
International Standard



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

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

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.

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

6 Chisel shanks and corresponding chuck bushings

6.1 Tool with hexagonal shank

Tolerances in millimetres

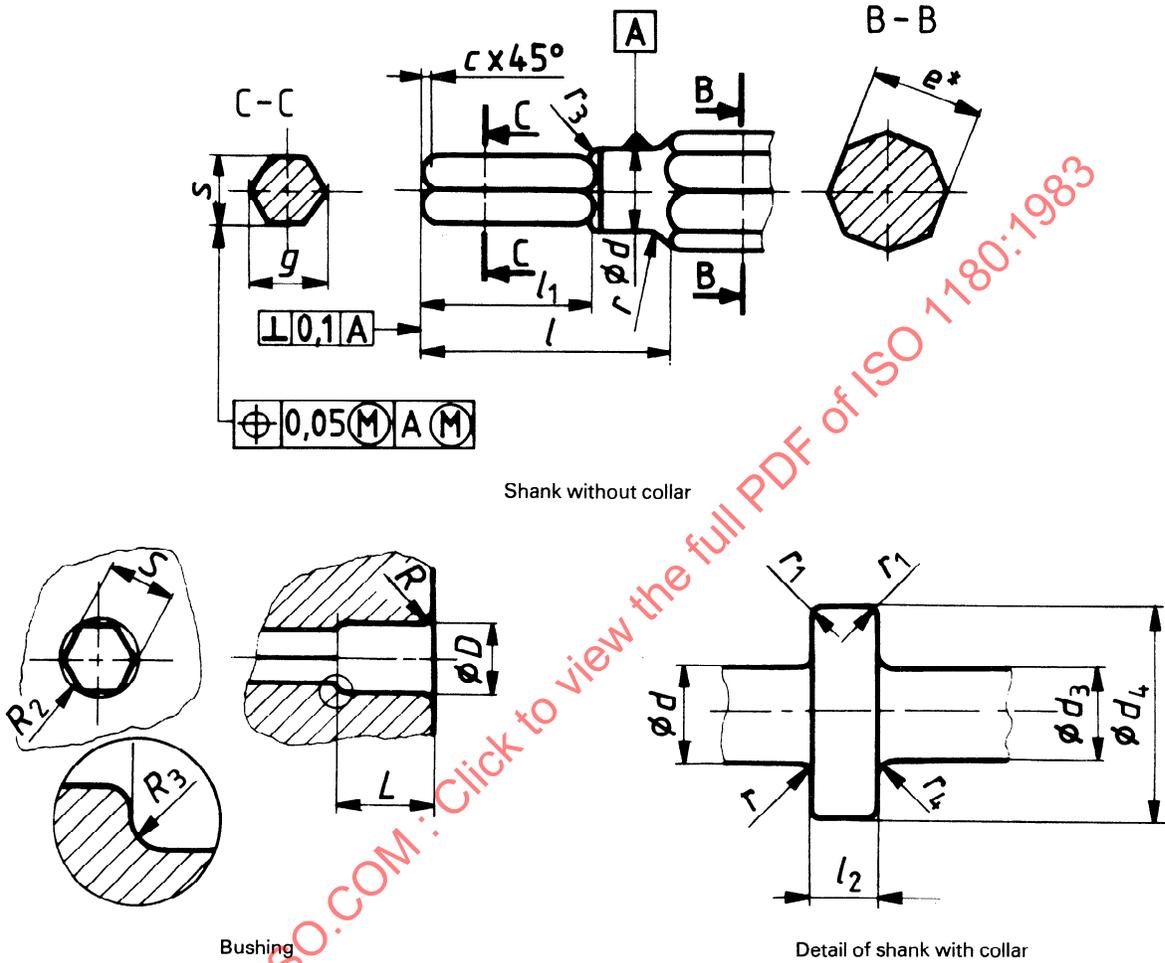


Figure 2 – Tool with hexagonal shank

Table 2

Dimensions and tolerances in millimetres

Nominal size	Shank														Bushing						
	<i>d</i>	<i>l</i>	<i>l</i> ₁	<i>l</i> ₂	<i>d</i> ₃	<i>d</i> ₄	<i>e</i> *	<i>s</i>	<i>g</i>	<i>r</i>	<i>r</i> ₁	<i>r</i> ₃	<i>r</i> ₄	<i>c</i>	<i>D</i>	<i>L</i>	<i>S</i>	<i>R</i>	<i>R</i> ₂	<i>R</i> ₃	
	d8	± 0,5	± 0,5	± 1	max.	± 1		d11	⁰ _{-0,3}	max.		max.	max.		H8	± 1	H11	^{+0,5} ₀	± 0,5	± 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 octagonal shape on the tool side and dimension *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).

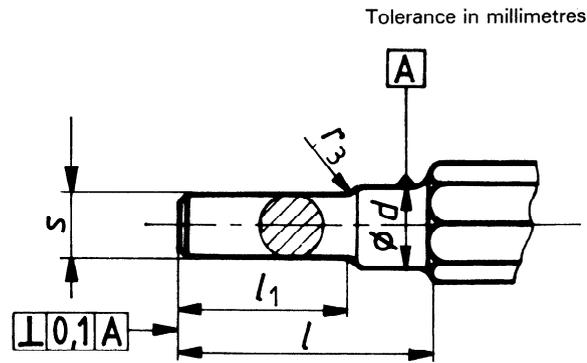


Figure 3 — Alternative shank

- 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

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6.2 Tool with parallel shank

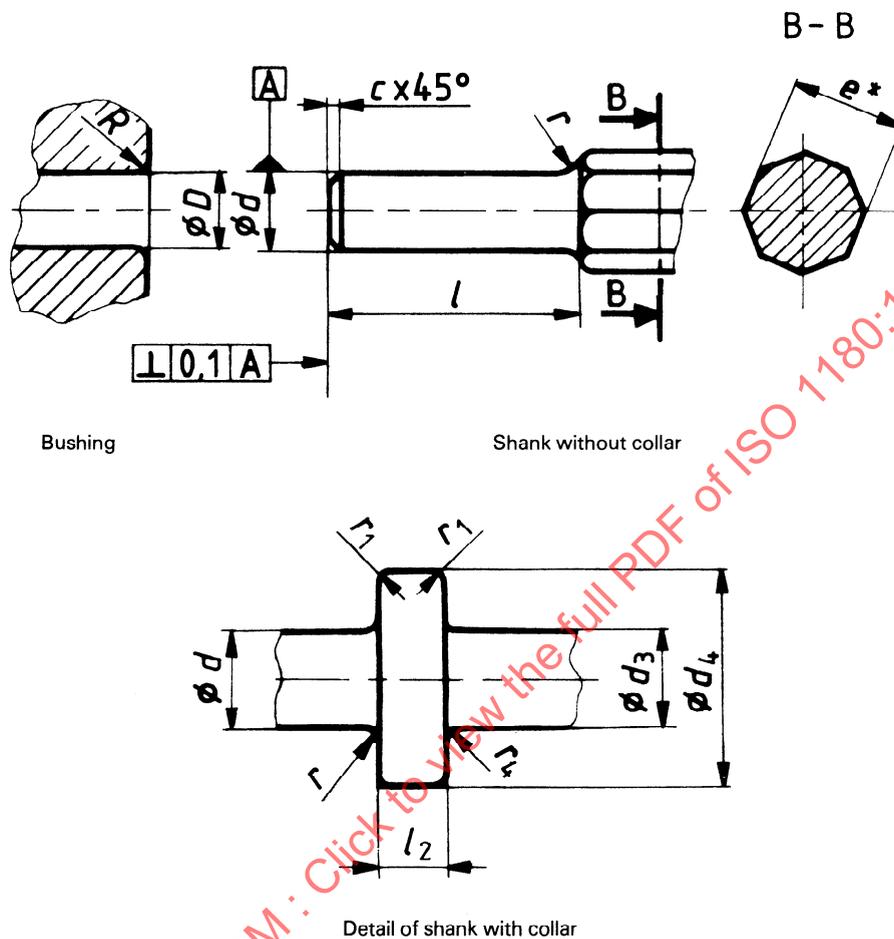


Figure 4 – Tool with parallel shank

Table 3

Dimensions and tolerances in millimetres

Nominal size	Shank										Bushing	
	d	l	l_2	e^*	d_3	d_4	r	r_1	r_4	c	D	R
	d8	$\pm 0,5$	± 1		max.	± 1	max.		max.		H8	+ 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

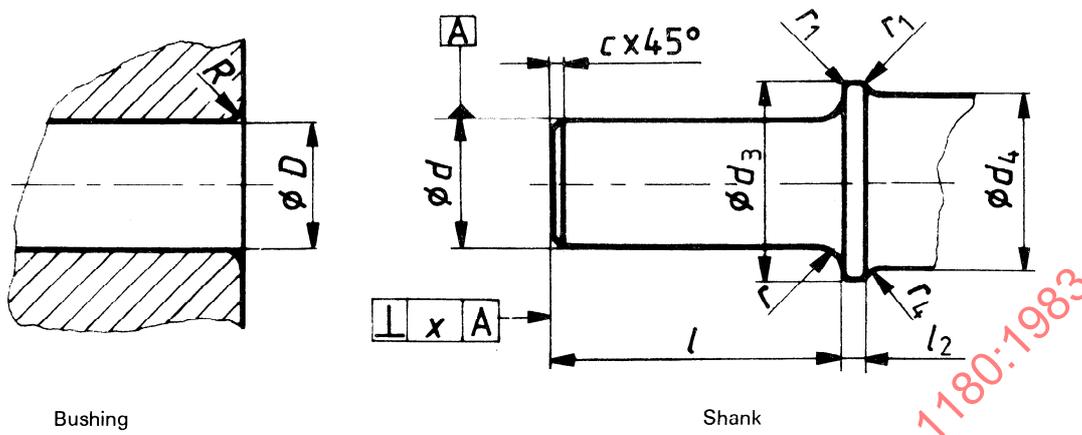


Figure 5 — Rivet snap shanks and corresponding chuck bushings, parallel

Table 4

Dimensions and tolerances in millimetres

Nominal size	Shank										Bushing	
	d d9	l $\pm 0,5$	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 x 2

8 Rivet snap shanks and corresponding chuck bushings, tapered

Tolerance in millimetres

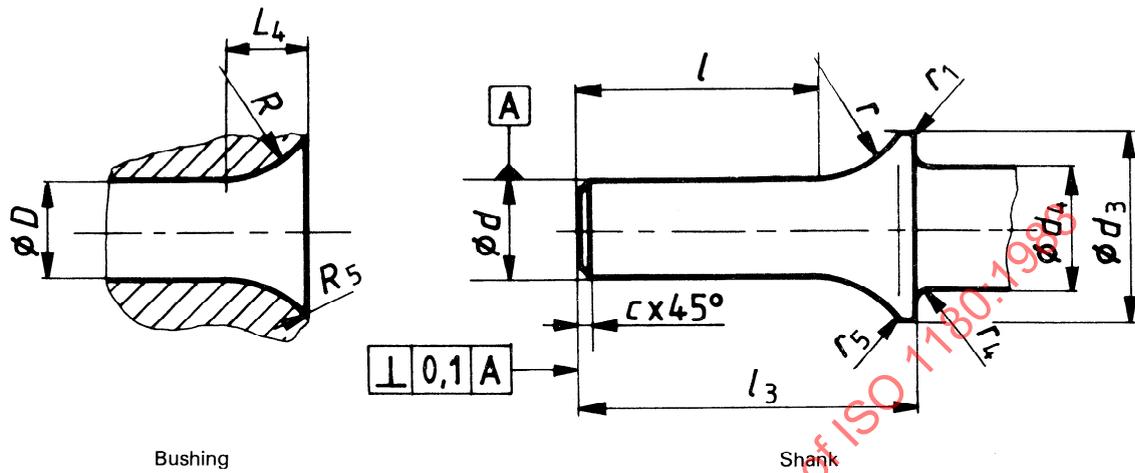


Figure 6 – Rivet snap shanks and corresponding chuck bushings, tapered

Table 5

Dimensions and tolerances in millimetres

Nominal size	Shank										Bushing**			
	d^*	l	l_3	d_3	d_4	r^*	r_1	r_4	r_5	c	D	L_4	R	R_5
	f8		$\pm 0,5$	min.	max.	0 - 1	0 - 0,5	0 - 0,5	0 - 0,5		H8		+ 1 0	
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

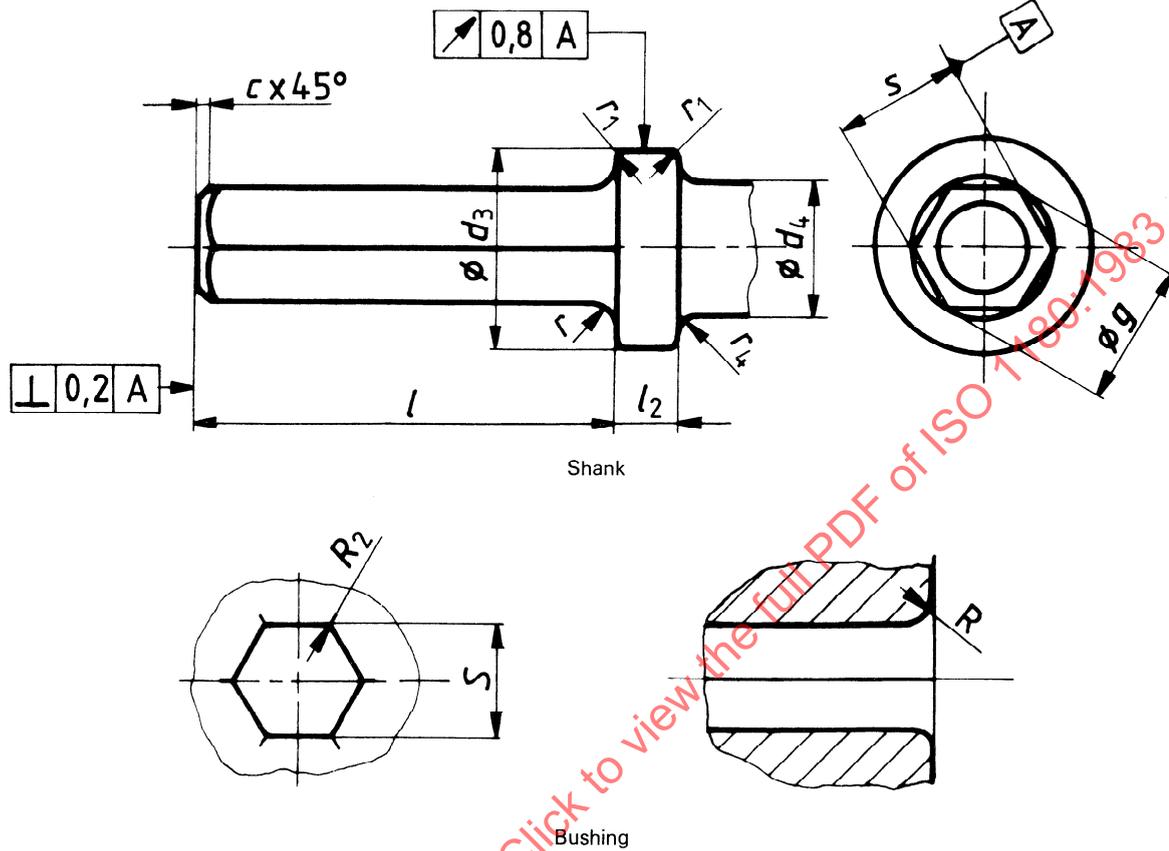


Figure 7 — Breaker and spade shanks and corresponding chuck bushings

Table 6

Dimensions and tolerances in millimetres

Nominal size	Shank										Bushing		
	s	l	l ₂	d ₃	d ₄	g*	r	r ₁	r ₄	c	S	R	R ₂
		± 0,5	+ 1 0	± 0,5	max.	0 - 0,3	max.	+ 0,5 - 1	0 - 1		+ 0,35 + 0,05	+ 1 0	max.
22	22,4 _{-0,4} ⁰	82,5	12	41	28**	25,2	4,5	2	5	1,6	22,4	4,5	1,5
25	25,6 _{-0,6} ⁰	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

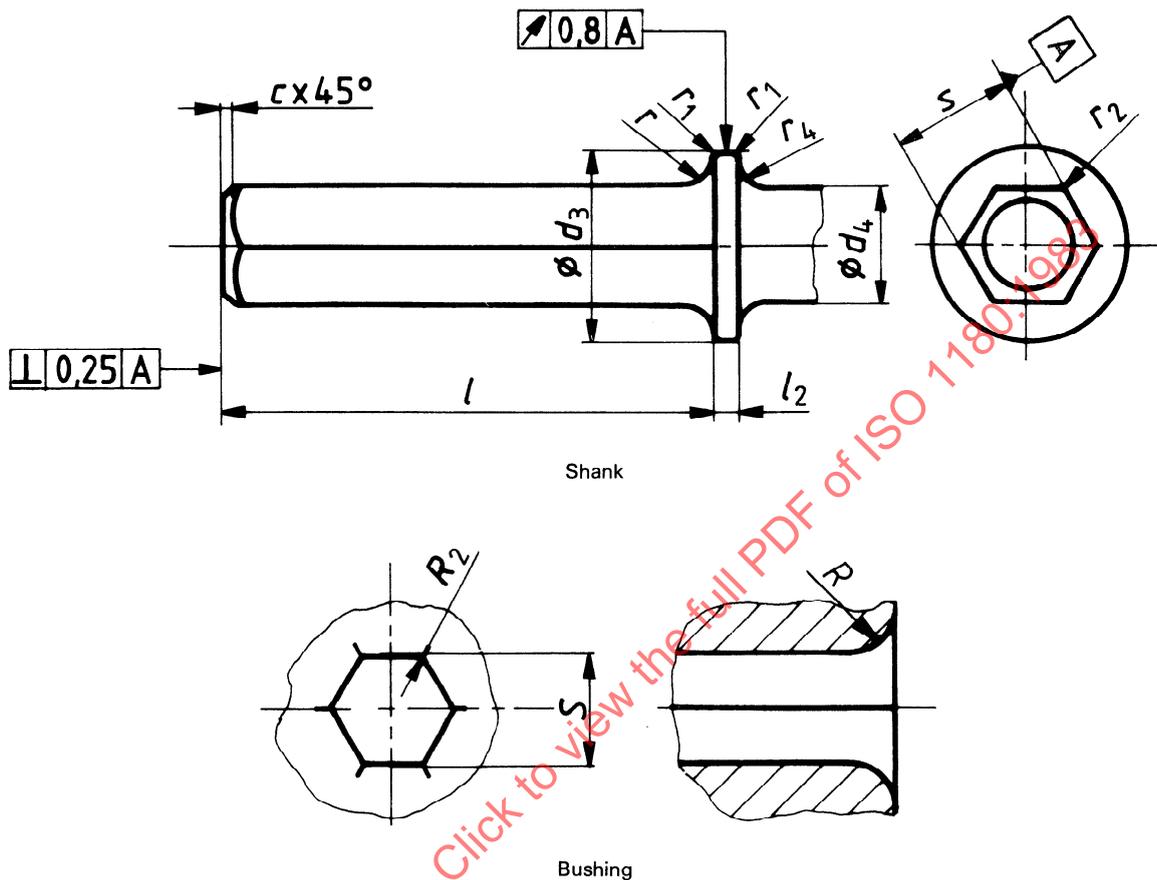


Figure 8 – Concrete breaker shanks and corresponding chuck bushings

Table 7

Dimensions and tolerances in millimetres

Nominal size	Shank										Bushing		
	s h14	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

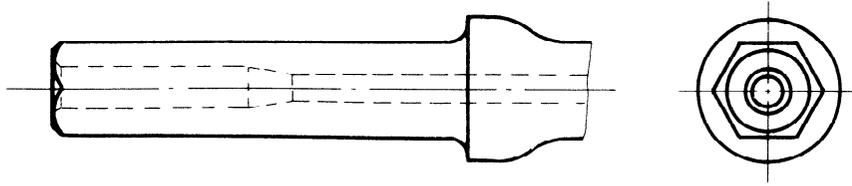


Figure 9 — Rock drill shanks

Example of designation

Rock drill shank 19 × 108

For dimensions and further information, see ISO 723.

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