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Aerospace — Lead and runout threads —

Part 2: Internal threads

*Aéronautique et espace — Filets incomplets, débuts et fins de filets —
Partie 2: Filetages intérieurs*

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document 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 3353-2:2002), of which it constitutes a minor revision.

The main changes compared to the previous edition are as follows:

- update of the term “lead threads”;
- editorially revised.

A list of all parts in the ISO 3353 series can be found on the ISO website.

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.

Aerospace — Lead and runout threads —

Part 2: Internal threads

1 Scope

This document specifies the lead and runout thread and undercut requirements for internal threads (blind tapped holes) for aerospace construction.

It is applicable whenever it is referenced in a definition document.

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 5855-1, *Aerospace — MJ threads — Part 1: General requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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/>

3.1

lead thread

portion of the incomplete thread that is fully formed at the root but not at the crest which occurs at the beginning end of either an external or internal thread

3.2

runout thread

part of the screw thread in which is located the thread incompletely formed during cutting, between the completely formed threads and the end of the cylindrical part of the blind tapped hole

3.3

undercut

groove dug at the hole bottom to limit the threads with completely formed thread (except at the crossing between the last thread and the groove flank)

3.4

completely formed thread

thread, the profile of which (ABC) is located, over an axial distance of $1P$, within the limits specified in the definition document for the thread

Note 1 to entry: See [Figure 1](#).

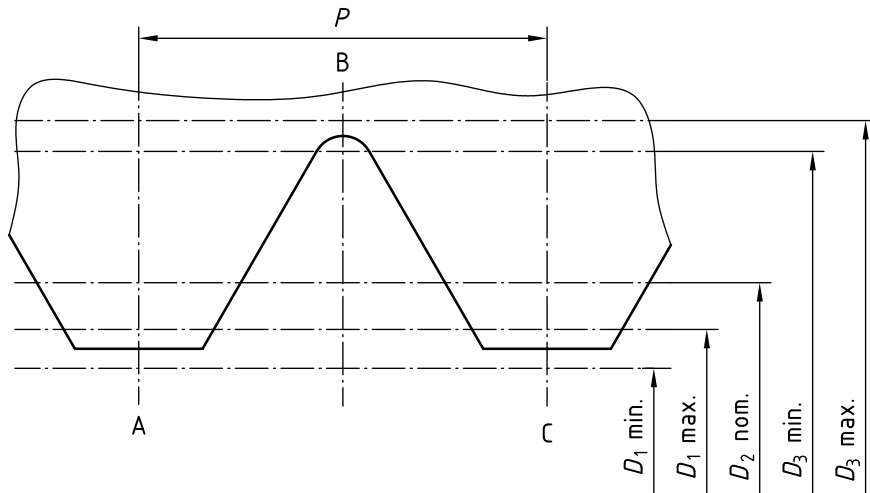


Figure 1 — Completely formed thread

4 Symbols for threads

- D_1 the minor diameter of the thread
- D_2 the pitch diameter of the thread
- D_3 the major diameter of the thread
- P the thread pitch

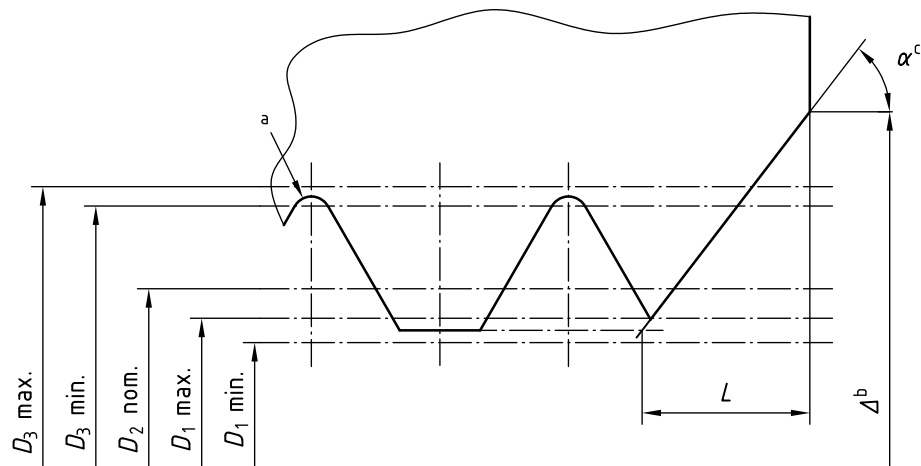
5 Requirements

5.1 General requirements

The flanks at the root of the incompletely formed threads shall be joined by a radius or by two radii and a flat, that are smooth and devoid of abrupt tool marks not compatible with respect to the roughness specified in the product standard. This radius, or these radii shall be greater than or equal to the calculated radius of the root of the maximum profile specified ISO 5855-1 (diameter D_3 max.).

5.2 Lead threads

See [Figure 2](#).



a Crest of first completely formed thread.

b $\Delta = D_3 \text{ max. } \begin{matrix} +0,6 \\ 0 \end{matrix}$, for $D - 5 \text{ mm}$.

$\Delta = D_3 \text{ max. } \begin{matrix} +0,8 \\ 0 \end{matrix}$, for $D > 5 \text{ mm}$.

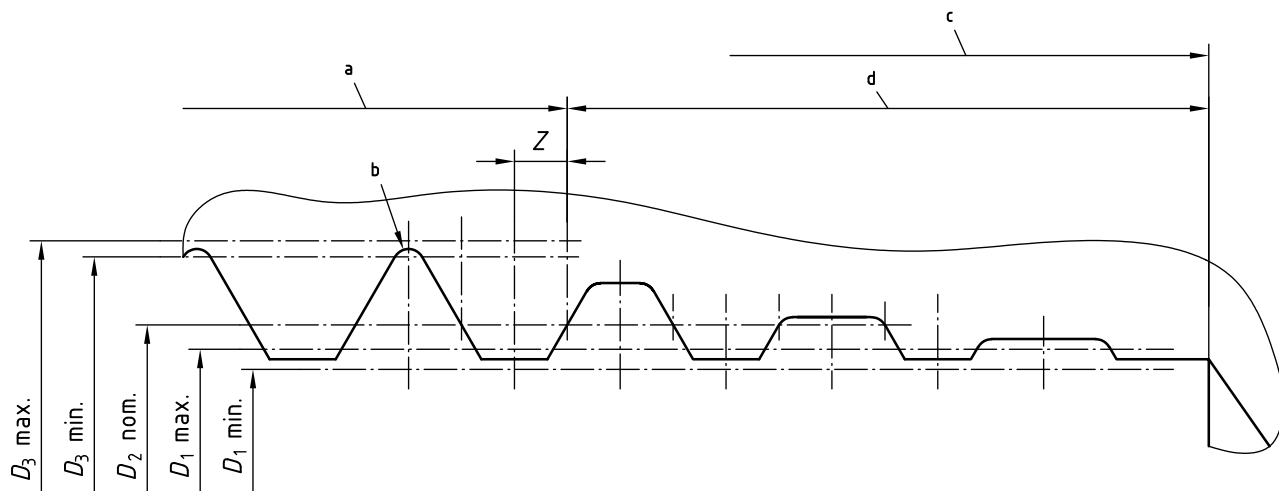
c $45^\circ - \alpha - 60^\circ$.

NOTE The length L corresponds to the length of the lead threads. It results from the intersection of the entering countersunk and of the minor diameter of the thread D_1 .

Figure 2 — Lead threads

5.3 Runouts

See [Figure 3](#).



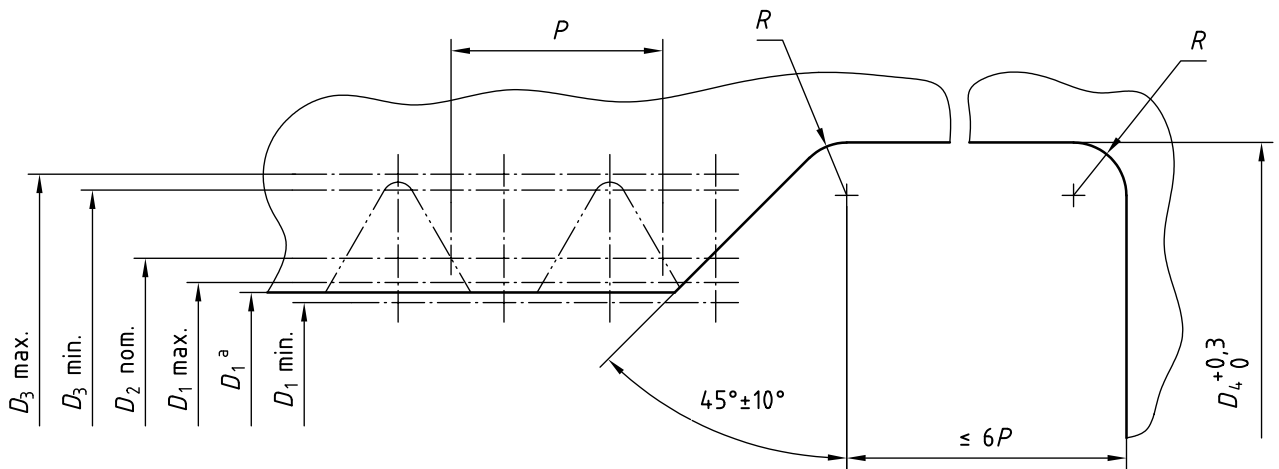
Over the area Z, the thread shall lie within the limits specified in the definition document for the thread.

- a Required minimum full thread depth as specified on the product standard or drawing.
- b Crest of first completely formed thread.
- c Maximum hole depth as permitted by the product standard or drawing.
- d Thread runout $-10P$.

Figure 3 — Runouts

5.4 Undercuts

See [Figure 4](#).



$$0,25P - R - 0,5 P$$

$$D_4 = D_3 \text{ max.} + 0,3 \text{ mm for } P - 0,8 \text{ mm}$$

$$D_4 = D_3 \text{ max.} + 0,5 \text{ mm for } P > 0,8 \text{ mm}$$

^a Actual.

Figure 4 — Undercuts