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SANS 1123:2017

Edition 3.4

SOUTH AFRICAN NATIONAL STANDARD

Pipe flanges

WARNING
This document references other documents normatively.

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Table of changes

Change No.	Date	Scope
Amdt 1	2007	Amended to change the number of holes for certain sizes of 250/2, 250/3, 600/1A, 600/1B, 600/2, 1 000/1A, 1 000/1B, 1 600/2, 2 500/1A and 2 500/1B flanges, to delete the cross section from figure 2, and to change the flange diameter (*D*) and pitch circle diameter (*d*) in tables 1 600/1A and 2 500/1B.
Amdt 2	2011	Amended to update referenced standards.
Amdt 3	2015	Amended to correct a value in table 1600/3.
Amdt 4	2017	Amended to update table 2 500/2 – Steel welding neck flanges.

Foreword

This South African standard was prepared by National Committee SABS/TC 138/SC 04, *Water and sanitation – Equipment and systems – Metallic pipes and fittings*, in accordance with procedures of the South African Bureau of Standards, in compliance with annex 3 of the WTO/TBT agreement.

This document was approved for publication in December 2017.

This document supersedes SANS 1123:2015 (edition 3.3).

A vertical line in the margin shows where the text has been technically modified by amendment No. 4.

Annex A forms an integral part of this document. Annex B is for information only.

Compliance with this document cannot confer immunity from legal obligations.

Contents

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Pipe flanges

1 Scope

This standard specifies requirements for the material and dimensions of six types of flange suitable for working pressures up to 4 000 kPa and working temperatures in the range −10 °C to +200 ° C.

NOTE 1 Flanges used for the connection of pipes to a pressure vessel should comply with the relevant requirements of the standard in accordance with which the pressure vessel was manufactured.

NOTE 2 In the case of flanges for use at pressures and at temperatures outside these limits, see EN 1092-1.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards can be obtained from the South African Bureau of Standards.

ISO 7005-2, *Metallic flanges – Part 2: Cast iron flanges*.

SANS 936, *Spheroidal graphite iron castings.*

SANS 937, *Austenitic spheroidal graphite iron castings*.

SANS 1034, *Grey iron castings*.

SANS 1109-1/ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads – Part 1: Dimensions, tolerances and designation*.

SANS 1109-2/ISO 7-2, *Pipe threads where pressure-tight joints are made on the threads – Part 2: Verification by means of limit gauges*.

SANS 6892-1/ISO 6892-1, *Metallic materials – Tensile testing – Part 1: Method of test at room temperature*. **Amdt 2**

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1
acceptable
acceptable to the authorities administering this standard, or to the parties concluding the purchase contract, as relevant

3.2
nominal size
DN
reference size of a flange that corresponds to the nominal size (bore) of the pipe to which it is intended to be fitted

3.3
pressure rating
maximum allowable working pressure of an installation of which the flange is intended to be a component

3.4
working pressure
NP
maximum pressure to which the installation, of which the flange is intended to be a component, will be subjected under normal working conditions

4 Type, rating and identification

4.1 Type

A flange shall be of one of the following types, as required (see annex A):

Type number	Type of flange
1	Integral
2	Welding, neck
3	Plate, for welding
4	Screwed boss
5	Slip-on boss
8	Plate, blank

4.2 Pressure rating

The pressure rating of a flange shall be 250 kPa, 600 kPa, 1 000 kPa, 1 600 kPa, 2 500 kPa or 4 000 kPa as required (see annex A).

NOTE These ratings are based on design pressures applicable to installations subject to moderate shock such as might occur in well-designed and efficiently operated boiler feed mains. Where a system might be subject to severe shock, it is the responsibility of the purchaser to make a suitable allowance when selecting the pressure rating of the flange(s).

4.3 Identification

A flange shall be identified by the nominal size (bore) of the pipe with which it is intended to be used, and a designation that is used as the table reference and that consists of the numerical value of the flange pressure rating, in kilopascals, followed by its type number (such numerical value and type number being separated by an oblique stroke, for example, 250/2). Figure 1 shows the variety of flange types covered in this standard. The table headings identify the flange in terms of rating, type and description.

4.4 Key to tables

Figure 2 gives the key to the symbols used in the tables.

5 Constructional requirements

5.1 Material

5.1.1 Steel flanges

5.1.1.1 Weldable low carbon steel for plate flanges

Weldable low carbon steel shall not contain more than 0,25 % (by mass) of carbon or 1,5 % (by mass) of manganese.

5.1.1.2 Cast steel for cast flanges

Cast steel shall not contain more than 0,05 % (by mass) of sulfur or phosphorus.

The mechanical properties of cast steel shall comply with the following:

– Minimum tensile strength (R_m) : 350 MPa

– Minimum yield stress (R_e) : 185 MPa

– Minimum elongation (A) : 22 %

5.1.2 Cast iron flanges

The material of cast iron flanges shall comply with at least the requirements for grade 250 castings of SANS 1034.

5.1.3 Ductile iron flanges

The material of ductile iron flanges shall comply with at least the requirements for grade 42 castings of SANS 936 and SANS 937.

5.1.4 Test certificates

When so required (see annex A), the manufacturer shall make available to the purchaser test certificates that cover the chemical analysis and the physical properties of the material from which the flanges in each consignment were made.

5.2 Dimensions

5.2.1 Nominal size

The nominal size of a flange shall be as required (see annex A) and shall be one of the sizes given in column 1 of tables 250/2 to 4 000/8, as relevant.

5.2.2 Tolerance

5.2.2.1 General

Except as allowed in terms of 5.3 and 5.4, the dimensions of a flange shall conform to the appropriate of the following tolerances, appropriate to the required nominal size of flange:

5.2.2.2 Flange outside diameter, *D*

1	2	3
Flange outside diameter mm	**Tolerance** mm	
	Machined	**Not machined**
Up to and including 150	± 1	± 2
Over 150 up to and including 300	± 1,5	± 3
Over 300 up to and including 400	± 2	± 4
Over 400	± 2	± 5

5.2.2.3 Flange bore size, *DN*

1	2
Nominal size of flange mm	**Tolerance on machined bore size** mm
Up to and including 300	+2
Over 300 up to and including 1 200	+4
Over 1 200	+6

5.2.2.4 Flange thickness, *b*

1	2	3
Flange thickness mm	**Tolerance**[a] mm	
	Machined at back	**Not machined at back**
Up to and including 35	−0,5 +1,5	−0,5 +3
Over 35	−1,0 +3	−1,0 +5
[a] Except for integral flanges.		

5.2.2.5 Welding neck length and boss length

The tolerance on the welding neck length h_1, and on the boss length h shall be +3 −0.

5.2.2.6 Bolt circle diameter

The tolerance on the bolt circle diameter shall be

– ± 0,9 mm for bolts of size M10 up to and including M24,

– ± 1,4 mm for bolts of size above M24 up to and including M45, and

– ± 2,0 mm for bolts of size exceeding M45.

5.2.2.7 Bolt hole diameters and centre-to-centre distances of adjacent bolt holes

The tolerance on the bolt hole diameters and on the centre-to-centre distances of adjacent bolt holes shall be

– ± 0,45 mm for bolts of size M10 up to and including M24,

– ± 0,7 mm for bolts of size above M24 up to and including M45, and

– ± 1,5 mm for bolts of size exceeding M45.

5.2.2.8 Maximum permissible eccentricity of outside diameter *D* and pitch circle diameter *d* in relation to the inside diameter

1	2
Nominal size of flange mm	**Eccentricity** mm
Up to 300	1
Over 300 up to and including 1 200	2
Over 1 200	5

5.2.3 Mating face

Except when a raised joint face is required (see annex A), the mating face of a flange shall be flat. The appropriate value of the thickness *b*, shall apply over the whole of the raised face of a flange.

5.3 Preparation of flanges for attachment

Flanges shall be prepared for attachment to pipes as follows:

5.3.1 Screwed flanges (type 4)

Screwed flanges shall be screwed in accordance with SANS 1109-1 and SANS 1109-2.

5.3.2 Welding neck flanges (type 2), plate flanges (type 3) and slip-on boss flanges for welding (type 5)

The flanges shall have machined bores of the required diameter (see annex A) appropriate to the *OD* of the pipe for which it is intended. The free end of welding neck flanges shall be machined to a flat surface that is perpendicular to the axis of the bore and the outside edge shall be bevelled for welding.

5.3.3 Except when a raised joint face is specified by the purchaser, the mating face of a flange shall be flat. The appropriate value of the thickness *b*, shall apply over the whole of the raised face of a flange.

5.4 Bolt holes

Unless otherwise required (see annex A), flanges shall have bolt holes. Unless otherwise agreed upon (see annex A), bolt holes shall be drilled. Bolt holes shall be equally spaced on the pitch circle diameter and, in the case of integral flanges, shall be positioned off-centre.

5.5 Machining of flanges

5.5.1 Backs of flanges

Unless otherwise required (see annex A), the backs of flanges may be left unmachined. Machining of the backs shall be either by spot facing at the bolt holes or by back facing (at the discretion of the manufacturer).

5.5.2 Surface finish of flange jointing face

Unless a specific manufacturing process and corresponding surface finish are required (see annex A), the surface finish of the flange jointing face shall be as given in table 1:

Table 1 — Surface finish of flange facings

1	2	3	4	5	6	7	8
Method of machining	**Approximate depth of serration** mm	**Approximate radius of tool nose** mm	**Approximate pitch of serration** mm	R_a[a] µm		R_z[a] µm	
				Min.	Max.	Min.	Max.
Turning[b]	0,05	1,6	0,8	3,2	12,5	12,5	50,0
Other than turning	–	–	–	3,2	6,3	12,5	25,0
NOTE For certain applications, for example, searching media such as low-temperature gases, and flanges of NP 150 and above, it might be necessary to stipulate closer control of the surface finish.							
[a] R_a is the arithmetic mean deviation of the profile and R_z is the height of the profile irregularities in ten points.							
[b] The term "turning" includes any method of machine operation that produces either serrated concentric or serrated spiral grooves.							

5.6 Freedom from defects

Flanges shall be free from cracks, laminations and other deleterious defects.

6 Inspection and methods of test

6.1 Inspection

Inspect and measure the flanges for compliance with all the relevant requirements (other than for material) for which tests to assess compliance are not given in 6.2.

6.2 Methods of test

Use the relevant methods given in SANS 6892-1 and other acceptable methods of analysis to assess flanges for compliance with the relevant requirements of this standard. **Amdt 2**

7 Packing and marking

7.1 Packing

Flanges shall be so packed that they are acceptably protected against damage during normal transportation and storage.

7.2 Marking

7.2.1 Details of marking

At least the following information shall be hard stamped on either the back face or the outer circumference of each flange. (This requirement is not applicable to flanges that are integrally cast on pumps and valves.):

a) the manufacturer's name or trade name or trademark;

b) the nominal size (*DN* mm);

c) the numerical value of the flange pressure rating; and

d) the type number of the flange.

7.2.2 Method of marking

The details required in terms of 7.2.1(b), (c) and (d) shall be grouped together and given in the form and sequence shown below:

– nominal size, pressure rating, type number, for example, 250 – 1 000/3.

Key to figure 1

b : Thickness of flange (minimum)
d : Pitch circle diameter of bolt holes
d_1 : Bolt hole diameter
d_2 : Diameter of base of hub
d_3 : Diameter of raised face
d_4 : Diameter of lapped end of pipe
d_5 : Inner diameter of flange
D : Outside diameter of flange
e : Chamfer of inner diameter
f : Height of raised face
h : Length of boss
h_1 : Length of welding neck
OD : Pipe outside diameter (as specified)
r : Radius

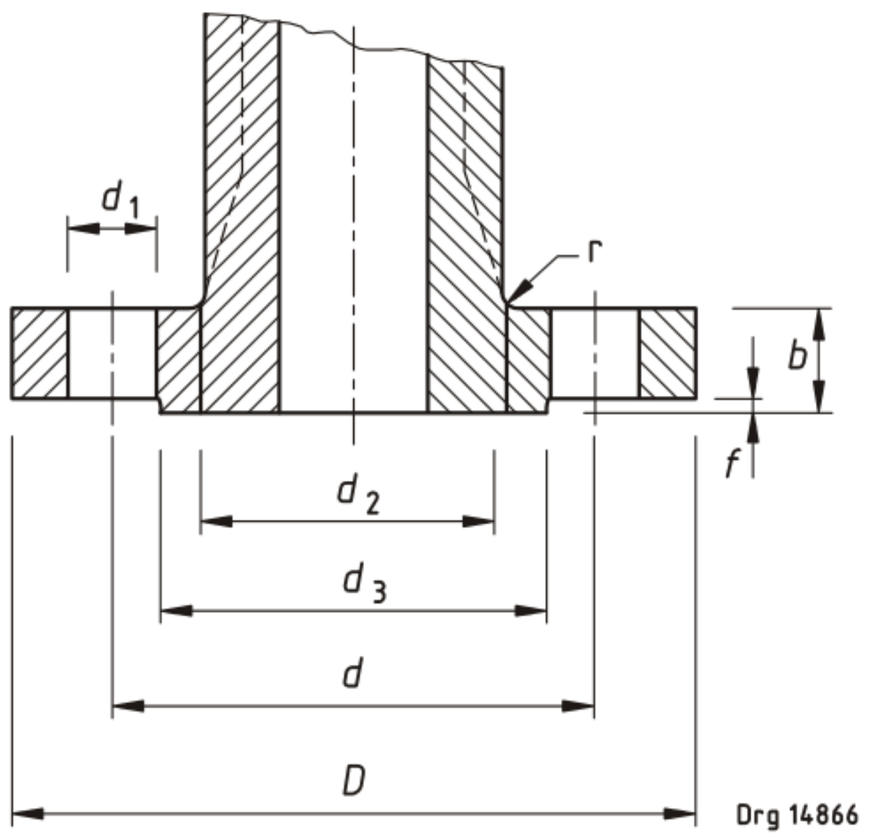


Figure 1(a) —Type 1: Integral flange

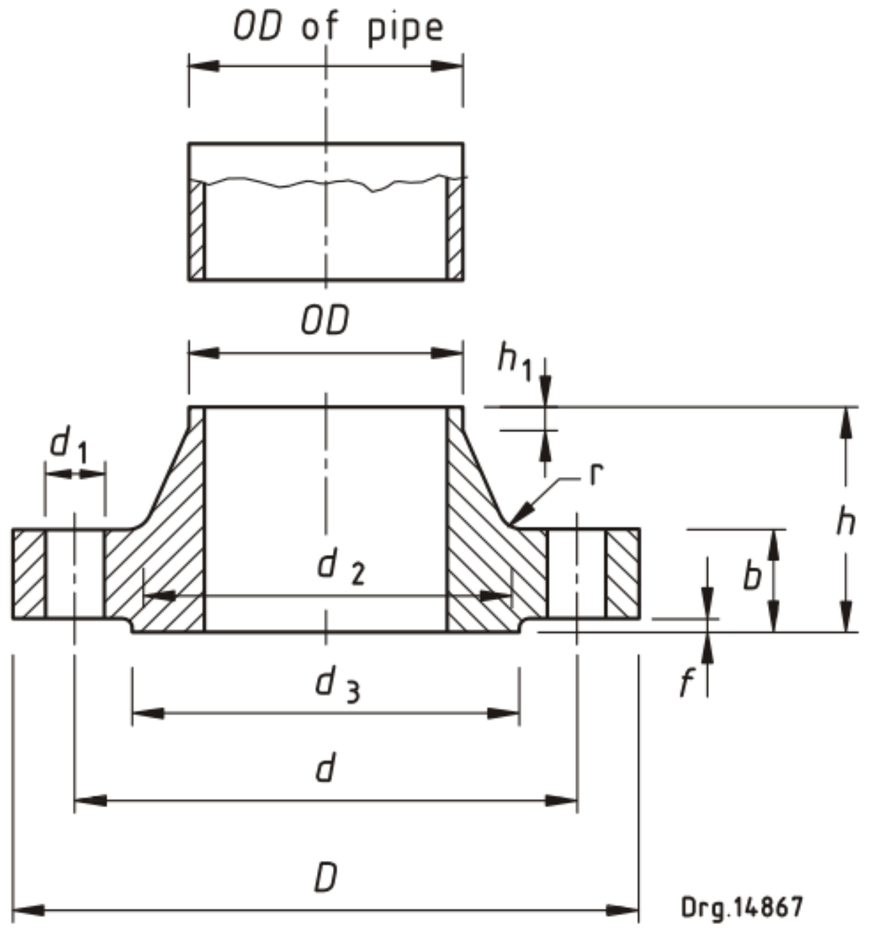


Figure 1(b) — Type 2: Steel welding neck flange

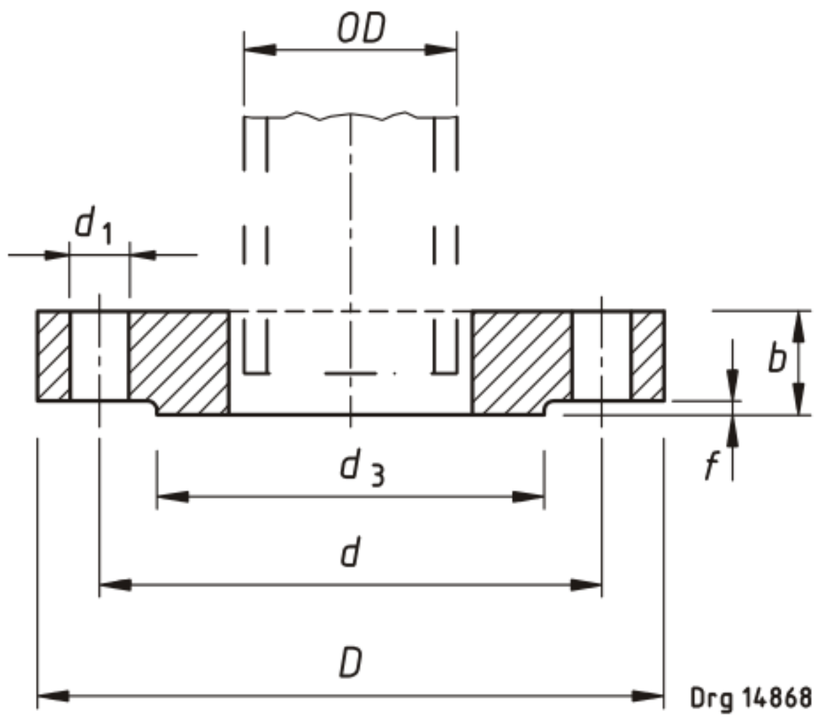


Figure 1(c) —Type 3: Steel plate flange for welding

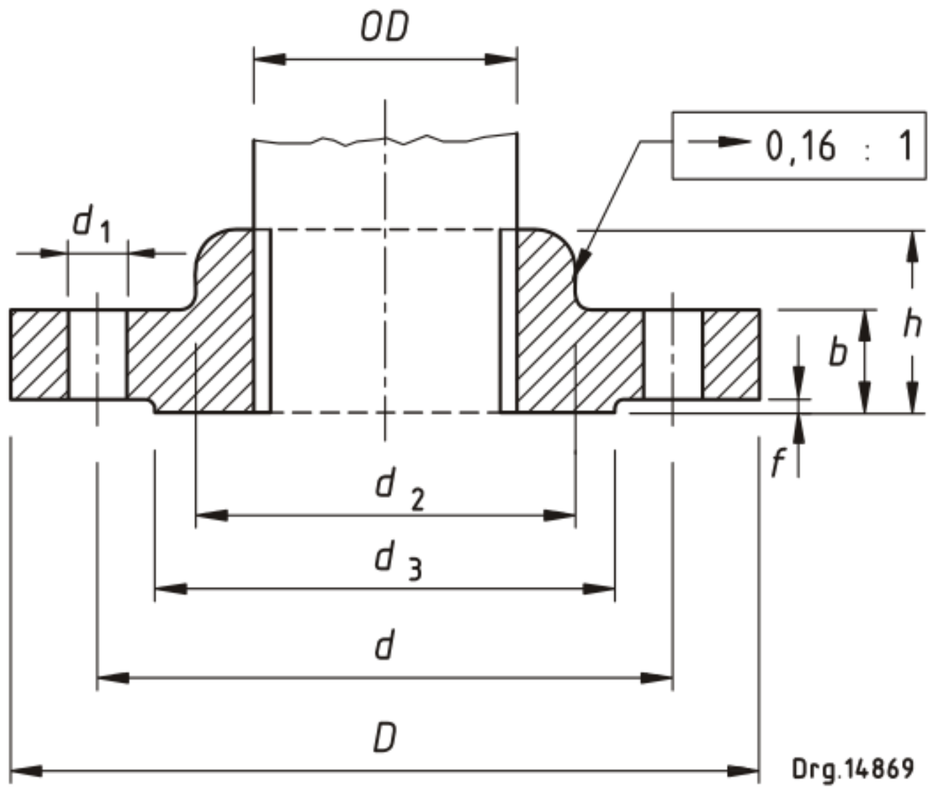


Figure 1(d) — Type 4: Steel screwed boss flange

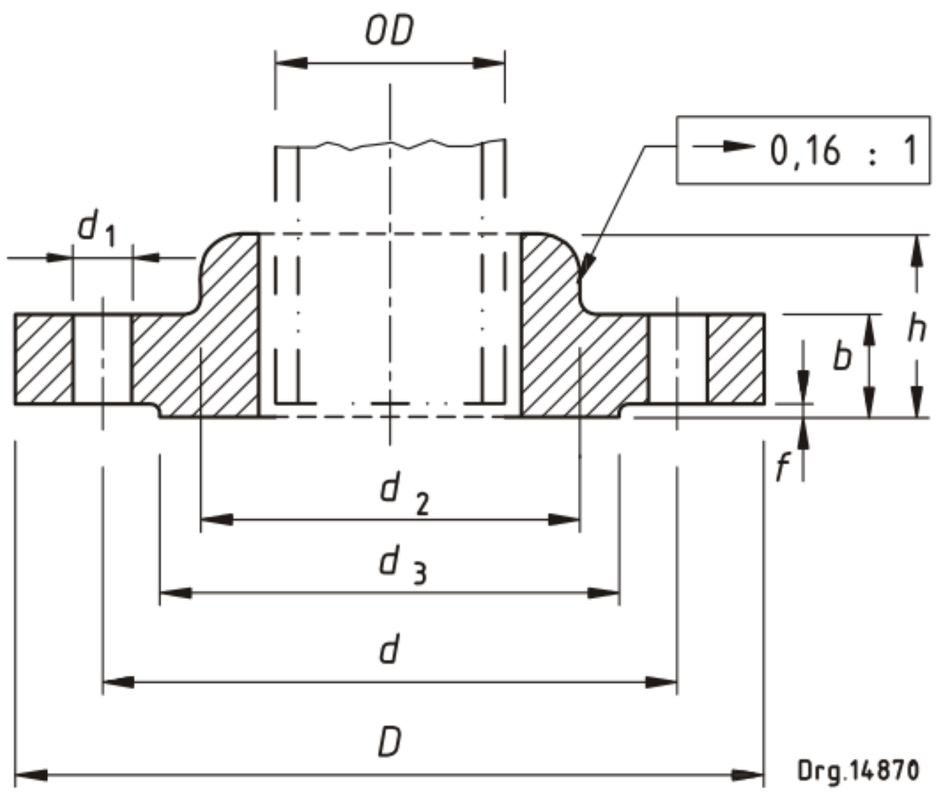


Figure 1(e) — Type 5: Steel slip-on boss flange for welding

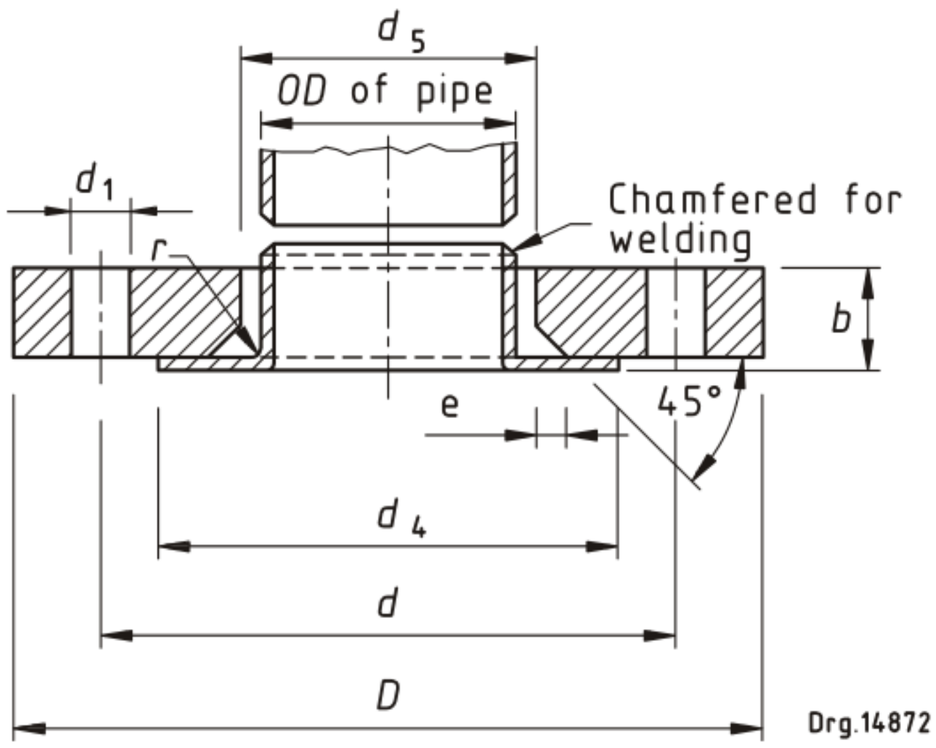


Figure 1(f) — Type 6: Steel loose flange for welded-on lapped pipe ends

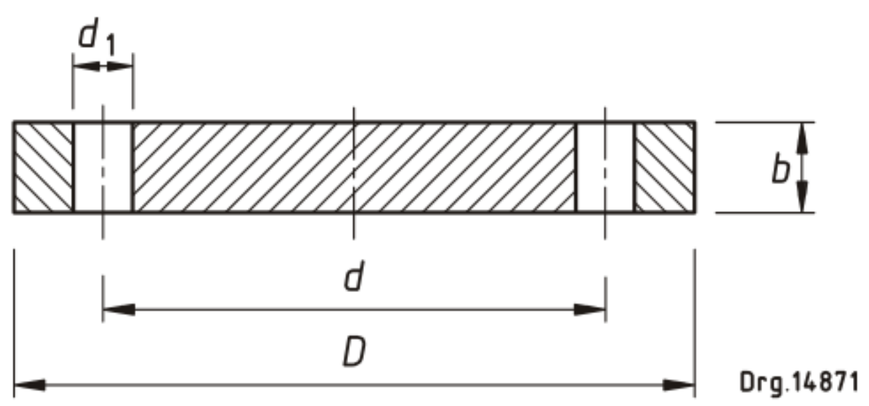
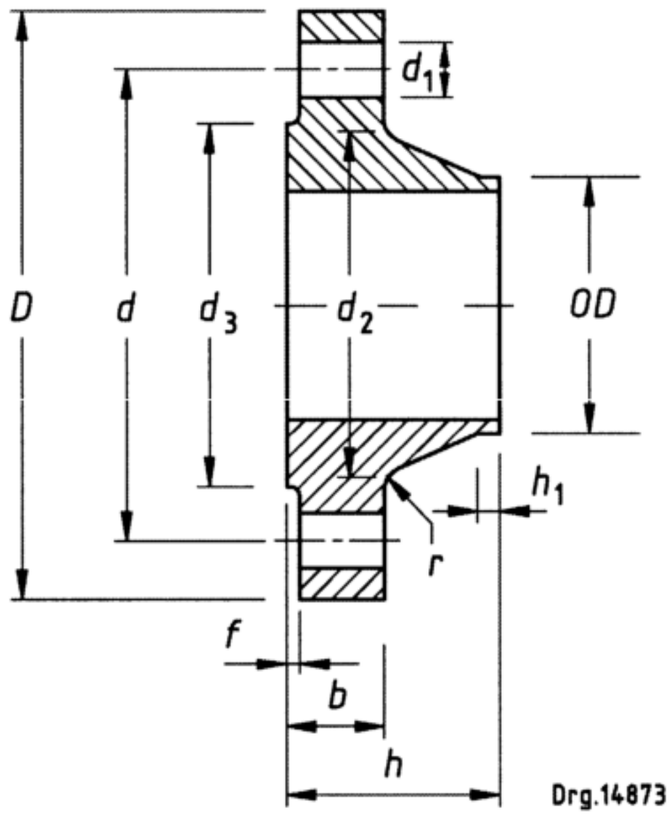


Figure 1(g) — Type 8: Steel plate blank flange

Figure 1 — Flanges



b : Thickness of flange (minimum)
d : Pitch circle diameter of bolt holes
d_1 : Bolt hole diameter
d_2 : Diameter of base of hub
d_3 : Diameter of raised face
d_4 : Diameter of lapped end of pipe
d_5 : Inner diameter of flange
D : Outside diameter of flange
e : Chamfer of inner diameter
f : Height of raised face
h : Length of boss
h_1 : Length of welding neck
n : Number of bolt holes
OD : Pipe outside diameter (as specified)
r : Radius

Figure 2 — Key to tables 250/2 to 6 400/3

Table 250/2 — Steel welding neck flanges

Working pressure (*NP*) : 250 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Neck**		
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2	h_1	***r***
10	17,2	75	8	28	35	2	M10	4	11	50	26	6	4
15	21,3	80	8	30	40	2	M10	4	11	55	30	6	4
20	26,9	90	8	32	50	2	M10	4	11	65	38	6	4
25	33,7	100	8	35	60	2	M10	4	11	75	42	6	4
32	42,4	120	8	35	70	2	M12	4	14	90	55	6	6
40	48,3	130	8	38	80	3	M12	4	14	100	62	7	6
50	60,3	140	8	38	90	3	M12	4	14	110	74	8	6
65	76,1	160	8	38	110	3	M12	4	14	130	88	9	6
80	88,9	190	10	42	128	3	M16	4	18	150	102	10	8
100	114,3	210	10	45	148	3	M16	4	18	170	130	10	8
125[1)]	139,7	240	13	48	178	3	M16	8	18	200	155	10	8
150	168,3	265	13	48	202	3	M16	8	18	225	184	12	10
175[1)]	193,7	295	13	52	230	3	M16	8	18	255	210	12	10
200	219,1	320	13	55	258	3	M16	8	18	280	236	15	10
225[1)]	244,5	345	16	58	285	3	M16	8	18	305	264	15	12
250	273,0	375	16	60	312	3	M16	12	18	335	290	15	12
300	323,9	440	20	62	365	4	M20	12	22	395	342	15	12
350	355,6	490	22	62	415	4	M20	12	22	445	385	15	12
400	406,4	540	22	65	465	4	M20	16	22	495	438	15	12
450	457,0	595	24	65	520	4	M20	16	22	550	492	15	12
500	508,0	645	24	68	570	4	M20	20	22	600	538	15	12
550[1)]	559,0	705	24	68	620	5	M24	20	26	655	590	16	12
600	610,0	755	24	70	670	5	M24	20	26	705	640	16	12
650[1)]	660,0	810	24	70	720	5	M24	20	26	760	690	16	12
700	711,0	860	24	70	775	5	M24	24	26	810	740	16	12
750	762,0	920	24	70	830	5	M24	24	26	865	790	16	12
800	813,0	975	24	70	880	5	M24	24	26	920	842	16	12
900	914,0	1 075	26	70	980	5	M24	24	26	1 020	942	16	12
1 000	1 016,0	1 175	26	70	1 080	5	M24	28	26	1 120	1 045	16	16
1 200	1 220,0	1 375	26	70	1 280	5	M24	32	26	1 320	1 245	16	16
1 400	1 420,0	1 575	26	70	1 480	5	M24	36	26	1 520	1 445	16	16
1 500[1)]	1 520,0	1 680	26	80	1 590	5	M24	36	26	1 625	1 545	20	16
1 600	1 620,0	1 790	26	80	1 690	5	M24	40	26	1 730	1 645	20	16
1 800	1 820,0	1 990	26	80	1 890	5	M24	44	26	1 930	1 845	20	16
2 000	2 020,0	2 190	26	80	2 090	5	M24	48	26	2 130	2 045	22	16

1) Non-preferred size.

Amdt 1

Table 250/3 — Steel plate flanges for welding

Working pressure (*NP*) : 250 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10
Nom. size	**Pipe outside diam.**	**Flange**		**Raised face**		**Bolts**	**Drilling**		
DN	***OD***	***D***	***b***	d_3	***f***		**No.**	d_1	***d***
10	17,2	75	10	35	2	M10	4	11	50
15	21,3	80	10	40	2	M10	4	11	55
20	26,9	90	10	50	2	M10	4	11	65
25	33,7	100	10	60	2	M10	4	11	75
32	42,4	120	10	70	2	M12	4	14	90
40	48,3	130	10	80	3	M12	4	14	100
50	60,3	140	10	90	3	M12	4	14	110
65	76,1	160	10	110	3	M12	4	14	130
80	88,9	190	10	120	3	M16	4	18	150
100	114,3	210	10	148	3	M16	4	18	170
125[1)]	139,7	240	12	178	3	M16	8	18	200
150	168,3	265	12	202	3	M16	8	18	225
175[1)]	193,7	295	14	230	3	M16	8	18	255
200	219,1	320	14	258	3	M16	8	18	280
225[1)]	244,5	345	16	285	3	M16	8	18	305
250	273,0	375	16	312	3	M16	12	18	335
300	323,9	440	20	365	4	M20	12	22	395
350	355,6	490	22	415	4	M20	12	22	445
400	406,4	540	22	465	4	M20	16	22	495
450	457,0	595	25	520	4	M20	16	22	550
500	508,0	645	25	570	4	M20	20	22	600
550[1)]	559,0	705	28	620	5	M24	20	26	655
600	610,0	755	30	670	5	M24	20	26	705
650[1)]	660,0	810	32	720	5	M24	20	26	760
700	711,0	860	35	775	5	M24	24	26	810
750	762,0	920	38	825	5	M24	24	26	865
800	813,0	975	38	880	5	M24	24	26	920
900	914,0	1 075	40	980	5	M24	24	26	1 020
1 000	1 016,0	1 175	45	1 080	5	M24	28	26	1 120
1 200	1 220,0	1 375	35	1 280	5	M24	32	26	1 320
1 400	1 420,0	1 575	40	1 480	5	M24	36	26	1 520
1 500[1)]	1 520,0	1 680	43	1 590	5	M24	36	26	1 625
1 600	1 620,0	1 790	45	1 690	5	M24	40	26	1 730
1 800	1 820,0	1 990	50	1 890	5	M24	44	26	1 930
2 000	2 020,0	2 190	50	2 090	5	M24	48	26	2 130

1) Non-preferred size.

Table 600/1A — Integral steel flanges

Working pressure (*NP*) : 600 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11
Nom. size	**Flange**		**Raised face**		**Bolts**	**Drilling**				
DN	***D***	***b***	d_3	***f***		**No.**	d_1	***d***	d_2	***r***
10	75	12	33	2	M10	4	11	50	20	4
15	80	12	38	2	M10	4	11	55	26	4
20	90	14	48	2	M10	4	11	65	34	4
25	100	14	58	2	M10	4	11	75	44	4
32	120	14	69	2	M12	4	14	90	54	6
40	130	14	78	2	M12	4	14	100	64	6
50	140	14	88	2	M12	4	14	110	74	6
65	160	14	108	2	M12	4	14	130	94	6
80	190	16	124	2	M16	4	18	150	110	8
100	210	16	144	2	M16	4	18	170	130	8
125[1)]	240	20	174	2	M16	8	18	200	160	8
150	265	20	199	2	M16	8	18	225	182	8
175[1)]	295	22	230	2	M16	8	18	255	210	8
200	320	22	254	2	M16	8	18	280	238	8
225[1)]	345	22	282	2	M16	8	18	305	264	10
250	375	24	309	2	M16	12	18	335	284	12
300	440	24	363	2	M20	12	22	395	342	12
350	490	26	413	2	M20	12	22	445	392	12
400	540	28	463	2	M20	16	22	495	442	12
450	595	30	518	2	M20	16	22	550	494	12
500	645	24	568	2	M20	20	22	600	544	12
550[1)]	705	26	620	2	M24	20	26	655	590	12
600	755	30	667	2	M24	20	26	705	642	12
650[1)]	810	26	720	2	M24	20	26	760	690	12
700	860	24	772	5	M24	24	26	810	746	12
750	920	26	830	5	M24	24	26	865	790	12
800	975	24	878	5	M24	24	26	920	850	12
900	1 075	26	978	5	M24	24	26	1 020	950	12
1 000	1 175	26	1 078	5	M24	28	26	1 120	1 050	12
1 200	1 405	28	1 295	5	M30	32	33	1 340	1 264	16
1 400	1 630	32	1 510	5	M30	36	33	1 560	1 480	16
1 500[1)]	1 730	34	1 590	5	M30	36	33	1 660	1 580	16
1 600	1 830	34	1 710	5	M30	40	33	1 760	1 680	16
1 800	2 045	36	1 918	5	M36	44	39	1 970	1 878	16
2 000	2 265	38	2 125	5	M36	48	39	2 180	2 082	16
2 200	2 475	42	2 335	6	M36	52	39	2 390	N/A	18
2 400	2 685	44	2 545	6	M36	56	39	2 600	N/A	18
2 500[1)]	2 800	46	2 650	6	M42	60	45	2 710	N/A	18
2 600	2 905	46	2 750	6	M42	60	45	2 810	N/A	18
2 800	3 115	48	2 960	6	M42	64	45	3 020	N/A	18
3 000	3 315	50	3 160	6	M42	68	45	3 220	N/A	18
3 200	3 525	54	3 370	6	M42	72	45	3 430	N/A	20
3 400	3 735	56	3 580	6	M42	76	45	3 640	N/A	20
3 600	3 970	60	3 790	6	M48	80	52	3 860	N/A	20

1) Non-preferred size.

Amdt 1

Table 600/1B — Integral cast iron flanges

Working pressure (*NP*) : 600 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11
Nom. size	**Flange**		**Raised face**		**Bolts**	**Drilling**				
DN	***D***	***b***	d_3	***f***		**No.**	d_1	***d***	d_2	***r***
10	75	12	33	2	M10	4	11	50	20	3
15	80	12	38	2	M10	4	11	55	26	3
20	90	14	48	2	M10	4	11	65	34	4
25	100	14	58	3	M10	4	11	75	44	4
32	120	16	69	3	M12	4	14	90	54	5
40	130	16	78	3	M12	4	14	100	64	5
50	140	16	88	3	M12	4	14	110	74	5
65	160	16	108	3	M12	4	14	130	94	6
80	190	18	124	3	M16	4	18	150	110	6
100	210	18	144	3	M16	4	18	170	130	6
125[1)]	240	20	174	3	M16	8	18	200	160	6
150	265	20	199	3	M16	8	18	225	182	6
175[1)]	295	20	226	3	M16	8	18	255	210	8
200	320	22	254	3	M16	8	18	280	238	8
225[1)]	345	24	282	3	M16	8	18	305	264	8
250	375	24	309	3	M16	12	18	335	284	10
300	440	24	363	4	M20	12	22	395	342	10
350	490	26	413	4	M20	12	22	445	392	10
400	540	28	463	4	M20	16	22	495	442	10
450	595	28	518	4	M20	16	22	550	494	12
500	645	30	568	4	M20	20	22	600	544	12
550[1)]	705	30	618	5	M24	20	26	655	590	12
600	755	30	667	5	M24	20	26	705	642	12
650[1)]	810	32	694	5	M24	20	26	760	690	12
700	860	32	772	5	M24	24	26	810	746	12
750	920	34	826	5	M24	24	26	865	790	12
800	975	34	878	5	M24	24	26	920	850	12
900	1 075	36	978	5	M24	24	26	1 020	950	12
1 000	1 175	36	1 078	5	M24	28	26	1 120	1 050	12
1 200	1 405	40	1 295	5	M30	32	33	1 340	1 264	12
1 400	1 630	44	1 510	5	M30	36	33	1 560	1 480	12
1 500[1)]	1 730	46	1 610	5	M30	36	33	1 660	1 580	12
1 600	1 830	48	1 710	5	M30	40	33	1 760	1 680	12
1 800	2 045	50	1 918	5	M36	44	39	1 970	1 878	15
2 000	2 265	54	2 125	5	M36	48	39	2 180	2 082	15
2 200	2 475	60	2 335	6	M36	52	39	2 390	N/A	15
2 400	2 685	62	2 545	6	M36	56	39	2 600	N/A	15
2 500[1)]	2 800	64	2 650	6	M42	60	46	2 710	N/A	15
2 600	2 905	64	2 750	6	M42	60	46	2 810	N/A	15
2 800	3 115	68	2 960	6	M42	64	46	3 020	N/A	15
3 000	3 315	70	3 160	6	M42	68	46	3 220	N/A	15
3 200	3 525	76	3 370	6	M42	72	46	3 430	N/A	15
3 400	3 735	80	3 580	6	M42	76	46	3 640	N/A	15
3 600	3 970	84	3 790	6	M48	80	52	3 860	N/A	15

1) Non-referred size.

Amdt 1

Table 600/2 — Steel welding neck flanges

Working pressure (*NP*) : 600 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Neck**		
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2	h_1	***r***
10	17,2	75	8	28	35	2	M10	4	11	50	26	6	4
15	21,3	80	8	30	40	2	M10	4	11	55	30	6	4
20	26,9	90	8	32	50	2	M10	4	11	65	38	6	4
25	33,7	100	8	35	60	2	M10	4	11	75	42	6	4
32	42,4	120	8	35	70	2	M12	4	14	90	55	6	6
40	48,3	130	8	38	80	3	M12	4	14	100	62	7	6
50	60,3	140	8	38	90	3	M12	4	14	110	74	8	6
65	76,1	160	8	38	110	3	M12	4	14	130	88	9	6
80	88,9	190	10	42	128	3	M16	4	18	150	102	10	8
100	114,3	210	10	45	148	3	M16	4	18	170	130	10	8
125[1)]	139,7	240	13	48	178	3	M16	8	18	200	155	10	8
150	168,3	265	13	48	202	3	M16	8	18	225	184	12	10
175[1)]	193,7	295	13	52	230	3	M16	8	18	255	210	12	10
200	219,1	320	13	55	258	3	M16	8	18	280	236	15	10
225[1)]	244,5	345	16	58	285	3	M16	8	18	305	264	15	12
250	273,0	375	16	60	312	3	M16	12	18	335	290	15	12
300	323,9	440	20	62	365	4	M20	12	22	395	342	15	12
350	355,6	490	22	62	415	4	M20	12	22	445	385	15	12
400	406,4	540	22	65	465	4	M20	16	22	495	438	15	12
450	457,0	595	24	65	520	4	M20	16	22	550	492	15	12
500	508,0	645	24	68	570	4	M20	20	22	600	538	15	12
550[1)]	559,0	705	24	68	620	5	M24	20	26	655	590	16	12
600	610,0	755	24	70	670	5	M24	20	26	705	640	16	12
650[1)]	660,0	810	24	70	720	5	M24	20	26	760	690	16	12
700	711,0	860	24	70	775	5	M24	24	26	810	740	16	12
750	762,0	920	24	70	830	5	M24	24	26	865	790	16	12
800	813,0	975	24	70	880	5	M24	24	26	920	842	16	12
900	914,0	1 075	26	70	980	5	M24	24	26	1 020	942	16	12
1 000	1 016,0	1 175	26	70	1 080	5	M24	28	26	1 120	1 045	16	16
1 200	1 220,0	1 405	28	90	1 295	5	M30	32	33	1 340	1 248	20	16
1 400	1 420,0	1 630	32	90	1 510	5	M30	36	33	1 560	1 452	20	16
1 500[1)]	1 520,0	1 730	34	90	1 590	5	M30	36	33	1 660	1 580	20	16
1 600	1 620,0	1 830	34	90	1 710	5	M30	40	33	1 760	1 655	20	16
1 800	1 820,0	2 045	36	100	1 920	5	M36	44	39	1 970	1 855	20	16
2 000	2 020,0	2 265	38	110	2 125	5	M36	48	39	2 180	2 058	25	16

1) Non-preferred size.

Table 600/3 — Steel plate flanges for welding

Working pressure (*NP*) : 600 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10
Nom. size	**Pipe outside diam.**	**Flange**		**Raised face**		**Bolts**	**Drilling**		
DN	***OD***	***D***	***b***	d_3	***f***		**No.**	d_1	***d***
10	17,2	75	10	35	2	M10	4	11	50
15	21,3	80	10	40	2	M10	4	11	55
20	26,9	90	10	50	2	M10	4	11	65
25	33,7	100	10	60	2	M10	4	11	75
32	42,4	120	10	70	2	M12	4	14	90
40	48,3	130	10	80	3	M12	4	14	100
50	60,3	140	10	90	3	M12	4	14	110
65	76,1	160	10	110	3	M12	4	14	130
80	88,9	190	10	128	3	M16	4	18	150
100	114,3	210	10	148	3	M16	4	18	170
125[1)]	139,7	240	12	178	3	M16	8	18	200
150	168,3	265	12	202	3	M16	8	18	225
175[1)]	193,7	295	14	230	3	M16	8	18	255
200	219,1	320	14	258	3	M16	8	18	280
225[1)]	244,5	345	16	285	3	M16	8	18	305
250	273,0	375	16	312	3	M16	12	18	335
300	323,9	440	20	365	4	M20	12	22	395
350	355,6	490	22	415	4	M20	12	22	445
400	406,4	540	22	465	4	M20	16	22	495
450	457,0	595	25	520	4	M20	16	22	550
500	508,0	645	25	570	4	M20	20	22	600
550[1)]	559,0	705	28	620	5	M24	20	26	655
600	610,0	755	30	670	5	M24	20	26	705
650[1)]	660,0	810	32	720	5	M24	20	26	760
700	711,0	860	35	775	5	M24	24	26	810
750	762,0	920	38	825	5	M24	24	26	865
800	813,0	975	38	880	5	M24	24	26	920
900	914,0	1 075	40	980	5	M24	24	26	1 020
1 000	1 016,0	1 175	45	1 080	5	M24	28	26	1 120
1 200	1 220,0	1 405	55	1 295	5	M30	32	33	1 340
1 400	1 420,0	1 630	65	1 510	5	M30	36	33	1 560
1 500[1)]	1 520,0	1 730	70	1 590	5	M30	36	33	1 660
1 600	1 620,0	1 830	70	1 710	5	M30	40	33	1 760
1 800	1 820,0	2 045	80	1 918	5	M36	44	39	1 970
2 000	2 020,0	2 265	90	2 125	5	M36	48	39	2 180

1) Non-preferred size.

Table 600/4 — Steel screwed boss flanges

Working pressure (*NP*): 600 kPa

Threaded in accordance with SANS 1109-1

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Boss**
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2
6	10,2	65	8	16	25	2	M10	4	11	40	18
8	13,5	70	8	16	30	2	M10	4	11	45	22
10	17,2	75	8	16	35	2	M10	4	11	50	25
15	21,3	80	8	16	40	2	M10	4	11	55	30
20	26,9	90	8	18	50	2	M10	4	11	65	40
25	33,7	100	8	18	60	2	M10	4	11	75	50
32	42,4	120	8	20	70	2	M12	4	14	90	60
40	48,3	130	8	20	80	3	M12	4	14	100	70
50	60,3	140	8	22	90	3	M12	4	14	110	80
65	76,1	160	8	26	110	3	M12	4	14	130	100
80	88,9	190	10	28	128	3	M16	4	18	150	110
100	114,3	210	10	34	148	3	M16	4	18	170	130
125[1)]	139,7	240	13	39	178	3	M16	8	18	200	160
150	165,1	265	13	39	202	3	M16	8	18	225	185

1) Non-preferred size.

Table 600/5 — Steel slip-on boss flanges for welding

Working pressure (*NP*) : 600 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Boss**
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2
6	10,2	65	8	16	25	2	M10	4	11	40	18
8	13,5	70	8	16	30	2	M10	4	11	45	22
10	17,2	75	8	16	35	2	M10	4	11	50	25
15	21,3	80	8	16	40	2	M10	4	11	55	30
20	26,9	90	8	18	50	2	M10	4	11	65	40
25	33,7	100	8	18	60	2	M10	4	11	75	50
32	42,4	120	8	20	70	2	M12	4	14	90	60
40	48,3	130	8	20	80	3	M12	4	14	100	70
50	60,3	140	8	22	90	3	M12	4	14	110	80
65	76,1	160	8	26	110	3	M12	4	14	130	100
80	88,9	190	10	28	128	3	M16	4	18	150	110
100	114,3	210	10	32	148	3	M16	4	18	170	130
125[1)]	139,7	240	13	39	178	3	M16	8	18	200	160
150	168,3	265	13	39	202	3	M16	8	18	225	185
175[1)]	193,7	295	13	37	230	3	M16	8	18	255	210
200	219,1	320	13	37	258	3	M16	8	18	280	240
225[1)]	244,5	345	16	38	285	3	M16	8	18	305	265
250	273,0	375	16	38	312	3	M16	12	18	335	295
300	323,9	440	20	42	365	4	M20	12	22	395	355
350	355,6	490	22	42	415	4	M20	12	22	445	410
400	406,5	540	22	42	465	4	M20	16	22	495	470
450	457,0	595	25	42	520	4	M20	16	22	550	520
500	508,0	645	28	42	570	4	M20	20	22	600	580

1) Non-preferred size.

Table 600/8 — Steel plate blank flanges

Working pressure (*NP*) : 600 kPa

Dimensions in millimetres

1	2	3	4	5	6	7
Nom. size	**Flange**		**Bolts**	**Drilling**		
DN	***D***	***b***		**No.**	**d_1**	***d***
10	75	10	M10	4	11	50
15	80	10	M10	4	11	55
20	90	10	M10	4	11	65
25	100	10	M10	4	11	75
32	120	10	M12	4	14	90
40	130	10	M12	4	14	100
50	140	10	M12	4	14	110
65	160	10	M12	4	14	130
80	190	10	M16	4	18	150
100	210	10	M16	4	18	170
125[1)]	240	12	M16	8	18	200
150	265	12	M16	8	18	225
175[1)]	295	14	M16	8	18	255
200	320	14	M16	8	18	280
225[1)]	345	16	M16	8	18	305
250	375	16	M16	12	18	335
300	440	20	M20	12	22	395
350	490	22	M20	12	22	445
400	540	22	M20	16	22	495
450	595	25	M20	16	22	550
500	645	25	M20	20	22	600
550[1)]	705	28	M24	20	26	655
600	755	30	M24	20	26	705

1) Non-preferred size.

Table 1 000/1A — Integral steel flanges

Working pressure (*NP*) : 1 000 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11
Nom. size	**Flange**		**Raised face**		**Bolts**	**Drilling**			**Neck**	
DN	***D***	***b***	d_3	***f***		**No.**	d_1	***d***	d_2	***r***
25	115	16	65	2	M12	4	14	85	50	4
50	165	18	99	2	M16	4	18	125	84	5
65	185	18	118	2	M16	4	18	145	104	6
80	200	20	132	2	M16	8	18	160	118	6
100	220	20	156	2	M16	8	18	180	140	8
125[1)]	250	22	184	2	M16	8	18	210	168	8
150	285	22	211	2	M20	8	22	240	195	10
175[1)]	308	24	240	2	M20	8	22	258	210	10
200	340	24	266	2	M20	8	22	295	246	10
225[1)]	368	26	293	2	M20	8	22	325	264	12
250	395	26	319	2	M20	12	22	350	298	12
300	445	26	370	2	M20	12	22	400	348	12
400	565	26	480	2	M24	16	26	515	456	12
450	615	28	530	2	M24	20	26	565	502	12
500	670	28	582	2	M24	20	26	620	559	12
550[1)]	730	30	632	2	M24	20	26	675	607	12
600	780	34	682	2	M24	20	26	725	658	12
650[1)]	840	34	740	5	M24	24	26	780	712	12
700	895	34	794	5	M24	24	26	840	772	12
750	965	35	850	5	M30	24	33	900	813	12
800	1 015	36	901	5	M30	24	33	950	876	12
900	1 115	38	1 001	5	M30	28	33	1 050	976	12
1 000	1 230	38	1 112	5	M30	28	33	1 160	1 080	16
1 200	1 455	44	1 328	5	M36	32	39	1 380	1 292	16
1 400	1 675	48	1 530	5	M36	36	39	1 590	1 496	16
1 500[1)]	1 785	48	1 640	5	M36	36	39	1 700	1 560	16
1 600	1 915	52	1 750	5	M42	40	45	1 820	1 712	16
1 800	2 115	56	1 950	5	M42	44	45	2 020	1 910	16
2 000	2 325	60	2 150	5	M42	48	45	2 230	2 120	16
2 200	2 550	N/A	2 370	6	M48	52	52	2 440	N/A	18
2 400	2 760	N/A	2 570	6	M48	56	52	2 650	N/A	18
2 500[1)]	2 860	N/A	2 675	6	M48	60	52	2 750	N/A	18
2 600	2 960	N/A	2 780	6	M48	60	52	2 850	N/A	18
2 800	3 180	N/A	3 000	6	M48	64	52	3 070	N/A	18
3 000	3 405	N/A	3 210	6	M56	68	60	3 290	N/A	18

1) Non-preferred size.

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Table 1 000/4 — Steel screwed boss flanges

Working pressure (*NP*) : 1 000 kPa

Threaded in accordance with SANS 1109-1

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Boss**
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2
6	10,2	75	8	14	32	2	M10	4	11	50	20
8	13,5	80	8	14	38	2	M10	4	11	55	25
10	17,2	90	8	14	40	2	M12	4	14	60	30
15	21,3	95	8	14	45	2	M12	4	14	65	35
20	26,9	105	8	16	58	2	M12	4	14	75	45
25	33,7	115	8	16	68	2	M12	4	14	85	52
32	42,4	140	10	20	78	2	M16	4	18	100	60
40	48,3	150	10	20	88	3	M16	4	18	110	70
50	60,3	165	10	20	102	3	M16	4	18	125	85
65	76,1	185	12	26	122	3	M16	4	18	145	105
80	88,9	200	12	26	138	3	M16	8	18	160	118
100	114,3	220	12	32	158	3	M16	8	18	180	140
125[1)]	139,7	250	14	36	188	3	M16	8	18	210	168
150	165,1	285	16	38	212	3	M20	8	22	240	195

1) Non-preferred size.

Table 1 000/5 — Steel slip-on boss flanges for welding

Working pressure (*NP*) : 1 000 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Boss**
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2
6	10,2	75	8	14	32	2	M10	4	11	50	20
8	13,5	80	8	14	38	2	M10	4	11	55	25
10	17,2	90	8	14	40	2	M12	4	14	60	30
15	21,3	95	8	14	45	2	M12	4	14	65	35
20	26,9	105	8	16	58	2	M12	4	14	75	45
25	33,7	115	8	16	68	2	M12	4	14	85	52
32	42,4	140	10	20	79	2	M16	4	18	100	60
40	48,3	150	10	20	88	3	M16	4	18	110	70
50	60,3	165	10	20	102	3	M16	4	18	125	85
65	76,1	185	12	26	122	3	M16	4	18	145	105
80	88,9	200	12	26	138	3	M16	8	18	160	118
100	114,3	220	12	32	158	3	M16	8	18	180	140
125[1)]	139,7	250	14	36	188	3	M16	8	18	210	168
150	168,3	285	16	38	212	3	M20	8	22	240	195
175[1)]	193,7	315	16	38	240	3	M20	8	22	270	220
200	219,1	340	18	38	268	3	M20	8	22	295	247
225[1)]	244,5	370	18	38	290	3	M20	8	22	325	270
250	273,0	395	20	40	320	3	M20	12	22	350	292
300	323,9	445	22	42	370	4	M20	12	22	400	344
350	355,6	505	25	46	420	4	M20	16	22	460	390
400	406,4	565	27	46	470	4	M24	16	26	515	440
450	457,0	615	30	46	520	4	M24	20	26	565	490
500	508,0	670	34	46	570	4	M24	20	26	620	540

1) Non-preferred size.

Table 1 000/8 — Steel plate blank flanges

Working pressure (*NP*) : 1 000 kPa

Dimensions in millimetres

1	2	3	4	5	6	7
Nom. size	**Flange**		**Bolts**	**Drilling**		
DN	***D***	***b***		**No.**	d_1	***d***
10	90	10	M12	4	14	60
15	95	10	M12	4	14	65
20	105	10	M12	4	14	75
25	115	10	M12	4	14	85
32	140	10	M16	4	18	100
40	150	10	M16	4	18	110
50	165	12	M16	4	18	125
65	185	12	M16	4	18	145
80	200	14	M16	8	18	160
100	220	14	M16	8	18	180
125[1)]	250	16	M16	8	18	210
150	285	18	M20	8	22	240
175[1)]	315	20	M20	8	22	270
200	340	18	M20	8	22	295
225[1)]	370	18	M20	8	22	325
250	395	20	M20	12	22	350
300	445	22	M20	12	22	400
350	505	25	M20	16	22	460
400	565	25	M24	16	26	515
450	615	30	M24	20	26	565
500	670	32	M24	20	26	620
550[1)]	730	35	M24	20	26	675
600	780	38	M24	20	26	725

1) Non-preferred size.

Table 1 600/1A — Integral steel flanges

Working pressure (*NP*) : 1 600 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11
Nom. size	**Flange**		**Raised face**		**Bolts**	**Drilling**			**Neck**	
DN	***D***	***b***	d_3	***f***		**No.**	d_1	***d***	d_2	***r***
10	90	14	41	2	M12	4	14	60	28	3
15	95	14	46	2	M12	4	14	65	32	3
20	105	16	56	2	M12	4	14	75	40	4
25	115	16	65	2	M12	4	14	85	50	4
32	140	18	76	2	M16	4	18	100	60	5
40	150	18	84	2	M16	4	18	110	70	5
50	165	20	99	2	M16	4	18	125	84	5
65	185	20	118	2	M16	8	18	145	104	6
80	200	20	132	2	M16	8	18	160	120	6
100	220	22	156	2	M16	8	18	180	140	6
125[1)]	250	22	184	2	M16	8	18	210	170	6
150	285	24	211	2	M20	8	22	240	190	8
175[1)]	315	24	240	2	M20	8	22	270	217	8
200	340	24	266	2	M20	12	22	295	246	8
225[1)]	370	26	293	2	M24	12	26	325	273	8
250	405	26	319	2	M24	12	26	355	296	10
300	460	28	370	2	M24	12	26	410	350	10
350	520	30	429	2	M24	16	26	470	410	10
400	580	32	480	2	M24	16	26	525	458	10
450	640	40	548	2	M24	20	26	585	516	12
500	715	44	609	2	M30	20	33	650	576	12
550[1)]	775	44	632	2	M30	20	33	710	636	12
600	840	44	720	2	M30	20	33	770	690	12
650[1)]	860	42	740	5	M30	24	33	790	723	12
700	910	40	794	5	M30	24	33	840	760	12
750	970	42	850	5	M36	24	39	900	815	12
800	1 025	42	901	5	M36	24	39	950	862	12
900	1 125	44	1 001	5	M36	28	39	1 050	962	12
1 000	1 255	46	1 112	5	M36	28	39	1 170	1 076	12
1 200	1 485	52	1 328	5	M42	32	45	1 390	1 282	12
1 400	1 685	58	1 530	5	M42	36	45	1 590	1 482	12
1 500[1)]	1 820	58	1 640	5	M42	36	45	1 710	1 390	12
1 600	1 930	64	1 750	5	M48	40	52	1 820	1 696	12
1 800	2 130	68	1 950	5	M48	44	52	2 020	1 896	15
2 000	2 345	70	2 150	5	M56	48	60	2 230	2 100	15

1) Non-preferred size.

Amdt 1

Table 1 600/1B — Integral iron flanges (Cast iron — CI; Ductile iron — DI)

Working pressure (*NP*) : 1 600 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12
Nom. size	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Neck**	
		b									
DN	***D***	**CI**	**DI**	d_3	***f***		**No.**	d_1	***d***	d_2	***r***
10	90	14	N/A	41	2	M12	4	14	60	28	3
15	95	14	N/A	46	2	M12	4	14	65	32	3
20	105	16	N/A	56	2	M12	4	14	75	40	4
25	115	16	N/A	65	3	M12	4	14	85	50	4
32	140	18	N/A	76	3	M16	4	18	100	60	5
40	150	18	19	84	3	M16	4	18	110	70	5
50	165	20	19	99	3	M16	4	18	125	84	5
65	185	20	19	118	3	M16	4	18	145	104	6
80	200	22	19	132	3	M16	8	18	160	120	6
100	220	24	19	156	3	M16	8	18	180	140	6
125[1)]	250	26	19	184	3	M16	8	18	210	170	6
150	285	26	19	211	3	M20	8	22	240	190	8
175[1)]	315	30	20	240	3	M20	8	22	270	217	8
200	340	30	20	266	3	M20	12	22	295	246	8
225[1)]	370	32	22	293	3	M20	12	22	325	273	8
250	405	32	22	319	3	M24	12	26	355	296	10
300	460	32	24,5	370	4	M24	12	26	410	350	10
350	520	36	26,5	429	4	M24	16	26	470	410	10
400	580	38	28	480	4	M24	16	26	525	458	10
450	640	40	30	530	4	M24	20	26	585	516	12
500	715	42	31,5	582	4	M30	20	33	650	576	12
550[1)]	775	48	36	670	5	M30	20	33	710	636	12
600	840	48	36	682	5	M30	20	33	770	690	12
650[1)]	860	54	40	760	5	M30	24	33	790	723	12
700	910	54	39,5	794	5	M30	24	33	840	760	12
750	970	58	43	850	5	M36	24	39	900	815	12
800	1 025	58	43	901	5	M36	24	39	950	862	12
900	1 125	62	46,5	1 001	5	M36	28	39	1 050	962	12
1 000	1 255	66	50	1 112	5	M36	28	39	1 170	1 076	12
1 200	1 485	N/A	57	1 328	5	M42	32	45	1 390	1 282	15
1 400	1 685	N/A	60	1 530	5	M42	36	45	1 590	1 482	15
1 500[1)]	1 820	N/A	63	1 650	5	M42	40	45	1 710	1 390	12
1 600	1 930	N/A	65	1 750	5	M48	40	52	1 820	1 696	12
1 800	2 130	N/A	70	1 950	5	M48	44	52	2 020	1 896	15
2 000	2 345	N/A	75	2 150	5	M56	48	62	2 230	2 100	15

1) Non-preferred size.

Table 1 600/2 — Steel welding neck flanges

Working pressure (*NP*) : 1 600 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Neck**		
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2	h_1	***r***
10	17,2	90	8	35	40	2	M12	4	14	60	28	6	4
15	21,3	95	8	35	45	2	M12	4	14	65	32	6	4
20	26,9	105	8	38	58	2	M12	4	14	75	40	6	4
25	33,7	115	8	38	68	2	M12	4	14	85	46	6	4
32	42,4	140	10	40	78	2	M16	4	18	100	56	6	6
40	48,3	150	10	42	88	3	M16	4	18	110	64	7	6
50	60,3	165	12	45	102	3	M16	4	18	125	75	8	6
65	76,1	185	12	45	122	3	M16	4	18	145	90	10	6
80	88,9	200	14	50	138	3	M16	8	18	160	105	10	8
100	114,3	220	14	52	158	3	M16	8	18	180	131	12	8
125[1)]	139,7	250	16	55	188	3	M16	8	18	210	156	12	8
150	168,3	285	18	55	212	3	M20	8	22	240	184	12	10
175[1)]	193,7	315	20	60	242	3	M20	8	22	270	210	12	10
200	219,1	340	22	62	268	3	M20	12	22	295	235	16	10
225[1)]	244,5	370	24	66	294	3	M20	12	22	325	265	16	10
250	273,0	405	24	70	320	3	M24	12	26	355	292	16	12
300	323,9	460	28	78	378	4	M24	12	26	410	344	16	12
350	355,6	520	30	82	438	4	M24	16	26	470	390	16	12
400	406,4	580	32	85	490	4	M24	16	26	525	445	16	12
450	457,0	640	34	87	550	4	M24	20	26	585	496	16	12
500	508,0	715	34	90	610	4	M30	20	33	650	548	16	12
550[1)]	559,0	775	36	95	670	5	M30	20	33	710	600	18	12
600	610,0	840	36	95	725	5	M30	20	33	770	652	18	12
650[1)]	660,0	860	36	100	760	5	M30	24	33	790	700	18	12
700	711,0	910	36	100	795	5	M30	24	33	840	755	18	12
750	762,0	970	38	105	850	5	M30	24	33	900	800	20	12
800	813,0	1 025	38	105	900	5	M36	24	39	950	855	20	12
900	914,0	1 125	40	110	1 000	5	M36	28	39	1 050	955	20	12
1 000	1 016,0	1 255	42	120	1 115	5	M36	28	39	1 170	1 058	22	16
1 200	1 220,0	1 485	48	130	1 330	5	M42	32	45	1 390	1 262	30	16
1 400	1 420,0	1 685	52	145	1 530	5	M42	36	45	1 590	1 465	30	16
1 500[1)]	1 520,0	1 820	56	153	1 640	5	M56	40	62	1 710	1 575	32	16
1 600	1 620,0	1 930	58	160	1 750	5	M48	40	51	1 820	1 668	35	16
1 800	1 820,0	2 130	62	170	1 950	5	M48	44	51	2 020	1 870	35	16
2 000	2 020,0	2 345	66	180	2 150	5	M56	48	59	2 230	2 072	40	16

1) Non-preferred size.

Amdt 1

Table 1 600/3 — Steel plate flanges for welding

Working pressure (*NP*) : 1 600 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10
Nom. size	**Pipe outside diam.**	**Flange**		**Raised face**		**Bolts**	**Drilling**		
DN	***OD***	***D***	***b***	d_3	***f***		**No.**	d_1	***d***
10	17,2	90	10	40	2	M12	4	14	60
15	21,3	95	10	45	2	M12	4	14	65
20	26,9	105	10	58	2	M12	4	14	75
25	33,7	115	10	68	2	M12	4	14	85
32	42,4	140	10	78	2	M16	4	18	100
40	48,3	150	10	88	3	M16	4	18	110
50	60,3	165	12	102	3	M16	4	18	125
65	76,1	185	12	122	3	M16	4	18	145
80	88,9	200	14	138	3	M16	8	18	160
100	114,3	220	14	158	3	M16	8	18	180
125[1)]	139,7	250	16	188	3	M16	8	18	210
150	165,1	285	18	212	3	M20	8	22	240
175[1)]	193,7	315	20	242	3	M20	8	22	270
200	219,1	340	22	268	3	M20	12	22	295
225[1)]	244,5	370	22	294	3	M20	12	22	325
250	273,0	405	25	320	3	M24	12	26	355
300	323,9	460	28	378	4	M24	12	26	410
350	355,6	520	30	438	4	M24	16	26	470
400	406,4	580	35	490	4	M24	16	26	525
450	457,0	640	40	550	4	M24	20	26	585
500	508,0	715	40	610	4	M30	20	33	650
550[1)]	558,8	775	48	632	5	M30	20	33	710
600	610,0	840	50	725	5	M30	20	33	770
650[1)]	660,4	860	56	740	5	M30	24	39	790
700	711,0	910	55	795	5	M30	24	33	840
750	762,0	970	60	850	5	M30	24	33	900
800	813,0	1 025	65	900	5	M36	24	39	950
900	914,0	1 125	70	1 000	5	M36	28	39	1 050
1 000	1 016,0	1 255	75	1 115	5	M36	28	39	1 170
1 200	1 220,0	1 485	85	1 330	5	M42	32	45	1 390

1) Non-preferred size.

Amdt 3

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Table 1 600/4 — Steel screwed boss flanges

Working pressure (*NP*) : 1 600 kPa

Threaded in accordance with SANS 1109-1

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Boss**
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2
6	10,2	75	8	14	32	2	M10	4	11	50	20
8	13,5	80	8	14	38	2	M10	4	11	55	25
10	17,2	90	8	14	40	2	M12	4	14	60	30
15	21,3	95	8	14	45	2	M12	4	14	65	35
20	26,9	105	8	16	58	2	M12	4	14	75	45
25	33,7	115	8	16	68	2	M12	4	14	85	52
32	42,4	140	10	20	78	2	M16	4	18	100	60
40	48,3	150	10	20	88	3	M16	4	18	110	70
50	60,3	165	12	22	102	3	M16	4	18	125	85
65	76,1	185	12	26	122	3	M16	4	18	145	105
80	88,9	200	14	28	138	3	M16	8	18	160	118
100	114,3	220	14	34	158	3	M16	8	18	180	140
125[1)]	139,7	250	16	38	188	3	M16	8	18	210	168
150	165,1	285	18	40	212	3	M20	8	22	240	195

1) Non-preferred size.

Table 2 500/1B — Integral iron flanges
(Cast iron — CI; Ductile iron — DI)

Working pressure (*NP*) : 2 500 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12
Nom. size	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Neck**	
	D	***b***		d_3	***f***		**No.**	d_1	***d***	d_2	***r***
DN		**CI**	**DI**								
25	115	18	N/A	65	3	M12	4	14	85	50	4
50	165	22	19	99	3	M16	4	19	125	84	5
80	200	26	19	132	3	M16	8	19	160	120	6
100	235	28	19	156	3	M20	8	22	190	142	6
125[1)]	270	30	19	184	3	M24	8	26	220	162	8
150	300	34	20	211	3	M24	8	26	250	192	8
175[1)]	330	34	22	248	3	M24	12	26	280	217	8
200	360	34	22	274	3	M24	12	26	310	252	8
225[1)]	395	36	22	306	3	M24	12	26	340	274	10
250	425	36	24,5	330	3	M24	12	26	370	304	10
300	485	40	27,5	389	4	M24	16	26	430	364	10
350	555	44	30	448	4	M30	16	33	490	418	10
400	620	48	32	503	4	M30	16	33	550	472	10
450	670	50	34,5	548	4	M30	20	33	565	520	12
500	730	52	36,5	609	4	M30	20	33	660	580	12
550[1)]	785	54	42	670	5	M36	20	39	710	620	12
600	845	56	42	720	5	M36	20	39	770	684	12
650[1)]	895	58	46,5	770	5	M36	24	39	820	725	12
700	960	N/A	46,5	820	5	M36	24	39	875	780	12
750	1 020	N/A	51	880	5	M42	24	45	935	836	12
800	1 085	N/A	51	928	5	M42	24	45	990	882	12
900	1 185	N/A	55,5	1 028	5	M42	28	45	1 090	982	12
1 000	1 320	N/A	60	1 140	5	M48	28	52	1 210	1 086	12
1 200	1 530	N/A	69	1 350	5	M48	32	52	1 420	1 296	12
1 400	1 755	N/A	74	1 560	5	M56	36	62	1 640	1 508	12
1 500[1)]	1 865	N/A	78	1 670	5	M56	36	62	1 750	1 560	12
1 600	1 975	N/A	81	1 780	5	M56	40	62	1 860	1 726	12
1 800	2 195	N/A	88	1 985	5	M64	44	70	2 070	1 920	15
2 000	2 425	N/A	95	2 210	5	M64	48	70	2 300	2 150	15

1) Non-preferred size.

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Table 2 500/2 — Steel welding neck flanges

Working pressure (*NP*) : 2 500 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Neck**		
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2	h_1	***r***
10	17,2	90	12	35	40	2	M12	4	14	60	28	6	4
15	21,3	95	14	38	45	2	M12	4	14	60	28	6	4
20	26,9	105	14	40	58	2	M12	4	14	75	40	6	4
25	33,7	115	16	40	68	2	M12	4	14	85	46	6	4
32	42,4	140	18	42	78	2	M16	4	18	100	56	6	6
40	48,3	150	18	45	88	3	M16	4	18	110	64	7	6
50	60,3	165	20	48	102	3	M16	4	18	125	75	8	6
65	76,1	185	22	52	122	3	M16	8	18	145	90	10	6
80	88,9	200	24	58	138	3	M16	8	18	160	105	12	8
100	114,3	235	24	65	162	3	M20	8	22	190	134	12	8
125[1)]	139,7	270	26	68	188	3	M24	8	26	200	162	12	8
150	168,3	300	28	75	218	3	M24	8	26	250	192	12	10
175[1)]	193,7	330	25	75	248	3	M24	12	26	280	218	15	10
200	219,1	360	27	80	278	3	M24	12	26	310	244	16	10
225[1)]	244,5	395	30	84	306	3	M24	12	26	340	270	16	10
250	273,0	425	30	88	335	3	M24	12	26	370	298	18	12
300	323,9	485	34	92	395	4	M24	16	26	430	352	18	12
350	355,6	555	38	100	450	4	M30	16	33	490	398	20	12
400	406,4	620	40	110	505	4	M30	16	33	550	452	20	12
450	457,0	670	42	110	555	4	M30	20	33	600	505	20	12
500	508,0	730	44	125	615	4	M30	20	33	660	558	20	12
550[1)]	559,0	785	46	125	665	2	M36	20	39	710	613	20	12
600	610,0	845	46	125	720	5	M36	20	39	770	660	20	12
650[1)]	660,4	895	46	125	770	5	M36	24	39	820	715	20	12
700	711,0	960	46	125	820	5	M36	24	39	875	760	20	12
750	762,0	1 020	48	130	870	5	M36	24	39	935	810	20	12
800	813,0	1 085	50	135	930	5	M42	24	45	990	865	22	12
900	914,0	1 185	54	145	1 030	5	M42	28	45	1 090	968	24	12
1 000	1 016,0	1 320	58	155	1 140	5	M48	28	51	1 210	1 070	24	16

1) Non-preferred size.

Amdt 4

Table 2 500/3 — Steel plate flanges for welding

Working pressure (*NP*) : 2 500 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10
Nom. size	**Pipe outside diam.**	**Flange**		**Raised face**		**Bolts**	**Drilling**		
DN	***OD***	***D***	***b***	d_3	***f***		**No.**	d_1	***d***
10	17,2	90	12	40	2	M12	4	14	60
15	21,3	95	14	45	2	M12	4	14	65
20	26,9	105	14	58	2	M12	4	14	75
25	33,7	115	16	68	2	M12	4	14	85
32	42,4	140	18	78	2	M16	4	18	100
40	48,3	150	20	88	3	M16	4	18	110
50	60,3	165	20	102	3	M16	4	18	125
65	76,1	185	22	122	3	M16	8	18	145
80	88,9	200	22	138	3	M16	8	18	160
100	114,3	235	25	162	3	M20	8	22	190
125[1)]	139,7	270	28	188	3	M24	8	26	220
150	168,3	300	30	218	3	M24	8	26	250
175[1)]	193,7	330	25	248	3	M24	12	26	280
200	219,1	360	28	278	3	M24	12	26	310
225[1)]	244,5	395	30	306	3	M24	12	26	340
250	273,0	425	30	335	3	M24	12	26	370
300	323,9	485	32	395	4	M24	16	26	430
350	355,6	555	35	450	4	M30	16	33	490
400	406,4	620	40	505	4	M30	16	33	550
450	457,0	670	45	555	4	M30	20	33	600
500	508,0	730	50	615	4	M30	20	33	660
550	559,0	785	55	670	5	M36	20	39	710
600	610,0	845	60	720	5	M36	20	39	770

1) Non-preferred size.

Table 2 500/4 — Steel screwed boss flanges

Working pressure (*NP*) : 2 500 kPa

Threaded in accordance with SANS 1109-1

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Boss**
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2
6	10,2	75	10	16	32	2	M10	4	11	50	20
8	13,5	80	10	16	38	2	M10	4	11	55	25
10	17,2	90	10	16	40	2	M12	4	14	60	30
15	21,3	95	11	17	45	2	M12	4	14	65	35
20	26,9	105	11	19	58	2	M12	4	14	75	45
25	33,7	115	12	22	68	2	M12	4	14	85	52
32	42,4	140	14	26	78	2	M16	4	18	100	60
40	48,3	150	14	28	88	3	M16	4	18	110	70
50	60,3	165	17	31	102	3	M16	4	18	125	85
65	76,1	185	17	33	122	3	M16	8	18	145	105
80	88,9	200	18	34	138	3	M16	8	18	160	118
100	114,3	235	21	41	162	3	M20	8	22	190	145
125[1)]	139,7	270	24	46	188	3	M24	8	26	220	170
150	165,1	300	24	48	218	3	M24	8	26	250	200

1) Non-preferred size.

Table 2 500/5 — Steel slip-on boss flanges for welding

Working pressure (*NP*) : 2 500 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Boss**
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2
6	10,2	75	10	16	32	2	M10	4	11	50	20
8	13,5	80	10	16	38	2	M10	4	11	55	25
10	17,2	90	10	16	40	2	M12	4	14	60	30
15	21,3	95	11	17	45	2	M12	4	14	65	35
20	26,9	105	11	19	58	2	M12	4	14	75	45
25	33,7	115	12	22	68	2	M12	4	14	85	52
32	42,4	140	14	26	78	2	M16	4	18	100	60
40	48,3	150	14	28	88	3	M16	4	18	110	70
50	60,3	165	17	31	102	3	M16	4	18	125	85
65	76,1	185	17	33	122	3	M16	8	18	145	105
80	88,9	200	18	34	138	3	M16	8	18	160	118
100	114,3	235	21	41	162	3	M20	8	22	190	145
125[1)]	139,7	270	24	46	188	3	M24	8	26	220	170
150	168,3	300	24	48	218	3	M24	8	26	250	200
175[1)]	193,7	330	25	48	250	3	M24	12	26	280	230
200	219,1	360	27	47	278	3	M24	12	26	310	256
225[1)]	244,5	395	30	50	306	3	M24	12	26	340	280
250	273,0	425	30	50	335	3	M24	12	26	370	310
300	323,9	485	35	54	395	4	M24	16	26	430	364

1) Non-preferred size.

Table 2 500/8 — Steel plate blank flanges

Working pressure (*NP*) : 2 500 kPa

Dimensions in millimetres

1	2	3	4	5	6	7
Nom. size	**Flange**		**Bolts**	**Drilling**		
DN	***D***	***b***		**No.**	d_1	***d***
10	90	12	M12	4	14	60
15	95	14	M12	4	14	65
20	105	14	M12	4	14	75
25	115	16	M12	4	14	85
32	140	18	M16	4	18	100
40	150	20	M16	4	18	110
50	165	20	M16	4	18	125
65	185	22	M16	8	18	145
80	200	22	M16	8	18	160
100	235	25	M20	8	22	190
125[1)]	270	28	M24	8	26	220
150	300	30	M24	8	26	250
175[1)]	330	25	M24	12	26	280
200	360	28	M24	12	26	310
225[1)]	395	30	M24	12	26	340
250	425	30	M24	12	26	370
300	485	32	M24	16	26	430
350	555	35	M30	16	33	490
400	620	40	M30	16	33	550
450	670	45	M30	20	33	600
500	730	50	M30	20	33	660

1) Non-preferred size.

Table 4 000/1A — Integral steel flanges

Working pressure (*NP*) : 4 000 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11
Nom. size	**Flange**		**Raised face**		**Bolts**	**Drilling**			**Neck**	
DN	***D***	***b***	d_3	***f***		**No.**	d_1	***d***	d_2	***r***
10	90	14	41	2	M12	4	14	60	28	3
15	95	14	46	2	M12	4	14	65	32	3
20	105	16	56	2	M12	4	14	75	40	4
25	115	16	65	2	M12	4	14	85	50	4
32	140	18	76	2	M16	4	18	100	60	5
40	150	18	84	2	M16	4	18	110	70	5
50	165	20	99	2	M16	4	18	125	84	5
65	185	22	118	2	M16	8	18	145	104	6
80	200	24	132	2	M16	8	18	160	120	6
100	235	24	156	2	M20	8	22	190	142	6
125[1)]	270	26	184	2	M24	8	26	220	162	8
150	300	28	211	2	M24	8	26	250	192	8
175[1)]	350	32	260	2	M24	12	26	295	223	8
200	375	34	284	2	M24	12	26	320	254	8
225[1)]	420	38	317	2	M30	12	33	355	280	10
250	450	38	345	2	M30	12	33	385	312	10
300	515	42	409	2	M30	16	33	450	378	10
350	580	46	448	2	M30	16	33	510	432	10
400	660	50	503	2	M36	16	39	585	498	10
450	685	57	548	2	M36	20	39	610	522	12
500	755	57	609	2	M36	20	39	670	576	12
550[1)]	835	60	680	2	M42	20	45	740	636	12
600	890	72	720	2	M42	20	45	795	686	12

1) Non-preferred size.

Table 4 000/1B — Integral iron flanges (Cast iron — CI; Ductile iron — DI)

Working pressure (*NP*) : 4 000 kPa

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12
Nom. size	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Neck**	
		b									
DN	***D***	**CI**	**DI**	d_3	***f***		**No.**	d_1	***d***	d_2	***r***
10	90	16	N/A	41	2	M12	4	14	60	28	3
15	95	16	N/A	46	2	M12	4	14	65	32	3
20	105	18	N/A	56	2	M12	4	14	75	40	4
25	115	18	N/A	65	3	M12	4	14	85	50	4
32	140	18	N/A	76	3	M16	4	18	100	60	5
40	150	18	19	84	3	M16	4	18	110	70	5
50	165	20	19	99	3	M16	4	18	125	84	5
65	185	22	19	118	3	M16	8	18	145	104	6
80	200	24	19	132	3	M16	8	18	160	120	6
100	235	24	19	156	3	M20	8	22	190	142	6
125[1)]	270	26	23,5	184	3	M24	8	26	220	162	6
150	300	28	26	211	3	M24	8	26	250	192	8
175[1)]	350	34	28	260	3	M24	12	26	295	218	8
200	375	34	30	284	3	M24	12	26	320	254	8
225[1)]	420	44	32	315	3	M30	12	33	355	275	10
250	450	38	34,5	345	3	M30	12	33	385	312	10
300	515	42	39,5	409	4	M30	16	33	450	378	10
350	580	46	44	465	4	M30	16	33	510	432	10
400	660	50	48	535	4	M36	16	39	585	498	10
450	685	57	49	560	4	M36	20	39	610	522	12
500	755	57	52	615	4	M36	20	39	670	576	12
550[1)]	835	57	56	690	4	M42	20	45	740	617	12
600	890	72	58	735	5	M42	20	45	795	686	12

1) Non-preferred size.

Table 4 000/2 — Steel welding neck flanges

Working pressure (*NP*) : 4 000 kPa

For welding neck flanges of cast iron and ductile iron, see table 12 of ISO 7005-2.

Dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Nom. size	**Pipe outside diam.**	**Flange**			**Raised face**		**Bolts**	**Drilling**			**Neck**		
DN	***OD***	***D***	***b***	***h***	d_3	***f***		**No.**	d_1	***d***	d_2	h_1	***r***
10	17,2	90	12	35	40	2	M12	4	14	60	28	6	4
15	21,3	95	14	38	45	2	M12	4	14	60	28	6	4
20	26,9	105	14	40	58	2	M12	4	14	75	40	6	4
25	33,7	115	16	40	68	2	M12	4	14	85	46	6	4
32	42,4	140	18	42	78	2	M16	4	18	100	56	6	6
40	48,3	150	18	45	88	3	M16	4	18	110	64	7	6
50	60,3	165	20	48	102	3	M16	4	18	125	75	8	6
65	76,1	185	22	52	122	3	M16	8	18	145	90	10	6
80	88,9	200	24	58	138	3	M16	8	18	160	105	12	8
100	114,3	235	24	65	162	3	M20	8	22	190	134	12	8
125	139,7	270	26	68	188	3	M24	8	26	200	162	12	8
150	168,3	300	28	75	218	3	M24	8	26	250	192	12	10
175[1)]	193,7	350	32	82	260	3	M24	12	26	295	218	15	10
200	219,1	375	34	88	285	3	M24	12	26	320	244	16	10
225[1)]	244,5	420	36	100	315	3	M30	12	33	355	275	18	12
250	273,0	450	38	105	345	3	M30	12	33	385	306	18	12
300	323,9	515	42	115	410	4	M30	16	33	450	362	18	12
350	355,6	580	46	125	465	4	M30	16	33	510	408	20	12
400	406,4	660	50	135	535	4	M36	16	39	585	462	20	12
450	457,0	685	52	140	575	4	M36	20	39	610	510	20	12
500	508,0	755	52	140	615	4	M36	20	39	670	562	20	12

1) Non-preferred size.

Table 4 000/8 — Steel plate blank flanges

Working pressure (*NP*) : 4 000 kPa

Dimensions in millimetres

1	2	3	4	5	6	7
Nom. size	**Flange**		**Bolts**	**Drilling**		
DN	***D***	***b***		**No.**	d_1	***d***
10	90	12	M12	4	14	60
15	95	14	M12	4	14	65
20	105	14	M12	4	14	75
25	115	16	M12	4	14	85
32	140	18	M16	4	18	100
40	150	20	M16	4	18	110
50	165	20	M16	4	18	125
65	185	22	M16	8	18	145
80	200	22	M16	8	18	160
100	235	25	M20	8	22	190
125[1)]	270	28	M24	8	26	220
150	300	30	M24	8	26	250
175[1)]	350	32	M24	12	26	295
200	375	32	M24	12	26	320
225[1)]	420	35	M30	12	33	355
250	450	38	M30	12	33	385
300	515	40	M30	16	33	450
350	580	45	M30	16	33	510
400	660	50	M36	16	39	585
450	685	60	M36	20	39	610
500	755	70	M36	20	39	670

1) Non-preferred size.

Annex A
(normative)

Notes to purchasers

A.1 The following requirements shall be specified in tender invitations and in each order or contract:

a) the type of flange (see 4.1);

b) the pressure rating (see 4.2);

c) when relevant, that test certificates are required (see 5.1.4);

d) the nominal size (see 5.2.1);

e) when relevant, that flanges with raised joint faces are required (see 5.2.3);

f) in the case of flanges of types 2, 3 and 5, the diameter of the bore (see 5.3.2);

g) when relevant, that flanges without bolt holes are required (see 5.4);

h) when relevant, that the backs of flanges shall be machined (see 5.5.1); and

i) details of the finish, if other than as specified (see 5.5.2).

A.2 The following requirements shall be agreed upon between the purchaser and the supplier:

a) in the case of flanges of type 6, the size and configuration of the bore (see 5.3.3); and

b) when relevant, that bolt holes shall not be drilled (see 5.4).

Annex B
(informative)

Quality verification of pipe flanges

When a purchaser requires ongoing verification of the quality of pipe flanges, it is suggested that instead of concentrating solely on evaluation of the final product, he also direct his attention to the manufacturer's quality system. In this connection it should be noted that SANS 9001 covers the provision of an integrated quality system.

Bibliography

EN 1092-1, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 1: Steel flanges.*

SANS 9001/ISO 9001, *Quality management systems – Requirements.*