

<b>STN</b>	<b>Geometrické špecifikácie výrobkov (GPS) Špecifikácia definovaných prechodov medzi prvkami (ISO 21204: 2020)</b>	<b>STN EN ISO 21204</b>  01 4413
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Geometrical product specifications (GPS) - Transition specification (ISO 21204:2020)

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. 08/20

Obsahuje: EN ISO 21204:2020, ISO 21204:2020

**131112**

EUROPEAN STANDARD

**EN ISO 21204**

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2020

ICS 17.040.01

English Version

**Geometrical product specifications (GPS) - Transition  
specification (ISO 21204:2020)**Spécifications géométriques des produits (GPS) -  
Spécification de transition (ISO 21204:2020)Geometrische Produktspezifikation (GPS) -  
Spezifikation von definierten Übergängen zwischen  
Geometrieelementen (ISO 21204:2020)

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**EN ISO 21204:2020 (E)**

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## **European foreword**

This document (EN ISO 21204:2020) has been prepared by Technical Committee ISO/TC 213 "Dimensional and geometrical product specifications and verification" in collaboration with Technical Committee CEN/TC 290 "Dimensional and geometrical product specification and verification" the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by September 2020, and conflicting national standards shall be withdrawn at the latest by September 2020.

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**INTERNATIONAL  
STANDARD**

**ISO  
21204**

First edition  
2020-02

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**Geometrical product specifications  
(GPS) — Transition specification**

*Spécifications géométriques des produits (GPS) — Spécification de transition*



Reference number  
ISO 21204:2020(E)

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Published in Switzerland

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## 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 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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 290, *Dimensional and geometrical product specification and verification*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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](http://www.iso.org/members.html).

## ISO 21204:2020(E)

### Introduction

This document is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO 14638). It influences chain links A, B and C of the chains of standards on form, orientation and location, see [Annex D](#).

The ISO GPS matrix model given in ISO 14638 gives an overview of the ISO GPS system of which this document is a part. The fundamental rules of ISO GPS given in ISO 8015 apply to this document and the default decision rules given in ISO 14253-1 apply to specifications made in accordance with this document, unless otherwise stated.

In technical drawings, the ideal geometric shape of the workpiece is represented without any deviations and, in general, without consideration of the states of the transitions between adjacent integral features. Nevertheless, for many purposes (the functioning of a part, or out of safety considerations, for example) particular states of transition features need to be indicated. ISO 13715 provides the tools for indicating requirements to edges of undefined shape. These tools are insufficient when the shape of the transition feature is important for functional reasons. Therefore, this document provides a set of tools for indicating transition specifications.

**IMPORTANT** — Most specification illustrations in this document show edges drawn as sharp corners. They could equally have been drawn showing the nominal geometry of the transition feature, without changing the meaning of the indications. In a computer aided design (CAD) system, the transition feature geometry can be modelled or not without changing the meaning of the indications.

All the specification illustrations in this document show a 90° angle between the two adjacent features. Specifications according to this document have the same meaning, taking the nominal angle into account, regardless of the angle between the two adjacent features.

All figures in this document have been drawn with dimensions and tolerances in millimetres. It should be understood that other units of measurement could have been used equally well without prejudice to the principles established.

# Geometrical product specifications (GPS) — Transition specification

## 1 Scope

This document defines a number of specification operators for the specification of extended edge transition features between features. An edge transition feature is an integral feature connecting two adjacent integral features. The extended edge transition feature includes portions of the adjacent features. All these specifications apply to any line in a defined direction in the extended edge transition feature. This document also defines the specification modifiers and the drawing indications for such transition specifications.

The proportions and dimensions of the graphical symbols to be used are also specified.

The specifications defined in this document are suitable for relatively simple edge transition functions, for example ensuring assembly without interference. For more complex functions, geometrical tolerancing offers more precise tools.

This document is by intention limited to only edge transition features between two planes and between a cylinder and a plane nominally perpendicular to it.

[Annex A](#) gives the first approach for an algorithm to identify toleranced features and adjacent reference sections. This algorithm is subject to change as more experience is gathered.

This document provides a set of tools to express several transition specifications. It does not present any information on the relationship between a function or a use and a transition specification.

NOTE 1 Corners (the transition between three or more features) are not edge transition features and are consequently not covered by this document.

NOTE 2 An edge transition feature exists between two single features. A defined edge transition feature has a defined nominal shape and is not sharp ( $r = 0$ ).

## 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 1101:2017, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

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