BS EN 14420-6:2013

BSI Standards Publication

Hose fittings with clamp units

Part 6: TW tank truck couplings

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National foreword

This British Standard is the UK implementation of EN 14420-6:2013. It supersedes BS EN 14420-6:2004 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/66, Rubber and plastics tubing, hoses and hose assemblies.

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.

ISBN 978 0 580 72881 5

ICS 23.040.70

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

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2013.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14420-6

July 2013

ICS 23.040.70

Supersedes EN 14420-6:2004+A1:2007

English Version

Hose fittings with clamp units - Part 6: TW tank truck couplings

Raccords pour flexibles avec demi-coquille - Partie 6: Raccords TW pour camion-citerne

Schlaucharmaturen mit Klemmfassungen - Teil 6: TW Tankwagen-Kupplungen

This European Standard was approved by CEN on 15 May 2013.

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Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 14420-6:2013: E

Contents

Page

Foreword

This document (EN 14420-6:2013) has been prepared by Technical Committee CEN/TC 218 “Rubber and plastics hoses and hose assemblies”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by January 2014, and conflicting national standards shall be withdrawn at the latest by January 2014.

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.

This document supersedes EN 14420-6:2004+A1:2007.

In comparison to EN 14420-6:2004+A1:2007, the following changes have been made:

— In Clause 1, the warning paragraph has been revised.

— In Clause 2, the normative references have been updated.

— A new Clause 3 "Terms and definitions" has been added.

— The term "sealing ring" has been replaced by "gasket" (main gasket/thread gasket).

— Clause 4 "Survey" has been renamed "Fitting combinations".

— In 5.2.2.3, the body designation of a male coupling (DN 100) has been changed.

— In 5.4.2.3, the designation of a dust cap has been changed.

— In 5.5.2.3, the designation of a dust plug has been changed.

— The requirements on thread gasket materials in 6.4 and main gasket materials in 6.6 have been revised.

— In Clause 9, the requirements for marking have been reviewed.

— Content of Clause 10 "Type testing and quality control" has been replaced by a reference to EN 14420-1.

— The standard has been revised editorially.

EN 14420, *Hose fittings with clamp units* consists of the following parts:

— *Part 1: Requirements, types of fixing and connection, designation and testing*

— *Part 2: Hose side parts of hose tail*

— *Part 3: Clamp units, bolted or pinned*

— *Part 4: Flange connections*

— *Part 5: Threaded connections*

— *Part 6: TW tank truck couplings*

— *Part 7: Cam locking couplings*

— *Part 8: Symmetrical half couplings (Guillemin system)*

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

1 Scope

This European Standard specifies the fitting combinations, design, materials and dimensions for hose fittings with couplings for tank trucks (TW couplings).

Couplings for tank trucks in accordance with this document are intended to link hoses with connections for the transport of liquids, solid matters and gases with the exception of liquid gas and steam. They can be employed in a working pressure range of –0,8 bar[1)] up to 16 bar at working temperatures of –20 °C up to +65 °C. Couplings for tank trucks for other operating conditions are subject to agreement.

WARNING — Male and female dust couplings are pressure resistant plugs. They do not fulfil the function of a locking device, which should be installed in any case as long as the hose assembly is under pressure.

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 586-2, *Aluminium and aluminium alloys — Forgings — Part 2: Mechanical properties and additional property requirements*

EN 10083-2, *Steels for quenching and tempering — Part 2: Technical delivery conditions for non alloy steels*

EN 10088-1, *Stainless steels — Part 1: List of stainless steels*

EN 10213, *Steel castings for pressure purposes*

EN 12420, *Copper and copper alloy — Forgings*

EN 14420-1:2013, *Hose fittings with clamp units — Part 1: Requirements, types of fixing and connection, designation and testing*

EN 14420-2, *Hose fittings with clamp units — Part 2: Hose side parts of hose tail*

EN 14420-3, *Hose fittings with clamp units — Part 3: Clamp units, bolted or pinned*

EN 14420-5: 2013, *Hose fittings with clamp units — Part 5: Threaded connections*

EN 22768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications (ISO 2768-1)*

EN 22768-2, *General tolerances — Part 2: Geometrical tolerances for features without individual tolerance indications (ISO 2768-2)*

EN ISO 4042, *Fasteners — Electroplated coatings (ISO 4042)*

EN ISO 8330:2008, *Rubber and plastics hoses and hose assemblies — Vocabulary (ISO 8330:2007)*

1) 1 bar = 0,1 MPa.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 8330:2008 and the following apply.

3.1
DN (nominal size)
alpha-numeric designation of size for components of a pipework system, which is used for reference purposes. It comprises the letters DN followed by a dimensionless whole number which is indirectly related to the physical size, in millimetres, of the bore or outside diameter of the end connections.

Note 1 to entry: The number following the letters DN does not represent a measurable value and should not be used for calculation purposes except where specified in the relevant standard.

Note 2 to entry: In those standards which use the DN designation system, any relationship between DN and component dimensions should be given, e.g. DN/OD or DN/ID.

[SOURCE: EN ISO 6708:1995, 2.1]

3.2
main gasket
interface gasket between the male and female part of a coupling

3.3
thread gasket
flat faced gasket for threads according to EN ISO 228-1

3.4
protection ring
ring which protects the valve from hitting the ground or draggling on the ground

4 Fitting combinations

Hose fittings with TW coupling: Female coupling (Type MKS) and male coupling (Type VKS).

Usual fitting combination for the filling of the storage tank: Female coupling (Type MK) and male coupling (Type VK).

Usual fitting combination for closing off the outlet end of the TW: Female coupling (Type MK) and male dust coupling (Type VB).

Usual fitting combination for closing off the filling nozzle or the storage tank: Female dust coupling (Type MB) and male coupling (Type VK).

5 Dimensions, designations

5.1 Hose fittings with TW couplings

5.1.1 General

A hose fitting with TW coupling for female coupling (type MKS) is shown in Figure 1.

A hose fitting with TW coupling for male coupling (type VKS) is shown in Figure 2.

A parts list for Figure 1 and Figure 2 is given in Table 1.

Dimensions in millimetres

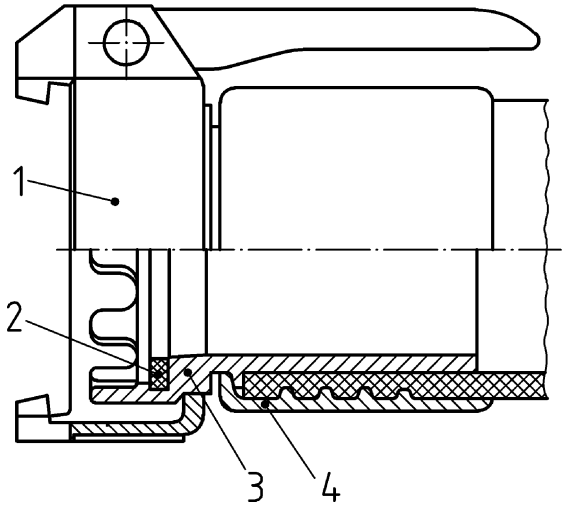


Figure 1 — Hose fitting with TW coupling for female coupling (type MKS)

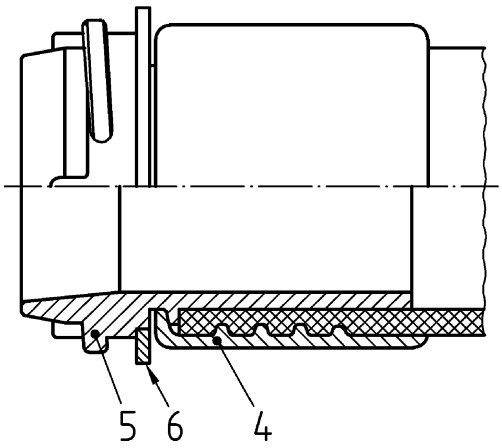


Figure 2 — Hose fitting with TW coupling for male coupling (type VKS)

Table 1 — Parts list

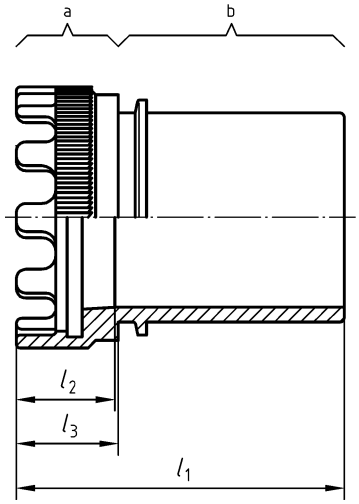
Item No.	Designation	Requirements
1	Tension ring with levers	according to 5.3.4.2 and 5.3.4.3
2	Main gasket	according to 5.3.4.4
3	Hose tail type MKST	according to 5.1.2
4	Clamp unit	according to EN 14420-3
5	Hose tail type VKST	according to 5.1.3
6	Protecting ring	according to 5.1.4

Designation of a complete hose fitting shall be according to EN 14420-1.

5.1.2 Hose tail with female TW coupling

Dimensions for a hose tail with female TW coupling (type MKST) are shown in Figure 3; values are given in Table 2.

Type MKST



Key

a Coupling side part of the tail; other dimensions and specifications according to 5.3.

b Hose side part of the tail; dimensions according to EN 14420-2.

Figure 3 — Hose tail type MKST

Table 2 — Hose tail type MKST

Dimensions in millimetres

Nominal size DN		**For hose internal diameter**	l_1	l_2	l_3
Connection female TW coupling	**Hose connection**		min.	max.	$^{+1}_{0}$
50	40	38	68	24	26
	50	50	75	—	
80	65	63	98	27	35
	80	75	102	35	
100	100	100	125	27	35,5

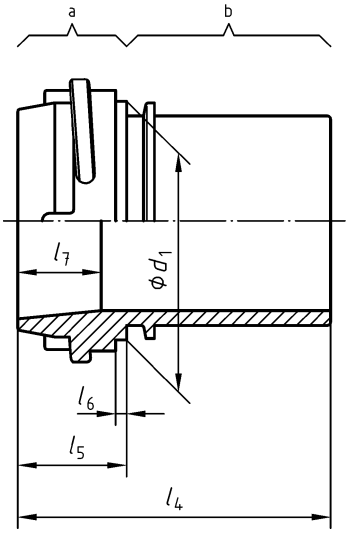
Example for an ordering designation of a complete hose tail with female TW coupling (type MKST) with nominal size DN 50 on coupling connection side and nominal size DN 40 on hose connecting side, made of copper-zinc alloy (CW614N):

Hose tail EN 14420-6 — MKST — 50 — 40 — CW614N

5.1.3 Hose tail with male TW coupling

Dimensions for a hose tail with male TW coupling (type VKST) are shown in Figure 4; values are given in Table 3.

Type VKST



Key

a Coupling side part of the tail; other dimensions and specifications according to 5.2.

b Hose side part of the tail; dimensions shall be according to EN 14420-2.

Figure 4 — Hose tail type VKST

Table 3 — Hose tail type VKST

Dimensions in millimetres

Nominal size DN		**For hose internal diameter**	d_1		l_4	l_5	l_6	l_7
Connection male TW coupling	**Hose connection**			Tolerances	min.	± 0,5	min.	max.
50	40	38	45	$^{0}_{-0,3}$	80	37,5	2,5	32
	50	50	58		87		3	30
80	65	63	75		110,5	48	4	40
	80	75	90	$^{+0,8}_{-0,3}$	115			
100	100	100	113	$^{+1}_{-0,3}$	134,5	44,5	4	35

Example for an ordering designation of a complete hose tail with male TW coupling (type VKST) with nominal size DN 80 on coupling connection side and nominal size DN 80 on hose connection side, made of stainless steel (1.4571):

Hose tail EN 14420-6 — VKST — 80 — 80 — 1.4571

5.1.4 Protecting ring

The protecting ring is intended to prevent the external surface of the male couplings from damage, which may be result of hose pipeline handling, e.g. by falling down to earth.

The protecting ring does not have to conform to Figure 5; only fixed dimensions in Table 4 shall be used.

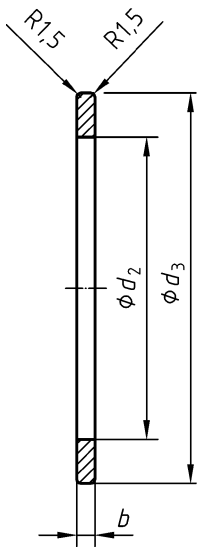


Figure 5 — Protecting ring

Table 4 — Protecting rings

Dimensions in millimetres

Nominal size DN		b	d_2	d_3
Connection male TW coupling	**Hose connection**	± 0,3	$^{+\ 0,5}_{\ 0}$	± 0,5
50	40	4,5	45,5	90
	50		58,5	
80	65	6	75,5	122
	80		91	
100	100	7	114,5	153

Example for an ordering designation of a protecting ring for a hose tail with nominal size DN 50 of the male coupling connection side and nominal size DN 40 on the hose connection side, made of polyamide (PA):

Protecting ring EN 14420-6 — 50 — 40 — PA

5.2 Male coupling (type VK)

5.2.1 General

A male coupling (type VK) is shown in Figure 6. A parts list for Figure 6 is given in Table 5.

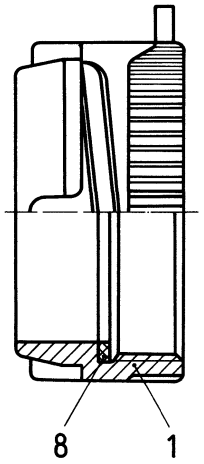


Figure 6 — Male coupling (type VK)

Table 5 — Parts list

Pos. No.	Number of pieces	Designation
1	1	Body
8	1	Thread gasket[a]
[a] Dimensions according to EN 14420-5.		

Example for an ordering designation of a complete male coupling (type VK) with nominal size DN 80 and maximum working pressure 16 bar, made of copper-zinc alloy (CW614N):

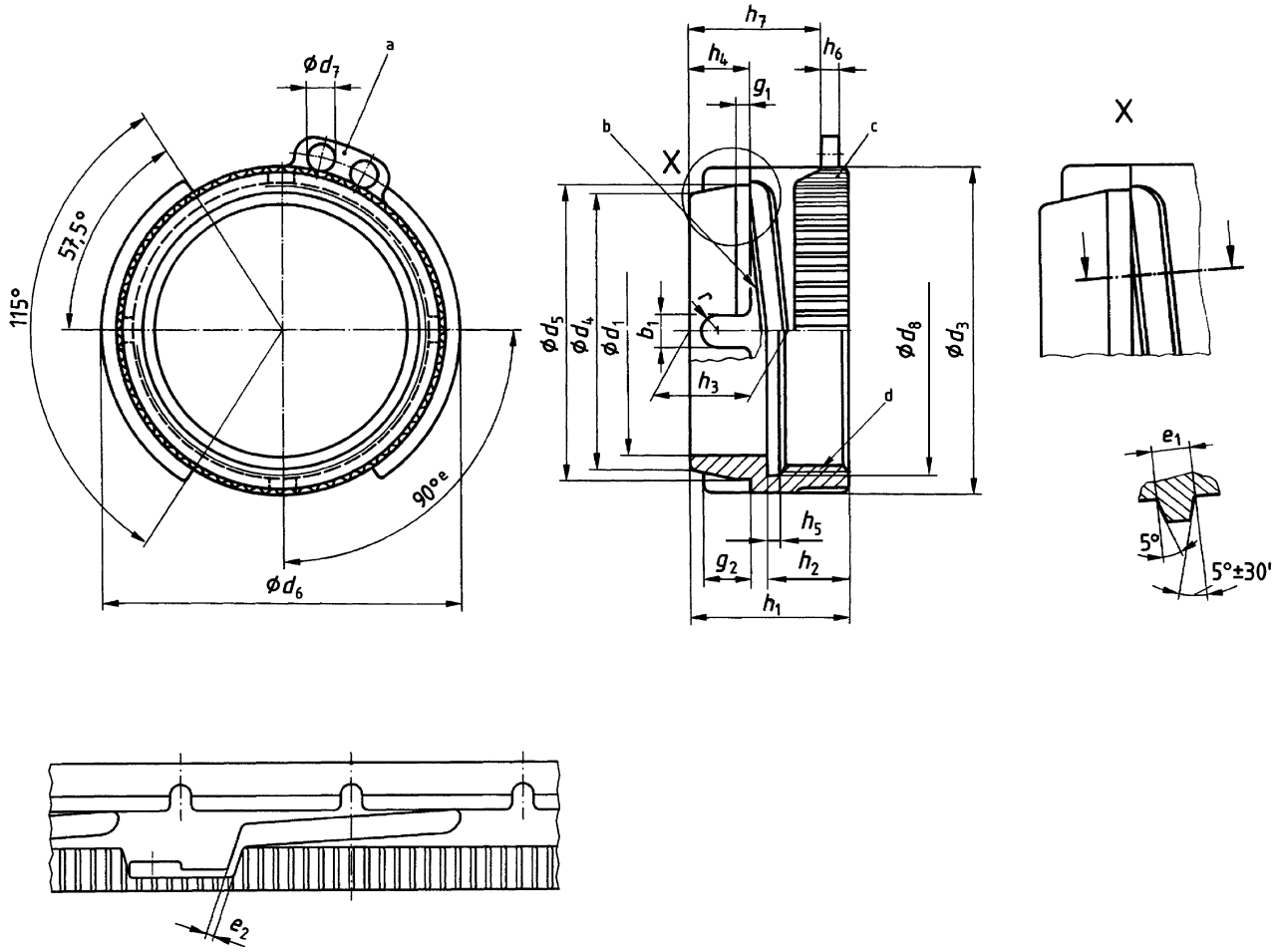
Coupling EN 14420-6 — VK — 80 — 16 — CW614N

For connection with hoses, hose tails according to EN 14420-5 can be screwed into the male coupling (type VK) or one-piece hose fittings in accordance with 5.1 can be used.

5.2.2 Components

5.2.2.1 Body DN 50 and DN 80 (item No. 1)

Dimensions for bodies with nominal size DN 50 and DN 80 are shown in Figure 7; values are given in Table 6.



Key

a The spatial arrangement do not have to correspond to the drawing.
b Marking
c Straight knurled portion
d Thread according to EN 14420-5
e The angle between cams (90°) shall be checked with a gauge according to Annex A.

Figure 7 — Body DN 50 and DN 80

Table 6 — Dimensions for body DN 50 and DN 80

Dimensions in millimetres

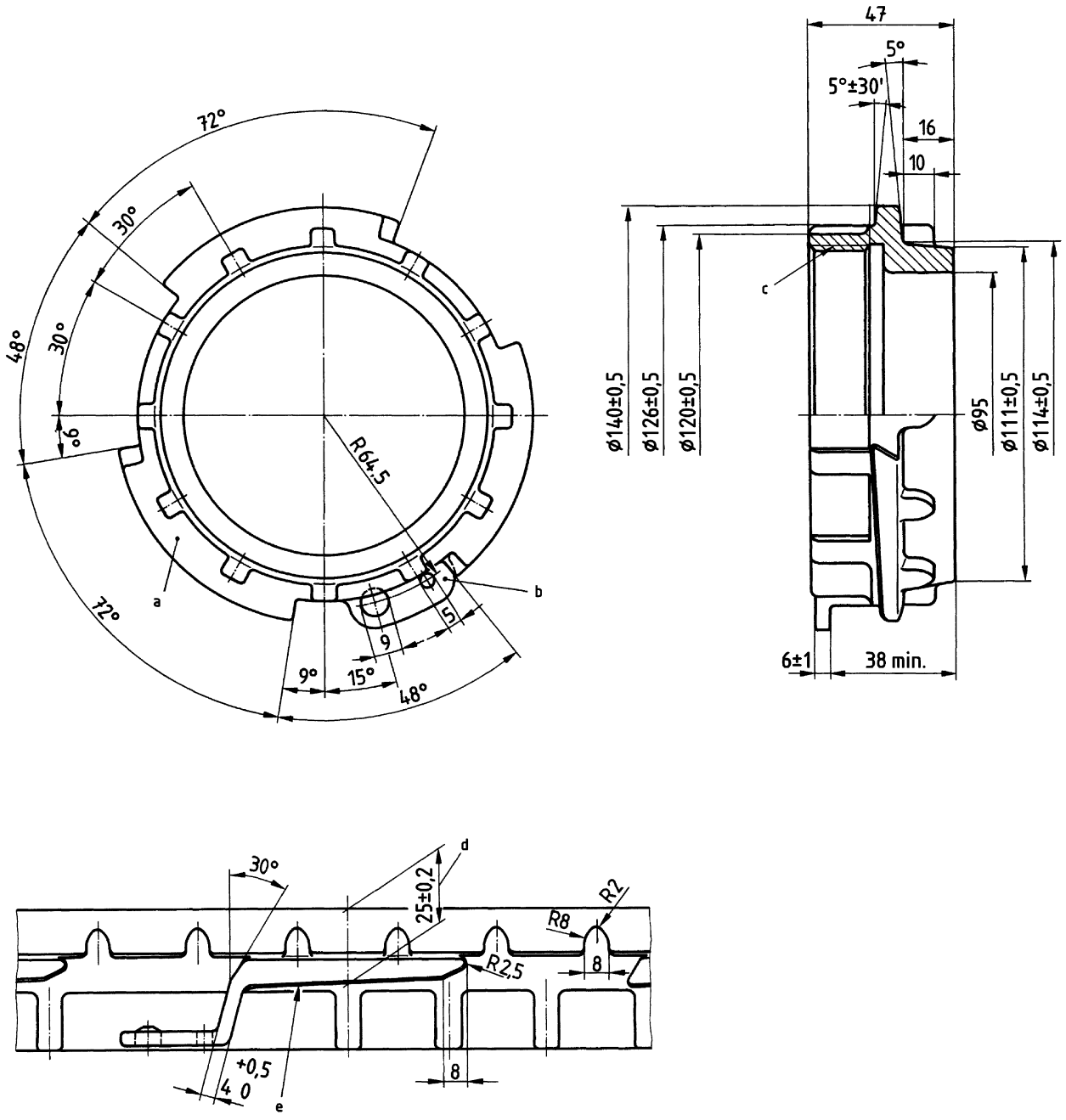
Nominal size DN	b_1 ± 0,2	d_1	d_3 ± 0,5	d_4	d_4 Tolerances	d_5 ± 0,4	d_6 ± 0,5	d_7	d_8 ± 0,2	e_1 ± 0,6	e_2 $^{+0,5}_{0}$
50	6,5	48	67	55,5	$^{+0,4}_{0}$	60	77	8	60,5	7	2,5
80	8,5	76	100	84,5	± 0,5	90	110	9	88,5	8	3,5

Nominal size DN	g_1	g_2 $^{+0,5}_{0}$	h_1 ± 1	h_2 $^{0}_{-0,5}$	h_3 ± 0,2	h_4 ± 0,5	h_5	h_6 ± 1	h_7 min.	r	**Gradient of the curve element**
50	4,5	8	39	20	23,5	14,5	3	5	30	3,25	13
80	5	13	48	24	30,5	20	4	5	41	4,25	14
For DN 50 and DN 80, h_3 should be checked with a gauge according to Annex A.											

5.2.2.2 Body DN 100

Dimensions for bodies with nominal size DN 100 are shown in Figure 8.

Dimensions in millimetres



Key

a Marking
b The spatial arrangement do not have to correspond to the drawing.
c Thread according to EN 14420-5
d Gauge dimension under all three curved elements shall be checked with a gauge according to Annex A.
e Gradient 14 mm

Figure 8 — Body DN 100

5.2.2.3 Body designation

Example for an ordering designation of a body item No. 1 (type VK) with nominal size DN 80 for a maximum working pressure of 16 bar, made of copper-zinc alloy (CW614N):

Body EN 14420-6 — VK — 80 —16 —CW614N

Table 7 — General tolerances for body dimensions

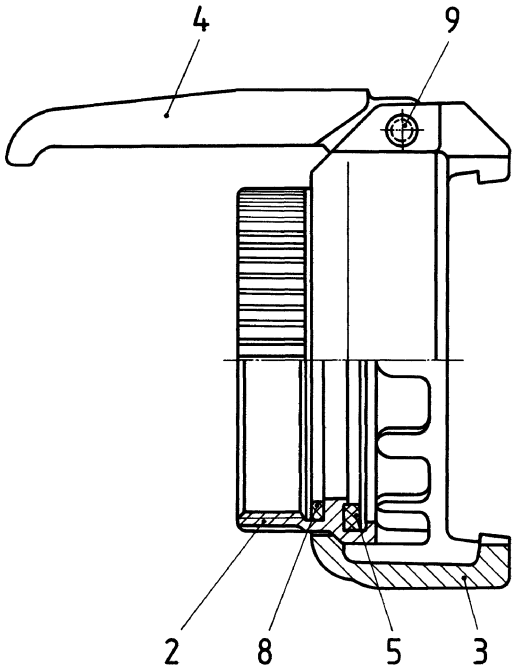
Dimensions in millimetres

Range of nominal sizes (DN)						
3 to 6	> 6 to 18	> 18 to 30	> 30 to 50	> 50 to 80	> 80 to 120	> 120 to 200
± 0,2	± 0,3	± 0,4	± 0,5	± 0,65	± 0,8	± 0,9

5.3 Female coupling (type MK)

5.3.1 Female coupling (type MK) DN 50 and DN 80

A female coupling (type MK) is shown in Figure 9. A parts list for Figure 9 is given in Table 8.



Key
For 2, 3, 4, 5, 8 and 9 see Table 8.

Figure 9 — Female coupling (type MK) DN 50 and DN 80

NOTE For connection with hoses, hose tails according to EN 14420-5 can be screwed into the female coupling (type MK) or one-piece hose fittings in accordance with 5.1 can be used.

Table 8 — Parts list

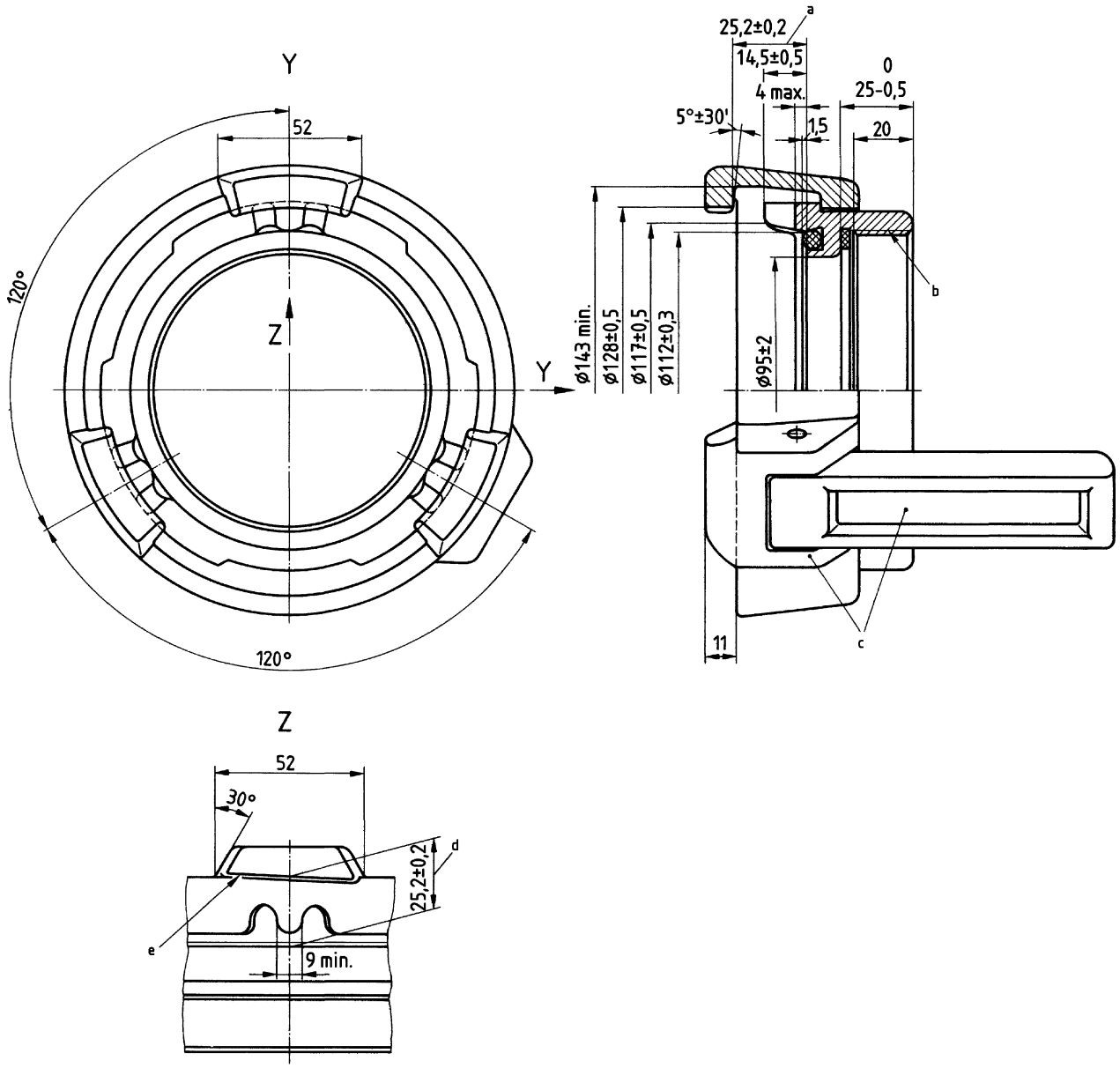
Item No.	Number of pieces	Designation
2	1	Gasket fixture
3	1	Tension ring
4	1	Lever
5	1	Main gasket
8	1	Thread gasket[a]
9	1	Fastening component

[a] Dimensions according to EN 14420-5:2013, 5.5.

5.3.2 Female coupling (type MK) DN 100

A female coupling (type MK) with nominal size DN 100 is shown in Figure 10.

Dimensions in millimetres



Key

a Gauge dimension shall be checked with a gauge according to Annex A.
b Thread according to EN 14420-5
c Dimensions of lever and lever position are not fixed. The spatial arrangement does not have to correspond to the drawing.
d Gauge dimension at all three claws
e Gradient 14 mm

Figure 10 — Female coupling (type MK) DN 100

5.3.3 Designation

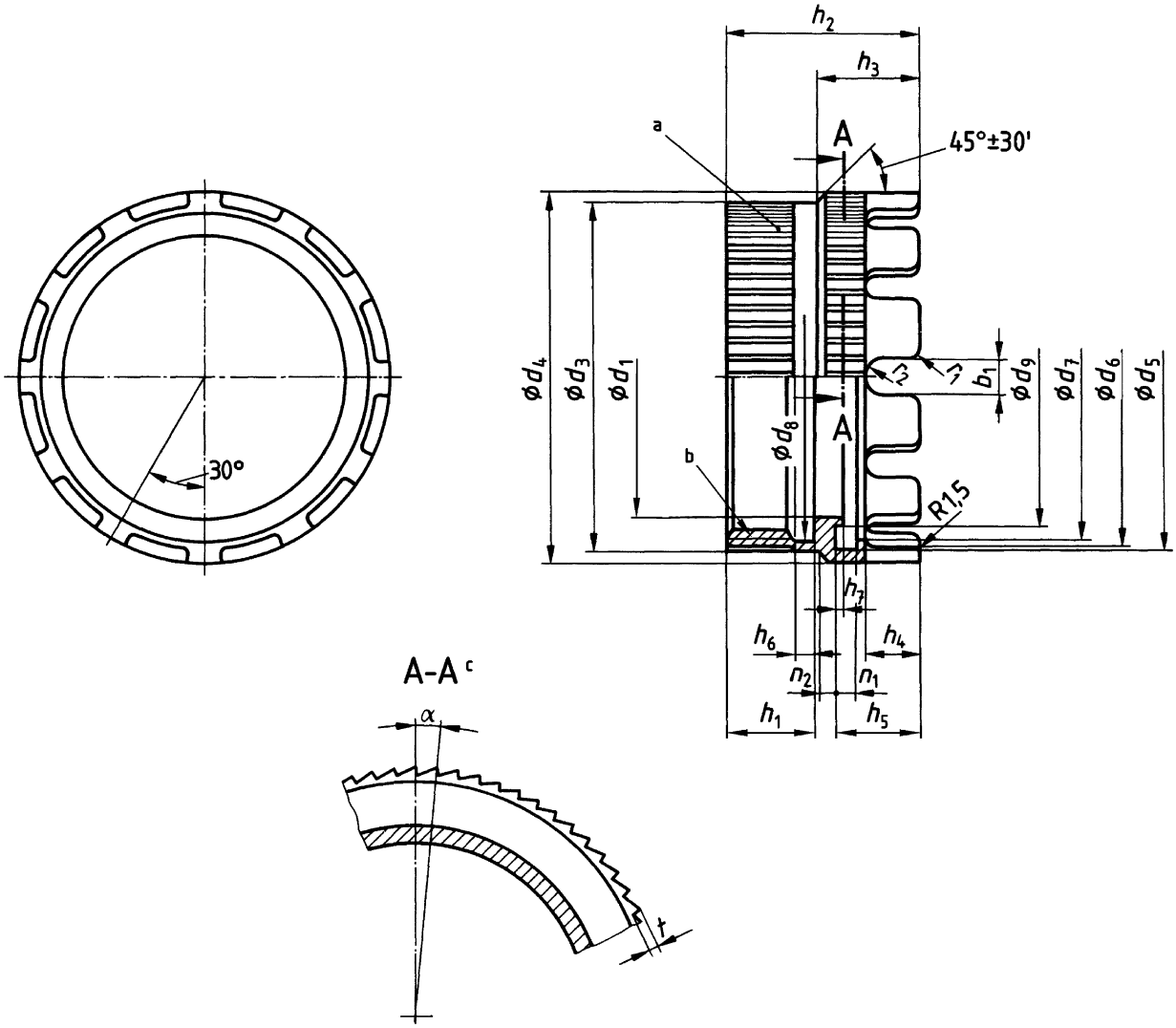
Example for an ordering designation of a complete female coupling (type MK) with nominal size DN 80, for a maximum working pressure of 16 bar, made of copper-zinc alloy (CW614N):

Coupling EN 14420-6 — MK — 80 — 16 —CW614N

5.3.4 Components

5.3.4.1 Gasket fixture DN 50 and DN 80 (item No. 2)

Dimensions for gasket fixtures for nominal size DN 50 and DN 80 are shown in Figure 11; values are given in Table 9.



Key

a Straight knurled portion
b Thread according to EN 14420-5
c Magnified

Figure 11 — Gasket fixture

Table 9 — Dimensions of gasket fixture[a]

Dimensions in millimetres

Nominal size DN	b_1 ± 0,2	d_1	d_3 0 − 0,5	d_4 0 − 0,5	d_5 ± 0,2	d_6 ± 0,4	d_7	d_8 ± 0,2	d_9 0 − 0,3	h_1 0 − 0,5	h_2
50	7,5	46	65	69,7	62,5	61	59	60,5	48	20	40,5
80	9,5	74	95	101	93	91	88	88,5	76	24	52

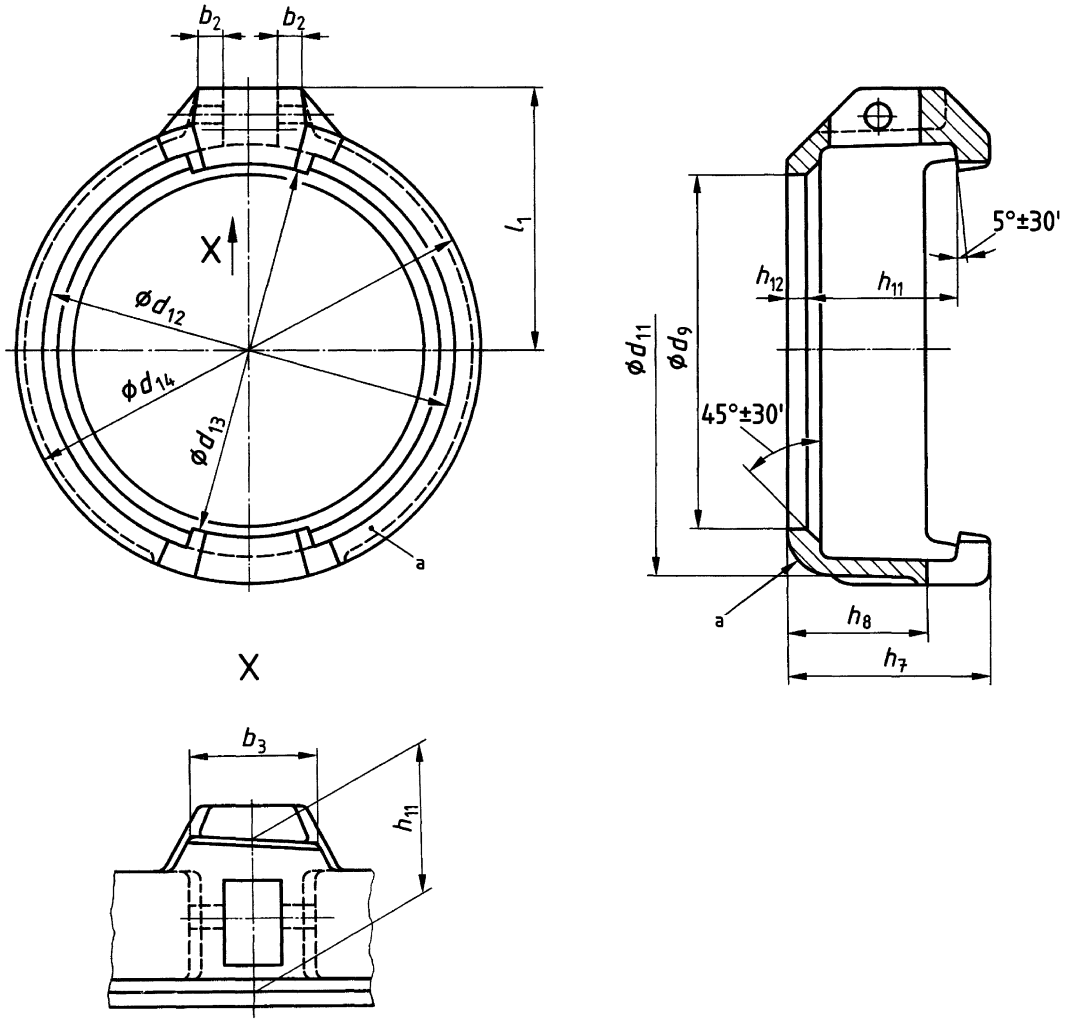
Nominal size DN	h_3	h_4 + 0,5 0	h_5 ± 0,2	h_6	h_7[b] max.	n_1 ± 0,2	n_2 ± 0,2	r_1	r_2	T + 0,2 0	α ± 10'
50	19,5	9	16	3	1	5,5	3,5	2,5	3,75	1,2	5°
80	27,5	14	22,5	4	1	6,5	5	4	4,75	1,5	4°

[a] Dimension n_2 shall be checked according to Annex A.

[b] Optional.

5.3.4.2 Tension ring DN 50 and DN 80 (item No. 3)

Dimensions for tension rings for nominal size DN 50 and DN 80 are shown in Figure 12; values are given in Table 10.



Key
[a] Marking

Figure 12 — Tension ring

Table 10 — Tension ring dimensions[a]

Dimensions in millimetres

Nominal size DN	b_2 min.	b_3 min.	d_9 ± 0,2	d_{11}	d_{12} ± 0,5	d_{13} ± 0,5	d_{14}	h_7	h_8	h_{11} ± 0,2	h_{12}	l_1 max.	**Gradient of the curve-element**
50	5	26	65,7	86	78,5	70,5	90	42	29	30,5	4	55	13
80	5	38	96	122	112	102	126	55	38	40	5	75	14

[a] Dimensions d_9 and h_{11} shall be checked with gauge according to Annex A.

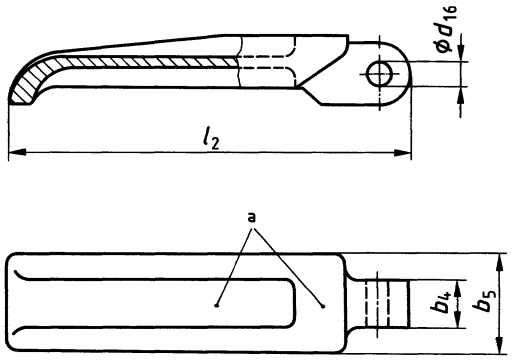
Example for an ordering designation of a tension ring item No. 3 with nominal size DN 80, for a maximum working pressure of 16 bar, made of copper-zinc alloy (CW614N):

Tension ring EN 14420-6 — 3 — 80 — 16 — CW614N

5.3.4.3 Lever DN 50 and DN 80 (item No. 4)

Dimensions for the lever for nominal size DN 50 and DN 80 are shown in Figure 13; values are given in Table 11. General tolerances for lever and dust cap dimensions are given in Table 12.

Dimensions b_4 and other dimensions shall match with the dimensions of the tension ring item No. 3.



Key
[a] Marking

Figure 13 — Lever

Table 11 — Lever dimensions

Dimensions in millimetres

Nominal size DN	b_4 min.	b_5 min.	d_{16} Fastening component min.	l_2 min.
50	15	23	5	100
80	18	29	6	112

Table 12 — General tolerances for lever and dust cap dimensions

Dimensions in millimetres

Range of nominal sizes (DN)						
3 to 6	> 6 to 18	> 18 to 30	> 30 to 50	> 50 to 80	> 80 to 120	> 120 to 200
± 0,2	± 0,3	± 0,4	± 0,5	± 0,65	± 0,8	± 0,9

Technical delivery conditions for copper and copper alloy drop forgings shall be according to EN 12420.

Example for an ordering designation of a lever item No. 4 with nominal size DN 80, for a maximum working pressure of 16 bar, made of copper-zinc alloy (CW614N):

Lever EN 14420-6 — 4 — 80 — 16 —CW614N

5.3.4.4 Main gasket (item No. 5)

5.3.4.4.1 Main gasket DN 50 and DN 80

Dimensions for main gaskets for nominal size DN 50 and DN 80 are shown in Figure 14; values are given in Table 13.

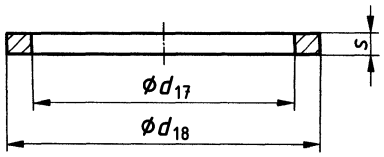


Figure 14 — Main gasket DN 50 and DN 80

Designation of a main gasket (item No. 5) with nominal size DN 80, for a maximum working pressure of 16 bar, made of rubber/plastics (E):

Main gasket EN 14420-6 — 5 — 80 — 16 — E

Table 13 — Main gasket dimensions

Nominal size DN	d_{17}	d_{18} ± 0,6	S ± 0,2
50	49	61,5	5
80	77	92	6

5.3.4.4.2 Main gasket DN 100

Dimensions for main gaskets for nominal size DN 100 are shown in Figure 15.

Dimensions in millimetres

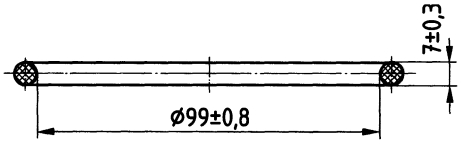


Figure 15 — Main gasket DN 100

Designation of a main gasket (item No. 5) with nominal size DN 100, for a maximum working pressure of 16 bar, made of rubber/plastics (E):

Main gasket EN 14420-6 — 5 — 100 — 16 — E

5.3.4.5 Thread gasket (item No. 8)

Thread gaskets shall be in accordance with EN 14420-5:2013, 5.5.

5.3.4.6 Fastening component (item No. 9)

At the discretion of the manufacturer.

5.4 Dust cap (type MB)

5.4.1 General

A dust cap (type MB) for nominal size DN 50 and DN 80 is shown in Figure 16; for nominal size DN 100 in Figure 17. A parts list for Figure 16 and Figure 17 is given in Table 14.

Dimensions in millimetres

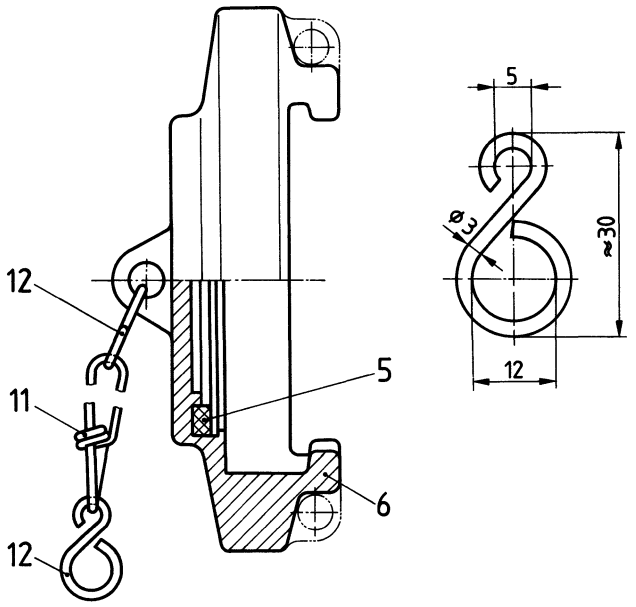


Figure 16 — Dust cap DN 50 and DN 80

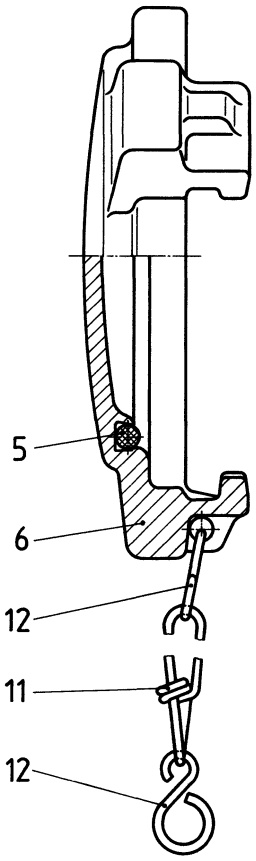


Figure 17 — Dust cap DN 100

Example for an ordering designation of a complete dust cap (type MB) with nominal size DN 80 for a maximum working pressure of 16 bar, made of copper-zinc alloy (CW614N):

Dust cap EN 14420-6 — MB80 — 16 —CW614N

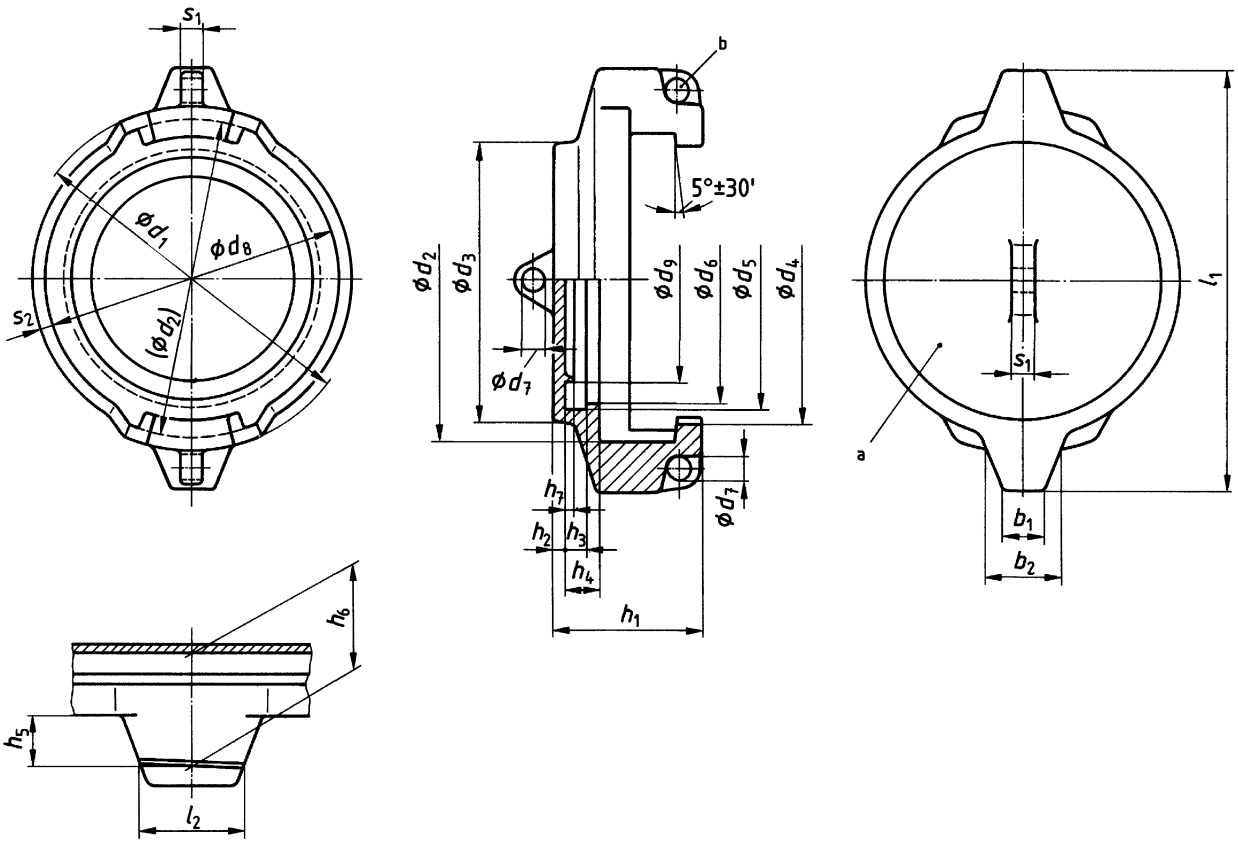
Table 14 — Parts list

Item No.	Number of pieces	Designation	
5	1	Main gasket	
6	1	Dust cap	
11	1	Chain	Chain
12	2		S-shaped hook

5.4.2 Components

5.4.2.1 Dust cap DN 50 and DN 80 (item No. 6)

Dimensions of caps for nominal size DN 50 and DN 80 are shown in Figure 18; values are given in Table 15.



Key

a Marking

b Eyes for S-shaped hooks and arrangement of eyes at the discretion of the manufacturer.

Figure 18 — Dust cap DN 50 and DN 80

Table 15 — Dust cap dimensions

Dimensions in millimetres

Nominal size DN	b_1 min.	b_2 min.	d_1	d_2 ± 0,6	d_3	d_4 ± 0,5	d_5 ± 0,2	d_6 max.	d_7	d_8 min.	d_9 $^{0}_{-0,3}$	h_1 min.
50	10	18	86	78,5	68	70,5	62,5	59	6	68	48	37,5
80	15	26	122	112	100	102	93	88	7	102	76	47

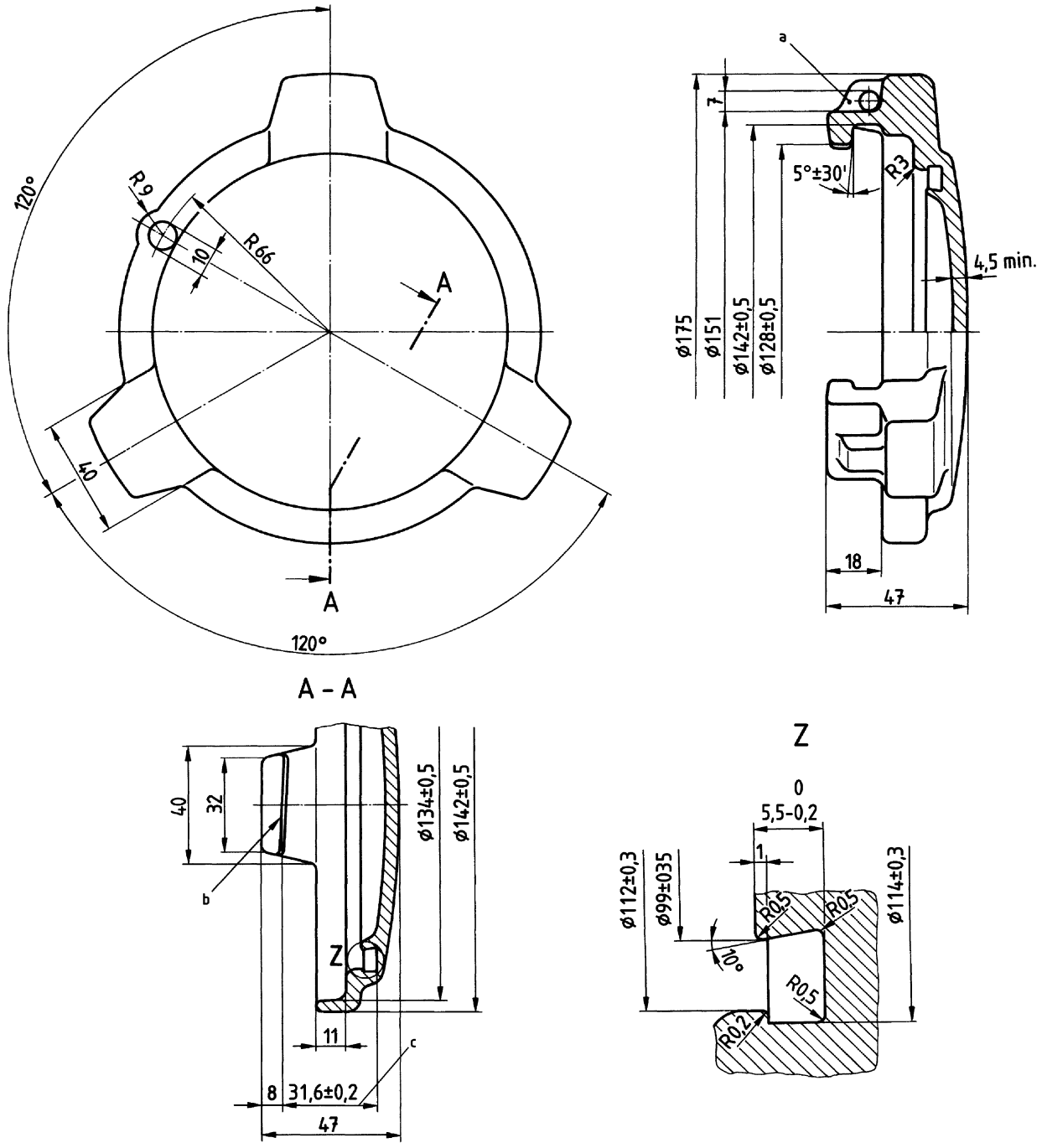
Nominal Size DN	h_2	h_3 ± 0,2	h_4 max.	h_5 $^{+1,5}_{0}$	h_6 [a] ± 0,2	h_7 min.	l_1 min.	l_2 min.	s_1 min.	s_2 min.	**Gradient of the curve element**
50	2,5	5,5	8,5	10,5	27,9	1	105	26	6	3	13
80	3,5	6,5	9	12,5	35,9	1	145	38	8	3,5	14

[a] Dimension h_6 shall be checked with gauge according to Annex A.

5.4.2.2 Dust cap DN 100 (item No. 6)

Dimensions of dust caps for nominal size DN 100 are shown in Figure 19.

Dimensions in millimetres



Key

a The spatial arrangement at the periphery do not have to correspond to the drawing.

b Gradient 14 mm

c Gauge dimension 7 shall be checked with gauge according to Annex A.

Figure 19 — Dust cap DN 100

5.4.2.3 Designation of a dust cap

Designation of a dust cap (item No. 6), type MB, with nominal size DN 80, for a maximum working pressure of 16 bar, made of copper-zinc alloy (CW614N):

Dust cap EN 14420-6 — 6 — MB — 80 — 16 — CW614N

Dust caps made of aluminium shall be anodised with a minimum oxide thickness of 20 µm.

For general tolerances see Table 12.

5.4.2.4 Chain (items No. 11 and 12)

At the discretion of the manufacturer.

5.5 Dust plug (type VB)

5.5.1 General

A dust plug (type VB) for nominal size DN 50 and DN 80 is shown in Figure 20; for nominal size DN 100 in Figure 21. A parts list for Figure 20 and Figure 21 is given in Table 16.

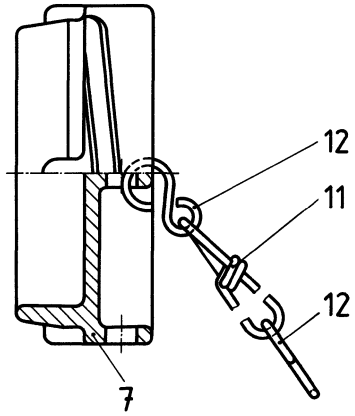


Figure 20 — Dust plug DN 50 and DN 80

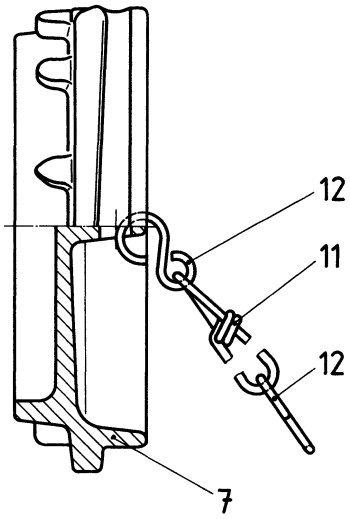


Figure 21 — Dust plug DN 100

Example for an ordering designation of a complete dust plug (type VB) with nominal size DN 80, for a maximum working pressure of 16 bar, made of copper-zinc alloy (CW614N):

Dust plug EN 14420-6 — VB — 80 — 16 — CW614N

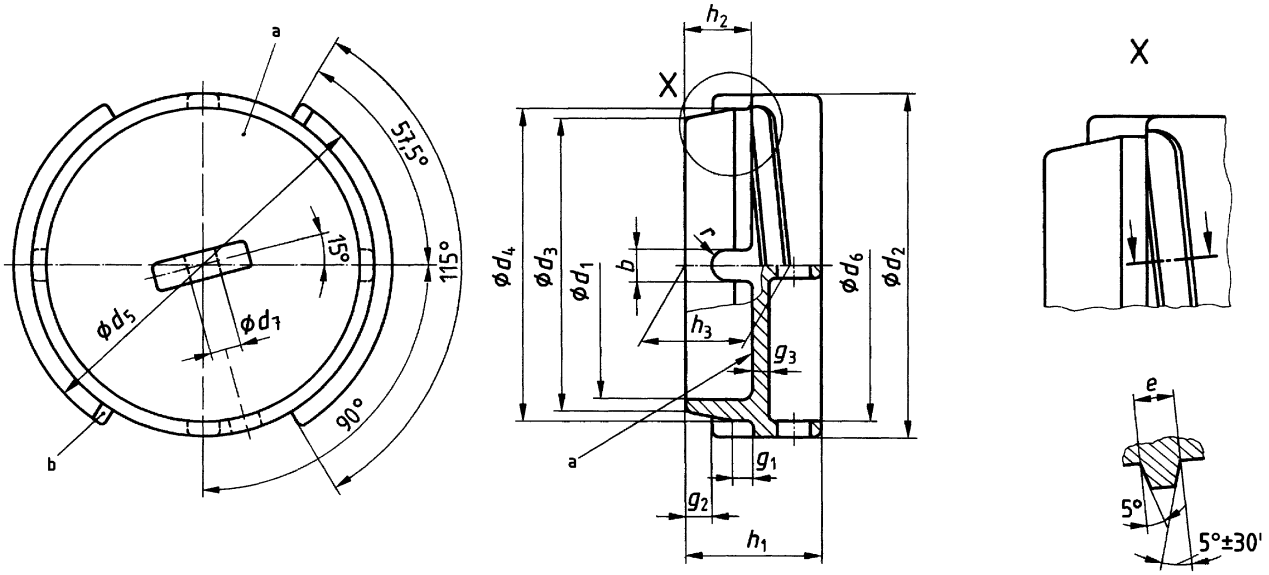
Table 16 — Parts list

Item No.	Number of pieces	Designation	
7	1	Dust plug	
11	1	Chain	Chain
12	2		S-shaped hook

5.5.2 Components

5.5.2.1 Dust plug DN 50 and DN 80 (item No. 7)

Dimensions of dust plugs for nominal size DN 50 and DN 80 are shown in Figure 22; values are given in Table 17.



Key

a Marking

b Stop cam at the end of the curve

Figure 22 — Dust plug DN 50 and DN 80

Table 17 — Dust plug dimensions [b]

Dimensions in millimetres

Nominal size DN	B ± 0,2	d_1	d_2 ± 0,5	d_3	Tolerances	d_4 ± 0,5	d_5 ± 0,5	d_6	d_7
50	6,5	48	67	55,5	$^{+0,4}_{0}$	60	77	61	8
80	8,5	77	100	84,5	± 0,5	90	110	90	8

Nominal size DN	E ± 0,6	g_1	g_2 $^{+0,5}_{0}$	g_3 min.	h_1 min.	h_2 ± 0,5	h_3 [a] ± 0,2	r	**Gradient of the curve element**
50	7	4,5	6	2,5	31	14,5	23,5	3,25	13
80	8	5	7	3,5	35	20	30,5	4,25	14

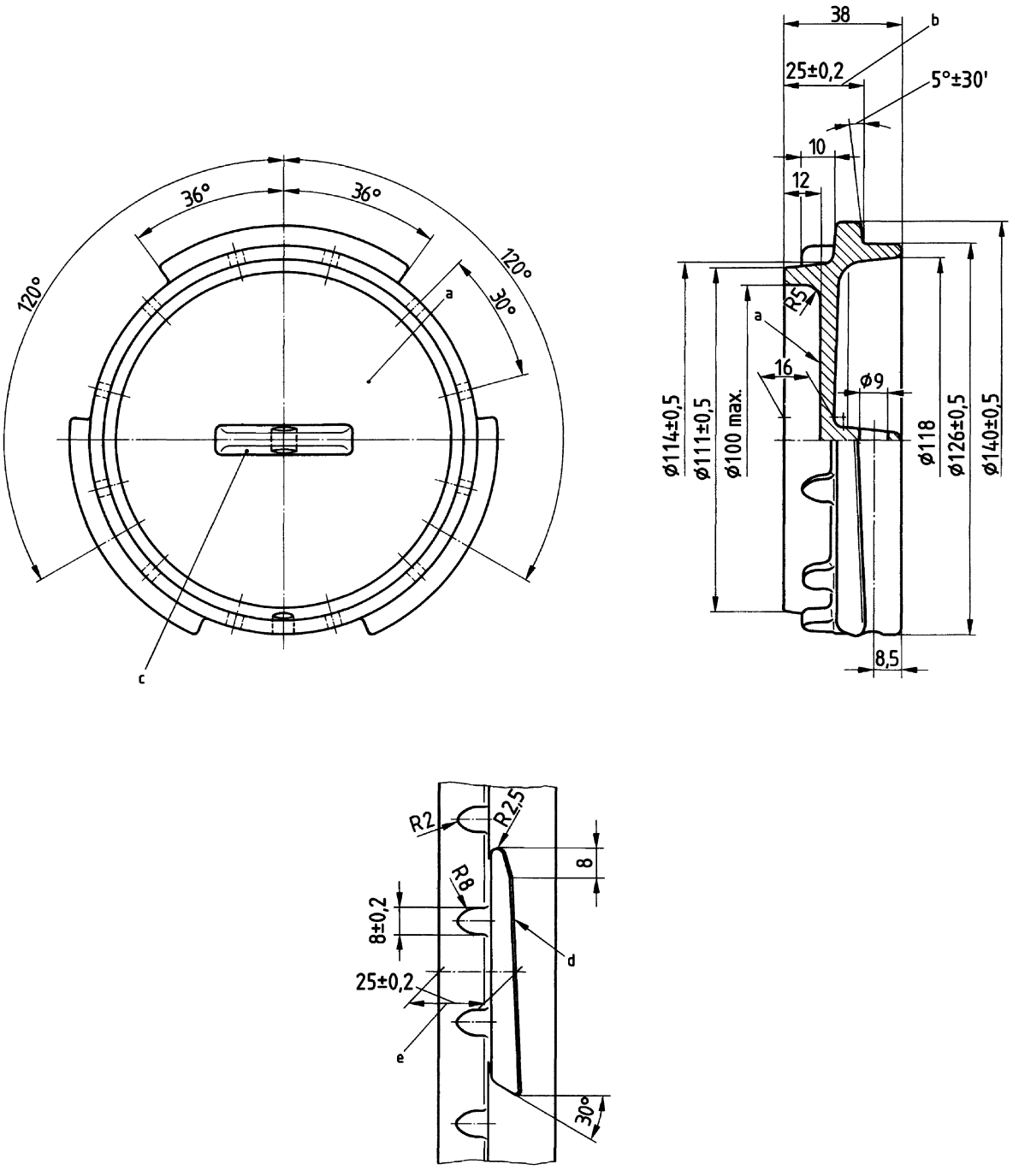
[a] Dimension h_3 shall be checked with gauge according to Annex A.

[b] Angle between cams shall be checked with gauge according to Annex A.

5.5.2.2 Dust plug DN 100 (item No. 7)

Dimensions of dust plugs for nominal size DN 100 are shown in Figure 23.

Dimensions in millimetres



Key

a Marking
b Gauge dimension
c The spatial arrangement at the periphery do not have to correspond to the drawing.
d Gradient 14 mm
e Gauge dimension under all 3 curve elements shall be checked with gauge according to Annex A.

Figure 23 — Dust plug DN 100

5.5.2.3 Designation of a dust plug

Example for an ordering designation of a dust plug (item No. 7), type VB, with nominal size DN 80 for a maximum working pressure of 16 bar, made of copper-zinc alloy (CW614N):

Dust plug EN 14420-6 — 7 —VB — 80 — 16 — CW614N

For general tolerances see Table 12.

5.5.2.4 Chain (item No. 11 and 12)

According to 5.4.2.4.

6 Materials

6.1 General

Whatever the kind of manufacturing procedure is, the minimum mechanical characteristics shall be equivalent to the mechanical characteristics of forgings (in case of aluminium and brass), investment casting (in case of stainless steel) using the materials specified in this document.

6.2 Hose tail types MKST and VKST

These materials are also applicable for the body of male coupling type VK, for the gasket fixture, tension ring and lever of female coupling type MK, the female dust coupling type MB and male dust coupling type VB.

Hose tail types MKST and VKST shall be made of the following materials:

a) copper-zinc alloys

Parts forged from extruded materials:

CuZn39Pb3-H080	material number CW614N according to EN 12420
CuZn40Pb2-H080	material number CW617N according to EN 12420

b) wrought aluminium alloys

EN AW-AL Si1MgMn	material number EN AW-6082 according to EN 586-2

c) stainless steels

X5CrNi18-10	material number 1.4301 according to EN 10088-1
X5CrNiMo17-12-2	material number 1.4401 according to EN 10088-1
X2CrNiMo17-12-2	material number 1.4404 according to EN 10088-1
X6CrNiTi18-10	material number 1.4541 according to EN 10088-1
X6CrNiMoTi17-12-2	material number 1.4571 according to EN 10088-1
GX5CrNiMo19-11-2	material number 1.4408 according to EN 10213
GX5CrNiMoNb19-11-2	material number 1.4581 according to EN 10213

Other materials having at least equivalent mechanical characteristics can be agreed as they are defined in the particular material standard of the indicated materials above.

6.3 Protecting rings of hose tail type MKST and VKST

The protection rings shall be made of plastics, resistant to abrasion and insensitive to fracture, e.g. polyamide (PA).

Protection rings shall be made from non-asbestos materials.

6.4 Thread gasket of male coupling type VK

Materials shall be selected to be resistant to the fluid/product/liquid being conveyed.

The materials shall preferably be selected from the following:

a) Polyurethane (PUR);

b) Polytetrafluoroethylene (PTFE);

c) Nitrile butadiene rubber (NBR);

d) Fluoro rubber (FPM);

e) Ethylene propylene diene monomer (EPDM).

Thread gaskets shall be made from non-asbestos materials.

6.5 Fastening component of female coupling type MK

Steel, shall be rust protected B 3 C according to EN ISO 4042 or non-rusting material, with minimum tensile of strength 360 N/mm^2, at the discretion of the manufacturer.

6.6 Main gasket of female coupling type MK

Main gaskets shall be made from rubber/plastics (E), resistant to abrasion, fuel and oil.

For the transport of different fluids, a suitable material shall be agreed by manufacturer and purchaser.

When using profiled gaskets, the exchangeability of gaskets and the procedure of coupling shall not be affected adversely by deformation of the gaskets.

Main gaskets shall be made from non-asbestos materials.

7 Design

MB type female dust couplings or VB type male dust couplings shall only be used as sealing elements, they shall not be pressurised continuously without being secured additionally (e.g. by a padlock).

Couplings with levers (MK type female couplings) shall generally be designed with a tension ring. The connection is only established if the lever is completely turned.

Type VK male couplings shall be designed so that a sealing cap (MB type) — lead-sealed and with a padlock — can be attached.

All coupling components shall form a functional unit which, when in service, permits reduction of axial movement (tightening possible) if components are worn.

Any residue resulting upon exposure to frost shall not influence the connection of the couplings (they shall be self-cleaning).

Twisting of the hose or vibration during service shall have no adverse effect on the coupling connection.

Couplings shall be secured against unintentional disengagement.

Proper engagement of the coupling claws shall be visible from the outside.

It shall be possible for a single person to handle couplings, without the need for tools.

Couplings shall be designed so that the hose need not be turned more than 15° for connection.

Axial misalignment up to 5° shall not impair the performance of the couplings.

8 Fitting of hose couplings

Careful selection of the hose couplings should be made to ensure that the inner diameter (ID), outer diameter (OD), and maximum working pressure (WP) of the hose are within the limits and tolerances of the couplings detailed in this document. It should also be ensured that the materials have been tested for the products and medium being conveyed.

NOTE Any mismatch could lead to a safety issue.

9 Marking

If appropriate surface area is available, the TW couplings according to this standard shall be clearly and durably marked on the outside with the following information:

a) EN 14420-6;

b) manufacturer's name or trademark;

c) type and nominal size;

d) material number (at least for stainless steels).

10 Type testing and quality control

Type testing and quality control shall be done according to EN 14420-1:2013, Clause 7.

Annex A
(normative)

Gauges for TW tank truck couplings

A.1 General

Gauges in accordance with this document shall be used for checking the dimension of a gasket fixture, a curved piece, a tension ring and a dust cap and for checking the angle between cams of a curved piece as well as the angle between two gaps of a gasket fixture.

A.2 Design; designation, dimensions and materials

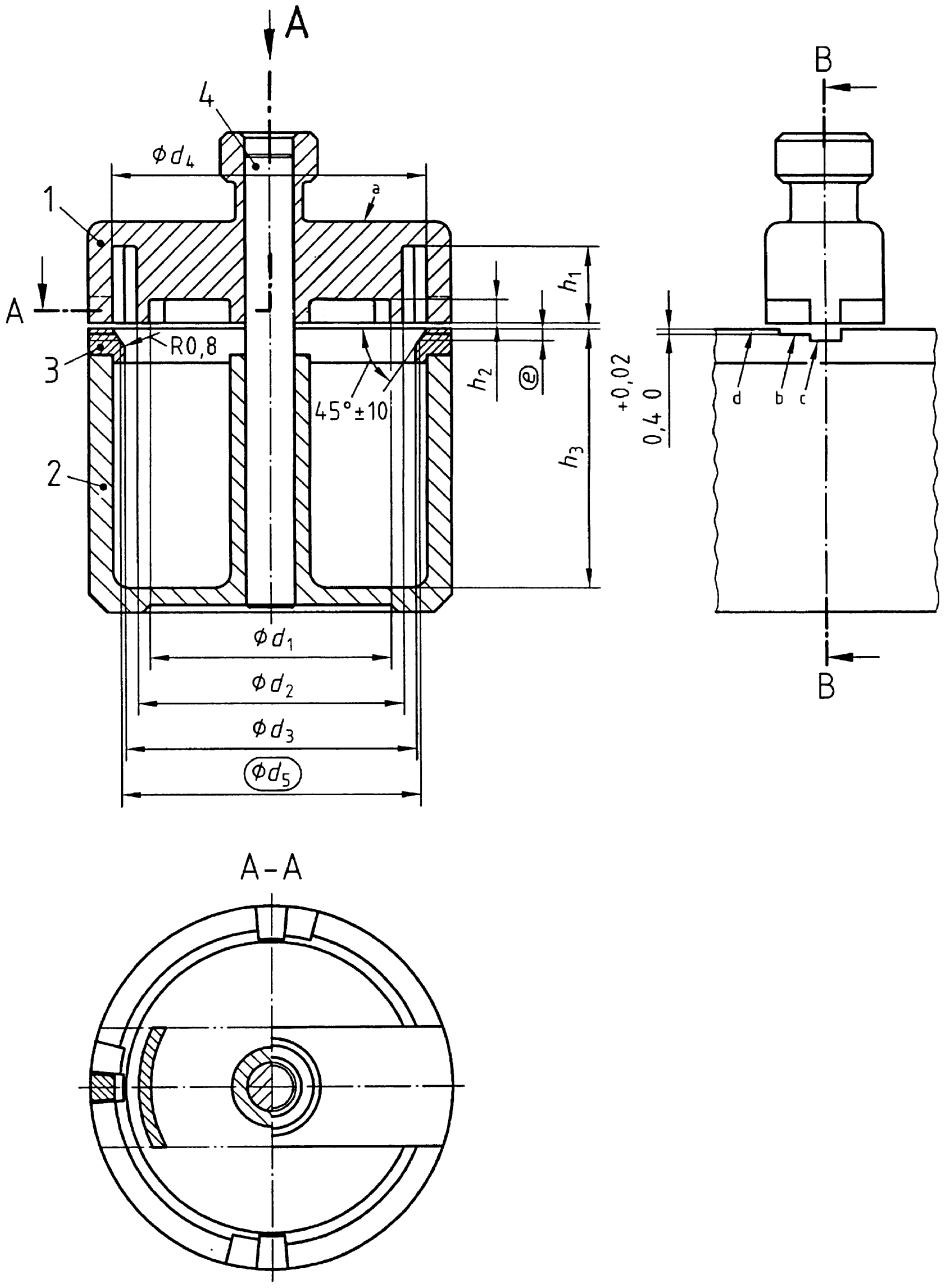
A.2.1 General

Details not specified in this document are at the discretion of the manufacturer with respect to the intended use. Only the dimensions given in Table 1 to Table 6 shall be complied with.

Tolerances shall be according to EN 22768-1 and EN 22768-2.

A.2.2 Gauge for gasket fixture

Dimensions in millimetres



Key

For position No. 1 to 4 see Table 2.

a Marking
b GO
c NOT GO
d Refinish

Figure A.1 — Gauge A1 for gasket fixture with nominal size DN 50 and DN 80

Example for an ordering of designation of a gauge A1 for a gasket fixture with a nominal size DN 80:

Gauge EN 14420-6 — A1 — 80

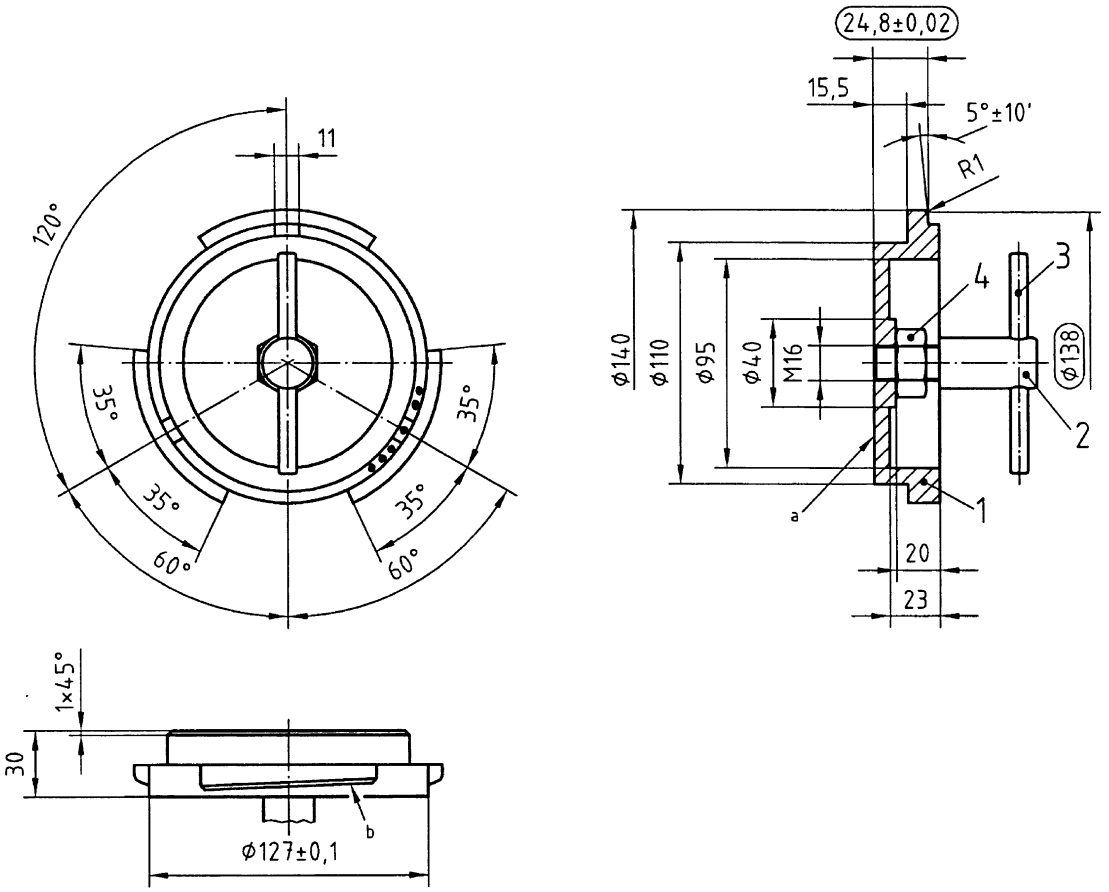
Table A.1 — Gauge A1 for gasket fixture with nominal size DN 50 and DN 80

Dimensions in millimetres

Nominal size DN	d_1	d_2 $^{0}_{-0,2}$	d_3 $^{+0,1}_{0}$	d_4 $^{+0,5}_{0}$	d_5	e $^{+0,02}_{0}$	h_1 $^{+0,5}_{0}$	h_2 $^{+0,5}_{0}$	h_3 $^{+0,5}_{0}$ [a]
50	51	58	65,3	71,7	68	2,2	18,5	6,5	64
80	79	87	95,3	103	98	3,7	25	7,5	85

[a] For gasket fixture with connected hose tail.

Dimensions in millimetres



Key

- • GO
- • • NOT GO
- • • • Refinish

a Marking

b Gradient of the curve element 14 mm

Figure A.2 — Gauge A1 with DN 100 for a gasket fixture with a tension ring

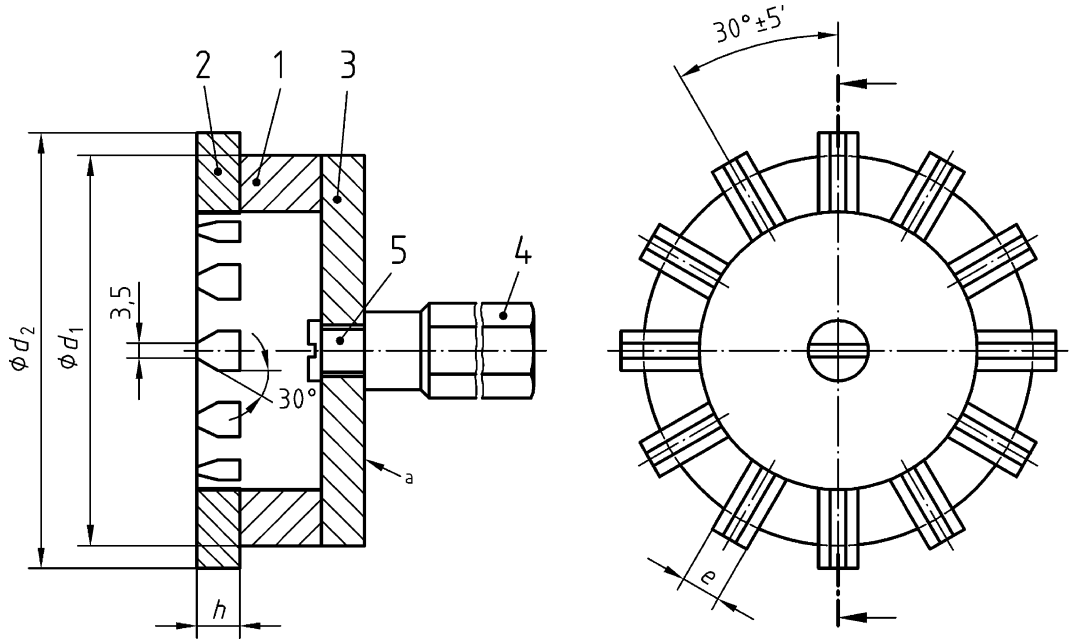
Table A.2 — Material and design of gauge A1 with the nominal size DN 50 and DN 80

Item No.	Number of pieces	Designation	Material		Design
			Symbol	Material number	
1	1	upper part	C 60 according to EN 10083-2	1.0601	heat treated gauge surface protected
2	1	lower part			
3	1	supporting plate			
4	1	bolt			

Table A.3 — Material and design of gauge A1 with the nominal size DN 100

Item No.	Number of pieces	Designation	Material		Design
			Symbol	Material number	
1	1	gauge body	C 60 according to EN 10083-2	1.0601	heat treated gauge surface protected
2	1	bolt			
3	1	handle	At the discretion of the manufacturer		
4	1	hexagon nut			

Dimensions in millimetres



Key
For position No. 1 to 5 see Table A.5.
a Marking

Figure A.3 — Gauge B1 for gasket fixtures with DN 50 and DN 80

Example for an ordering designation of a gauge B1 for a gasket fixture with the nominal size DN 80:

Gauge EN 14420-6 — B1 — 80

Table A.4 — Dimensions of gauge B1 for gasket fixtures

Dimensions in millimetres

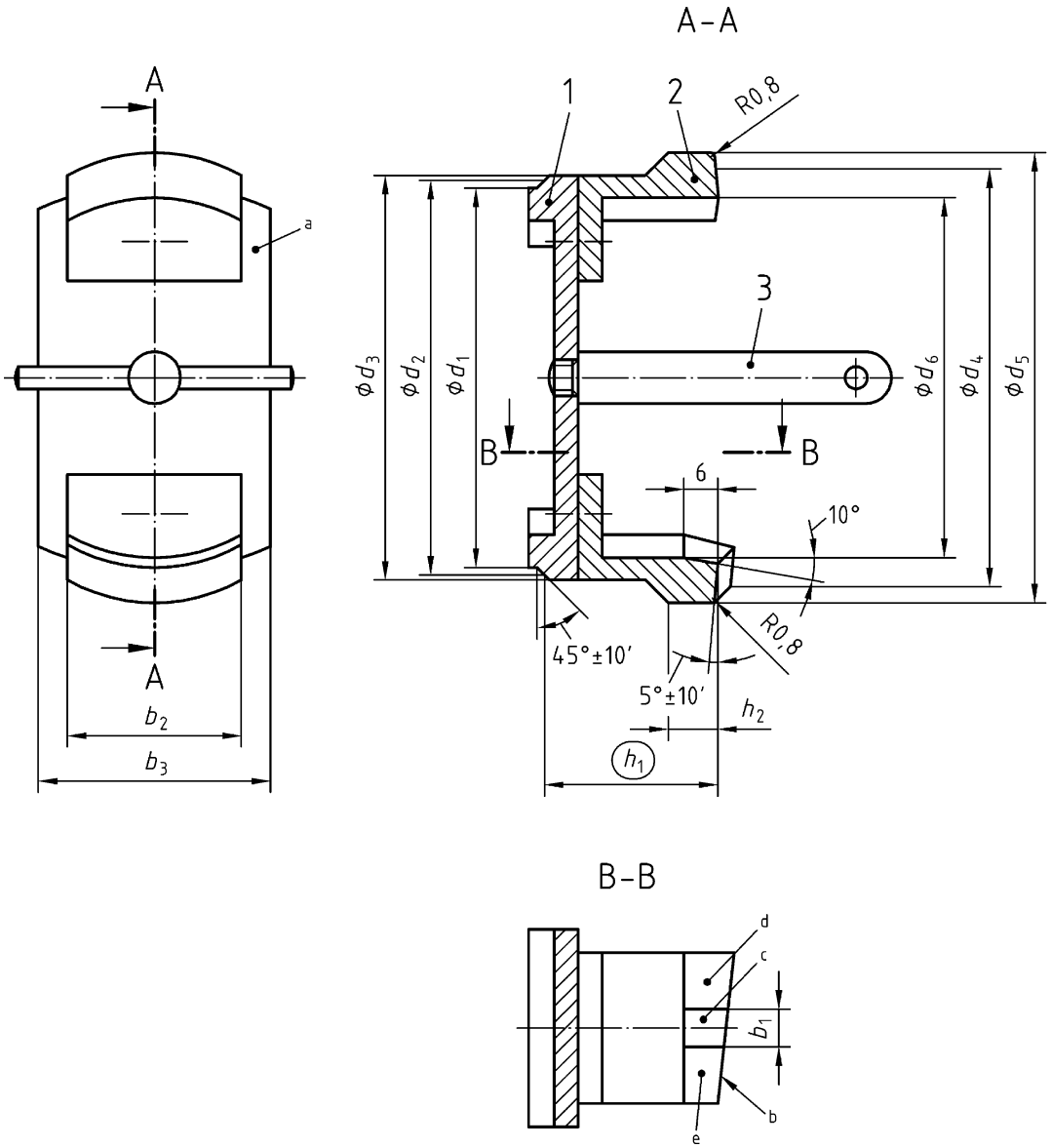
Nominal size DN	d_1 $^{0}_{-0,01}$	d_2	e $^{0}_{-0,02}$	h
50	60,5	70	7,2	7
80	90,5	101	9,2	10

Table A.5 — Material and design of gauge B1 for gasket fixtures with the nominal size DN 50 and DN 80

Item No.	**Number of pieces**	**Designation**	**Material**		**Design**
			Symbol	**Material number**	
1	1	ring	C 60 according to EN 10083-2 heat treated, surface protected	1.0601	heat treated gauge surface protected
2	1	gauge body			
3	1	steg	At the discretion of the manufacturer		
4	1	handle			
5	1	screw (parallel thread)			

A.2.3 Gauge for tension rings

Dimensions in millimetres



Key

For position No. 1 to 3 see Table A.7.

a Marking
b Gradient of the curve element
c GO
d NOT GO
e Refinish

Figure A.4 — Gauge B for tension rings with DN 50 and DN 80

Example for an ordering designation of gauge B for a tension ring with the nominal size DN 80:

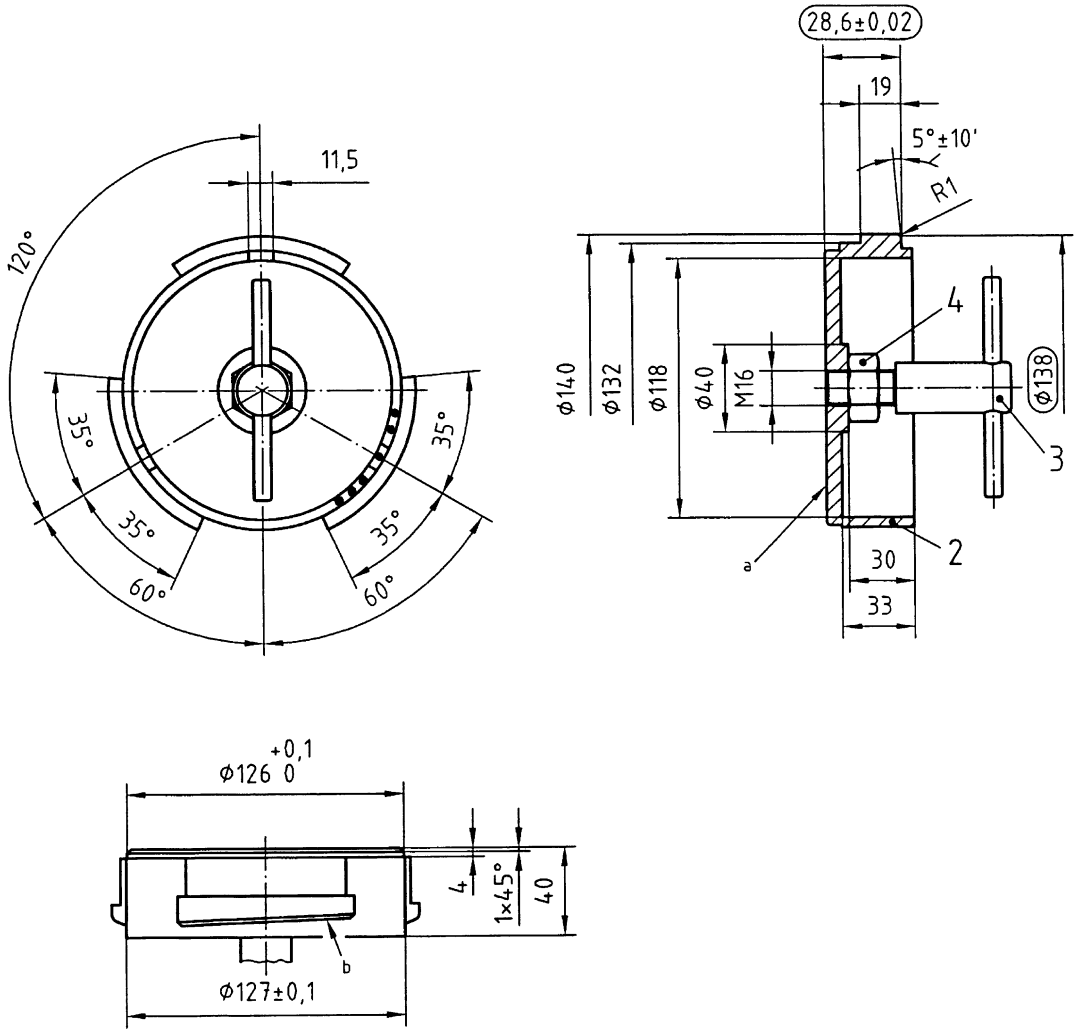
Gauge EN 14420-6 — B — 80

Table A.6 — Dimensions for gauge B for tension rings

Dimensions in millimetres

Nominal size DN	b_1 GO-range	b_2	b_3	d_1 $^{0}_{-0,1}$	d_2	d_3 $^{+0,5}_{0}$	d_4	d_5 $^{+0,1}_{0}$	d_6	h_1 ± 0,02	h_2	**Gradient of the curve element**
50	6,5	30	40	65,4	68	69,7	72	77,6	62	29,28	8	13
80	9	40	50	95,7	98	101	105	110,6	93	38,87	9	14

Dimensions in millimetres



Key

For position No. 2 to 4 see Table A.7.

- GO
- NOT GO
- Refinish

a Marking

b Gradient of the curve element 14 mm

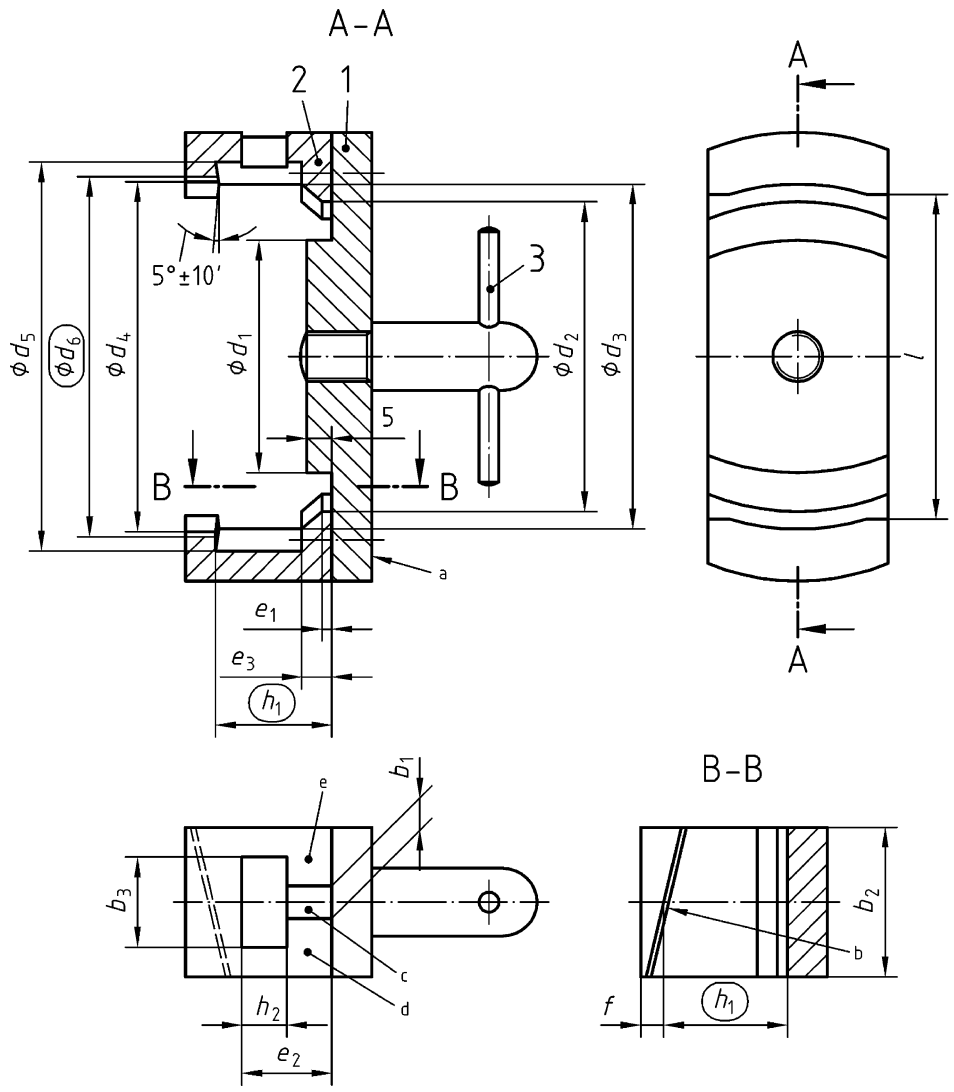
Figure A.5 — Gauge B for tension rings with DN 100

Table A.7 — Material and design for gauge B for tension rings with DN 50, DN 80 and DN 100

Item No.	Number of pieces	Designation	Material		Design
			Symbol	Material number	
1	1	supporting plate	C 60 according to EN 10083-2 heat treated, surface protected	1.0601	heat treated gauge surface protected
2	2	gauge body DN 50 and DN 80			
	1	gauge body DN 100			
3	1	handle	At the discretion of the manufacturer		
4	1	hexagon nut			

A.2.4 Gauge for curved pieces and dust plugs

Dimensions in millimetres



Key

For position No. 1 to 3 see Table A.9.

a Marking
b Gradient of the curve element
c GO
d NOT GO
e Refinish

Figure A.6 — Gauge A1 for DN 50 and DN 80

Example for an ordering designation of gauge A1 for a curved piece with nominal size DN 80:

Gauge EN 14420-6 — A1 — 80

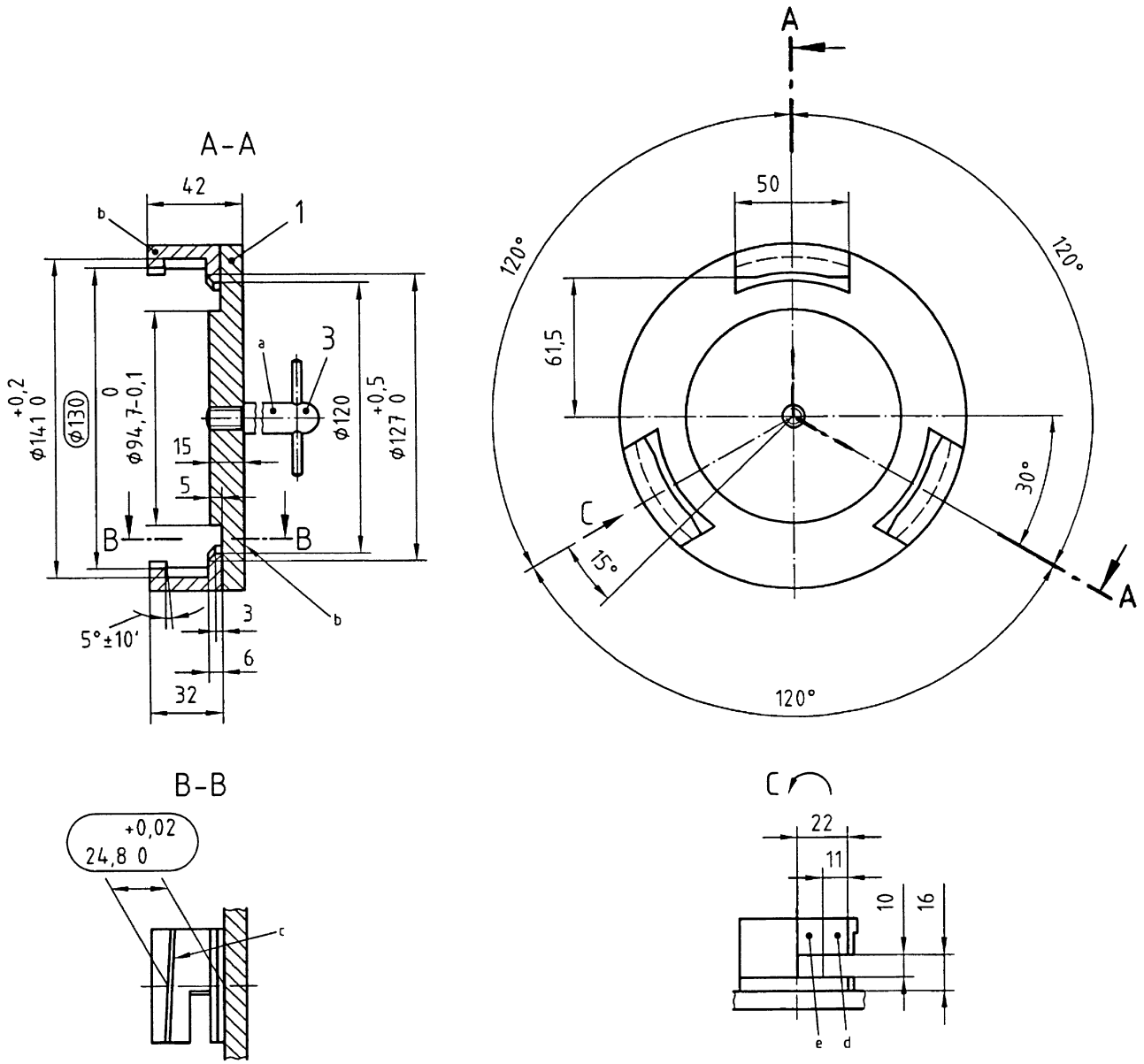
Table A.8 — Dimensions for gauge A1 for curved pieces and dust plugs

Dimensions in millimetres

Nominal size DN	b_1 **GO-range**	b_2	b_3	d_1 $^{0}_{-0,5}$	d_2	d_3 $^{+0,5}_{0}$	d_4 $^{+0,5}_{0}$	d_5 $^{+0,2}_{0}$	d_6
50	6,5	30	18	46,5	62	69	70	77,8	72
80	9	44	25,5	74,3	94	102	101	111	105

Nominal size DN	e_1	e_2	e_3	f max.	h_1 $^{+0,02}_{0}$	h_2	l	**Gradient of the curve element**
50	2	18	6	4,5	23,28	9	65	13
80	3	24,7	7	6,5	30,28	14,3	94	14

Dimensions in millimetres



Key

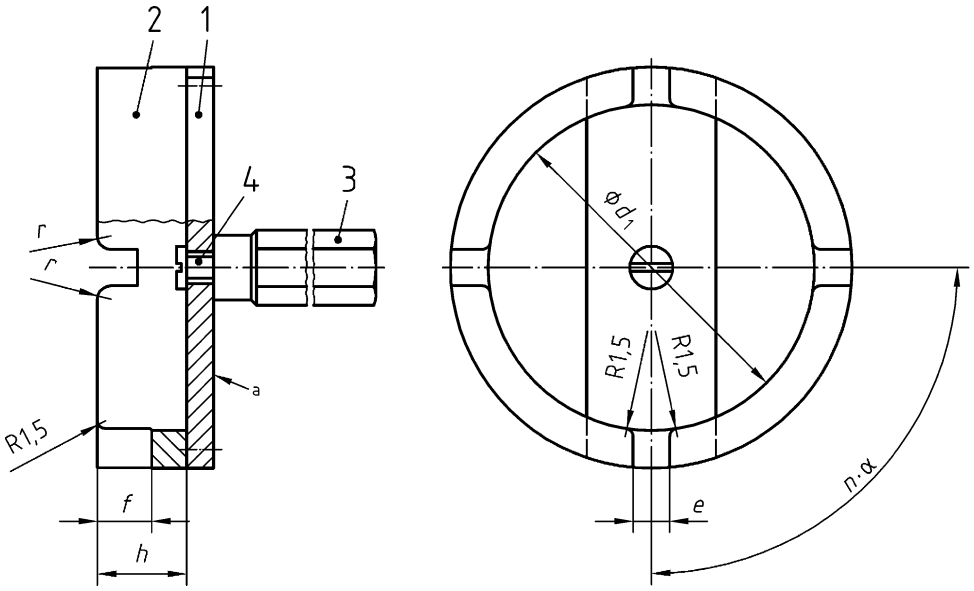
a Handle at the discretion of the manufacturers
b Marking
c Gradient of the curve element 14 mm
d GO
e NOT GO

Figure A.7 — Gauge A1 for curved pieces and dust plugs with DN 100

Table A.9 — Material and design of gauge A1 for curved pieces and dust plugs

Item No.	Number of pieces	Designation	Material		Design
			Symbol	Material number	
1	1	cover plate	C 60 according to EN 10083-2	1.0601	heat treated gauge surface protected
2	2	gauge body DN 50 and DN 80			
	3	gauge body DN 100			
3	1	handle	At the discretion of the manufacturer		

Dimensions in millimetres



Key
For position No. 1 to 4 see Table A.11.
a Marking

Figure A.8 — Gauge B1 for a curved piece and dust plug with DN 50, DN 80 and DN 100

Example for an ordering designation of a gauge B1 for a curved piece with nominal size DN 80:

Gauge EN 14420-6 — B1 — 80

Table A.10 — Dimensions of gauge B1 for curved pieces and dust plugs

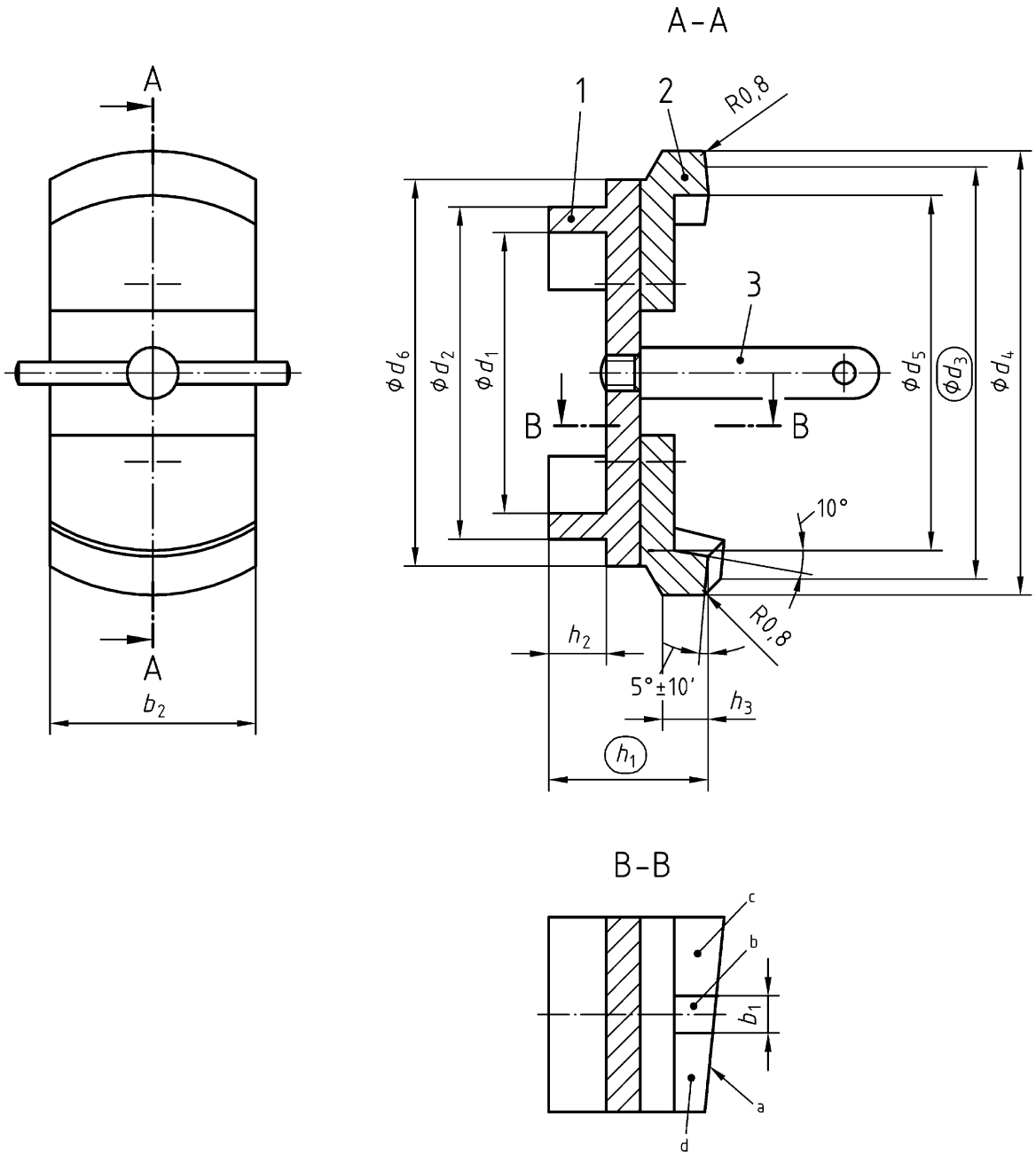
Dimensions in millimetres

Nominal size DN	d_1 $^{+0,05}_{0}$	e $^{+0,02}_{0}$	f	h	r	$n \cdot \alpha$ ± 5°
50	60,5	6,75	10	16,5	2,5	4 × 90°
80	90,5	8,8	15	22	4	4 × 90°
100	115	8,3	12	18	8	12 × 30°

Table A.11 — Material and design of gauge B1 for curved pieces and dust plugs

Item No.	**Number of pieces**	**Designation**	**Material**		**Design**
			Symbol	**Material number**	
1	1	cover plate	C 60 according to EN 10083-2	1.0601	heat treated gauge surface protected
2	1	gauge body			
3	1	handle	At the discretion of the manufacturer		
4	1	screw (parallel thread)			

A.2.5 Calliper for dust caps



Key
For position No. 1 to 3 see Table A.11.

a Gradient of the curve element
b GO
c NOT GO
d Refinish

Figure A.9 — Gauge A for dust caps with DN 50 and DN 80

Example for an ordering designation of gauge A for a dust cap with nominal size DN 80:

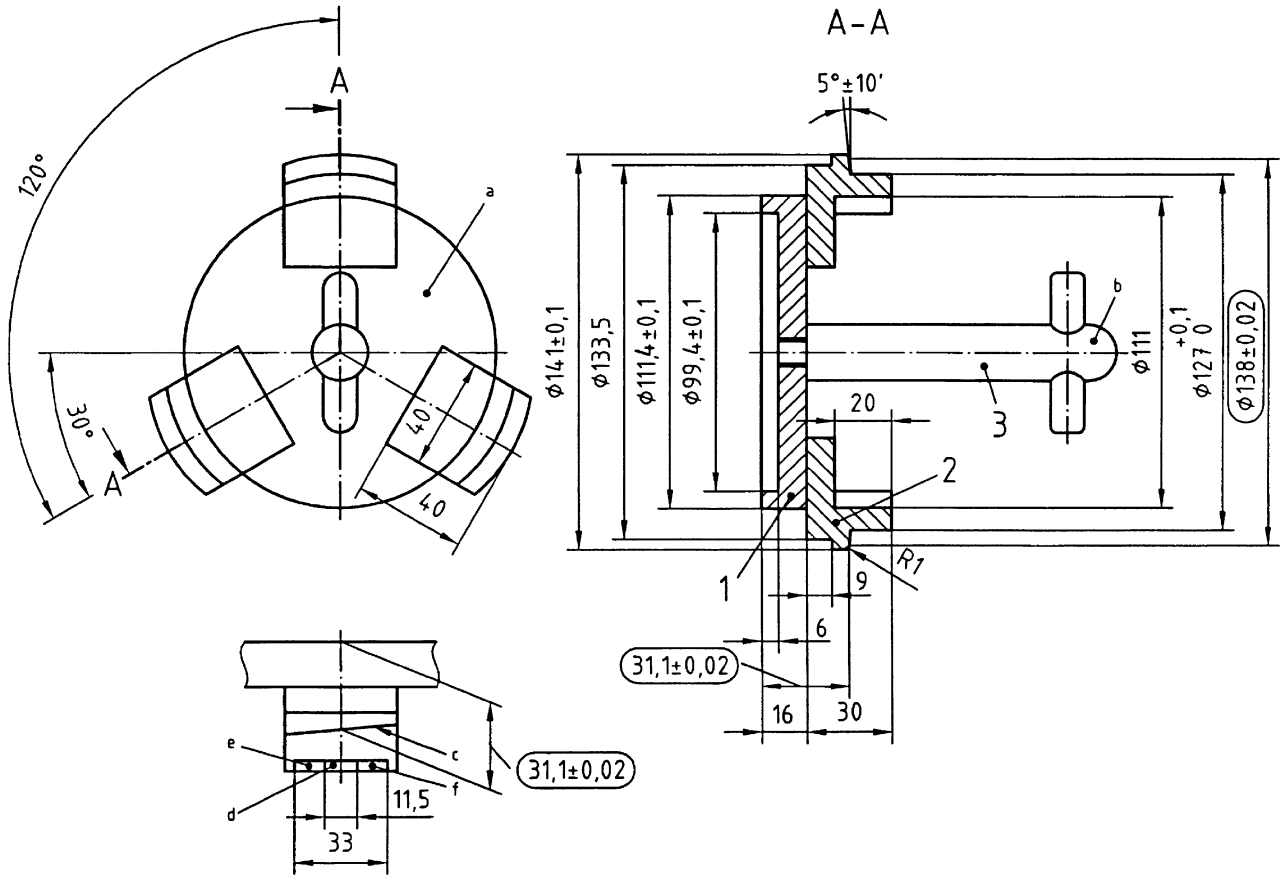
Gauge EN 14420-6 — A — 80

Table A.12 — Dimensions of gauge A for dust caps

Dimensions in millimetres

Nominal size DN	b_1 GO-range	b_2	d_1	d_2 0 −0,2	d_3	d_4 +0,1 0	d_5	d_6 +0,2 0	h_1 +0,02 0	h_2	h_3	**Gradient of the curve element**
50	6,5	36	49	58	72	77,6	62	67,5	27,83	10	8	13
80	9	50	77	87	105	110,6	93	101,5	35,77	12	9	14

Dimensions in millimetres



Key

a Marking
b Handle at the discretion of the manufacturers
c Gradient of the curve element 14 mm
d GO
e NOT GO
f Refinish

Figure A.10 — Gauge A for dust caps with DN 100

Table A.13 — Gauges for DN 50, DN 80 and DN 100

Item No.	Number of pieces	Designation	Material		Design
			Symbol	Material number	
1	1	supporting plate	C 60 according to EN 10083-2	1.0601	heat treated gauge surface protected
2	2	gauge body DN 50 and DN 80			
2	3	gauge body DN 100	At the discretion of the manufacturer		
3	1	handle			

A.3 Marking

Gauges in accordance with this document shall be marked with the date of producing (quarter/year). For example for gauge A1:

Gauge EN 14420-6 — A1 — 80 — 3/84

Bibliography

[1] EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1)*

[2] EN ISO 6708:1995, *Pipework components — Definition and selection of DN (nominal size) (ISO 6708:1995)*

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