
**Aerospace — Nuts, bihexagonal, self-
locking, MJ threads, classifications:
1 100 MPa (at ambient temperature)/425 °C,
1 100 MPa (at ambient temperature)/650 °C,
1 210 MPa (at ambient temperature)/425 °C,
1 210 MPa (at ambient temperature)/730 °C,
1 550 MPa (at ambient temperature)/235 °C,
1 550 MPa (at ambient temperature)/425 °C
and
1 550 MPa (at ambient temperature)/600 °C
— Dimensions**

*Aéronautique et espace — Écrous bihexagonaux à freinage interne, à
filetage MJ, classifications: 1 100 MPa (à température ambiante)/425 °C,
1 100 MPa (à température ambiante)/650 °C, 1 210 MPa (à température
ambiante)/425 °C, 1 210 MPa (à température ambiante)/730 °C, 1 550 MPa
(à température ambiante)/235 °C, 1 550 MPa (à température
ambiante)/425 °C et 1 550 MPa (à température ambiante)/600 °C —
Dimensions*



Foreword

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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.

International Standard ISO 9199 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 9199:1987), of which it constitutes a technical revision.

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Introduction

The dimensions specified in this International Standard have been determined to satisfy the requirements of the procurement specification of ISO 5858 or ISO 8641, depending on the classification of the nut.

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Aerospace — Nuts, bihexagonal, self-locking, MJ threads, classifications: 1 100 MPa (at ambient temperature)/425 °C, 1 100 MPa (at ambient temperature)/650 °C, 1 210 MPa (at ambient temperature)/425 °C, 1 210 MPa (at ambient temperature)/730 °C, 1 550 MPa (at ambient temperature)/235 °C, 1 550 MPa (at ambient temperature)/425 °C and 1 550 MPa (at ambient temperature)/600 °C — Dimensions

1 Scope

This International Standard specifies the dimensions of bihexagonal nuts with counterbore and MJ threads and a self-locking feature achieved by forming the upper portion out-of-round, for classifications: 1 100 MPa¹⁾/425 °C²⁾, 1 100 MPa¹⁾/650 °C²⁾, 1 210 MPa¹⁾/425 °C²⁾, 1 210 MPa¹⁾/730 °C²⁾, 1 550 MPa¹⁾/235 °C²⁾, 1 550 MPa¹⁾/425 °C²⁾ and 1 550 MPa¹⁾/600 °C²⁾.

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

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 4095:1998, *Aerospace — Bi-hexagonal drives — Wrenching configuration — Metric series.*

ISO 5855-2:1988, *Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts.*

ISO 5858:1991, *Aerospace — Self-locking nuts with maximum operating temperature less than or equal to 425 °C — Procurement specification.*

ISO 8641:1987, *Aerospace — Self-locking nuts with maximum operating temperature greater than 425 °C — Procurement specification.*

ISO 8788:1987, *Aerospace — Fasteners — Tolerances of form and position for nuts.*

3 Configuration and dimensions

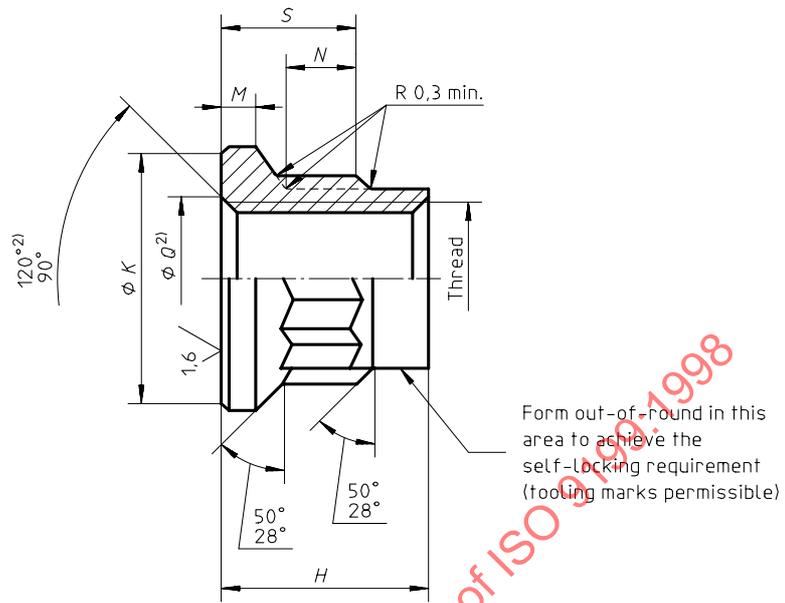
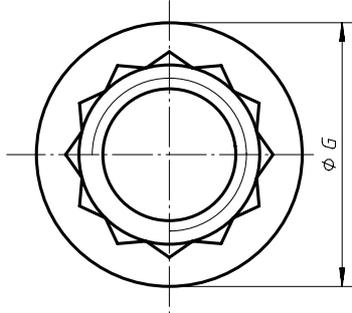
See figure 1 and table 1. Dimensions and tolerances are expressed in millimetres. They apply after any surface coating(s) but before the application of any lubricant.

1) Corresponds to the minimum tensile stress which the nut is able to withstand at ambient temperature without breaking or cracking when tested with a bolt of a higher strength class.

2) Maximum temperature that the nut is able to withstand, without permanent alteration to its original characteristics, after ambient temperature has been restored. The maximum temperature is conditioned by the material or by the surface treatment.

6,3 $\sqrt{\quad}$ (1,6 $\sqrt{\quad}$)¹⁾

Remove sharp edges 0,1 to 0,4



NOTE — Tolerances of form and position shall be in conformity with those specified in ISO 8788. Details of form not stated are at the manufacturer's discretion.

- 1) These values, in micrometres, apply before any surface coating(s) is (are) applied. The values do not apply to threads the surface texture of which will be as achieved by the usual manufacturing methods.
- 2) All forms of entry (radius or chamfer) permissible within these limiting dimensions.

Figure 1

Table 1

Diameter code	Thread ¹⁾	G	H	K	M	Q		S	Wrenching dash number ²⁾	
		max.	max.	min.	min.	max.	min.	max.		
040	MJ4x0,7-4H6H	7,4	5,6	6,7	1,2	1,8	4,8	4,2	4,2	06
050	MJ5x0,8-4H6H	9,1	7	8,3		2	5,8	5,2	4,9	07
060	MJ6x14H5H	10,6	8,1	9,8		2,3	7,1	6,3	5,5	08
070	MJ7x1-4H5H	12,1	9,1	11,3		2,6	8,1	7,3	6,1	09
080	MJ8x1-4H5H	13,6	10,4	12,8		2,8	9,1	8,3	6,7	10
100	MJ10x1,25-4H5H	16,8	13	15,8		3,1	11,1	10,3	8,1	12
120	MJ12x1,25-4H5H	19,9	15	18,8	1,4	3,5	13,1	12,3	9,5	14
140	MJ14x1,5-4H5H	23	17,5	21,9	1,7	4	15,2	14,4	10,7	17
160	MJ16x1,5-4H5H	26	20	24,9	1,9	4,7	17,2	16,4	12,3	19
180	MJ18x1,5-4H5H	29,1	22,5	28	2,1	5,6	19,2	18,4	13,7	22
200	MJ20x1,5-4H5H	32,3	25	31,2	2,3	6,8	21,2	20,4	15,8	24
220	MJ22x1,5-4H5H	35,4	27,5	34,3	2,5	8,3	23,2	22,4	17,6	27
240	MJ24x2-4H5H	38	30	36,9	2,7	10,1	25,3	24,5	19,4	30

1) In accordance with ISO 5855-2. In the self-locking zone, the tolerances apply before forming out-of-round.
 2) In accordance with ISO 4095 over N min.