BS EN ISO 7499:2024

BSI Standards Publication

Technical product documentation (TPD) — Unique integral feature identification (UIFI)

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The UK participation in its preparation was entrusted to Technical Committee TPR/1, Technical Product Realization.

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Technical product documentation (TPD) - Unique integral feature identification (UIFI) (ISO 7499:2024)

Documentation technique de produits (DTP) - Identification unique des éléments intégraux (ISO 7499:2024)

Technische Produktdokumentation (TPD) - Eindeutige Identifikation integraler Geometriemerkmale (ISO 7499:2024)

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European foreword

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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of an identical text or by endorsement, at the latest by May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.

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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 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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This document was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, Subcommittee SC 1, *Basic conventions*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS F01, *Technical drawings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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Introduction

This document is a technical product documentation (TPD) standard and is a complementary standard.

Modern computer-aided design (CAD) systems already provide built-in systems for the unambiguous identification of each integral feature of a model. This identifier will often vary between CAD systems, but typically comprises a long and complex code, which is normally difficult to read by humans and is therefore impractical.

A datum feature identifier, indicated in a datum feature indicator on an integral feature of a part specified in a TPD in accordance with ISO 5459, is a unique integral feature identifier. The name can be used to reference that specific integral feature. However, all integral features of a part will not be indicated with a datum feature identifier. This complicates the identification of integral features other than datum features.

Drawings are used in a variety of situations, e.g. design, manufacturing and verification (see ISO/TS 21619). In many cases, it can be difficult to unambiguously communicate a reference to a specific integral feature, either orally or in writing, in different documents when the part is not described in full detail in the drawing.

Depictions of the part are not always the most efficient way to communicate. Using a written identification that unambiguously identifies each integral feature on the part can be useful for the following purposes (the list is non-exhaustive):

— ease verbal communication between stakeholders, e.g. between a customer and a supplier, or between a designer and a manufacturer or a metrologist;

— simplify the preparation of a nomenclature drawing of the part (human-readable name of the integral features);

— ease the kinematic description of the part by stating what function an integral feature will have in different product or part states, e.g. if it is a clearance or an interface surface;

— referencing surfaces in documents, e.g. standard operating procedures (SOPs), measurement descriptions, measurement reports, nonconformities, customer complaint descriptions, failure investigations, risk analyses, failure mode and effects analyses (FMEA), tolerance stack-up calculations, change requests.

Furthermore, unique integral feature identifiers can be used to simplify a TPD, e.g. when a special requirement or subsequent machining, finishing or treatment applies to a group of different integral features.

Human-readable identifiers for integral features are needed to ease the communication between stakeholders and to clarify to which integral feature a specification applies, i.e. establish human-understandable traceability, and to provide traceability between the drawing and other TPD. CAD vendors are encouraged to implement a harmonized system of unique integral feature identifiers to support the implementation of the benefits described in this introduction and in this document.

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Technical product documentation (TPD) — Unique integral feature identification (UIFI)

1 Scope

This document specifies how to uniquely identify the integral features of a part by an integral feature indicator with a unique alpha-numerical label and how indication in technical product documentation (TPD) is done, where needed to improve human readability.

The proportions and dimensions of graphical symbols for a simplified indication of repeated features are also specified.

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 5459, *Geometrical product specifications (GPS) — Geometrical tolerancing — Datums and datum systems*

ISO 81714-1, *Design of graphical symbols for use in the technical documentation of products — Part 1: Basic rules*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5459 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
integral feature
geometrical feature belonging to the real surface of the workpiece or to a surface model

Note 1 to entry: An integral feature is intrinsically defined, e.g. skin of the workpiece.

Note 2 to entry: For the statement of specifications, geometrical features obtained from partition of the surface model or of real surface of workpiece shall be defined. These features, called “integral features”, are models of the different physical parts of the workpiece that have specific functions, especially those in contact with adjacent workpieces.

Note 3 to entry: An integral feature can be identified, for example, by:

— a partition of the surface model;

— a partition of another integral feature; or

— a collection of other integral features.

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