

STN	Plasty Stanovenie teploty priehybu pri zaťažení Časť 3: Reaktoplastové lamináty s vysokou pevnosťou a plasty vystužené dlhými vláknami (ISO 75-3: 2025)	STN EN ISO 75-3 64 0753
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Plastics - Determination of temperature of deflection under load - Part 3: High-strength thermosetting laminates and long-fibre-reinforced plastics (ISO 75-3:2025)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Plastics - Determination of temperature of deflection
under load - Part 3: High-strength thermosetting laminates
and long-fibre-reinforced plastics (ISO 75-3:2025)

Plastiques - Détermination de la température de
fléchissement sous charge - Partie 3: Stratifiés
thermodurcissables à haute résistance et plastiques
renforcés de fibres longues (ISO 75-3:2025)

Kunststoffe- Bestimmung der
Wärmeformbeständigkeitstemperatur - Teil 3:
Hochbeständige härtbare Schichtstoffe und
langfaserverstärkte Kunststoffe (ISO 75-3:2025)

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EN ISO 75-3:2025 (E)

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European foreword

This document (EN ISO 75-3:2025) has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with Technical Committee CEN/TC 249 "Plastics" the secretariat of which is held by SIS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2026, and conflicting national standards shall be withdrawn at the latest by February 2026.

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Endorsement notice

The text of ISO 75-3:2025 has been approved by CEN as EN ISO 75-3:2025 without any modification.



International Standard

ISO 75-3

Plastics — Determination of temperature of deflection under load —

Part 3: High-strength thermosetting laminates and long-fibre-reinforced plastics

*Plastiques — Détermination de la température de fléchissement
sous charge —*

*Partie 3: Stratifiés thermodurcissables à haute résistance et
plastiques renforcés de fibres longues*

**Third edition
2025-07**

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ISO 75-3:2025(en)**Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 document 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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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 2, *Mechanical behavior*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 249, *Plastics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 75-3:2004), which has been technically revised.

The main changes are as follows:

- the Introduction, Scope ([Clause 1](#)) and Principle clauses ([Clause 4](#)) have been updated;
- the normative references and the bibliography have been updated;
- the span definition has been changed by using a formula in accordance with ISO 178;
- preferred specimen thickness dimensions have been added;
- examples of initial deflection, error and standard deflection calculations have been added;
- a precision statement has been added as a new [Annex A](#).

A list of all parts in the ISO 75 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.

ISO 75-3:2025(en)**Introduction**

The first edition (1993) of this document described a method for the determination of the temperature of deflection under load (bending stress) of high-strength thermosetting laminates and compression-moulded long-fibre reinforced plastics. The test load used was not a fixed load, as in ISO 75-2, but a function (1/10) of the ultimate or specified load applied flatwise on specimen.

In the second edition of (2004) this document, the test load is determined as a fraction of the flexural modulus of the material under test. This has the advantage that the test load is a fraction of the flexural strength of the material and allowed the method to be applied to materials with a wide range of flexural moduli. The test determines the temperature-dependent decrease in the flexural modulus. Because tensile modulus and tensile strength are not necessarily related, using the flexural modulus to determine the test load leads to more readily comparable descriptions of material behaviour.

The flexural strain increase at which the temperature of deflection under load is measured had been increased from 0,1 % to 0,2 % to obtain greater commonality with ISO 75-2.

In this third edition, the calculation of the span value has been updated to conform with a similar and widely used standard (i.e. ISO 178).

It is also reconfirmed that the determination of the temperature under load method described in the ISO 75 series has a great range of applicability. More in details, this method is suitable for use with the following range of materials:

- thermosetting moulding materials, reinforced compounds, with fibre length, prior to processing, greater than 7,5 mm; thermosetting sheets.

Despite the title clearly mention thermosetting based materials, the method has been validated also for:

- thermoplastic moulding, extrusion and casting materials, reinforced compounds, with fibre length, prior to processing, greater than 7,5 mm; rigid thermoplastics sheets.

The method addressed in this document specifies the following parameters:

- the span that depends on the thickness of the specimen;
- the standard deflection, Δ_s , is a function of the flexural-strain increase, $\Delta\varepsilon_f$ (defined in this document), the span and the thickness;
- the flexural stress is a fraction (1/1 000) of the initial (room-temperature) flexural modulus of the material under test.

Plastics — Determination of temperature of deflection under load —

Part 3: High-strength thermosetting laminates and long-fibre-reinforced plastics

1 Scope

This document specifies a method used for the determination of the temperature of deflection under load of specified plastics (including fibre-reinforced plastics in which the fibre length is, prior to processing, greater than 7,5 mm) under defined conditions. A number of different test conditions are defined, depending on the anticipated specimen dimensions.

For additional information, see ISO 75-1:2020, Clause 1.

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 75-1:2020, *Plastics — Determination of temperature of deflection under load — Part 1: General test method*

ISO 295, *Plastics — Compression moulding of test specimens of thermosetting materials*

ISO 1268 (all parts), *Fibre-reinforced plastics — Methods of producing test plates*

ISO 2818, *Plastics — Preparation of test specimens by machining*

ISO 10724-1, *Plastics — Injection moulding of test specimens of thermosetting powder moulding compounds (PMCs) — Part 1: General principles and moulding of multipurpose test specimens*

ISO 14125, *Fibre-reinforced plastic composites — Determination of flexural properties*

ISO 16012, *Plastics — Determination of linear dimensions of test specimens*

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