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भारतीय मानक मसौदा

दाबन के औज़ार भाग 1 60° शंक्वाकार शीर्ष और सीधे शैंक वाले गोल पंच

(IS 4296 *का तीसरा पुनरीक्षण*)

Draft Indian Standard

Tools for Pressing Part 1 Round Punches with 60 Degrees Conical Head and Straight Shank

(*Third Revision of* IS 4296)

ICS 25.120.10

Metal Forming Machines Sectional Committee, PGD 04	Last Date for Comments: **One month from the date of circulation**

FOREWORD
(Formal clause will be added later)

This standard was first published in 1967 and was subsequently revised in 2002 & 2016. The Third revision has been taken up to keep pace with the latest technological developments and Indian industrial practices.

In this revision, the following changes have been made:

a) Scope has been modified,
b) References have been updated,
c) Table 1 has been modified, and
d) Material clause has been modified.

This Indian Standard specifies the basic dimensions, in millimetres, of round punches with 60°

conical head and straight shank in the diameter range of 0.5 mm to 20 mm.

This Standard is published in three parts. Other parts in this are:

Part 2 Punches with cylindrical head and straight or reduced shank
Part 3 Round punches with 60 degrees conical head and reduced shank

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TOOLS FOR PRESSING PART 1 ROUND PUNCHES WITH 60 DEGREES CONICAL HEAD AND STRAIGHT SHANK

(Third Revision)

1 SCOPE

This Indian Standard specifies the basic dimensions, in millimetres, of round punches with 60° conical head and straight shank in the diameter range of 0.5 mm to 20 mm. It gives example material and hardness values, and specifies the designation of the punches, whose main use is punching holes in steel sheets but that can also be used on other materials.The main use of punches defined in this Indian Standard is for punching holes in steel sheet. They may also be used for punching holes in other materials.

2 REFERENCES

The following standard contain provision which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. This standard is subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
IS 2102 (Part 1) : 1993 /ISO 2768-1-89	General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications (*third revision*)

3 DIMENSIONS

The dimensions of round punches with 60° conical head and straight shank shall conform to the indications of Fig. 1 and Table 1.

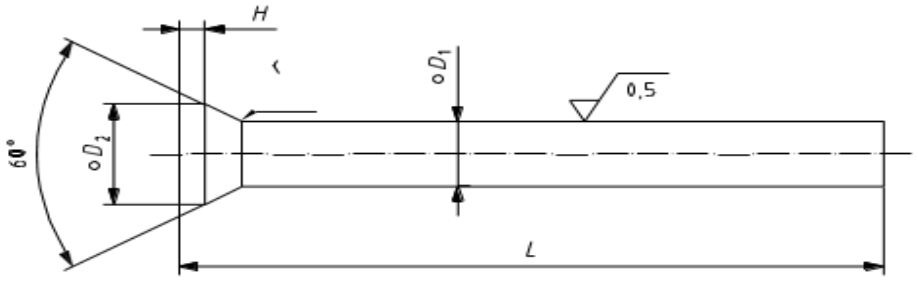

FIG. 1 — ROUND PUNCHES WITH 60° CONICAL HEAD AND STRAIGHT SHANK

Table 1 — Dimensions of Round Punches with 60° Conical Head and Straight Shank

Sl.No	D_1 h6	D_2 $0.0_{-0.2}$	H $+0.2_{0}$	r	$L^{+0.5}_{0}$									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
i)	0.50	0.9	0.2	$0.2^{+0.2}_{-0.1}$	25	30	35	40	50	60	70	80	90	100
ii)	0.55	1.0			x	x	x	x	x					
iii)	0.60	1.1			x	x	x	x	x					
iv)	0.65	1.2			x	x	x	x	x					
v)	0.70	1.3			x	x	x	x	x					
vi)	0.75	1.3			x	x	x	x	x					
vii)	0.80	1.4	0.4		x	x	x	x	x					
viii)	0.85	1.4			x	x	x	x	x					
ix)	0.90	1.6			x	x	x	x	x					
x)	0.95	1.6			x	x	x	x	x					
xi)	1.0	1.8	0.5	$0.4^{+0.3}_{-0.3}$	x	x	x	x	x					
xii)	1.1	1.8			x	x	x	x	x					
xiii)	1.2	2.0			x	x	x	x	x					
xiv)	1.3	2.0			x	x	x	x	x					
xv)	1.4	2.2			x	x	x	x	x					
xvi)	1.5	2.2			x	x	x	x	x					
xvii)	1.6	2.5			x	x	x	x	x					
xviii)	1.7	2.5			x	x	x	x	x					
xix)	1.8	2.8			x	x	x	x	x					
xx)	1.9	2.8			x	x	x	x	x					
xxi)	2.0	3.0			x	x	x	x	x					
xxii)	2.1	3.2			x	x	x	x	x					
xxiii)	2.2	3.2			x	x	x	x	x					
xxiv)	2.3	3.5			x	x	x	x	x					
xxv)	2.4	3.5			x	x	x	x	x					
xxvi)	2.5	3.5			x	x	x	x	x					
xxvii)	2.6	4.0			x	x	x	x	x					
xxviii)	2.7	4.0			x	x	x	x	x					
xxix)	2.8	4.0			x	x	x	x	x					
xxx)	2.9	4.0			x	x	x	x	x					
xxxi)	3.0	4.5			x	x	x	x	x					
xxxii)	3.1	4.5						x	x	x				
xxxiii)	3.2	4.5						x	x	x				
xxxiv)	3.3	4.5						x	x	x				
xxxv)	3.4	4.5						x	x	x				
xxxvi)	3.5	5.0							x	x	x			
xxxvii)	3.6	5.0							x	x	x			

xxxviii)	3.7	5.0							x	x	x				
xxxix)	3.8	5.0							x	x	x				
xl)	3.9	5.0							x	x	x				
xli)	4.0	5.5								x	x				
xlii)	4.1	5.5								x	x				
xliii)	4.2	5.5								x	x				
xliv)	4.3	5.5								x	x				
xlv)	4.4	5.5		$0.6^{+0.4}_{-0.5}$						x	x				
xlvi)	4.5	6.0								x	x	x			
xlvii)	4.6	6.0								x	x	x			
xlviii)	4.7	6.0								x	x	x			
xlix)	4.8	6.0								x	x	x			
l)	4.9	6.0	0.5							x	x	x			
li)	5.0	6.5									x	x	x	x	
lii)	5.1	6.5									x	x	x	x	
liii)	5.2	6.5									x	x	x	x	
liv)	5.3	6.5									x	x	x	x	
lv)	5.4	6.5									x	x	x	x	
lvi)	5.5	7.0									x	x	x	x	
lvii)	5.6	7.0									x	x	x	x	
lviii)	5.7	7.0									x	x	x	x	
lix)	5.8	7.0									x	x	x	x	
lx)	5.9	7.0									x	x	x	x	
lxi)	6.0	8.0									x	x	x	x	
lxii)	6.1	8.0									x				
lxiii)	6.2	8.0									x				
lxiv)	6.3	8.0									x				
lxv)	6.4	8.0									x				
lxvi)	6.5	9.0									x				
lxvii)	7.0	9.0									x				
lxviii)	7.5	10.0									x				
lxix)	8.0	10.0									x				
lxx)	8.5	11.0									x				
lxxi)	9.0	11.0		$0.5^{+0.5}_{-0.4}$							x				
lxxii)	9.5	12.0	1								x				
lxxiii)	10.0	12.0									x				
lxxiv)	10.5	13.0									x				
lxxv)	11.0	13.0									x				
lxxvi)	11.5	14.0									x				
lxxvii)	12.0	14.0									x	x			
lxxviii)	12.5	15.0									x	x			
lxxix)	13.0	15.0									x	x			
lxxx)	13.5	16.0									x	x			
lxxxi)	14.0	16.0	1.5								x	x			
lxxxii)	14.5	17.0									x	x	x	x	

lxxxiii)	15	17.0		$1.0^{+0.5}_{-0.5}$							x	x	x	x
lxxxiv)	15.5	18.0									x	x	x	x
lxxxv)	16.0	18.0									x	x	x	x
lxxxvi)	17.0	19.0									x	x	x	x
lxxxvii)	18.0	20.0									x	x	x	x
lxxxviii)	19.0	21.1									x	x	x	x
lxxxix)	20.0	22.0									x	x	x	x

4 MATERIAL AND HARDNESS

The material is left to the manufacturer's discretion. The following hardness values are given as examples.

a) Alloyed cold work steel with 5 % to 12 % Cr:

– point: (60 ± 2) HRC;

– head: (55 ± 5) HRC.

b) High-speed steel:

– point: (60 ± 2) HRC;

– head: (60 ± 5) HRC.

5 DESIGNATION

A round punch with 60° conical head and straight shank shall be designated by:

a) “Punch”;
b) Reference to this standard;
c) its points diameter, D_1, in millimetres; and
d) its length, L, in millimetres.

6 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.