats are pressed in the body and seal welded
- Seat faces are hardfaced with Stellite
- Gland packing and gaskets are made from expanded graphite
- For flanged gate valves, flanges are welded to the body or are part of the body
- Gate valves design includes sizing of major components of the pressure and temperature system
- Gate valves can be operated in position open – close

Accessories

- By-pass
- Gland with permanently pressed spring (Live Loading System)
- Membrane Rupture Insurance Devices
- Drilled wedge
- Another accessories upon request

Testing

- Valves are pressure tested with water, steam or air for strength and tightness in accordance with operating data and material according to the standard EN 12266 – 1
- Minimum pressure for the strength test is 1,5 x PN
- Non destruction tests and ultrasonic tests are performed on all welds exposed in operation to fluid pressure

Installation

- Valves can be installed in any position, irrespective of the direction of medium flow
- Large valves are recommended to be installed in horizontal pipes with their stems positioned upward

Connection

- Butt-welded and flanged type according to ČSN, EN, ANSI, GOST, DIN or according to customer request



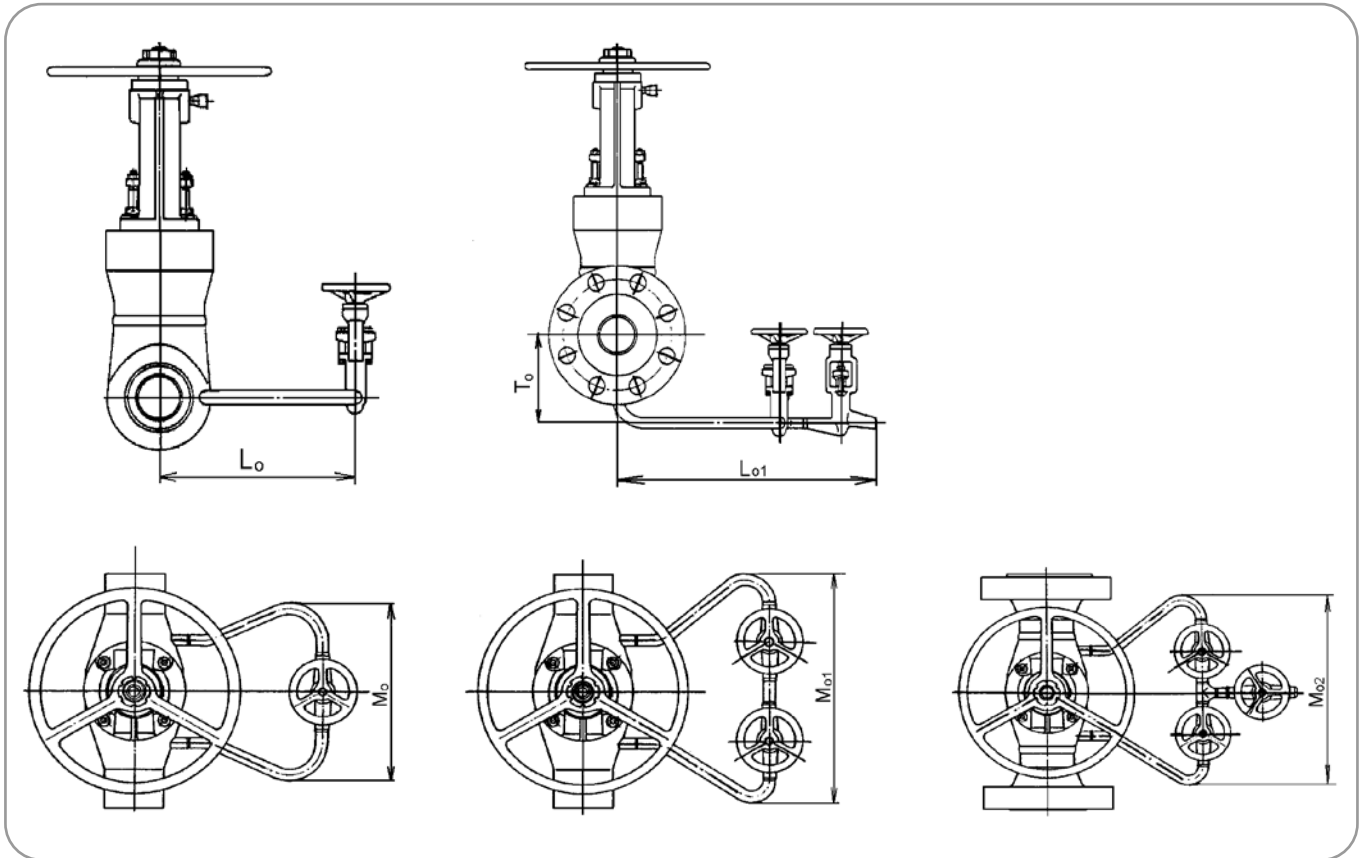
Operation

- Hand wheel (with locking device, if required)
- Electric actuator (standard connection dimensions according to ISO 5210)
- Spur gear
- Bevel gear
- Remote control device

By-pass

- Valves till PN 250 are constructed for full Δp , using by-pass is not a necessity
- If the by-pass is required, it can be equipped with one up to three valves
- If a bypass is required, delivered with one to three valves and T - piece

By-pass



Gate valve DN/d	By-pass valve		Side by-pass				Pipeline by-pass		
	DN	PN	1 valve		2 valves		3 valves		
			Lo	Mo	Lo	Mo ₁	Lo ₁	Mo ₂	To
65/50 65/55	15	63 ÷ 250	355	295	355	560	680	560	190
80/75 100/75			355	335	355	600	680	600	212
125/110 150/110			355	405	355	670	680	670	245
175/125	25		-	-	515	685	880	685	267
175/150 200/150			-	-	515	685	880	685	267
225/175			-	-	515	735	880	735	299
250/200 275/200	40		-	-	515	785 805	880	785 805	326
250/225			-	-	670	985	1160	985	406
275/225 300/225			-	-	670	1175		1175	
300/250	-		-	670	1205	1160	1205	406	
350/275 400/275	-		-	670	1115		1115	438 473	

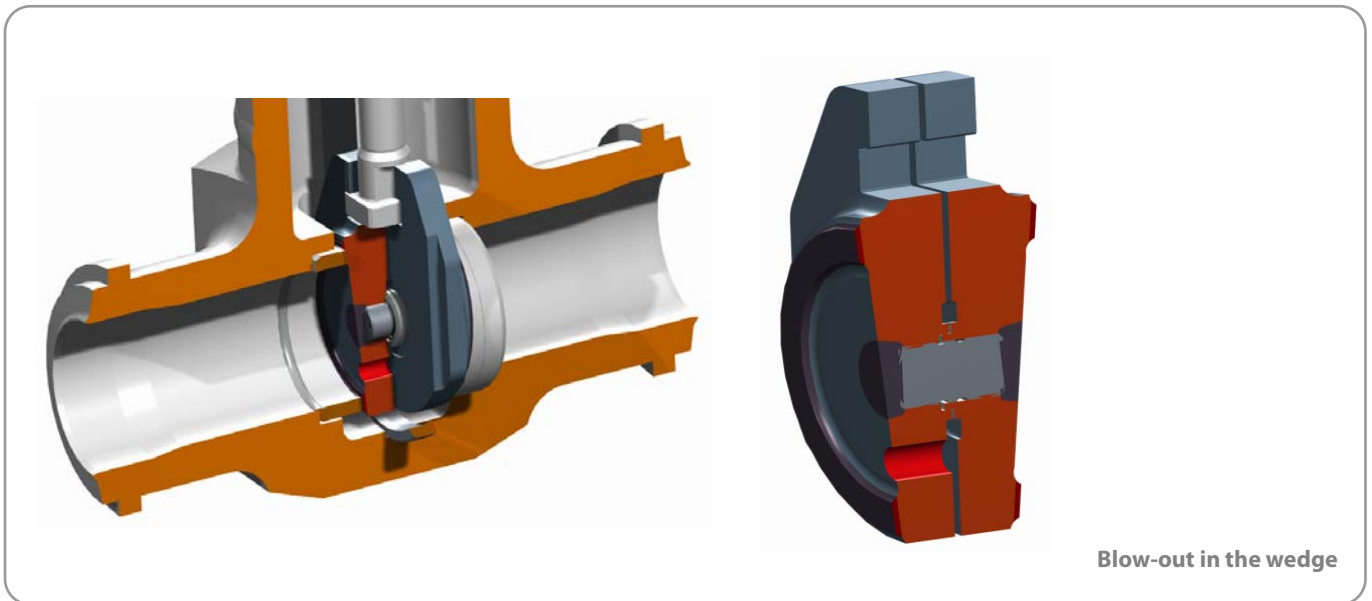
Note: Technical parameters of by-passes for gate valves PN 320 – 400 upon request.

Central cavity equalization against overpressure

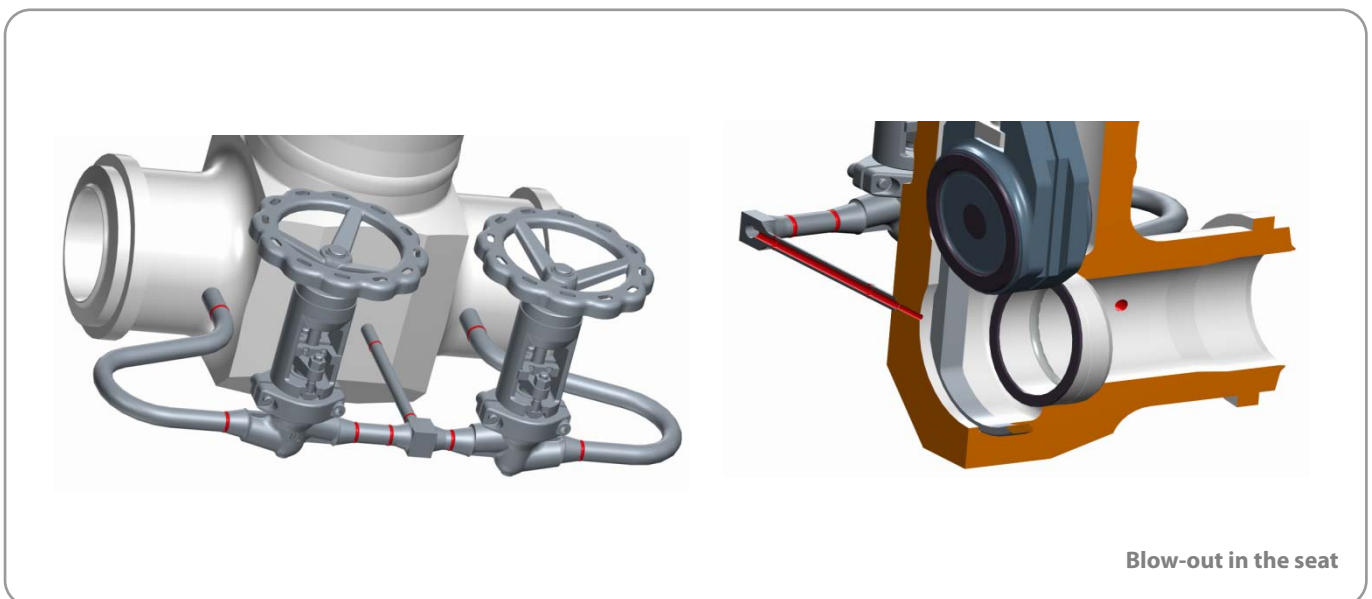
Description of the situation: the gate valve is shut off; the pipeline is put out of action for overhaul works, etc.; quantity of flow, hot water-steam leftovers in the central cavity of the valve situated in the upper part of the wedge. After completing the works, one can use the by-pass system to warm the valve up before putting the pipeline back into operation. The problem may start when the VALVE IS SHUTT OFF and due to the rising temperature the pressure goes up not only in between 2parts flexible wedge, but in the central cavity as well. The valve could be seriously damaged if the overpressure goes out of control. Therefore we strongly recommend to our customers to include the safety measures into their order-sheets as follows:

Construction solutions

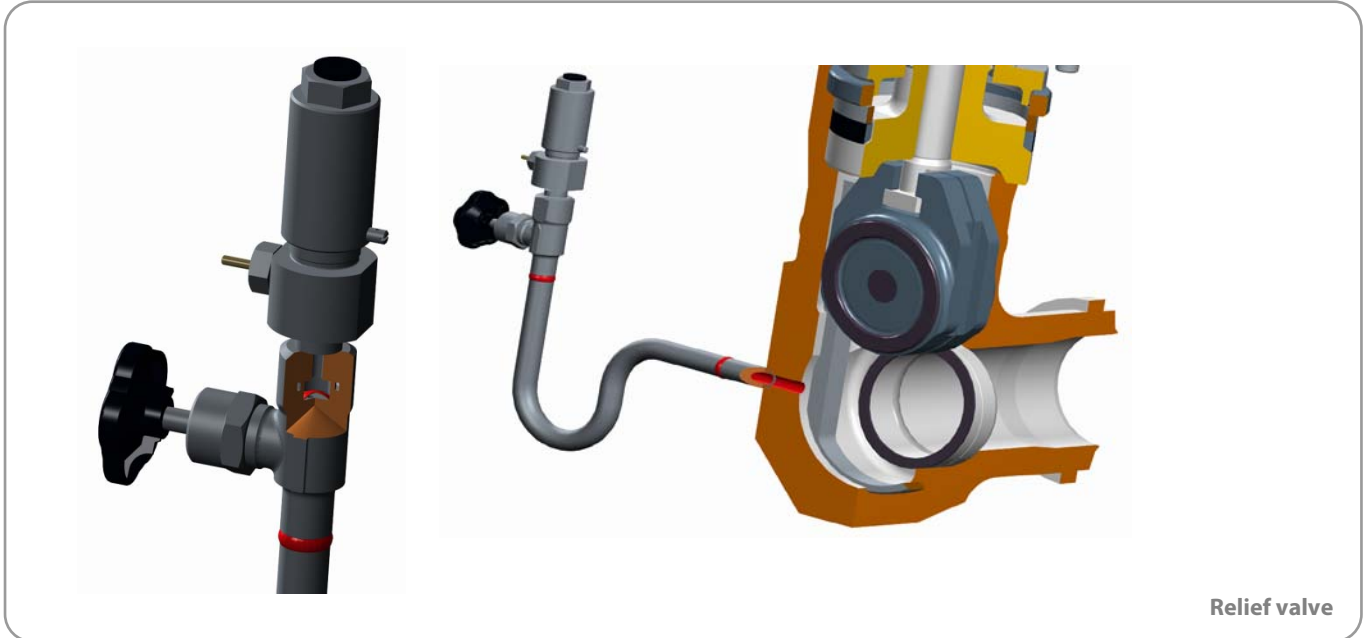
- A. Drilling of one side of the wedge or in the seat to get the central cavity and side output connected. Simple, non costly and effective solution. Works in one way only, arrow indication necessary.



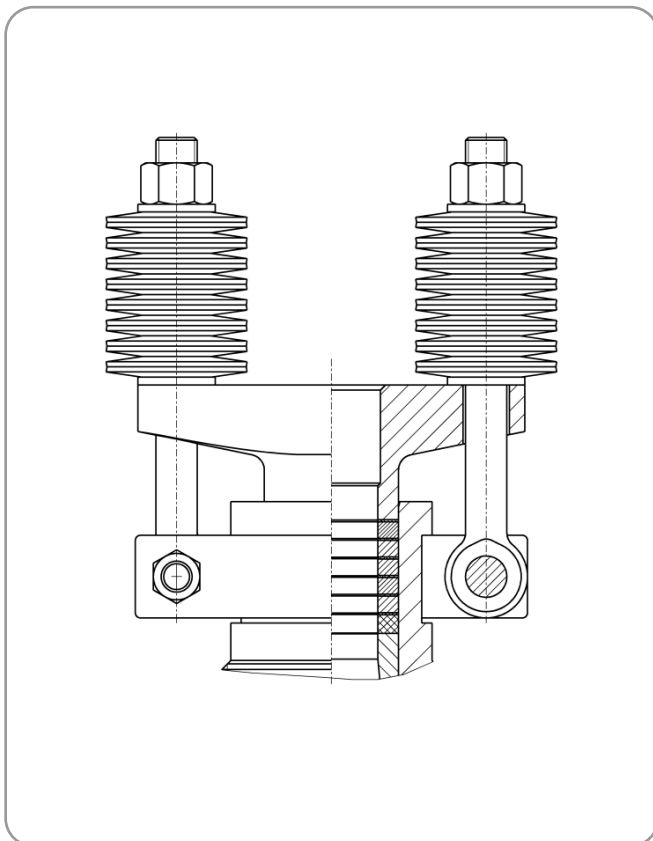
- B. By-pass with minimum 2 valves, especially for the valves from DN 200. Acc. direction of flow 1 by-pass valve must be kept constantly open.



- C. Relief valve fixed on a small pipe pulled out from the cavity of the valve. General solution covering a full range of the gate valves and working parameters. Gate valve, which is protected by relief valve is two way. Relief valve is fixed on a small pipe pulled out from the cavity of the valve outside of the thermal isolation. Because of changing the bursting disc during operation there is a piezometric globe valve with locking device preventing prohibited manipulation. The rating of the pressure balance has to be specified in the order sheet. (You can find the detailed description in separate date sheet K89 – Relief valve.)

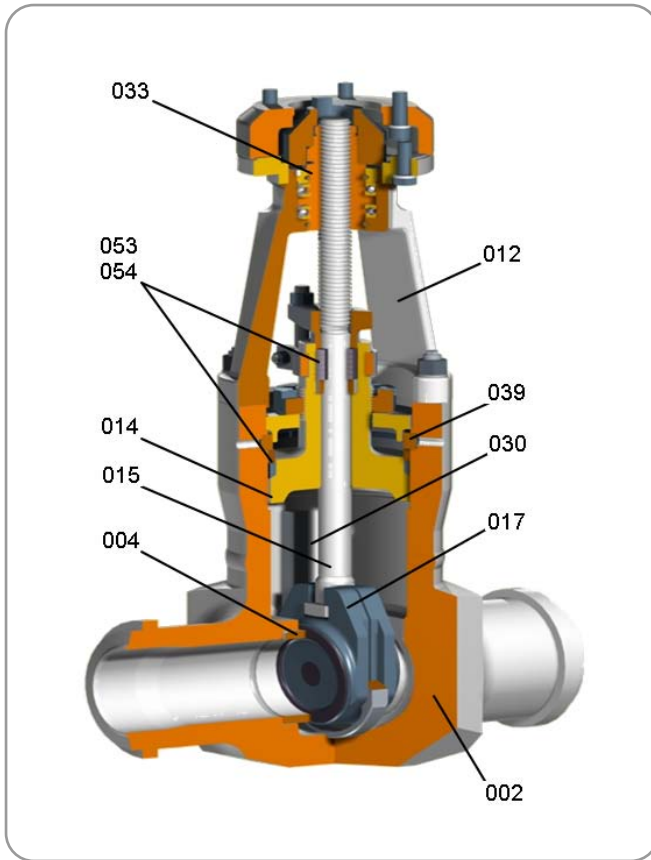


Relief valve



Live Loading System

- Gate valve can be supplied with gland with permanently pressed spring upon request (**Live Loading System**)
- This construction is used in cases where the working conditions do not allow to check frequently the condition of the valve, or the character of operating eliminates periodic maintenance of the gland

Materials of main parts


Pos.	Name	Material						
		Non alloy	Low alloy		High alloy		Stainless	
002	Body	11416, P250GH (C22.8)	15128	16Mo3 (15Mo3)	11CrMo9-10,	15NiCuMoNb5-6-4	X10CrMoVNb9-1	X6CrNiTi18-10, 08X18H10T
004	Seat				10CrMo9-10,			
005	Flange			13CrMo4-5,				
017	Wedge			14MoV6-3				
039	Segmented ring	11416		11CrMo9-10, 10CrMo910				
014	Pressure sealed							
011	Connection branch	16Mo3	10CrMo9-10	16Mo3	10CrMo9-10	16Mo3	10CrMo9-10	X6Cr, 08X
030	Wedge guide	11523, S35532G3	15128	10CrMo9-10,11CrMo9-10		X10CrMoVNb9-1		17027.4
053 054	Sealing ring	Expandovaný grafit						
012	Yoke	GS-17CrMo5-5, 427744,10CrMo9-10, 11CrMo9-10, 15128						
015	Stem	X22CrMoV12-1, X39CrMo17-1						
	Hardfacing	Typ Stellite 6 (TYP C1111)						
033	Stem nut	423046, CuAl10Fe3Mn2, CuAl10Fe5Ni5-C						

Operating data

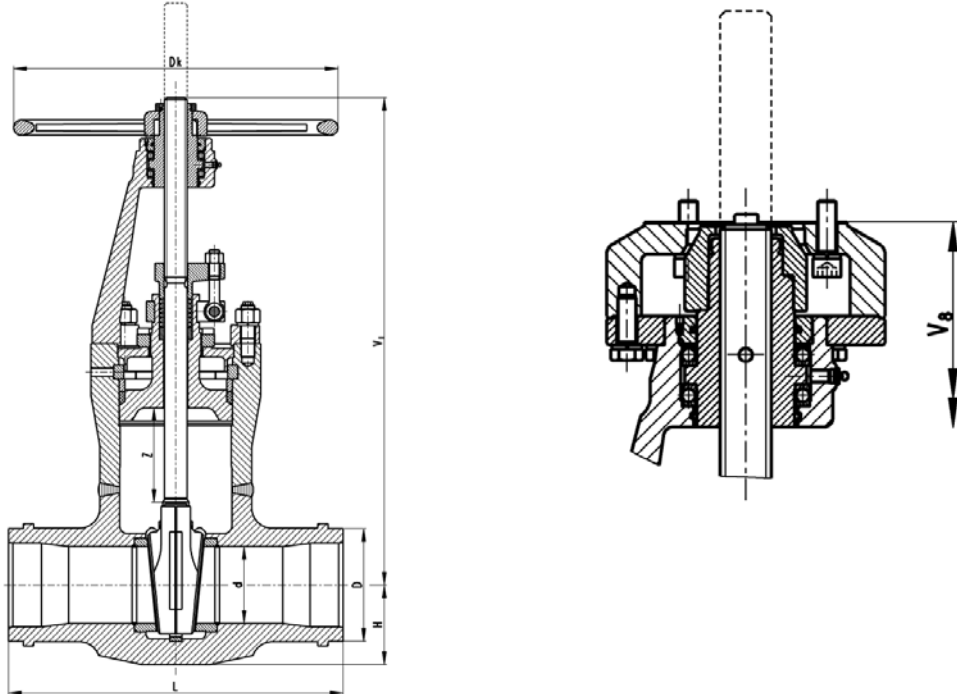
Material of body	PN	Working pressure MPa / Working temperature °C											
		200	250	300	350	400	450	500	520	540	560	580	600
P250GH (C22.8) (W.Nr. 1.0460)	63	5,7	4,9	4,2	3,7	2,9	2,2	-	-	-	-	-	-
	100	9,0	7,8	6,7	5,8	4,6	3,5	-	-	-	-	-	-
	160	14,4	12,5	10,7	9,3	7,4	5,6	-	-	-	-	-	-
	250	22,5	19,6	16,7	14,5	11,6	6,7	-	-	-	-	-	-
	320	28,8	25,0	21,3	18,6	14,8	11,1	-	-	-	-	-	-
	400	40,0	31,3	26,7	23,2	18,6	13,9	-	-	-	-	-	-
11416	63	6,3	5,6	4,8	4,1	3,6	2,5	-	-	-	-	-	-
	100	10,0	8,8	7,7	6,6	5,7	4,0	-	-	-	-	-	-
	160	16,0	14,1	12,2	10,5	9,1	6,4	-	-	-	-	-	-
	250	24,9	22,0	19,1	16,4	14,2	10,0	-	-	-	-	-	-
	320	31,9	28,2	24,5	21,0	18,2	12,8	-	-	-	-	-	-
	400	39,9	35,2	30,6	26,2	22,7	16,0	-	-	-	-	-	-
15NiCuMoNb5 (W.Nr. 1.6368)	63	6,3	6,3	6,3	6,3	6,3	6,3	-	-	-	-	-	-
	100	10,0	10,0	10,0	10,0	10,0	10,0	-	-	-	-	-	-
	160	16,0	16,0	16,0	16,0	16,0	16,0	-	-	-	-	-	-
	250	25,0	25,0	25,0	25,0	25,0	25,0	-	-	-	-	-	-
	320	32,0	32,0	32,0	32,0	32,0	32,0	-	-	-	-	-	-
	400	40,0	40,0	40,0	40,0	40,0	40,0	-	-	-	-	-	-
16Mo3 (15Mo3) (W.Nr. 1.5415)	63	6,3	6,0	5,3	5,1	4,9	4,7	3,4	2,2	-	-	-	-
	100	10,0	9,6	8,4	8,1	7,8	7,5	5,4	3,4	-	-	-	-
	160	16,0	15,3	13,4	13,0	12,5	12,1	8,6	5,5	-	-	-	-
	250	25,0	23,9	21,0	20,3	19,6	18,8	13,5	8,6	-	-	-	-
	320	32,0	30,6	26,9	26,0	25,0	24,1	17,3	10,9	-	-	-	-
	400	40,0	38,3	33,6	32,5	31,3	30,1	21,6	13,7	-	-	-	-
13CrMo4-5 (W.Nr. 1.7335)	63	6,3	6,3	6,3	6,0	5,8	5,5	5,0	3,4	2,2	1,5	-	-
	100	10,0	10,0	10,0	9,6	9,3	8,7	7,9	5,4	3,5	2,3	-	-
	160	16,0	16,0	16,0	15,3	14,8	13,9	12,7	8,7	5,7	3,7	-	-
	250	25,0	25,0	25,0	23,9	23,2	21,7	19,9	13,6	8,8	5,8	-	-
	320	32,0	32,0	32,0	30,6	29,7	27,8	25,4	17,4	11,3	7,4	-	-
	400	40,0	40,0	40,0	38,3	37,1	34,8	31,8	21,8	14,1	9,3	-	-
11CrMo9-10 (W.Nr. 1.7383)	63	6,3	6,3	6,3	6,3	6,3	6,0	4,9	3,8	2,8	2,1	1,6	1,2
	100	10,0	10,0	10,0	10,0	10,0	9,6	7,8	6,0	4,5	3,4	2,6	2,0
	160	16,0	16,0	16,0	16,0	16,0	15,3	12,5	9,6	7,2	5,4	4,1	3,2
	250	25,0	25,0	25,0	25,0	25,0	23,9	19,6	14,9	11,3	8,4	6,4	4,9
	320	32,0	32,0	32,0	32,0	32,0	30,6	25,0	19,1	14,5	10,8	8,2	6,3
	400	40,0	40,0	40,0	40,0	40,0	38,3	31,3	23,9	18,1	13,4	10,2	7,9
10CrMo9-10 (W.Nr. 1.7380)	63	6,3	6,3	6,3	6,3	6,0	5,7	4,9	3,8	2,8	2,1	1,6	1,2
	100	10,0	10,0	10,0	10,0	9,6	9,0	7,8	6,0	4,5	3,4	2,6	2,0
	160	16,0	16,0	16,0	16,0	15,3	14,4	12,5	9,6	7,2	5,4	4,1	3,2
	250	25,0	25,0	25,0	25,0	23,9	22,5	19,6	14,9	11,3	8,4	6,4	4,9
	320	32,0	32,0	32,0	32,0	30,6	28,8	25,0	19,1	14,5	10,8	8,2	6,3
	400	40,0	40,0	40,0	40,0	38,3	35,9	31,3	23,9	18,1	13,4	10,2	7,9
14MoV6-3 (W.Nr. 1.7715)	63	6,3	6,3	6,3	6,3	6,3	6,3	6,3	5,4	4,1	3,1	-	-
	100	10,0	10,0	10,0	10,0	10,0	10,0	10,0	8,6	6,6	5,0	-	-
	160	16,0	16,0	16,0	16,0	16,0	16,0	16,0	13,8	10,5	8,0	-	-
	250	25,0	25,0	25,0	25,0	25,0	25,0	25,0	21,6	16,4	12,5	-	-
	320	32,0	32,0	32,0	32,0	32,0	32,0	32,0	27,6	21,0	16,0	-	-
	400	40,0	40,0	40,0	40,0	40,0	40,0	40,0	34,6	26,2	19,9	-	-
15128	63	6,3	6,3	6,3	6,3	6,3	6,3	6,2	4,8	3,7	2,8	2,2	1,6
	100	10,0	10,0	10,0	10,0	10,0	10,0	9,8	7,6	5,9	4,5	3,5	2,6
	160	16,0	16,0	16,0	16,0	16,0	16,0	15,7	12,2	9,4	7,2	5,6	4,2
	250	25,0	25,0	25,0	25,0	25,0	25,0	24,5	19,0	14,6	11,3	8,7	6,5
	320	32,0	32,0	32,0	32,0	32,0	32,0	31,4	24,3	18,7	14,5	11,1	8,3
	400	40,0	40,0	40,0	40,0	40,0	40,0	39,2	30,4	23,4	18,1	13,9	10,4

Material of body	PN	Working pressure MPa / Working temperature °C											
		200	250	300	350	400	450	500	520	540	560	580	600
X10CrMoVNb9-1 (W.Nr. 1.4903)	63	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	5,5	4,4	3,4
	100	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	8,7	7,0	5,4
	160	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	13,9	11,1	8,7
	250	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	21,7	17,4	13,6
	320	32,0	32,0	32,0	32,0	32,0	32,0	32,0	32,0	32,0	27,8	22,3	17,4
	400	40,0	40,0	40,0	40,0	40,0	40,0	40,0	40,0	40,0	34,8	27,8	21,8
X6CrNiTi18-10 (W.Nr. 1.4541)	63	6,1	5,4	5,0	4,7	4,6	4,4	4,3	4,3	4,3	4,3	3,9	3,1
	100	9,7	8,5	7,9	7,5	7,2	7,0	6,9	6,9	6,9	6,8	6,2	5,0
	160	15,5	13,6	12,6	12,1	11,6	11,2	11,0	11,0	11,0	10,9	9,9	8,0
	250	24,2	21,3	19,7	18,8	18,1	17,5	17,2	17,2	17,1	17,1	15,5	12,5
	320	31,0	27,3	25,2	24,1	23,2	22,4	22,1	22,0	21,9	21,9	19,8	16,0
	400	38,7	34,1	31,5	30,1	29,0	28,1	27,6	27,5	27,4	27,4	24,8	19,9
08X18H10T	63	6,0	5,6	5,4	5,0	4,8	4,5	4,1	3,8	3,5	3,1	2,8	2,5
	100	9,5	8,8	8,5	7,9	7,7	7,1	6,6	6,0	5,5	5,0	4,5	4,0
	160	15,2	14,1	13,6	12,7	12,2	11,4	10,5	9,6	8,8	8,0	7,2	6,5
	250	23,8	22,0	21,3	19,9	19,1	17,8	16,4	15,0	13,7	12,5	11,3	10,1
	320	30,4	28,2	27,3	25,4	24,5	22,8	21,0	19,3	17,5	15,9	14,4	12,9
	400	38,0	35,2	34,1	31,8	30,6	28,5	26,2	24,1	21,9	19,9	18,1	16,2

Dimensions

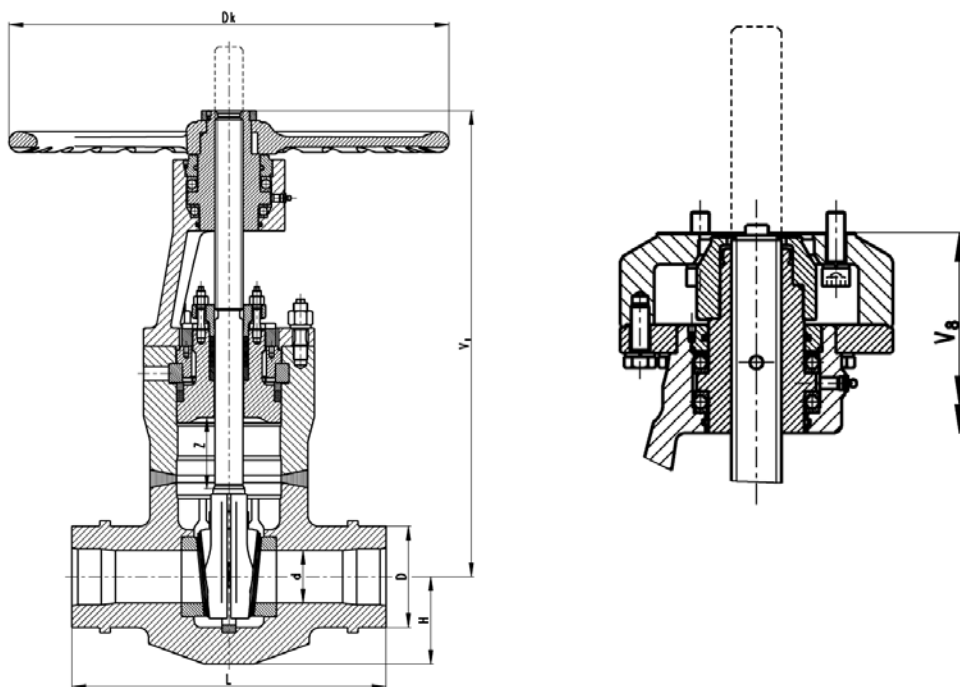
Butt-welded type, PN 63 – 250

PN 63 – 250



Butt-welded type, PN 320 – 400

PN 320 – 400



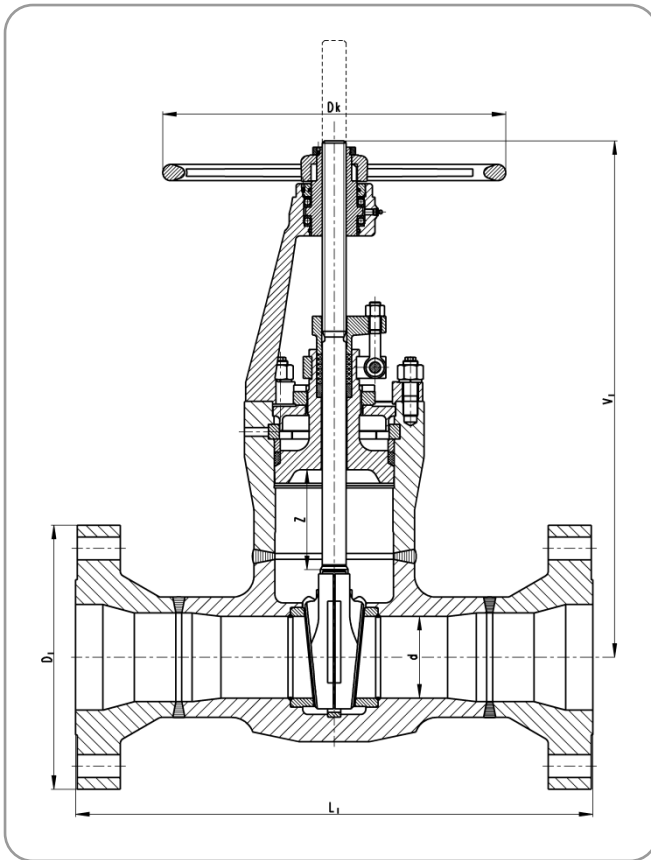
Gate valves for electrical actuator and gears

PN	DN/d	D mm	H mm	L mm	V ₈ mm	Z mm	m ₈ kg
63 – 250	65/50	By ČSN, EN, DIN or by request of the customer	70	360	481	69	60
	65/55		70	360	481	69	60
	80/75		91	450	620	94	103
	100/75		91	450	620	94	101
	100/110		127	450	803	132	
	125/110		127	550	803	132	245
	150/110		127	550	803	132	237
	125/125		155	550	915	171	
	150/125		155	550	915	171	
	175/125		155	650	915	171	425
	150/150		155	550	951	187	
	175/150		155	650	951	187	425
	200/150		155	650	951	187	425
	175/175		170	650	1136	201	
	200/175		170	650	1136	201	
	225/175		170	700	1136	201	621
	200/200		205	650	1233	247	
	225/200		205	700	1233	247	
	250/200		205	800	1233	247	854
	275/200		205	850	1233	247	975
	225/225		235	700	1360	279	
	250/225		235	800	1360	279	1216
	275/225		235	850	1360	279	1234
	300/225		235	900	1360	279	1257
	250/250		260	1000	1523	295	
	275/250		260	1000	1523	295	
	300/250		260	1000	1523	295	1677
	275/275		285	1000	1832	306	
300/275	285	1000	1823	306			
350/275	285	1000	1823	306	2787		
400/275	285	1000	1823	306	3013		
320 – 400	65-100/50		88	360	500	69	92
	65-100/55		88	360	500	69	92
	80/75		125	450	716	102	212
	100/75		125	450	716	102	212
	100/80		125	450	677	113	340
	125/80		125	450	677	113	340
	150/80		125	450	677	113	340
	125/100		140	500	737	134	412
	150/100		140	500	737	134	412
	150/125		180	550	952	150	830
	200/150		210	650	1116	188	887
	225/175		244	960	1446	210	2183
	250/175		244	960	1446	210	2183
	250/200		255	960	1424	225	2144
	300/250		310	1200	1760	293	3842
	300/275		320	1200	1914	314	4255
450/300		370	1290	1972	365	5799	

Gate valves with hand wheel

PN	DN/d	D mm	D _k mm	H mm	L mm	V ₁ (resp. V) mm	Z mm	m kg
63 – 250	65/50	By ČSN, EN, DIN or by request of the customer	300	70	360	460	69	45
	65/55		300	70	360	460	69	45
	80/75		400	91	450	610	94	90
	100/75		400	91	450	610	94	88
	100/110		500	127	450	783	132	
	125/110		500	127	550	783	132	225
	150/110		500	127	550	783	132	218
	125/125		630	155	550	914	171	
	150/125		630	155	550	914	171	
	175/125		630	155	650	914	171	419
	150/150		630	155	550	949	187	
	175/150		630	155	650	949	187	411
	200/150		630	155	650	949	187	411
	175/175		710	170	650	1125	201	
	200/175		710	170	650	1125	201	
	225/175		710	170	700	1125	201	578
	200/200		710	205	650	1213	247	
	225/200		710	205	700	1213	247	
	250/200		710	205	800	1213	242	813
	275/200		710	205	850	1213	242	934
	225/225		800	235	700	1354	279	
	250/225		800	235	800	1354	279	
	275/225		800	235	850	1354	279	
	300/225		800	235	900	1354	279	
	250-300/250		-	260	1000	-	-	-
	275-400/275		-	285	1000	-	-	-
	320 – 400		65/100/50		400	88	360	410
65/100/55			400	88	360	410	69	150
80-100/75			630	125	450	667	102	205
100-150/80			630	125	450	552	113	335
125-150/100			630	140	500	582	134	405

Flanged type, PN 63 – 250

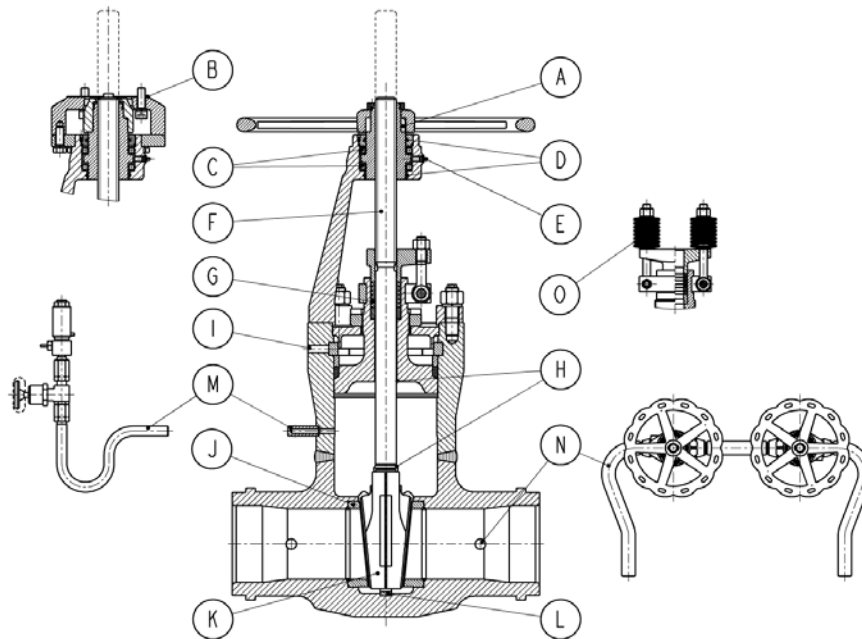


DN/d	PN	D ₁ mm	V ₁ mm	Z mm	L ₁ mm	D _k mm	m kg
65/50-55	63	205	460	69	290	0	51
	100	220	460	69	290	0	53
	160	220	460	69	360	0	54
	250	230	460	69	425	0	58
80/75	63	215	610	94	310	400	97
	100	230	610	94	310	400	99
	160	230	610	94	390	400	101
	250	255	610	94	470	400	107
100/75	63	250	610	94	350	400	98
	100	265	610	94	350	400	102
	160	265	610	94	450	400	104
	250	300	610	94	550	400	116
125/110	63	295	783	132	400	500	240
	100	315	703	132	400	500	246
	160	315	703	132	525	500	250
	250	340	783	132	650	500	264
150/110	63	345	783	132	450	500	240
	100	355	783	132	450	500	247
	160	355	783	132	600	500	253
	250	390	783	132	750	500	278

DN/d	PN	D ₁ mm	V ₁ mm	Z mm	L ₁ mm	D _k mm	m kg	
175-200/150	63	415	949	187	550	630	446	
	100	430	949	187	550	630	462	
	160	430	949	187	750	630	472	
	250	485	949	187	950	630	521	
250/200	63	470	1213	242	650	710	862	
	100	505	1213	242	650	710	895	
	160	515	1213	242	900	710	911	
	250	585	1213	242	1150	710	103	
300/225	63	530	1354	279	750	800		
	100	585	1354	279	750	800		
	160	585	1354	279	1050	800 ¹⁾		
	250	690	1354	279	1350	800 ¹⁾		
300/250	63	upon request						
	100							
	160							
	250							

Notes: Connection dimensions of flange types according to ČSN EN 1092-1.
 Dimensions of flange types according to ČSN EN 558.
 Other flange type upon request.
 1) With gear

Advantages of construction



A	Non-rising hand wheel with sticking point: Advantage in case of lack of space and for achieve of required operating effect
B	Identical connection for actuators and gears according to ISO 5210: Possibility to use control elements of different producers
C	Bronze stem nut placed in two rolling bearings: Facilitate the operation
D	Dust rings: Protected space of the bearings against dirt
E	Pressure lubrication: Facilitate the operation, prolong the life time of bearings
F	Shaft rising, non-turning: Reliable sealing of shaft in gland
G	Stem gland packing, expanded graphite with side wiping rings: Reliable sealing, ecology
H	Backward stopper of stem: Additional sealing by the stem for change of gland packing and emergency running
I	Slots in body in the place of segmented ring: Facilitate dismounting of segmented ring
J	Sealing surfaces hardfaced: Long-term life time, resistance against wearing-out
K	Wedge with inclined boards: Reliable fitting and sealing
L	Possibility to dismount the line of wedge Easy dismounting during change of seat
M	Central cavity equalization against overpressure: Secure the body against prohibited increase of pressure
N	By-pass: Enables warming and pressure equalizing
O	Stem gland packing, Live Loading System: Permanently pressed spring

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