BS EN 558:2017

BSI Standards Publication

Industrial valves — Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems — PN and Class designated valves

bsi.

National foreword

This British Standard is the UK implementation of EN 558:2017. It supersedes BS EN 26554:1991 and BS EN 558:2008+A1:2011 which are withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PSE/18/1, Industrial valves, steam traps, actuators and safety devices against excessive pressure - Valves - Basic standards.

A list of organizations represented on this committee can be obtained on request to its secretary.

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ICS 23.040.99; 23.060.10

Supersedes EN 26554:1991, EN 558:2008+A1:2011

English Version

Industrial valves - Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems - PN and Class designated valves

Robinetterie industrielle - Dimensions face-à-face et face-à-axe de la robinetterie métallique utilisée dans les systèmes de canalisations à brides - Appareils de robinetterie désignés PN et Class

Industriearmaturen - Baulängen von Armaturen aus Metall zum Einbau in Rohrleitungen mit Flanschen - Nach PN und Class bezeichnete Armaturen

This European Standard was approved by CEN on 25 December 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 558:2017) has been prepared by Technical Committee CEN/TC 69 “Industrial valves”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2017, and conflicting national standards shall be withdrawn at the latest by August 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 558:2008+A1:2011 and EN 26554:1991.

The main changes to the previous edition are the following:

— PN 500 has been deleted from the scope;

— Figure 4 has been updated;

— 4.2.4 for raised face flanges has been simplified and Figure 6 has been deleted;

— DN 1050 has been added in the scope, Table 2 and Table B.1;

— Basic series 111 to 124 have been added in Table 2 and in Table A.1;

— FTF series 117 to 121, Class 250 and Class 600 have been added in Table 12;

— FTF series 111 and 112 have been added in Table 13;

— A new Table 16 was added for steam traps.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The basic series given in this document are taken from the original series shown in Annex A. Changes made to the original series will not be automatically incorporated into this document.

The numbers of the existing ISO basic series are maintained as in ISO 5752:1982.

1 Scope

This European Standard specifies the “face–to-face” (FTF) and “centre-to-face” (CTF) dimensions for PN and Class designated metal valves used in flanged pipe systems.

This European Standard covers valves with the following PN, Class and DN values:

— PN 2,5; PN 6; PN 10; PN 16; PN 25; PN 40; PN 63; PN 100; PN 160; PN 250; PN 320; PN 400;

— Class 125; Class 150; Class 250; Class 300; Class 600; Class 900; Class 1 500; Class 2 500;

— DN 10; DN 15; DN 20; DN 25; DN 32; DN 40; DN 50; DN 65; DN 80; DN 100; DN 125; DN 150; DN 200; DN 250; DN 300; DN 350; DN 400; DN 450; DN 500; DN 600; DN 700; DN 750; DN 800; DN 900; DN 1 000; DN 1050; DN 1 200; DN 1 400; DN 1 600; DN 1 800; DN 2 000.

For valves in other shell materials than metal the same FTF and CTF dimensions may be used.

For relationship between DN and NPS see Annex B.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 736-1, *Valves - Terminology - Part 1: Definition of types of valves*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 736-1 and the following apply.

3.1
face-to-face dimensions
(FTF)
[straight pattern valves]
distance between the two planes perpendicular to the valve axis located at the extremities of the body end ports or as specified in the relevant valve product standard

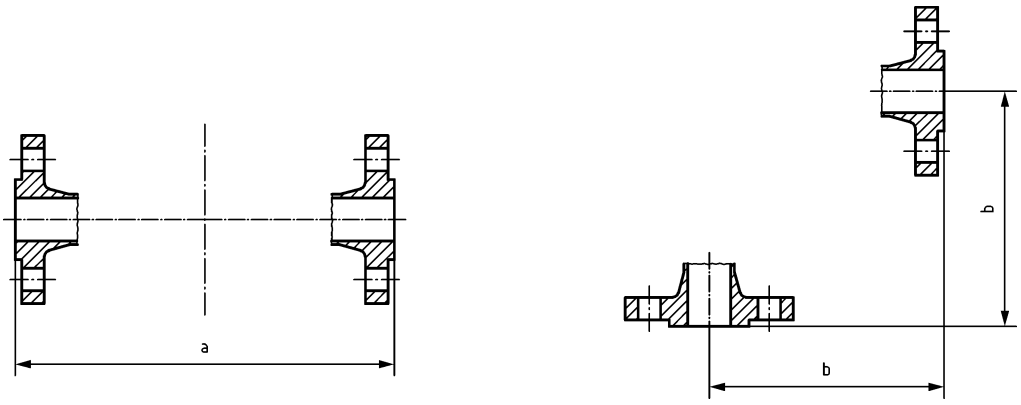
Note 1 to entry: See Figures 1 to 4.

Note 2 to entry: In millimetres.

3.2
centre-to-face dimensions
(CTF)
[angle pattern valves]
distance, between the plane located at the extremity of either body end port and perpendicular to its axis and the axis of the other body end port

Note 1 to entry: See Figures 1 to 4.

Note 2 to entry: In millimetres.

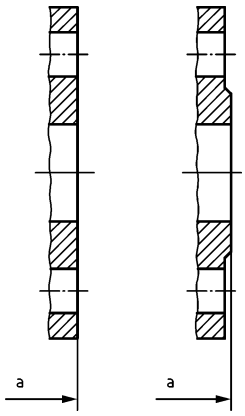


Key

a face-to-face (FTF)

b centre-to-face (CTF)

Figure 1 — Face to face and centre to face dimensions

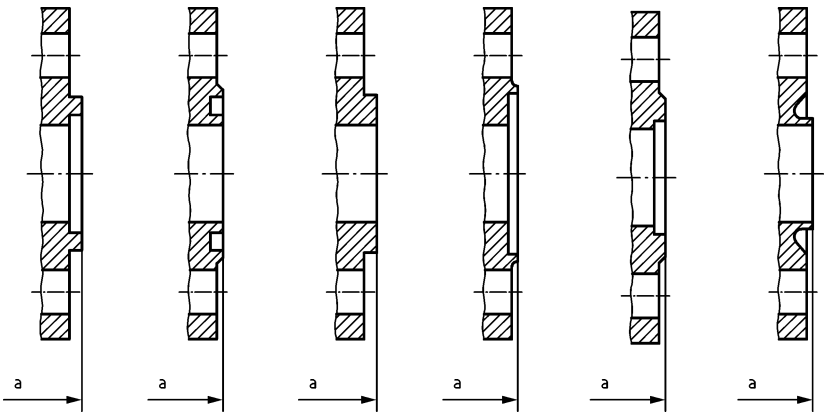


Type A **Type B**

Key

a face-to-face (FTF)

Figure 2 — Flanged valves PN and Class designated (flat and raised faces)

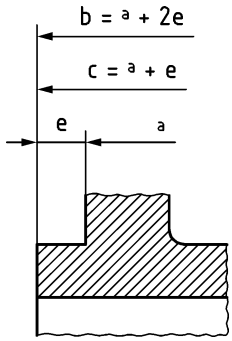
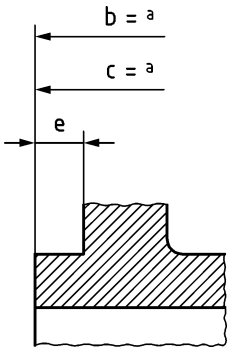
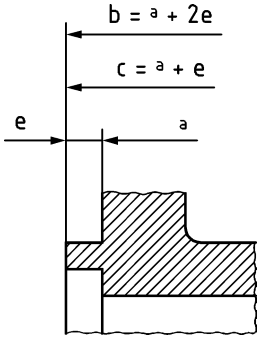
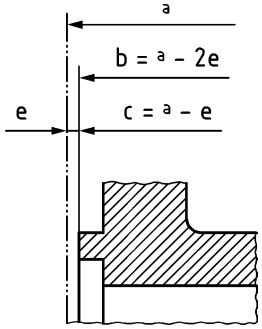
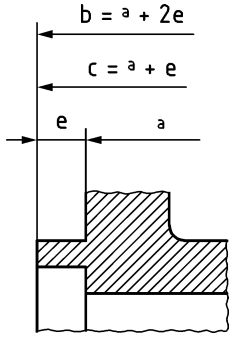
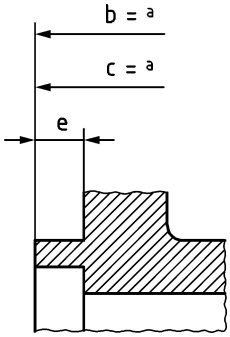
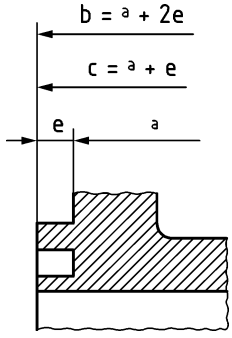
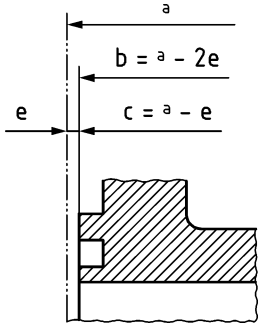


Type C **Type D** **Type E** **Type F** **Type G** **Type H**

Key

a face-to-face (FTF)

Figure 3 — Flanged valves PN designated (spigot and recess)

	Class 150 and Class 300	Class 600 and above
Large or small male face		
Large or small female face		
Large or small tongue		
Large or small groove		

NOTE For elevation e, see appropriate flange standard.

Key

a for dimensions see Table 2

b face-to-face (FTF)

c centre-to-face (CTF)

e elevation

Figure 4 — Flanged valves Class designated

4 Dimensions and tolerances

4.1 Basic series

The basic series of FTF and CTF dimensions shall be as given in Table 2.

4.2 Face-to-face and centre-to-face dimensions

4.2.1 General

The FTF and CTF dimensions shall be in accordance with Figures 1 to 4 and Table 2.

For each type of valve, the basic series to be taken into consideration are given in Table 5 to Table 16.

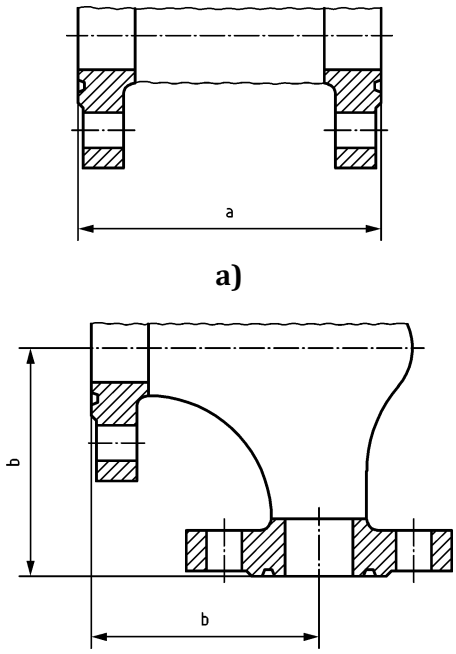
NOTE 1 Table 2 gives complete series. In Table 5 to Table 16, the columns of series may be incomplete.

NOTE 2 For certain sizes/types of valves, alternative dimensions are permitted and these are specified in Table 5 to Table 16 as appropriate.

NOTE 3 The origin of the basic series is shown in Annex A (informative).

4.2.2 Class designated valves with ring joint flanges

For Class designated valves with ring joint flanges, the FTF or CTF dimensions given in Table 2 shall be increased by *x* as defined in Table 1 and Figure 5.



Key

a FTF = Dimension of Table 2 + x

b CTF = Dimension of Table 2 + 0,5 x

Figure 5 — FTF and CTF dimensions for Class designated valves with ring joint flanges

Table 1 — Additional length x for ring joint flanges

Dimensions in millimetres

<table>
<tr><th>Nominal size</th><th colspan="6">Additional length x for ring joint flanges</th></tr>
<tr><td>DN</td><td>Class 150</td><td>Class 300</td><td>Class 600</td><td>Class 900</td><td>Class 1 500</td><td>Class 2 500</td></tr>
<tr><td>15</td><td>11,1</td><td>11,1</td><td>- 1,6</td><td rowspan="5">0</td><td rowspan="5">0</td><td rowspan="3">0</td></tr>
<tr><td>20</td><td rowspan="13">12,7</td><td rowspan="4">12,7</td><td rowspan="4">0</td></tr>
<tr><td>25</td></tr>
<tr><td>32</td><td rowspan="3">3,2</td></tr>
<tr><td>40</td></tr>
<tr><td>50</td><td rowspan="12">15,9</td><td rowspan="12">3,2</td><td rowspan="8">3,2</td><td rowspan="4">3,2</td></tr>
<tr><td>65</td><td rowspan="2">6,4</td></tr>
<tr><td>80</td></tr>
<tr><td>100</td><td>9,5</td></tr>
<tr><td>125</td><td rowspan="6">3,2</td><td rowspan="2">12,7</td></tr>
<tr><td>150</td><td>6,4</td></tr>
<tr><td>200</td><td rowspan="3">9,5</td><td>15,9</td></tr>
<tr><td>250</td><td rowspan="2">22,2</td></tr>
<tr><td>300</td><td>15,9</td></tr>
<tr><td>350</td><td rowspan="2">9,5</td><td>19,1</td><td rowspan="8">–</td></tr>
<tr><td>400</td><td rowspan="3">22,2</td></tr>
<tr><td>450</td><td rowspan="2">12,7</td></tr>
<tr><td>500</td><td>19,1</td><td>6,4</td></tr>
<tr><td>600</td><td>22,2</td><td>9,5</td><td>19,1</td><td>28,6</td></tr>
<tr><td>700</td><td rowspan="5">–</td><td rowspan="2">25,4</td><td rowspan="2">12,7</td><td rowspan="5">–</td><td rowspan="5">–</td></tr>
<tr><td>750</td></tr>
<tr><td>800</td><td rowspan="3">28,6</td><td rowspan="3">15,9</td></tr>
<tr><td>900</td></tr>
<tr><td>1 000</td></tr>
</table>

4.2.3 Valves with lining

For valves having a resilient lining which forms the gasket joint with the mating flanges, the FTF and CTF dimensions shall be the distance between the extremities of the valve in the installed condition. If the dimensions for CTF and FTF differ from the standard dimensions, they shall be given by the manufacturer.

For valves having a resilient or hard lining, the thickness of the lining on the mating surface shall be included in the FTF and CTF dimensions given in Table 2, unless the design of the valve precludes such an inclusion.

If this is the case, the manufacturer shall indicate the deviation from the standardized FTF or CTF dimensions in his documentation.

4.2.4 Raised face flanges

The raised face dimensions shall be in accordance with the applicable flange standard.

4.3 Tolerances

Tolerances on FTF and CTF dimensions are given in Table 3. Both tolerances shall be fulfilled.

End flange seating surfaces shall be parallel or perpendicular. Tolerances "*c*" on the parallelism or perpendicularity as shown in Figure 6 are given in Table 4.

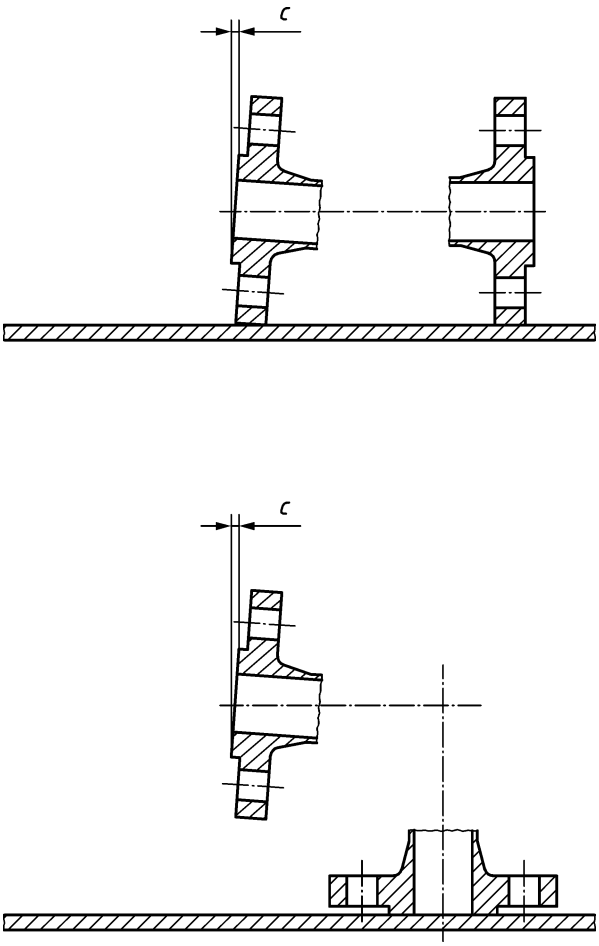


Figure 6 — Tolerances on parallelism and perpendicularity

Table 2 — Dimensions of basic series

Dimensions in millimetres

DN	Basic series																							DN
	1	2	3	4	5	7	8[a]	9[a]	10	11[a]	12	13	14	15	16	18	19	20	21	22[a]	23[a]	24[a]	25	
10	130	210	102	–	–	108	90	105	–	–	130	–	115	–	–	80	—	–	–	65	70	–	–	**10**
15	130	210	108	140	165	108	90	105	108	57	130	–	115	–	–	80	140	–	152	65	70	83	–	**15**
20	150	230	117	152	190	117	95	115	117	64	130	–	120	–	–	90	152	–	178	70	75	95	–	**20**
25	160	230	127	165	216	127	100	115	127	70	140	–	125	120	–	100	165	–	216	80	85	108	–	**25**
32	180	260	140	178	229	146	105	130	140	76	165	–	130	140	–	110	178	–	229	90	95	114	–	**32**
40	200	260	165	190	241	159	115	130	165	83	165	106	140	240	33	120	190	33	241	95	100	151	–	**40**
50	230	300	178	216	292	190	125	150	203	102	203	108	150	250	43	135	216	43	267	105	115	146	–	**50**
65	290	340	190	241	330	216	145	170	216	108	222	112	170	270	46	165	241	46	292	115	125	165	–	**65**
80	310	380	203	283	356	254	155	190	241	121	241	114	180	280	64	185	283	46	318	125	135	178	49	**80**
100	350	430	229	305	432	305	175	215	292	146	305	127	190	300	64	229	305	52	356	135	146	216	56	**100**
125	400	500	254	381	508	356	200	250	330	178	356	140	200	325	70	–	381	56	400	–	–	254	64	**125**
150	480	550	267	403	559	406	225	275	356	203	394	140	210	350	76	–	403	56	444	–	–	279	70	**150**
200	600	650	292	419	660	521	275	325	495	248	457	152	230	400	89	–	419	60	533	–	–	330	71	**200**
250	730	775	330	457	787	635	325	390	622	311	533	165	250	450	114	–	457	68	622	–	–	394	76	**250**
300	850	900	356	502	838	749	375	450	698	349	610	178	270	500	114	–	502	78	711	–	–	419	83	**300**
350	980	1 025	381	762	889	–	425	515	787	394	686	190	290	550	127	–	572	78	838	–	–	–	92	**350**
400	1 100	1 150	406	838	991	–	475	575	914	457	762	216	310	600	140	–	610	102	864	–	–	–	102	**400**
450	1 200	1 275	432	914	1 092	–	500	–	978	483	864	222	330	650	152	–	660	114	978	–	–	–	114	**450**
500	1 250	1 400	457	991	1 194	–	–	700	978	–	914	229	350	700	152	–	711	127	1 016	–	–	–	127	**500**

DN	Basic series																						DN
	1	2	3	4	5	7	8[a]	9[a]	10	11[a]	12	13	14	15	16	18	19	20	21	22[a]	23[a]	24[a]	25	
600	1 450	1 600	508	1 143	1 397	–	–	–	1 295	–	1 067	267	390	800	178	–	787	154	1 346	–	–	–	154	**600**
700	1 650	–	610	–	1 549	–	–	–	1 448	–	–	292	430	900	229	–	–	165	1 499	–	–	–	–	**700**
750	–	–	610	1 397	1 651	–	–	–	1 524	–	–	–	–	–	–	–	–	165 / 190	–	–	–	–	–	**750**
800	1 850	–	660	–	1 651	–	–	–	1 676	–	–	318	470	1 000	241	–	–	190	1 778	–	–	–	–	**800**
900	2 050	–	711	–	2 083	–	–	–	1 956	–	–	330	510	1 100	241	–	–	200 / 203	–	–	–	–	–	**900**
1 000	2 250	–	813	–	–	–	–	–	–	–	–	410	550	1 200	300	–	–	251 / 216	–	–	–	–	–	**1 000**
1 050	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	– / –	–	–	–	–	–	**1 050**
1 200	–	–	–	–	–	–	–	–	–	–	–	470	630	–	350	–	–	276 / 254	–	–	–	–	–	**1 200**
1 400	–	–	–	–	–	–	–	–	–	–	–	530	710	–	390	–	–	279	–	–	–	–	–	**1 400**
1 600	–	–	–	–	–	–	–	–	–	–	–	600	790	–	440	–	–	318	–	–	–	–	–	**1 600**
1 800	–	–	–	–	–	–	–	–	–	–	–	670	870	–	490	–	–	356	–	–	–	–	–	**1 800**
2 000	–	–	–	–	–	–	–	–	–	–	–	760	950	–	540	–	–	406	–	–	–	–	–	**2000**

[a] CTF dimensions for angle pattern valves.

Table 2 (*continued*)

DN	Basic series																								DN
	26	27	28	29	30	32[a]	33	36	37	38	39	40[a]	41[a]	42[a]	43	45	46	47	48	49	50	51	52	53	54	
10	–	115	130	108	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**10**
15	–	115	130	108	150	76	–	–	–	–	–	–	–	–	90	140	165	–	–	16	–	–	25	–	–	**15**
20	–	120	150	117,5	160	89	–	76	–	–	–	–	–	–	100	152	250	75	–	19	–	–	31,5	–	229	**20**
25	–	125	160	127	160	102	–	102	184	197	210	92	98	105	115	210	255	80	–	22	–	–	35,5	–	254	**25**
32	–	130	180	127	180	108	–	–	–	–	–	–	–	–	130	230	265	90	–	28	–	–	40	–	279	**32**
40	240	140	200	136	190	114	152	114	222	235	251	111	117	125	150	240	280	100	180	31,5	–	–	45	38	305	**40**
50	250	150	230	142	200	133	178	124	254	267	286	127	133	143	170	250	300	110	200	40	54	54	56	40	368	**50**
65	290	170	290	154	215	146	216	–	–	–	–	–	–	–	–	270	340	130	240	46	54	60	63	42	419	**65**
80	310	180	310	160	230	159	254	165	298	317	337	149	159	168	–	280	360	150	260	50	57	67	71	44	381	**80**
100	350	190	350	172	250	178	305	194	352	368	394	176	184	197	–	300	400	160	300	60	64	67	80	46	457	**100**
125	400	325	400	186	275	200	381	–	–	–	–	–	–	–	–	350	450	200	350	90	70	83	110	48	551	**125**
150	450	350	450	200	300	222	457	229	451	473	508	225	236	254	–	375	500	210	400	106	76	95	125	50	610	**150**
200	550	400	550	228	350	279	584	243	543	568	610	272	284	305	–	425	600	–	500	140	95	127	160	60	737	**200**
250	650	450	650	255	400	311	711	297	673	708	752	337	354	376	–	450	700	–	600	–	108	140	200	65	838	**250**
300	750	500	750	285	425	356	813	338	737	775	819	368	387	410	–	500	800	–	700	–	143	181	250	75	965	**300**
350	850	550	850	315	475	–	889	–	889	927	972	445	464	486	–	550	–	–	800	–	184	222	280	80	1 029	**350**
400	950	762	950	340	525	–	991	400	1 016	1 057	1 108	508	529	554	–	600	–	–	900	–	191	232	–	95	1 130	**400**
450	1 050	–	–	360	575	–	1 092	457	–	–	–	–	–	–	–	–	–	–	1 000	–	203	264	–	107	1 219	**450**
500	1 150	914	1 150	380	625	–	1 194	508	–	–	–	–	–	–	–	–	–	–	1 100	–	213	292	–	120	1 321	**500**
600	1 350	–	–	425	725	–	1 397	610	–	–	–	–	–	–	–	–	–	–	1 300	–	222	318	–	144	1 549	**600**

DN	Basic series																								DN
	26	27	28	29	30	32[a]	33	36	37	38	39	40[a]	41[a]	42[a]	43	45	46	47	48	49	50	51	52	53	54	
700	1 550	–	–	470	825	–	1 549	–	–	–	–	–	–	–	–	–	–	–	1 500	–	321	381	–	160	–	**700**
750	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	180	–	**750**
800	1 750	–	–	510	925	–	–	–	–	–	–	–	–	–	–	–	–	–	1 700	–	356	489	–	195	–	**800**
900	1 950	–	–	555	1 025	–	–	–	–	–	–	–	–	–	–	–	–	–	1 900	–	368	–	–	210	–	**900**
1 000	2 150	–	–	600	1 125	–	–	–	–	–	–	–	–	–	–	–	–	–	2 100	–	419	–	–	–	–	**1 000**
1 050	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 050**
1 200	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 200**
1 400	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 400**
1 600	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 600**
1 800	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 800**
2 000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**2 000**

[a] CTF dimensions for globe control valves, angle pattern.

Table 2 (*continued*)

DN	Basic series																							DN
	55	56	57[a]	58[a]	59[a]	69	70	71	77	82[a]	91	92	93[a]	94	95	96	97	98	99	100	101	105	106	
10	–	–	–	–	–	–	–	–	–	–	–	230	115	–	–	–	–	65	–	35	55	–	–	**10**
15	216	264	–	108	132	–	–	–	318	–	–	230	115	–	–	–	–	65	–	35	55	292	292	**15**
20	229	273	114	114	137	–	–	–	318	–	–	260	130	–	–	–	–	65	–	39	60	292	292	**20**
25	254	308	127	127	154	140	140	186	318	–	–	260	130	25	–	–	–	65	–	44	65	292	292	**25**
32	279	349	140	140	175	165	165	232	–	–	–	300	150	32	–	–	14	80	–	52	75	–	–	**32**
40	305	384	152	152	193	178	178	232	381	–	310	300	150	40	–	–	14	85	270	64	85	333	333	**40**
50	368	451	184	184	225	216	216	279	400	–	350	350	175	50	14	17	14	100	300	83	100	375	375	**50**
65	419	508	210	210	254	254	254	330	441	–	425	400	200	65	14	20	14	130	360	105	125	410	410	**65**
80	470	578	190	235	289	305	305	368	660	152	470	450	225	80	14	24	14	160	390	121	150	441	460	**80**
100	546	673	229	273	337	356	406	457	737	178	550	520	260	100	14	27	18	190	450	152	185	511	530	**100**
125	673	794	279	337	397	432	483	533	–	216	650	600	300	125	16	32	18	240	525	196	220	–	–	**125**
150	705	914	305	352	457	508	559	610	864	254	750	700	350	150	16	32	20	250	600	236	280	714	768	**150**
200	832	1 022	368	416	511	660	711	762	1022	330	950	800	400	200	18	42	22	320	750	315	–	914	972	**200**
250	991	1 270	419	495	635	787	864	914	1372	394	1 150	900	–	–	35	47	26	–	900	–	–	991	1 067	**250**
300	1 130	1 422	483	565	711	914	991	1 041	1575	457	1 350	1 050	–	–	43	52	32	–	1 050	–	–	1 130	1 219	**300**
350	1 257	–	514	629	–	991	1 067	1 118	1 803	495	1 550	–	–	–	–	–	38	–	1 200	–	–	1 257	1 257	**350**
400	1 384	–	660	–	–	1 092	1 194	1 245	–	–	1 750	–	–	–	–	–	44	–	1 350	–	–	1 422	1 422	**400**
450	1 537	–	737	–	–	–	1 346	1 397	–	–	1 950	–	–	–	–	–	50	–	1 500	–	–	1 727	1 727	**450**
500	1 664	–	825	–	–	–	1 473	–	–	–	2 150	–	–	–	–	–	56	–	1 650	–	–	–	–	**500**
600	1 943	–	991	–	–	–	–	–	–	–	–	–	–	–	–	–	62	–	–	–	–	–	–	**600**

DN	Basic series																							DN
	55	56	57[a]	58[a]	59[a]	69	70	71	77	82[a]	91	92	93[a]	94	95	96	97	98	99	100	101	105	106	
700	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	68	–	–	–	–	–	–	**700**
750	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**750**
800	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	80	–	–	–	–	–	–	**800**
900	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	86	–	–	–	–	–	–	**900**
1 000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 000**
1 050	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 050**
1 200	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 200**
1 400	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 400**
1 600	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 600**
1 800	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 800**
2 000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**2 000**

[a] CTF dimensions for angle pattern valves.

Table 2 (*continued*)

DN	Basic series																		DN
	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	
10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**10**
15	50	–	–	–	273	273	150	210	290	480	–	–	–	–	–	300	400	435	**15**
20	50	–	–	–	273	273	150	210	290	480	–	–	–	–	–	300	–	–	**20**
25	60	–	–	–	273	273	160	230	380	580	–	–	–	–	–	300	415	470	**25**
32	65	–	–	–	–	–	230	320	450	580	–	–	–	–	–	–	–	–	**32**
40	80	–	–	–	311	311	230	320	490	680	–	–	–	–	–	420	–	–	**40**
50	95	–	–	–	340	340	230	320	580	680	54	54	60	60	60	416	440	–	**50**
65	110	–	–	–	–	–	290–	–	–	–	60	60	67	67	67	–	–	–	**65**
80	145	48	48	54	387	406	310	–	–	–	67	67	73	73	73	–	–	–	**80**
100	170	54	54	64	464	483	350	–	–	–	67	67	73	73	79	–	–	–	**100**
125	–	–	–	–	–	–	–	–	–	–	83	83	–	–	–	–	–	–	**125**
150	–	57	59	78	600	692	–	–	–	–	95	95	98	98	136	–	–	–	**150**
200	–	64	73	102	781	838	–	–	–	–	127	127	127	127	165	–	–	–	**200**
250	–	71	83	117	864	991	–	–	–	–	140	140	146	146	213	–	–	–	**250**
300	–	81	92	140	1 016	1 130	–	–	–	–	181	181	181	181	229	–	–	–	**300**
350	–	92	117	155	–	–	–	–	–	–	184	222	184	222	273	–	–	–	**350**
400	–	102	133	178	–	–	–	–	–	–	191	232	191	232	305	–	–	–	**400**
450	–	114	149	200	–	–	–	–	–	–	203	264	203	264	362	–	–	–	**450**
500	–	127	159	216	–	–	–	–	–	–	213	292	219	292	368	–	–	–	**500**
600	–	154	181	232	–	–	–	–	–	–	222	318	222	318	438	–	–	–	**600**

DN	Basic series																		DN
	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	
700	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**700**
750	–	–	–	–	–	–	–	–	–	–	305	368	305	368	505	–	–	–	**750**
800	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**800**
900	–	–	–	–	–	–	–	–	–	–	368	483	368	483	635	–	–	–	**900**
1 000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1 000**
1 050	–	–	–	–	–	–	–	–	–	–	432	568	432	568	701	–	–	–	**1 050**
1 200	–	–	–	–	–	–	–	–	–	–	524	629	524	629	–	–	–	–	**1 200**

[a] CTF dimensions for angle pattern valves.

Table 3 — Tolerances of the FTF or CTF dimensions

Dimensions in millimetres

Above	Up to and including	Tolerances on dimension
0	250	±2
250	500	±3
500	800	±4
800	1 000	±5
1 000	1 600	±6
1 600	2 250	±8

Table 4 — Tolerances of parallelism or perpendicularity

Dimensions in millimetres

DN	
10 to 25	0,4
32 to 150	0,6
200 to 300	0,8
350 to 500	1,0
600 to 800	2,0
1 000 and higher	3,0

Table 5 — Gate valves

PN / Class	FTF series																							
	3	4	5	7[c]	14[a]	15	18[c]	19	26	29	30	33[e]	45	46	47[c]	54	55	56	69	70	71	91	94[d]	99
PN 6 — PN 10 — PN 16	X			X	X	X	X			X	X				X								X	
PN 25 — PN 40		X		X		X	X	X	X				X		X								X	
PN 63 — PN 100									X					X[b]										
PN 160																								X
PN 250 — PN 320 — PN 400																						X		X
Class 125 — Class 150	X			X			X																	
Class 250 — Class 300		X		X			X	X																
Class 600			X									X												
Class 900																X			X					
Class 1 500																	X			X				
Class 2 500																		X			X			

[a] This series is used for grey cast iron gate valves isomorphic series (details see relevant product standards).

[b] This series applies only to PN 63.

[c] This series applies to copper alloy valves only; not to be used for cast iron or steel valves.

[d] For flanged and wafer types.

[e] These dimensions apply to pressure seal or flangeless bonnet valves. They may be applied at manufacturer's option to valves with flanged bonnets.

Table 6 — Butterfly valves and butterfly control valves

PN / Class	FTF series								
	Flange type		Wafer type						
	13	14	16	20[b]	25	53[a]	108	109	110
PN 2,5 — PN 6	X	X		X		X			
PN 10 — PN 16	X	X	X	X	X	X			
PN 25 — PN 40	X	X	X	X[c]	X				
Class 125 — Class 150	X	X	X	X[c]	X		X		
Class 300		X	X		X[c]			X	
Class 600		X							X

[a] For PN 2,5: PN 6, PN 10 only.

[b] Alternative dimension use: 25 (DN 20); 25 (DN 25); 33 (DN 32).

[c] Alternative dimension: 92 (DN 350) instead of 78.

Table 7 — Ball and plug valves

PN / Class	FTF series														
	1	3	4	5	12	27	28	43[c]	54	55	56	98	100 g	101[h]	107
PN 6 — PN 10 — PN 16	X	X[a]			X	X		X				X	X		X
PN 25 — PN 40	X		X[b]		X	X						X	X		X
PN 63 — PN 100	X						X					X			X
PN 160												X			X
Class 125 — Class 150	X	X[a]			X								X		
Class 250	X		X												
Class 300	X		X	X									X		
Class 600				X[d]										X	
Class 900									X[e]						
Class 1 500										X[f]					
Class 2 500											X				

[a] Above DN 40, this series does not apply to top entry full bore ball valves. Above DN 300, this series does not apply to full bore all and plug valves.

[b] Alternative FTF dimensions for ball valves are 502 (DN 200); 568 (DN 250); 648 (DN 300).

[c] This series applies only to PN 10 ball valves.

[d] DN 25; DN 32 are for plug valves, regular pattern only — DN 450; DN 500; DN 600 are for plug valves, venturi pattern only.

[e] DN 25; DN 32; DN 40; DN 50; DN 65; DN 80; DN 100 are for plug valves, regular pattern only.

[f] DN 25; DN 32; DN 40; DN 50; DN 65; DN 80; DN 100 are for plug valves, regular pattern only — DN 400 are for plug valves, venturi pattern only.

[g] Series only for wafer type; alternative dimension is 183 (DN 125).

[h] Series only for wafer type.

Table 8 — Diaphragm valves

PN / Class	FTF series	
	1	7
PN 6		X
PN 10 — PN 16	X	X
PN 25 — PN 40	X	
Class 125 — Class 150	X	X

Table 9 — Globe valves — Straight and oblique pattern

PN / Class	FTF series															
	1	2	5	7[d]	10	14	18[d]	21	54	55	56	69	70	71	92	94[e]
PN 6 — PN 10 — PN 16	X			X	X[a, b]	X	X									X
PN 25 — PN 40	X			X		X	X	X[c]								X
PN 63 — PN 100 — PN 160		X														
PN 250 — PN 320															X	
PN 400															X	
Class 125 — Class 150	X			X	X[a, b]		X									
Class 250 — Class 300	X			X			X	X[c]								
Class 600			X													
Class 900									X			X				
Class 1 500										X			X			
Class 2 500											X			X		

[a] For PN 10, PN 16, Class 150 valves in steel, use: 356 (DN 125); 406 (DN 150).

[b] For PN 10, PN 16, Class 150 valves in cast iron, use: 965 (DN 450).

[c] For PN 25, PN 40, Class 300 valves in steel, use: 203 (DN 25); 216 (DN 32); 229 (DN 40); 559 (DN 200).

[d] This series applies to copper alloy valves only; not to be used for cast iron or steel valves.

[e] For flanged and wafer types.

Table 10 — Globe valves and lift check valves — Angle pattern

PN / Class	CTF series											
	8	9	11	22[a]	23[a]	24	32	57	58	59	82	93
PN 6				X	X							
PN 10 — PN 16	X		X[b]	X	X							
PN 25 — PN 40	X			X	X							
PN 63 — PN 100 — PN 160		X										
PN 250 — PN 320												X
PN 400												X
Class 125 — Class 150			X	X	X							
Class 250 —Class 300	X				X	X	X					
Class 600		X				X						
Class 900								X			X	
Class 1 500									X			
Class 2 500										X		

[a] This series applies to copper alloy valves only; not to be used for cast iron or steel valves.

[b] For valves in cast iron use: 165 (DN 125); 178 (DN 150).

Table 11 — Check valves — Flanged type[a]

PN / Class	FTF series																		
	1	2	5	7[b]	10	14	18[b]	21	26	48	54	55	56	69	70	71	91	92	99
PN 6 — PN 10 — PN 16	X			X	X[c, e, f]	X	X			X									
PN 25 — PN 40	X			X			X	X[d]											
PN 63 — PN 100		X							X										
PN 160																			X
PN 250 — PN 320 — PN 400																	X		
Class 125 — Class 150	X			X	X[c, e, f]	X	X												
Class 250 — Class 300	X			X			X	X[d]											
Class 600			X																
Class 900											X			X					
Class 1 500												X			X				
Class 2 500													X			X			

[a] For lift check valves – angle pattern see Table 10.

[b] This series applies to copper alloy valves only; not to be used for cast iron or steel valves.

[c] For PN 16, Class 150 lift check valves in steel, use: 356 (DN 125); 406 (DN 150).

[d] For PN 40, Class 300 lift check valves in steel, use: 203 (DN 25); 216 (DN 32); 229 (DN 40); 559 (DN 200).

[e] For PN 16 valves in cast iron, use: 965 (DN 450).

[f] For PN 16 swing check valves in steel, use: 864 (DN 400).

Table 12 — Check valves — Wafer type

PN / Class	FTF series												
	16	49	50	51	52	95	96	97	117	118	119	120	121
PN 6 — PN 10 — PN 16	X	X	X	X		X	X	X					
PN 25 — PN 40	X	X	X	X		X	X	X[a]					
Class 125	X		X	X	X			X	X				
Class 150	X		X	X	X			X			X		
Class 250										X			
Class 300	X		X	X	X							X	
Class 600													X

[a] Only for PN 25.

Table 13 — Globe control valves

PN / Class	FTF series (straight pattern)												CTF series (angle pattern)									
	1	2	37	38	39	56	77	92	105	106	111	112	8	9	11	24	32	40	41	42	59	93
PN 10 — PN 16	X		X										X		X			X				
PN 25 — PN 40	X			X									X				X		X			
PN 63 — PN 100		X			X									X		X				X		
PN 160		X							X					X								
PN 250								X		X												X
PN 320								X														X
PN 400						X	X														X	
Class 150	X		X										X		X			X				
Class 300	X			X									X				X		X			
Class 600		X			X									X		X				X		
Class 900		X							X		X			X[a]								X[a]
Class 1 500								X		X		X										X[b]
Class 2 500						X	X														X[c]	

[a] For CTF Class 900, use half of the dimension of series 105.

[b] For CTF Class 1500, use half of the dimension of series 106.

[c] For CTF Class 2500, use half of the dimension of series 77.

Table 14 — Eccentric rotary plug control valves and segmented ball control valves — Wafer type and flanged type

PN / Class	FTF series	
	1	36
PN 10 — PN 16 — PN 25 — PN 40	X	X
PN 63 — PN 100	X[a]	X
Class 150 — Class 300 — Class 600		X

[a] Applies to eccentric rotary plug control valves only.

Table 15 — Ball control valves

PN / Class	FTF series						
	1	3	4	5	12	38	39
PN 10 — PN 16	X	X			X		
PN 25 — PN 40	X		X[a]			X	
PN 63 — PN 100	X			X			X
Class 150		X			X		
Class 300			X[a]			X	
Class 600				X			X

[a] Use dimension 502 (DN 200); 568 (DN 250); 648 (DN 300).

Table 16 — Steam traps

PN / Class	FTF series							
	2	113	114	115	116	122	123	124
PN 10 — PN 16		X	X	X	X			
PN 25 — PN 40		X	X	X	X			
PN 63 — PN 100	X		X			X		
PN 160							X	
PN > 160								X
Class 150		X	X					
Class 300		X	X					
Class 600	X							

Annex A
(informative)

Origin of basic series

Table A.1 — Origin of basic series

Basic series	Origin	In ISO 5752
1	DIN 3202–1 — Series F 1	X
2	DIN 3202–1 — Series F 2	X
3	ASME/ANSI B16.10, Table 1, column 8 and 9	X
4	ASME/ANSI B16.10, Table 2, column 11	X
5	ASME/ANSI B16.10, Table 4, column 5	X
7	BS 2080 Table 1, Series 7	X
8	DIN 3202–1 — Series F 32	X
9	DIN 3202–1 — Series F 33	X
10	ASME/ANSI B16.10, Table 1, column 16	X
11	ASME/ANSI B16.10, Table 1, column 17	X
12	ASME/ANSI B16.10, Table 1, column 3; BS 2080, Table 1, column 12	X
13	BS 2080, Table 1, Series 13	X
14	DIN 3202–1 — Series F 4	X
15	DIN 3202–1 — Series F 5	X
16	BS 2080, Table 1, Series 16	X
18	BS 2080, Table 1, Series 18	X
19	ASME/ANSI B16.10, Table 2, column 1	X
20	ASME/ANSI B16.10, Table 9, columns 3 and 4	X
21	ASME/ANSI B16.10, Table 10, columns 16 and 18	X
22	BS 2080, Table 1, Series 63	X
23	BS 2080, Table 1, Series 63	X
24	ASME/ANSI B16.10, Table 4, column 12	–
25	BS 2080, Table 1, Series 64	X
26	ASME/ANSI B16.10, Table 9, column 4	–
27	DIN 3357–2 and following parts	–
28	DIN 3357–2 and following parts	–
29	NF E 29–377	–

Basic series	**Origin**	**In** ISO 5752
30	NF E 29–377	–
32	ASME/ANSI B16.10, Table 2, column 17	–
33	ASME/ANSI B16.10, Table 4, column 6	–
36	IEC 60534–3–2, Table 1	–
37	IEC 60534–3–2, Table 1	–
38	IEC 60534–3–2, Table 1	–
39	IEC 60534–3–2, Table 1	–
40	Half the dimensions of serie 37	–
41	Half the dimensions of serie 38	–
42	Half the dimensions of serie 39	–
43	NF E 29–305–2	–
45	NF E 29–305–2	–
46	NF E 29–331	–
47	DIN 3202–1, Series F 19	–
48	DIN 3202–1, Series F 6	–
49	DIN 3202–3, Series K 4	–
50	NF E 29–377	–
51	NF E 29–377	–
52	DIN 3202–3, Series K 5	–
53	NF E 29–305–2, FR 10	–
54	ASME/ANSI B16.10, Table 5, column 5	–
55	ASME/ANSI B16.10, Table 6, column 5	–
56	ASME/ANSI B16.10, Table 7, column 1 and column 2	–
57	ASME/ANSI B16.10, Table 5, column 7	–
58	ASME/ANSI B16.10, Table 6, column 7	–
59	ASME/ANSI B16.10, Table 7, column 6	–
69	ASME/ANSI B16.10, Table 5, columns 2 and 6	–
70	ASME/ANSI B16.10, Table 6, columns 2 and 6	–
71	ASME/ANSI B16.10, Table 7, columns 2 and 5	–
77	ANSI/ISA S75.16–1994 Table 1	–
82	ASME/ANSI B16.10, Table 5, column 8	–
91	DIN 3202–1, Series F9	–
92	DIN 3202–1, Series F3	–
93	DIN 3202–1, Series F34	–

Basic series	**Origin**	**In** ISO 5752
94	[a]	–
95	[a]	–
96	[a]	–
97	[a]	–
98	[a]	–
99	DIN 3202–1, Series F8	–
100	[a]	–
101	[a]	–
105	ANSI/ISA-75.08.06, Table 1 (long)	–
106	ANSI/ISA-75.08.06, Table 1 (long)	–
107	[a]	–
108	API 609 Table 2 lug and wafer type Class 150	–
109	API 609 Table 2 lug and wafer type Class 300	–
110	API 609 Table 2 lug and wafer type Class 600	–
111 to 112	ANS I/ISA-75.08.06, Table 1 (short)	–
113 to 116	EN 26554, Series 1, 3, 5, 6	–
117 to 121	API 594 Series Table 3	–
122 to 124	[a]	

NOTE References to ASME/ANSI B16.10 are taken from 1986 revision.

[a] According to agreements between and proposals of the CEN/TC 69 Working Bodies involved in the preparation of this European Standard.

Annex B
(informative)

Relationship between DN and NPS

Table B.1 — Relationship between DN and NPS

DN	10	15	20	25	32	40	50	65	80	100	125
NPS	⅜	½	¾	1	1¼	1½	2	2½	3	4	5

DN	150	200	250	300	350	400	450	500	600	700
NPS	6	8	10	12	14	16	18	20	24	28

DN	750 [a]	800	900	1000	1050 [a]	1200	1400	1500	1600	1 800	2 000
NPS	30	32	36	40	42	48	56	60	64	72	80
[a] This DN is not included in EN ISO 6708.											

Bibliography

[1] ISO 5752:1982, *Metal valves for use in flanged pipe systems — Face-to-face and centre-to-face dimensions*

[2] ANSI/ISA S75.15-1994, *Face-to-Face Dimensions for Buttweld-End Globe-Style Control Valves (ANSI Classes 150, 300, 600, 900, 1 500 and 2 500)*

[3] ANSI/ISA S75.16-1994, *Face-to-Face Dimensions for Flanged Globe-Style Control Valves Bodies (ANSI Classes 900, 1 500 and 2 500)*

[4] API 594:2010, *Check Valves: Flanged, Lug, Wafer, and Butt-welding*

[5] API 609:1997, *Butterfly Valves: Double Flanged, Lug- and Wafer-Type*

[6] ASME/ANSI B16.10-86, *Face-to-Face and End-to-End Dimensions of Ferrous Valves*

[7] BS 2080:1989, *Specification for face-to-face, centre-to-face, end-to-end and centre-to-end dimensions of valves*

[8] DIN 3202-3:1979, *Face-to-face dimensions of wafer type valves*

[9] DIN 3357-2:1981, *Full bore steel bore valves*

[10] EN 26554, *Flanged automatic steam traps - Face-to-face dimensions (ISO 6554)*

[11] EN 60534-3-2:2001, *Industrial-process control valves - Part 3-2: Dimensions - Face-to-face dimensions for rotary control valves except butterfly valves (IEC 60534 3 2:2001)*

[12] NF E 29-305-2:1988, *Robinetterie industrielle — Appareils de robinetterie utilisés dans les tuyauteries à brides — Partie 2: Dimensions face à face — Séries FR*

[13] NF E 29-331:1973, *Robinetterie industrielle — Robinets-vannes à brides, en acier — Pression nominale PN 64*

[14] NF E 29-377:1986, *Robinetterie industrielle — Clapets de non-retour métalliques à obturateur à déplacement angulaire à insérer entre brides — Spécifications*

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