

This is a preview of "ISO/TS 13399-80:2014". Click [here](#) to purchase the full version from the ANSI store.

First edition
2014-07-15

Cutting tool data representation and exchange —

Part 80: Creation and exchange of 3D models — Overview and principles

*Représentation et échange des données relatives aux outils
coupants —*

*Partie 80: Création et échange de modèles 3D — Vue d'ensemble et
principes*



Reference number
ISO/TS 13399-80:2014(E)

© ISO 2014



COPYRIGHT PROTECTED DOCUMENT

© ISO 2014

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a preview of "ISO/TS 13399-80:2014". [Click here to purchase the full version from the ANSI store.](#)

Contents

	Page
Foreword	iv
Introduction	vi
1 Scope	1
2 Normative references	1
3 Designation of design elements	2
3.1 General.....	2
3.2 Reference system.....	2
3.3 Planes.....	4
3.4 Axes.....	4
3.5 Solid design elements.....	5
3.6 Level of detail.....	5
4 Colour settings	5
4.1 Colour setting for the model.....	5
4.2 Colour setting for the cutting edge line and the cutting part line.....	6
5 3D model data exchange	7
5.1 General.....	7
5.2 Structure of the layers.....	7
6 Data exchange	8
Annex A (normative) Abbreviations — Preferred symbols	9
Bibliography	11

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).

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).

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

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 29, *Small tools*.

ISO 13399 consists of the following parts, under the general title *Cutting tool data representation and exchange*:

- *Part 1: Overview, fundamental principles and general information model*
- *Part 2: Reference dictionary for the cutting items* [Technical Specification]
- *Part 3: Reference dictionary for tool items* [Technical Specification]
- *Part 4: Reference dictionary for adaptive items* [Technical Specification]
- *Part 5: Reference dictionary for assembly items* [Technical Specification]
- *Part 50: Reference dictionary for reference systems and common concepts* [Technical Specification]
- *Part 60: Reference dictionary for connection systems* [Technical Specification]
- *Part 80: Creation and exchange of 3D models — Overview and principles* [Technical Specification]
- *Part 100: Definitions, principles and methods for reference dictionaries* [Technical Specification]
- *Part 150: Usage guidelines* [Technical Specification]
- *Part 201: Creation and exchange of 3D models — Regular inserts* [Technical Specification]
- *Part 301: Concept for the design of 3D models based on properties according to ISO/TS 13399-3: Modelling of thread-cutting taps, thread-forming taps and thread-cutting dies* [Technical Specification]
- *Part 302: Concept for the design of 3D models based on properties according to ISO/TS 13399-3: Modelling of solid drills and countersinking tools* [Technical Specification]

The following parts are under preparation:

This is a preview of "ISO/TS 13399-80:2014". [Click here to purchase the full version from the ANSI store.](#)

- *Part 51: Designation system for customer solution cutting tools [Technical Specification]*
- *Part 202: Creation and exchange of 3D models — Irregular inserts [Technical Specification]*
- *Part 203: Creation and exchange of 3D models — Replaceable inserts for drilling [Technical Specification]*
- *Part 204: Creation and exchange of 3D models — Inserts for reaming [Technical Specification]*
- *Part 303: Creation and exchange of 3D models — Solid end mills [Technical Specification]*
- *Part 304: Creation and exchange of 3D models — Solid milling cutter with arbor hole [Technical Specification]*
- *Part 307: Creation and exchange of 3D models — End mills for indexable inserts [Technical Specification]*
- *Part 308: Creation and exchange of 3D models — Milling cutter with arbor hole for indexable inserts [Technical Specification]*
- *Part 309: Creation and exchange of 3D models — Tool holders for indexable inserts [Technical Specification]*
- *Part 311: Creation and exchange of 3D models — Solid reamers [Technical Specification]*
- *Part 312: Creation and exchange of 3D models — Reamers for indexable inserts [Technical Specification]*
- *Part 401: Creation and exchange of 3D models — Converting, extending and reducing adaptive items [Technical Specification]*
- *Part 405: Creation and exchange of 3D models — Collets [Technical Specification]*

Introduction

This part of ISO 13399 defines the concept, the terms, and the definitions regarding the creation and exchange of simplified 3D of cutting items, tool items, and adaptive items that can be used for NC-programming, simulation of the manufacturing processes and the determination of collision within machining processes. It is not intended to standardize the design of the items themselves.

Cutting tool data that can be described by ISO 13399 include, but are not limited to, everything between the workpiece and the machine tool. Information about inserts, solid tools, assembled tools, adaptors, components, and their relationships can be represented by this part of ISO 13399. The increasing demand providing the end user with 3D models for the purposes defined above is the basis for the development of this series of International Standards.

The objective of ISO 13399 is to provide the means to represent the information that describes cutting tools in a computer sensible form that is independent from any particular computer system. The representation will facilitate the processing and exchange of cutting tool data within and between different software systems and computer platforms and support the application of this data in manufacturing planning, cutting operations, and the supply of tools. The nature of this description makes it suitable not only for neutral file exchange, but also as a basis for implementing and sharing product databases and for archiving. The methods that are used for these representations are those developed by ISO TC 184, *Automation systems and integration for the representation of product data*, SC 4, *Industrial data*, by using standardized information models and reference dictionaries.

Definitions and identifications of dictionary entries are defined by means of standard data that consist of instances of the EXPRESS entity data types defined in the common dictionary schema, resulting from a joint effort between ISO TC/184/SC 4 and IEC/TC 3, *Information structures, documentation and graphical symbols*, SC 3D, *Product properties and classes and their identification*, and in its extensions defined in ISO 13584-24 and ISO 13584-25.