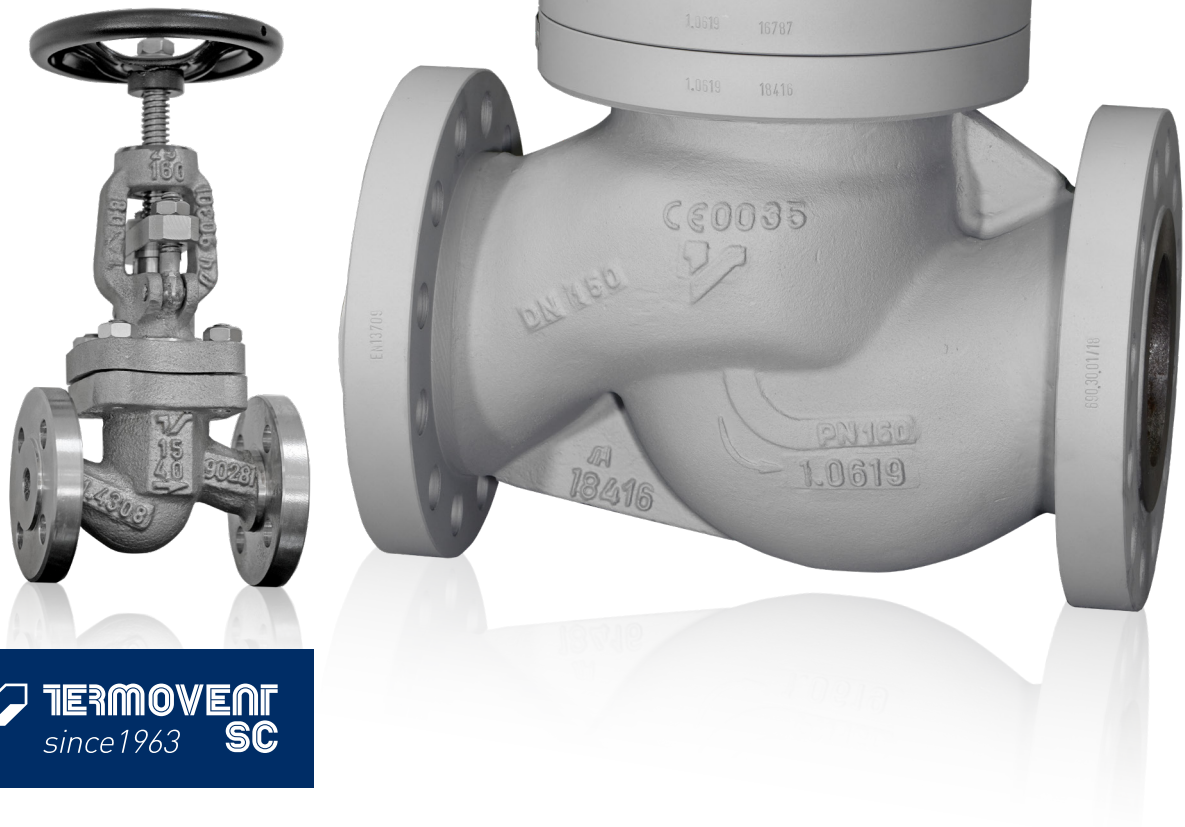
VENS

GLOBE STOP VALVE
EN 13709



TERMOVENT SC since1963

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I TECHNICAL DATA SHEETS

Globe Stop Valves [VENS] acc. to EN 13709

DN 15 ÷ DN 400
PN 16 ÷ PN 160

Design

- Cast or forged body and bonnet
- Flat, Conical or Balanced Disc
- Bolted bonnet (BB)
- Rising stem (RS), outside screw and yoke (OS&Y)
- Seats are integral or welded on

Applications

- The main purpose of the VENS 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
- Stem packing replacement in working conditions

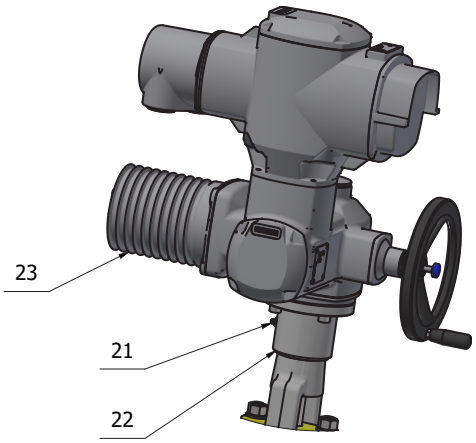
Options

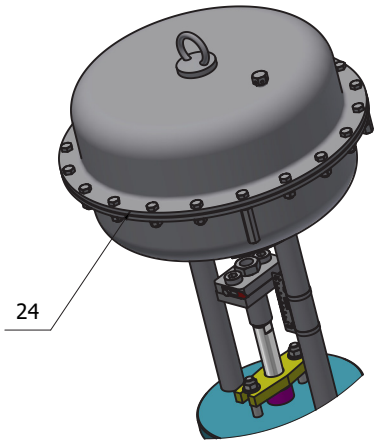
- Electric actuator
- Pneumatic actuator
- Spring loaded stuffing box (SLSB)
- Position indicator
- Limit switches
- Locking devices
- Inside screw rising stem (IS&RS)
- Flanged or welded ends according to other Standards and Norms.

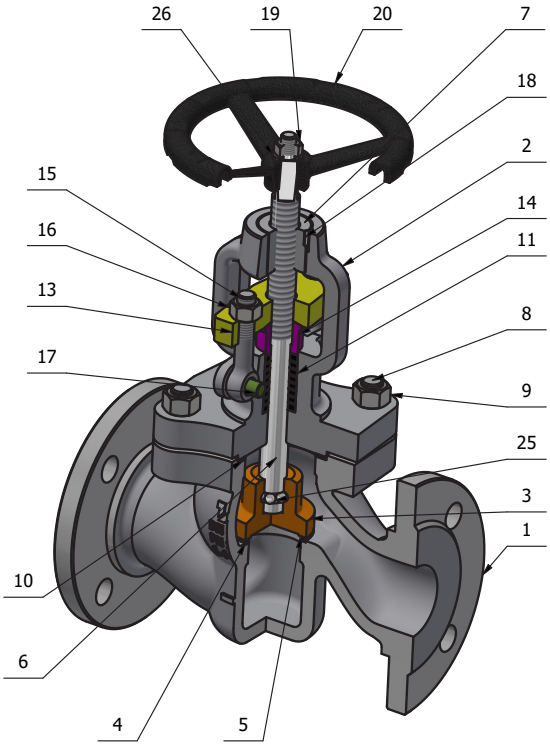
Testing

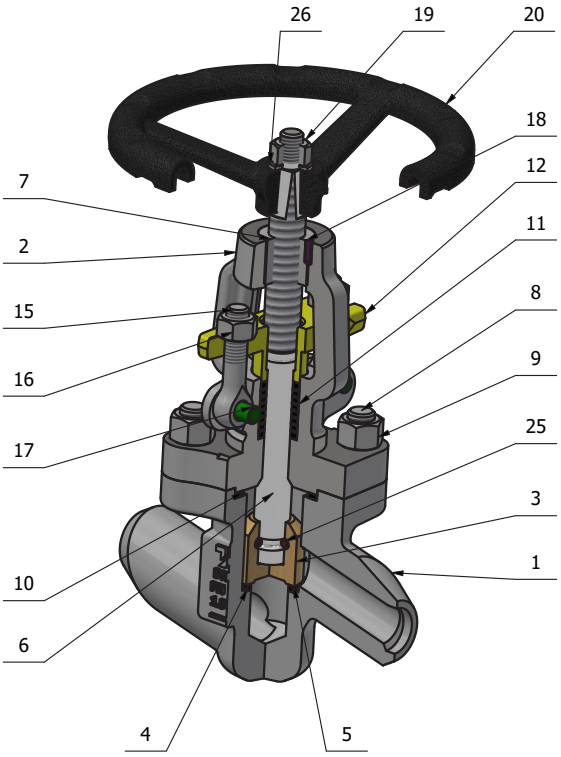
- Every produced globe valve shall be tested according to EN 12266

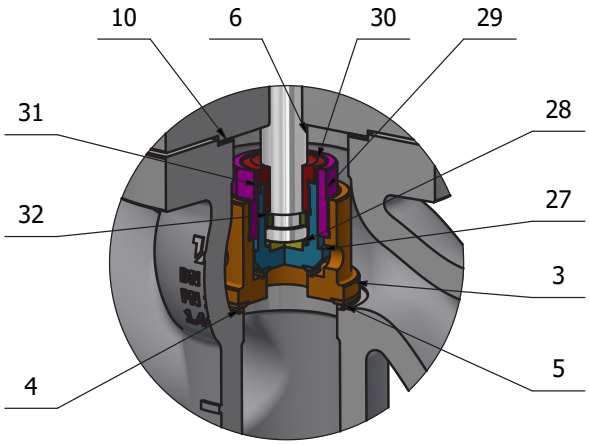
2. PARTS & MATERIALS











Balancing disc

> DN 150 for PN 16
> DN 125 for PN 25
> DN 100 for PN 40
> DN 80 for PN 63
> DN 65 for PN 100
> DN 50 for PN 160

Figure C.1.1

List of materials **Table C.1.1**

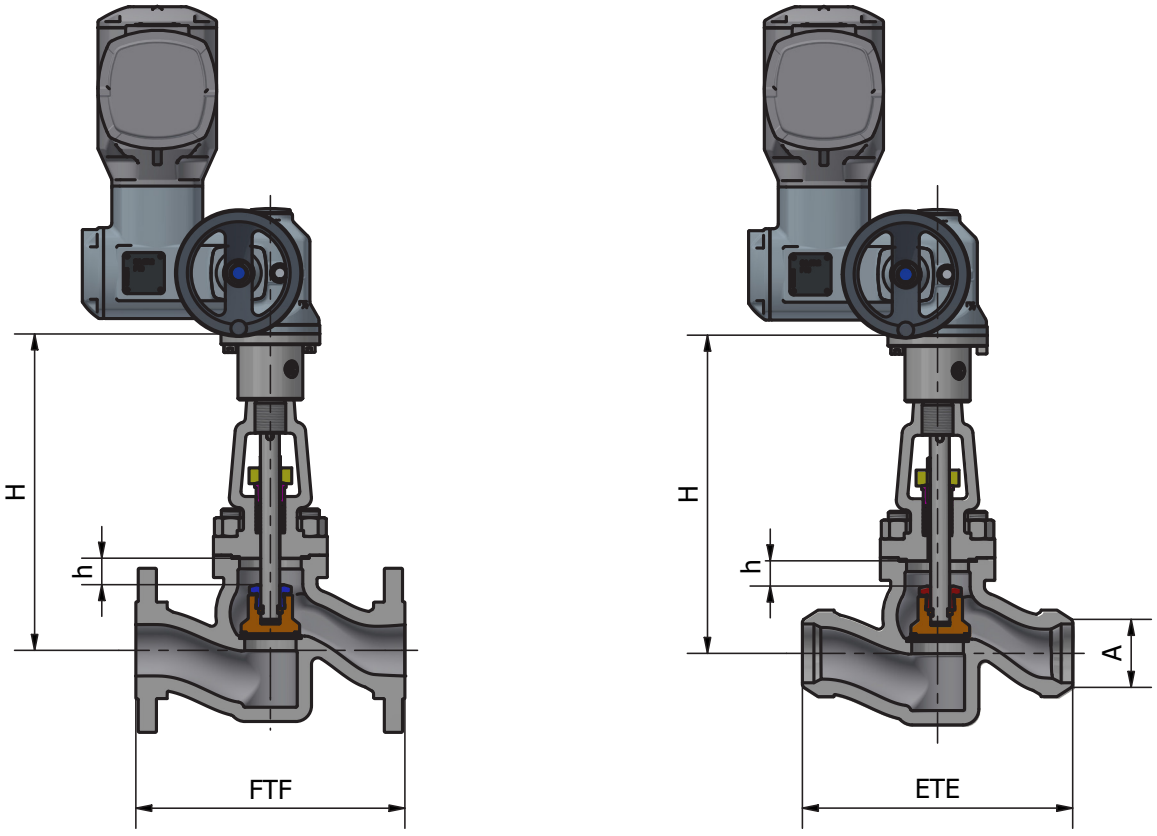
Parts	Name		Material Group acc. to EN 12516-1						
1	Body (1)		1.0619	1.5419	1.7357	1.7379	1.4955	1.4308	1.4408
2	Bonnet (1)								
1	Body (1)	DN 15 ÷ DN 50 (2)	1.0460	1.5415	1.7335	1.7383	1.4903	1.4301	1.4401
2	Bonnet (1)								
3	Disc		1.4021 / 1.0619	1.5415 / 1.5419	1.7335 / 1.7357	1.7383 / 1.7379	1.4903 / 1.4955	1.4301 / 1.4308	1.4401 / 1.4408
4	Body overlay (3)		Hard-Faced 13Cr or Stellite™					Basic material or Stellite™	
5	Disc overlay (3)								
6	Stem		1.4021 / 1.4122 / 1.4923(4)					1.4301	1.4401
7	Stem nut		1.0715 / Cu-Alloy						
8	Stud bolts		A193 B7 or 1.7225	A193 B16 or 1.7709 / 1.4913(5)				A193 B8 or 1.4301	A193 B8M or 1.4401
9	Nuts		A194 2H or 1.1191	A194 7 or 1.7709				A194 8 or 1.4301	A194 8M or 1.4401
10	Bonnet gasket		reinforced graphite or spiral-wound						
11	Stem packing rings		graphite with corrosion inhibitor						
12	Gland		1.0460 or 1.0619					1.4301	
13	Gland flange		1.0425					1.4301	
14	Packing gland		1.4021					1.4301	
15	Gland bolts		1.1181					1.4301	
16	Gland nuts		A194 2H or 1.1191					A194 B8 or 1.4301	
17	Pin		1.1191					1.4301	
18	Spring type pin		steel						
19	Handwheel nut		1.1191					1.4301	
20	Handwheel		epoxy coated steel						
21	Grease injector		Cu-Alloy / steel						
22	Carrier		1.1191					1.4301	
23	Electric actuator		commercial						
24	Pneumatic actuator		commercial						
25	Balls		1.4021						
26	Nameplate		stainless steel						
27	Balancing disc		1.4021	1.5415	1.7335	1.7383	1.4903	1.4301	1.4401
28	Disc plate		1.4021 / 1.4122					1.4301	
29	Disc lifter		1.4021 / 1.4122					1.4301	
30	Disc nut		1.4021 / 1.4122					1.4301	
31	Disc gasket		1.0333						
32	Disc ring		1.1191					1.4301	

TM trademark materials
(1) Other materials available acc. to EN standard
(2) DN 15 ÷ DN 50 only for butt welding ends
(3) Hardness differential between the body and disc seating surfaces shell be min. 50 HB
(4) Over 500°C
(5) Over 500°C

3. STANDARDS & DIMENSIONS

Standards **Table C.1.2**

VENS	**PN 16 ÷ PN 160**
General design	EN 13709
Wall thickness	EN 12516
Pressure / temperature rating	EN 12516
FTF and ETE according to	EN 558 and EN 12982
Flanged Ends according to	EN 1092-1
Welding Ends according to	EN 12627
Testing according to	EN 12266



VENS with flanged ends

VENS with welding ends (Dimensions A in the Table C.1.5)

Figure C.1.2 – Dimensions

[VENS] Dimensions **Table C.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		m^3/h	ETE	FTF
		mm						kg	
PN 16	**15**	130	130	251	19	F10-B1	10	4,3	5
	20	150	130	251	19	F10-B1	10	4,3	6
	25	160	130	251	19	F10-B1	10	4,5	7
	32	180	160	290	24	F10-B1	20	7	11
	40	200	180	305	20	F10-B1	25	11	14
	50	230	210	325	24	F10-B1	40	14	18
	65	290	290	338	19	F10-B1	75	18	25
	80	310	310	373	24	F10-B1	100	26	36
	100	350	350	425	44	F10-B1	160	43	50
	125	400	400	519	55	F10-B1	290	60	74
	150	480	480	544	60	F10-B1	400	85	99
	200	600	600	645	72	F10-C	735	151	160
	250	730	730	840	86	F10-C	1150	260	305
	300	850	850	847	97	F14-B1	1600	295	367
	350	980	980	1226	150	F14-C	2150	785	822
	400	1100	1100	1392	215	F14-C	3000	1305	1363
PN 25 ÷ PN 40	**15**	130	130	251	19	F10-B1	10	4,3	5
	20	150	130	251	19	F10-B1	10	4,3	6
	25	160	130	251	19	F10-B1	10	4,5	7
	32	180	160	290	24	F10-B1	20	7	11
	40	200	180	305	20	F10-B1	25	11	14
	50	230	210	325	24	F10-B1	40	14	19
	65	290	290	338	19	F10-B1	75	18	26
	80	310	310	373	24	F10-B1	100	26	37
	100	350	350	425	44	F10-B1	160	43	52
	125	400	400	519	55	F10-B1	290	60	77
	150	480	480	544	60	F10-B1	400	85	103
	200	600	600	645	72	F10-C	735	151	177
	250	730	730	840	86	F10-C	1150	260	337
	300	850	850	847	97	F14-B1	1600	295	392
	350	980	980	1226	150	F14-C	2150	785	868
	400	1100	1100	1392	215	F16-B1	3000	1305	1423
PN 63	**15**	210	150	255	19	F10-B1	10	4,8	7
	20	230	150	255	19	F10-B1	10	4,8	9
	25	230	160	255	19	F10-B1	10	5	11
	32	260	180	305	25	F10-B1	20	12	18
	40	260	180 / 210	310	25	F10-B1	25	12 / 14	21
	50	300	210 / 250	382	34	F10-B1	40	21 / 24	32
	65	340	340	403	25	F10-B1	75	39	47
	80	380	380	474	26	F10-B1	100	60	73
	100	430	430	583	36	F10-C	160	100	112
	125	500	500	626	43	F14-B1	290	155	175
	150	550	550	719	65	F14-B1	400	238	268
	200	650	650	923	90	F14-C	735	446	480
	250	775	775	1121	157	F14-C	1150	770	865
PN 100 ÷ PN 160	**15**	210	150	255	19	F10-B1	10	4,8	7
	20	230	150	255	19	F10-B1	10	4,8	9
	25	230	160	255	19	F10-B1	10	5	11
	32	260	180	305	25	F10-B1	20	12	18
	40	260	180 / 210	310	25	F10-B1	25	12 / 14	21
	50	300	210 / 250	382	34	F10-B1	40	21 / 24	35
	65	340	340	403	25	F10-B1	75	39	50
	80	380	380	474	26	F10-B1	100	60	79
	100	430	430	583	36	F14-B1	160	100	124
	125	500	500	626	43	F14-B1	290	155	192
	150	550	550	719	65	F14-B1	400	238	288
	200	650	650	923	78	F14-C	735	446	510
	250 (2)	775	775	1121	157	F16-B1	1150	770	865

(1) Weight without actuators
(2) Dimensions only for PN 100
- Depending on the executions weights are subject to modification

4. FLANGED ENDS DESIGN & DIMENSIONS

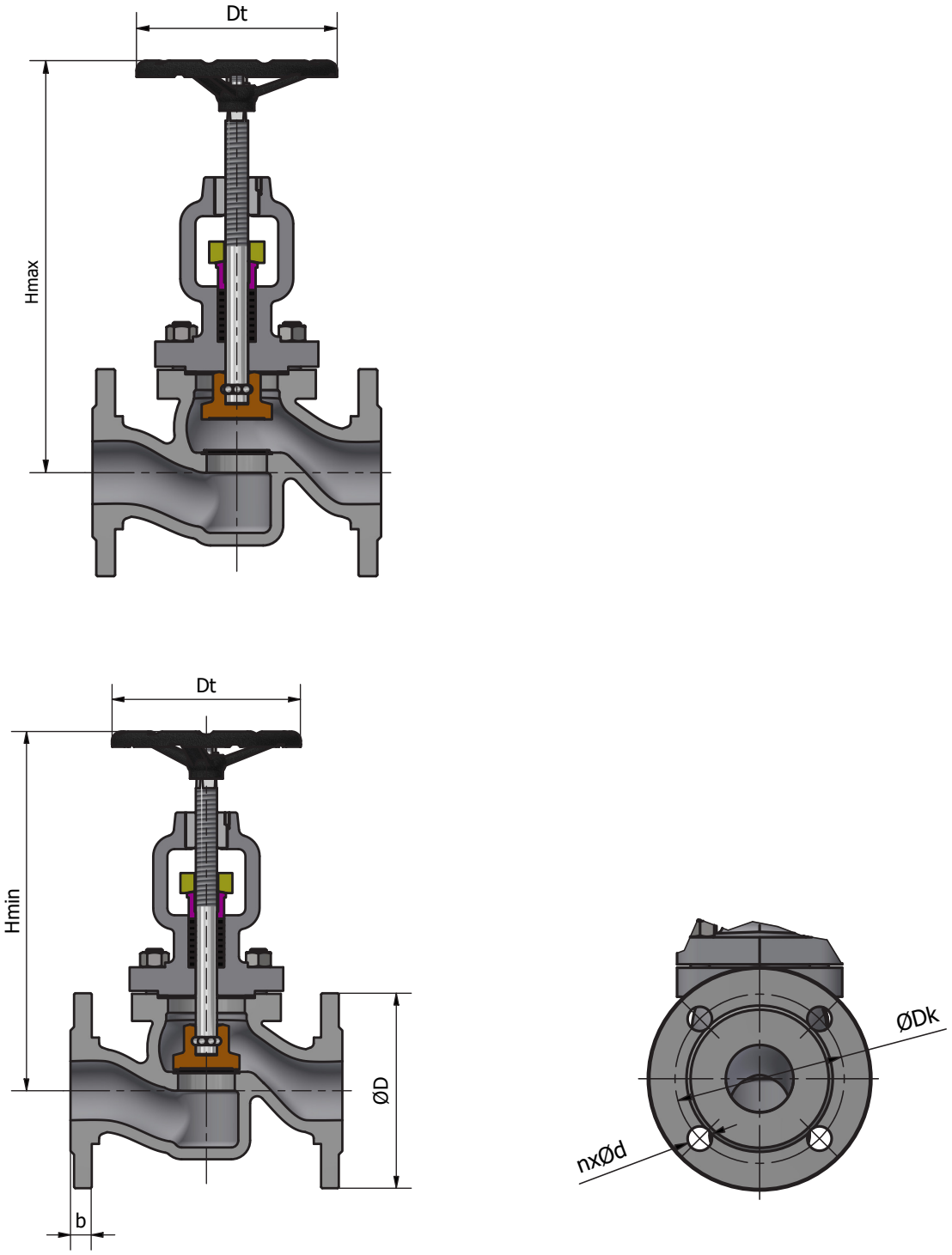


Figure C.1.3 – VENS with flanged ends - dimensions

Flanged ends dimensions **Table C.1.4**

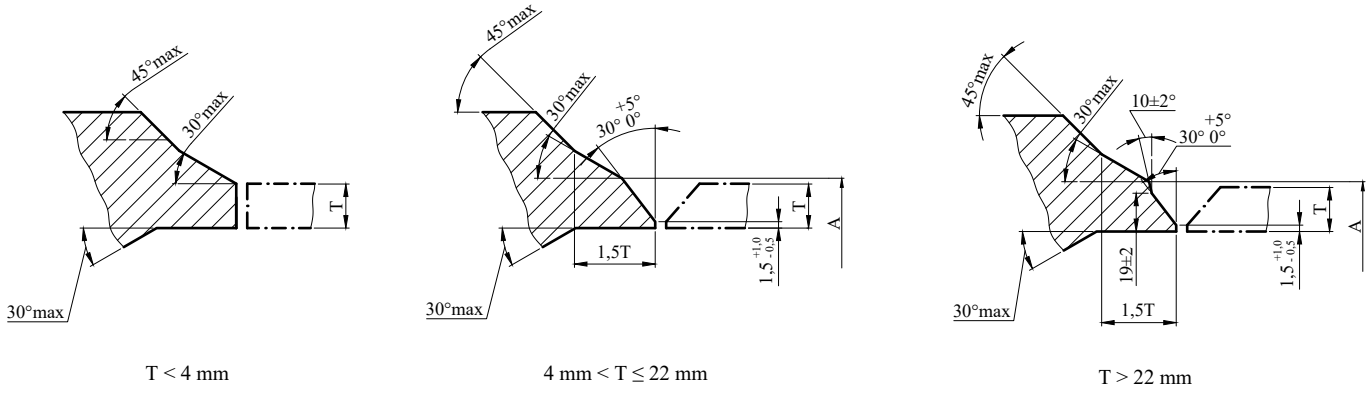
DN		15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
PN 16																	
	øD	95	105	115	140	150	165	185	200	220	250	285	340	405	460	520	580
	øDk	65	75	85	100	110	125	145	160	180	210	240	295	355	410	470	525
	nxød	4x14	4x14	4x14	4x18	4x18	4x18	8[(1)]x18	8x18	8x18	8x18	8x22	12x22	12x26	12x26	16x26	16x30
mm	**b**	16	18	18	18	18	18	18	20	20	22	22	24	26	28	30	32
	Hmax	236	236	236	275	316	330	329	368	486	537	565	671	829	1069	1462	1725
	Hmin	217	217	217	251	296	306	310	344	442	482	505	599	743	972	1312	1510
	Dt	150	150	150	150	150	150	200	250	250	300	300	400	400	500	630	630
PN 25																	
	øD	95	105	115	140	150	165	185	200	235	270	300	360	425	485	555	620
	øDk	65	75	85	100	110	125	145	160	190	220	250	310	370	430	490	550
	nxød	4x14	4x14	4x14	4x18	4x18	4x18	8x18	8x18	8x22	8x26	8x26	12x26	12x30	16x30	16x33	16x36
mm	**b**	16	18	18	18	18	20	22	24	24	26	28	30	32	34	38	40
	Hmax	217	217	217	251	296	306	310	344	442	482	505	599	743	972	1312	1510
	Hmin	217	217	217	251	296	306	310	344	442	482	505	599	743	972	1312	1510
	Dt	150	150	150	150	150	150	200	250	250	300	300	400	400	500	630	630
PN 40																	
	øD	95	105	115	140	150	165	185	200	235	270	300	375	450	515	580	660
	øDk	65	75	85	100	110	125	145	160	190	220	250	320	385	450	510	585
	nxød	4x14	4x14	4x14	4x18	4x18	4x18	8x18	8x18	8x22	8x26	8x26	12x30	12x33	16x33	16x36	16x39
mm	**b**	16	18	18	18	18	20	22	24	24	26	28	34	38	42	46	50
	Hmax	217	217	217	251	296	306	310	344	442	482	505	599	743	972	1312	1510
	Hmin	217	217	217	251	296	306	310	344	442	482	505	599	743	972	108	1510
	Dt	150	150	150	150	150	150	200	250	250	300	300	400	400	500	630	630
PN 63																	
	øD	105	130	140	155	170	180	205	215	250	295	345	415	470			
	øDk	75	90	100	110	125	135	160	170	200	240	280	345	400			
	nxød	4x14	4x18	4x18	4x22	4x22	4x22	8x22	8x22	8x26	8x30	8x33	12x36	12x36			
mm	**b**	20	22	24	26	28	26	26	28	30	34	36	42	46			
	Hmax	237	237	237	323	323	399	433	484	603	635	765	952	1369			
	Hmin	218	218	218	298	298	365	408	458	567	592	700	862	1212			
	Dt	150	150	150	250	250	300	300	300	400	400	500	500	630			
PN 100																	
	øD	105	130	140	155	170	195	220	230	265	315	355	430	505			
	øDk	75	90	100	110	125	145	170	180	210	250	290	360	430			
	nxød	4x14	4x18	4x18	4x22	4x22	4x26	8x26	8x26	8x30	8x33	12x33	12x36	12x39			
mm	**b**	20	22	24	26	28	30	34	36	40	40	44	52	60			
	Hmax	237	237	237	323	323	399	433	484	603	635	765	952	1369			
	Hmin	218	218	218	298	298	365	408	458	567	592	700	862	1212			
	Dt	150	150	150	250	250	300	300	300	400	400	500	500	630			
PN 160																	
	øD	105	130	140	155	170	195	220	230	265	315	355	430				
	øDk	75	90	100	110	125	145	170	180	210	250	290	360				
	nxød	4x14	4x18	4x18	4x22	4x22	4x26	8x26	8x26	8x30	8x33	12x33	12x36				
mm	**b**	20	22	24	26	28	30	34	36	40	44	50	60				
	Hmax	237	237	237	323	323	399	433	484	603	635	765					
	Hmin	218	218	218	298	298	365	408	458	567	592	700	862				
	Dt	150	150	150	250	250	300	300	300	400	400	500	500				

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

5. BUTT WELDING ENDS DESIGN

Symbols **Table C.1.5**

A	- outside diameter of the Valve butt welding end in mm
T	- wall thickness of the pipe in mm



T < 4 mm 4 mm < T ≤ 22 mm T > 22 mm

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

Dimensions and tolerance of outside diameter **Table C.1.6**

DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
A (mm)	22	28	35	44	5	62	78	91	117	144	172	223	278	329	362	413
Tolerance (mm)	+2,5 -1	+2,5 -1,5		+2,5 -2				+2,5 -2,5		+4 -2,5						

6. OPTIONAL EXECUTIONS

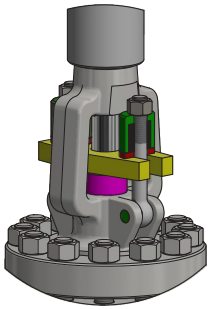


Figure C.1.5 – Spring loaded stuffing box

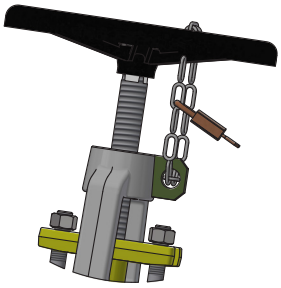


Figure C.1.6 – Locking devices

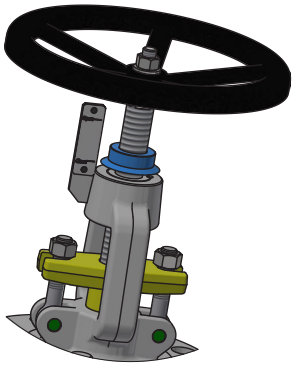


Figure C.1.7 – Position indicator

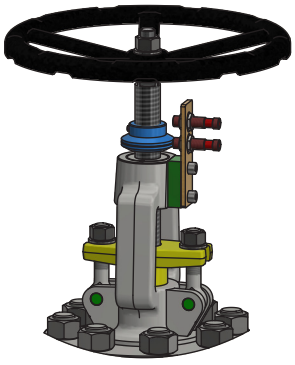


Figure C.1.8 – Limit switches

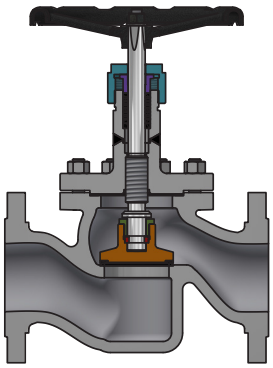


Figure C.1.9 – IS&RS (Inside screw & Rising stem)

7. PRESSURE & TEMPERATURE RATINGS

Pressure (bar)/Temperature (°C) ratings acc. to EN 12516-1 **Table C.1.7**

Materials	PN	-10	20	50	100	150	200	250	300	350	400	420	450	475	480	500	510	525	530	550	575	600
1.0460	16	16,0	16,0	16,0	15,0	14,2	13,4	12,3	11,1	10,4	9,6	8,8										
	25	25,0	25,0	25,0	23,4	22,2	21,0	19,2	17,4	16,2	15,0	13,7										
	40	40,0	40,0	40,0	37,4	35,5	33,6	30,7	27,8	25,9	24,0	22,2										
	63	63,0	63,0	63,0	59,0	55,9	52,9	48,4	43,8	40,8	37,8	34,6										
	100	100,0	100,0	100,0	93,6	88,8	84,0	76,8	69,6	64,8	60,0	54,9										
	160	160,0	160,0	160,0	149,8	142,1	134,5	122,9	111,4	103,7	96,0	87,9										
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 1.5415	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 1.7335	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 1.7383	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 1.4903	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	2,13	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 1.4301	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 1.4401	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.

8. MARKING & LABELING

Globe stop valve shall be marked in accordance with general design specification and the requirements of standard EN 19 or ANSI/MSS SP-25-2018.

8.1 Marking

General marking of the valve **Table C.1.8**

Item[a]	Subject **PN designed valves**		Marking
1	Product identification	Type	VENS
		Serial number	xxxx.xx.xx/xx
2	Nominal size		DN xxx
3	PN designation		PN xxx
4	Body Material		xxx
5	Heat batch identification		xxx
6	Allowable flow direction arrow		→
7	Manufacturer's name and registered trade details		Termovent SC Serbia
8	Maximum allowable temperature, TSmax		xx °C or xx C
9	Maximum allowable pressure, PS		xx bar
10	Trim identification		xxx
11	Month / year of manufacturing		mm/yy

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

8.1.1 Additional Marking

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

CE

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.

Ex

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.

8.2 Labeling

Valve information can be found on the valve body, and the typical valve nameplate is shown on Figure C.22.

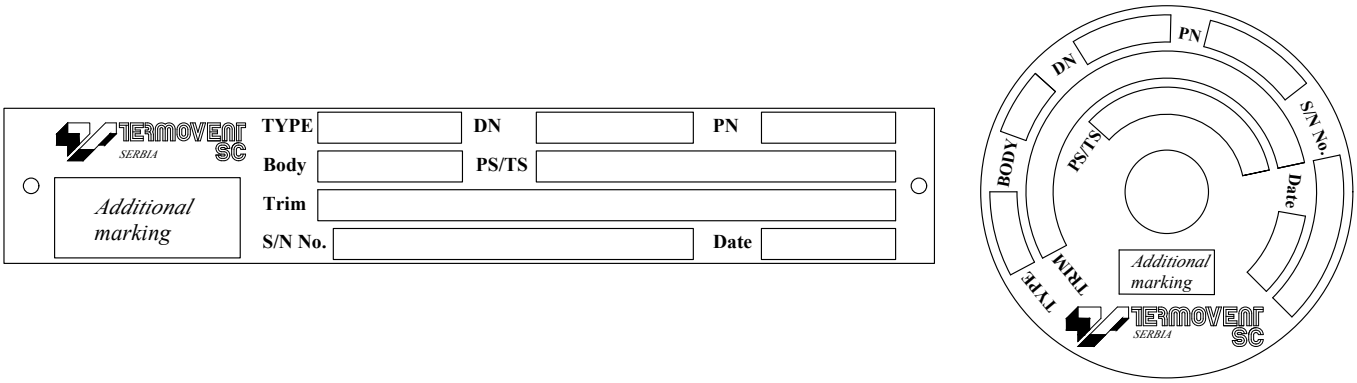


Figure C.1.10

TYPE	Type of valve
DN	Nominal valve size
PN	Nominal Pressure
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 11.1.1

9. 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.*

10. 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.

II INSTRUCTIONS for INSTALLATION, OPERATION & MAINTENANCE

11. INSTRUCTIONS for INSTALLATION, OPERATION & MAINTENANCE

11.1 General safety information

- Instructions for installation, start-up and maintenance during the period of exploitation of valves manufactured by TERMOVENT SC should be used as a manual intended for all personnel directly or indirectly involved in dealing with the products.
- Operators in charge of installation, operation and maintenance of VENS during the period of use should be fully trained for the correct/optimal performance of these tasks. If VENS is equipped with mechanical actuators, the operator should be trained for the adequate operation of such valves.
- Information about temperatures and allowable working pressures are shown in Table C.1.7 according to EN 12516-1. Under no circumstances should the valves be operated under conditions outside these tables.
- Before the service or reinstallation of the VENS, the plant or installation should be taken out of operation (zero pressure, temperature of valves should be the same temperature as the environment).
- Because valves in working conditions have hot parts (handwheel, body and bonnet) and may cause burns, the operator is required to undertake all necessary precautions to avoid this by using protective equipment.
- These products are recyclable. No ecological hazard is anticipated with the disposal of these products providing due care is taken.

11.2 Storage & Handling

VENS is delivered in their disc in the closed position with protective covers on their ends. During the storage period, protective covers shall not be removed.

11.2.1 Recommended storage conditions

- Storage conditions shall be: ambient temperature between +10ºC and +35ºC and the humidity up to 85%
- The valves must be stored in closed, clean, dry and ventilated storage facilities.
- Do not store the valves outside.
- Store the valves in their original shipped packaging.
- Protect the valve from contact with solvents, lubricants, fuels or other chemicals.
- Store the valve in vibration-free conditions.
- Valve should be taken out of crates or removed from the covering of a pallet just before installation.
- Spare parts such as soft sealing elements, plastic or lubricants should be stored in a dry place at room temperature protected from light.

11.2.2 Storage inspection

- Periodical inspection should be performed on all stored valves. At the minimum, all valves should be inspected every 3-4 months for dirt, moisture or any other type of contamination. If any of this is found the valves are to be thoroughly cleaned and dried.
- Slight external rusting may occur on valves. This will not affect their performance.
- If valves are stored for more than 6 months we recommend the following:
  - ➔ Valves should be cycled open to close 2-3 times every 6 months to keep packing from adhering to the stem and help lubricate the stem and stem nut.
  - ➔ Preservation of inner surfaces, inner parts, stem, flange facing, butt welding ends and threads shall be repeated every 6 months with appropriate corrosion preventive coating

11.2.3 Handling requirements

- For valve handling and/or lifting the lifting equipment must be sized and selected while taking into consideration the valve weight indicated on the packing list.
- Do not use the lifting points located on the actuator (Figure C.1.11 and Figure C.1.12).
- Do not lift VENS via the handwheel (Figure C.1.13).
- If possible, lift VENS via the lifting lugs or body (Figure C.1.14 or Figure C.1.15).
- Caution must be taken during the handling to avoid this equipment passing over the workers' heads.
- For valve handling or lifting, the lifting equipment must be sized and selected while taking or over any other place where a possible fall could cause damage.

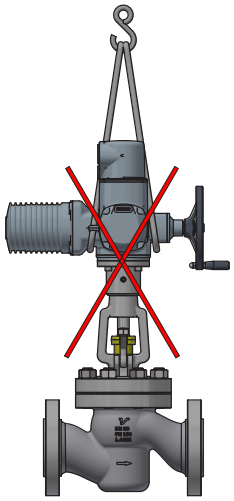


Figure C.1.11

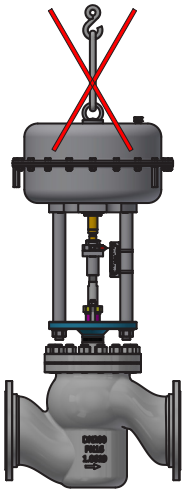


Figure C.1.12

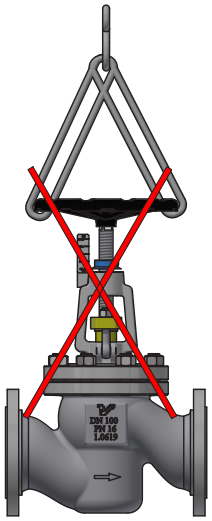


Figure C.1.13

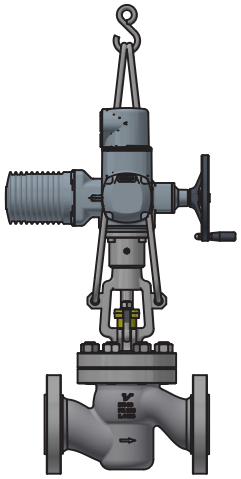


Figure C.1.14

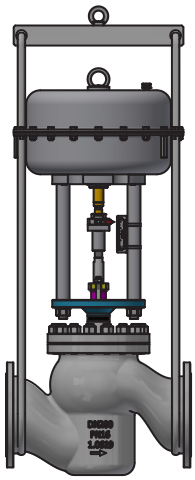


Figure C.1.15

WARNING!!!

- ➔ Lifting and handling must be performed by qualified personnel only.
- ➔ You must not remove the protection covers from the valve connection ends.
- ➔ Store the valves in the 'closed' position.
- ➔ You must not lift the valves using the connection flange holes, handwheel or actuators.

11.3 Installation & Start-up

- VENS are delivered with their disc in the closed position, and they are ready for use. After the removal of the protection covers it is necessary to thoroughly clean inside the valve with compressed air without first opening the valve.
- Do not disassemble or modify a valve in any way prior to installation. This will void the factory warranty if it occurs.
- Closure of the valve is performed by turning the handwheel in a CW (clockwise) direction. On the handwheel there is an arrow and the letter “C” indicating the closing direction, and another arrow and the letter “O” indicating the opening direction.
- When installing valves with flanged ends it is necessary to take into consideration the selection of adequate bolt material and the appropriate type of gasket depending on the type of working fluid, pressure, temperature, and the type of flange facing. It is necessary to install gaskets strictly in accordance with instructions given by the manufacturer of the gaskets.
- VENS with welding ends up to DN 100 (4“) should be welded on the pipeline in the **CLOSED** position.
- VENS with welding ends over DN 100(4“) shall be welded on pipeline in partially **OPEN** position.
- Welding must be performed by an expert and with appropriate WPS.
- After welding, if necessary, local normalization should be performed and the inside of the pipeline should be cleaned to remove possible welding remains.
- At the moment of installation, the influence of pipeline load on the valve should be reduced. The same also applies to temperature oscillation, hydraulic impact and similar. The valve should not be used as a support for a pipeline.
- When installing the VENS you must take into consideration the permitted flow direction. Allowed flow direction is defined by the arrow located on the VENS body.
- After the installation, start-up and operating parameters are set, it is possible to detect a leakage on the stem packing. In this case, it is necessary to tighten the gland nuts equally. The tightness should not go beyond more than necessary to allow comfortable manipulation of VENS (opening/closing).
- Recommendation: VENS should be installed with a minimum of 5x nominal diameter of straight pipeline in front of and behind the VENS.



WARNING!!!

- ➔ Do not disassemble or modify a valve in any way prior to installation. This will void the factory warranty if it occurs.
- ➔ Before installation, the impurities should be removed from the pipeline or from the appliance.
- ➔ Remove protecting covers from the valve ends, degrease and clean the inside of the valve, and in case of a flanged connection, carefully clean the sealing surfaces.
- ➔ During the installation, check if there is enough space for normal and safe manipulation.
- ➔ During the installation take care about the flow direction.
- ➔ The valve should not be used as support for a pipeline.

11.4 Usage & Maintenance

- The globe stop valve stem packing should be the subject of particular attention as it is important for the qualitative maintenance of tightness and shall be checked every 3 months. If leakage at the stem packing is detected, the gland nuts should be tightened slowly (Figure C.1.16). Torque for tightness gland nuts are shown in Table C.1.9. When gland nuts are tightened, if the gland falls down more than twice the packing ring height, new packing rings should be added to the stem packing.

Table C.1.9

	M8	M10	M12	M14	M16	M18	M20	M24	M27	M30
Torque /Nm/	8÷20	15÷40	26÷65	42÷100	64÷150	100÷175	125÷300	210÷500	305÷730	410÷1000

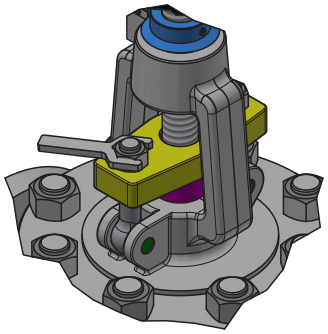


Figure C.1.16 – Stem packing gland tightening

- Stem packing must be replaced, depending on the working conditions and maintenance level, during packing replacement, special care must be taken to remove all old packing from the packing chamber. The preparation of new packing rings is shown in Figure C.1.17. Packing rings replacement is shown in Figure C.1.18 with a general note that every next packing ring must be rotated relative to the previous one (not less than 90º).



Figure C.1.17 – Stem packing ring



Figure C.1.18

- Lubrication of thread between stem (Pos.6 – Figure C.1.1) / stem nut (Pos.7 – Figure C.1.1) is highly important. To lubricate the bearings on electric-operated valves, we suggest using quality-level grease, as shown in the following Table C.1.10. Lubrication shall be performed every month, or twice a year if they are rarely used. Valves used in high-temperature applications use appropriate lubricants to support the temperature range. Lubrication is performed with grease injector (Pos.21 – Figure C.1.1).
- It is recommended to replace the grease in bushes during every general overhaul or during the pipeline revision. The type of grease depends on the temperature in the plant. Remote controls and bushing should be lubricated depending on how frequently they are used every 3 months. For the lubrication of the actuator (Pos.23 – Figure C.1.1) it is necessary to remove the protective tube then grease the stem (Pos.6 – Figure C.1.1) and return the protective tube. Some of the lubricants we use for lubrication are in Table C.1.10

Table C.1.10

Manufacturer	Quality level
AGIP, SHELL, MOBIL, TOTAL	*ISO 6743-9: L-X CCHA 2 / DIN 51 502: K 2K-30*

- VENS delivered with an actuator is adjusted for proper work. VENS delivered with connection for later build on it the electric actuator must be adjusted. The closing of VENS should be adjusted by the torque switch and the opening by the limit switch. The torque and limit switch settings must be in accordance with the instructions from “TERMOVENT SC”.

WARNING!!!

➔ Valve opening and closing by handwheel should be done without the use of auxiliary means such as a rod or similar.

➔ A Strainer being installed before the valve will increase its reliability and proper working.

11.5 Service & Repair

- Only authorized persons should perform service and repair with appropriate tools and, if possible, use original spare parts. Personal protection should be applied in accordance with valid regulations and legalizations.
- Using the wrong or defective spare parts may pose a hazard for personnel, or result in damage, malfunctions or even total failure.
- For VENS standard spare parts are Stem packing and Bonnet gasket.
- Contact “TERMOVENT SC” if You need other spare parts like a Stem, Disc, Stem nut, etc.
- Every VENS serviced or repaired should be subject to all necessary tests usually performed for a newly produced valve.
- Bolts for connection between body and bonnet should be tightened evenly and crosswise applying appropriate torque when the valve is in the open position.
- Possible torques for tightening are listed in Table C.1.11 and the selection of torque depends on the material grade of bolts and nuts used, as well as the quality of the gasket of the bonnet.

Table C.1.11

Bolt diameter	Bolt materials								
	1.7225	1.7709	1.4913	1.4301	1.4401	B7	B16	B8	B8M
	Torque [Nm]								
M10	52	39	53	14	14	51	51	15	46
M12	90	68	93	24	25	89	89	25	81
M14	145	109	149	38	40	143	143	41	129
M16	226	170	233	59	62	223	224	64	203
M18	309	233	318	81	85	305	307	87	278
M20	441	333	454	115	121	436	439	124	396
M22	609	459	626	159	167	600	605	171	546
M24	765	577	787	200	210	755	760	215	687
M27	1131	852	1163	295	310	1116	1123	318	1015
M30	1528	1151	1570	398	419	1507	1517	429	1371
M33	2095	1578	2153	525	574	2066	2080	588	1880
M36	2681	2020	2755	698	734	2644	2663	753	2405
M39	3494	2632	3590	910	957	3446	3470	981	3135
M42	4306	3244	4425	1121	1180	4247	4277	1209	3864

- For high temperature and high-pressure applications after 24 hours of operation, all nuts shall be re-tightened diametrically opposite to design stress Figure C.1.19. This action compensates any relaxation or creep.
  Periodic inspection is recommended, thereafter.

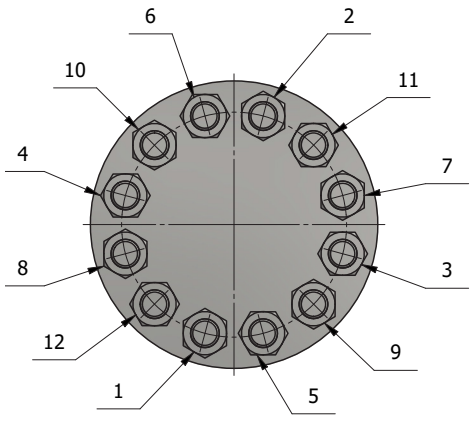


Figure C.31 - Recommended re-tighten order

WARNING!!!

➔ Before the service or reinstallation of the valves, the plant or installation should be taken out of operation (pressure 0 bar, temperature of valves should be the same temperature as the environment).

➔ Manipulation with body gasket and stem packing should be with high precautions because they could contain stainless steel wire which can cause severe injuries.

11.5.1 Stem packing rings replacement

Only authorized persons should perform service and repair with appropriate tools and, if possible, using original spare parts. Personal protection should be applied in accordance with valid regulations and legalizations.

Requirements before disassembling:

- ➔ The plant or installation should be taken out of operation (pressure 0 bar, temperature of valves should be the same temperature as the environment).
- ➔ VENS must be completely opened.

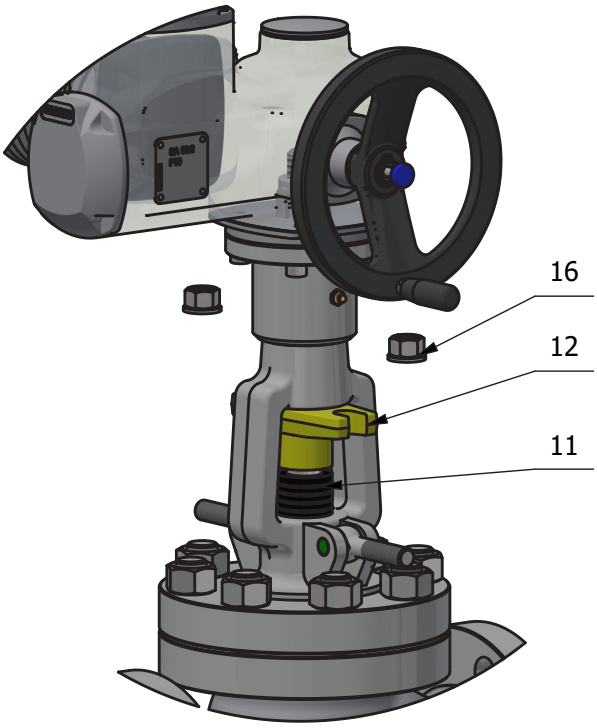


Figure C.1.20 – Stem packing rings replacement

Disassembling

Step 1 ›	Unscrew gland nuts (Pos.16)
Step 2 ›	Lift upwards gland (Pos.12)
Step 3 ›	Take out stem packing rings (Pos.11). All stem packing rings shall be removed.
Step 4 ›	The packing chamber shall be cleaned

Assembling

Step 1 ›	The packing chamber shall be filled with new stem packing rings (Pos.11)
Step 2 ›	Put down gland (Pos.12)
Step 3 ›	Put back and tighten gland nuts (Pos.16)
Step 4 ›	Tighten gland nuts (Pos.16) according to Table C.1.9

11.5.2 Bonnet gasket replacement

Only authorized persons should perform service and repair with appropriate tools and, if possible, use original spare parts. Personal protection should be applied in accordance with valid regulations and legalizations.

Requirements before disassembling:

➔ The plant or installation should be taken out of operation (pressure 0 bar, temperature of valves should be the same temperature as the environment).

➔ VENS must be opened.

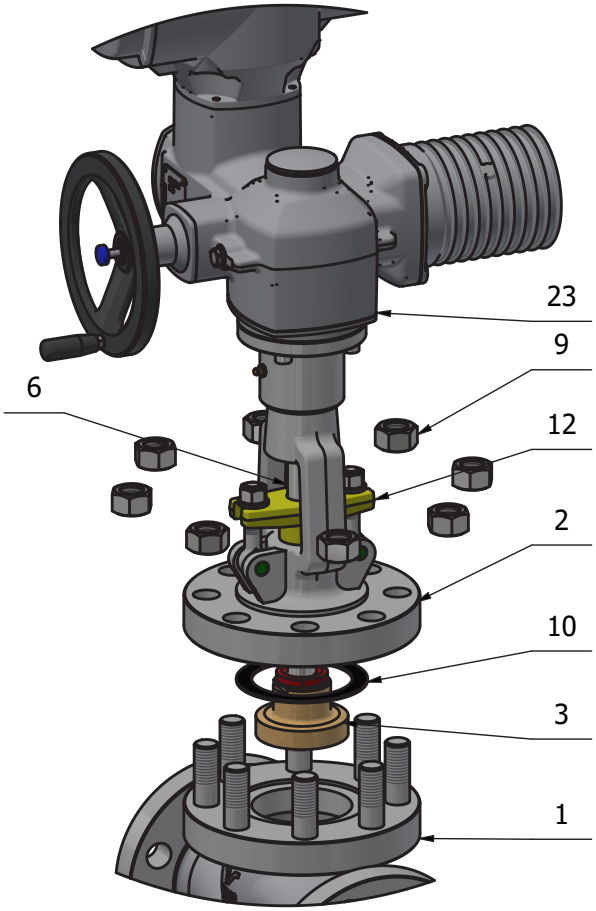


Figure C.1.21 – Bonnet gasket replacement

Disassembling

Step 1 ›	Unscrew nuts (Pos.9)
Step 2 ›	Lift upwards bonnet (Pos.2) together with following parts from the body (Pos.1) › electric actuator (Pos.23) › stem (Pos.6) › gland (Pos.12) › disc (Pos.3)
Step 3 ›	Remove old bonnet gasket (Pos.10)
Step 4 ›	The chamber for bonnet gasket shall be cleaned

Assembling

Step 1 ›	The chamber for bonnet gasket shall be filled with new bonnet gasket (Pos.10)
Step 2 ›	Put down bonnet (Pos.2) to the body (Pos.1)
Step 3 ›	Put back and screw nuts (Pos.9)
Step 4 ›	Tighten nuts (Pos.9) according to Table (C.1.11)

11.6 Possible Malfunctions & Solutions

- During the period of usage of the installed globe stop valve, malfunctions may occur. Only experts in the premises of the user should undertake repairs. The most common cause of malfunctions and how to overcome such situations is listed in Table C.1.12

Table C.1.12

Failure	Possible cause	Troubleshooting
Absence of flow	VENS is in closed position	Open the VENS completely with the handwheel (Pos.20)
	Protection covers are not removed	Remove protection covers from connection ends
Difficult manipulation	Dry stem /stem nut	Grease stem (Pos.6) or stem nut (Pos.7)
	Gland nuts are too tight	Slightly loosen gland nuts (Pos.16) with precaution to preserve sealing of the stem packing rings (Pos.11)
Leakage on stem packing	Gland nuts are not tightened	Tighten gland nuts (Pos.16)
	Stem packing rings are damaged	Completely open the Globe Stop Valve, remove the worn stem packing and clean the chamber of the stem packing and install the new stem packing rings, the same or similar quality (Pos.11)
Leakage on bonnet gasket	Nuts are not tightened	Tighten nuts (Pos.9)
	Bonnet gasket is damaged	Disassemble the bonnet (Pos. 2) and replace the bonnet gasket (Pos.10) with new one
Leaking on seat	VENS is not completely closed	Turn the handwheel (Pos.20) in the direction indicated for closing without auxiliary means
	Mechanical damage of the seat or disc	Grind the seats and, if necessary, have damaged components replaced. Check the actuator setting
	Differential pressure to high	Check installed Globe Stop Valve allowable flow direction
	The working medium contains solid dirt particles	Clean the Valve thoroughly. We recommend the installation of a Strainer before the Globe Stop Valve
The valve does not function	The electric actuator does not function	Check the electric actuator as specified in the manufacturer's documentation.
	The pneumatic actuator does not function	Check the pneumatic actuator as specified in the manufacturer's documentation.
Malfunction of the valve	Limit switch (for optional electric or pneumatic) is defective	Have the limit switch checked. Prior to readjustment consult with Termovent SC
	Torque switch (with optional electric or pneumatic) is defective	Have the torque switch checked. Prior to readjustment consult with Termovent SC

11.7 Guarantee

- Termovent SC guarantee that each of its products free from defects and work properly for a period of eighteen (18) months from the date of installation or twenty-four (24) months from the date of shipment from the manufacturer, whichever comes first.
- Manufacturer agrees to repair or replace any product which is non-conforming to the Warranty due to defective workmanship or defective material of which the Warranty non-conformance customer notifies the manufacturer in writing during the Warranty Period.
- Warranty does not apply to products that have defects or failures resulting from

  (a) accident, disaster, neglect, misuse, improper handling.

  (b) application of excessive torque to the operating mechanism, presence of foreign matter.

  (c) the products are not being installed or maintained as required by instructions

  (d) modifications or repairs without manufacturer approval.

  (e) natural tears and wear caused by material ageing.

Notes

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VENS v1.0
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