

STN	Plasty Polotovary z termoplastov na obrábanie Požiadavky a skúšobné metódy	STN EN 15860 64 2410
------------	---	--

Plastics - Thermoplastic semi-finished products for machining - Requirements and test methods

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

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/18

Obsahuje: EN 15860:2018

Oznámením tejto normy sa ruší
STN EN 15860 (64 2410) z decembra 2010

127690

EUROPEAN STANDARD

EN 15860

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2018

ICS 83.080.20

Supersedes EN 15860:2010

English Version

Plastics - Thermoplastic semi-finished products for machining - Requirements and test methods

Matières plastiques - Produits semi-finis
thermoplastiques pour usinage - Exigences et
méthodes d'essai

Kunststoffe - Thermoplastische Halbzeuge für die
spanende Verarbeitung - Anforderungen und
Prüfmethoden

This European Standard was approved by CEN on 27 March 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN 15860:2018 (E)

Contents	Page
European foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Materials	6
5 Requirements	7
5.1 As-delivered condition.....	7
5.2 Surface appearance.....	8
5.3 Dimensions and tolerances for rods.....	8
5.3.1 Diameter.....	8
5.3.2 Length.....	11
5.3.3 Roundness.....	11
5.3.4 Straightness.....	12
5.4 Dimensions and tolerances for hollow bars.....	13
5.4.1 Diameters.....	13
5.4.2 Length.....	15
5.4.3 Roundness.....	15
5.4.4 Straightness.....	15
5.4.5 Concentricity.....	16
5.5 Dimensions and tolerances for sheets.....	17
5.5.1 Thickness.....	17
5.5.2 Length and width.....	18
5.5.3 Straightness.....	19
5.6 Properties.....	22
5.6.1 Material properties.....	22
5.6.2 Dimensional stability after heat treatment.....	22
5.6.3 Physiological behaviour.....	24
6 Test methods	24
6.1 Test conditions.....	24
6.2 Sampling size.....	24
6.3 Test specimen preparation.....	24
6.3.1 Mechanical properties.....	24
6.3.2 Density.....	26
6.3.3 Melt volume-flow rate, viscosity number, melting temperature/glass transition temperature.....	26
6.3.4 Dimensional stability after heat treatment.....	26
6.4 As-delivered condition.....	27
6.5 Surface appearance.....	27
6.6 Accuracy of the dimension measuring instruments.....	27
6.7 Density.....	27
6.8 Tensile stress at yield and elongation at break.....	28
6.9 Tensile modulus of elasticity.....	28
6.10 Vicat softening temperature.....	28
6.11 Melt volume-flow rate (MVR).....	28
6.12 Melting temperature/glass transition temperature.....	29

6.13	Viscosity number	29
6.14	Dimensional stability after heat treatment	29
6.15	Expression of test results	33
7	Designation	33
7.1	Rods	33
7.2	Hollow bars	33
7.3	Sheets	34
8	Marking	34
Annex A (normative)	Determination of microporosity – Dye penetration method	35
A.1	Test specimen preparation	35
A.2	Test procedure	35
A.3	Test results	35
Annex B (normative)	Tables for the conversion of deflection values (straightness)	37
Annex C (informative)	Examples of calculation of dimensional stability after heat treatment	41
C.1	Rods	41
C.2	Hollow bars	41
C.3	Sheets	42
Annex D (informative)	Some guideline values for material properties of thermoplastic semi-finished products	44
Bibliography	48

EN 15860:2018 (E)**European foreword**

This document (EN 15860:2018) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

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 January 2019, and conflicting national standards shall be withdrawn at the latest by January 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15860:2010.

This edition cancels and replaces former editions which were technically revised. The main changes are as follows:

- ECTFE was deleted in Table 1 due to the fact that there was no need anymore;
- in subclause 5.1 POM-H was changed into POM;
- in subclause 5.3.4, Table 3 “Straighness requirements for rods”, the material PE-UHMW was changed from column 3 to column 2;
- the notes in Table 3, subclause 5.3.4 are updated;
- in Figure 4c) (subclause 5.5.3) the reference “3” was deleted;
- Annex A “Determination of microporosity – Dye penetration method” has been rewritten;
- Annex D has been rearranged.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies the requirements and associated test methods that apply to semi-finished products such as rods, hollow bars and plates made from thermoplastic materials. These semi-finished products are used predominantly for the manufacture of finished parts by means of machining.

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.

EN ISO 291, *Plastics — Standard atmospheres for conditioning and testing (ISO 291)*

EN ISO 306, *Plastics — Thermoplastic materials — Determination of Vicat softening temperature (VST) (ISO 306)*

EN ISO 307, *Plastics — Polyamides — Determination of viscosity number (ISO 307)*

EN ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1)*

EN ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2)*

EN ISO 1133-1, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 1: Standard method (ISO 1133-1)*

EN ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1)*

EN ISO 1183-2, *Plastics — Methods for determining the density of non-cellular plastics — Part 2: Density gradient column method (ISO 1183-2)*

EN ISO 1628-5, *Plastics — Determination of the viscosity of polymers in dilute solution using capillary viscometers — Part 5: Thermoplastic polyester (TP) homopolymers and copolymers (ISO 1628-5)*

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

EN ISO 10350-1, *Plastics — Acquisition and presentation of comparable single-point data — Part 1: Moulding materials (ISO 10350-1)*

EN ISO 11357-1, *Plastics — Differential scanning calorimetry (DSC) — Part 1: General principles (ISO 11357-1)*

EN ISO 11357-3, *Plastics — Differential scanning calorimetry (DSC) — Part 3: Determination of temperature and enthalpy of melting and crystallization (ISO 11357-3)*

EN ISO 15527, *Plastics — Compression-moulded sheets of polyethylene (PE-UHMW, PE-HD) — Requirements and test methods (ISO 15527)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN