INTERNATIONAL STANDARD

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Fifth edition
2023-11

Tools for moulding — Ejector sleeves with cylindrical head — Basic series for general purposes

Outillage de moulage — Éjecteurs tubulaires à tête cylindrique — Série de base pour usages généraux

Reference number
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Foreword

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This document was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 8, *Tools for pressing and moulding.*

This fifth edition cancels and replaces the fourth edition (ISO 8405:2020) which has been technically revised.

The main changes are as follows:

— deletion of diameters D_1 = 0,8, 1,6 and 14 and addition of diameters D_1 = 1 and 5,5;

— modification of the tolerance on D_3;

— modification of D_2, D_3 and D_4 for ejector sleeves with diameters D_1 < 2;

— modification of L_1 for ejector sleeves with diameters D_1 < 2,5 and D_1 = 16;

— modification of H for ejector sleeves with diameters D_1 < 1,2;

— modification of D_3 for ejector sleeves with diameters D_1 = 4,2;

— modification of the symbol of surface roughness.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Tools for moulding — Ejector sleeves with cylindrical head — Basic series for general purposes

1 Scope

This document specifies the dimensions and tolerances, in millimetres, of ejector sleeves with cylindrical head which are used in compression and injection moulds and in diecasting dies.

It also gives material guidelines and hardness requirements, and specifies the designation of ejector sleeves with cylindrical head.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6751, *Tools for moulding — Ejector pins with cylindrical head*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

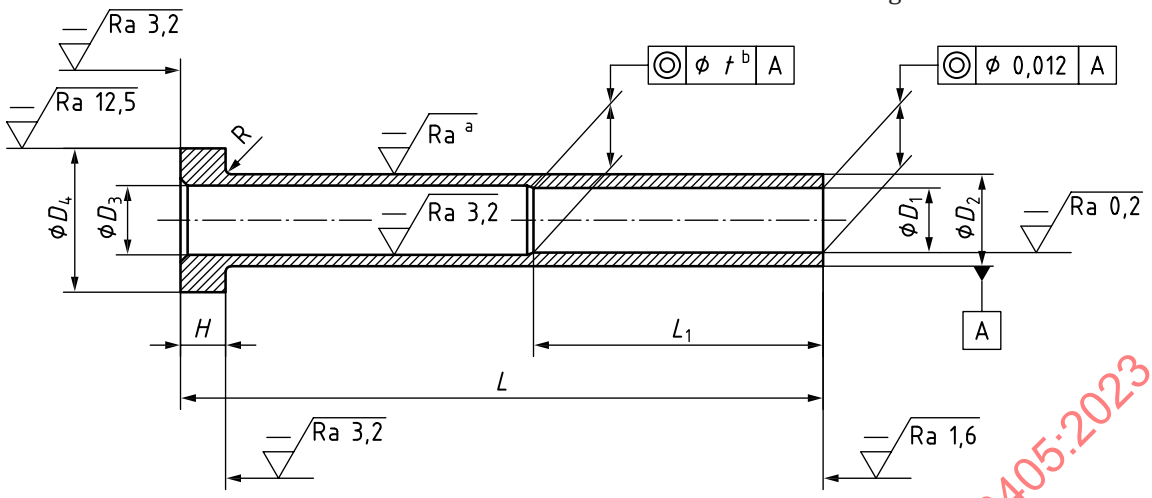
— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Dimensions

The dimensions of ejector sleeves with cylindrical head shall be in accordance with the indications of Figure 1 and Table 1.

Surface roughness values in micrometres



a Ra 0,8 for hot worked steel. Ra 0,4 for alloyed cold worked steel.

b $t = 0{,}012\ (L_1 \times 10^{-1})$
where L_1 is expressed in millimetres.

Figure 1 — Ejector sleeves

Table 1 — Ejector sleeves dimensions

Dimensions in millimetres

D_1[a] H5		D_2 g6	D_3 +0,1 −0,1	D_4 0 −0,2	L_1 +1 0	L +1 0										H[b] 0 −0,05	R +0,2 0
Standard size	Oversize					75	100	125	150	175	200	225	250	275	300		
1		2,5	1,3	5	25	×	×									2	0,3
	1,2		1,5		35	×	×										
1,5		3	1,8	6		×	×	×								3	0,3
	1,7		2			×	×	×									
2		4	2,5	8		×	×	×	×	×							
	2,2					×	×	×	×	×							
2,5		5	3	10		×	×	×	×	×							
	2,7				45	×	×	×	×	×							
3			3,5			×	×	×	×	×	×						
	3,2					×	×	×	×	×	×						
3,5		6	4	12		×	×	×	×	×	×					5	0,5
	3,7					×	×	×	×	×	×						
4		8	4,5	14		×	×	×	×	×	×						
	4,2					×	×	×	×	×	×						
4,5			5			×	×	×	×	×	×						
5			5,5			×	×	×	×	×	×	×	×				
	5,2					×	×	×	×	×	×	×	×				
5,5			6			×	×	×	×	×	×	×	×				
6		10	6,5	16		×	×	×	×	×	×	×	×				
	6,2					×	×	×	×	×	×	×	×				
7		12	7,5	20		×	×	×	×	×	×	×	×				
8			8,5			×	×	×	×	×	×	×	×	×	×	7	0,8
	8,2					×	×	×	×	×	×	×	×	×	×		
8,5			9			×	×	×	×	×	×	×	×	×	×		
9		14	9,5	22		×	×	×	×	×	×	×	×	×	×		
10			10,5			×	×	×	×	×	×	×	×	×	×		
	10,2					×	×	×	×	×	×	×	×	×	×		
10,5			11			×	×	×	×	×	×	×	×	×	×		
11			11,5			×	×	×	×	×	×	×	×	×	×		
12		16	12,5			×	×	×	×	×	×	×	×	×	×		
	12,5		13			×	×	×	×	×	×	×	×	×	×		
16		20	16,5	26	50	×	×	×	×	×	×	×	×	×	×	8	1

Key

× standardized dimensions

NOTE Tolerance classes and limit deviations are defined in ISO 286-2.

[a] For repair, the following diameters for D_1 are recommended: 2,2; 2,7; 3,2; 3,7, 4,2; 5,2; 6,2; 8,2; 10,2; 12,5.

[b] For shaft diameters, D_2, larger than those given in this table, up to 32 mm, the ratio of head height and diameter shall be the same as for ejector pins given in ISO 6751.

5 Material and hardness

Ejector sleeves with cylindrical head shall be made of hot worked steel or alloyed cold worked steel. The hardness of the shaft and head, respectively, are given in Table 2.

Table 2 — Material and hardness

Material	Hardness[a]	
	Shaft	Head
Hot worked steel	Min. 1 400 MPa core strength Nidriting min. 950 HV 0,3	(45 ± 5) HRC hot-forged
Alloyed cold worked steel	(60 ± 2) HRC	
NOTE 1 Rockwell C hardness (HRC) is defined in ISO 6508 (all parts).		
NOTE 2 Vickers hardness (HV) is defined in ISO 6507 (all parts).		
[a] The point at which hardness is measured is left to the manufacturer's discretion.		

6 Designation

Ejector sleeves with cylindrical head according to this document shall be designated by the following:

a) "Ejector sleeve with cylindrical head";

b) the reference of this document, i.e. ISO 8405;

c) the diameter, D_1, in millimetres;

d) the length, L, in millimetres;

e) the material.

EXAMPLE An ejector sleeve with cylindrical head with diameter D_1 = 2 mm, length L = 75 mm, and made of hot worked steel is designated as follows:

Ejector sleeve with cylindrical head ISO 8405 - 2 - 75 - Hot worked steel