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INTERNATIONAL STANDARD ISO 1180-1983/ADDENDUM 1

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Shanks for pneumatic tools and dimensions of chuck bushings

ADDENDUM 1

Queues d'outils pneumatiques et dimensions d'interchangeabilité des douilles porte-outil
Additif 1

Addendum 1 to ISO 1180-1983 was developed by Technical Committee ISO/TC 29, *Small tools.*

Add the following reference in clause 2:

ISO 296, *Machine tools — Self-holding tapers for tool shanks.*

Add the following clauses 12, 13 and 14:

ISO 1180-1983/Add. 1-1985 (E)

UDC 621.9.02 : 621.542 Ref. No. ISO 1180-1983/Add. 1-1985 (E)

Descriptors : pneumatic equipment, tools, shanks, chuck bushings, dimensions.

Printed in Switzerland

Price based on 10 pages

12 Shanks for weld flux scalers

12.1 Chisels

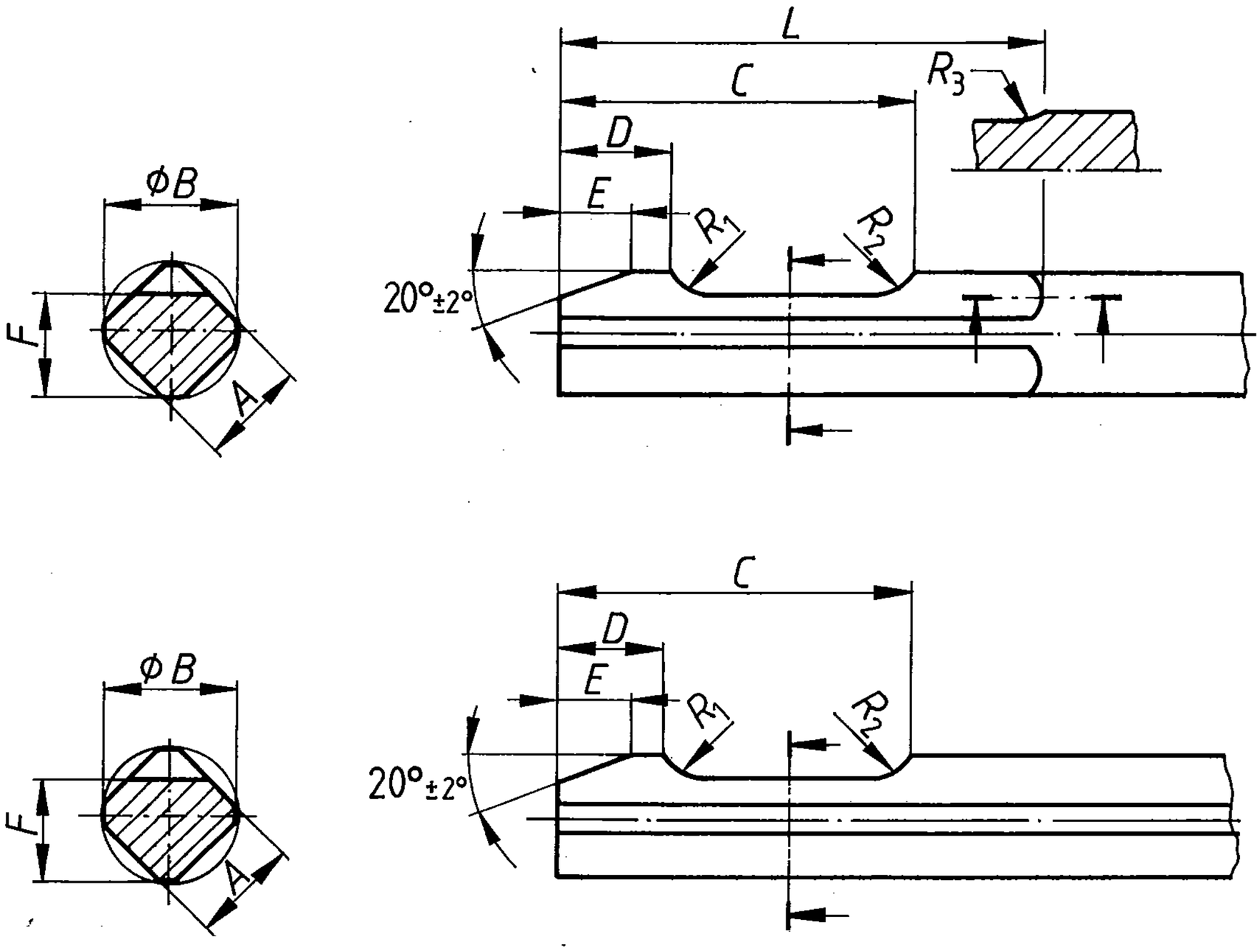


Figure 10 — Chisels

Table 15

Dimensions and tolerances in millimetres

Nominal size	A +0,2 0	B 0 −0,2	L ±0,5	C ±0,5	D ±0,2	E 0 −0,5	F 0 −0,1	R_1 max.	R_2 max.	R_3 ±0,5
12	12,7	15	60	42	14	8	12	5,5	4	6

12.2 Nozzle holes

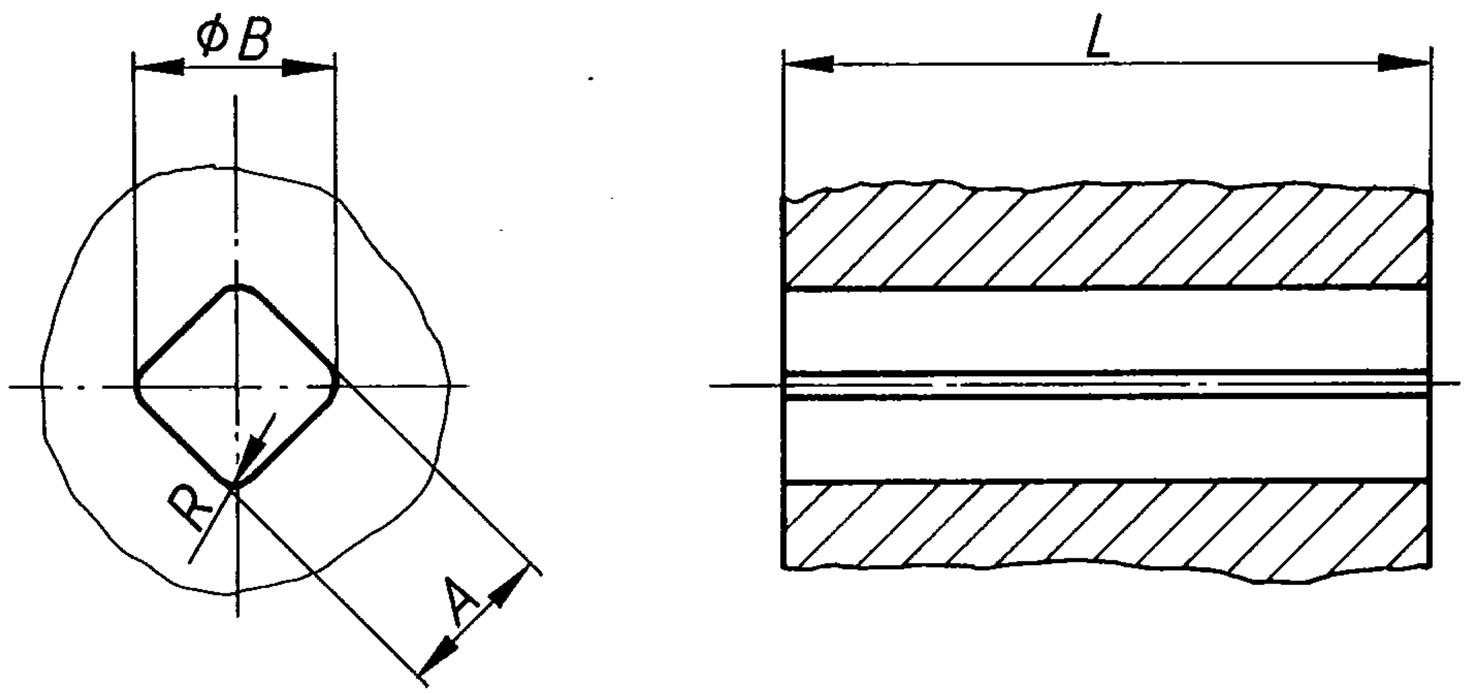


Figure 11 — Nozzle hole

Table 16

Dimensions and tolerances in millimetres

Nominal size	*A* H12	*B* H13	*L* ±0,5	*R* +0,5 0
12	13	16	54	2

13 Piston rods and butts for rammer tools

13.1 Piston rods — Self-holding tapers

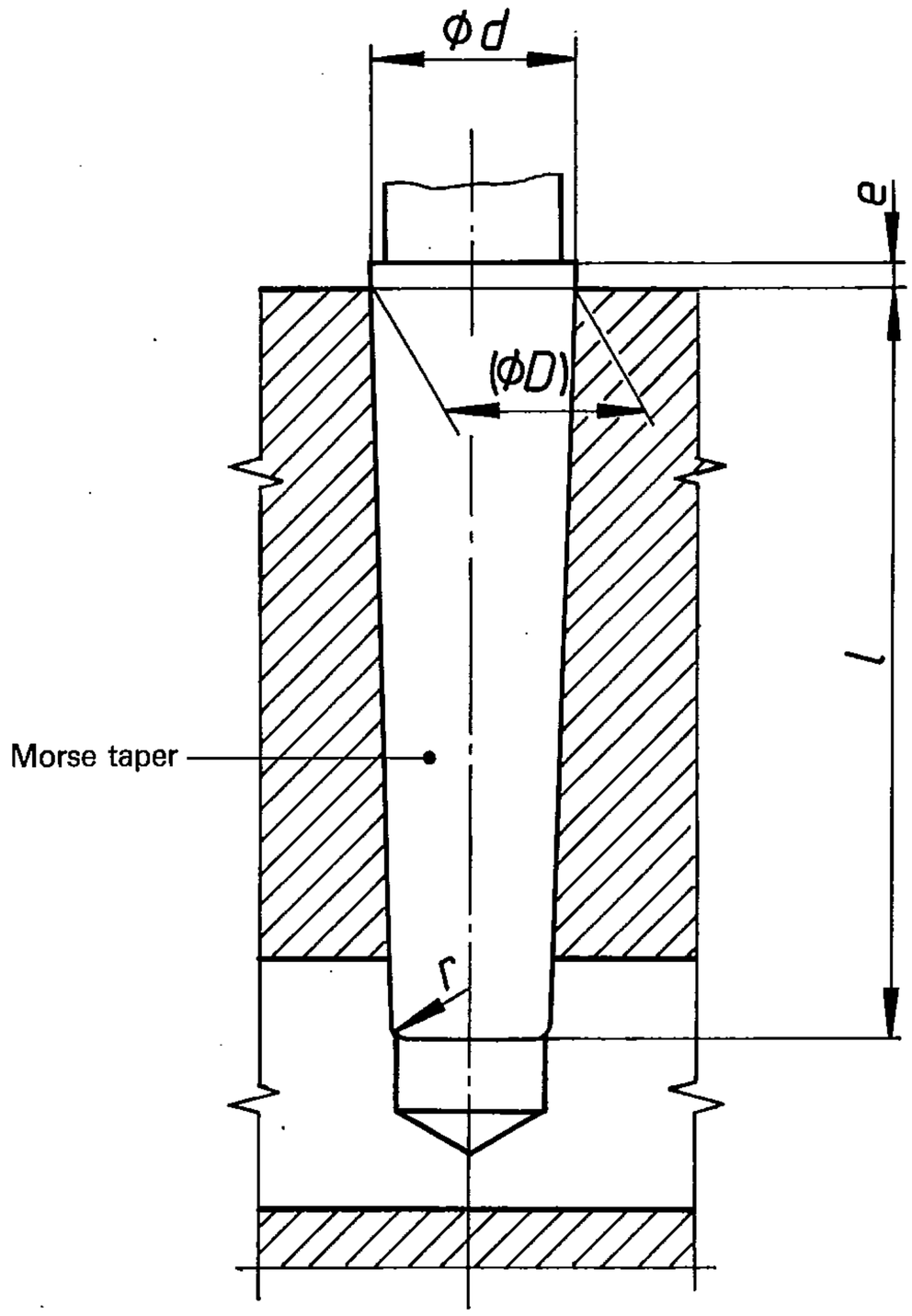


Figure 12 — Piston rods — Self-holding taper

Table 17

Dimensions in millimetres

Morse taper[1] No.	d[1]	l	e[1]	r
1	12,2	56	3,5	1
2	18	67	5	1,6
3	24,1	85	5	2,5

1) The Morse taper and the values for d and e are in accordance with ISO 296.

13.2 Rammer butts — Connecting holes

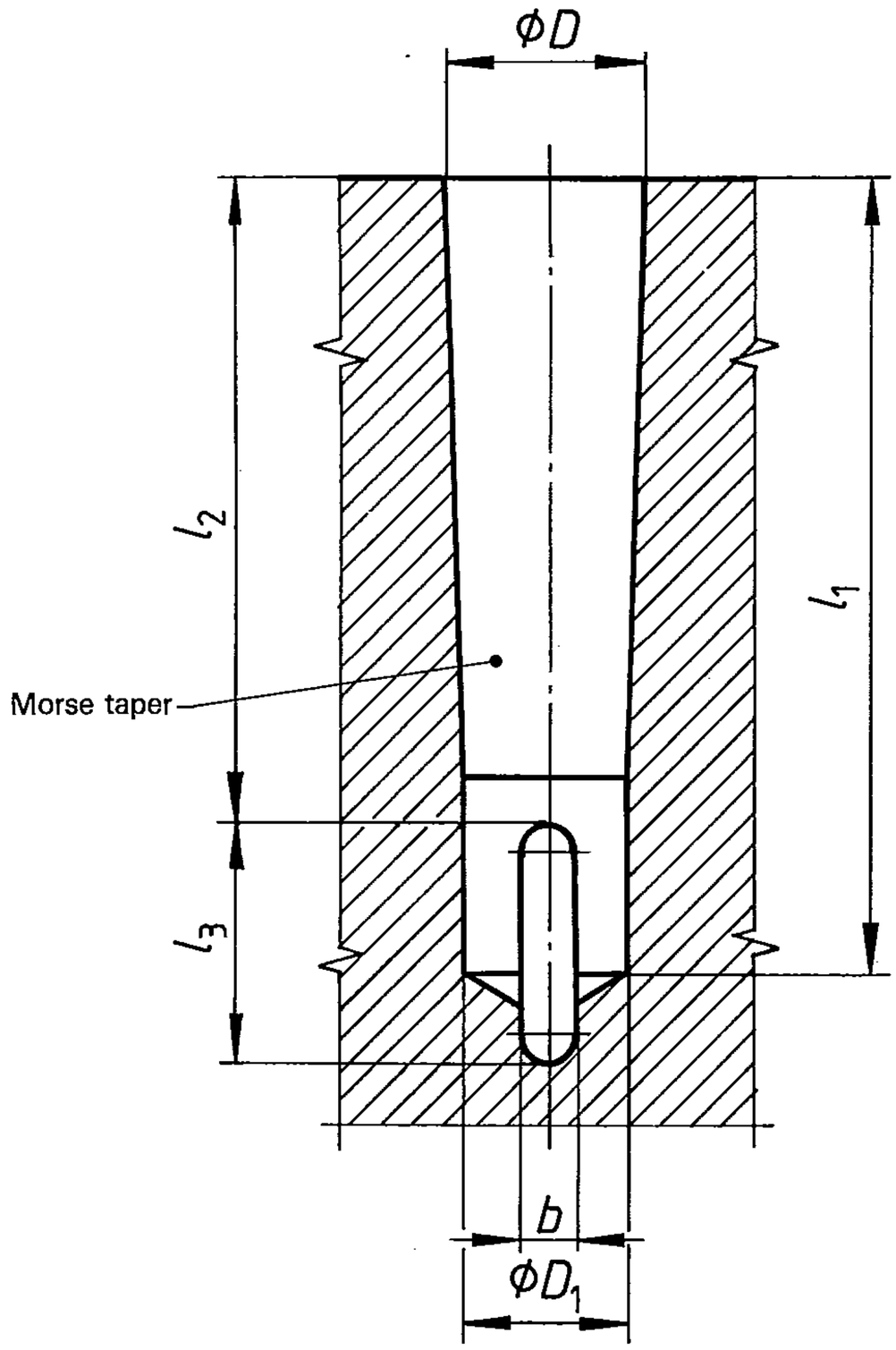


Figure 13 — Rammer butts — Connecting hole

Table 18

Dimensions in millimetres

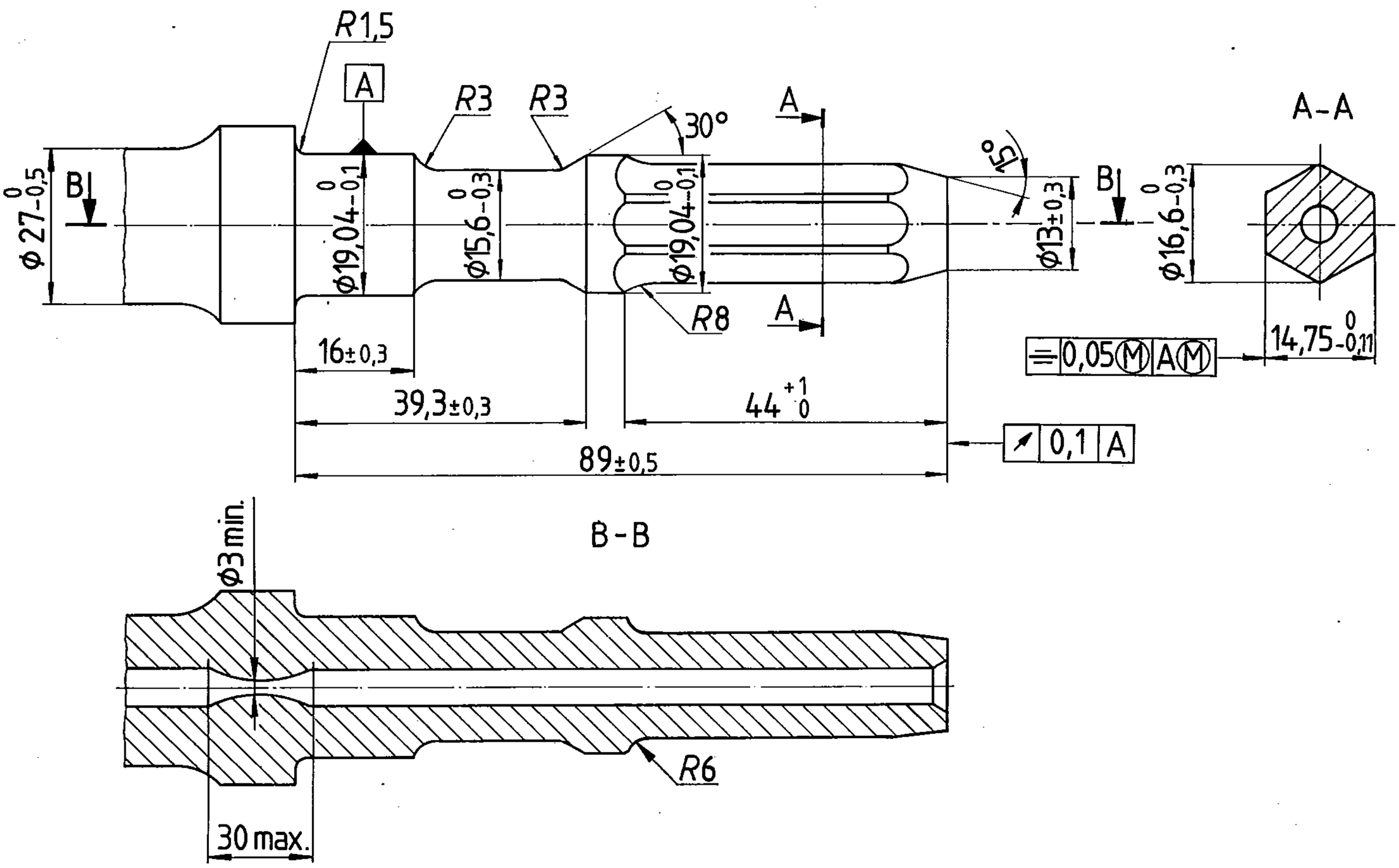
Morse taper[1] No.	D[1]	D_1[1]	l_1	l_2	l_3	b
1	12,065	9,7	63	48	18	6
2	17,780	14,9	71	56	22	6
3	23,825	20,2	90	71	28	6

1) The Morse taper and the values for D and D_1 are in accordance with ISO 296.

14 Shanks for plug hole drills

14.1 Type A — Hexagonal section

Dimensions and tolerances in millimetres

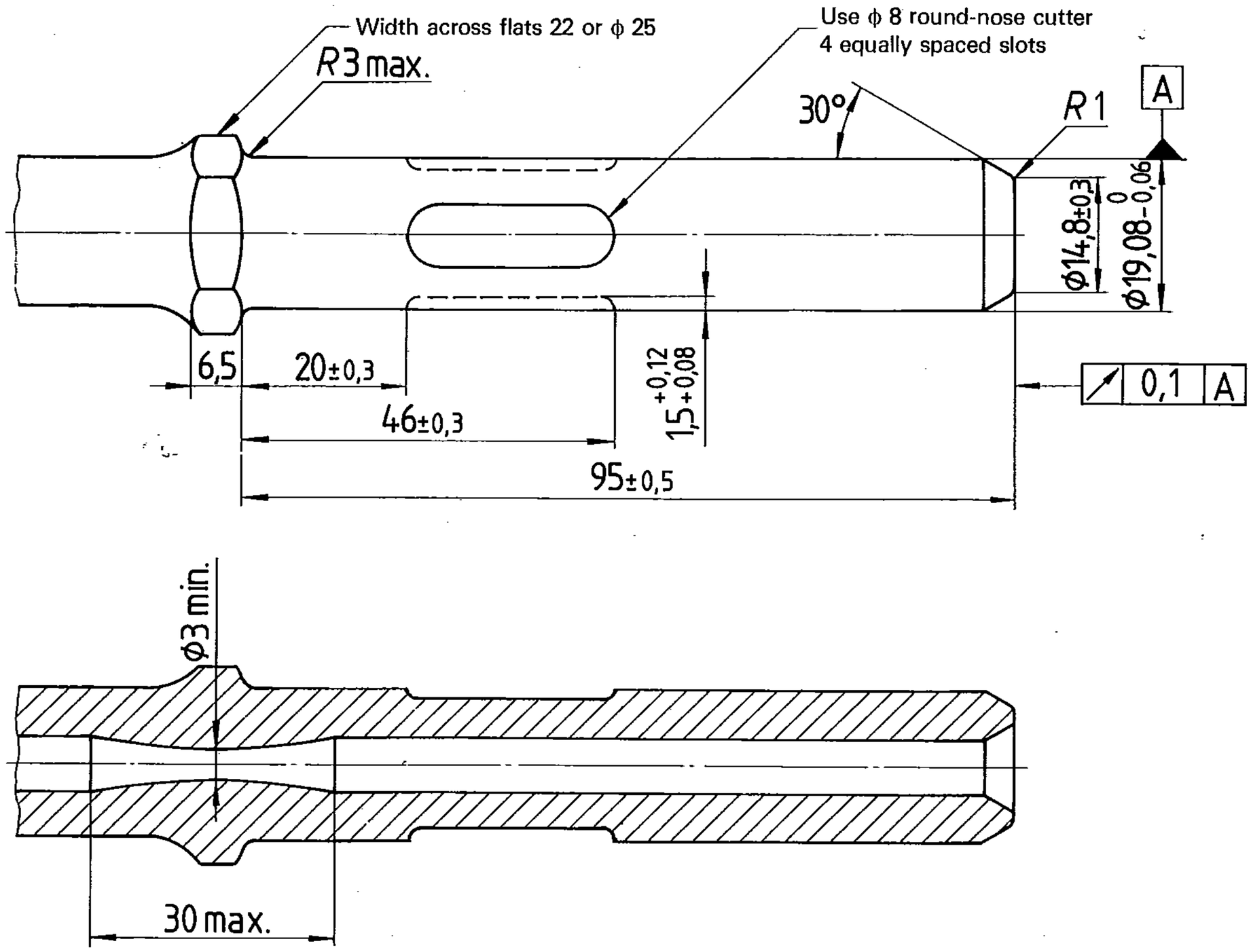


The flushing hole shown in the figure is optional and does not affect the interchangeability. Care shall be taken to ensure that when forging the collar, the hole does not form a restriction; a minimum hole diameter of 3 mm and a maximum length of 30 mm shall be respected.

Figure 14 — Plug hole drills, type A — Hexagonal section

14.2 Type B — Round section

Dimensions and tolerances in millimetres



The flushing hole shown in the figure is optional and does not affect the interchangeability. Care shall be taken to ensure that when forging the collar, the hole does not form a restriction; a minimum hole diameter of 3 mm and a maximum length of 30 mm shall be respected.

Figure 15 — Plug hole drills, type B — Round section

Add in the annex "Dimensions and tolerances in inches corresponding to dimensions and tolerances in millimetres for the relevant type and size of shank" the following clauses A.7, A.8 and A.9:

A.7 Shanks for weld flux scalers (see clause 12)

A.7.1 Chisels

Table 19

Nominal size	A +0.008 0	B 0 −0.008	L ±0.02	C ±0.02	D ±0.008	E 0 −0.02	F 0 −0.004	R_1 max.	R_2 max.	R_3 ±0.02
1/2	0.500	0.590	2.362	1.653	0.551	0.315	0.472	0.216	0.157	0.236

A.7.2 Nozzle holes

Table 20

Nominal size	A H12	B H13	L ±0.02	R +0.02 0
1/2	0.512	0.630	2.126	0.079

A.8 Piston rods and butts for rammer tools (see clause 13)

A.8.1 Piston rods — Self-holding tapers

Table 21

Morse taper[1] No.	d[1]	l	e[1]	r
1	0.481	2.204	1/8	0.039
2	0.709	2.638	3/16	0.063
3	0.947	3.346	3/16	0.098

1) The Morse taper and the values for d and e are in accordance with ISO 296.

A.8.2 Rammer butts — Connecting holes

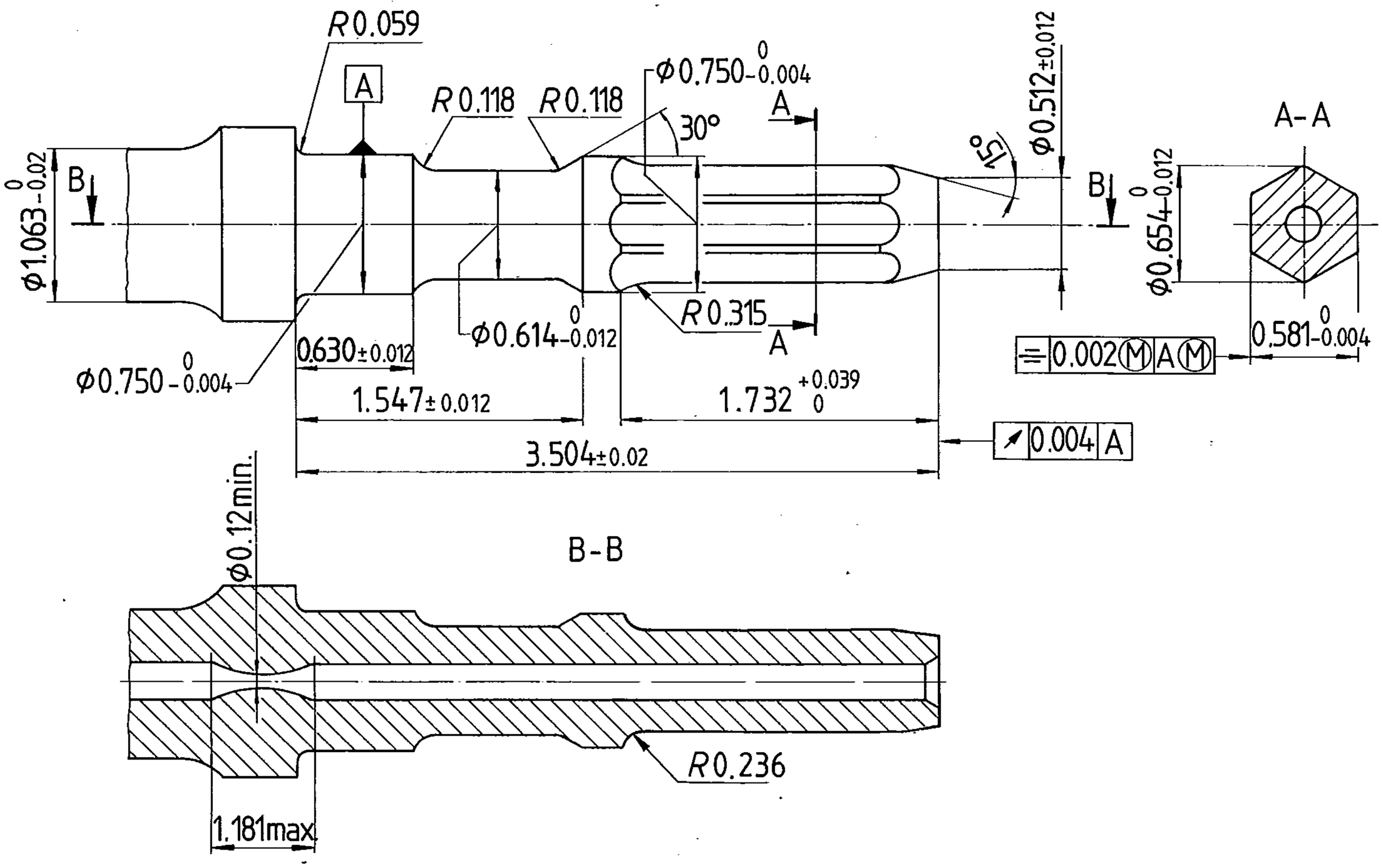
Table 22

Morse taper[1] No.	D[1]	D_1[1]	l_1	l_2	l_3	b
1	0.475	0.378	2.480	1.890	0.709	0.236
2	0.700	0.588	2.795	2.204	0.866	0.236
3	0.938	0.797	3.543	2.795	1.102	0.236

1) The Morse taper and the values for D and D_1 are in accordance with ISO 296.

A.9 Shanks for plug hole drills (see clause 14)

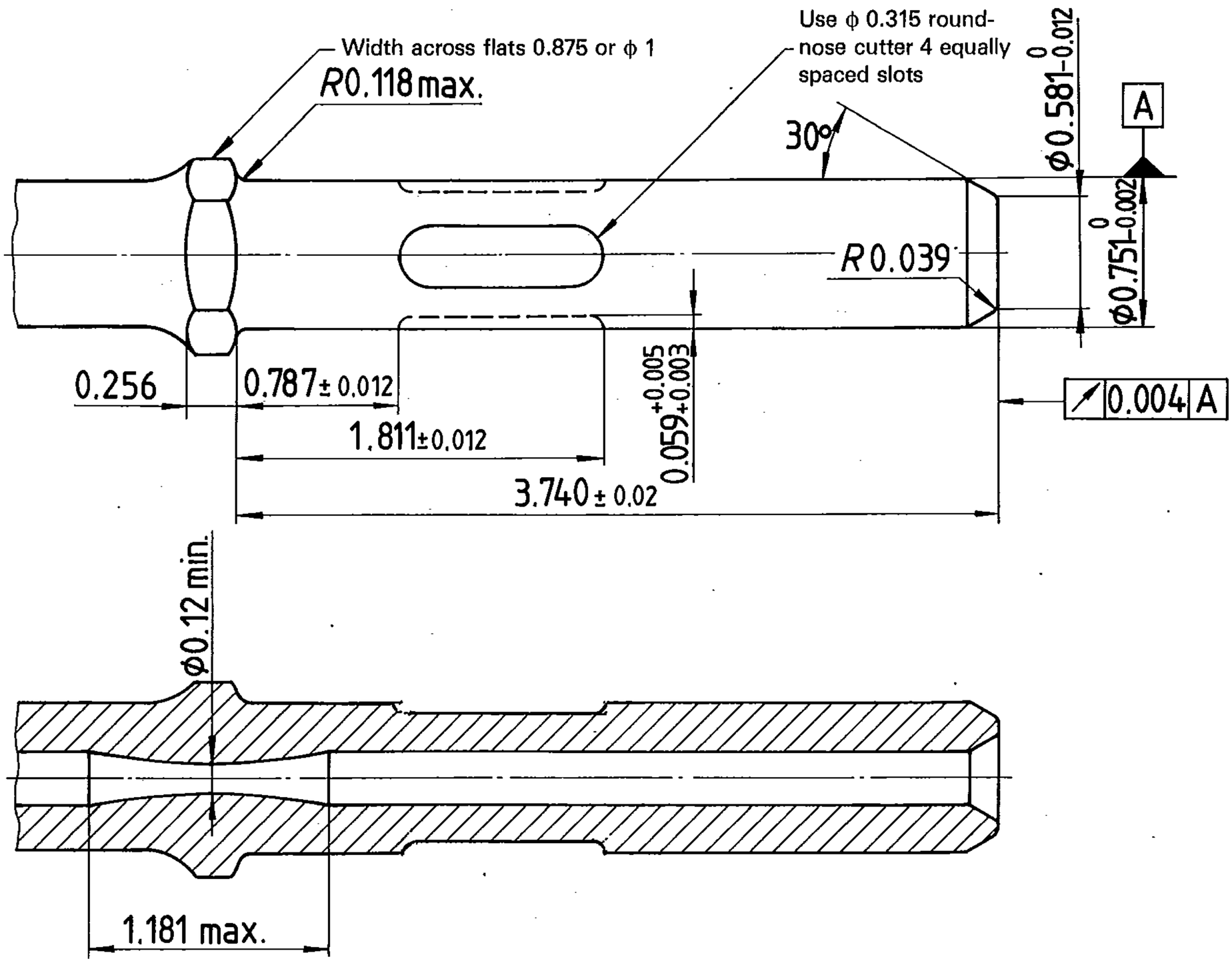
A.9.1 Type A — Hexagonal section



The flushing hole shown in the figure is optional and does not affect the interchangeability. Care shall be taken to ensure that when forging the collar, the hole does not form a restriction; a minimum hole diameter of 0.12 in and a maximum length of 1.181 in shall be respected.

Figure 16 — Plug hole drills — Hexagonal section

A.9.2 Type B — Round section



The flushing hole shown in the figure is optional and does not affect the interchangeability. Care shall be taken to ensure that when forging the collar, the hole does not form a restriction; a minimum hole diameter of 0.12 in and a maximum length of 1.181 in shall be respected.

Figure 17 — Plug hole drills — Round section

International Standard ISO 1180

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Shanks for pneumatic tools and fitting dimensions of chuck bushings

Queues d'outils pneumatiques et dimensions d'interchangeabilité des douilles porte-outil

First edition — 1983-12-15

UDC 621.9.02 : 621.542 **Ref. No. 1180-1983 (E)**

Descriptors : tools, shanks, interchangeability, dimensional tolerances, tolerance of position.

Price based on 12 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 1180 was developed by Technical Committee ISO/TC 29, *Small tools*, and was circulated to the member bodies in November 1981.

It has been approved by the member bodies of the following countries :

Austria	India	South Africa, Rep. of
Belgium	Israel	Spain
China	Italy	Sweden
Czechoslovakia	Korea, Dem. P. Rep. of	Switzerland
Egypt, Arab Rep. of	Korea, Rep. of	United Kingdom
France	Mexico	USSR
Hungary	Romania	Yugoslavia

The member body of the following country expressed disapproval of the document on technical grounds :

Germany, F.R.

This International Standard cancels and replaces ISO Recommendation R 1180-1970 and ISO Recommendation R 1571-1970, of which it constitutes a technical revision.

Printed in Switzerland

INTERNATIONAL STANDARD ISO 1180-1983 (E)

Shanks for pneumatic tools and fitting dimensions of chuck bushings

1 Scope and field of application

This International Standard relates to shanks for pneumatic tools and corresponding chuck bushings and deals with the following types :

— coal pick shanks;

— chisel shanks;

— rivet snap shanks, parallel;

— rivet snap shanks, tapered;

— breaker and spade shanks;

— concrete breaker shanks;

— rock drill shanks.

The types relate to the machine for which they are mainly designed, but this does not prevent the use of the shanks for other applications.

Other types of tools will be dealt with in further International Standards when the corresponding studies are completed.

Pneumatic hammers and their chuck bushings are not covered by this International Standard but those features of chuck bushings (dimensions and tolerances) which ensure interchangeability are specified.

For each tool mentioned above, this International Standard provides tables giving dimensions in millimetres.

Dimensions in inches are given in the annex which be valid for five years from the date when this International Standard is approved.

2 Reference

ISO 723, *Rock-drilling — Forged collared shanks and chuck bushings for hollow hexagonal drill steels.*

3 Interchangeability

The numerical values specified in this International Standard ensure interchangeability even if the shank and the corresponding chuck bushing are not manufactured in the same system of units.

4 Designation of shanks

The designation of shanks should be composed of

— the name of the type of shank;

— the shank size (first column in the tables);

— the length of the shank.

Example :

Breaker shank 25 × 108

5 Coal pick shanks and corresponding chuck bushings

Dimension and tolerances in millimetres

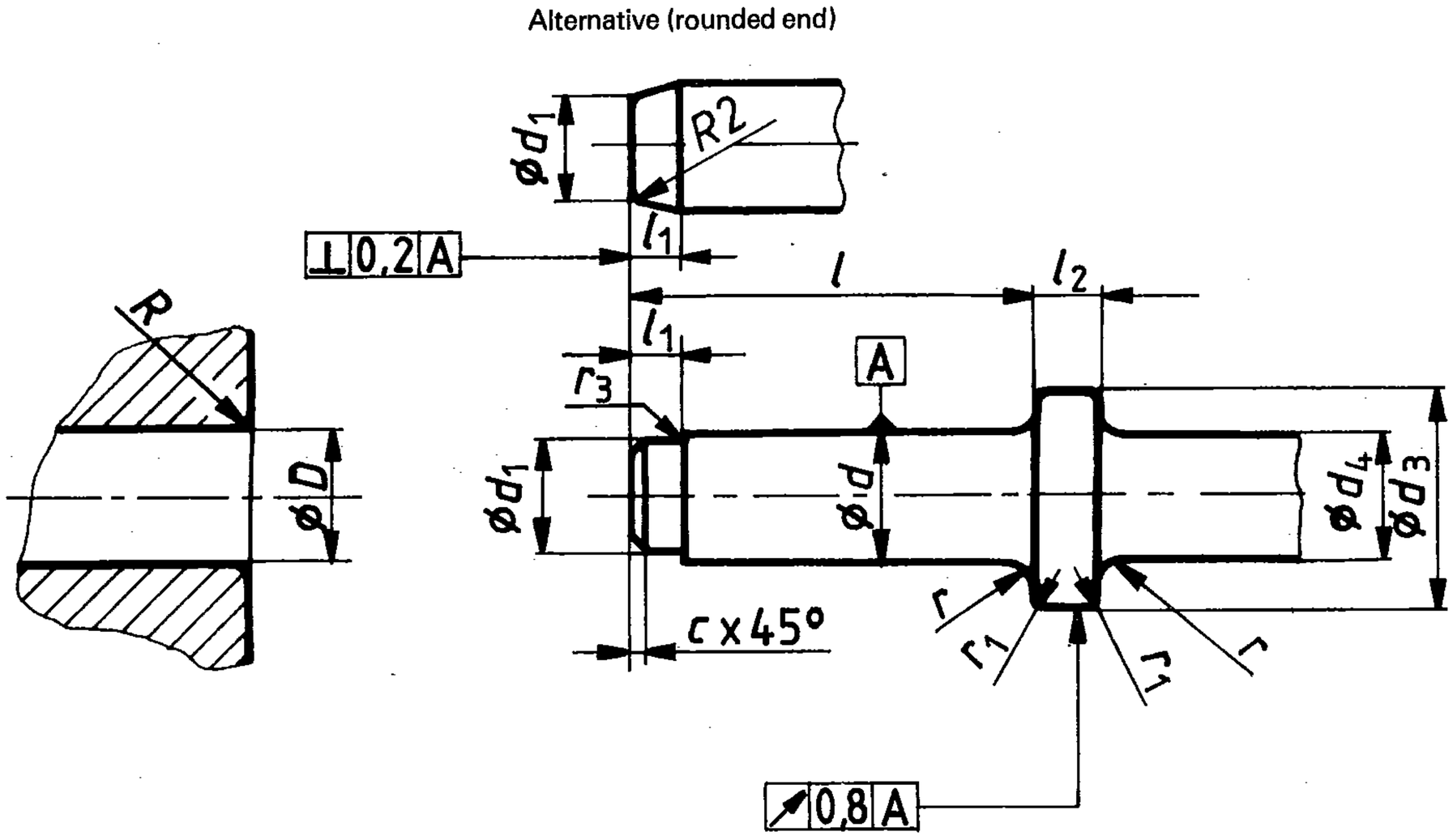


Figure 1 — Coal pick shanks and corresponding chuck bushings

Table 1

Dimensions and tolerances in millimetres

Nominal size	Shank													Bushing	
	d	l	l_1	l_2		d_1	d_3	d_4		r	r_1	r_3	c	D	R
	f8	h14	± 0,5	min.	max.	j_s14	+ 0,3 − 0,5	min.	max.	0 − 0,5	0 − 1	± 0,5		H8	+ 0,5 0
25	25	75	10	9,5	13	22	41,5	25	27	5,25	2	3	1,6	25	5,25

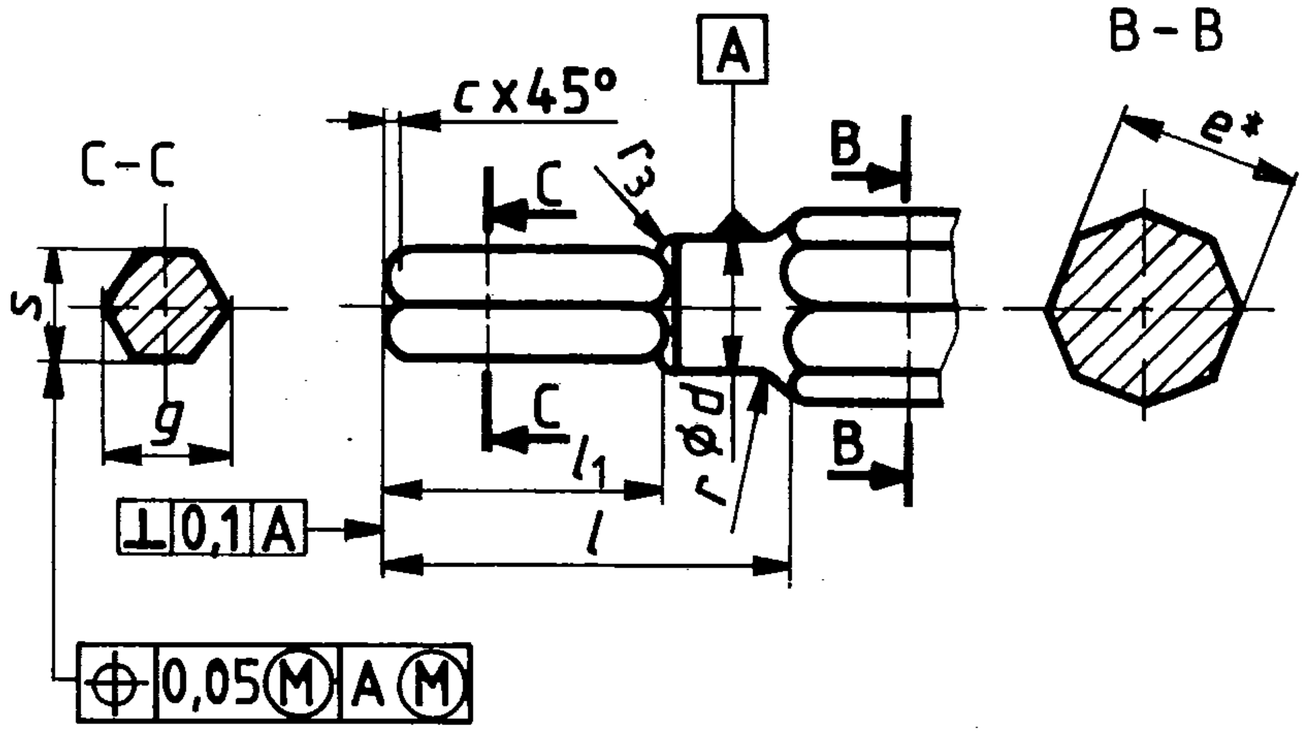
Example of designation

Coal pick shank 25 × 75

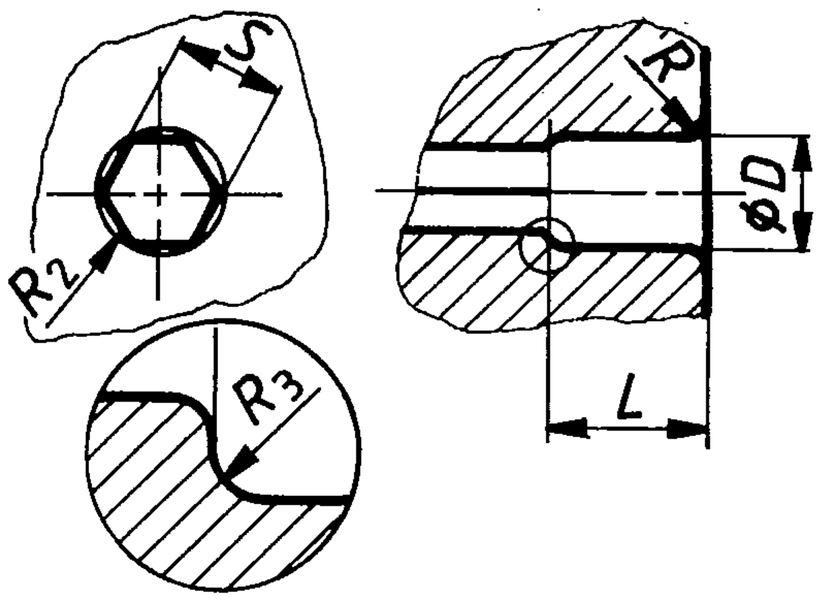
6 Chisel shanks and corresponding chuck bushings

6.1 Tool with hexagonal shank

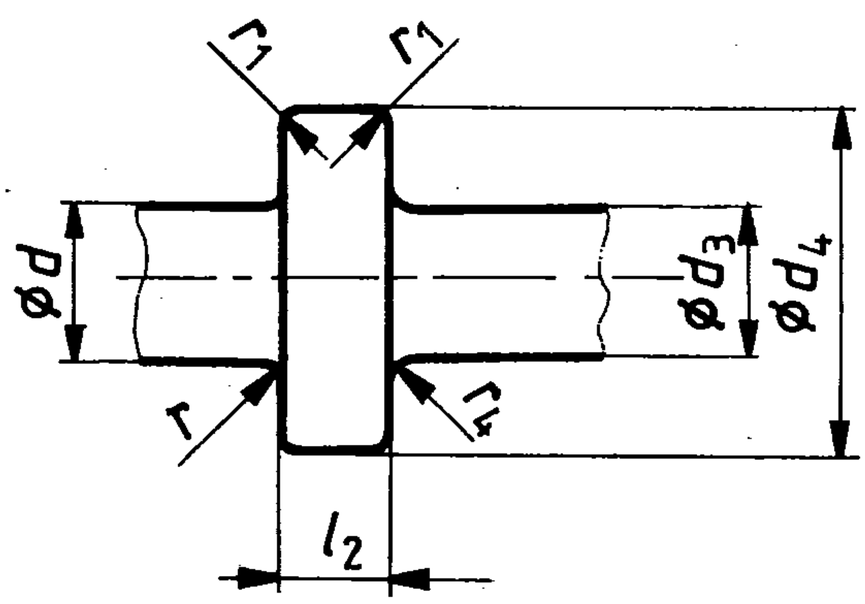
Tolerances in millimetres



Shank without collar



Bushing



Detail of shank with collar

Figure 2 — Tool with hexagonal shank

Table 2

Dimensions and tolerances in millimetres

Nominal size	Shank														Bushing					
	d d8	l ± 0,5	l_1 ± 0,5	l_2 ± 1	d_3 max.	d_4 ± 1	e*	s d11	g 0 / − 0,3	r max.	r_1	r_3 max.	r_4 max	c	D H8	L ± 1	S H11	R + 0,5 / 0	R_2 ± 0,5	R_3 ± 0,5
12	12,7	45	31	6	13	21	16	11,0	12,1	4	0,8	6	3	0,8	12,7	17	11,0	4	1	1
17	17,3	60	41	9	20	30	22	14,8	16,6	4	0,8	10	3,2	1,6	17,3	22	14,8	4	1	1
20	(20,0)	60	36	9	24	34	25	17,0	19,0	6	0,8	10	3,2	1,6	(20,0)	27	17,0	6	1	1

* The octogonal shape on the tool side and dimention e are given for information only.

NOTES

1 When a smaller shank size is needed, use dimensions presented for rivet snap shanks (size 10, see clause 7).

2 The permitted errors of concentricity between the cylindrical portion d and the hexagonal portion s are included in the tolerance given in table 2; the "Go" gauge for dimensions d and s should therefore be a composite gauge. This remark also refers to the measurements of the corresponding chuck bushings.

3 As an alternative to tool with hexagon shank (see figure 2) the hexagon portion may be replaced by a cylindrical portion with the same length l_1 and a diameter s equal to the width across flats of the hexagon (see figure 3).

Tolerance in millimetres

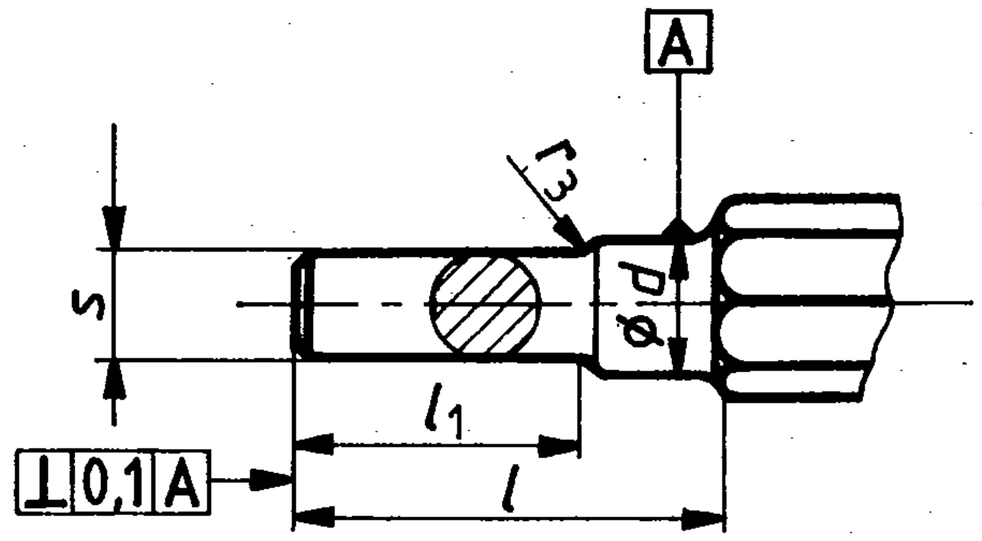


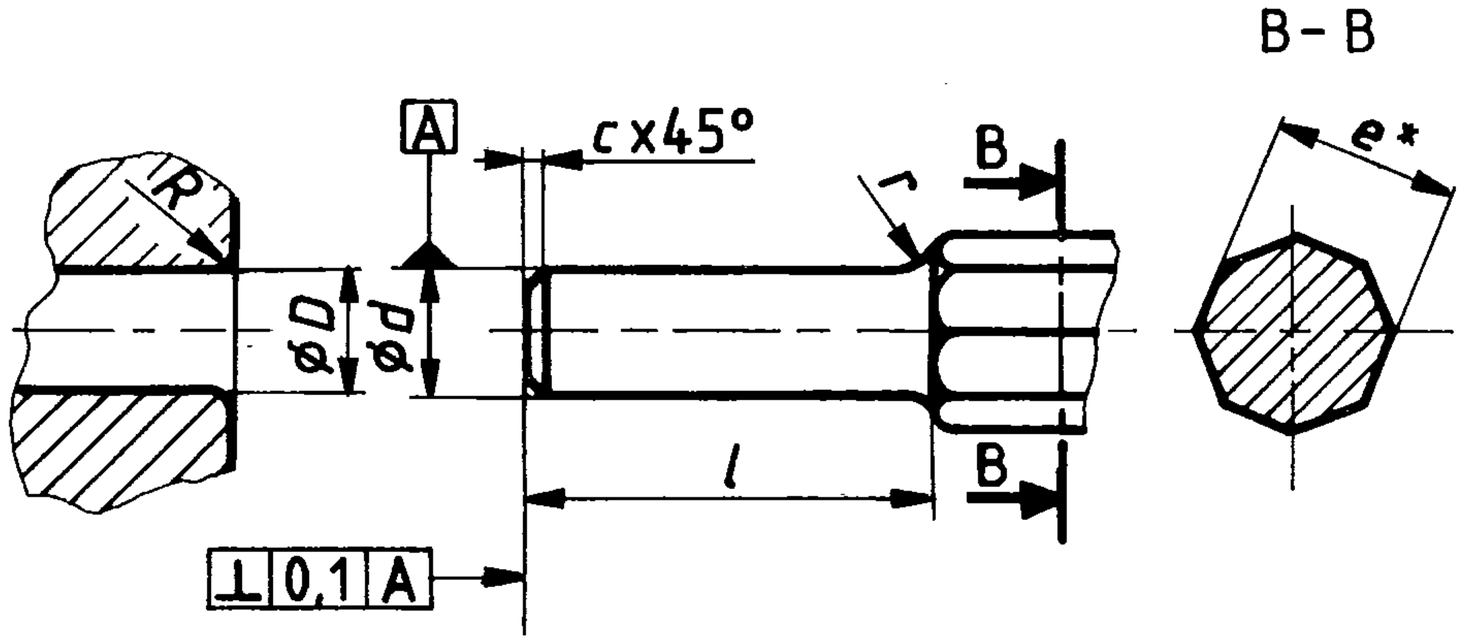
Figure 3 — Alternative shank

4 On shanks with a hexagon portion, the cutting edge of the chisel should be parallel to one of the sides of the hexagon.

Example of designation

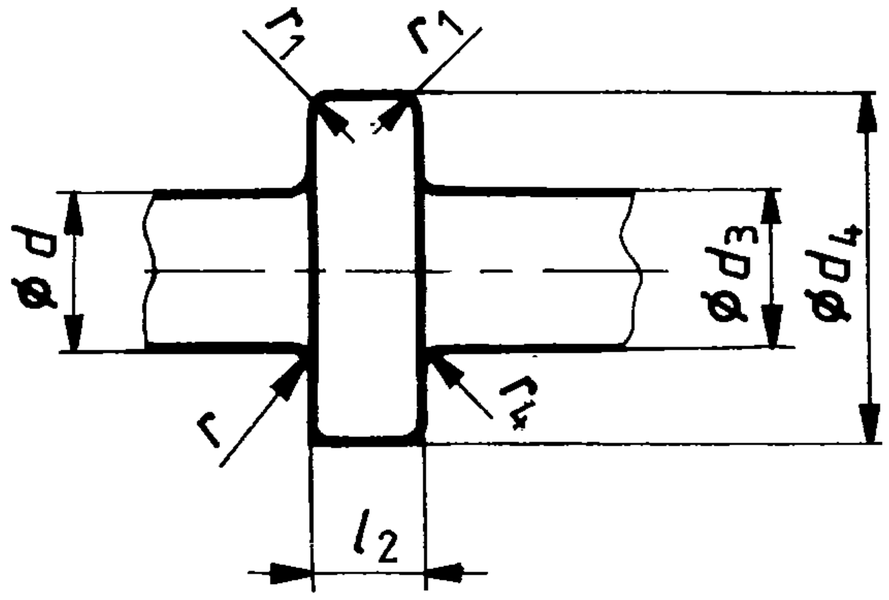
Chisel shank, hexagonal 12 × 45

6.2 Tool with parallel shank



Bushing

Shank without collar



Detail of shank with collar

Figure 4 — Tool with parallel shank

Table 3

Dimensions and tolerances in millimetres

Nominal size	Shank										Bushing	
	d d8	l ± 0,5	l_2 ± 1	e*	d_3 max.	d_4 ± 1	r max.	r_1	r_4 max.	c	D H8	R + 0,5 0
12	12,7	45	6	16	13	21	4	0,8	3	0,8	12,7	4
17	17,3	60	9	22	20	30	4	0,8	3,2	1,6	17,3	4
20	(20,0)	60	9	25	24	34	6	0,8	3,2	1,6	(20,0)	6

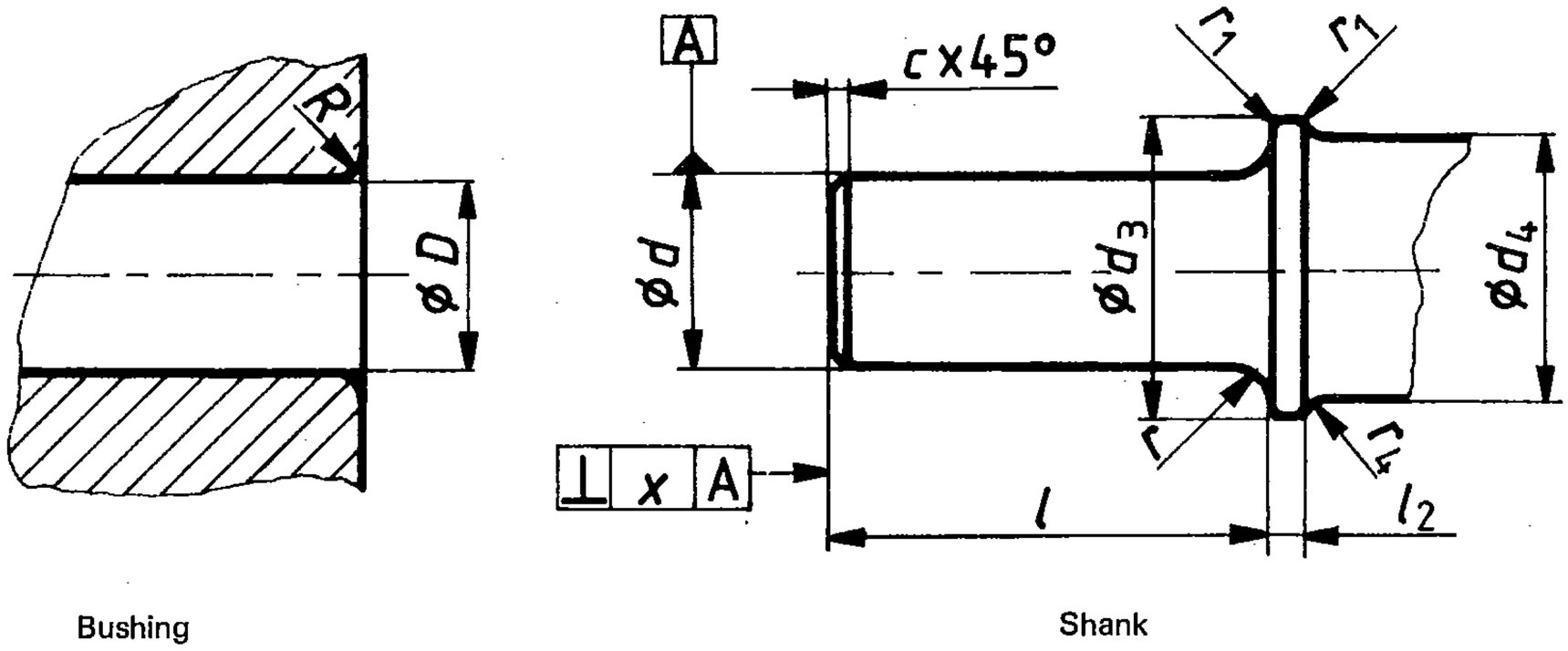
* The octogonal shape on the tool side and dimension *e* are given for information only.

NOTE — When a smaller shank size is needed, use dimensions presented for rivet snap shanks (size 10, see clause 7).

Example of designation

Chisel shank, parallel 12 × 45

7 Rivet snap shanks and corresponding chuck bushings, parallel



Bushing

Shank

Figure 5 — Rivet snap shanks and corresponding chuck bushings, parallel

Table 4

Dimensions and tolerances in millimetres

Nominal size	Shank										Bushing	
	d d9	l ± 0,5	l_2 + 1 0	d_3 max.	d_4 max.	r 0 − 0,5	r_1 0 − 0,5	r_4 0 − 0,5	c	x	D H8	R + 0,5 0
10	10,2	32	4	19	13	2	1	2	0,8	0,1	10,2	2
12	12,7	45	6	22	15	4	1	4	0,8		12,7	4
17	17,3	60	6	30	20	4	1	4	1,6		17,3	4
23	23	65	12	35	31	5	1	4	1,6	0,2	23	5
31	31	70	12	48	44	6	1	4	1,6		31	6

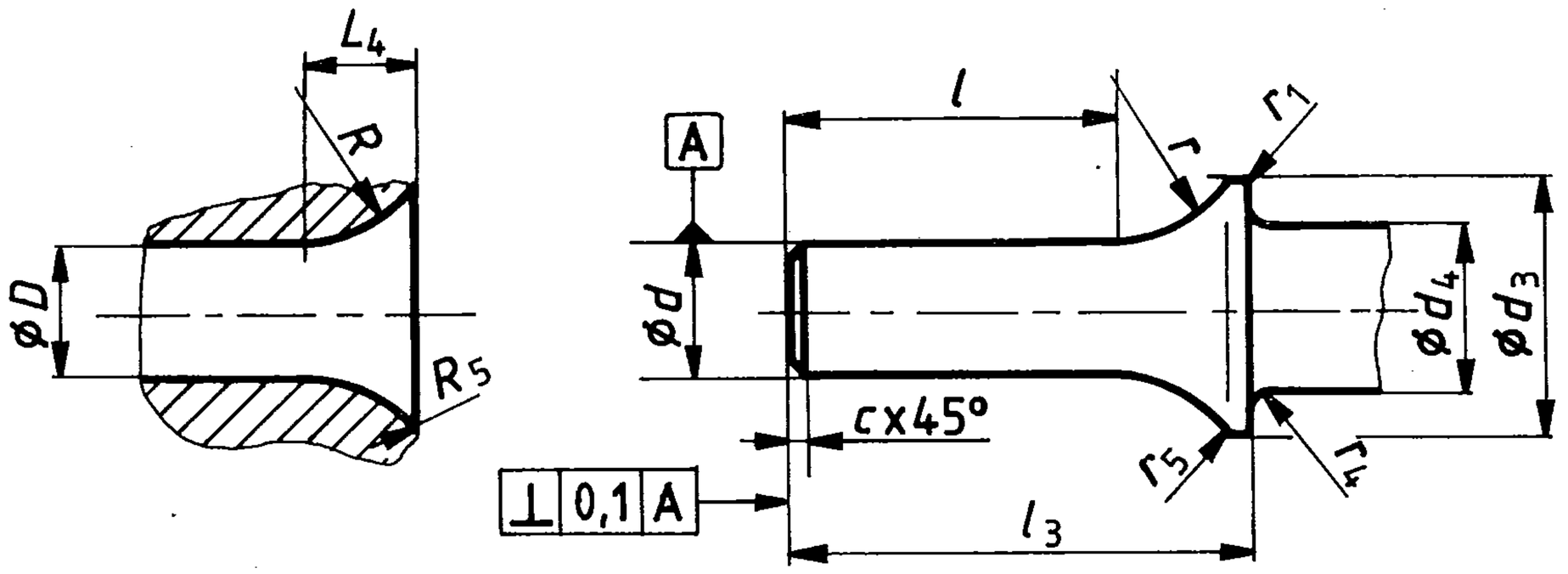
NOTE — The size 10 can also refer to chisel shanks.

Example of designation

Rivet snap shank, parallel 10 × 2

8 Rivet snap shanks and corresponding chuck bushings, tapered

Tolerance in millimetres



Bushing Shank

Figure 6 — Rivet snap shanks and corresponding chuck bushings, tapered

Table 5

Dimensions and tolerances in millimetres

Nominal size	Shank										Bushing**			
	d* f8	l	l_3 ± 0,5	d_3 min.	d_4 max.	r* 0 −1	r_1 0 −0,5	r_4 0 −0,5	r_5 0 −0,5	c	D H8	L_4	R +1 0	R_5
10	10,2	29,5	42	19,0	13	13	1	1,5	1	0,8	10,2	8	13	1
12	12,7	28,0	42	21,5	17	19	1	1,5	1	0,8	12,7	10	19	1

* The junction between diameter d and the radius r should blend and be truly tangential to diameter d.

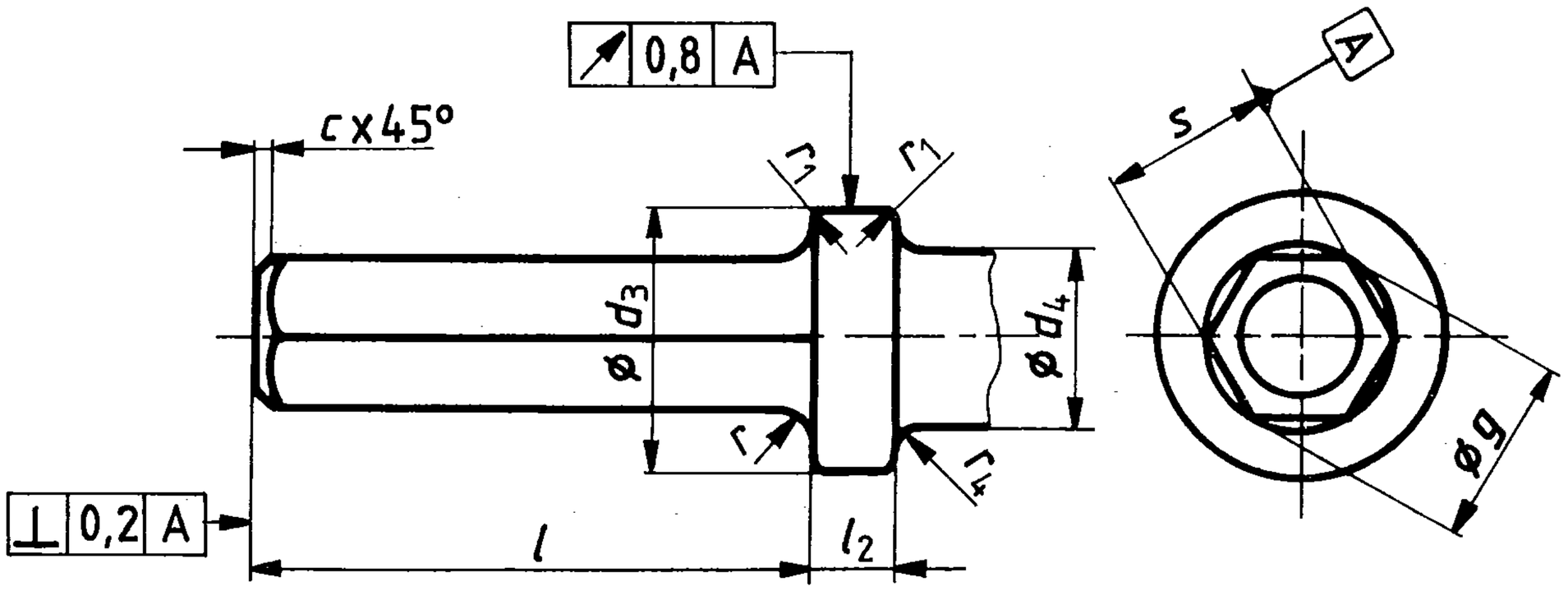
** Dimensions of bushing as a function of the length of the shank, l.

Example of designation

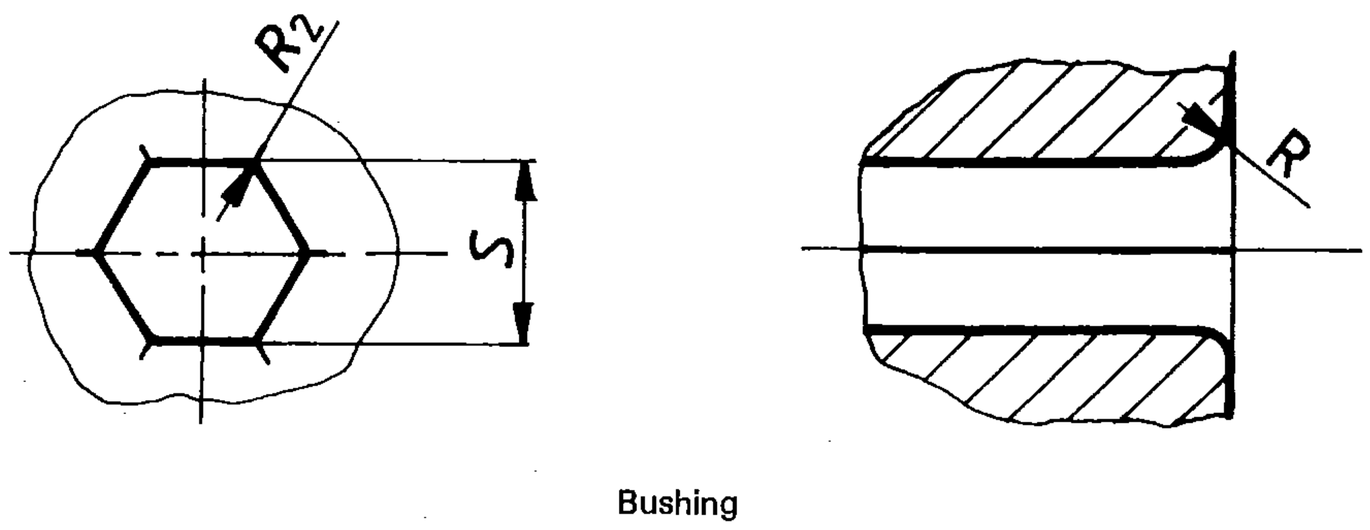
Rivet snap shank, tapered 10 × 29,5

9 Breaker and spade shanks and corresponding chuck bushings

Tolerances in millimetres



Shank



Bushing

Figure 7 — Breaker and spade shanks and corresponding chuck bushings

Table 6

Dimensions and tolerances in millimetres

Nominal size	Shank										Bushing		
	s	l ± 0,5	l_2 + 1 0	d_3 ± 0,5	d_4 max.	g* 0 − 0,3	r max.	r_1 + 0,5 − 1	r_4 0 − 1	c	S + 0,35 + 0,05	R + 1 0	R_2 max.
22	22,4 $^{0}_{-0,4}$	82,5	12	41	28**	25,2	4,5	2	5	1,6	22,4	4,5	1,5
25	25,6 $^{0}_{-0,6}$	108,0	12	41	28**	29,0	4,5	2	5	1,6	25,6	4,5	1,5

* The values given for diameter g refer to forged shanks with a radius of 2 mm on the corners. In order to correspond to the effect of this radius, machined shanks must have diameter g = 24,8 and 28,5 respectively without any corner radius.

** Alternative : 22 or 25 mm hexagon.

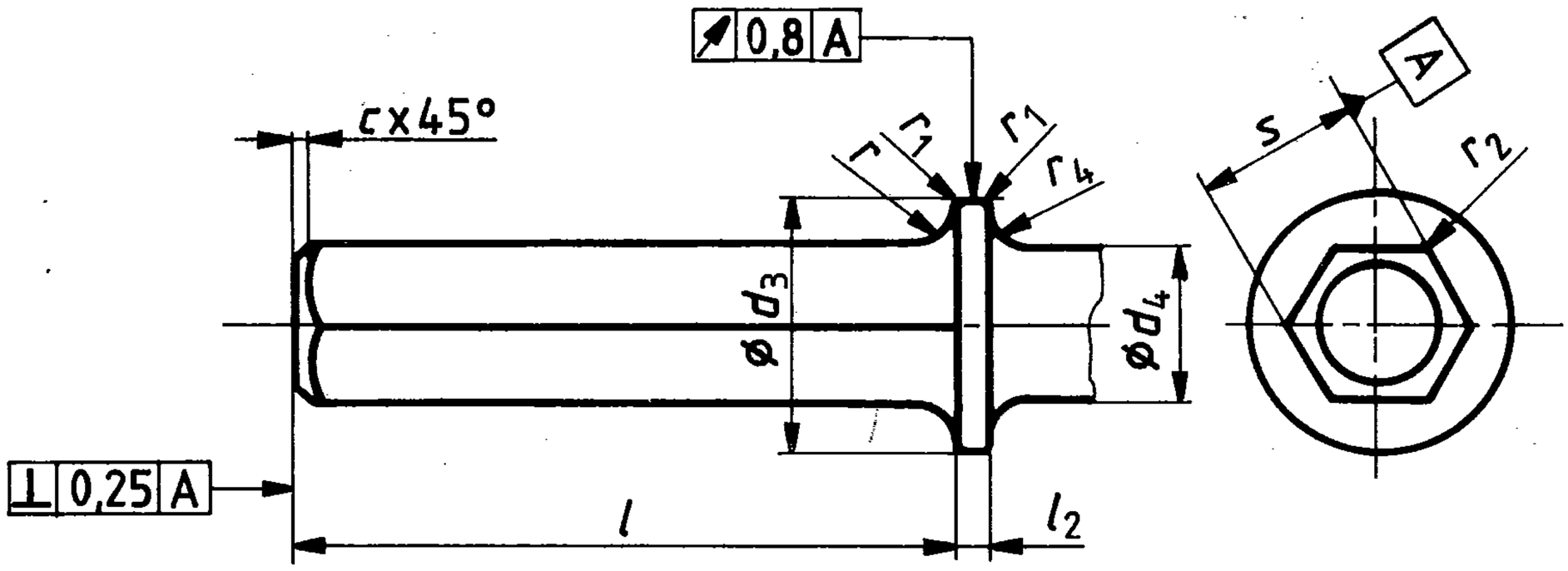
NOTE — The cutting edge, if any, of the tool should be perpendicular to one of the hexagon sides.

Example of designation

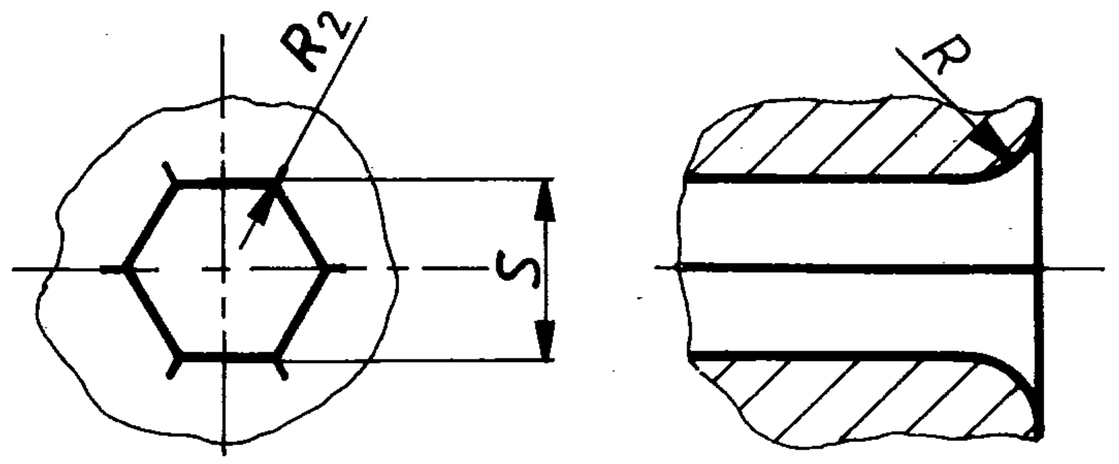
Breaker and spade shank 22 × 82,5

10 Concrete breaker shanks and corresponding chuck bushings

Tolerances in millimetres



Shank



Bushing

Figure 8 — Concrete breaker shanks and corresponding chuck bushings

Table 7

Dimensions and tolerances in millimetres

Nominal size	Shank										Bushing		
	s j_s14	l ± 2	l_2 + 1 0	d_3 0 − 1	d_4* max.	r max.	r_1 + 0,5 − 1	r_2 + 0,5 0	r_4 max.	c	S + 0,7 + 0,4	R + 1 0	R_2 0 − 1
28	28,5	160	6	46	29	16	2	2	6	1,6	28,5	16	2
32	31,7	160	6	46	32	16	2	2	6	1,6	31,7	16	2

* Alternative : 28 or 32, hexagon.

NOTE — The cutting edge, if any, of the tool should be perpendicular to one of the hexagon sides.

Example of designation

Concrete breaker shank 28 × 160

11 Rock drill shanks (forged collared shanks for hexagonal steels) and corresponding chuck bushings

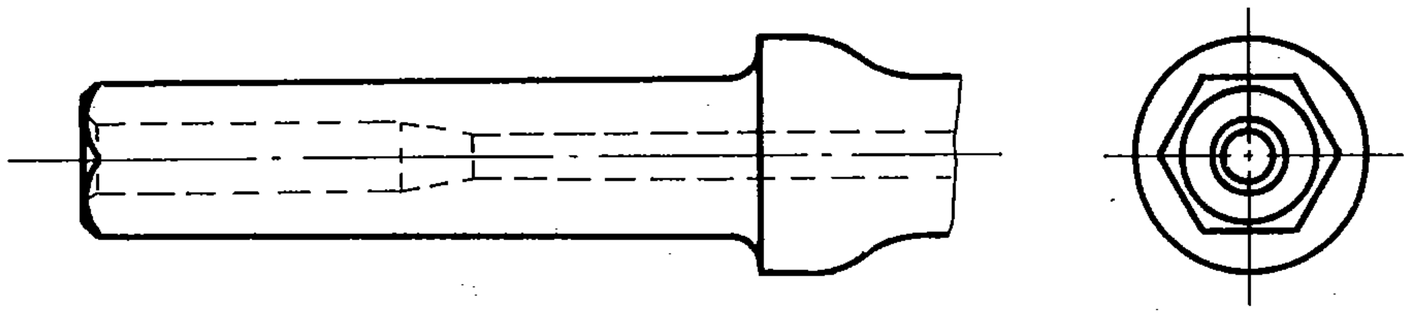


Figure 9 — Rock drill shanks

Example of designation

Rock drill shank 19 × 108

For dimensions and further information, see ISO 723.

Annex

Dimensions and tolerances in inches corresponding to dimensions and tolerances in millimetres for the relevant type and size of shank

A.1 Coal pick shanks and corresponding chuck bushings (see clause 5)

Table 8

Nominal size mm (in)	Shank														Bushing	
	d	l	l_1	l_2		d_1	d_3		d_4		r	r_1	r_3	c	D	R
	f8	h14	± 0.020	min.	max.	j_s14	min.	max.	min.	max.	0 − 0.020	0 − 0.039	± 0.020		H8	+ 0.020 0
25 (1)	0.984	2.953	0.394	0.374	0.512	0.866	1.614	1.634	0.984	1.063	0.207	0.079	0.118	0.063	0.984	0.207

A.2 Chisel shanks and corresponding chuck bushings (see clause 6)

A.2.1 Tool with hexagonal shank

Table 9

Nominal size mm (in)	Shank													
	d	l	l_1	l_2	d_3	d_4	e*	s	g	r	r_1	r_3	r_4	c
	d8	± 0.020	± 0.020	± 0.039	max.	± 0.039		d11	0 − 0.012	max.		max.	max.	
12 (1/2)	0.500	1.772	1.220	0.236	0.512	0.827	0.630	0.434	0.476	0.157	0.031	0.236	0.118	0.031
17 (11/16)	0.681	2.362	1.614	0.354	0.787	1.181	0.866	0.583	0.654	0.157	0.031	0.394	0.126	0.063
20 (25/32)	(0.788)	2.362	1.417	0.354	0.945	1.339	0.984	0.669	0.748	0.236	0.031	0.394	0.126	0.063

Nominal size mm (in)	Bushing					
	D	L	S	R	R_2	R_3
	H8	± 0.039	H11	+ 0.020 0	± 0.020	± 0.020
12 (1/2)	0.500	0.669	0.434	0.157	0.039	0.039
17 (11/16)	0.681	0.866	0.583	0.157	0.039	0.039
20 (25/32)	(0.788)	1.063	0.669	0.236	0.039	0.039

* The octogonal shape on the tool side and dimension e are given for information only.

A.2.2 Tool with parallel shank

Table 10

Nominal size mm (in)	Shank										Bushing	
	d	l	l_2	e*	d_3	d_4	r	r_1	r_4	c	D	R
	d8	± 0.020	± 0.0039		max.	± 0.039	max.		max.		H8	+ 0.020 0
12 (1/2)	0.500	1.772	0.236	0.630	0.512	0.827	0.157	0.031	0.118	0.031	0.500	0.157
17 (11/16)	0.681	2.362	0.354	0.866	0.787	1.181	0.157	0.031	0.126	0.063	0.681	0.157
20 (25/32)	(0.788)	2.362	0.354	0.984	0.945	1.339	0.236	0.031	0.126	0.063	(0.788)	0.236

* The octogonal shape on the tool side and dimension e are given for information only.

A.3 Rivet snap shanks and corresponding chuck bushings, parallel (see clause 7)

Table 11

Nominal size mm (in)	Shank										Bushing	
	d d9	l ± 0.020	l_2 + 0.040 0	d_3 max.	d_4 max.	r 0 − 0.020	r_1 0 − 0.020	r_4 0 − 0.020	c	x	D H8	R + 0.020 0
10 (13/32)	0.402	1.260	0.157	0.748	0.512	0.079	0.039	0.079	0.031	0.004	0.402	0.079
12 (1/2)	0.500	1.772	0.236	0.866	0.591	0.157	0.039	0.157	0.031		0.500	0.157
17 (11/16)	0.681	2.362	0.236	1.181	0.788	0.157	0.039	0.157	0.063		0.681	0.157
23 (29/32)	0.906	2.559	0.472	1.377	1.220	0.197	0.039	0.157	0.063	0.008	0.906	0.197
31 (1 1/4)	1.220	2.756	0.472	1.890	1.732	0.236	0.039	0.157	0.063		1.220	0.236

NOTE — The shank with size 10 mm (13/32 in) can also refer to chisel shanks.

A.4 Rivet snap shanks and corresponding chuck bushings, tapered (see clause 8)

Table 12

Nominal size mm (in)	Shank										Bushing			
	d* f8	l	l_3 ± 0.020	d_3 min.	d_4 max.	r* 0 − 0.039	r_1 0 − 0.020	r_4 0 − 0.020	r_5 0 − 0.020	c	D H8	L_4	R + 0.039 0	R_5
10 (13/32)	0.402	1.161	1.654	0.748	0.512	0.512	0.039	0.059	0.039	0.031	0.402	0.315	0.512	0.039
12 (1/2)	0.500	1.102	1.654	0.846	0.669	0.748	0.039	0.059	0.039	0.031	0.500	0.394	0.748	0.039

* The junction between diameter d and the radius r should blend and be truly tangential to diameter d.

A.5 Breaker and spade shanks and corresponding chuck bushings (see clause 9)

Table 13

Nominal size mm (in)	Shank										Bushing		
	s	l ± 0.020	l_2 + 0.039 0	d_3 ± 0.020	d_4 max.	g* 0 − 0.012	r max.	r_1 + 0.020 − 0.039	r_4 0 − 0.039	c	S + 0.014 + 0.002	R + 0.039 0	R_2 max.
22 (7/8)	$0.882\ ^{0}_{-0.016}$	3.248	0.472	1.614	1.102**	0.992	0.177	0.079	0.196	0.063	0.882	0.177	0.059
25 (1)	$1.008\ ^{0}_{-0.024}$	4.252	0.472	1.614	1.102**	1.142	0.177	0.079	0.196	0.063	1.008	0.177	0.059

* The values given for diameter g refer to forged shanks with a radius of 0.079 on the corners. In order to correspond to the effect of this radius, machined shanks must have diameter g of 0.976 and 1.122 respectively wilthout any corner radius.

** Alternative : 7/8 or 1, hexagon.

A.6 Concrete breaker shanks and corresponding chuck bushings (see clause 10)

Table 14

Nominal size mm (in)	Shank										Bushing		
	s j_s14	l ± 0.079	l_2 + 0.039 0	d_3 0 − 0.039	d_4* max.	r max.	r_1 + 0.020 − 0.039	r_2 + 0.020 0	r_4 max.	c	S + 0.028 + 0.016	R + 0.039 0	R_2 0 − 0.039
28 (1 1/8)	1.122	6.299	0.236	1.811	1.142	0.630	0.079	0.079	0.236	0.063	1.122	0.630	0.079
32 (1 1/4)	1.248	6.299	0.236	1.811	1.260	0.630	0.079	0.079	0.236	0.063	1.248	0.630	0.079

* Alternative : 1 1/8 or 1 1/4, hexagon.