BS EN 50180-2:2015

BSI Standards Publication

Bushings above 1 kV up to 52 kV and from 250 A to 3,15 kA for liquid filled transformers

Part 2: Requirement for bushing components

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National foreword

This British Standard is the UK implementation of EN 50180-2:2015. Together with BS EN 50180-1:2015 and BS EN 50180-3:2015, it supersedes BS EN 50180:2010 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/36, Insulators for power systems.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Date	Text affected

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NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50180-2

October 2015

ICS 29.080.20

English Version

Bushings above 1 kV up to 52 kV and from 250 A to 3,15 kA for liquid filled transformers - Part 2: Requirement for bushing components

Traversées de tensions supérieures à 1 kV jusqu'à 52 kV et de 250 A à 3,15 kA pour transformateurs immergés dans un liquide - Partie 2: Exigences relatives aux composants de traversée

Durchführungen über 1 kV bis 52 kV und von 250 A bis 3,15 kA für flüssigkeitsgefüllte Transformatoren - Teil 2: Anforderungen an Einzelteile der Durchführungen

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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

Ref. No. EN 50180-2:2015 E

Content

Page

Figure

Page

Table

European foreword

This document (EN 50180-2:2015) has been prepared by CLC/TC 36A "Insulated Bushings".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2016-08-10
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2018-08-10

This document supplements EN 50180-1:2015 by design details for components, described in the withdrawn standards DIN 42531, DIN 42532 and DIN 42533 and it is important for utilities to manage interchangeability. This document should document major additional information of the withdrawn standards.

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

EN 50180 "*Bushings above 1 kV up to 52 kV and from 250 A to 3,15 kA for liquid filled transformers*" consists of the following parts:

– *Part 1: General requirements for bushings*;

– *Part 2: Requirement for bushing components*;

– *Part 3: Requirements for bushing fixations*.

1 Scope

This European Standard should be considered in factual context with EN 50180-1 only. The dimensional supplements are related to figures and tables of EN 50180-1. To enable a better understanding of additional information some tables from EN 50180-1 are used and extended.

This European Standard may now be used also for bushings with a highest voltage of 52 kV. Figures for the details of the components and the related tables are added according to the extended range of voltage.

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 1652, *Copper and copper alloys — Plate, sheet, strip and circles for general purposes*

EN 12164, *Copper and copper alloys — Rod for free machining purposes*

EN 13599, *Copper and copper alloys — Copper plate, sheet and strip for electrical purposes*

EN 13601, *Copper and copper alloys — Copper rod, bar and wire for general electrical purposes*

EN 22768 (all parts), *General tolerances (ISO 2768-1, all parts)*

EN 27434, *Slotted set screws with cone point (ISO 7434)*

EN 50180-1:2015, *Bushings above 1 kV up to 52 kV and from 250 A to 3,15 kA for liquid filled transformers — Part 1: General requirements for bushings*

EN 50180-3*, Bushings above 1 kV up to 52 kV and from 250 A to 3,15 kA for liquid filled transformers — Part 3: Requirements for bushing fixations*

EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (shore hardness (ISO 868)*

EN ISO 1302, *Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation (ISO 1302)*

EN ISO 4032, *Hexagon regular nuts (style 1) — Product grades A and B (ISO 4032)*

EN ISO 4753, *Fasteners – Ends of parts with external ISO metric thread (ISO 4753)*

EN ISO 7089, *Plain washers — Normal series — Product grade A (ISO 7089)*

EN ISO 8673, *Hexagon regular nuts (style 1) with metric fine pitch thread — Product grades A and B (ISO 8673)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50180-1:2015 apply.

4 Dimensions and designations

4.1 General

Permissible deviations for tolerances without specified limits: EN 22768 (series).

The following tables refer to the respective tables in EN 50180-1:2015, additional data are added.

4.2 Components for open-type bushings for 250 A, 12 kV to 36 kV

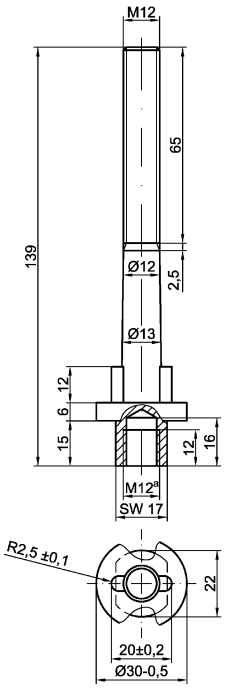
Table 1 – List of components, 250 A, 12 kV to 36 kV (see EN 50180-1:2015, Table 3)

Item	Quantity	Designation	Brief description	Remark
2	1	Terminal stud	D 250	Brass
3	1	Cap	E 250	Brass
4	1	Gasket	J 250	Insulating liquid resistant material
5	1	Spacer	O 250	
6	1	Packing[a]	N 250	Insulating liquid resistant material
7	3	Nut	EN ISO 4032 – M12	Brass
8	2	Washer	EN ISO 7089 – 12	Brass
9	4	Nut	EN ISO 4032 – M10	Corrosion-resistant steel
10	4	Washer	EN ISO 7089 – 12	Corrosion-resistant steel
11	1	Spring washer [b]		Corrosion-resistant steel
Version A: By means of a Clamping piece				
12	4	Clamping piece		Corrosion-resistant
Version B: By means of a Clamping ring				
13	1	Clamping ring	EN 50180-3	Corrosion-resistant
14	4	Clamping paw	EN 50180-3	Corrosion-resistant

a O-Ring according to individual agreement alternatively.

b Conical spring washer according to individual agreement alternatively.

Dimensions in mm

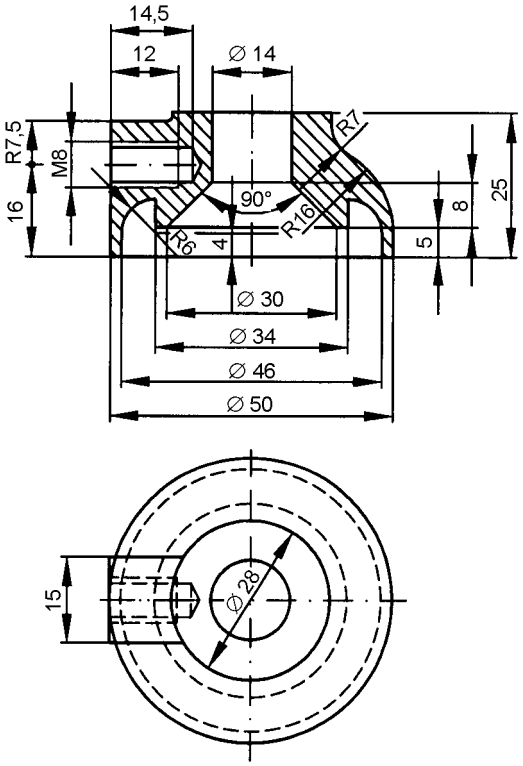


Designation: **Terminal stud D 250**

Material: CW617N or equivalent acc. to EN 12164

[a] Thread M12 or drilling according to the applied lead or bolt.

Figure 1 – Terminal stud (Item 2)



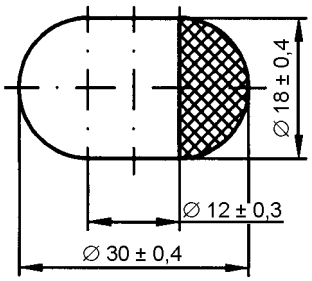
Designation: **Cap E 250**

Material: CW614N or equivalent acc. to EN 12164

The external shape of the cap is not compulsory.

Figure 2 – Cap (Item 3)

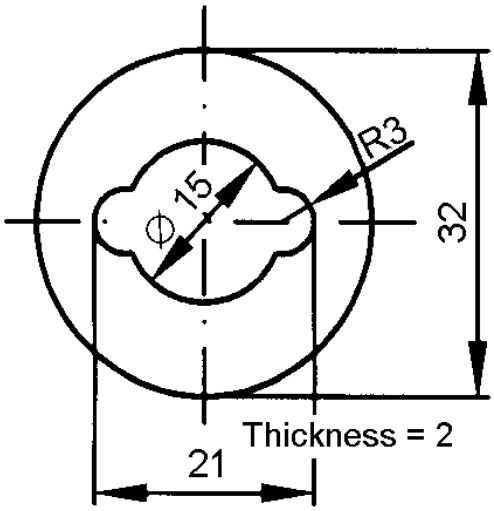
Dimensions in mm



Designation: **Gasket J 250**

Material: Insulating liquid resistant material, Shore hardness A/65 to A/70 EN ISO 868

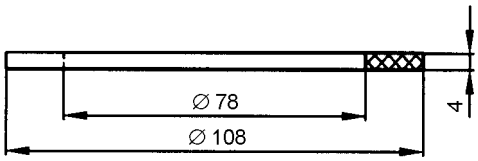
Figure 3 – Gasket (Item 4)



Designation: **Spacer O 250**

Material: Gasket material for high pressure, based on synthetic fibers

Figure 4 – Spacer (Item 5)



Designation: **Packing N 250**

Material: Insulating liquid resistant material Shore hardness A/65 to A/70 EN ISO 868

Figure 5 – Packing (Item 6)

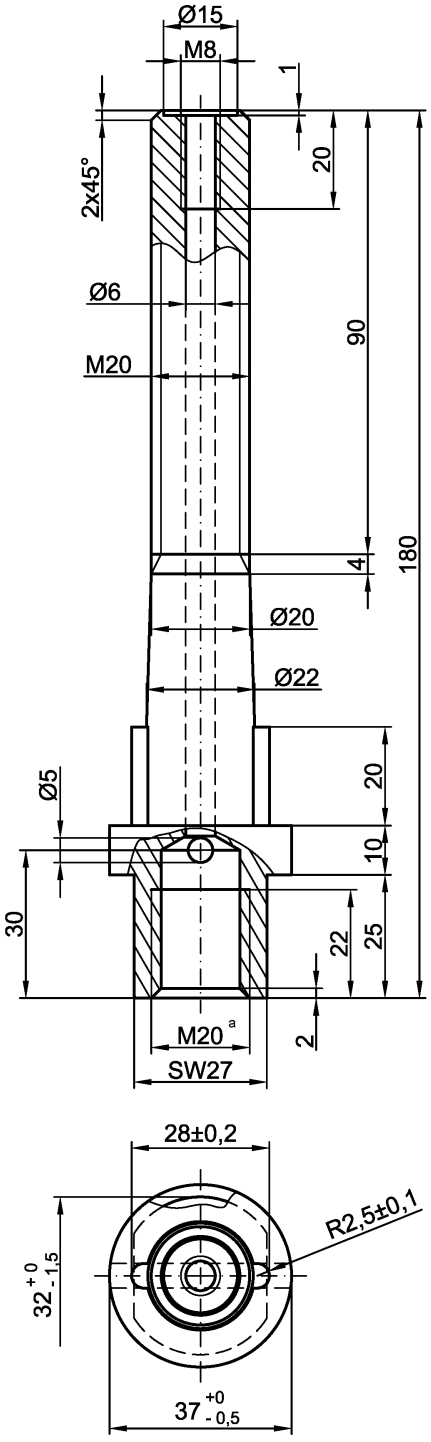
4.3 Components for open-type bushings for 630 A, 12 kV to 36 kV

Table 2 – List of components, 630 A, 12 kV to 36 kV (see EN 50180-1:2015, Table 5)

Item	Quantity	Designation	Brief description	Remark
2	1	Terminal stud	D 630	Brass [a]
3	1	Cap	E 630	Brass
4	1	Gasket	J 630	Insulating liquid resistant material
5	1	Spacer	O 630	
6	1	Packing[b]	N 630	Insulating liquid resistant material
7	3	Nut	EN ISO 4032 – M20	Brass
8	2	Washer	EN ISO 7089 – 20	Brass
9	6	Nut	EN ISO 4032 – M10	Corrosion-resistant steel
10	6	Washer	EN ISO 7089 – 10	Corrosion-resistant steel
11	1	Spring washer [c]		Corrosion-resistant steel
Version A: By means of a Clamping piece				
12	6	Clamping piece		Corrosion-resistant
Version B: By means of a Clamping ring				
13	1	Clamping ring	EN 50180-3	Corrosion-resistant
14	6	Clamping paw	EN 50180-3	Corrosion-resistant

[a] Copper according to individual agreement alternatively.
[b] O-Ring according to individual agreement alternatively.
[c] Conical spring washer according to individual agreement alternatively.

Dimensions in mm



Surfaces EN ISO 1302

Designation: **Terminal stud D 630**[b]

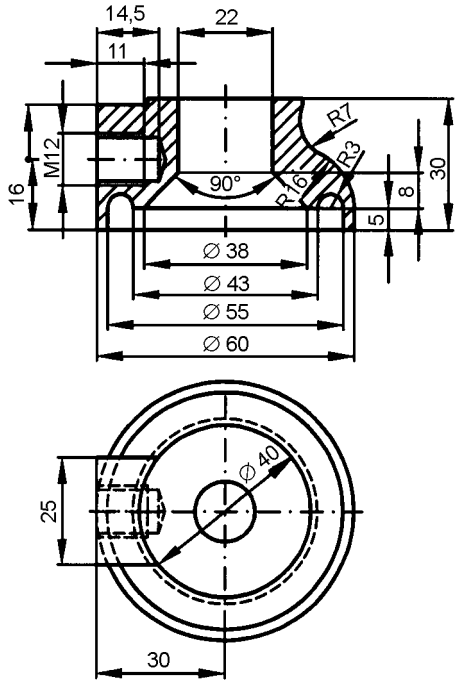
Material: CW617N or equivalent acc. to EN 12164 or Cu-ETP R280 acc. to EN 13601

a Thread M20 or drilling according to the applied lead or bolt.

b Terminal stud D and inner bolt may be made out of one piece, making according to manufacturer's decision.

Figure 6 – Terminal stud (Item 2)

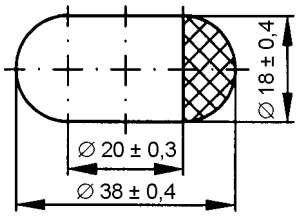
Dimensions in mm



Designation: **Cap E 630**

Material: CW614N or equivalent acc. to EN 12164

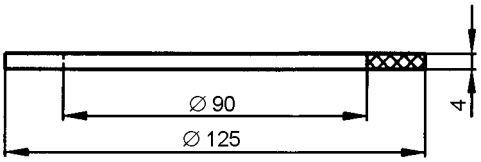
Figure 7 – Cap (Item 3)



Designation: **Gasket J 630**

Material: Insulating liquid resistant material, Shore hardness A/65 to A/70 EN ISO 868

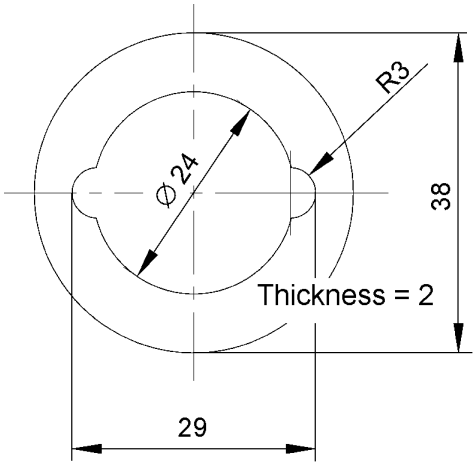
Figure 8 – Gasket (Item 4)



Designation: **Packing N 250**

Material: Insulating liquid resistant material, Shore hardness A/65 to A/70 EN ISO 868

Figure 9 – Packing (Item 6)



Designation: **Spacer O 630**

Material: Gasket material for high pressure, based on synthetic fibers

Figure 10 – Spacer (Item 5)

4.4 Components for open-type bushings for 1 250 A – 3150 A, 12 kV to 36 kV

Table 3 – List of components, 1 250 A, 12 kV to 36 kV (see EN 50180-1:2015, Table 7)

Item	Quantity	Designation	Brief description	Remark
2	1	Terminal stud	D 1250	Copper
3	1	Nut	EN ISO 8673 – M30 × 2	Brass
4	1	Upper cap	F 1250	Brass
5	1	Sealing ring	J 1250	Insulating liquid resistant material
6	1	Lower cap	E 1250	Brass
7	1	Gasket	F	Polyamide or equivalent
8	1	Vent plug	R	Brass
9	1	Gasket	M 1250	Insulating liquid resistant material
10	1	Spacer	O 1250	
11	1	Compression ring	P 1250	Brass
12	2	Screw with cone point	EN 27434 – M8 × 16	
13	1	Ring	S 1250	Copper
14	6	Nut	EN ISO 4032 – M12	Corrosion-resistant steel
15	6	Washer	EN ISO 7089 – 12	Corrosion-resistant steel
16	1	Clamping ring	EN 50180-3	Corrosion-resistant
17	6	Clamping paw	EN 50180-3	Corrosion-resistant
18	1	Gasket	N 1250	Insulating liquid resistant material
19	1	Conductor guide		

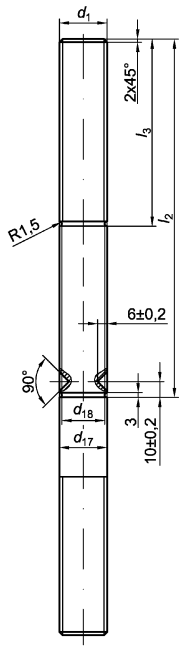
Table 4 – List of components, 2 000 A, 12 kV to 36 kV (see EN 50180-1:2015, Table 9)

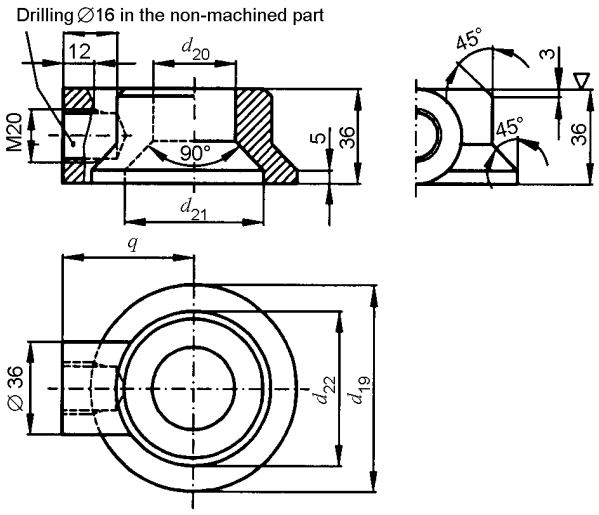
Item	Quantity	Designation	Brief description	Remark
2	1	Terminal stud	D 2000	Copper
3	1	Nut	EN ISO 8673 – M42 × 3	Brass
4	1	Upper cap	F 2000	Brass
5	1	Sealing ring	J 2000	Insulating liquid resistant material
6	1	Lower cap	E 2000	Brass
7	1	Gasket	F	Polyamide or similar
8	1	Vent plug	R	Brass
9	1	Gasket	M 2000	Insulating liquid resistant material
10	1	Spacer	O 2000	
11	1	Compression ring	P 2000	Brass
12	2	Screw with cone point	EN 27434 – M8 × 16	
13	1	Ring	S 2000	Copper
14	6	Nut	EN ISO 4032 – M12	Corrosion-resistant steel
15	6	Washer	EN ISO 7089 – 12	Corrosion-resistant steel
16	1	Clamping ring	EN 50180-3	Corrosion-resistant
17	6	Clamping paw	EN 50180-3	Corrosion-resistant
18	1	Gasket	N 2000	Insulating liquid resistant material
19	1	Conductor guide		

Table 5 – List of components, 3 150 A, 12 kV to 36 kV (see EN 50180-1:2015, Table 9)

Item	Quantity	Designation	Brief description	Remark
2	1	Terminal stud	D 3150	Copper
3	1	Nut	EN ISO 8673 – M48 × 3	Brass
4	1	Upper cap	F 3150	Brass
5	1	Sealing ring	J 3150	Insulating liquid resistant material
6	1	Lower cap	E 3150	Brass
7	1	Gasket	F	Polyamide or equivalent
8	1	Vent plug	R	Brass
9	1	Gasket	M 3150	Insulating liquid resistant material
10	1	Spacer	O 3150	
11	1	Compression ring	P 3150	Brass
12	2	Screw with cone point	EN 27434 – M8 × 16	
13	1	Ring	S 3150	Copper
14	6	Nut	EN ISO 4032 – M12	Corrosion-resistant steel
15	6	Washer	EN ISO 7089 – 12	Corrosion-resistant steel
16	1	Clamping ring	EN 50180-3	Corrosion-resistant
17	6	Clamping paw	EN 50180-3	Corrosion-resistant
18	1	Gasket	N 3150	Insulating liquid resistant material
19	1	Conductor guide		

Dimensions in mm





Surfaces EN ISO 1302

Designation of a terminal stud for 1 250 A:

Terminal stud D 1250

Brief description	d_1	d_{17}	d_{18}	l_2	l_3
D 1250	M30 × 2	30	27	218	110
D 2000	M42 × 2	42	39	250	142
D 3150	M48 × 2	48	45	273	165

Material: EN 13601 Cu-ETP R280
Thread end acc. To EN ISO 4753

Figure 11 – Terminal stud (Item 2)

Designation of a cap for 1 250 A:

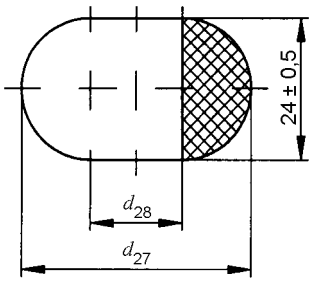
Cap F 1250

Brief description	d_{19}	d_{20}	d_{21}	d_{22}	q
F 1250	80	32	54	60	50
F 2000	100	44	66	80	55
F 3150		50	72	90	60

Material: CW614N or equivalent acc. to EN 12164

Figure 12 – Upper cap (Item 4)

Dimensions in mm



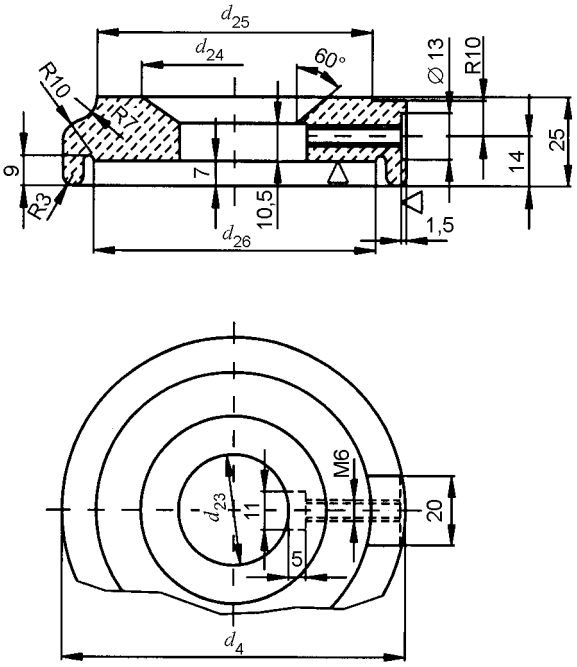
Designation of a sealing ring for 1 250 A:

Sealing ring J 1250

Brief description	$d_{27 \pm 0,5}$	$d_{28 \pm 0,3}$
J 1250	54	30
J 2000	66	42
J 3150	72	48

Material: Insulating liquid resistant material, Shore hardness A/65 to A/70 EN ISO 868

Figure 13 – Sealing ring (Item 5)



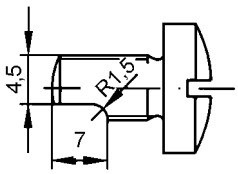
Designation of a lower cap for 1 250 A:

Cap E 1250

Brief description	d_4	d_{23}	d_{24}	d_{25}	d_{26}
E 1250	100	32	54	80	82^{0}_{-4}
E 2000	120	44	66	100	103^{0}_{-6}
E 3150		50	72		

Material: CW614N or equivalent acc. to EN 12164

Figure 14 – Lower cap (Item 6)

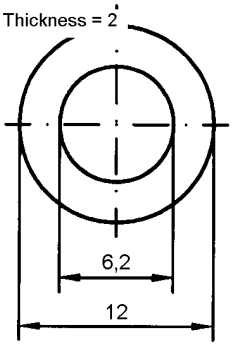


Designation: **Screw R**

Type: Flat headed screw EN ISO – M6 × 16

Material: Brass

Figure 15 – Vent plug (Item 8)

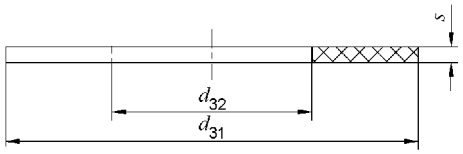


Designation: **Gasket F**

Material: Polyamide or equivalent

Figure 16 – Gasket (Item 7)

Dimensions in mm



Designation of a Gasket M for 1 250 A:

Gasket M 1250

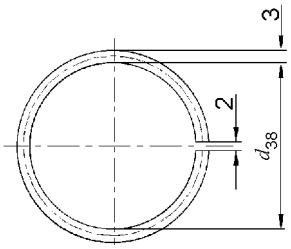
Designation of a Gasket N for 1 250 A:

Gasket N 1250

Brief description	d_{31}	d_{32}	s
M 1250	82_{-4}^{0}	36	2
M 3150	103_{-6}^{0}	50	2
N 1250	160	110	4
N 3150	180	135	4

Material: Insulating liquid resistant material, Shore hardness A/65 to A/70 EN ISO 868

Figure 17 – Gasket M (Item 9) und **Gasket N** (Item 18)



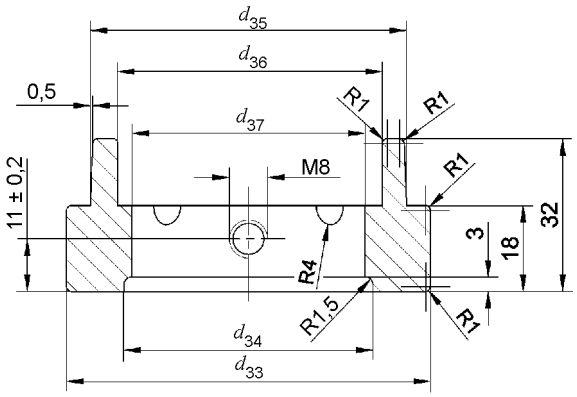
Designation of a ring for 1 250 A:

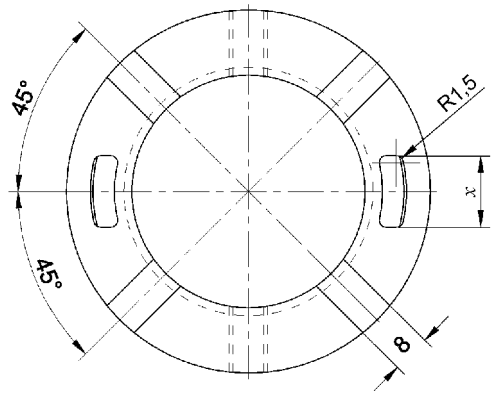
Ring S 1250

Brief description	d_{38}	Stretched length
S 1250	27	92,4
S 2000	39	130
S 3150	45	152

Material: E-Cu F20 acc. EN 13599

Figure 19 – Ring (Item 13)





Designation of a compression ring for 1 250 A:

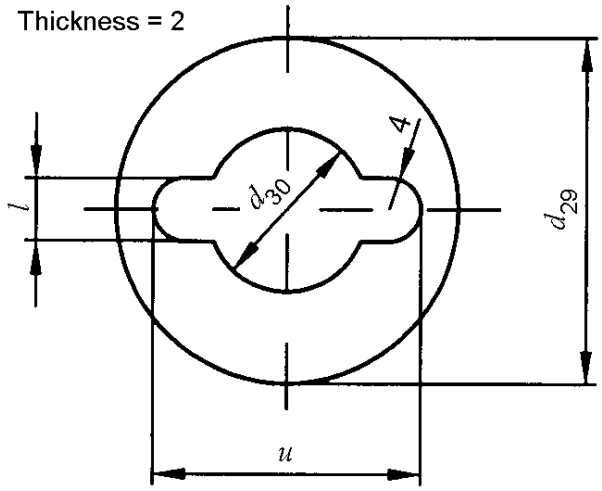
Compression ring P 1250

Brief description	d_{33}	d_{34}	d_{35}	d_{36}	d_{37}	x
P 1250	56	34	47	33	30,7	10
P 2000	75	46	68	50	42,7	15
P 3150	75	52	68	50	48,7	15

Material: CW614N or equivalent acc. to EN 12164

Figure 18 – Compression ring (Item 11)

Dimensions in mm



Designation of a Spacer for 1 250 A:

Spacer O 1250

Brief description	d_{29}	d_{30}	l	u
O 1250	56	32	12	48
O 3150	76	50	17	68

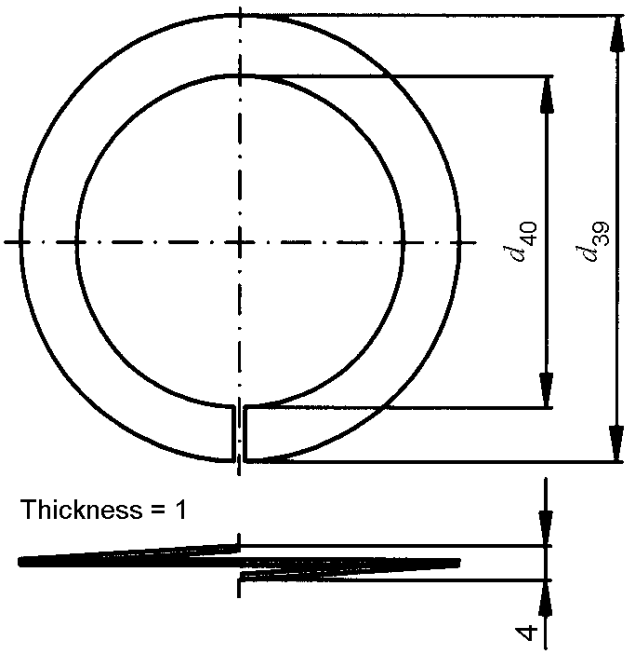
Material: Gasket material for high pressure, based on synthetic fibers

Figure 20 – Spacer (Item 10)

U-Potential ring

Assembly: between Item 4 and Item 6

Function: to ensure reliable electrical connection of item 6 (if required)



Designation of a Potential ring for 1 250 A

Potential ring U 1250

Brief description	d_{39}	d_{40}
U 1250	76	58
U 2000	96	70
U 3150	96	76

Material: CuSn6 EN 1652

Figure 21 – Potential ring

4.5 Components for open-type bushings for 250 A and 630 A, 52 kV

Table 6 – List of components, 250 A, 52 kV (see EN 50180-1:2015, Table 11)

Item	Quantity	Designation	Brief description	Remark
2	1	Terminal stud	D 250/52	Brass
3	1	Nut	EN ISO 8673 – M30 × 2	Brass
4	1	Upper cap	F 1250/52	Brass
5	1	Sealing ring	J 1250	Insulating liquid resistant material
6	1	Lower cap	E 1250/52	Brass
7	1	Gasket	F	Polyamide or equivalent
8	1	Vent plug	R	Brass
9	1	Gasket	M 3150	Insulating liquid resistant material
10	1	Spacer	O 3150/52	
11	1	Compression ring	P 1250/52	Brass
12	2	Screw with cone point	EN 27434 – M8 × 16	
13	1	Ring	S 1250	Copper
14	6	Nut	EN ISO 4032 – M12	Corrosion-resistant steel
15	6	Washer	EN ISO 7089 – 12	Corrosion-resistant steel
16	1	Clamping ring	EN 50180-3	Corrosion-resistant
17	6	Clamping paw	EN 50180-3	Corrosion-resistant
18	1	Gasket	N 1250	Insulating liquid resistant material
19	1	Conductor guide		
20	1	U-Potential ring	U 1250	Corrosion-resistant
21	1	Adjusting ring		Copper
22	6	Nut		Brass
23	1	Spring washer [a]		Corrosion-resistant steel
24	2	Washer		Brass
25	1	Lower bolt		Brass
26	1	Isolation tube		

[a] Conical spring washer according to individual agreement alternatively.

Table 7 – List of components, 630 A, 52 kV (see EN 50180-1:2015, Table 11)

Item	Quantity	Designation	Brief description	Remark
2	1	Terminal stud	D 630/52	Copper [a]
3	1	Nut	EN ISO 8673 – M30 × 2	Brass
4	1	Upper cap	F 1250/52	Brass
5	1	Sealing ring	J 1250	Insulating liquid resistant material
6	1	Lower cap	E 1250/52	Brass
7	1	Gasket	F	Polyamide or equivalent
8	1	Vent plug	R	Brass
9	1	Gasket	M 3150	Insulating liquid resistant material
10	1	Spacer	O 3150/52	
11	1	Compression ring	P 1250/52	Brass
12	2	Screw with cone point	EN 27434 – M8 × 16	
13	1	Ring	S 1250	Copper
14	6	Nut	EN ISO 4032 – M12	Corrosion-resistant steel
15	6	Washer	EN ISO 7089 – 12	Corrosion-resistant steel
16	1	Clamping ring	EN 50180-3	Corrosion-resistant
17	6	Clamping paw	EN 50180-3	Corrosion-resistant
18	1	Gasket	N 1250	Insulating liquid resistant material
19	1	Conductor guide		
20	1	U-Potential ring	U 1250	Corrosion-resistant
21	1	Adjusting ring		Copper
22	6	Nut		Brass
23	1	Spring washer [b]		Corrosion-resistant steel
24	2	Washer		Brass
25	1	Lower Bolt		Brass
26	1	Isolation tube		

[a] Brass according to individual agreement alternatively.

[b] Conical spring washer according to individual agreement alternatively.

4.6 Components for open-type bushings for 1 250 A to 3 150 A, 52 kV

Table 8 – List of components, 1 250 A, 52 kV (see EN 50180-1:2015, Table 13)

Item	Quantity	Designation	Brief description	Remark
2	1	Terminal stud	D 1250	Copper
3	1	Nut	EN ISO 8673 – M30 × 2	Brass
4	1	Upper cap	F 1250/52	Brass
5	1	Sealing ring	J 1250	Insulating liquid resistant material
6	1	Lower cap	E 1250/52	Brass
7	1	Gasket	F	Polyamide or equivalent
8	1	Vent plug	R	Brass
9	1	Gasket	M 3150	Insulating liquid resistant material
10	1	Spacer	O 3150/52	
11	1	Compression ring	P 1250/52	Brass
12	2	Screw with cone point	EN 27434 – M8 × 16	
13	1	Ring	S 1250	Copper
14	6	Nut	EN ISO 4032 – M12	Corrosion-resistant steel
15	6	Washer	EN ISO 7089 – 12	Corrosion-resistant steel
16	1	Clamping ring	EN 50180-3	Corrosion-resistant
17	6	Clamping paw	EN 50180-3	Corrosion-resistant
18	1	Gasket	N 1250	Insulating liquid resistant material
19	1	Conductor guide		
20	1	U-Potential ring	U 1250	Corrosion-resistant
21	1	Adjusting ring		Copper

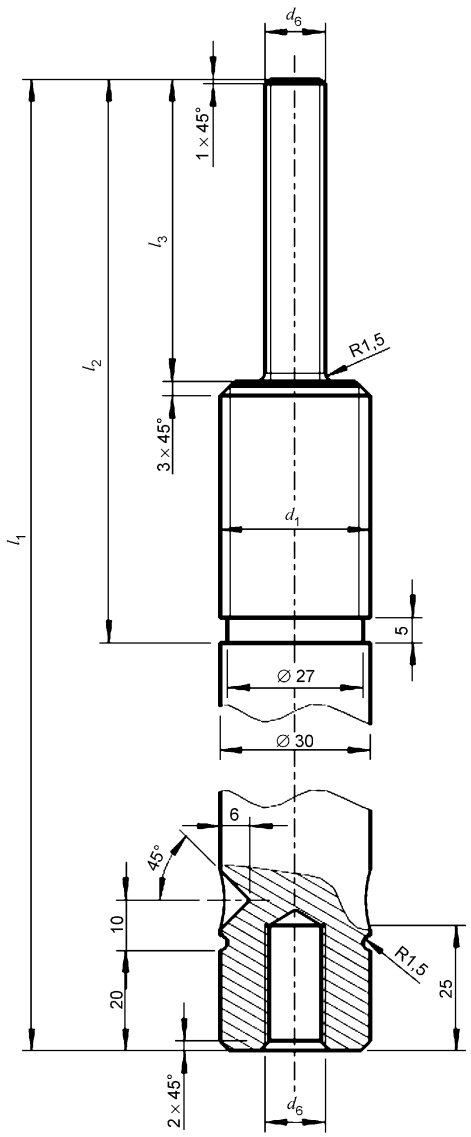
Table 9 – List of components, 2 000 A, 52 kV (see EN 50180-1:2015, Table 13)

Item	Quantity	Designation	Brief description	Remark
2	1	Terminal stud	D 2000	Copper
3	1	Nut	EN ISO 8673 – M42 × 3	Brass
4	1	Upper cap	F 2000	Brass
5	1	Sealing ring	J 2000	Insulating liquid resistant material
6	1	Lower cap	E 2000	Brass
7	1	Gasket	F	Polyamide or equivalent
8	1	Vent plug	R	Brass
9	1	Gasket	M 3150	Insulating liquid resistant material
10	1	Spacer	O 3150/52	
11	1	Compression ring	P 2000/52	Brass
12	2	Screw with cone point	EN 27434 – M8 × 16	
13	1	Ring	S 2000	Copper
14	6	Nut	EN ISO 4032 – M12	Corrosion-resistant steel
15	6	Washer	EN ISO 7089 – 12	Corrosion-resistant steel
16	1	Clamping ring	EN 50180-3	Corrosion-resistant
17	6	Clamping paw	EN 50180-3	Corrosion-resistant
18	1	Gasket	N 2000	Insulating liquid resistant material
19	1	Conductor guide		
20	1	U-Potential ring	U 2000	Corrosion-resistant
21	1	Adjusting ring		Copper

Table 10 – List of components, 3 150 A, 52 kV (see EN 50180-1:2015, Table 13)

Item	Quantity	Designation	Brief description	Remark
2	1	Terminal stud	D 3150	Copper
3	1	Nut	EN ISO 8673 – M48 × 3	Brass
4	1	Upper cap	F 3150	Brass
5	1	Sealing ring	J 3150	Insulating liquid resistant material
6	1	Lower cap	E 3150	Brass
7	1	Gasket	F	Polyamide or equivalent
8	1	Vent plug	R	Brass
9	1	Gasket	M 3150	Insulating liquid resistant material
10	1	Spacer	O 3150/52	
11	1	Compression ring	P 3150/52	Brass
12	2	Screw with cone point	EN 27434 – M8 × 16	
13	1	Ring	S 3150	Copper
14	6	Nut	EN ISO 4032 – M12	Corrosion-resistant steel
15	6	Washer	EN ISO 7089 – 12	Corrosion-resistant steel
16	1	Clamping ring	EN 50180-3	Corrosion-resistant
17	6	Clamping paw	EN 50180-3	Corrosion-resistant
18	1	Gasket	N 3150	Insulating liquid resistant material
19	1	Conductor guide		
20	1	U-Potential ring	U 3150	Corrosion-resistant
21	1	Adjusting ring		Copper

Dimensions in mm



Surfaces EN ISO 1302

Designation of a terminal studs for 250 A:

Terminal stud D 250/52

Material: CW617N or equivalent acc. to EN 12164

Designation of a terminal studs for 630 A:

Terminal stud D 630/52

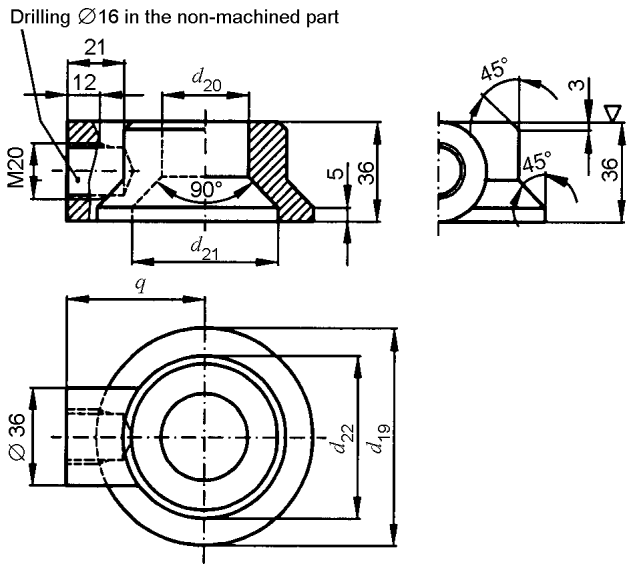
Material: CW617N or equivalent acc. to EN 12164 or Cu-ETP R280 acc. to EN 13601

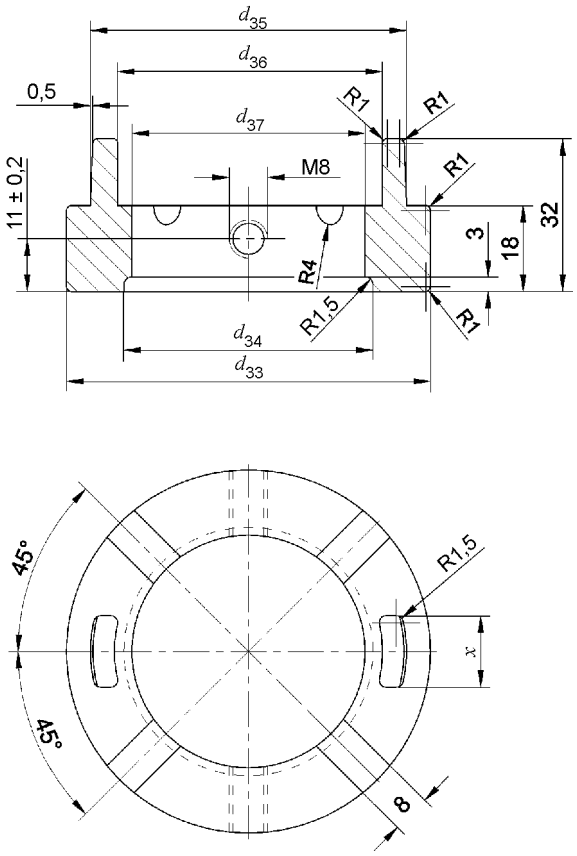
Brief description	d_1	d_6	l_1	l_2	l_3
D 250/52	M30 × 2	M12	236	112	60
D 630/52	M30 × 2	M20	261	133	85

Thread end acc. to EN ISO 4753

Figure 22 – Terminal stud (Item 2)

Dimensions in mm





Designation of a cap for 1 250 A:

Cap F 1250/52

Brief description	d_{19}	d_{20}	d_{21}	d_{22}	q
F 1250/52	100	32	54	80	55

Material: CW614N or equivalent acc. to EN 12164

Figure 23 – Upper cap (Item 4)

Designation of a compression ring for 1 250 A:

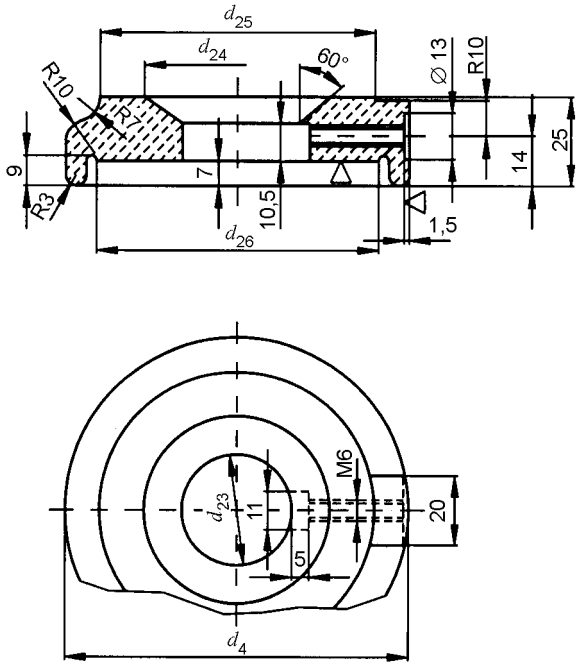
Compression ring P 1250/52

Brief description	d_{33}	d_{34}	d_{35}	d_{36}	d_{37}	x
P 1250/52	70	34	60	50	30,7	15
P 2000/52	70	46	60	50	42,7	15
P 3150/52	70	52	60	50	48,7	15

Material: CW614N or equivalent acc. to EN 12164

Figure 24 – Compression ring (Item 11)

Dimensions in mm



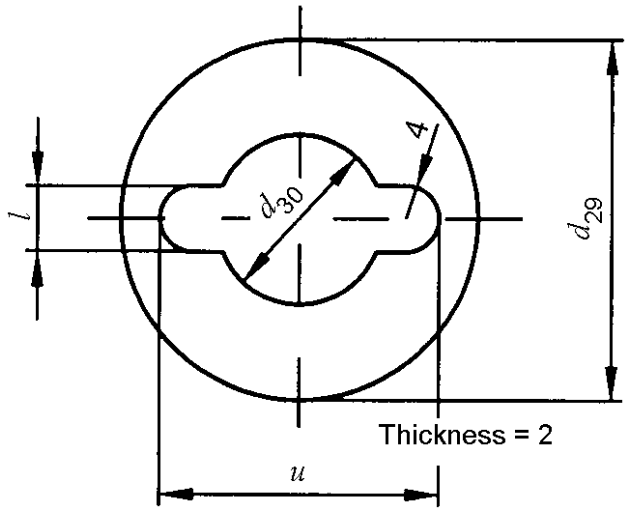
Designation of a lower Cap for 1 250 A:

Cap E 1250/52

Brief description	d_4	d_{23}	d_{24}	d_{25}	d_{26}
E 1250/52	120	32	54	100	103_{-6}^{0}

Material: CW614N or equivalent acc. to EN 12164

Figure 25 – Lower cap (Item 6)



Designation of a spacer for 3 150 A:

Spacer O 3150/52

Brief description	d_{29}	d_{30}	t	u
O 3150/52	70	50	17	62

Material: Gasket material for high pressure, based on synthetic fibers

Figure 26 – Spacer (Item 10)

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