

GEN

GATE VALVE
EN 1984



TERMOVENT
since 1963 **SC**

TECHNICAL DATA SHEET

1. GENERAL FEATURES

Gate Valves [GEN] acc. to EN 1984

DN 50 ÷ DN 650

PN 16 ÷ PN 160

Design

- Cast body and bonnet
- Bolted bonnet (BB)
- Rising stem (RS), outside screw and yoke (OS&Y)
- Flexible, split, solid or parallel slide wedge
- Hard-faced seats

Applications

- The main purpose of the GEN is to isolate fluid flow through the pipeline for Power plant, Chemical, Petrochemical, Refining, Water supply and other

Media

- Water, steam, gas, oil and other non-aggressive media

Pressure and temperature ratings

- PN 16 ÷ PN 160
- Temperatures up to 600°C
- p/T according to EN 12516-1

Materials

- Carbon, low temperature and heat-resistant alloys and stainless steels

Advantages

- Long service life
- Respect for emission standards
- Easy handling and maintenance

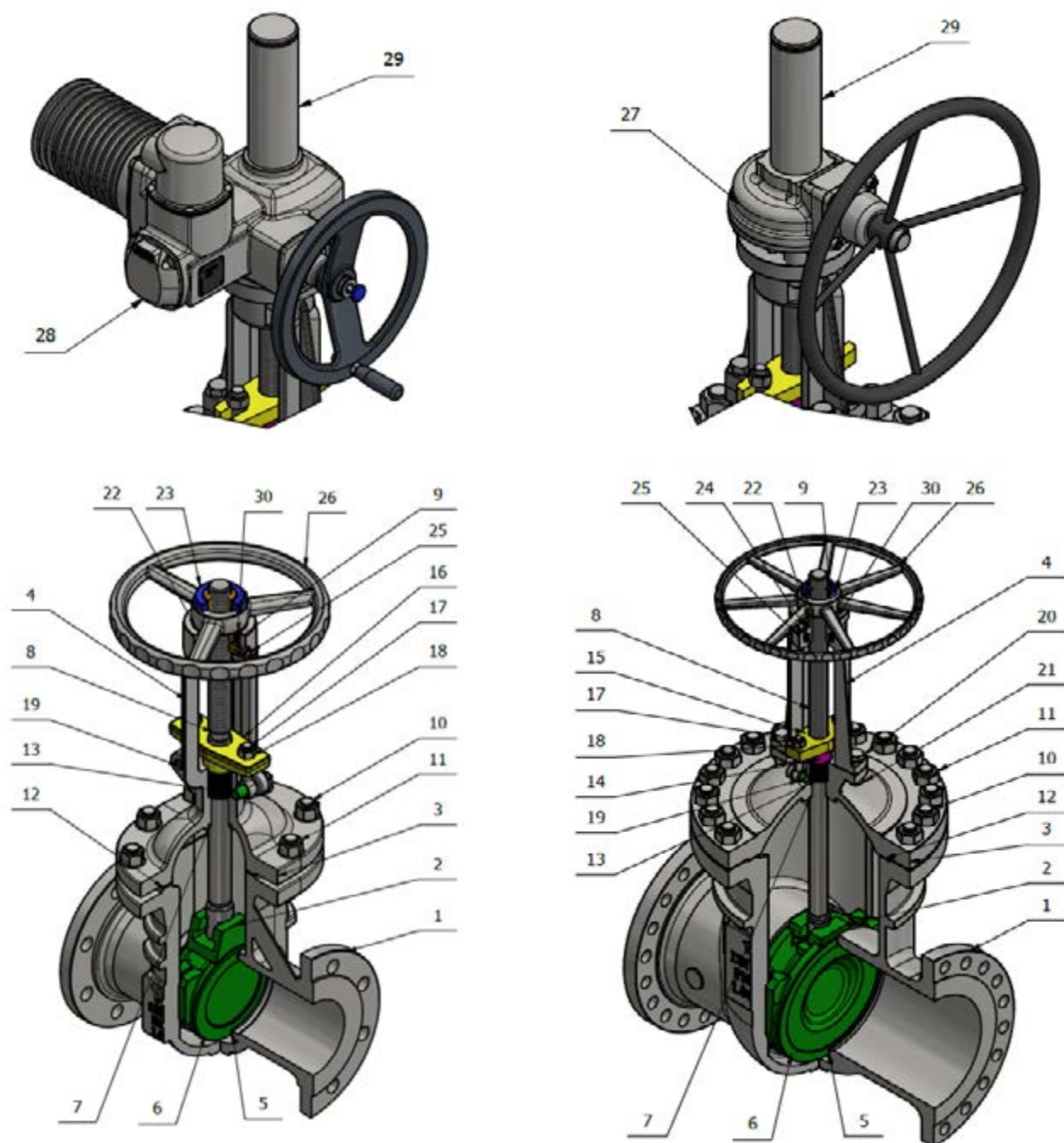
Optional executions

- Electric actuator
- Pneumatic actuator
- Spring loaded stuffing box (SLSB)
- Lantern ring
- Position indicator
- Limit switches
- Locking device
- Over pressure safety devices
- Flanged or welded ends according to other Standards and Norms.

Testing

- Every produced gate valve shall be tested according to EN 12266

2. PARTS & MATERIALS



- PN 16: Bonnet < DN 250 ≥ Bonnet + Yoke
- PN 25: Bonnet < DN 150 ≥ Bonnet + Yoke
- PN 40: Bonnet < DN 150 ≥ Bonnet + Yoke

- PN 63: Bonnet < DN 150 ≥ Bonnet + Yoke
- PN 100: Bonnet < DN 150 ≥ Bonnet + Yoke
- PN 160: Bonnet < DN 150 ≥ Bonnet + Yoke

Figure D.1.1 Parts

List of materials

Table D.1.1

Pos.	Name	Material Group acc. to EN 12516-1						
1	Body ⁽¹⁾	1.0619	1.5419	1.7357	1.7379	1.4955	1.4308	1.4408
2	Wedge ⁽¹⁾							
3	Bonnet ⁽¹⁾							
4	Yoke	1.0619		1.7357			1.4308	
5	Body overlay ⁽²⁾	Hard-Faced 13Cr or Stellite™					basic material or Stellite™	
6	Wedge overlay ⁽²⁾							
7	Backseat overlay							
8	Stem	1.4021	1.4122 / 1.4923 ⁽³⁾				1.4301	1.4401
9	Stem nut	1.0715 / Cu-Alloy						
10	Stud bolts	A193 B7 or 1.7225	A193 B16 or 1.7709 / 1.4913 ⁽³⁾				A193 B8 or 1.4301	A193 B8M or 1.4401
11	Nuts	A194 2H or 1.1191	A194 7 or 1.7709				A194 8 or 1.4301	A194 8M or 1.4401
12	Bonnet gasket	reinforced graphite or spiral wound						
13	Stem packing rings	graphite with corrosion inhibitor						
14	Packing gland	1.4021 / 1.4122					1.4301	
15	Gland flange	1.0425					1.4301	
16	Gland	1.0460 or 1.0619					1.4301	
17	Gland bolts	1.1181					1.4301	
18	Gland nuts	A194 2H or 1.1191					A194 8 or 1.4301	
19	Pin	1.1181					1.4301	
20	Head bolts	steel					stainless steel	
21	Nuts	steel					stainless steel	
22	Cover bearing	1.1191					1.4301	
23	Handwheel nut	1.1191					1.4301	
24	Bearings	axial						
25	Grease injector	Cu-Alloy / steel						
26	Handwheel	steel						
27	Gearbox	commercial						
28	Electric actuator	commercial						
29	Protect tube	steel						
30	Slotted set screw	steel						

TM trademark materials

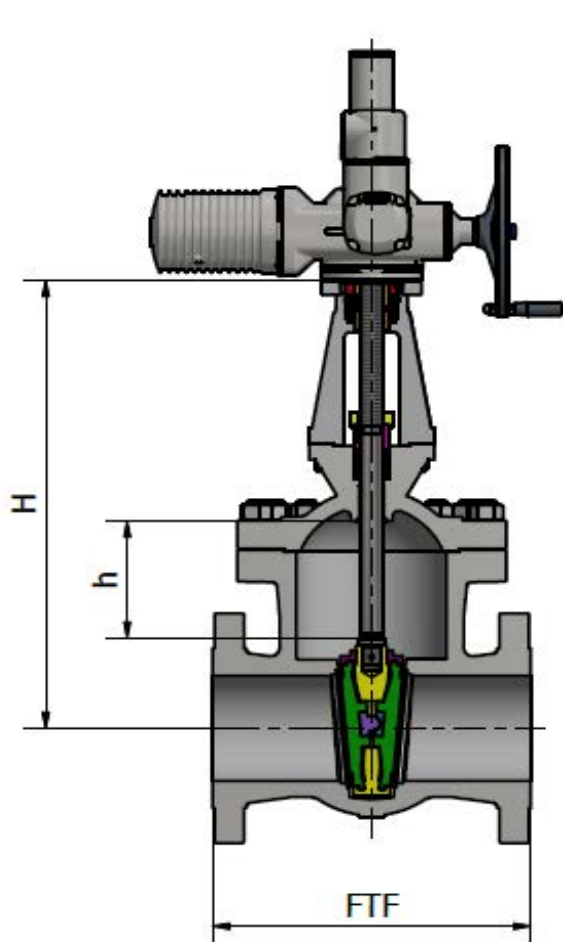
⁽¹⁾ Other materials available acc. to EN standard

⁽²⁾ Hardness differential between the body and wedge seating surfaces shall be min. 50 HB

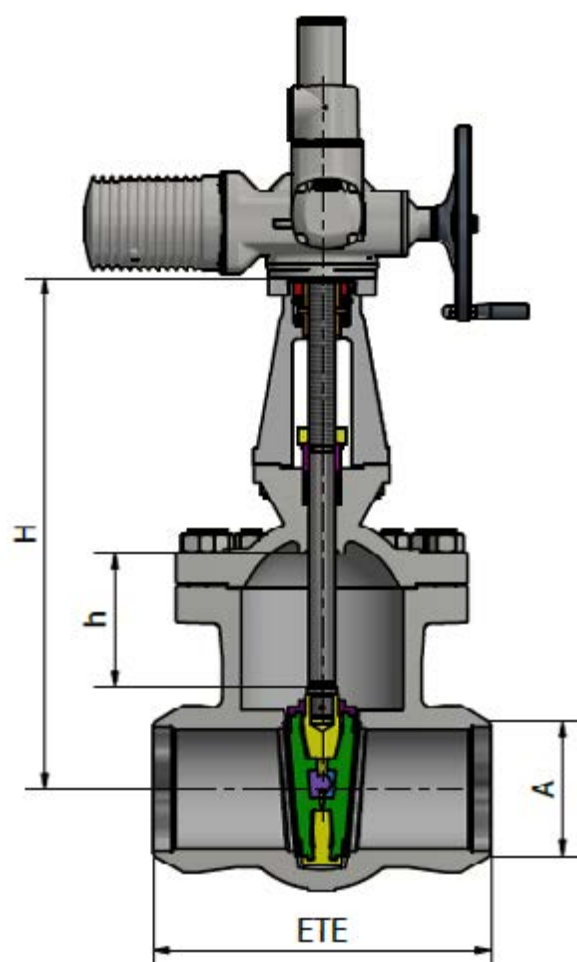
⁽³⁾ Over 500°C

3. STANDARDS & DIMENSIONS

Standards	Table D.1.2
GEN	PN 16 ÷ PN 160
General design	EN 1984
Wall thickness	EN 12516
Pressure / temperature rating	EN 12516
FTF according to	EN 558, Serie 14, Serie 15 and Serie 26 or Manufacturer standard
ETE according to	EN 12982, Serie 14, Serie 15 and Serie 26 or Manufacturer standard
Flanged Ends according to	EN 1092-1
Welding Ends according to	EN 12627
Testing according to	EN 12266



GEN with flanged ends



GEN with welding ends
(Dimensions A in the Table D.1.6)

Figure D.1.2 – Dimensions

Nominal Pressure	Diameter Nominal	Face-To-Face	End-To-End	Centre-to-Connection Flange	Stroke	Connection Flange ISO 5210	Kvs	Weight ⁽¹⁾	
PN	DN	FTF	ETE	H	h		m³/h	FTF	ETE
		mm						kg	
PN 16 ⁽²⁾	50	150	150	354	66	F10-B1	375	25	19
	65	170	170	420	83	F10-B1	545	30	25
	80	180	180	442	91	F10-B1	825	40	36
	100	190	190	553	122	F10-B1	1286	42	38
	125	200	200	607	140	F10-B1	2000	76	70
	150	210	210	667	175	F10-B1	2890	78	72
	200	230	230	791	220	F10-C	5143	126	108
	250	250	250	920	276	F14-B1	8036	232	199
	300	270	270	1085	335	F14-B1	11572	323	293
	350	290	290	1173	374	F14-C	15751	436	385
	400	310	310	1403	426	F14-C	20573	579	540
	500	350	350	1710	526	F16-B1	32146	972	855
	600	390	390	2103	645	F16-B1	46290	1326	1140
PN 16	50	250	250	354	66	F10-B1	375	28	22
	65	270	270	420	83	F10-B1	545	32	27
	80	280	280	442	91	F10-B1	825	36	32
	100	300	300	553	122	F10-B1	1286	50	43
	125	325	325	607	140	F10-B1	2000	83	77
	150	350	350	667	175	F10-B1	2890	85	74
	200	400	400	791	220	F10-C	5143	143	125
	250	450	450	920	276	F14-B1	8036	245	212
	300	500	500	1085	335	F14-B1	11572	330	300
	350	550	550	1173	374	F14-C	15751	450	397
	400	600	600	1403	426	F14-C	20573	590	553
	450	650	650	1558	461	F16-B1	26038	752	680
	500	700	700	1710	526	F16-B1	32146	984	867
	600	800	800	2103	645	F16-B1	46290	1767	1580
	650	-	850	2400	700	F14-B3	54326	-	1860
PN 25	50	250	250	384	82	F10-B1	375	30	25
	65	270	270	420	84	F10-B1	545	37	33
	80	280	280	462	96	F10-B1	825	48	41
	100	300	300	524	111	F10-B1	1286	68	57
	125	325	325	559	139	F10-B1	2000	84	75
	150	350	350	749	183	F10-C	2890	130	113
	200	400	400	825	232	F14-B1	5143	194	164
	250	450	450	1012	263	F14-B1	8036	300	264
	300	500	500	1197	313	F14-B1	11572	445	381
	350	550	550	1333	373	F14-C	15751	580	530
	400	600	600	1403	422	F14-C	20573	670	568
	450	650	650	1558	461	F16-B1	26038	813	680
	500	700	700	1710	526	F16-B1	32146	1030	867
	600	800	800	2066	649	F14-B3	46290	1830	1580
	650	-	850	2400	700	F14-B3	54326	-	1860

(1) Weights without actuators

(2) FTF dimensions for GEN according to EN 558, Serie 14

- Depending on the executions weights are subject to modification

Nominal Pressure	Diameter Nominal	Face-To-Face	End-To-End	Centre-to-Connection Flange	Stroke	Connection Flange ISO 5210	Kvs	Weight ⁽¹⁾	
PN	DN	FTF	ETE	H	h		m³/h	FTF	ETE
		mm						kg	
PN 40	50	250	250	384	76	F10-B1	375	34	28
	65	290	290	431	86	F10-B1	545	53	46
	80	310	310	464	91	F10-B1	825	51	44
	100	350	350	541	111	F10-B1	1286	77	66
	125	400	400	625	135	F10-C	2000	115	103
	150	450	450	725	165	F10-C	2890	167	152
	200	550	550	831	217	F14-B1	5143	267	235
	250	650	650	1067	305	F14-B1	8036	410	358
	300	750	750	1236	334	F14-B1	11572	555	490
	350	850	850	1289	372	F16-B1	15751	860	786
	400	950	950	1395	408	F16-B1	20573	1165	1095
	450	1050	1050	1583	467	F14-B3	26038	1590	1210
	500	1150	1150	1655	517	F14-B3	32146	1820	1665
	600	1350	1350	2051	626	F14-B3	46290	2460	2251
PN 63	50	250	250	384	75	F10-B1	375	42	33
	65	290	290	431	86	F10-B1	545	53	42
	80	310	310	467	92	F10-B1	825	68	55
	100	350	350	507	111	F10-B1	1286	83	67
	125	400	400	570	144	F14-B1	2000	153	125
	150	450	450	692	164	F14-B1	2890	190	160
	200	550	550	796	227	F14-B1	5143	319	255
	250	650	650	1041	313	F16-B1	8036	643	563
	300	750	750	1242	332	F16-B1	11572	714	620
	350	850	850	1297	363	F16-B1	15751	910	830
	400	950	950	1353	408	F14-B3	20573	1234	1100
	450	-	1050	1583	467	F14-B3	26038	-	1252
	500	1150	1150	1652	488	F14-B3	32146	2095	1912
	600	1350	1350	2072	618	F16-B3	46920	4370	4020

(1) Weights without actuators

- Depending on the executions weights are subject to modification

GEN Dimensions

Table D.1.3

Nominal Pressure	Diameter Nominal	Face-To-Face	End-To-End	Centre-to-Connection Flange	Stroke	Connection Flange ISO 5210	Kvs	Weight ⁽¹⁾	
PN	DN	FTF	ETE	H	h		m³/h	FTF	ETE
		mm						kg	
PN 100	50	250	250	384	74	F10-B1	375	44	38
	65	290	290	431	85	F10-B1	545	55	43
	80	310	310	467	92	F10-B1	825	70	55
	100	350	350	539	110	F10-B1	1286	110	92
	125	400	400	570	135	F14-B1	2000	153	134
	150	450	450	691	164	F14-B1	2890	239	195
	200	550	550	831	227	F14-B1	5143	419	350
	250	650	650	1039	313	F16-B1	8036	675	573
	300	750	750	1241	331	F14-B3	11572	940	812
	350	850	850	1286	369	F14-B3	15751	1320	1162
	400	950	950	1452	430	F14-B3	20573	1725	1538
	450	-	1050	1609	478	F16-B3	26038	-	1970
	500	1150	1150	1778	482	F16-B3	32146	2800	2522
	600	1350	1350	2072	618	F25-B3	46290	4450	4020
PN 160	50	368	368	458	69	F10-B1	350	65	57
	65	419	419	511	72	F10-B1	495	110	97
	80	390	390	508	88	F10-C	782	104	84
	100	450	450	545	115	F14-B1	1286	156	131
	125	525	525	667	152	F14-B1	2000	261	220
	150	600	600	733	172	F14-B1	2890	310	267
	200	750	750	831	212	F16-B1	4940	642	496
	250	838	900	1046	270	F14-B3	8036	865	772
	300	965	1050	1182	318	F14-B3	10964	1405	1100
	400	-	1130	1505	426	F16-B3	20573	-	2110

(1) Weights without actuators

- Depending on the executions weights are subject to modification

4. FLANGED ENDS DESIGN & DIMENSIONS

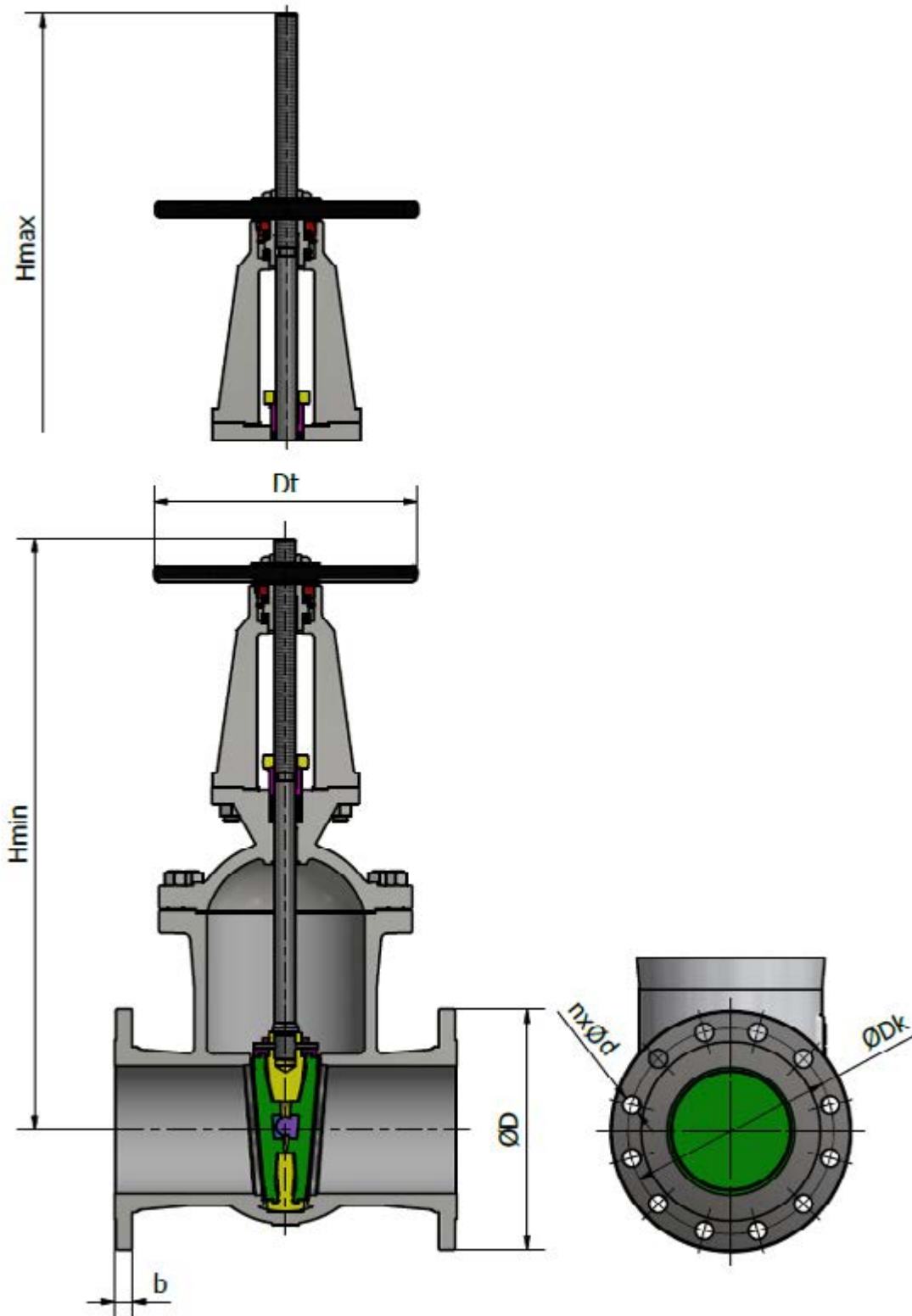


Figure D.1.3 – GEN with flanged ends - dimensions

Flanged ends dimensions

Table D.1.4

DN		50	65	80	100	125	150	200	250	300	350	400	450	500	600	650
PN 16																
mm	øD	165	185	200	220	250	285	340	405	460	520	580	640	715	840	-
	øDk	125	145	160	180	210	240	295	355	410	470	525	585	650	770	-
	nxød	4x18	8 ⁽¹⁾ x18	8x18	8x18	8x18	8x22	12x22	12x26	12x26	16x26	16x30	20x30	20x33	20x36	-
	b	18	18	20	20	22	22	24	26	28	30	32	40	44	54	-
	Hmax	425	493	537	677	771	859	1038	1267	1485	1593	1907	2103	2323	2893	3035
	Hmin	359	410	446	555	631	684	818	991	1150	1219	1481	1642	1797	2248	2335
	Dt	250	250	250	250	300	300	400	500	500	500	630	730	730	GB ⁽²⁾	GB ⁽²⁾
PN 25																
mm	øD	165	185	200	235	270	300	360	425	485	555	620	670	730	845	-
	øDk	125	145	160	190	220	250	310	370	430	490	550	600	660	770	-
	nxød	4x18	8x18	8x18	8x22	8x26	8x26	12x26	12x30	16x30	16x33	16x36	20x36	20x36	20x39	-
	b	20	22	24	24	26	28	30	32	34	38	40	46	48	58	-
	Hmax	466	515	562	652	760	950	1086	1323	1565	1709	1903	2128	2323	2878	3035
	Hmin	384	431	466	541	621	767	903	1060	1252	1336	1481	1667	1797	2229	2335
	Dt	250	250	250	250	300	400	400	500	500	500	630	730	730	GB ⁽²⁾	GB ⁽²⁾
PN 40																
mm	øD	165	185	200	235	270	300	375	450	515	580	660	685	755	890	-
	øDk	125	145	160	190	220	250	320	385	450	510	585	610	670	795	-
	nxød	4x18	8x18	8x18	8x22	8x26	8x26	12x30	12x33	16x33	16x36	16x39	20x39	20x42	20x48	-
	b	20	22	24	24	26	28	34	38	42	46	50	57	57	72	-
	Hmax	471	522	556	662	776	916	1122	1431	1626	1744	1889	2150	2281	2835	-
	Hmin	395	436	465	551	641	751	905	1126	1292	1372	1481	1683	1764	2209	-
	Dt	250	250	250	250	400	400	500	500	500	630	730	GB ⁽²⁾	GB ⁽²⁾	GB ⁽²⁾	-
PN 63																
mm	øD	180	205	215	250	295	345	415	470	530	600	670	-	800	930	-
	øDk	135	160	170	200	240	280	345	400	460	525	585	-	705	820	-
	nxød	4x22	8x22	8x22	8x26	8x30	8x33	12x36	12x36	16x36	16x39	16x42	-	20x48	20x56	-
	b	26	26	28	30	34	36	42	46	52	56	60	-	68	72	-
	Hmax	459	522	557	531	774	890	1102	1459	1639	1738	1889	2150	2276	2871	-
	Hmin	384	436	465	520	630	726	875	1146	1307	1375	1481	1683	1788	2253	-
	Dt	250	250	250	300	400	500	500	630	630	630	GB ⁽²⁾	GB ⁽²⁾	GB ⁽²⁾	GB ⁽²⁾	-
PN 100																
mm	øD	195	220	230	265	315	355	430	505	585	655	715	-	870	990	-
	øDk	145	170	180	210	250	290	360	430	500	560	620	-	760	875	-
	nxød	4x26	8x26	8x26	8x30	8x33	12x33	12x36	12x39	16x42	16x48	16x48	-	20x56	20x62	-
	b	30	34	36	40	40	44	52	60	68	74	78	-	-	90	-
	Hmax	468	521	567	661	776	928	1138	1459	1637	1784	2050	2292	2735	2871	-
	Hmin	394	436	475	551	641	764	911	1146	1306	1415	1620	1814	2253	2253	-
	Dt	250	250	250	300	400	500	500	730	730	GB ⁽²⁾	GB ⁽²⁾	GB ⁽²⁾	GB ⁽²⁾	GB ⁽²⁾	-
PN 160																
mm	øD	195	220	230	265	315	355	430	515	585	-	-	-	-	-	-
	øDk	145	170	180	210	250	290	360	430	500	-	-	-	-	-	-
	nxød	4x26	8x26	8x26	8x30	8x33	12x33	12x36	12x42	16x42	-	-	-	-	-	-
	b	30	34	36	40	44	50	60	68	78	-	-	-	-	-	-
	Hmax	535	645	622	736	925	966	1168	1487	1626	-	2117	-	-	-	-
	Hmin	466	573	534	621	773	794	956	1217	1308	-	1691	-	-	-	-
	Dt	300	400	400	400	500	500	630	GB ⁽²⁾	GB ⁽²⁾	-	GB ⁽²⁾	-	-	-	-

(1) 8 holes is preferred however 4 holes may be supplied upon special request by the Customer.

(2) with Gearbox.

5. BUTT WELDING ENDS DESIGN

Symbols		Table D.1.5
A	- outside diameter of the Valve butt welding end in mm	
T	- wall thickness of the pipe in mm	

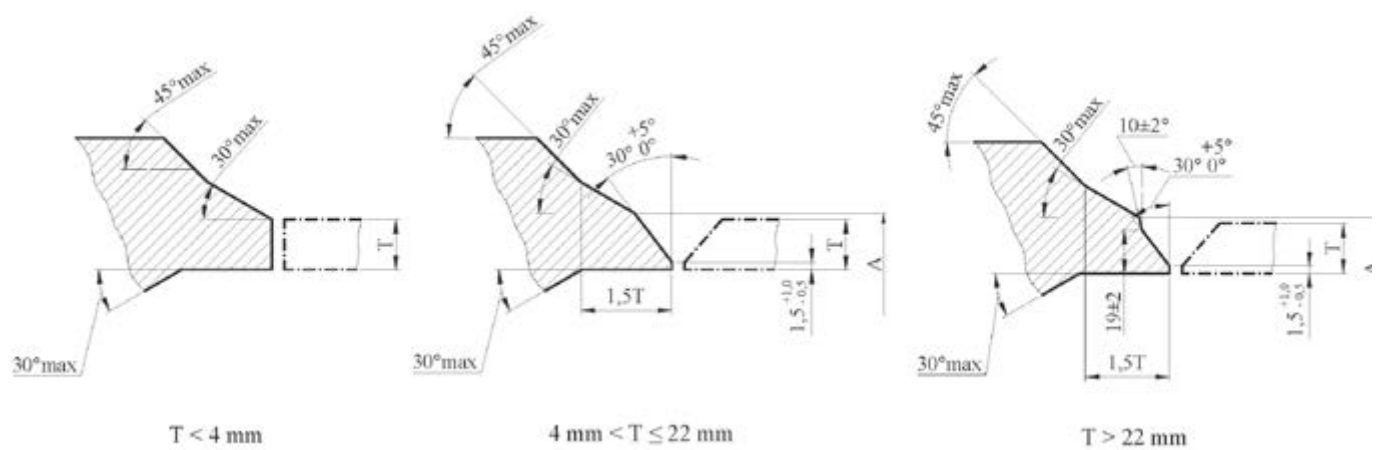


Figure D.1.4 - Form of the butt welding ends EN 12627

Dimensions and tolerance of outside diameter														Table D.1.6	
DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650
A (mm)	62	78	91	117	144	172	223	278	329	362	413	464	516	619	670
Tolerance (mm)	+2,5 -2		+2,5 -2,5		+4,0 -2,5										



6. WEDGE DESIGNS

6.1 Flexible wedge



Figure D.1.5 - Flexible wedge

The flexible wedge can bend and better conform to the valve seats, ensuring reliable sealing even under temperature and pressure fluctuations.

This design reduces the risk of sticking and wear, extending the valve's service life and making maintenance easier.

6.2 Split wedge

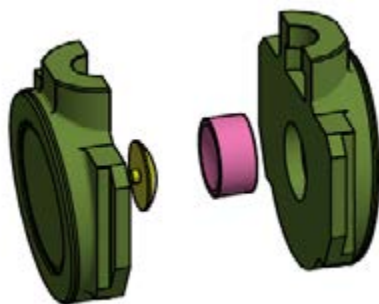


Figure D.1.6 - Split wedge

The split wedge allows each half of the gate to adjust independently to the valve seats, improving sealing even when the surfaces are misaligned or worn.

It also reduces friction and stress during valve operation, extending its service life and increasing reliability.

6.3 Solid wedge



Figure D.1.7 - Solid wedge

This type of wedge is suitable for small DN.

This type of wedge is not suitable for high pressure and temperature.

If the gate valve is closed while hot, the wedge can become stuck.

6.4 Parallel Slide Wedge

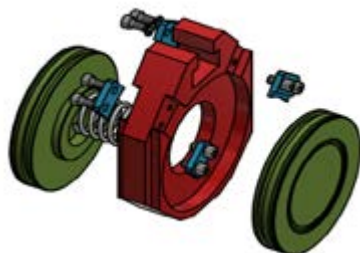


Figure D.1.8 - Parallel slide wedge

This type of valve is designed with two parallel discs, each sliding over its own seat.

It relies on upstream pressure to act on the downstream disc, ensuring a good seal.

There is no wedging or additional load on the seats, which allows for a smaller actuator torque.

However, a drawback is the wear on the seat caused by the sliding disc during operation.

7. OPTIONAL EXECUTIONS

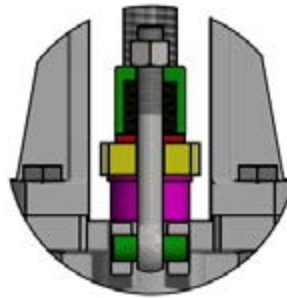


Figure D.1.9 –
Spring loaded stuffing box

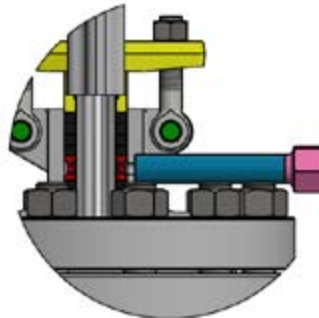
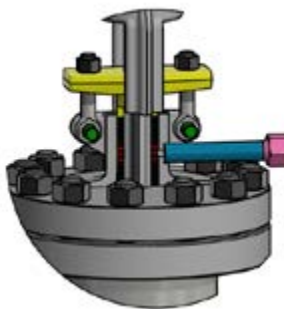


Figure D.1.10 - Lantern ring



Figure D.1.11 – Position indicator

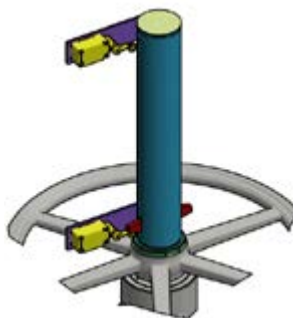


Figure D.1.12 – Limit switches

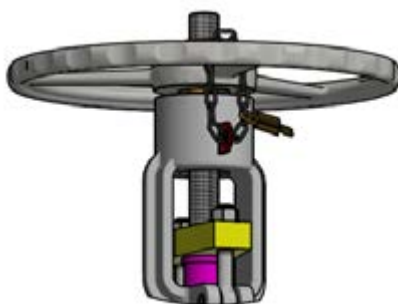


Figure D.1.13 - Locking devices

8. OVER PRESSURIZATION, PRESSURE LOCKING & THERMAL BINDING PROCESS CONDITIONS

In case when GEN in the closed position the temperature of the fluid (mainly water) increase in the chamber above the wedge impermissibly high pressure can occur.

To prevent failure or damage of pressure-relating parts gate valves should be equipped with some of the presented constructive solutions:

8.1 Solutions for Over-Pressurization & Pressure Locking

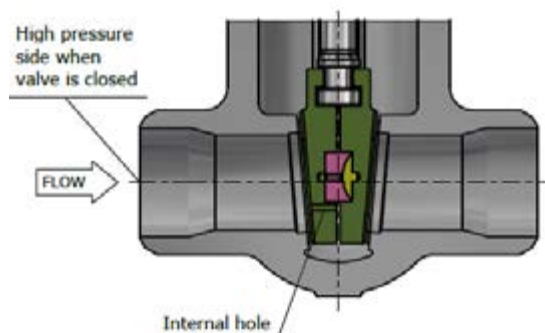


Figure D.1.14 - With a hole in the wedge

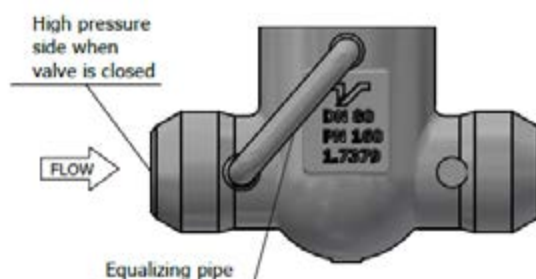


Figure D.1.15 - With equalizing pipe

- **One side wedge hole** connecting the body cavity to the high-pressure side of the valve.
- **Equalizing pipe** connecting the body cavity to the high-pressure side of the valve.



Figure D.1.16 - With closed nozzle for safety valve

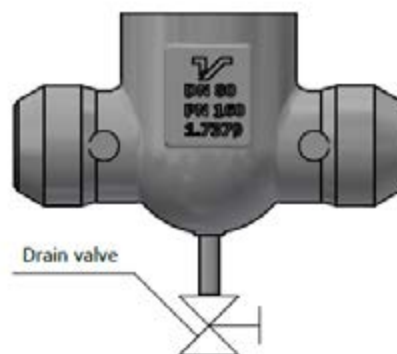


Figure D.1.17 - With drain valve

- **With closed nozzle for safety valve**
Safety valve connecting the body cavity to the atmosphere.
The discharge of this valve must be made to a safe location (safety valve is not scope of delivery).
- **With a drain valve** connecting the body cavity to the atmosphere.
The discharge of this valve must be made to a safe location.

8.2 Solutions for Thermal Biding

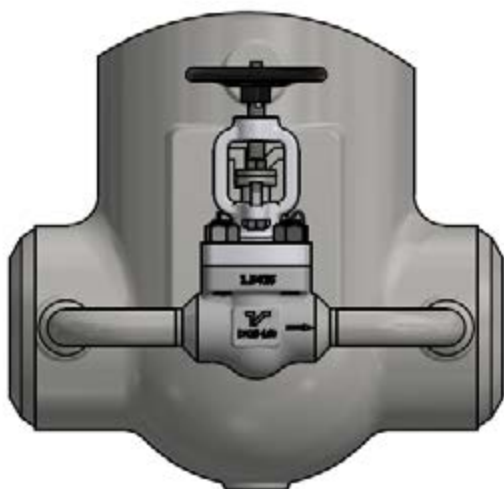


Figure D.1.18 – With By-pass valve

- By-pass valve in addition to equalizing pressure differential across the wedge, will allow warm up of both sides of the wedge.
- After reaching the operating parameters By-pass valve on opened GEN, should be closed.
- After closing a GEN, back up the stem (1/8 turn). This will give room for dimensional changes due to temperature variation. This is only applicable for manually operated valves or on electric actuator- operated valves (by handwheel).
- Adequate supports can reduce the thermal binding problem by reducing pipe stresses
- Parallel slide GEN is not subjected to thermal binding. If parallel slide GEN is selected as a possible solution for thermal binding, it is very important to know that such a valve: subject to pressure lock, higher seat wear and poor sealing under low pressure.

8.3 Combined Effects of Over-Pressurization, Pressure Locking & Thermal Binding

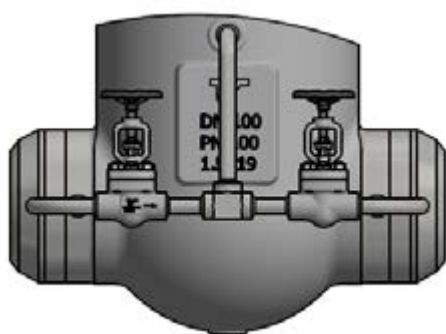


Figure D.1.19 – With double by-pass & equalizing pipe

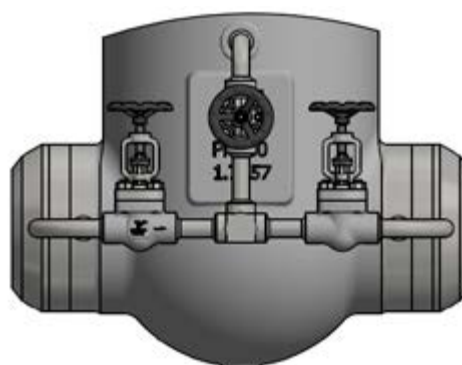


Figure D.1.20 – With double by-pass & equalizing pipe with a valve

- After reaching the operating parameters By-pass valves on the pressurized side of closed GEN should be in open position. When GEN is opened By-pass valves should be closed.

8.4 By-pass Valve Size Selection

When by-pass valves are required, they shall be in accordance with Table D.1.7

Table D.1.7

Valve nominal size	By-pass nominal size
DN	DN
50 ≤ 100	15
125 ≤ 200	20
200 ≤ 600	25

9. PRESSURE & TEMPERATURE RATINGS

Pressure (bar)/Temperature (°C) ratings acc. to EN 12516-1

Table D.1.8

Materials	PN	-10	20	50	100	150	200	250	300	350	400	420	450	475	480	500	510	525	530	550	575	600
1.0619	16	16,0	16,0	16,0	15,0	14,2	13,4	12,3	11,1	10,4	9,6	8,8	5,9									
	25	25,0	25,0	25,0	23,4	22,2	21,0	19,2	17,4	16,2	15,0	13,7	9,2									
	40	40,0	40,0	40,0	37,4	35,5	33,6	30,7	27,8	25,9	24,0	22,2	14,7									
	63	63,0	63,0	63,0	59,0	55,9	52,9	48,4	43,8	40,8	37,8	34,6	23,2									
	100	100,0	100,0	100,0	93,6	88,8	84,0	76,8	69,6	64,8	60,0	54,9	36,8									
	160	160,0	160,0	160,0	149,8	142,1	134,5	122,9	111,4	103,7	96,0	87,9	58,9									
1.5419	16	16,0	16,0	16,0	16,0	15,7	14,6	13,6	12,7	11,9	11,5	11,4	10,7	10,5	10,4	7,3	6,3	4,5	4,0			
	25	25,0	25,0	25,0	25,0	24,5	22,8	21,3	19,8	18,6	18,0	17,7	16,7	16,4	16,3	11,3	9,9	7,1	6,3			
	40	40,0	40,0	40,0	40,0	39,1	36,5	34,1	31,7	29,8	28,8	28,4	26,7	26,2	26,1	18,1	15,8	11,3	10,0			
	63	63,0	63,0	63,0	63,0	61,6	57,5	53,7	49,9	46,9	45,4	44,7	42,0	41,3	41,1	28,6	24,9	17,8	15,8			
	100	100,0	100,0	100,0	100,0	97,8	91,2	85,2	79,2	74,4	72,0	71,0	66,7	65,5	65,3	45,3	39,5	28,3	25,1			
	160	160,0	160,0	160,0	160,0	156,6	146,0	136,4	126,8	119,1	115,3	113,5	106,8	104,9	104,5	72,6	63,2	45,2	40,1			
1.7357	16	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	14,9	13,7	13,7	12,6	11,8	11,6	10,0	8,9	7,3	6,7	4,2		
	25	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	23,3	21,3	21,3	19,7	18,5	18,1	15,6	13,9	11,5	10,5	6,5		
	40	40,0	40,0	40,0	40,0	40,0	40,0	40,0	40,0	37,3	34,1	34,1	31,5	29,5	28,9	25,0	22,3	18,3	16,8	10,5		
	63	63,0	63,0	63,0	63,0	63,0	63,0	63,0	63,0	58,7	53,8	53,8	49,7	46,5	45,5	39,3	35,1	28,9	26,4	16,5		
	100	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	93,1	85,3	85,4	78,9	73,9	72,2	62,4	55,8	45,9	41,9	26,1		
	160	160,0	160,0	160,0	160,0	160,0	160,0	160,0	160,0	149,1	136,6	136,6	126,2	118,2	115,6	99,9	89,3	73,4	67,1	41,8		
1.7379	16	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	15,0	13,7	13,2	12,6	11,8	11,6	10,5	10,2	8,6	8,0	5,6	4,4	2,4
	25	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	23,5	21,3	20,65	19,7	18,5	18,1	16,5	15,9	13,5	12,5	8,8	6,8	3,7
	40	40,0	40,0	40,0	40,0	40,0	40,0	40,0	40,0	37,5	34,1	33,0	31,5	29,5	28,9	26,3	25,4	21,5	20,1	14,1	10,9	6,0
	63	63,0	63,0	63,0	63,0	63,0	63,0	63,0	63,0	59,1	53,8	51,9	49,7	46,5	45,5	41,5	40,0	33,9	31,6	22,2	17,1	9,4
	100	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	93,8	85,3	82,4	78,9	73,9	72,2	65,8	63,5	53,9	50,1	35,2	27,2	14,9
	160	160,0	160,0	160,0	160,0	160,0	160,0	160,0	160,0	150,2	136,6	131,8	126,2	118,2	115,6	105,3	101,7	86,2	80,2	56,3	43,5	23,9
1.4955	16	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	15,0	13,7	13,2	12,6	11,8	11,6	10,5	10,2	9,6	9,6	9,3	8,9	8,0
	25	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	23,5	21,3	20,6	19,7	18,5	18,1	16,5	15,9	15,0	14,9	14,6	14,0	12,5
	40	40,0	40,0	40,0	40,0	40,0	40,0	40,0	40,0	37,5	34,1	32,9	31,5	29,5	28,9	26,3	25,4	24,1	23,9	23,3	22,3	20,0
	63	63,0	63,0	63,0	63,0	63,0	63,0	63,0	63,0	59,1	53,8	51,9	49,7	46,5	45,5	41,5	40,0	37,9	37,7	36,7	35,2	31,5
	100	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	93,8	85,3	82,4	78,9	73,9	72,2	65,8	63,5	60,2	59,8	58,2	55,9	50,0
	160	160,0	160,0	160,0	160,0	160,0	160,0	160,0	160,0	150,2	136,6	131,8	126,2	118,2	115,6	105,3	101,7	96,3	95,7	93,2	89,4	80,0
1.4308	16	16,0	16,0	16,0	14,8	13,0	11,2	10,5	9,9	9,1	8,7	8,5	8,2	8,1	8,0	7,9	7,8	7,3	7,3	7,1	6,4	5,0
	25	25,0	25,0	25,0	23,1	20,3	17,5	16,5	15,4	14,3	13,6	13,3	12,9	12,6	12,5	12,3	12,2	11,4	11,3	11,1	10,0	7,9
	40	40,0	40,0	40,0	37,0	32,5	28,0	26,3	24,6	22,8	21,7	21,3	20,6	20,2	20,1	19,7	19,5	18,2	18,1	17,7	16,0	12,6
	63	63,0	63,0	63,0	58,2	51,2	44,1	41,5	38,8	36,0	34,2	33,5	32,5	31,8	31,6	31,0	30,7	28,7	28,6	27,9	25,2	19,8
	100	100,0	100,0	100,0	92,4	81,2	70,0	65,8	61,6	57,1	54,3	53,2	51,5	50,4	50,2	49,3	48,7	45,6	45,4	44,3	40,0	31,5
	160	160,0	160,0	160,0	147,9	130,0	112,1	105,3	98,6	91,4	87,0	85,2	82,5	80,7	80,3	78,9	78,0	73,0	72,6	70,9	64,0	50,4
1.4408	16	16,0	16,0	16,0	15,2	13,7	12,1	11,2	10,3	9,9	9,4	8,3	9,1	9,0	8,9	8,9	8,8	8,4	9,2	8,3	7,0	5,8
	25	25,0	25,0	25,0	23,8	21,4	18,9	17,5	16,1	15,4	14,7	13,0	14,1	14,0	14,0	13,9	13,8	13,1	14,4	12,9	10,9	9,1
	40	40,0	40,0	40,0	38,1	34,2	30,2	28,0	25,8	24,6	23,5	20,9	22,6	22,4	22,4	22,2	22,1	20,9	23,1	20,7	17,5	14,5
	63	63,0	63,0	63,0	60,0	53,8	47,6	44,1	40,6	38,8	37,0	32,9	35,6	35,3	35,2	34,9	34,8	32,9	36,3	32,6	27,6	22,8
	100	100,0	100,0	100,0	95,2	85,4	75,6	70,0	64,4	61,6	58,8	52,2	56,6	56,0	55,9	55,4	55,2	52,3	57,7	51,7	43,7	36,3
	160	160,0	160,0	160,0	152,4	136,7	121,0	112,1	103,1	98,6	94,1	83,5	90,5	89,6	89,5	88,7	88,4	83,7	92,3	82,8	70,0	58,1

Note: Presented values belong to Standard Rating. For Special class contact Termovent SC.

10. MARKING & LABELING

Gate valve shall be marked in accordance with general design specification EN 1984 and the requirements of standard EN 19.

10.1 Marking

General marking of the valve

Table D.1.9

Item ^a	Subject Class designed valves		Marking
1	Product identification	Type	GEN
		Serial number	xxxx.xx.xx/xx
2	Nominal size		DN xxx
3	PN designation		PN xxx
4	Body Material		xxx
5	Cast (heat) identification		xxx
6	Allowable flow direction arrow		
7	Manufacturer's name and registered trade details		Termovent SC Serbia
8	Ring joint number		-
9	Maximum allowable temperature, T_{Smax}		xx °C or xx C
	Minimum allowable temperature, T_{Smin}		xx °C or xx C
10	Maximum allowable pressure PS		xx bar
11	Trim identification		xxx
12	Month / year of manufacturing		mm/yy

^a Other (additional) markings may be requested by the user or recommended by the manufacturer.

10.1.1 Additional Marking

Equipment that meets specific requirements for safety and operation in potentially explosive atmospheres should be marked with an additional mark as follows:



The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.



The valves do not have a potential internal source of ignition and can be used in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zone 2+22) to ATEX 2014/34/EU.

10.2 Labeling

Valve information can be found on the valve body, and the typical valve nameplate is shown on Figure D.1.21.

The image shows a typical valve nameplate for THERMOVENT SC. It includes a logo on the left and a box labeled 'Additional marking'. The main fields are: TYPE, DN/NPS, PN/Class, Body, PS/TS, Trim, S/N No., and Date. Each field is represented by a rectangular box.

TYPE	Type of valve
DN / NPS	Nominal valve size
PN / Class	Nominal Pressure / Pressure Class
Body	Material
PS / TS	Pressure-temperature rating
Trim	Material of stem and sealing faces
S / N No.	Serial Number
Date	Date of manufacture
Additional marking	As per 10.1.1

Figure D.1.21

11. SURFACE PROTECTION *

The supplied valves are already protected against corrosion with a manufacturer-standard paint system. The protective paint system meets the requirements of ISO 12944 for corrosion category C3-M.

** Note: At the customer's request, a special surface protection and color different from the standard can be applied.*

12. PACKAGING

Termovent SC products are packed in standard boxes to ensure safe transport by truck to their destination. The standard packaging includes boxes made of OSB-3 panels fixed on a heat-treated wooden pallet and further protected by outer nylon foil.

It's important to note that standard crates are not stackable.

However, upon request, the packaging can be customized to meet specific customer requirements, such as stackable or sea-worthy packaging.



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