INTERNATIONAL STANDARD

ISO 13921

Second edition
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Aerospace — Screws, 100 degrees reduced countersunk head, internal offset cruciform ribbed or unribbed drive, normal shank, short or medium length MJ threads, metallic material, coated or uncoated, strength classes less than or equal to 1 100 MPa — Dimensions

Aéronautique et espace — Vis à tête fraisée 100 degrés réduite, à empreinte cruciforme déportée, avec ou sans saillies antidérapantes, à tige normale et filetages MJ courts ou de longueur moyenne, en matériau métallique, revêtues ou non revêtues, des classes de résistance inférieures ou égales à 1 100 MPa — Dimensions

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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 13921 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 4, *Aerospace fastener systems*.

This second edition cancels and replaces the first edition (ISO 13921:1996), which has been technically revised.

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1 Scope

This International Standard specifies the dimensions of 100° reduced countersunk head screws with internal offset cruciform ribbed or unribbed drive, with close or large tolerance normal shank and short or medium length MJ threads, in metallic material, coated or uncoated, with strength classes less than or equal to 1 100 MPa.

This International Standard is applicable to the compilation of aerospace product standards.

2 Normative references

The following referenced documents are indispensable for the application 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 286-2, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*

ISO 3353-1, *Aerospace — Lead and runout threads — Part 1: Rolled external threads*

ISO 5855-2, *Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts*

ISO 7913, *Aerospace — Bolts and screws, metric — Tolerances of form and position*

ISO 14275, *Aerospace — Drives, internal, offset cruciform, ribbed — Metric series*

ISO 14276, *Aerospace — Drives, internal, offset cruciform — Metric series*

3 Configuration and dimensions

See Figure 1 and Table 1.

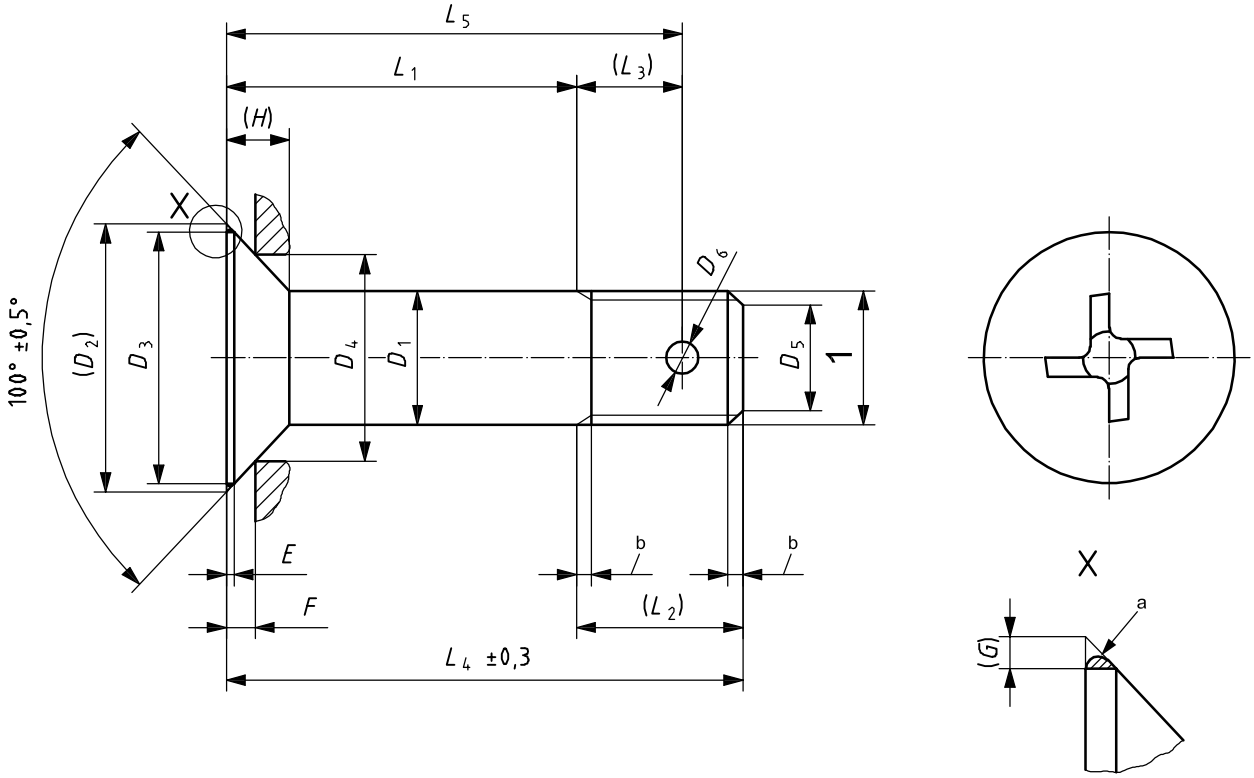
Dimensions and tolerances are expressed in millimetres. They are applicable after any coating (tolerance on shank diameter before coating is also specified for heat cured matrix coatings), but before the application of any lubricant.

Details of form not stated are left to the manufacturer's discretion.

Tolerances of form and position shall be as specified in ISO 7913 if not otherwise stated on product standard.

Dimensions in millimetres

Break sharp edges 0,1 to 0,4



Key

1 thread

a Blended convex form permitted.

b In accordance with ISO 3353-1.

Figure 1

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Table 1

Diameter code	Thread [a]	D_1						D_2	D_3	D_4	D_5		D_6
		nom.	Coated screws			Uncoated screws							One hole optional
			Tol.			Tol.							
			before coating[b]	close	large	close	large	max.	min.		nom.	Tol.	H13 [c]
040	MJ4 × 0,7-4h6h	4	–0,030 –0,045	–0,010 –0,035	h12 [c]	f7 [c]	h12 [c]	6,25	5,45	4,82	3	$^{0}_{-0,5}$	1,1
050	MJ5 × 0,8-4h6h	5						7,8	6,8	5,79	3,4	± 0,5	1,5
060	MJ6 × 1-4h6h	6						9,4	8,2	7,71	4,2		
070	MJ7 × 1-4h6h	7	–0,033 –0,048	–0,013 –0,038				10,95	9,75	9	5,2		1,9
080	MJ8 × 1-4h6h	8						12,5	11,3	10,28	6,2		
100	MJ10 × 1,25-4h6h	10						15,6	14,4	12,86	7,9		2,4
120	MJ12 × 1,25-4h6h	12	–0,036 –0,051	–0,016 –0,041				18,75	17,55	15,43	9,8		
140	MJ14 × 1,5-4h6h	14						21,85	20,65	18	11,5		3
160	MJ16 × 1,5-4h6h	16						25	23,8	20,57	13,5		
180	MJ18 × 1,5-4h6h	18						28,1	26,9	23,14	15,5		3,8
200	MJ20 × 1,5-4h6h	20	–0,040 –0,055	–0,020 –0,045				31,2	30	25,71	17,5		

Table 1 (*continued*)

	E	F	G	H	$L_1 \pm 0{,}2$ [d]	L_2		L_3		R		Drive code [e]
						Thread		Thread				
	min.	$^{0}_{-0{,}08}$				short	medium	short	medium	nom.	Tol.	
	0,08	0,6	0,4	0,95	3 to 40	7,5	10	5	6	0,4	$^{0}_{-0{,}2}$	R3
	0,1	0,85	0,5	1,18	4 to 50	9	12	6	7,5	0,5		R4
		0,71	0,6	1,44	5 to 60	10	14	7	8,5	0,7		R5
		0,82		1,67	6 to 70	11	15		9,5			
		0,93		1,9	6 to 80	11,5	16,5	7,5	10,5			R6
		1,15		2,37	8 to 100	14,5	20,5	9	13	0,8		R8
		1,4		2,86	10 to 120	16	22,5	10	14,5	0,9	$^{0}_{-0{,}3}$	R10
		1,62		3,32	10 to 140	19	26	12	17	1,1		R12
		1,87		3,81	10 to 160	20,5	28,5	12,5	18,5			R14
		2,09		4,28	11 to 180	22,5	31	14,5	21	1,3		R16
		2,32		4,74	12 to 200	24,5	33,5	15	22,5			

[a] In conformity with ISO 5855-2, except for the maximum thread major diameter, d_{max}, of bolts with a close tolerance on D_1, which shall be equal to ($D_{1,min}$ – 0,025).

[b] Heat cured organic matrix coatings for close tolerance normal shanks.

[c] See ISO 286-2.

[d] Increments: 1 for $L_1 \leqslant 30$;
2 for $30 < L_1 \leqslant 100$;
4 for $L_1 > 100$.

If greater lengths are required, they shall be chosen using these increments.

[e] In accordance with ISO 14275 or ISO 14276.

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