BS ISO 8693:2011

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Tools for moulding — Flat ejector pins

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National foreword

This British Standard is the UK implementation of ISO 8693:2011. It supersedes BS ISO 8693:1998 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MTE/12, Tools for pressing and moulding.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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BS ISO 8693:2011

INTERNATIONAL STANDARD

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Third edition
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Tools for moulding — Flat ejector pins

Outillage de moulage — Éjecteurs lames

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Foreword

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Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8693 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 8, *Tools for pressing and moulding*.

This third edition cancels and replaces the second edition (ISO 8693:1998), of which it constitutes a minor revision. In particular, the indication of surface textures has been updated in accordance with ISO 1302:2002.

INTERNATIONAL STANDARD ISO 8693:2011(E)

Tools for moulding — Flat ejector pins

1 Scope

This International Standard specifies the dimensions and tolerances, in millimetres, of flat ejector pins which are used in compression and injection moulds and in die casting dies.

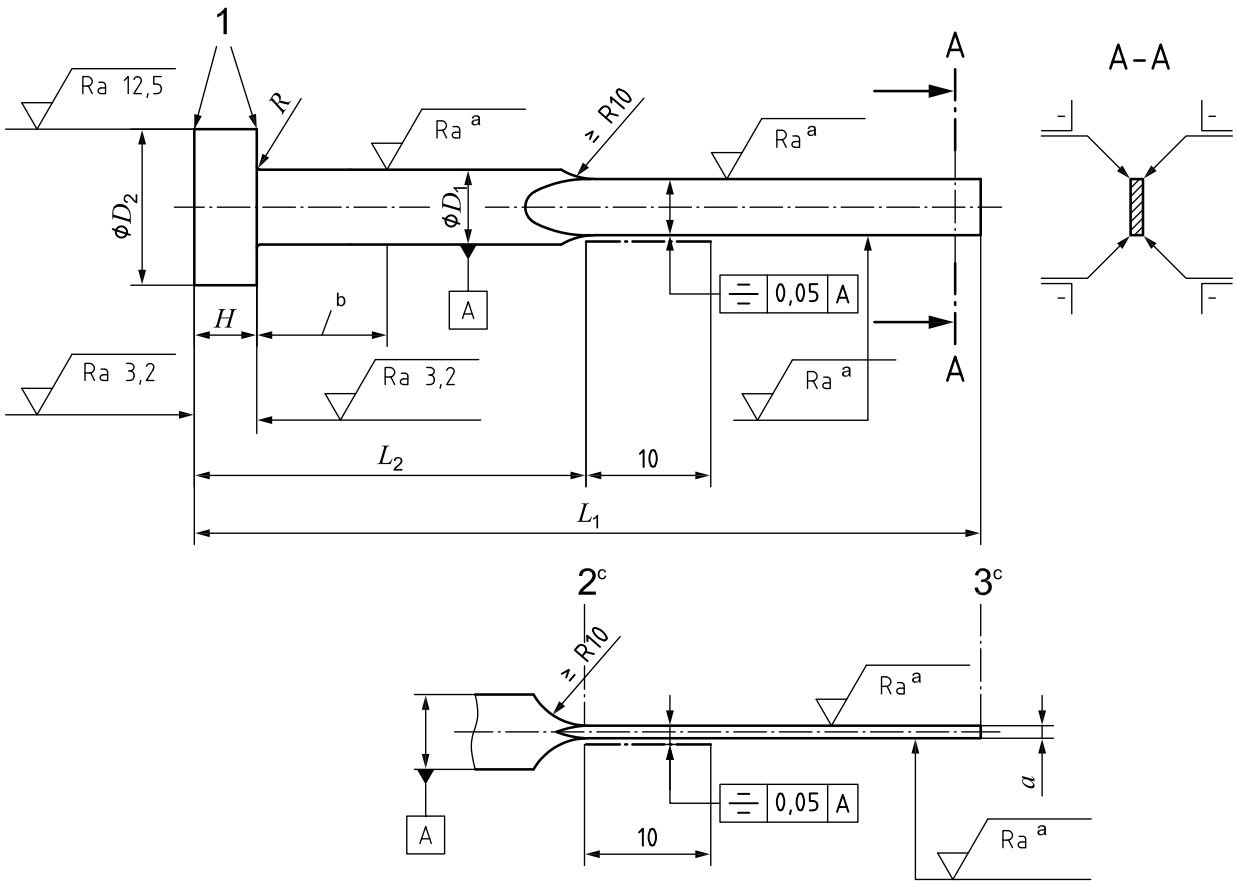
It also gives material guidelines and hardness requirements, and specifies the designation of flat ejector pins.

Ejector pins with cylindrical head are specified in ISO 6751; shouldered ejector pins are specified in ISO 8694.

2 Dimensions

The dimensions of flat ejector pins shall be in accordance with the indications of Figure 1 and Tables 1 and 2.

Surface roughness values in micrometres



Key

1 edges without burrs

2 gauge plane 2

3 gauge plane 1

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

b It is permitted to provide the ejector pin with an alternative surface roughness or a small variation on the diameter, D_1, for a certain length.

c See note a to Tables 1 and 2.

Figure 1 — Flat ejector pins

Table 1 — Flat ejector pins of hot worked steel

Dimensions in millimetres

D_1 h11	D_2 $^{0}_{-0,2}$	a[a] $^{0}_{-0,015}$	b[a] $^{0}_{-0,015}$	L_1 $^{+2}_{0}$									H $^{0}_{-0,05}$	R $^{+0,2}_{0}$
				63	80	100	125	160	200	250	315	400		
				L_2 $^{-1}_{-2}$										
				32	40	50	63	80	100	125	160	200		
4	8	0,8	3,5	X	X	X	X						3	0,3
		1		X	X	X	X							
4,2			3,8	X	X	X	X							
4		1,2	3,5		X	X	X	X						
4,2			3,8		X	X	X	X						
5	10	1	4,5		X	X	X	X						
		1,2				X	X	X						
6	12	1,5	5,5				X	X	X	X			5	0,5
		2						X	X	X				
8	14	1,5	7,5					X	X	X	X			
		2							X	X	X			
10	16	1,5	9,5						X	X	X			
		2							X	X	X	X		
12	18	2	11,5						X	X	X	X	7	0,8
		2,5							X	X	X	X		
16	22	2	15,5						X	X	X	X		
		2,5							X	X	X	X		

[a] These limit dimensions apply to 100 mm length. For lengths greater than 100 mm, the limit deviations shall be multiplied by $(L_1 - L_2) \times 10^{-2}$. The dimensional tolerance is at its maximum at gauge plane 2.

Table 2 — Flat ejector pins of alloyed cold worked steel

Dimensions in millimetres

D_1 h11	D_2 $^{0}_{-0,2}$	a[a] $^{0}_{-0,015}$	b[a] $^{0}_{-0,015}$	L_1 $^{+2}_{0}$								H $^{0}_{-0,05}$	R $^{+0,2}_{0}$
				63	80	100	125	160	200	250	315		
				L_2 $^{-1}_{-2}$									
				32	40	50	63	80	100	125	160		
4	8	0,8	3,5	X	X	X	X					3	0,3
		1		X	X	X	X						
4,2			3,8	X	X	X	X						
4		1,2	3,5		X	X	X	X					
4,2			3,8		X	X	X	X					
5	10	1	4,5		X	X	X	X					
		1,2				X	X	X					
6	12	1,5	5,5			X	X	X	X			5	0,5
		2					X	X	X				
8	14	1,5	7,5				X	X	X	X			
		2						X	X	X			
10	16	1,5	9,5						X	X	X		
		2							X	X	X		
12	18	2	11,5						X	X	X	7	0,8
		2,5							X	X	X		

[a] These limit dimensions apply to 100 mm length. For lengths greater than 100 mm, the limit deviations shall be multiplied by $(L_1 - L_2) \times 10^{-2}$. The dimensional tolerance is at its maximum at gauge plane 2.

3 Material and hardness

Flat ejector pins shall be made of hot worked steel or alloyed cold worked steel. The hardness of the shaft and head shall conform to the indication of Table 3.

Table 3 — Material and hardness

Material	Hardness[a]	
	Shaft	Head
Hot worked steel	Min. 1 400 MPa core strength min. 950 HV 0,3	(45 ± 5) HRC hot-forged
Alloyed cold worked steel	(60 ± 2) HRC	

[a] The point at which hardness is measured is left to the manufacturer's discretion.

4 Designation

Flat ejector pins according to this International Standard shall be designated by:

a) “Flat ejector pin”;

b) reference to this International Standard, i.e. ISO 8693;

c) the width, a, and thickness, b, in millimetres;

d) the length, L_1, in millimetres;

e) the material.

EXAMPLE A flat ejector pin with width a = 0,8 mm, thickness b = 3,5 mm, length L_1 = 63 mm and made of hot worked steel is designated as follows:

Flat ejector pin ISO 8693 - 0,8 × 3,5 - 63 - Hot worked steel

Bibliography

[1] ISO 1302:2002, *Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation*

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

[3] ISO 8694, *Tools for moulding — Shouldered ejector pins*

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