

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

ICS 23.060.01

## National foreword

This British Standard is the UK implementation of EN 558:2008. It supersedes BS EN 558-1:1996 and BS EN 558-2:1996, which are withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PSE/7, Industrial valves.

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

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 May 2008

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ISBN 978 0 580 55251 9

### Amendments/corrigenda issued since publication

Date	Comments

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 14 December 2007.

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## **Foreword**

This document (EN 558:2008) 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of an identical text or by endorsement, at the latest by July 2008, and conflicting national standards shall be withdrawn at the latest by July 2008.

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

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This document supersedes EN 558-1:1995 and EN 558-2:1995.

## **Introduction**

The basic series given in this document are taken from the original series shown in Annex A (informative). 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 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; PN 500
- 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 1 200; DN 1 400; DN 1 600; DN 1 800; DN 2 000.

The face-to-face dimensions of flanged automatic steam traps are specified in EN 26554.

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

## 2 Normative references

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

EN 736-1:1995, *Valves - Terminology - Part 1: Definition of types of valves*

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

## 3 Terms and definitions

For the purposes of this European Standard, the terms and definitions of EN 736-1:1995, and the following apply.

### 3.1

#### **face-to-face dimensions (FTF)**

(straight pattern valves)

distance, in millimetres, 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 (see Figures 1 to 3)

### 3.2

#### **centre-to-face dimensions (CTF)**

(angle pattern valves)

distance, in millimetres, 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 (Figures 1 to 3)

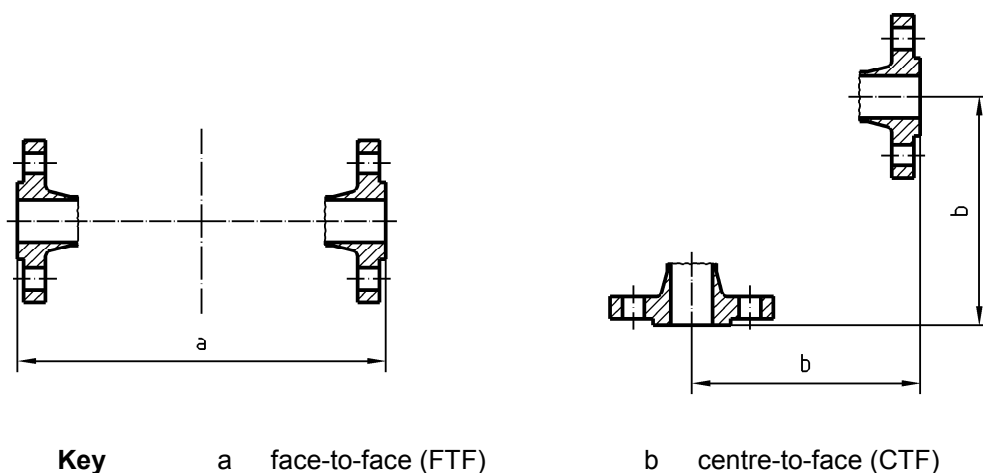
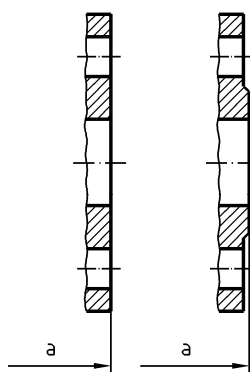
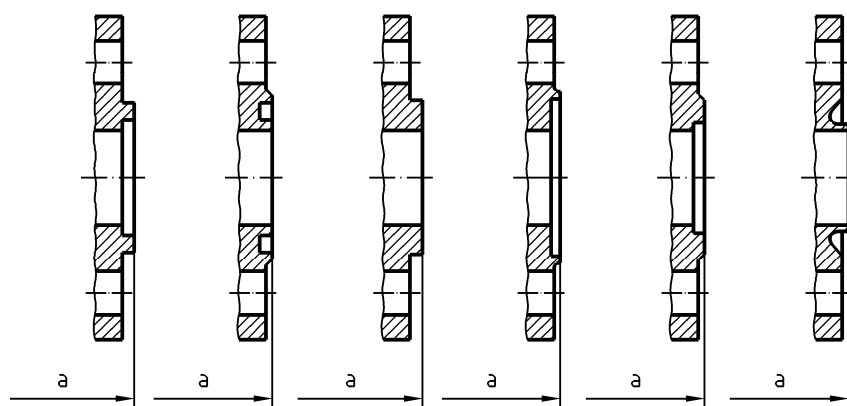


Figure 1 — Face to face and centre to face dimensions



Key    a    face-to-face (FTF)                  Type A    Type B

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)



Dimensions in millimetres

	Class 150 and Class 300	Class 600
Large or small male face	<p><math>b = a + 12,7</math> <math>c = a + 6,4</math> 6,4      a</p>	<p><math>b = a</math> <math>c = a</math> 6,4</p>
Large or small female face	<p><math>b = a + 9,6</math> <math>c = a + 4,8</math> 4,8      a</p>	<p>a <math>b = a - 3,2</math> <math>c = a - 1,6</math> 1,6</p>
Large or small tongue	<p><math>b = a + 12,7</math> <math>c = a + 6,4</math> 6,4      a</p>	<p><math>b = a</math> <math>c = a</math> 6,4</p>
Large or small groove	<p><math>b = a + 9,6</math> <math>c = a + 4,8</math> 4,8      a</p>	<p>a <math>b = a - 3,2</math> <math>c = a - 1,6</math> 1,6</p>

**Key**

a For dimensions see Table 2

b face-to-face (FTF)

c centre-to-face (CTF)

**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.

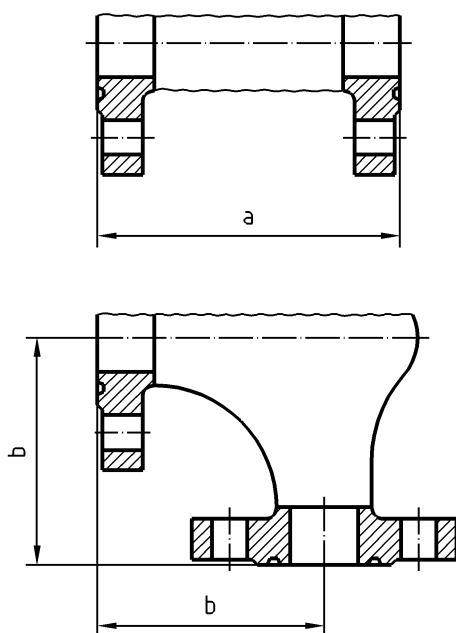
For each type of valve, the basic series to be taken into consideration are given in Table 4 to Table 14.

NOTE 1 Table 2 gives complete series. In Table 4 to Table 14 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 4 to Table 14 as appropriate.

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

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 the Table 1.



#### Key

- |   |                                      |   |                      |
|---|--------------------------------------|---|----------------------|
| 1 | FTF = Dimension of Table 2 + $x$     | a | face-to-face (FTF)   |
| 2 | CTF = Dimension of Table 2 + $0,5 x$ | b | centre-to-face (CTF) |

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

Nominal size	Additional length $x$ for ring joint flanges		
	Class 150	Class 300	Class 600
15	11,1	11,1	- 1,6
20	12,7	12,7	0
25			
32			
40			
50		15,9	3,2
65			
80			
100			
125			
150			
200			
250			
300			
350			
400	19,1	6,4	
450	22,2	9,5	
500	—	25,4	12,7
600			
700		28,6	15,9
750			
800			
900			
1 000			

**4.2.2** 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.

**4.2.3** 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.

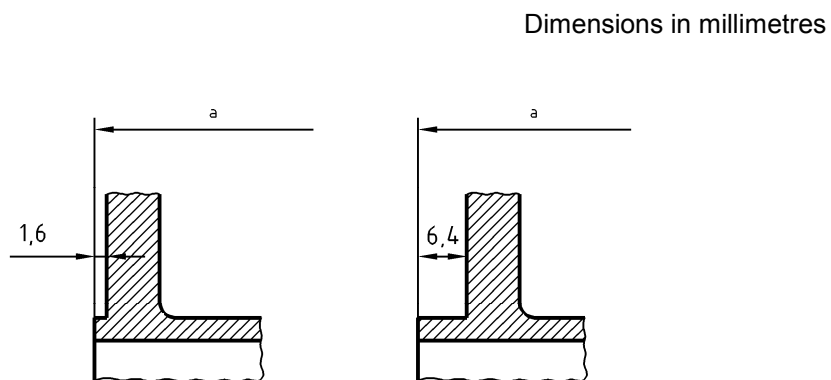
If this is the case, the manufacturer shall indicate the deviation from the standardised FTF or CTF dimensions in his documentation.

#### 4.2.4 Raised face flanges

For valves:

- having flanges with 1,6 mm raised flange:
- in grey cast iron, Class 250;
- ductile cast iron, Class 150 and 300;
- having flanges with 6,4 mm raised flange:
- in steel, Class 600.

The FTF and CTF dimensions shall be in accordance with Figure 1 and Figure 6.



#### Key

- a face-to-face (FTF) or centre-to-face (CTF), for dimensions see Table 2

**Figure 6 - FTF and CTF dimensions for Class designated valves with raised face flanges**

### 4.3 Tolerances

Tolerances on FTF and CTF dimensions are given in Table 3a. 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 7 are given in Table 3b.

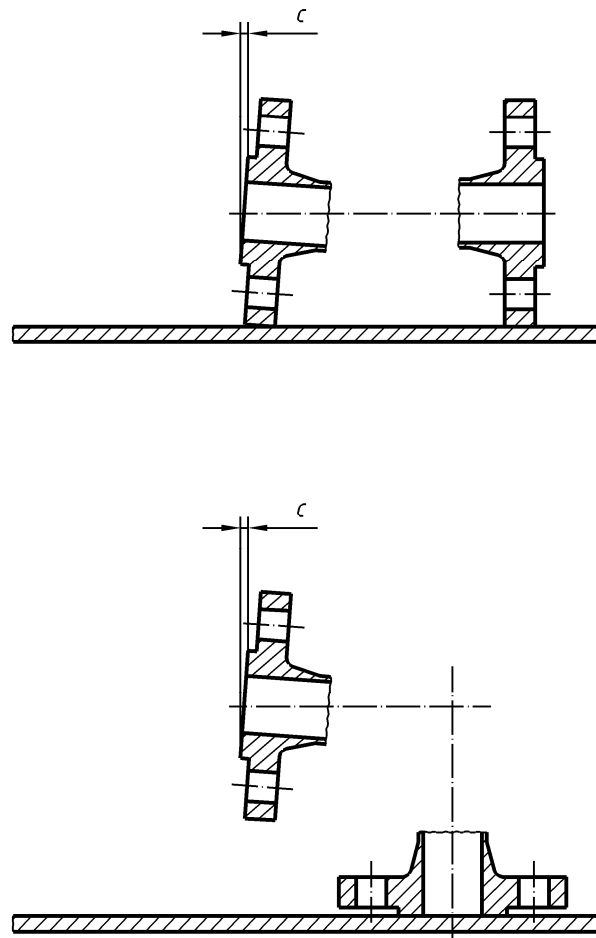


Figure 7 - Tolerances on parallelism and perpendicularity

Table 2 — Dimensions of basic series

Dimensions in millimetres

DN	Basic series																						DN	
	1	2	3	4	5	7	8 <sup>a</sup>	9 <sup>a</sup>	10	11 <sup>a</sup>	12	13	14	15	16	18	19	20	21	22 <sup>a</sup>	23 <sup>a</sup>	24 <sup>a</sup>		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
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	1 594	—	—	—	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	2 083	—	—	—	900
1 000	2 250	—	813	—	—	—	—	—	—	—	—	410	550	1 200	300	—	—	251	216	—	—	—	—	1 000
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	—	—	—	—	—	2 000

<sup>a</sup> CTF dimensions for angle pattern valves.

Table 2 (continued)

Dimensions in millimetres

DN	Basic series																								DN	
	26	27	28	29	30	32 <sup>a</sup>	33	36	37	38	39	40 <sup>a</sup>	41 <sup>a</sup>	42 <sup>a</sup>	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
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
1 200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 200
1 400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 400
1 600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 600
1 800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 800
2 000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2 000

Table 2 (continued)

Dimensions in millimetres

DN	Basic series																						DN	
	55	56	57 <sup>a</sup>	58 <sup>a</sup>	59 <sup>a</sup>	69	70	71	77	82 <sup>a</sup>	91	92	93 <sup>a</sup>	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
700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	68	—	—	—	—	—	—	700
750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	750
800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	80	—	—	—	—	—	—	800
900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	86	—	—	—	—	—	—	900
1 000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 000
1 200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 200
1 400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 400
1 600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 600
1 800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 800
2 000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2 000

<sup>a</sup> CTF dimensions for angle pattern valves.



Table 2 (continued)

DN	Basic series				DN
	107	108	109	110	
<b>10</b>	—				<b>10</b>
<b>15</b>	50				<b>15</b>
<b>20</b>	50				<b>20</b>
<b>25</b>	60				<b>25</b>
<b>32</b>	65				<b>32</b>
<b>40</b>	80				<b>40</b>
<b>50</b>	95				<b>50</b>
<b>65</b>	110				<b>65</b>
<b>80</b>	145	48	48	54	<b>80</b>
<b>100</b>	170	54	54	64	<b>100</b>
<b>125</b>					<b>125</b>
<b>150</b>		57	59	78	<b>150</b>
<b>200</b>		64	73	102	<b>200</b>
<b>250</b>		71	83	117	<b>250</b>
<b>300</b>		81	92	140	<b>300</b>
<b>350</b>		92	117	155	<b>350</b>
<b>400</b>		102	133	178	<b>400</b>
<b>450</b>		114	149	200	<b>450</b>
<b>500</b>		127	159	216	<b>500</b>
<b>600</b>		154	181	232	<b>600</b>
<b>700</b>					<b>700</b>
<b>750</b>					<b>750</b>
<b>800</b>					<b>800</b>
<b>900</b>					<b>900</b>
<b>1 000</b>					<b>1 000</b>
<b>1 200</b>					<b>1 200</b>
<b>1 400</b>					<b>1 400</b>
<b>1 600</b>					<b>1 600</b>
<b>1 800</b>					<b>1 800</b>
<b>2 000</b>					<b>2 000</b>
<sup>a</sup> CTF dimensions for angle pattern valves.					

**Table 3a — Tolerances of the FTF or CTF dimensions**

Dimensions in millimetres

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

**Table 3b — 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 4 — Gate valves

PN / Class	FTF series																							
	3	4	5	7 <sup>c</sup>	14 <sup>a</sup>	15	18 <sup>c</sup>	19	26	29	30	33 <sup>e</sup>	45	46	47 <sup>c</sup>	54	55	56	69	70	71	91	94 <sup>d</sup>	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 <sup>b</sup>										
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			

<sup>a</sup> This series is used for grey cast iron gate valves isomorphic series (details see relevant product standards).

<sup>b</sup> This series applies only to PN 63.

<sup>c</sup> This series applies to copper alloy valves only; not to be used for cast iron or steel valves.

<sup>d</sup> For flanged and wafer types.

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

**Table 5 — Butterfly valves and butterfly control valves**

PN/Class	FTF series								
	Flange type		Wafer type						
	13	14	16	20 <sup>b</sup>	25	53 <sup>a</sup>	108	109	110
							CL 150	CL 300	CL 600
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 <sup>c</sup>	X				
Class 125 — Class 150	X	X	X	X <sup>c</sup>	X		X		
Class 300		X	X		X <sup>c</sup>			X	
Class 600		X							X

<sup>a</sup> For PN 2,5; PN 6, PN 10 only.

<sup>b</sup> Alternative dimension use: 25 (DN 20); 25 (DN 25); 33 (DN 32).

<sup>c</sup> Alternative dimension: 92 (DN 350) instead of 78.

Table 6 — Ball and plug valves

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

<sup>a</sup> 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 ball and plug valves.  
<sup>b</sup> Alternative FTF dimensions for ball valves are 502 (DN 200); 568 (DN 250); 648 (DN 300).  
<sup>c</sup> This series applies only to PN 10 ball valves.  
<sup>d</sup> DN 25; DN 32 are for plug valves, regular pattern only — DN 450; DN 500; DN 600 are for plug valves, venturi pattern only.  
<sup>e</sup> DN 25; DN 32; DN 40; DN 50; DN 65; DN 80; DN 100 are for plug valves, regular pattern only.  
<sup>f</sup> 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.  
<sup>g</sup> Series only for wafer type; alternative dimension is 183 (DN 125).  
<sup>h</sup> Series only for wafer type.

Table 7 — 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 8 — Globe valves — Straight and oblique pattern**

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

- <sup>a</sup> For PN 10, PN 16, Class 150 valves in steel, use: 356 (DN 125); 406 (DN 150).
- <sup>b</sup> For PN 10, PN 16, Class 150 valves in cast iron, use: 965 (DN 450).
- <sup>c</sup> For PN 25, PN 40, Class 300 valves in steel, use: 203 (DN 25); 216 (DN 32); 229 (DN 40); 559 (DN 200).
- <sup>d</sup> This series applies to copper alloy valves only; not to be used for cast iron or steel valves.
- <sup>e</sup> For flanged and wafer types.

Table 9 — Globe valves and lift check valves — Angle pattern

PN/Class	CTF series											
	8	9	11	22 <sup>a</sup>	23 <sup>a</sup>	24	32	57	58	59	82	93
PN 6				X	X							
PN 10 — PN 16	X		X <sup>b</sup>	X	X							
PN 25 — PN 40	X			X	X							
PN 63 — PN 100 — PN 160		X										
PN 250 — PN 320												X
PN 400 — PN 500												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 00									X			
Class 2 00										X		

<sup>a</sup> This series applies to copper alloy valves only; not to be used for cast iron or steel valves.

<sup>b</sup> For valves in cast iron use: 165 (DN 125); 178 (DN 150).

**Table 10 — Check valves — Flanged type<sup>a</sup>-**

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

<sup>a</sup> For lift check valves – angle pattern see Table 9.

<sup>b</sup> This series applies to copper alloy valves only; not to be used for cast iron or steel valves.

<sup>c</sup> For PN 16, Class 150 lift check valves in steel, use: 356 (DN 125); 406 (DN 150).

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

<sup>e</sup> For PN 16 valves in cast iron, use: 965 (DN 450).

<sup>f</sup> For PN 16 swing check valves in steel, use: 864 (DN 400).



**Table 11 — Check valves — Wafer type**

PN/Class	FTF series							
	16	49	50	51	52	95	96	97
PN 6 — PN 10 — PN 16	X	X	X	X		X	X	X
PN 25 — PN 40	X	X	X	X		X	X	X <sup>a</sup>
Class 125 — Class 150	X		X	X	X			X
Class 300	X		X	X	X			

<sup>a</sup> Only for PN 25.

**Table 12 — Globe control valves**

PN/Class	FTF series (straight pattern)											CTF series (angle pattern)									
	1	2	37	38	39	56	77	92	105	106		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 <sup>a</sup>								X <sup>a</sup>
Class 1 500								X		X											X <sup>b</sup>
Class 2 500						X	X													X <sup>c</sup>	

<sup>a</sup> For CTF Class 900, use half of the dimension of series 105.  
<sup>b</sup> For CTF Class 1500, use half of the dimension of series 106.  
<sup>c</sup> For CTF Class 2500, use half of the dimension of series 177.

**Table 13 — 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 <sup>a</sup>	X
Class 150 — Class 300 — Class 600		X
<sup>a</sup> Applies to eccentric rotary plug control valves only.		

**Table 14 — 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 <sup>a</sup>			X	
PN 63 — PN 100	X			X			X
Class 150		X			X		
Class 300			X <sup>a</sup>			X	
Class 600				X			X
<sup>a</sup> Use dimension 502 (DN 200); 568 (DN 250); 648 (DN 300).							

## 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 ff	—
28	DIN 3357-2 ff	—
29	NF E 29-377	—
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	—

Table A.1 (continued)

Basic series	Origin	In ISO 5752
40	—	—
41	—	—
42	—	—
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	—
94	a	—
95	a	—
96	a	—
97	a	—
98	a	—
99	DIN 3202-1, Series F8	—
100	a	—
101	a	—
105	ANSI/ISA S75 16, Table 1	—
106	ANSI/ISA S75 16, Table 1	—
107	a	—
108	API 609 table2 lug and wafer type Class 150	—
109	API 609 table2 lug and wafer type Class 300	—
110	API 609 table2 lug and wafer type Class 600	—
<p><sup>a</sup> According to agreements between and proposals of the CEN/TC 69 Working Bodies involved in the preparation of this European Standard.</p>		
<p>NOTE References to ASME/ANSI B16.10 are taken from 1986 revision.</p>		

**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	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5

DN	150	200	250	300	350	400	450	500	600	700	750
NPS	6	8	10	12	14	16	18	20	24	28	30

DN	800	900	1000	1200	1400	1600	1800	2000
NPS	32	36	40	48	56	64	72	80

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1) To be withdrawn upon publication of this standard.

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