

# International Standard 8020

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

## Punches with cylindrical head and reduced shank

*Poinçons à tête cylindrique et à corps épaulé*

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Descriptors : tools, punches, dimensions, designation, hardness.

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8020 was prepared by Technical Committee ISO/TC 29, *Small tools*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

# Punches with cylindrical head and reduced shank

## 1 Scope and field of application

This International Standard lays down the dimensions and tolerances in millimetres for basic cylindrical head punches with reduced shank; it also includes shapes.

It gives materials and hardness as examples, and specifies the designation of punches according to this International Standard.

Cylindrical head punches with reduced shank are standardized in round, oblong, square and rectangular shapes.

They are available in 5 to 32 mm shank diameter sizes.

The main use of punches defined in this International Standard is for punching holes in steel sheet. They may also be used for punching holes in other materials.

## 2 References

ISO 4957, *Tool steels*.

ISO 6508, *Metallic materials — Hardness test — Rockwell test (scales A — B — C — D — E — F — G — H — K)*.<sup>1)</sup>

ISO 8695, *Punches — Nomenclature and terminology*.<sup>2)</sup>

## 3 Definitions

For the purposes of this International Standard, the definitions in ISO 8695 apply.

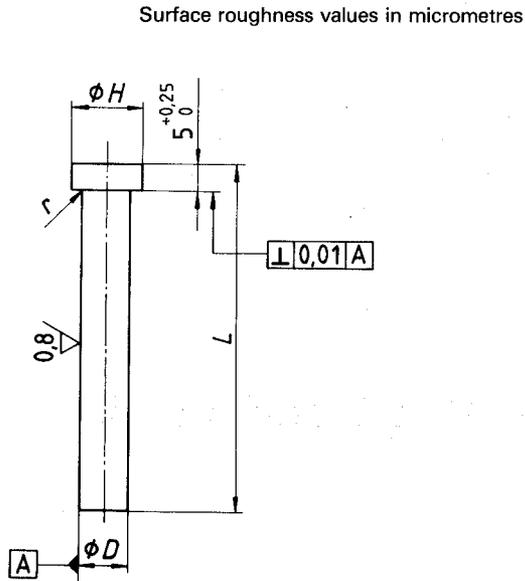
1) At present at the stage of draft. (Revision of ISO/R 80-1968 and ISO 2713-1973.)

2) At present at the stage of draft.

4 Dimensions

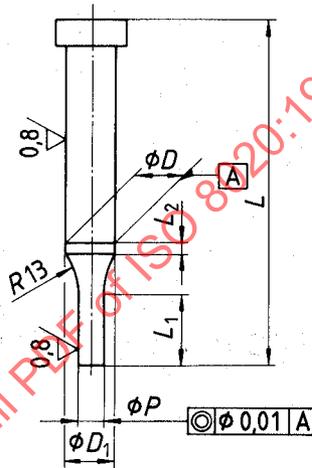
4.1 Perforating punches

4.1.1 Blanks — Type A



4.1.2 Perforating punch, round — Type B

Surface roughness values in micrometres



Shank diameter $D$	Head diameter $H$	$r$	Overall length $L$							
			56	63	71	80	90	100		
m5	0 -0,25	$\pm 0,1$								
5	8	0,25	x	x	x	x	x	x		
6	9		x	x	x	x	x	x		
8	11		x	x	x	x	x	x		
10	13	0,4	x	x	x	x	x	x		
13	16		x	x	x	x	x	x		
16	19		x	x	x	x	x	x		
20	24	0,4	x	x	x	x	x	x		
25	29		x	x	x	x	x	x		
32	36		x	x	x	x	x	x		

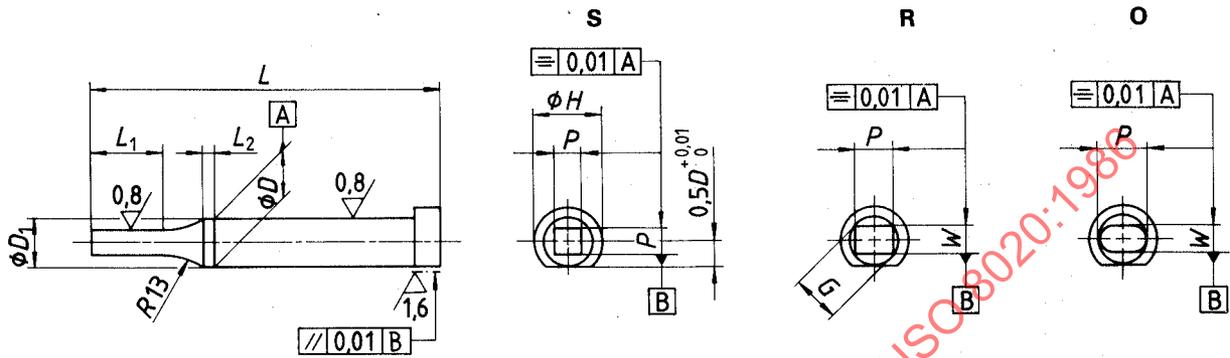
Shank diameter $D$	Range of point diameter $P$		Overall length $L$						
	lower	upper	56	63	71	80	90	100	
m5		$+ 0,01$ 0							
5	1	4,9	x	x	x	x	x		
6	1,6	5,9	x	x	x	x	x		
8	2,5	7,9	x	x	x	x	x		
10	4	9,9	x	x	x	x	x		
13	5	12,9	x	x	x	x	x		
16	8	15,9	x	x	x	x	x		
20	12	19,9	x	x	x	x	x		
25	16,5	24,9	x	x	x	x	x		
32	20	31,9	x	x	x	x	x		

NOTE — The point length  $L_1$ , diameter  $D_1$  and length  $L_2$  are left to the manufacturer's discretion. See 4.1.1 for dimensions and tolerances of the head and tolerances of  $D$  and  $L$ .

4.1.3 Perforating punches, square (S), rectangular (R) and oblong (O) shapes — Type C

Surface roughness values in micrometres

Shapes of point



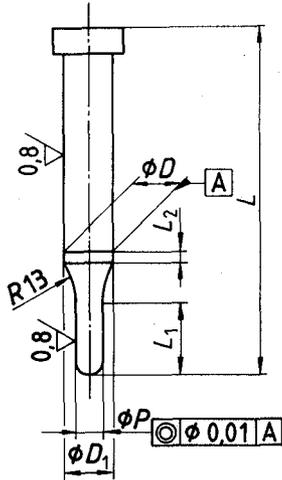
Shank diameter <i>D</i> m5	Range of point diameter				Overall length <i>L</i>					
	S		R or O		56	63	71	80	90	100
	<i>P</i> + 0,01 0		<i>W, P</i> and <i>G</i> + 0,01 0							
lower	upper	lower	upper							
5	1	3,5	1	4,9	x	x	x	x	x	
6	1,6	4,2	1,6	5,9	x	x	x	x	x	x
8	2	5,6	2	7,9	x	x	x	x	x	x
10	3,5	7,0	3,5	9,9	x	x	x	x	x	x
13	4,5	9,1	4,5	12,9	x	x	x	x	x	x
16	6	11,3	6	15,9	x	x	x	x	x	x
20	8	14,1	8	19,9	x	x	x	x	x	x
25	10	17,6	10	24,9	x	x	x	x	x	x
32	10	22,6	10	31,9	x	x	x	x	x	x

NOTE — The point length  $L_1$ , diameter  $D_1$  and length  $L_2$  are left to the manufacturer's discretion. See 4.1.1 for dimensions and tolerances of the head and tolerances of  $D$  and  $L$ .

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4.2 Pilot punch – Type D

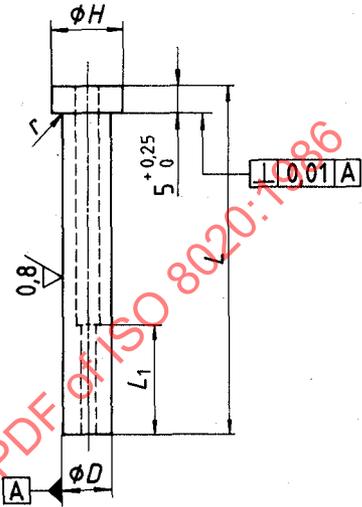
Surface roughness values in micrometres



4.3 Perforating ejector punch

4.3.1 Ejector punch-blank – Type E

Surface roughness values in micrometres



Shank diameter $D$ m5	Range of point diameter $P$ $+0,01$ $0$		Overall length $L$					
	lower	upper	56	63	71	80	90	100
			x	x	x	x	x	x
5	0,99	4,9	x	x	x	x	x	
6	1,9	5,9	x	x	x	x	x	x
8	2,4	7,9	x	x	x	x	x	x
10	3,9	9,9	x	x	x	x	x	x
13	4,9	12,9	x	x	x	x	x	x
16	7,9	15,9	x	x	x	x	x	x
20	11,9	19,9	x	x	x	x	x	x
25	15	24,9	x	x	x	x	x	x
32	19,9	31,9	x	x	x	x	x	x

NOTE — The point length  $L_1$  and the point shape and diameter  $D_1$  and length  $L_2$  are left to the manufacturer's discretion. See 4.1.1 for dimensions and tolerances of the head and tolerances of  $D$  and  $L$ .

Shank diameter $D$ m5	Head diameter $H$ $0$ $-0,25$	$r$ $\pm 0,1$	Overall length $L$ $+1$ $0$					
			56	63	71	80	90	100
			x	x	x	x	x	x
5	8	0,25	x	x	x	x	x	
6	9		x	x	x	x	x	x
8	11		x	x	x	x	x	x
10	13	0,4	x	x	x	x	x	x
13	16		x	x	x	x	x	x
16	19		x	x	x	x	x	x
20	24	0,4	x	x	x	x	x	x
25	29		x	x	x	x	x	x
32	36		x	x	x	x	x	x

NOTE — The point length  $L_1$  and the ejector components are left to the manufacturer's discretion.