भारतीय मानक
Indian Standard

IS 15469 : 2024
ISO 3185 : 2021

एयरोस्पेस — बोल्ट, सामान्य द्विहेक्सागोनल हेड, सामान्य शैंक, छोटी अथवा मध्यम लंबाई के एमजे चूड़ियाँ, धात्विक सामग्री, लेपित अथवा बिना लेपित, सामर्थ्य वर्ग 1 100 एमपी से कम अथवा समकक्ष — आयाम

(दूसरा पुनरीक्षण)

Aerospace — Bolts, Normal Bihexagonal Head, Normal Shank, Short or Medium Length MJ Threads, Metallic Material, Coated or Uncoated, Strength Classes Less Than or Equal to 1 100 MPa — Dimensions

(Second Revision)

ICS 49.030.20

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Air and Space Vehicles Sectional Committee, TED 14

NATIONAL FOREWORD

This Indian Standard (Second Revision) which is identical to ISO 3185 : 2021 'Aerospace — Bolts, normal bihexagonal head, normal shank, short or medium length MJ threads, metallic material, coated or uncoated, strength classes less than or equal to 1 100 MPa — Dimensions' issued by International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendation of the Air and Space Vehicles Sectional Committee and approval of the Transport Engineering Division Council.

This standard was first published in 2004. The first revision of this standard has been undertaken with a view to bring it in line with the version of ISO 3185 : 2008. Second revision of this standard is undertaken to align it with the latest version of ISO 3185 : 2021.

The text of ISO standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'; and
b) Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective place, are listed below along with their degree of equivalence for the editions indicated. For undated references, the latest editions of the referenced document applies, including any corrigenda and amendment:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 286-2 Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts	IS 919 (Part 2) : 2014/ISO 286-2 : 2010 Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes: Part 2 Tables of standard tolerance classes and limit deviation for holes and shafts (*second revision*)	Identical
ISO 3353-1 Aerospace — Lead and runout threads — Part 1: Rolled external threads	IS 11715 (Part 1) : 2024/ISO 3353-1 : 2002 Aerospace — Lead and runout threads: Part 1 Rolled external threads (*sescond revision*)	Identical
ISO 5855-2 Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts	IS 10980 (Part 2) : 2014/ISO 5855-2 : 1999 Aerospace — MJ threads: Part 2 Limit dimensions for bolts and nuts (*first revision*)	Identical
ISO 7913 Aerospace — Bolts and screws, metric — Tolerances of form and position	IS 11644 : 1999 Tolerances of form and position for aerospace bolts and screws (*first revision*)	Modified/Technically Equivalent

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AEROSPACE — BOLTS, NORMAL BIHEXAGONAL HEAD, NORMAL SHANK, SHORT OR MEDIUM LENGTH MJ THREADS, METALLIC MATERIAL, COATED OR UNCOATED, STRENGTH CLASSES LESS THAN OR EQUAL TO 1 100 MPa — DIMENSIONS

(Second Revision)

1 Scope

This document specifies the dimensions of normal bihexagonal head bolts, 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 document is applicable to the compilation of aerospace product standards.

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 286-2, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*

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

ISO 4095, *Aerospace — Bihexagonal drives — Wrenching configuration — Metric series*

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*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

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

4 Configuration and dimensions

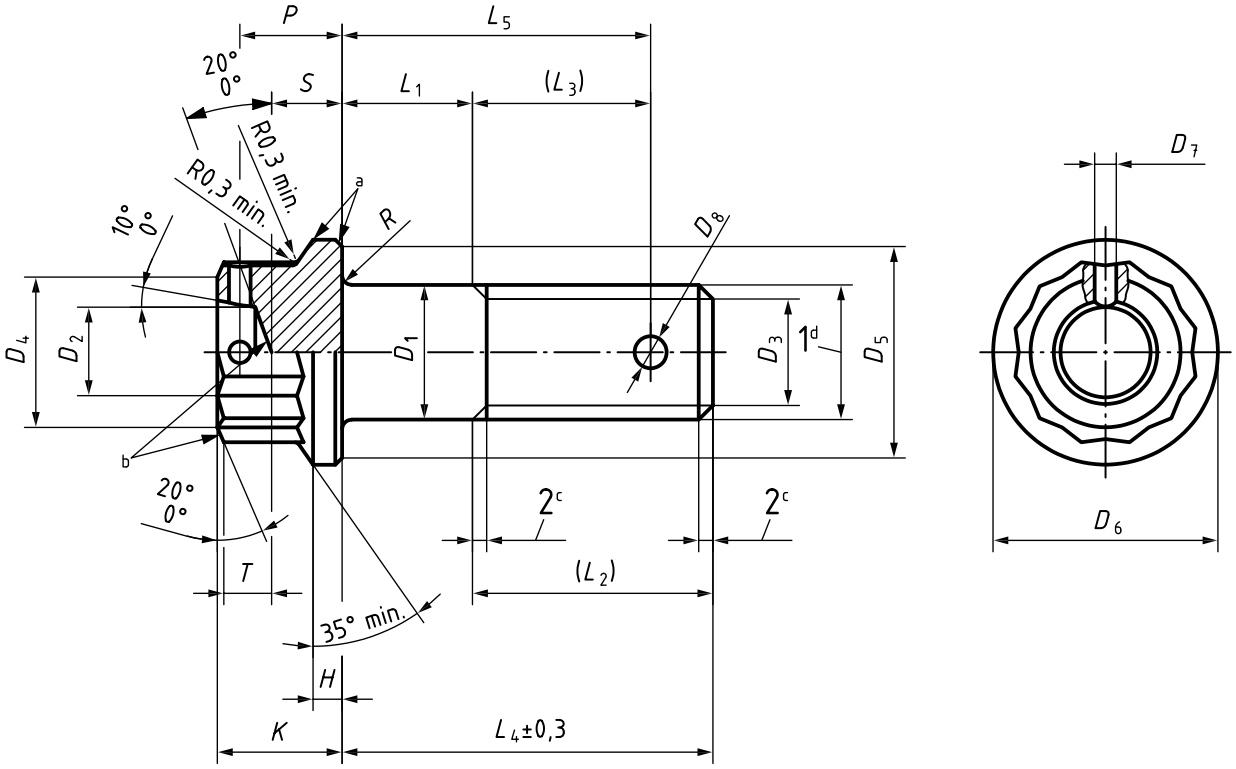
See Figure 1 and Table 1.

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 in accordance with ISO 7913.

Dimensions in millimetres



Key

1	thread	2	thread run-out
a	Rounded or chamfered in this area.	c	Shall be in accordance with ISO 3353-1.
b	Shape optional.	d	Shall be in accordance with ISO 5855-2.

NOTE Break sharp edges are from 0,1 mm to 0,4 mm.

Figure 1 — Configuration

Table 1 — Dimensions

Dimensions in millimetres

Diameter code	Thread[a]	D_1						D_2	D_3		D_4	D_5	D_6	D_7 Four holes, equidistant, optional	D_8 One hole, optional
		nom.	Coated bolts			Uncoated bolts									
			Tolerance			Tolerance									
			before coating[b]	close	large	close	large	+0,5 0	nom.	tol.	min.	min.	max.	H13[c]	H13[c]
040	MJ4 × 0,7-4h6h	4	−0,030 −0,045	−0,010 −0,035	h12[c]	f7[c]	h12[c]	–	3	0 −0,5	5,8	7,5	8,3	1	1,1
050	MJ5 × 0,8-4h6h	5						3,2	3,4	±0,5	6,8	8,3	9,1		1,5
060	MJ6 × 1-4h6h	6						4,1	4,2		7,8	9,8	10,6	1,4	
070	MJ7 × 1-4h6h	7	−0,033 −0,048	−0,013 −0,038				4,9	5,2		8,8	11,3	12,1		1,9
080	MJ8 × 1-4h6h	8						5,2	6,2		9,8	12,8	13,6		
100	MJ10 × 1,25-4h6h	10						6,7	7,9		11,8	15,7	16,7	1,6	2,4
120	MJ12 × 1,25-4h6h	12	−0,036 −0,051	−0,016 −0,041				8	9,8		13,7	18,8	19,9		

Table 1 — *(continued)*

Diameter code	H	K	$L_1 \pm 0{,}2$[d]	L_2 Thread length		L_3 Cotter pin hole position		P	R		S	T	Wrenching dash number[e]
	min.	h15 [c]		short	medium	short	medium		nom.	tol.	+0,4 0	min.	
040	0,8	5,5	2 to 40	7,5	10	5	6	3,5	0,4	0 −0,2	–	2,5	06
050	1	6,5	3 to 50	9	12	6	7,5	4,5	0,5		2,5	2,8	07
060	1,2	7,5	3 to 60	10	14	7	8,5	5,2	0,7		2,8	3,5	08
070	1,4	8,2	4 to 70	11	15		9,5	5,9			3,3	3,8	09
080	1,6	8,6	4 to 80	11,5	16,5	7,5	10,5	6,3			3,7	3,9	10
100	2	10,1	5 to 100	14,5	20,5	9	13	7,7	0,8		4,7	4,2	12
120	2,4	11,4	6 to 120	16	22,5	10	14,5	8,8	0,9	0 −0,3	5,6	4,5	14

[a] The thread shall be in accordance 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] Tolerance, shall be in accordance with ISO 286-2.

[d] Increments: 1 for $L_1 \leq 30$

2 for $30 < L_1 \leq 100$

4 for $L_1 > 100$

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

[e] The wrenching dash number shall be in accordance with ISO 4095 over T min.

(*Continued from second cover*)

The Committee has reviewed the provisions of the following International Standard referred in this adopted standard and has decided that it is acceptable for use in conjunction with this standard. For undated references, the latest edition of the referenced document applies, including any corrigenda and amendment.

International Standard	*Title*
ISO 4095 : 1998	Aerospace — Bihexagonal drives — Wrenching configuration — Metric series

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. The Bureau of Indian Standards shall not be held responsible for identifying any or all such patent rights.

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 or analysis, 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.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

This Indian Standard has been developed from Doc No.: TED 14 (21269).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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