
Cutting tool data representation and exchange —

Part 2: Reference dictionary for the cutting items

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

Partie 2: Dictionnaire de référence pour les éléments coupants



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Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	2
3 Terms and definitions	2
4 Abbreviated terms	4
5 Representation of the ontological concepts as dictionary entries	4
5.1 General	4
5.2 cutting_item_feature	5
5.2.1 General	5
5.2.2 chip_breaker	5
5.2.3 cutting_corner	5
5.2.4 cutting_edge	5
5.2.5 cutting_item_coating	6
5.2.6 cutting_item_material	6
5.2.7 cutting_item_profile	6
5.2.8 fixing_hole	6
5.2.9 flank	6
5.2.10 gauge_circle	6
5.2.11 inscribed_circle	6
5.3 cutting_item_type	6
5.3.1 General	6
5.3.2 equilateral_equiangular	7
5.3.3 equilateral_nonequiangular	7
5.3.4 non_replaceable_cutting_item	7
5.3.5 nonequilateral_equiangular	7
5.3.6 nonequilateral_nonequiangular	8
5.3.7 round_insert	8
5.3.8 specific_profile_insert	8
5.4 Reference systems for cutting items	8
5.4.1 General	8
5.4.2 primary_coordinate_system	8
5.4.3 irregular_insert_position	9
5.4.4 mirror_plane	9
5.4.5 regular_insert_position	9
5.4.6 xy_plane	9
5.4.7 xz_plane	9
5.4.8 yz_plane	9
6 Properties for cutting item features and cutting item types	9
Annex A (normative) Principles of the ISO 13399 series	13
Annex B (informative) Classification table	15
Annex C (informative) Class definitions	17
Annex D (informative) Cutting item property definitions	52
Annex E (informative) Illustration of properties	155
Annex F (informative) Illustrations of irregular insert profiles and properties	167
Annex G (informative) Illustrations of reference positions for cutting items	175
Annex H (informative) ISYC pictures	180
Bibliography	201

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 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 29, *Small tools*.

This third edition cancels and replaces the second edition (ISO/TS 13399-2:2014), which has been technically revised.

The main change is as follows:

- update of the classes and properties in line with the modifications in the cutting tool dictionary.

A list of all parts in the ISO 13399 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.

Introduction

This document defines the terms, properties, and definitions for portions of a cutting tool that remove material from a workpiece. Cutting items include replaceable inserts, brazed tips, and the cutting portions of solid cutting tools. The purpose of this document is to provide a reference dictionary to support the use of the general information model defined in ISO 13399-1.

A cutting tool with defined cutting edges is used on a machine to remove material from a workpiece by a shearing action at the cutting edges of the tool. Cutting tool data that can be described by the ISO 13399 series include, but are not limited to, everything between the workpiece and the machine tool. Information about inserts (e.g. regular and irregular shaped replaceable cutting items), solid tools (e.g. solid drill and solid end mill), assembled tools (e.g. boring bars, indexable drills and indexable milling cutters), adaptors (e.g. milling arbor and drilling chuck), components (e.g. shims, screws and clamps) and their relationships can be represented by the ISO 13399 series. The principles of the ISO 13399 series are given in [Annex A](#); and possible assemblies of the components of a cutting tool are illustrated in [Figure A.1](#).

The objective of the ISO 13399 series 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 facilitates the processing and exchange of cutting tool data within and between different software systems and computer platforms and supports 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 used for these representations are those developed by ISO/TC 184/SC 4 for the representation of product data by using standardized information models and reference dictionaries.

An information model is a formal specification of types of ideas, facts, and processes which together describes a portion of interest of the real world and which provides an explicit set of interpretation rules. Information is knowledge of ideas, facts, and/or processes. Data are symbols or functions that represent information for processing purposes. Data are interpreted to extract information by using rules for how that should be done and a dictionary to define the terms that identify the data. Everyone in a communication process is expected to use the same information model, the same set of explicit rules and the same dictionary in order to avoid misunderstanding. If an information model and its dictionary are written in a computer-sensible language, then there is the additional benefit that they can be computer processable.

An engineering information model is therefore a specification for data that establishes the meaning of that data in a particular engineering context. A model has to be developed by formal methods to ensure that it meets the needs of the situation that it represents. An engineering information model defines the information objects that represent the concepts in an engineering application, the attributes of the objects, their relationships, and the constraints that add further meaning. An information model is an abstract concept that can be used repeatedly for any example of the real-world situation that it represents. An instance of the model is produced when it is populated with the data items and their values that are applicable to a particular example of that situation.

This document uses the following International Standards developed by ISO/TC 184/SC 4:

- the EXPRESS language defined in ISO 10303-11 for defining the information model in ISO 13399-1;
- the file format for data exchange derived from the model and defined in ISO 10303-21;
- the data dictionary defined in the ISO 13584 series.

Each class, property, or domain of values of this application domain constitutes an entry of the reference dictionary defined in this document. It is associated with a computer-sensible and human-readable definition and with a computer-sensible identification. Identification of a dictionary entry allows unambiguous reference to it from any application that implements the information model defined in ISO 13399-1.

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 SC 3D, and in its extensions defined in ISO 13584-24 and ISO 13584-25.

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Cutting tool data representation and exchange —

Part 2: Reference dictionary for the cutting items

1 Scope

This document specifies a reference dictionary for cutting items, together with their descriptive properties and domains of values.

This document specifies a reference dictionary containing:

- definitions and identifications of the classes of cutting items and their features, with an associated classification scheme;
- definitions and identifications of the data element types that represent the properties of cutting items and their features;
- definitions and identifications of domains of values for describing the above-mentioned data element types.

The following are within the scope of this document:

- standard data that represent the various classes of cutting items and cutting item features;
- standard data that represent the various properties of cutting items and cutting item features;
- standard data that represent domains of values used for properties of cutting items and cutting item features;
- definitions of reference systems for cutting items and their properties;
- one implementation method by which the standard data defined in this document can be exchanged.

NOTE 1 The implementation method by which the standard data defined in this document can be exchanged is specified in ISO 10303-21.

The following are outside the scope of this document:

- applications where these standard data can be stored or referenced;
- implementation methods other than the one defined in this document by which the standard data can be exchanged and referenced;
- information model for cutting tools;
- definitions of classes and properties for tool items;
- definitions of classes and properties for adaptive items;
- definitions of classes and properties for assembly items and auxiliary items.

NOTE 2 The information model for cutting tools is defined in ISO 13399-1.

NOTE 3 The definitions of classes and properties for tool items, adaptive items, assembly items, and auxiliary items are provided in ISO/TS 13399-3, ISO/TS 13399-4, and ISO/TS 13399-5, respectively.

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/TS 13399-100, *Cutting tool data representation and exchange — Part 100: Definitions, principles and methods for reference dictionaries*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TS 13399-100 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 applicable property

property (3.17) that is defined for some family of items and that applies to any member of this family

[SOURCE: ISO 13584-24:2003, 3.3, modified — "family of parts" has been replaced by "family of items"; "shall apply" has been replaced by "applies"; "any part" has been replaced by "any member"; the EXAMPLE has been removed.]

3.2 basic semantic unit

entity (3.10) that provides an absolute and universally unique identification of a certain object of the application domain that is represented as a *dictionary* (3.9) element

[SOURCE: ISO 13584-42:2010, 3.4, modified — The 3 EXAMPLEs and note 1 to entry have been removed.]

3.3 chip

material removed from a *workpiece* (3.21) by a cutting process

3.4 cutting tool

device or assembly of items for removing material from a *workpiece* (3.21) through a shearing action at the defined cutting edge or edges of the device

Note 1 to entry: A cutting tool can be the assembly of one or more adaptive items, a tool item, and several cutting items on a tool item. See [Figure A.1](#).

[SOURCE: ISO 13399-1:2006, 3.1]

3.5 data

representation of *information* (3.13) in a formal manner suitable for communication, interpretation, or processing by human beings or computers

[SOURCE: ISO 10303-1:2021, 3.1.29]

3.6 data element type

unit of *data* (3.5) for which the identification, description, and value representation have been specified

[SOURCE: ISO 13584-42:2010, 3.13, modified — Note 1 to entry has been removed.]

3.7**data exchange**

storing, accessing, transferring, and archiving of *data* (3.5)

[SOURCE: ISO 10303-1:2021, 3.1.31]

3.8**data type**

domain of values

[SOURCE: ISO 10303-11:2004, 3.3.5]

3.9**dictionary**

table consisting of a series of entries with one meaning corresponding to each entry in the dictionary and one dictionary entry identifying a single meaning

Note 1 to entry: In the ISO 13399 series, a dictionary is a formal and computer-sensible representation of an *ontology* (3.16).

[SOURCE: ISO 13584-511:2006, 3.1.9, modified — The original notes 1 to 3 to entry have been replaced by a new note 1 to entry.]

3.10**entity**

class of *information* (3.13) defined by its attributes which establishes a domain of values defined by common attributes and constraints

3.11**entity data type**

representation of an *entity* (3.10)

3.12**implementation method**

means for computers to exchange *data* (3.5)

3.13**information**

facts, concepts, or instructions

[SOURCE: ISO 10303-1:2021, 3.1.41]

3.14**information model**

formal model of a bounded set of facts, concepts, or instructions to meet a specific requirement

3.15**irregular insert**

replaceable cutting item that cannot be described by a regular geometric shape

3.16**ontology**

explicit and consensual specification of concepts of an application domain independent of any use of these concepts

Note 1 to entry: In the ISO 13399 series, a *dictionary* (3.9) is the formal and computer-sensible representation of ontology.

[SOURCE: ISO 13584-511:2006, 3.1.20, modified — In note 1 to entry, the reference to "ISO 13584" has been replaced by "the ISO 13399 series".]

3.17

property

defined parameter suitable for the description and differentiation of products

[SOURCE: ISO 13584-42:2010, 3.37, modified — Notes 1 to 5 to entry have been removed.]

3.18

regular insert

replaceable cutting item that can be described by a regular geometric shape

3.19

transient surface

part of the surface which is formed on the *workpiece* (3.21) by the cutting edge and removed during the following cutting stroke, during the following revolution of the tool or workpiece, or by the following cutting edge

[SOURCE: ISO 3002-1:1982, 3.1.3]

3.20

visible property

property (3.17) that has a definition meaningful in the scope of a given characterization class, but that does not necessarily apply to the various products belonging to this class

[SOURCE: ISO 13584-42:2010, 3.46]

3.21

workpiece

object on which a cutting action is performed

3.22

work surface

surface on the *workpiece* (3.21) to be removed by machining

[SOURCE: ISO 3002-1:1982, 3.1.1]

4 Abbreviated terms

BSU basic semantic unit

DET data element type

5 Representation of the ontological concepts as dictionary entries

5.1 General

A concept in the ontology is identified by a name in lower-case characters. The name of a class that represents the concept in the dictionary is identified by lower-case letters with multiple words joined by an underscore character.

EXAMPLE "cutting item type" is the name of a concept in the ontology. "cutting_item_type" is the identifier of the class in the dictionary that represents the concept.

Cutting items are represented by two main classes: cutting_item_feature and cutting_item_type.

The ISO 13399 series shall follow the principles in [Annex A](#). The structure of the classification is provided in [Annex B](#). The definitions of the cutting item classes are provided in [Annex C](#).

5.2 cutting_item_feature

5.2.1 General

Characteristic of a cutting item that cannot exist independently of the cutting item.

cutting_item_feature has the following subclasses:

- chip_breaker;
- cutting_corner;
- cutting_edge;
- cutting_item_coating;
- cutting_item_material;
- cutting_item_profile;
- fixing_hole;
- flank;
- gauge_circle;
- inscribed_circle;
- regrinding;
- top_face.

5.2.2 chip_breaker

Modification of the face of a cutting item to control or break the chip.

NOTE A chip breaker is either an integral groove or an obstruction attached to the face.

5.2.3 cutting_corner

Transition between two cutting edges.

cutting_corner has the following subclasses:

- chamfered_corner;
- rounded_corner.

5.2.4 cutting_edge

Junction between two surfaces that performs the cutting operation.

cutting_edge has the following subclasses:

- cutting_edge_conditioned;
- cutting_edge_interrupted;
- cutting_edge_major;
- cutting_edge_minior;
- wiper_edge.

5.2.5 cutting_item_coating

Additional material deposited on the surface of a cutting item.

NOTE A cutting item coating can consist of layers of several materials.

5.2.6 cutting_item_material

Substance from which a cutting item is made.

5.2.7 cutting_item_profile

Shape traced out by the cutting edges of a cutting item.

cutting_item_profile has the following subclasses:

- ball_nosed_profile;
- drilling_profile;
- grooving_parting_profile;
- threading_profile.

5.2.8 fixing_hole

Hole through the body of a replaceable cutting item that is used for attaching the cutting item to a tool item.

5.2.9 flank

Surface or surfaces of a cutting item that pass over the transient surface of the workpiece.

flank has the following subclasses:

- flank_major;
- flank_minor;
- flank_wiper_edge.

5.2.10 gauge_circle

Circle established by a measurement device on a cutting item that does not have an inscribed circle.

5.2.11 inscribed_circle

Circle to which all edges of an equilateral and round regular insert are tangential.

5.3 cutting_item_type

5.3.1 General

Family of items that can be held by a tool item or be part of a solid tool.

NOTE 1 The cutting item is the part of the cutting tool that is in contact with the workpiece during the cutting operation.

NOTE 2 The names of items in this class are not intended to refer to the use of the item in a particular cutting operation.

cutting_item_type has the following simple families of items as subclasses:

- drilling_insert;
- equilateral_equiangular;
- equilateral_nonequiangular;
- non_replaceable_cutting_item;
- nonequilateral_equiangular;
- nonequilateral_nonequiangular;
- reaming_insert;
- round_insert;
- specific_profile_insert.

5.3.2 equilateral_equiangular

Type of cutting item of regular geometric shape with sides of equal length and equal included angles.

NOTE The class contains inserts with the ISO shape codes H, O, P, S, and T.

equilateral_equiangular has the following items as subclasses:

- hexagonal_insert;
- octagonal_insert;
- pentagonal_insert;
- square_insert;
- triangular_insert.

5.3.3 equilateral_nonequiangular

Type of cutting item of regular geometric shape with sides of equal length and non-equal included angles.

NOTE The class contains inserts with the ISO shape codes C, D, E, M, and V for rhombic inserts and W for trigon inserts.

equilateral_nonequiangular has the following items as subclasses:

- rhombic_insert;
- trigon_insert.

5.3.4 non_replaceable_cutting_item

Cutting item that is permanently fixed to, or part of, a tool item.

5.3.5 nonequilateral_equiangular

Type of cutting item of regular geometric shape with sides of non-equal length and equal included angles.

NOTE The class contains inserts with the ISO shape code L.

nonequilateral_equiangular has the following item as a subclass: rectangular_insert.

5.3.6 nonequilateral_nonequiangular

Type of cutting item of regular geometric shape with sides of non-equal length and non-equal included angles.

NOTE The class contains inserts with the ISO shape codes A, B, and K.

nonequilateral_nonequiangular has the following item as a subclass: parallelogram_insert.

5.3.7 round_insert

Type of cutting item with circular cutting edges.

NOTE This class contains inserts with the ISO shape code R.

5.3.8 specific_profile_insert

Type of cutting item that possesses a defined profile shape.

NOTE A synonymous name is irregular_insert.

5.4 Reference systems for cutting items

5.4.1 General

Reference systems are geometrical coordinate axes with planes and locations on these axes that allow the definition of properties of cutting items and other components of a cutting tool. Reference systems are illustrated in [Annex G](#).

NOTE The convention for all the reference systems is the tool-in-hand system (ISO 3002-1).

The classes of reference systems for cutting items are as follows:

- primary_coordinate_system;
- irregular_insert_position;
- mirror_plane;
- regular_insert_position;
- xy_plane;
- xz_plane;
- yz_plane.

5.4.2 primary_coordinate_system

The primary_coordinate_system is a right-handed, rectangular Cartesian system in three-dimensional space with three principal axes labelled X, Y, and Z.

5.4.3 irregular_insert_position

An irregular insert is located on the primary coordinate system in the XY quadrant with the cutting edges in the xy-plane, the cutting profile pointing in the negative Y direction, the forward extremity of the cutting profile on the positive x-axis, and the side extremity of the insert on the y-axis.

NOTE The definition applies to right-hand inserts. The position of left-hand inserts is as mirrored through the yz-plane.

5.4.4 mirror_plane

The mirror_plane is the yz-plane in the primary coordinate system.

5.4.5 regular_insert_position

A regular insert is located on the primary coordinate system in the XY quadrant with the cutting edges on the xy-plane, the major cutting edge on the positive x-axis, and the theoretical sharp point of the insert on the y-axis.

NOTE 1 The definition applies to right-hand inserts. The position of left-hand inserts is as mirrored through the yz-plane.

NOTE 2 The positions of right-hand and left-hand regular inserts are illustrated in [Figure G.12](#).

5.4.6 xy_plane

The xy_plane is the plane in the primary coordinate system that contains the X and Y axes with the normal of the plane in the positive Z direction.

5.4.7 xz_plane

The xz_plane is the plane in the primary coordinate system that contains the X and Z axes with the normal of the plane in the positive Y direction.

5.4.8 yz_plane

The yz_plane is the plane in the primary coordinate system that contains the Y and Z axes with the normal of the plane in the positive X direction.

6 Properties for cutting item features and cutting item types

The properties of cutting item types and cutting item features are defined in [Annex D](#), where the association of a property with a class is specified. In the compilation of the dictionary, all properties are visible properties at the root class of the dictionary and are made applicable properties at the class level where they apply. The names of properties that can be applicable for cutting item features and cutting item types, with their identification codes (BSU), are shown in [Table 1](#). The order of names in the table should be read in rows from left to right.

The ISYC pictures showing the properties for cutting item features and cutting item types are illustrated in [Annex H](#).

NOTE The BSU can be made unique by the addition of the supplier of the dictionary as a prefix to the identification code.

EXAMPLE The unique BSU for chip_breaker_face_count would be: 0112/1///13399__2-71CE7A85CC4F9 for version two of the dictionary.

Table 1 — Names of properties for cutting items

Property name	Symbol	Identification code (BSU)
body angle workpiece side	BAWS	72C4A71D1B94B
brand	BRAND	728ECFD658014
chamfer corner property	CCP	72550DF97C965
chip breaker face count	CB	71CE7A85CC4F9
chip breaker manufacturers designation	CBMD	71CE7A86A4264
chip breaker property	CBP	71CED0217FA18
chip breaker width	LBB	71CE7A870948A
clearance angle major	AN	71DD70308D3E3
clearance angle minor	ANN	71DD7030E0A00
clearance angle wiper edge	AS	71DD7031A98E9
coating name	COATN	72719B186A232
coating process	COATP	72719B18D1F27
coating property	CTP	71DD703B84298
corner chamfer angle	KCH	71DD6C88F9210
corner chamfer angle minor	KCHN	726E3AADC0ABE
corner chamfer length	BCH	71DD6C895C25B
corner chamfer length minor	BCHN	726E3AACF1BB4
corner chamfer width	CHW	71DD6C89A120F
corner count	CNC	71CEAE9B67E4C
corner identity	CNID	71DD6C8802580
corner radius	RE	71DD6C8ACA503
corner radius left hand	REL	726E3E65CBE4E
corner radius lower tolerance	RETOLL	72C4A7228B53D
corner radius minor	REN	727C2F69C65AE
corner radius right hand	RER	726E3E66CF011
corner radius upper tolerance	RETOLU	72C4A722B2E35
cutting data association code	CDAC	72719B2427AED
cutting data association property	CDAP	72719B23A5008
cutting diameter	DC	71D084653E57F
cutting diameter insert	DCINS	71CF30F02C968
cutting edge angle major	KRINS	71CE7AA02C1CC
cutting edge angle major left hand	PSIRL	71CE7AA3440B4
cutting edge angle major right hand	PSIRR	71CE7AA78C2F0
cutting edge condition code	CECC	71DD6C90953D8
cutting edge count	CEDC	71CEAE9B489F4
cutting edge curvature	CECV	71DD6C950E7CC
cutting edge effective length	LE	71DD6C958C615
cutting edge identity	CEID	71DD6C8B86265
cutting edge length	L	71DD6C95DA49B
cutting edge major radius	CEMR	726E3E6E8B8EB
cutting point translation X-direction	CTX	71FD1E2EDD973
cutting point translation Y-direction	CTY	71FD1E2F66B38
cutting width	CW	71CEAE9B2B825
cutting width lower tolerance	CWTOLL	72C4A721F1835

Table 1 (continued)

Property name	Symbol	Identification code (BSU)
cutting width upper tolerance	CWTOLU	72C4A72270CF9
depth of cut maximum	APMX	71D07576C0558
designation	DES	728ECFD4A0629
face land angle	GB	71DD6C9332D2C
face land size code	FLSC	71DD6C9371B86
face land width	BN	71DD6C9394F40
fixing hole chamfer angle	FHCA	726E3AAFFFC9
fixing hole chamfer width	FHCW	726E3AB7AACED
fixing hole countersunk angle	FHCSA	726E3AB5E90FD
fixing hole countersunk depth	FHCSDP	726E3AB6E5726
fixing hole countersunk diameter	FHCSD	726E3AB654EA6
fixing hole countersunk radius	FHCSR	726E3AB757259
fixing hole diameter	D1	71CE7A968C8FE
fixing hole property	FXHLP	71D1C829BC044
flank identity	FLID	71DD70158265C
functional length	LF	71DCD39338974
gauge circle property	GACIRP	72550A75A58F9
gauge diameter	DG	71EBC1E1074AB
grade application main	GRDAPPM	729A91AB4451E
grade application range max	GRDAPRX	729A91AAEB181
grade application range min	GRDAPRN	729A91A635147
grade identification	GRDID	729A919BF211A
grade main application group identification letter	GRDAPID	729A919C3D239
grade manufacturers designation	GRDMFG	726E3EA930D39
grade standard designation main application	GRDPRIO	726E3EA8A9ED6
grind style code	GRDSYC	72550E3BD998C
hand	HAND	71CF29872F0AB
hole type	HTY	72719B167AE15
inscribed circle diameter	IC	71CE7A96D9F7D
inscribed circle property	INCLP	71D1C82A5036D
insert body diameter	INSBD	728F4E7B06CA7
insert hand	IH	71CE7A979F41C
insert included angle	EPSR	71CE7A96BC122
insert included angle minor (deprecated)	EPSRN	727C7D93D0F08
insert index count	NOI	71CE7AA1998FF
insert interface code	IIC	71CE7A9936610
insert lead angle	PSIRINS	71CF30F9DFE37
insert length	INSL	71CE7A9DFA23A
insert mounting style code	IFS	71CE7A97711B8
insert rake angle	GAN	71CE7A9EDACA1
insert shape code	SC	71CE7A9F0C79F
insert side count	NIS	72719B203D712
insert thickness	S	71CE7A9F5308C
insert thickness total	S1	72550E143C993

Table 1 (continued)

Property name	Symbol	Identification code (BSU)
insert width	W1	71CE7A9FB11C3
interrupted edge property	IEP	71DD701175021
item style code	ISYC	726E424FE9EC2
m2-dimension	M2	71CE7AA05C819
m-dimension	M	71CE7AA0972DB
profile angle left hand	PAL	71CEAEBEAB020
profile angle right hand	PAR	71CEAEBED837E
profile distance ex	PDX	71CEAEBFEF1B4
profile distance ey	PDY	71CEAEC0139BB
profile included angle	PNA	71CEAEBF0C234
profile radius	PRFRAD	71E019EBAE1B1
profile style code	PFS	71CEAEBDE5798
relief angle	RA	71DD9D00193A7
relief angle left hand	RAL	71CE7E6520B87
relief angle right hand	RAR	71CE7E6569AB5
rounded corner property	RCP	71DD7011A3D86
seal	SALP	72719B2B51519
standard letter	STDLET	72807E1CC4B50
taper gradient	TG	71CEAEC02FEBD
taper thread count	ZTT	71DF154901E44
thread cutting part length	THL	72550E426D771
thread designation inside	THID	726E3E7863BBC
thread designation outside	THOD	726E3E73D1CF2
thread form type	THFT	71D1A69F60053
thread hand	THDH	71E033FCBB61C
thread height actual	HC	71DF5BE65F86F
thread height difference	HB	71DF5BE617131
thread height theoretical	HA	71DF5BE5BCEBE
thread pitch	TP	71CEAEC08D4B0
thread pitch maximum	TPX	71D1A6A283836
thread pitch minimum	TPN	71D1A6A247E1F
thread profile type	TPT	71CEAEC114603
thread type	TTP	71D1A6A16E6ED
threads per inch	TPI	71D1A6AAC8707
threads per inch maximum	TPIX	71D1A6AB8F739
threads per inch minimum	TPIN	71D1A6AB6FB19
tipped cutting edge code	TCE	71CE7AA1E3D75
tolerance class insert	TCINS	71CE7AA215888
tooth count	NT	71CEAEBF8A68E
weight of item	WT	71CED03C97AAB
wiper edge length	BS	71CE7AA249F88
wiper edge property	BSR	71CED022114EC
wiper edge radius	WEP	71CE7AA2E50BE

Annex A (normative)

Principles of the ISO 13399 series

A.1 General

The ISO 13399 series is intended for use by, among others, tool producers and vendors, manufacturers, and developers of manufacturing software. The ISO 13399 series provides a common structure for exchanging data about cutting tools with defined cutting edges. The ISO 13399 series is intended to provide for, or improve, several manufacturing activities, including:

- the integration and sharing of data for cutting tools and assemblies between different stages for the manufacturing cycle and between different software applications;
- the direct import of data from cutting tool suppliers into a customer's database;
- the management of cutting tool information from multiple sources and for multiple applications.

Different companies use different business models that determine their need for the communication of information about their products. For example, one cutting tool manufacturer can regrind its customers' tools while another can allow its customers to do the regrinding and provide the information to enable them to do so. Therefore, the two cutting tool manufacturers can have a different set of cutting tool properties to communicate using the information model and dictionaries provided in the ISO 13399 series.

The ISO 13399 series defines only the information that can be communicated, but does not specify what information shall be communicated.

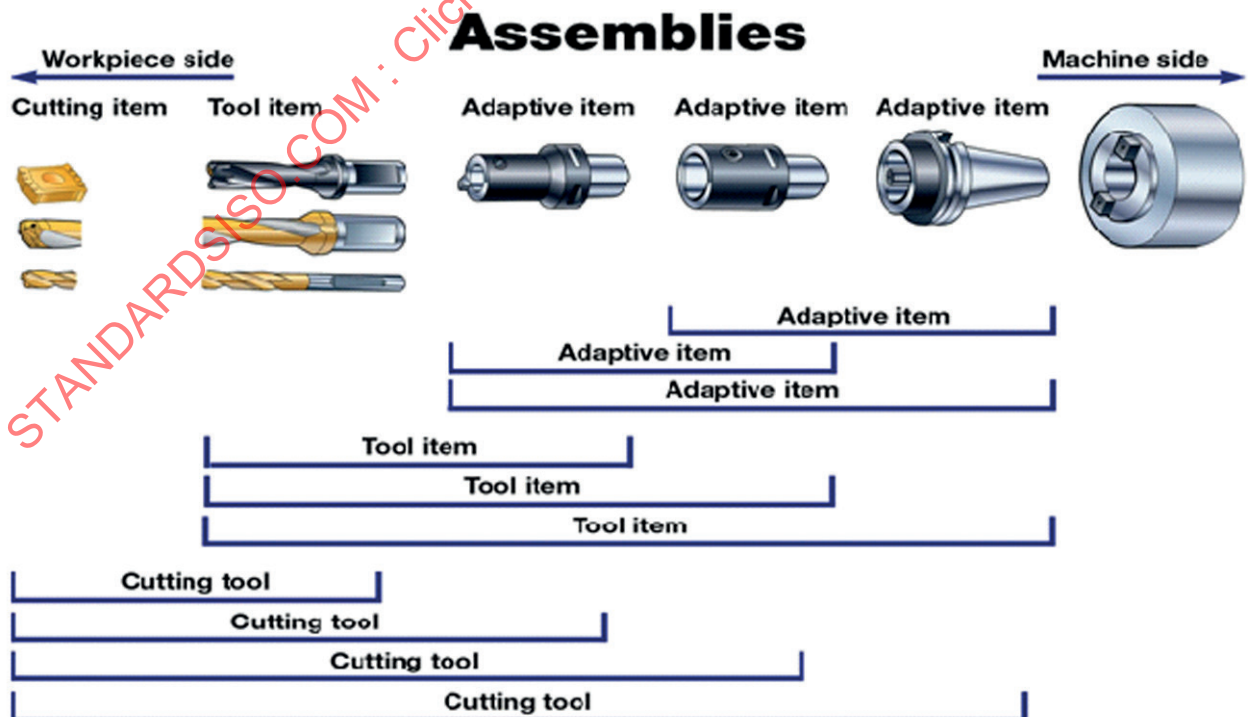


Figure A.1 — Possible assemblies of components of a cutting tool

Since the content of those dictionaries evolves according to industrial innovations and constant improvement of technology in cutting tools, a Maintenance Agency has been established for the purposes of:

- correcting errors in the entries of existing classes and properties;
- adding new properties to existing classes;
- adding new classes and their properties;
- managing the status of those properties and classes;
- migrating the dictionary to subsequent editions of the ISO 13399 series.

The name, address and contact information of the Maintenance Agency is available at: https://www.iso.org/maintenance_agencies.html.

The reference dictionaries are available in the form of EXPRESS files on the website of the Maintenance Agency. These files are considered complementary to this document; they can be freely downloaded and used for cutting tool data representation and exchange.

The following permission notice and disclaimer shall be included in all copies of this EXPRESS schema ("the Schema"), and derivations of the Schema:

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THIS SCHEMA HAS BEEN MODIFIED FROM THE SCHEMA DEFINED IN THE ISO 13399 SERIES, AND SHOULD NOT BE INTERPRETED AS COMPLYING WITH THAT INTERNATIONAL STANDARD.

A.2 Information object registration

A.2.1 Document identification

In order to provide for unambiguous identification of an information object in an open system, the object identifier:

{iso technical specification 13399 part (2) version (3)}

is assigned to this document. The meaning of this value is defined in ISO/IEC 8824-1 and is described in ISO 13584-1.

A.2.2 Dictionary identification

The dictionary defined in this document is assigned the object identifier:

{iso technical specification 13399 part (2) version (3) object (2) cutting items (2)}

Annex B (informative)

Classification table

[Table B.1](#) shows the classification structure of the generic families in the dictionary with an expanded structure for the classes of cutting items feature and cutting item type. The purpose of [Table B.1](#) is to show the relationships between the classes of cutting items and the other classes in the ISO 13399 series.

NOTE [Annex C](#) contains the definition of all the classes that are relevant to cutting items and definitions of those classes of reference systems that are used in the definition of the properties of cutting item types and cutting item features.

Table B.1 — Classification table

Classification structure		Parent	BSU
cutting tool library			71CE7A72B6DA7
	adaptive item type	71CE7A72B6DA7	71EAD37F18F34
	adjustment	71CE7A72B6DA7	71ED884159C90
	assembly item type	71CE7A72B6DA7	71CE7A795C05C
	bolt hole circle	71CE7A72B6DA7	71E02520881F1
	connection interface feature	71CE7A72B6DA7	72719B234F9E0
	coolant supply	71CE7A72B6DA7	71DF8C3C065EB
	cutting data association	71CE7A72B6DA7	71DF8C37D9115
	cutting item feature	71CE7A72B6DA7	71DD6C82F72DA
	chip breaker	71DD6C82F72DA	71DD6C870BCCA
	cutting corner	71DD6C82F72DA	71DD6C87BB5E1
	chamfered corner	71DD6C87BB5E1	71DD6C884C4BD
	rounded corner	71DD6C87BB5E1	71DD6C8A9985E
	cutting edge	71DD6C82F72DA	71DD6C8B42A9E
	cutting edge condition	71DD6C8B42A9E	71DD6C8C4F46C
	cutting edge interrupted	71DD6C8B42A9E	71DD6C93E8F02
	cutting edge major	71DD6C8B42A9E	71DD6C9466F30
	cutting edge minor	71DD6C8B42A9E	71DD6C961D7FE
	wiper edge	71DD6C8B42A9E	71DD6C9A21689
	cutting item coating	71DD6C82F72DA	71DD9D01038CF
	cutting item material	71DD6C82F72DA	71DD703BE6B82
	cutting item profile	71DD6C82F72DA	71DD70030304C
	ball nosed profile	71DD70030304C	71DD700BC8BE2
	drilling profile	71DD70030304C	71DD700BE1D04
	grooving parting profile	71DD70030304C	71DD700BFD9B9
	threading profile	71DD70030304C	71DD700C151B5
	fixing hole	71DD6C82F72DA	71DD7014BF2A1
	flank	71DD6C82F72DA	71DD70155A4B1
	flank major	71DD70155A4B1	71DD7015F073B
	flank minor	71DD70155A4B1	71DD701618C71

Table B.1 (continued)

Classification structure			Parent	BSU
		flank wiper edge	71DD70155A4B1	71DD70163AA42
		gauge circle	71DD6C82F72DA	72550A77D9DB9
		inscribed circle	71DD6C82F72DA	71DD7032B51CD
		regrinding	71DD6C82F72DA	71EAC81A64368
		top face	71DD6C82F72DA	726E3AB882A33
	cutting item type		71CE7A72B6DA7	71D1AA6C8FC75
		drilling insert	71D1AA6C8FC75	72550E1361C6C
		equilateral equiangular	71D1AA6C8FC75	71D1AA486FF89
		hexagonal insert	71D1AA486FF89	71DD68D7A8E5F
		octagonal insert	71D1AA486FF89	71DD68D7CB4FA
		pentagonal insert	71D1AA486FF89	71DD68D80B094
		square insert	71D1AA486FF89	71DD68D829217
		triangular insert	71D1AA486FF89	71DD68D8446CE
		equilateral nonequangular	71D1AA6C8FC75	71D1AE11B8B77
		rhombic insert	71D1AE11B8B77	71DD68D301C30
		trigon insert	71D1AE11B8B77	71DD68D73218C
		non replaceable cutting item	71D1AA6C8FC75	7224CCDD587CF
		nonequilateral equiangular	71D1AA6C8FC75	71D1AE120D96E
		rectangular insert	71D1AE120D96E	71DD68D91938A
		nonequilateral nonequangular	71D1AA6C8FC75	71D1AA489FD6E
		parallelogram insert	71D1AA489FD6E	71DD68D966F52
		reaming insert	71D1AA6C8FC75	726E3AAC68D91
		round insert	71D1AA6C8FC75	71D1AA6635E76
		specific profile insert	71D1AA6C8FC75	71DDA089C8D1E
	cutting operation		71CE7A72B6DA7	71DFF83D21D50
	cutting tool		71CE7A72B6DA7	71CE7A7A5038B
	dependency		71CE7A72B6DA7	727CE22063F8E
	flange		71CE7A72B6DA7	71EC5A767182E
	keyway		71CE7A72B6DA7	71DF5C026BCE7
	locking mechanism		71CE7A72B6DA7	71EBAB85BB5FA
	reference system		71CE7A72B6DA7	71CF2968F7A9E
	runout axial		71CE7A72B6DA7	71EDD2B84143C
	runout radial		71CE7A72B6DA7	71EDD2B858274
	tool item feature		71CE7A72B6DA7	71DD70376771D
	tool item type		71CE7A72B6DA7	71E01A004C775
	tool thread external		71CE7A72B6DA7	71FC1D22BF4CD
	tool thread internal		71CE7A72B6DA7	71FC1D25097D7

Annex C (informative)

Class definitions

C.1 Content and presentation

The content of this annex is limited to the classes of cutting item features, cutting item types, and the reference systems required to define the properties of these classes.

The layout of the information for each class in this annex is:

BSU code–version number Revision number

Preferred name Short name

Definition

NOTE

REMARKS

Subclasses:

Properties:

C.2 Classes

71DD6C82F72DA-001 001

cutting item feature cif

Characteristic of a cutting item that cannot exist independently of the cutting item

Subclasses:

71DD70155A4B1 flank

726E3AB882A33 top face

72550A77D9DB9 gauge circle

71DD6C87BB5E1 cutting corner

71DD6C870BCCA chip breaker

71DD6C8B42A9E cutting edge

71DD70030304C cutting item profile

71DD7032B51CD inscribed circle

71DD703BE6B82 cutting item material

71DD7014BF2A1 fixing hole

71DD9D01038CF cutting item coating

71DD6C870BCCA-001 001

chip breaker cbkr

Modification of the face of a cutting item to control or break the chip

NOTE A chip breaker is either an integral groove or an obstruction attached to the face.

Properties:

71CE7A86A4264 chip breaker manufacturers designation

71CE7A870948A chip breaker width

71CE7A9EDACA1 insert rake angle

71DD6C87BB5E1-001 001

cutting corner corner

Transition between two cutting edges

Subclasses:

71DD6C884C4BD chamfered corner

71DD6C8A9985E rounded corner

Properties:

71DD6C8802580 corner identity

71DD6C884C4BD-001 001

chamfered corner chcc

Linear transition between two cutting edges

Properties:

71DD6C8802580 corner identity

71DD6C88F9210 corner chamfer angle

71DD6C895C25B corner chamfer length

71DD6C89A120F corner chamfer width

71DD6C8A9985E-001 001

rounded corner rndc

Curved transition between two cutting edges

Properties:

71DD6C8802580 corner identity

71DD6C8ACA503 corner radius

72C4A7228B53D corner radius lower tolerance

72C4A722B2E35 corner radius upper tolerance

71DD6C8B42A9E-001 001

cutting edge ctedg

Junction between two surfaces that performs the cutting operation

Subclasses:

71DD6C9A21689 wiper edge

71DD6C961D7FE cutting edge minor

71DD6C9466F30 cutting edge major

71DD6C8C4F46C cutting edge condition

71DD6C93E8F02 cutting edge interrupted

Properties:

71DD6C8B86265 cutting edge identity

71DD6C9332D2C face land angle

71DD6C9371B86 face land size code

71DD6C9394F40 face land width

71DD6C8C4F46C-001 001

cutting edge condition ctec

The possession by the cutting edge of specific characteristics

Properties:

71DD6C8B86265 cutting edge identity

71DD6C90953D8 cutting edge condition code

71DD6C9332D2C face land angle

71DD6C9371B86 face land size code

71DD6C9394F40 face land width

71DD6C93E8F02-001 001

cutting edge interrupted ceint

Cutting edge with discontinuities of sufficient magnitude to prevent chip formation at the point where they occur

REMARKS The purpose of the discontinuities is to reduce the size of individual chips from certain types of tools.

Properties:

71DD6C8B86265 cutting edge identity

71DD6C9332D2C face land angle

71DD6C9371B86 face land size code

71DD6C9394F40 face land width

71DD6C9466F30-001 001

cutting edge major cemj

Junction between the face and the main flank that performs the cutting action to create the transient surface on a workpiece

Properties:

71CE7AA3440B4 cutting edge angle major left hand

71CE7AA78C2F0 cutting edge angle major right hand

71DD6C8B86265 cutting edge identity

71DD6C9332D2C face land angle

71DD6C9371B86 face land size code

71DD6C9394F40 face land width

71DD6C950E7CC cutting edge curvature

71DD6C958C615 cutting edge effective length

71DD6C95DA49B cutting edge length

71DD6C961D7FE-001 001

cutting edge minor cemn

Junction between the face and the minor flank that does not contribute to the creation of the transient surface on the workpiece

Properties:

71DD6C8B86265 cutting edge identity

71DD6C9332D2C face land angle

71DD6C9371B86 face land size code

71DD6C9394F40 face land width

71DD6C9A21689-001 002

wiper edge wpe

Cutting edge with a wiper configuration

Properties:

71CE7AA02C1CC cutting edge angle major

71CE7AA249F88 wiper edge length

71CE7AA2E50BE wiper edge radius

71CF30F9DFE37 insert lead angle

71DD6C8B86265 cutting edge identity

71DD6C9332D2C face land angle

71DD6C9371B86 face land size code

71DD6C9394F40 face land width

71DD7031A98E9 clearance angle wiper edge

71DD70030304C-001 001**cutting item profile ciprf**

Shape traced out by the cutting edges of a cutting item

Subclasses:

71DD700BC8BE2 ball nosed profile

71DD700BFD9B9 grooving parting profile

71DD700BE1D04 drilling profile

71DD700C151B5 threading profile

71DD700BC8BE2-002 001**ball nosed profile bnprf**

Shape of the perimeter of a cutting item that creates a semi-spherical profile

Properties:

71CE7A9DFA23A insert length

71CE7A9F5308C insert thickness

71CE7A9FB11C3 insert width

71DD6C8802580 corner identity

71DD6C8ACA503 corner radius

71DD9D00193A7 relief angle

71DD700BE1D04-003 002

drilling profile drprf

Shape of the perimeter of a cutting item that creates a drilled hole

Properties:

71CE7AA1E3D75 tipped cutting edge code

71CEAE9B67E4C corner count

71CF30F02C968 cutting diameter insert

71DD701175021 interrupted edge property

71DD7011A3D86 rounded corner property

72550E3BD998C grind style code

71DD700BFD9B9-003 005

grooving parting profile gpprf

Shape of the perimeter of a cutting item that creates the profile of a groove

Properties:

71CE7A85CC4F9 chip breaker face count

71CE7AA1E3D75 tipped cutting edge code

71CE7E6520B87 relief angle left hand

71CE7E6569AB5 relief angle right hand

71CEAE9B67E4C corner count

71CEAEBDE5798 profile style code

71CEAEBE2B825 cutting width

71CEAEBEAB020 profile angle left hand

71CEAEBED837E profile angle right hand

71CEAEBF0C234 profile included angle

71D07576C0558 depth of cut maximum

71DD6C8802580 corner identity

71DD7011A3D86 rounded corner property

71E019EBAE1B1 profile radius

72550DF97C965 chamfer corner property

726E3E65CBE4E corner radius left hand

726E3E66CF011 corner radius right hand

72C4A721F1835 cutting width lower tolerance

72C4A72270CF9 cutting width upper tolerance

71DD700C151B5-003 004

threading profile thprf

Shape of the perimeter of a cutting item that creates a screw thread

Properties:

71CE7A85CC4F9 chip breaker face count

71CE7AA1E3D75 tipped cutting edge code

71CEAE9B67E4C corner count

71CEAEBDE5798 profile style code

71CEAEBEAB020 profile angle left hand

71CEAEBED837E profile angle right hand

71CEAEBF0C234 profile included angle

71CEAEBF8A68E tooth count

71CEAEBFEB1B4 profile distance ex

71CEAEC0139BB profile distance ey

71CEAEC02FEBCD taper gradient

71CEAEC08D4B0 thread pitch

71CEAEC114603 thread profile type

71D1A69F60053 thread form type

71D1A6A16E6ED thread type

71D1A6A247E1F thread pitch minimum

71D1A6A283836 thread pitch maximum

71D1A6AAC8707 threads per inch

71D1A6AB6FB19 threads per inch minimum

71D1A6AB8F739 threads per inch maximum

71DD6C8802580 corner identity

71DD7011A3D86 rounded corner property

71DF154901E44 taper thread count

71DF5BE5BCEBE thread height theoretical

71DF5BE617131 thread height difference

71DF5BE65F86F thread height actual

71E033FCBB61C thread hand

72550E426D771 thread cutting part length

726E3E65CBE4E corner radius left hand

726E3E66CF011 corner radius right hand

726E3E73D1CF2 thread designation outside

726E3E7863BBC thread designation inside

71DD7014BF2A1-003 002

fixing hole fxhl

Hole through the body of a replaceable cutting item that is used for attaching the cutting item to a tool item

Properties:

71CE7A968C8FE fixing hole diameter

71CE7A97711B8 insert mounting style code

726E3AAFF0C9 fixing hole chamfer angle

726E3AB5E90FD fixing hole countersunk angle

726E3AB654EA6 fixing hole countersunk diameter

726E3AB6E5726 fixing hole countersunk depth

726E3AB757259 fixing hole countersunk radius

726E3AB7AACED fixing hole chamfer width

71DD70155A4B1-002 001

flank flnk

Surface or surfaces of a cutting item that pass over the transient surface of the workpiece

Subclasses:

71DD70163AA42 flank wiper edge

71DD7015F073B flank major

71DD701618C71 flank minor

Properties:

71DD70158265C flank identity

71DD7015F073B-001 001

flank major flmj

Surface of a cutting item that moves over the transient surface of the workpiece

Properties:

71DD70158265C flank identity

71DD70308D3E3 clearance angle major

71DD701618C71-001 001

flank minor flmn

Surface of a cutting item that does not move over the transient surface of the workpiece

Properties:

71DD70158265C flank identity

71DD7030E0A00 clearance angle minor

71DD70163AA42-001 001

flank wiper edge flwe

Flank of a cutting item that has a wiper edge

Properties:

71DD70158265C flank identity

71DD7031A98E9 clearance angle wiper edge

71DD7032B51CD-001 001

inscribed circle insc

Circle to which all edges of an equilateral and round regular insert are tangential

Properties:

71CE7A96D9F7D inscribed circle diameter

71EAC81A64368-002 002

regrinding rgnd

Modifying the shape of a component of a cutting tool to restore the original shape or to create a new shape

Properties:

71EAC81F88336-003 body clearance depth

71EAC82B2A50E-003 chisel edge angle

71EAC82ADE5EA-003 chisel edge length

71EAC83CD450B-003 clearance angle axial

71EAC83B73825-003 clearance angle radial

71EAC81AD9AE1-003 drill back taper

71EAC8210DF36-003 fluted land width

71EAC828C8308-003 margin width

727BE4E2C07C2-003 residual grinding length (missing for class rgnd)

71EBC1E8857BE-003 overall length minimum (deprecated substituted by LRGRD - residual grinding length)

71EAC823D95A7-003 web taper

71EAC82313165-003 web thickness

726E3AB882A33-003 001

top face tfac

Definition of a cutting item that is above the cutting edge, but is not applicable for the cutting process

Properties:

726E3AB9B8041-003 top face angle

726E3AB8CCB85-003 top face distance

726E3AB92F70D-003 top face radius

71D1AA6C8FC75-003 003

cutting item type cins

Family of items that can be held by a tool item or be part of a solid tool

NOTE The cutting item is the part of the cutting tool that is in contact with the workpiece during the cutting operation.

REMARKS The names of items in this class are not intended to refer to the use of the item in a particular cutting operation.

Subclasses:

71D1AE120D96E nonequilateral equiangular

71D1AA489FD6E nonequilateral nonequiangular

71D1AA486FF89 equilateral equiangular

72550E1361C6C drilling insert

7224CCDD587CF non replaceable cutting item

71D1AE11B8B77 equilateral nonequiangular

71D1AA6635E76 round insert

726E3AAC68D91 reaming insert

71DDA089C8D1E specific profile insert

Properties:

71CED0217FA18 chip breaker property

71DD6C90953D8 cutting edge condition code
 71DD703B84298 coating property
 726E3EA8A9ED6 grade standard designation main application
 726E3EA930D39 grade manufacturers designation
 726E424FE9EC2 item style code
 72719B167AE15 hole type
 72719B203D712 insert side count
 72719B23A5008 cutting data association property
 72719B2427AED cutting data association code
 72719B2B51519 seal
 72807E1CC4B50 standard letter
 728ECFD4A0629 designation
 728ECFD658014 brand
 728F4E7B06CA7 insert body diameter
 729A919BF211A grade identification
 729A919C3D239 grade main application group identification letter
 729A91A635147 grade application range min
 729A91AAEB181 grade application range max
 729A91AB4451E grade application main
 72C4A71D1B94B body angle workpiece side

72550E1361C6C-003 002

drilling insert *drilins*

Type of cutting item that is used for drilling operations

Properties:

71CE7A9751A90	insert body width
71CE7A9936610	insert interface code
71CE7AA1998FF	insert index count
71CEAE9B489F4	cutting edge count
71CEAEBF2A69F	insert seat size code
71CED0217FA18	chip breaker property
71CF2985DCED3	coolant entry style code
71CF2985FC5FC	coolant exit style code

71CF30F02C968	cutting diameter insert
71D084653E57F	cutting diameter
71D1C829BC044	fixing hole property
71D1C82A5036D	inscribed circle property
71DCCC4FEF366	point angle
71DCCFD064042	point length
71DCD39338974	functional length
71DCD394BB20E	protruding length
71DD6C90953D8	cutting edge condition code
71DD7011A3D86	rounded corner property
71DD703B84298	coating property
71EAC8210DF36	fluted land width
71EAC828C8308	margin width
71EAC82B2A50E	chisel edge angle
71EBC1E8857BE	overall length minimum (deprecated substituted by residual grinding length)
72550DF97C965	chamfer corner property
72550E143C993	insert thickness total
726E3EA8A9ED6	grade standard designation main application
726E3EA930D39	grade manufacturers designation
726E424FE9EC2	item style code
72719B167AE15	hole type
72719B197DA99	tolerance class machined hole diameter
72719B203D712	insert side count
72719B23A5008	cutting data association property
72719B2427AED	cutting data association code
72719B2B51519	seal
727BE4E2C07C2	residual grinding length
72807E1CC4B50	standard letter
728B074A39EBC	tool assembly length
728ECFD4A0629	designation
728ECFD658014	brand
728F4E7B06CA7	insert body diameter
729A919BF211A	grade identification

729A919C3D239	grade main application group identification letter
729A91A635147	grade application range min
729A91AAEB181	grade application range max
729A91AB4451E	grade application main
72C4A71D1B94B	body angle workpiece side

71D1AE11B8B77-003 003**equilateral nonequiangular eqlnqa**

Type of cutting item of regular geometric shape with sides of equal length and non-equal included angles

NOTE The class contains inserts with the ISO shape codes C, D, and V for rhombic inserts and W for trigon inserts.

Subclasses:

71DD68D73218C trigon insert

71DD68D301C30 rhombic insert

Properties:

71CE7A85CC4F9 chip breaker face count

71CE7A96BC122 insert included angle

71CE7A979F41C insert hand

71CE7A9936610 insert interface code

71CE7A9DFA23A insert length

71CE7A9F0C79F insert shape code

71CE7A9F5308C insert thickness

71CE7A9FB11C3 insert width

71CE7AA05C819 m2-dimension

71CE7AA0972DB m-dimension

71CE7AA1998FF insert index count

71CE7AA1E3D75 tipped cutting edge code

71CE7AA215888 tolerance class insert

71CEAE9B489F4 cutting edge count

71CEAE9B67E4C corner count

71CED0217FA18 chip breaker property

71CED022114EC wiper edge property

71CF29872F0AB hand

71D1C829BC044 fixing hole property
71D1C82A5036D inscribed circle property
71DD6C90953D8 cutting edge condition code
71DD6C958C615 cutting edge effective length
71DD6C95DA49B cutting edge length
71DD7011A3D86 rounded corner property
71DD703B84298 coating property
71FD1E2EDD973 cutting point translation X-direction
71FD1E2F66B38 cutting point translation Y-direction
72550DF97C965 chamfer corner property
72550E143C993 insert thickness total
726E3AACF1BB4 corner chamfer length minor
726E3AADC0ABE corner chamfer angle minor
726E3EA8A9ED6 grade standard designation main application
726E3EA930D39 grade manufacturers designation
726E424FE9EC2 item style code
72719B167AE15 hole type
72719B203D712 insert side count
72719B23A5008 cutting data association property
72719B2427AED cutting data association code
72719B2B51519 seal
727C2F69C65AE corner radius minor
72807E1CC4B50 standard letter
728ECFD4A0629 designation
728ECFD658014 brand
728F4E7B06CA7 insert body diameter
729A919BF211A grade identification
729A919C3D239 grade main application group identification letter
729A91A635147 grade application range min
729A91AAEB181 grade application range max
729A91AB4451E grade application main
72C4A71D1B94B body angle workpiece side

71D1AE120D96E-003 003**nonequilateral equiangular nqleqa**

Type of cutting item of regular geometric shape with sides of non-equal length and equal included angles

NOTE The class contains inserts with the ISO shape code L.

Subclasses:

71DD68D91938A rectangular insert

Properties:

71CE7A85CC4F9 chip breaker face count

71CE7A96BC122 insert included angle

71CE7A979F41C insert hand

71CE7A9936610 insert interface code

71CE7A9DFA23A insert length

71CE7A9F0C79F insert shape code

71CE7A9F5308C insert thickness

71CE7A9FB11C3 insert width

71CE7AA05C819 m2-dimension

71CE7AA0972DB m-dimension

71CE7AA1998FF insert index count

71CE7AA1E3D75 tipped cutting edge code

71CE7AA215888 tolerance class insert

71CEAE9B489F4 cutting edge count

71CEAE9B67E4C corner count

71CED0217FA18 chip breaker property

71CED022114EC wiper edge property

71CF29872F0AB hand

71D1C829BC044 fixing hole property

71DD6C90953D8 cutting edge condition code

71DD6C958C615 cutting edge effective length

71DD6C95DA49B cutting edge length

71DD7011A3D86 rounded corner property

71DD703B84298 coating property

71EBC1E1074AB gauge diameter

71FD1E2EDD973 cutting point translation X-direction

71FD1E2F66B38 cutting point translation Y-direction
72550A75A58F9 gauge circle property
72550E143C993 insert thickness total
726E3AACF1BB4 corner chamfer length minor
726E3AADC0ABE corner chamfer angle minor
726E3EA8A9ED6 grade standard designation main application
726E3EA930D39 grade manufacturers designation
726E424FE9EC2 item style code
72719B167AE15 hole type
72719B203D712 insert side count
72719B23A5008 cutting data association property
72719B2427AED cutting data association code
72719B2B51519 seal
727C2F69C65AE corner radius minor
72807E1CC4B50 standard letter
728ECFD4A0629 designation
728ECFD658014 brand
728F4E7B06CA7 insert body diameter
729A919BF211A grade identification
729A919C3D239 grade main application group identification letter
729A91A635147 grade application range min
729A91AAEB181 grade application range max
729A91AB4451E grade application main
72C4A71D1B94B body angle workpiece side

7224CCDD587CF-003 003

non replaceable cutting item nrci

Cutting item that is permanently fixed to, or part of, a tool item

Properties:

72550DF97C965-003 chamfer corner property
71CEAE9B67E4C-003 corner count
71CEAE9B489F4-003 cutting edge count
71DD6C958C615-003 cutting edge effective length

71DD6C95DA49B-003 cutting edge length
 71FD1E2EDD973-003 cutting point translation X-direction
 71FD1E2F66B38-003 cutting point translation Y-direction
 71CF29872F0AB-003 hand
 71CE7A96BC122-003 insert included angle
 727BE4EA8C69D-003 mating radius
 71DD7011A3D86-003 rounded corner property

726E3AAC68D91-003 001

reaming insert reains

Type of cutting item that shall be mainly used for reaming operations and is not a regular or irregular insert

Note The class contains manufacturer specific inserts.

Properties:

7272127D97F87-003 chip breaker length
 7272128E2CCE4-003 cutting edge distance
 728055355A516-003 face cutting edge
 726F30BC507E3-003 plug angle
 726E372E4FBE9-003 plug length
 71DCCC3DFA23A-003 step diameter length
 71DCCC47221E0-003 step distance

71DD68D301C30-001 001

rhombic insert rhmbins

Replaceable cutting item with two cutting corners, four sides of equal length and four internal angles none of which are equal to ninety degrees

REMARKS This class contains inserts with the ISO shape codes C, D, E, M and V.

Properties:

71CE7A85CC4F9 chip breaker face count
 71CE7A96BC122 insert included angle
 71CE7A979F41C insert hand
 71CE7A9936610 insert interface code
 71CE7A9DFA23A insert length
 71CE7A9F0C79F insert shape code

71CE7A9F5308C insert thickness
71CE7A9FB11C3 insert width
71CE7AA05C819 m2-dimension
71CE7AA0972DB m-dimension
71CE7AA1998FF insert index count
71CE7AA1E3D75 tipped cutting edge code
71CE7AA215888 tolerance class insert
71CEAE9B489F4 cutting edge count
71CEAE9B67E4C corner count
71CED0217FA18 chip breaker property
71CED022114EC wiper edge property
71CF29872F0AB hand
71D1C829BC044 fixing hole property
71D1C82A5036D inscribed circle property
71DD6C90953D8 cutting edge condition code
71DD6C958C615 cutting edge effective length
71DD6C95DA49B cutting edge length
71DD7011A3D86 rounded corner property
71DD703B84298 coating property
71FD1E2EDD973 cutting point translation X-direction
71FD1E2F66B38 cutting point translation Y-direction
72550DF97C965 chamfer corner property
72550E143C993 insert thickness total
726E3AACF1BB4 corner chamfer length minor
726E3AADC0ABE corner chamfer angle minor
726E3EA8A9ED6 grade standard designation main application
726E3EA930D39 grade manufacturers designation
726E424FE9EC2 item style code
72719B167AE15 hole type
72719B203D712 insert side count
72719B23A5008 cutting data association property
72719B2427AED cutting data association code
72719B2B51519 seal

727C2F69C65AE corner radius minor
 72807E1CC4B50 standard letter
 728ECFD4A0629 designation
 728ECFD658014 brand
 728F4E7B06CA7 insert body diameter
 729A919BF211A grade identification
 729A919C3D239 grade main application group identification letter
 729A91A635147 grade application range min
 729A91AAEB181 grade application range max
 729A91AB4451E grade application main
 72C4A71D1B94B body angle workpiece side

71DDA089C8D1E-003 004

specific profile insert spins

Type of cutting item that possess a defined profile shape

Properties:

72719B181D75D-003 central flat
 72550DF97C965-003 chamfer corner property
 71CE7A85CC4F9-003 chip breaker face count
 7272127EBE942-003 clearance angle flank left hand
 7272127FC0C98-003 clearance angle flank right hand
 72724DF0F6A58-003 corner chamfer angle left hand
 72724DF15A080-003 corner chamfer angle right hand
 727233F2FE845-003 corner chamfer width left hand
 727233F34CCF7-003 corner chamfer width right hand
 71CEAE9B67E4C-003 corner count
 71DD6C8802580-002 corner identity
 726E3E65CBE4E-003 corner radius left hand
 72C4A7228B53D-001 corner radius lower tolerance
 726E3E66CF011-003 corner radius right hand
 72C4A722B2E35-001 corner radius upper tolerance
 71CEAEBD5A66A-003 cutting depth maximum
 71D084653E57F-003 cutting diameter

71CF30F02C968-003 cutting diameter insert
71CE7AA3440B4-003 cutting edge angle major left hand
71CE7AA78C2F0-003 cutting edge angle major right hand
71CEAE9B489F4-003 cutting edge count
71DD6C950E7CC-003 cutting edge curvature
71DD6C8B86265-003 cutting edge identity
726E3E6E8B8EB-003 cutting edge major radius
71FD1E2EDD973-003 cutting point translation X-direction
71FD1E2F66B38-003 cutting point translation Y-direction
71CEAEBE2B825-003 cutting width
72C4A721F1835-001 cutting width lower tolerance
72C4A72270CF9-001 cutting width upper tolerance
71D1C829BC044-003 fixing hole property
72724DF1A9960-003 flank chamfer angle left hand
72724DF1F0064-003 flank chamfer angle right hand
727233F3ACD12-003 flank chamfer width left hand
727233F41008D-003 flank chamfer width right hand
72724DF27E860-003 flank radius left hand
72724DF2B776B-003 flank radius right hand
71DCD39338974-003 functional length
71CF29984CDA7-003 functional width
72550A75A58F9-003 gauge circle property
71CF29872F0AB-003 hand
71D1C82A5036D-003 inscribed circle property
71CE7A9751A90-003 insert body width
726E3E6875C52-003 insert gauge length
71CE7A979F41C-003 insert hand
71CE7A96BC122-003 insert included angle
71CE7AA1998FF-003 insert index count
71CE7A9936610-003 insert interface code
71CE7A9DFA23A-003 insert length
71CEAEBF2A69F-003 insert seat size code
71CE7A9F5308C-003 insert thickness

72550E143C993-003 insert thickness total
 71CE7A9FB11C3-003 insert width
 71CEAEBEAB020-003 profile angle left hand
 71CEAEBED837E-003 profile angle right hand
 727BE4E96AD88-003 profile depth insert
 71CEAEBFEF1B4-003 profile distance ex
 71CEAEC0139BB-003 profile distance ey
 71CEAEBF0C234-003 profile included angle
 71E019EBAE1B1-003 profile radius
 71CEAEBDE5798-003 profile style code
 71DCD394BB20E-003 protruding length
 71CE7E6520B87-003 relief angle left hand
 71CE7E6569AB5-003 relief angle right hand
 71DD7011A3D86-003 rounded corner property
 726E42319756D-003 spot chamfer distance
 72550E426D771-003 thread cutting part length
 71D1A69F60053-003 thread form type
 71CEAEC08D4B0-003 thread pitch
 71D1A6A283836-003 thread pitch maximum
 71D1A6A247E1F-003 thread pitch minimum
 71CEAEC114603-003 thread profile type
 71DF153FA5F85-003 thread tolerance class
 71D1A6A16E6ED-003 thread type
 71D1A6AAC8707-003 threads per inch
 71D1A6AB8F739-003 threads per inch maximum
 71D1A6AB6FB19-003 threads per inch minimum
 71CE7AA1E3D75-003 tipped cutting edge code
 728B074A39EBC-001 tool assembly length
 728B074B7B0B5-001 tool assembly width
 71CEAEBF8A68E-003 tooth count
 71CED022114EC-003 wiper edge property

71DD68D73218C-003 002

trigon insert trigins

Replaceable cutting item with a generally triangular shape with enlarged included angles

NOTE The edges between the corners can be curved or straight.

REMARKS The ISO shape code for this insert is W when the edges are straight.

Properties:

71CE7A85CC4F9 chip breaker face count
71CE7A96BC122 insert included angle
71CE7A979F41C insert hand
71CE7A9936610 insert interface code
71CE7A9DFA23A insert length
71CE7A9F0C79F insert shape code
71CE7A9F5308C insert thickness
71CE7A9FB11C3 insert width
71CE7AA05C819 m2-dimension
71CE7AA0972DB m-dimension
71CE7AA1998FF insert index count
71CE7AA1E3D75 tipped cutting edge code
71CE7AA215888 tolerance class insert
71CEAE9B489F4 cutting edge count
71CEAE9B67E4C corner count
71CED0217FA18 chip breaker property
71CED022114EC wiper edge property
71CF29872F0AB hand
71D1C829BC044 fixing hole property
71D1C82A5036D inscribed circle property
71DD6C90953D8 cutting edge condition code
71DD6C958C615 cutting edge effective length
71DD6C95DA49B cutting edge length
71DD7011A3D86 rounded corner property
71DD703B84298 coating property
71FD1E2EDD973 cutting point translation X-direction
71FD1E2F66B38 cutting point translation Y-direction
72550DF97C965 chamfer corner property

72550E143C993 insert thickness total
 726E3AACF1BB4 corner chamfer length minor
 726E3AADC0ABE corner chamfer angle minor
 726E3E6E8B8EB cutting edge major radius
 726E3EA8A9ED6 grade standard designation main application
 726E3EA930D39 grade manufacturers designation
 726E424FE9EC2 item style code
 72719B167AE15 hole type
 72719B203D712 insert side count
 72719B23A5008 cutting data association property
 72719B2427AED cutting data association code
 72719B2B51519 seal
 727C2F69C65AE corner radius minor
 727C7D93D0F08 insert included angle minor (deprecated)
 72807E1CC4B50 standard letter
 728ECFD4A0629 designation
 728ECFD658014 brand
 728F4E7B06CA7 insert body diameter
 729A919BF211A grade identification
 729A919C3D239 grade main application group identification letter
 729A91A635147 grade application range min
 729A91AAEB181 grade application range max
 729A91AB4451E grade application main
 72C4A71D1B94B body angle workpiece side

71DD68D7A8E5F-001 001

hexagonal insert hexin

Replaceable cutting item with six equal sides and six equal internal angles

REMARKS This shape is identified with the ISO shape code H.

Properties:

71CE7A85CC4F9 chip breaker face count
 71CE7A96BC122 insert included angle
 71CE7A979F41C insert hand

71CE7A9936610 insert interface code
71CE7A9DFA23A insert length
71CE7A9F0C79F insert shape code
71CE7A9F5308C insert thickness
71CE7A9FB11C3 insert width
71CE7AA05C819 m2-dimension
71CE7AA0972DB m-dimension
71CE7AA1998FF insert index count
71CE7AA1E3D75 tipped cutting edge code
71CE7AA215888 tolerance class insert
71CEAE9B489F4 cutting edge count
71CEAE9B67E4C corner count
71CED0217FA18 chip breaker property
71CED022114EC wiper edge property
71CF29872F0AB hand
71D1C829BC044 fixing hole property
71D1C82A5036D inscribed circle property
71DD6C90953D8 cutting edge condition code
71DD6C958C615 cutting edge effective length
71DD6C95DA49B cutting edge length
71DD7011A3D86 rounded corner property
71DD703B84298 coating property
71FD1E2EDD973 cutting point translation X-direction
71FD1E2F66B38 cutting point translation Y-direction
72550DF97C965 chamfer corner property
72550E143C993 insert thickness total
726E3EA8A9ED6 grade standard designation main application
726E3EA930D39 grade manufacturers designation
726E424FE9EC2 item style code
72719B167AE15 hole type
72719B203D712 insert side count
72719B23A5008 cutting data association property
72719B2427AED cutting data association code

72719B2B51519 seal
 72807E1CC4B50 standard letter
 728ECFD4A0629 designation
 728ECFD658014 brand
 728F4E7B06CA7 insert body diameter
 729A919BF211A grade identification
 729A919C3D239 grade main application group identification letter
 729A91A635147 grade application range min
 729A91AAEB181 grade application range max
 729A91AB4451E grade application main
 72C4A71D1B94B body angle workpiece side

71DD68D7CB4FA-001 001

octagonal insert octins

Replaceable cutting item with eight equal sides and eight equal internal angles

REMARKS This shape is identified by the ISO shape code O.

Properties:

71CE7A85CC4F9 chip breaker face count
 71CE7A96BC122 insert included angle
 71CE7A979F41C insert hand
 71CE7A9936610 insert interface code
 71CE7A9DFA23A insert length
 71CE7A9F0C79F insert shape code
 71CE7A9F5308C insert thickness
 71CE7A9FB11C3 insert width
 71CE7AA05C819 m2-dimension
 71CE7AA0972DB m-dimension
 71CE7AA1998FF insert index count
 71CE7AA1E3D75 tipped cutting edge code
 71CE7AA215888 tolerance class insert
 71CEAE9B489F4 cutting edge count
 71CEAE9B67E4C corner count
 71CED0217FA18 chip breaker property

71CED022114EC wiper edge property
71CF29872F0AB hand
71D1C829BC044 fixing hole property
71D1C82A5036D inscribed circle property
71DD6C90953D8 cutting edge condition code
71DD6C958C615 cutting edge effective length
71DD6C95DA49B cutting edge length
71DD7011A3D86 rounded corner property
71DD703B84298 coating property
71FD1E2EDD973 cutting point translation X-direction
71FD1E2F66B38 cutting point translation Y-direction
72550DF97C965 chamfer corner property
72550E143C993 insert thickness total
7263EA8A9ED6 grade standard designation main application
7263EA930D39 grade manufacturers designation
726E424FE9EC2 item style code
72719B167AE15 hole type
72719B203D712 insert side count
72719B23A5008 cutting data association property
72719B2427AED cutting data association code
72719B2B51519 seal
72807E1CC4B50 standard letter
728ECFD4A0629 designation
728ECFD658014 brand
728F4E7B06CA7 insert body diameter
729A919BF211A grade identification
729A919C3D239 grade main application group identification letter
729A91A635147 grade application range min
729A91AAEB181 grade application range max
729A91AB4451E grade application main
72C4A71D1B94B body angle workpiece side

71DD68D80B094-001 001

pentagonal insert pentins

Replaceable cutting item with five equal sides and five equal internal angles

REMARKS This shape is identified by the ISO shape code P.

Properties:

71CE7A85CC4F9 chip breaker face count
 71CE7A96BC122 insert included angle
 71CE7A979F41C insert hand
 71CE7A9936610 insert interface code
 71CE7A9DFA23A insert length
 71CE7A9F0C79F insert shape code
 71CE7A9F5308C insert thickness
 71CE7A9FB11C3 insert width
 71CE7AA05C819 m2-dimension
 71CE7AA0972DB m-dimension
 71CE7AA1998FF insert index count
 71CE7AA1E3D75 tipped cutting edge code
 71CE7AA215888 tolerance class insert
 71CEAE9B489F4 cutting edge count
 71CEAE9B67E4C corner count
 71CED0217FA18 chip breaker property
 71CED022114EC wiper edge property
 71CF29872F0AB hand
 71D1C829BC044 fixing hole property
 71D1C82A5036D inscribed circle property
 71DD6C90953D8 cutting edge condition code
 71DD6C958C615 cutting edge effective length
 71DD6C95DA49B cutting edge length
 71DD7011A3D86 rounded corner property
 71DD703B84298 coating property
 71FD1E2EDD973 cutting point translation X-direction
 71FD1E2F66B38 cutting point translation Y-direction
 72550DF97C965 chamfer corner property
 72550E143C993 insert thickness total

726E3EA8A9ED6 grade standard designation main application

726E3EA930D39 grade manufacturers designation

726E424FE9EC2 item style code

72719B167AE15 hole type

72719B203D712 insert side count

72719B23A5008 cutting data association property

72719B2427AED cutting data association code

72719B2B51519 seal

72807E1CC4B50 standard letter

728ECFD4A0629 designation

728ECFD658014 brand

728F4E7B06CA7 insert body diameter

729A919BF211A grade identification

729A919C3D239 grade main application group identification letter

729A91A635147 grade application range min

729A91AAEB181 grade application range max

729A91AB4451E grade application main

72C4A71D1B94B body angle workpiece side

71DD68D829217-001 001

square insert sqins

Replaceable cutting item with four equal sides and four equal internal angles

REMARKS: This shape is identified by the ISO shape code S.

Properties:

71CE7A85CC4F9 chip breaker face count

71CE7A96BC122 insert included angle

71CE7A979F41C insert hand

71CE7A9936610 insert interface code

71CE7A9DFA23A insert length

71CE7A9F0C79F insert shape code

71CE7A9F5308C insert thickness

71CE7A9FB11C3 insert width

71CE7AA05C819 m2-dimension

71CE7AA0972DB m-dimension
 71CE7AA1998FF insert index count
 71CE7AA1E3D75 tipped cutting edge code
 71CE7AA215888 tolerance class insert
 71CEAE9B489F4 cutting edge count
 71CEAE9B67E4C corner count
 71CED0217FA18 chip breaker property
 71CED022114EC wiper edge property
 71CF29872F0AB hand
 71D1C829BC044 fixing hole property
 71D1C82A5036D inscribed circle property
 71DD6C90953D8 cutting edge condition code
 71DD6C958C615 cutting edge effective length
 71DD6C95DA49B cutting edge length
 71DD7011A3D86 rounded corner property
 71DD703B84298 coating property
 71FD1E2EDD973 cutting point translation X-direction
 71FD1E2F66B38 cutting point translation Y-direction
 72550DF97C965 chamfer corner property
 72550E143C993 insert thickness total
 726E3EA8A9ED6 grade standard designation main application
 726E3EA930D39 grade manufacturers designation
 726E424FE9EC2 item style code
 72719B167AE15 hole type
 72719B203D712 insert side count
 72719B23A5008 cutting data association property
 72719B2427AED cutting data association code
 72719B2B51519 seal
 72807E1CC4B50 standard letter
 728ECFD4A0629 designation
 728ECFD658014 brand
 728F4E7B06CA7 insert body diameter
 729A919BF211A grade identification

729A919C3D239 grade main application group identification letter

729A91A635147 grade application range min

729A91AAEB181 grade application range max

729A91AB4451E grade application main

72C4A71D1B94B body angle workpiece side

71DD68D8446CE-001 001

triangular insert trianins

Replaceable cutting item with three equal sides and three equal internal angles

REMARKS This shape is identified by the ISO shape code T.

Properties:

71CE7A85CC4F9 chip breaker face count

71CE7A96BC122 insert included angle

71CE7A979F41C insert hand

71CE7A9936610 insert interface code

71CE7A9DFA23A insert length

71CE7A9F0C79F insert shape code

71CE7A9F5308C insert thickness

71CE7A9FB11C3 insert width

71CE7AA05C819 m2-dimension

71CE7AA0972DB m-dimension

71CE7AA1998FF insert index count

71CE7AA1E3D75 tipped cutting edge code

71CE7AA215888 tolerance class insert

71CEAE9B489F4 cutting edge count

71CEAE9B67E4C corner count

71CED0217FA18 chip breaker property

71CED022114EC wiper edge property

71CF29872F0AB hand

71D1C829BC044 fixing hole property

71D1C82A5036D inscribed circle property

71DD6C90953D8 cutting edge condition code

71DD6C958C615 cutting edge effective length

71DD6C95DA49B cutting edge length
 71DD7011A3D86 rounded corner property
 71DD703B84298 coating property
 71FD1E2EDD973 cutting point translation X-direction
 71FD1E2F66B38 cutting point translation Y-direction
 72550DF97C965 chamfer corner property
 72550E143C993 insert thickness total
 726E3EA8A9ED6 grade standard designation main application
 726E3EA930D39 grade manufacturers designation
 726E424FE9EC2 item style code
 72719B167AE15 hole type
 72719B203D712 insert side count
 72719B23A5008 cutting data association property
 72719B2427AED cutting data association code
 72719B2B51519 seal
 72807E1CC4B50 standard letter
 728ECFD4A0629 designation
 728ECFD658014 brand
 728F4E7B06CA7 insert body diameter
 729A919BF211A grade identification
 729A919C3D239 grade main application group identification letter
 729A91A635147 grade application range min
 729A91AAEB181 grade application range max
 729A91AB4451E grade application main
 72C4A71D1B94B body angle workpiece side

71DD68D91938A-001 001

rectangular insert rectins

Replaceable cutting item with four sides and four equal internal angles

NOTE Opposing sides are equal in length but adjacent sides are not equal in length.

REMARKS This shape is identified by the ISO shape code L.

Properties:

71CE7A85CC4F9 chip breaker face count

71CE7A96BC122 insert included angle
71CE7A979F41C insert hand
71CE7A9936610 insert interface code
71CE7A9DFA23A insert length
71CE7A9F0C79F insert shape code
71CE7A9F5308C insert thickness
71CE7A9FB11C3 insert width
71CE7AA05C819 m2-dimension
71CE7AA0972DB m-dimension
71CE7AA1998FF insert index count
71CE7AA1E3D75 tipped cutting edge code
71CE7AA215888 tolerance class insert
71CEAE9B489F4 cutting edge count
71CEAE9B67E4C corner count
71CED0217FA18 chip breaker property
71CED022114EC wiper edge property
71CF29872F0AB hand
71D1C829BC044 fixing hole property
71DD6C90953D8 cutting edge condition code
71DD6C958C615 cutting edge effective length
71DD6C95DA49B cutting edge length
71DD7011A3D86 rounded corner property
71DD703B84298 coating property
71EBC1E1074AB gauge diameter
71FD1E2EDD973 cutting point translation X-direction
71FD1E2F66B38 cutting point translation Y-direction
72550A75A58F9 gauge circle property
72550E143C993 insert thickness total
726E3AACF1BB4 corner chamfer length minor
726E3AADC0ABE corner chamfer angle minor
726E3EA8A9ED6 grade standard designation main application
726E3EA930D39 grade manufacturers designation
726E424FE9EC2 item style code

72719B167AE15 hole type
 72719B203D712 insert side count
 72719B23A5008 cutting data association property
 72719B2427AED cutting data association code
 72719B2B51519 seal
 727C2F69C65AE corner radius minor
 72807E1CC4B50 standard letter
 728ECFD4A0629 designation
 728ECFD658014 brand
 728F4E7B06CA7 insert body diameter
 729A919BF211A grade identification
 729A919C3D239 grade main application group identification letter
 729A91A635147 grade application range min
 729A91AAEB181 grade application range max
 729A91AB4451E grade application main
 72C4A71D1B94B body angle workpiece side

71DD68D966F52-002 002

parallelogram insert parins

Replaceable cutting item with four sides and four internal angles none of which are equal to ninety degrees

NOTE Opposing sides are parallel and equal in length.

REMARKS This shape is identified by the ISO shape code K.

Properties:

71CE7A85CC4F9 chip breaker face count
 71CE7A96BC122 insert included angle
 71CE7A979F41C insert hand
 71CE7A9936610 insert interface code
 71CE7A9DFA23A insert length
 71CE7A9F0C79F insert shape code
 71CE7A9F5308C insert thickness
 71CE7A9FB11C3 insert width
 71CE7AA05C819 m2-dimension
 71CE7AA0972DB m-dimension

71CE7AA1998FF insert index count
71CE7AA1E3D75 tipped cutting edge code
71CE7AA215888 tolerance class insert
71CEAE9B489F4 cutting edge count
71CEAE9B67E4C corner count
71CED0217FA18 chip breaker property
71CED022114EC wiper edge property
71CED03C97AAB weight of item
71CF29872F0AB hand
71D1C829BC044 fixing hole property
71DD6C90953D8 cutting edge condition code
71DD6C958C615 cutting edge effective length
71DD6C95DA49B cutting edge length
71DD7011A3D86 rounded corner property
71DD703B84298 coating property
71EBC1E1074AB gauge diameter
71FD1E2EDD973 cutting point translation X-direction
71FD1E2F66B38 cutting point translation Y-direction
72550A75A58F9 gauge circle property
72550DF97C965 chamfer corner property
72550E143C993 insert thickness total
726E3AACF1BB4 corner chamfer length minor
726E3AADC0ABE corner chamfer angle minor
726E3EA8A9ED6 grade standard designation main application
726E3EA930D39 grade manufacturers designation
726E424FE9EC2 item style code
72719B167AE15 hole type
72719B203D712 insert side count
72719B23A5008 cutting data association property
72719B2427AED cutting data association code
72719B2B51519 seal
727C2F69C65AE corner radius minor
72807E1CC4B50 standard letter

728ECFD4A0629 designation

728ECFD658014 brand

728F4E7B06CA7 insert body diameter

729A919BF211A grade identification

729A919C3D239 grade main application group identification letter

729A91A635147 grade application range min

729A91AAEB181 grade application range max

729A91AB4451E grade application main

72C4A71D1B94B body angle workpiece side

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Annex D (informative)

Cutting item property definitions

D.1 Presentation

The layout of the entries in this annex is as follows.

BSU-version number Revision number Value format

data type group data type unit identifier

preferred name short name SYMBOL

definition

source of definition

BSU of condition property = name of condition property

Code = meaning of code

Source of code definition

NOTE

REMARKS

BSU of reference diagram

Illustration reference: Figure number

Visible class:

Applicable classes:

Allowed values: Available through the website of the Maintenance Agency.

NOTE 1 It is possible that an entry does not contain all the information specified.

NOTE 2 The value formats of properties are specified in ISO/TS 13399-100.

Some of the properties are illustrated in [Annexes E, F and G](#).

D.2 Cutting item properties

72C4A71D1B94B-001 001 NR2S..3.6

Real measure degree of angle

body angle workpiece side bodangworsid BAWS

NOTE Applicable to this document, ISO/TS 13399-3 and ISO/TS 13399-4.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71EAD37F18F34-003 adaptive item type
 71EAD388173EE-003 driver
 71EAD3871D313-003 converter
 726F59BDC3B08-003 collet
 727BE50E057F1-003 adaptive feature type
 727BE50E9FE57-001 torque bracing
 71EEBDADB63BE-002 extender
 71EAD385E51A0-002 reducer
 71D1AA6C8FC75-003 cutting item type
 71D1AE120D96E-003 nonequilateral equiangular
 71DD68D91938A-001 rectangular insert
 71D1AA489FD6E-003 nonequilateral nonequiangular
 71DD68D966F52-002 parallelogram insert
 71D1AA486FF89-004 equilateral equiangular
 71DD68D829217-001 square insert
 71DD68D7CB4FA-001 octagonal insert
 71DD68D8446CE-001 triangular insert
 71DD68D7A8E5F-001 hexagonal insert
 71DD68D80B094-001 pentagonal insert
 72550E1361C6C-003 drilling insert
 7224CCDD587CF-003 non replaceable cutting item
 71D1AE11B8B77-003 equilateral nonequiangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D1AA6635E76-003 round insert
 726E3AAC68D91-003 reaming insert
 71DDA089C8D1E-003 specific profile insert
 71E01A004C775-003 tool item type
 71E01A00BD93C-003 drill
 71E01A065F635-002 deep hole drill
 71FAE7AAE8247-003 core drill
 71E01A073CA28-003 centre drill

71E01A069566C-002 chamfer drill
71E01D8A88F65-002 pilot drill
71E01A0608FE4-002 twist drill
71E01A0751456-003 conical drill
71E01A06BF88D-003 counterbore drill
71E01A06A8A08-003 countersink drill
71E01A067F73C-002 step drill
71E01A0769982-002 trepanning drill
71E01A008D13F-003 mill
71E01A05B627B-003 face mill
71E01A05EA320-003 half side mill
71E01A05D27A8-003 end mill
71E01A0600702-003 ring mill
71EF07E037025-003 slotting cutter
71EF07E083383-003 threading grooving mill
71EF07DFC283C-003 double half side mill
71E01A0540BE7-003 slab mill
71E01A04F70F7-003 threading die
71E01A0E4EE75-001 cylindrical die
71E01A0E79239-001 hexagonal die
71E02C544BABE-003 burr tool
71E0251F304E1-003 rotating borer
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder
71D1066F279AD-002 cartridge
71E01A04C377D-003 broach
71E01A082DE72-002 disk broach
71E01A0838E9B-002 prismatic broach
71E01A081855D-003 tapered broach
71E0250E32A07-002 cylindrical broach
7272127CBD7B8-003 feed-out tool, machine operated

71E01A04E0236-003 threading tap
 71E01A0E34C7F-002 conical tap
 71E01A0A5355D-001 cylindrical tap
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer
 71E01A07ECCCF-001 profile reamer
 71E01A07FF350-001 stepped reamer
 71E01A07D2A1B-003 tapered reamer

728ECFD658014-003 001 X25

String

brand brn BRAND

Name that describes the brand of an item

NOTE Applicable to this document, ISO/TS 13399-3, ISO/TS 13399-4 and ISO/TS 13399-5.

REMARKS: e.g. WalterTitex.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71EAD37F18F34-003 adaptive item type
 71EAD388173EE-003 driver
 71EAD3871D313-003 converter
 726F59BDC3B08-003 collet
 727BE50E057F1-003 adaptive feature type
 727BE50E9FE57-001 torque bracing
 71EEBDADB63BE-002 extender
 71EAD385E51A0-002 reducer
 71D1AA6C8FC75-003 cutting item type
 71D1AE120D96E-003 nonequilateral equiangular
 71DD68D91938A-001 rectangular insert
 71D1AA489FD6E-003 nonequilateral nonequangular
 71DD68D966F52-002 parallelogram insert
 71D1AA486FF89-004 equilateral equiangular
 71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert
71DD68D8446CE-001 triangular insert
71DD68D7A8E5F-001 hexagonal insert
71DD68D80B094-001 pentagonal insert
72550E1361C6C-003 drilling insert
7224CCDD587CF-003 non replaceable cutting item
71D1AE11B8B77-003 equilateral nonequiangular
71DD68D73218C-003 trigon insert
71DD68D301C30-001 rhombic insert
71D1AA6635E76-003 round insert
726E3AAC68D91-003 reaming insert
71DDA089C8D1E-003 specific profile insert
71CE7A795C05C-003 assembly item type
71EC56BBA9A2E-001 sleeve
71FAD519268DE-001 centre pin
71EC56BA16ACB-001 spring
71EC56E106606-001 flat wire compression spring
71EC56E165BC7-001 cup spring
71EC56E223664-001 leaf spring
71EC56E04199D-001 helical coil spring
71EC56E0D4D19-001 helical disk spring
71EC56E1C4C7D-001 gas spring
71EC56BD5DCD8-001 insert shim
71ED80DF6F976-002 insert clamp
71FAD54E5A5BF-001 floating wedge clamp
71FAD54E002D6-001 cantilever clamp
71FAD54EABA17-001 wedge clamp
71FAD54E2FE26-001 lever top clamp
72719B3479E49-003 retention knob
727CE214BF281-003 nut
727CE216A3092-001 adjustment nut
727CE21C733E3-001 lock nut
71EC56B608ADC-001 insert wedge

71ED80E1EC9F6-001 nozzle
 71EC56BC68ED7-001 bearing
 71EC56B51596E-001 driving key
 71EC56B58A355-001 driving ring
 71EC56BAC1A7E-001 insert clamping system
 71EC56D6D0499-001 cantilever clamping
 71EC56D828198-001 wedge clamping
 71EC6588A8C9E-001 lever insert clamping
 71EC56D8A655A-001 insert screw clamping
 71EC56D7601AD-001 floating wedge clamping
 71EC56D97E8B0-001 deflection screw clamping
 71EC56D908782-001 eccentric screw clamping
 71FAD547E744B-001 integrated clamping
 71EC56D71B815-001 lever top clamping
 71EC56BA2E64E-001 screw thread lining
 71EC61E259139-001 bush
 71EC56B5B6465-001 pin
 71EC5A6CFD68B-001 spacer
 71EAD70F1B95A-001 nest
 71ED80DFB6371-001 insert lever
 71EC5A6E85D77-001 sealing ring
 71EC5A6E9F6F0-001 retaining ring
 71FA4B678C52A-002 externally threaded fastener component
 71ED798F61BC2-002 insert screw
 71FAE07C0A4A6-001 differential screw
 71FAE07B90EEC-002 eccentric screw
 71FC030E04050-002 deflection screw
 71FAE07BCAC80-002 lever screw
 71FC81BA3ECE9-002 shim screw
 71ED80E62E75A-001 coolant deflector
 71E01A004C775-003 tool item type
 71E01A00BD93C-003 drill
 71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill
71E01A073CA28-003 centre drill
71E01A069566C-002 chamfer drill
71E01D8A88F65-002 pilot drill
71E01A0608FE4-002 twist drill
71E01A0751456-003 conical drill
71E01A06BF88D-003 counterbore drill
71E01A06A8A08-003 countersink drill
71E01A067F73C-002 step drill
71E01A0769982-002 trepanning drill
71E01A008D13F-003 mill
71E01A05B627B-003 face mill
71E01A05EA320-003 half side mill
71E01A05D27A8-003 end mill
71E01A0600702-003 ring mill
71EF07E037025-003 slotting cutter
71EF07E083383-003 threading grooving mill
71EF07DFC283C-003 double half side mill
71E01A0540BE7-003 slab mill
71E01A04F70F7-003 threading die
71E01A0E4EE75-001 cylindrical die
71E01A0E79239-001 hexagonal die
71E02C544BABE-003 burr tool
71E0251F304E1-003 rotating borer
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder
71D1066F279AD-002 cartridge
71E01A04C377D-003 broach
71E01A082DE72-002 disk broach
71E01A0838E9B-002 prismatic broach
71E01A081855D-003 tapered broach

71E0250E32A07-002 cylindrical broach
 7272127CBD7B8-003 feed-out tool, machine operated
 71E01A04E0236-003 threading tap
 71E01A0E34C7F-002 conical tap
 71E01A0A5355D-001 cylindrical tap
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer
 71E01A07ECCCF-001 profile reamer
 71E01A07FF350-001 stepped reamer
 71E01A07D2A1B-003 tapered reamer

72550DF97C965-003 003 B 1

Boolean type

chamfer corner property **chacorpro** **CCP**

Possession of a chamfered corner

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71CE7A85CC4F9-003 002 NR1S..4

Integer

chip breaker face count chibrefaccou CB

Number of faces of a cutting item that have chipbreakers

NOTE The allowed values are 0, 1 or 2.

REMARKS: A value of 0 means that there is not a chipbreaker on the cutting item.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71DD700BFD9B9-003 grooving parting profile

71D1AA6635E76-003 round insert

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71CE7A86A4264-003 002 X 17

String

chip breaker manufacturers designation chibremandes CBMD

Manufacturer's identifier for a chip breaker

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C870BCCA-001 chip breaker

71CED0217FA18-003 002 B 1

Boolean type

chip breaker property chibrepro CBP

Possession by a profile of a chip breaker

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71CE7A870948A-003 002 NR2S..4.6

Real measure mm

chip breaker width chibrewid LBB

Width of a chip breaker measured at the mid-point of its length

Illustration reference: [Figure E.6](#), [Figure E.10](#), [Figure F.1](#), [Figure F.2](#), [Figure F.3](#), [Figure F.4](#), [Figure F.5](#), [Figure F.6](#), [Figure F.7](#), [Figure F.8](#), [Figure H.25](#), [Figure H.26](#), [Figure H.27](#), [Figure H.28](#), [Figure H.29](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C870BCCA-001 chip breaker

71DD70308D3E3-003 002 NR2S..3.6

Real measure degree of angle

clearance angle major cleangmaj AN

Angle of the major flank of the insert measured from a plane tangential to the cutting edge and perpendicular to the XY-plane of the coordinate system

NOTE This property is applicable to regular and irregular cutting items.

Illustration reference: [Figure E.6](#), [Figure E.7](#), [Figure E.8](#), [Figure E.11](#), [Figure E.19](#), [Figure F.1](#), [Figure F.2](#), [Figure F.4](#), [Figure F.8](#), [Figure H.1](#), [Figure H.2](#), [Figure H.3](#), [Figure H.4](#), [Figure H.5](#), [Figure H.6](#), [Figure H.7](#), [Figure H.8](#), [Figure H.9](#), [Figure H.10](#), [Figure H.12](#), [Figure H.13](#), [Figure H.14](#), [Figure H.15](#), [Figure H.16](#), [Figure H.17](#), [Figure H.20](#), [Figure H.25](#), [Figure H.26](#), [Figure H.27](#), [Figure H.28](#), [Figure H.29](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD7015F073B-001 flank major

71DD7030E0A00-003 002 NR2S..3.6

Real measure degree of angle

clearance angle minor cleangmin ANN

Angle of the minor flank of the insert measured from a plane tangential to the minor cutting edge and perpendicular to the XY-plane of the coordinate system

NOTE This property is applicable to both regular and irregular cutting items.

Illustration reference: [Figure E.8](#), [Figure E.10](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD701618C71-001 flank minor

71DD7031A98E9-003 002 NR2S..3.6

Real measure degree of angle

clearance angle wiper edge cleangwipedg AS

Angle of the flank of the wiper edge of the insert measured from a plane tangential to the wiper edge and perpendicular to the XY-plane of the coordinate system

NOTE This property is applicable to regular cutting items only.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD70163AA42-001 flank wiper edge

71DD6C9A21689-001 wiper edge

72719B186A232-003 001 X 17

String

coating name coanam COATN

Designation of an additional material that will be layered onto the surface of a cutting or tool item

NOTE The designation is upon manufacturer's discretion.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD9D01038CF-001 cutting item coating

72719B18D1F27-003 001 X 17

Enumeration of codes

coating process coapro COATP

Label for the method used for applying the coating

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD9D01038CF-001 cutting item coating

71DD703B84298-003 003 B 1

Boolean type

coating property coapry CTP

Possession of a coating by a cutting item type

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill

71E01A073CA28-003 centre drill

71E01A069566C-002 chamfer drill

71E01D8A88F65-002 pilot drill

71E01A0608FE4-002 twist drill

71E01A0751456-003 conical drill

71E01A06BF88D-003 counterbore drill

71E01A06A8A08-003 countersink drill
 71E01A067F73C-002 step drill
 71E01A0769982-002 trepanning drill
 71E01A008D13F-003 mill
 71E01A05B627B-003 face mill
 71E01A05EA320-003 half side mill
 71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill
 71EF07E037025-003 slotting cutter
 71EF07E083383-003 threading grooving mill
 71EF07DFC283C-003 double half side mill
 71E01A0540BE7-003 slab mill
 71E01A04F70F7-003 threading die
 71E01A0E4EE75-001 cylindrical die
 71E01A0E79239-001 hexagonal die
 71E02C544BABE-003 burr tool
 71E0251F304E1-003 rotating borer
 71E01A05104CF-003 turn
 71E01A0E9CBA9-003 boring bar
 71E01A0EAF067-003 system tool
 71E01A0E85121-003 prismatic tool holder
 71D1066F279AD-002 cartridge
 71E01A04C377D-003 broach
 71E01A082DE72-002 disk broach
 71E01A0838E9B-002 prismatic broach
 71E01A081855D-003 tapered broach
 71E0250E32A07-002 cylindrical broach
 7272127CBD7B8-003 feed-out tool, machine operated
 71E01A04E0236-003 threading tap
 71E01A0E34C7F-002 conical tap
 71E01A0A5355D-001 cylindrical tap
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer

71E01A07ECCCF-001 profile reamer

71E01A07FF350-001 stepped reamer

71E01A07D2A1B-003 tapered reamer

71DD6C88F9210-003 002 NR2S..3.6

Real measure degree of angle

corner chamfer angle corchaang KCH

Angle of a chamfer on a corner measured from the major cutting edge

REMARKS: Applies to cutting items with a regular geometric shape.

Illustration reference: [Figure E.5](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C884C4BD-001 chamfered corner

726E3AADC0ABE-003 001 NR2S..3.6

Real measure degree of angle

corner chamfer angle minor corchangmin KCHN

Nominal angle of a chamfer measured in the XY plane from the major cutting edge that is located on the transition between the major and minor cutting edge where the insert included angle is not located

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71DD6C895C25B-003 002 NR2S..4.6

Real measure mm

corner chamfer length corchalen BCH

Nominal length of a chamfered corner measured in the XY-plane

NOTE See ISO 3002-1:1982, 3.1.2.

REMARKS: Applies to cutting items with a regular geometric shape.

Illustration reference: [Figure E.1](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C884C4BD-001 chamfered corner

726E3AACF1BB4-003 001 NR2S..4.6

Real measure mm

corner chamfer length minor corchalenmin BCHN

Nominal length of a chamfer measured in the XY plane that is located on the transition between the major and minor cutting edge where the insert included angle is not located

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71DD6C89A120F-003 002 NR2S..4.6

Real measure mm

corner chamfer width corchawid CHW

Projected length of the chamfer on a corner of a cutting item measured in the XY-plane parallel to the X-axis

Illustration reference: [Figure E.5](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

ISO/TS 13399-2:2021(E)

71DD6C884C4BD-001 chamfered corner

71CEAE9B67E4C-003 002 NR1S..4

Integer

corner count corcou CNC

Number of corners that participate in the cutting process

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71DD700BFD9B9-003 grooving parting profile

71DD700BE1D04-003 drilling profile

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71DD6C8802580-002 003 NR1S..4

Integer

corner identity coride CNID

Integer number in the range $-n < 0 < n$ that identifies a cutting corner

NOTE The identifier 0 is applied to the corner on the X-axis of the cutting item reference system with the least value of the x dimension. From this point, corners are numbered in sequence by negative integers in a clockwise direction and by positive integers in a counter-clockwise direction.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BC8BE2-002 ball nosed profile

71DD6C87BB5E1-001 cutting corner

71DD6C884C4BD-001 chamfered corner

71DD6C8A9985E-001 rounded corner

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71DD6C8ACA503-003 002 NR2S..4.6

Real measure mm

corner radius corrad RE

Nominal radius of a rounded corner measured in the XY-plane

Illustration reference: [Figure E.3](#), [Figure E.4](#), [Figure E.10](#), [Figure F.3](#), [Figure F.5](#), [Figure F.7](#), [Figure F.8](#), [Figure F.9](#), [Figure F.10](#), [Figure H.1](#), [Figure H.2](#), [Figure H.3](#), [Figure H.4](#), [Figure H.5](#), [Figure H.6](#), [Figure H.7](#), [Figure H.8](#), [Figure H.9](#), [Figure H.15](#), [Figure H.16](#), [Figure H.18](#), [Figure H.19](#), [Figure H.20](#), [Figure H.21](#), [Figure H.27](#), [Figure H.28](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BC8BE2-002 ball nosed profile

71DD6C8A9985E-001 rounded corner

726E3E65CBE4E-003 002 NR2S..4.6

Real measure mm

corner radius left hand corradlefhan REL

Nominal radius of a rounded corner on the left side of a cutting profile measured on the XY-plane

Illustration reference: [Figure F.1](#), [Figure F.2](#), [Figure F.4](#), [Figure F.6](#), [Figure F.10](#), [Figure H.11](#), [Figure H.12](#), [Figure H.13](#), [Figure H.14](#), [Figure H.17](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

72C4A7228B53D-001 001 NR2S..3.3

Real measure mm

corner radius lower tolerance corradlowtol RETOLL

Lower tolerance for the corner radius, corner radius left hand and corner radius right hand

NOTE Applicable to this document and ISO/TS 13399-3.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C8A9985E-001 rounded corner

71DDA089C8D1E-003 specific profile insert

727C2F69C65AE-003 001 NR2S..4.6

Real measure mm

corner radius minor corradmin REN

Nominal radius of a rounded corner on that corner where the complementary insert included angle is located, measured in the XY-plane

Illustration reference: [Figure H.3](#), [Figure H.7](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

726E3E66CF011-003 002 NR2S..4.6

Real measure mm

corner radius right hand corradrighan RER

Nominal radius of a rounded corner on the right side of a cutting profile measured in the XY-plane

Illustration reference: [Figure F.1](#), [Figure F.2](#), [Figure F.4](#), [Figure F.6](#), [Figure F.10](#), [Figure H.11](#), [Figure H.12](#), [Figure H.13](#), [Figure H.14](#), [Figure H.17](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

72C4A722B2E35-001 001 NR2S..3.3

Real measure mm

corner radius upper tolerance corradupptol RETOLU

Angle due to change of body direction measured counter clockwise from the yz plane of the MCS of tool item and cutting item

NOTE Applicable to this document and ISO/TS 13399-3.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C8A9985E-001 rounded corner

71DDA089C8D1E-003 specific profile insert

72719B2427AED-003 001 X 30

String

cutting data association code cutdatasscod CDAC

Label that provides an association to cutting data tables

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert
71D1AA489FD6E-003 nonequilateral nonequiangular
71DD68D966F52-002 parallelogram insert
71D1AA486FF89-004 equilateral equiangular
71DD68D829217-001 square insert
71DD68D7CB4FA-001 octagonal insert
71DD68D8446CE-001 triangular insert
71DD68D7A8E5F-001 hexagonal insert
71DD68D80B094-001 pentagonal insert
72550E1361C6C-003 drilling insert
7224CCDD587CF-003 non replaceable cutting item
71D1AE11B8B77-003 equilateral nonequiangular
71DD68D73218C-003 trigon insert
71DD68D301C30-001 rhombic insert
71D1AA6635E76-003 round insert
726E3AAC68D91-003 reaming insert
71DDA089C8D1E-003 specific profile insert
71E01A004C775-003 tool item type
71E01A00BD93C-003 drill
71E01A065F635-002 deep hole drill
71FAE7AAE8247-003 core drill
71E01A073CA28-003 centre drill
71E01A069566C-002 chamfer drill
71E01D8A88F65-002 pilot drill
71E01A0608FE4-002 twist drill
71E01A0751456-003 conical drill
71E01A06BF88D-003 counterbore drill
71E01A06A8A08-003 countersink drill
71E01A067F73C-002 step drill
71E01A0769982-002 trepanning drill
71E01A008D13F-003 mill
71E01A05B627B-003 face mill
71E01A05EA320-003 half side mill

71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill
 71EF07E037025-003 slotting cutter
 71EF07E083383-003 threading grooving mill
 71EF07DFC283C-003 double half side mill
 71E01A0540BE7-003 slab mill
 71E01A04F70F7-003 threading die
 71E01A0E4EE75-001 cylindrical die
 71E01A0E79239-001 hexagonal die
 71E02C544BABE-003 burr tool
 71E0251F304E1-003 rotating borer
 71E01A05104CF-003 turn
 71E01A0E9CBA9-003 boring bar
 71E01A0EAF067-003 system tool
 71E01A0E85121-003 prismatic tool holder
 71D1066F279AD-002 cartridge
 71E01A04C377D-003 broach
 71E01A082DE72-002 disk broach
 71E01A0838E9B-002 prismatic broach
 71E01A081855D-003 tapered broach
 71E0250E32A07-002 cylindrical broach
 7272127CBD7B8-003 feed-out tool, machine operated
 71E01A04E0236-003 threading tap
 71E01A0E34C7F-002 conical tap
 71E01A0A5355D-001 cylindrical tap
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer
 71E01A07ECCCF-001 profile reamer
 71E01A07FF350-001 stepped reamer
 71E01A07D2A1B-003 tapered reamer
 72719B234F9E0-003 cutting data association

71D084653E57F-003 002 NR2S..4.6

Real measure mm

cutting diameter cutdia DC

Diameter of a circle created by a cutting reference point revolving around the tool axis of a rotating tool item

NOTE The normal of the machined peripheral surface points towards the axis of the cutting tool.

Illustration reference: [Figure H.22](#), [Figure H.23](#), [Figure H.24](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill

71E01A073CA28-003 centre drill

71E01A069566C-002 chamfer drill

71E01D8A88F65-002 pilot drill

71E01A0608FE4-002 twist drill

71E01A0751456-003 conical drill

71E01A06BF88D-003 counterbore drill

71E01A06A8A08-003 countersink drill

71E01A067F73C-002 step drill

71E01A0769982-002 trepanning drill

71E01A008D13F-003 mill

71E01A05B627B-003 face mill

71E01A05EA320-003 half side mill

71E01A05D27A8-003 end mill

71E01A0600702-003 ring mill

71EF07E037025-003 slotting cutter

71EF07E083383-003 threading grooving mill

71EF07DFC283C-003 double half side mill

71E01A0540BE7-003 slab mill

71E02C544BABE-003 burr tool

71E0251F304E1-003 rotating borer

72550E1361C6C-003 drilling insert

71E01A082DE72-002 disk broach

71E01A081855D-003 tapered broach
 71E0250E32A07-002 cylindrical broach
 71DDA089C8D1E-003 specific profile insert
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer
 71E01A07ECCCF-001 profile reamer
 71E01A07FF350-001 stepped reamer
 71E01A07D2A1B-003 tapered reamer

72719B23A5008-003 001 B 1

Boolean type

cutting data association property cutdatasspro CDAP

Identifier whether an item has a cutting data association

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type
 71D1AE120D96E-003 nonequilateral equiangular
 71DD68D91938A-001 rectangular insert
 71D1AA489FD6E-003 nonequilateral nonequiangular
 71DD68D966F52-002 parallelogram insert
 71D1AA486FF89-004 equilateral equiangular
 71DD68D829217-001 square insert
 71DD68D7CB4FA-001 octagonal insert
 71DD68D8446CE-001 triangular insert
 71DD68D7A8E5F-001 hexagonal insert
 71DD68D80B094-001 pentagonal insert
 72550E1361C6C-003 drilling insert
 7224CCDD587CF-003 non replaceable cutting item
 71D1AE11B8B77-003 equilateral nonequiangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert
71DDA089C8D1E-003 specific profile insert
71E01A004C775-003 tool item type
71E01A00BD93C-003 drill
71E01A065F635-002 deep hole drill
71FAE7AAE8247-003 core drill
71E01A073CA28-003 centre drill
71E01A069566C-002 chamfer drill
71E01D8A88F65-002 pilot drill
71E01A0608FE4-002 twist drill
71E01A0751456-003 conical drill
71E01A06BF88D-003 counterbore drill
71E01A06A8A08-003 countersink drill
71E01A067F73C-002 step drill
71E01A0769982-002 trepanning drill
71E01A008D13F-003 mill
71E01A05B627B-003 face mill
71E01A05EA320-003 half side mill
71E01A05D27A8-003 end mill
71E01A0600702-003 ring mill
71EF07E037025-003 slotting cutter
71EF07E083383-003 threading grooving mill
71EF07DFC283C-003 double half side mill
71E01A0540BE7-003 slab mill
71E01A04F70F7-003 threading die
71E01A0E4EE75-001 cylindrical die
71E01A0E79239-001 hexagonal die
71E02C544BABE-003 burr tool
71E0251F304E1-003 rotating borer
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder

71D1066F279AD-002 cartridge
 71E01A04C377D-003 broach
 71E01A082DE72-002 disk broach
 71E01A0838E9B-002 prismatic broach
 71E01A081855D-003 tapered broach
 71E0250E32A07-002 cylindrical broach
 7272127CBD7B8-003 feed-out tool, machine operated
 71E01A04E0236-003 threading tap
 71E01A0E34C7F-002 conical tap
 71E01A0A5355D-001 cylindrical tap
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer
 71E01A07ECCCF-001 profile reamer
 71E01A07FF350-001 stepped reamer
 71E01A07D2A1B-003 tapered reamer
 72719B234F9E0-003 cutting data association

71CF30F02C968-003 004 NR2S..4.6

Real measure mm

cutting diameter insert cutdiains DCINS

Diameter cut by a full diameter cutting insert when revolved around the tool axis

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

72550E1361C6C-003 drilling insert

71DD700BE1D04-003 drilling profile

71DDA089C8D1E-003 specific profile insert

71CE7AA02C1CC-003 002 NR2S..3.6

Real measure degree of angle

cutting edge angle major cutedgangmaj KRINS

Angle between the major cutting edge and the wiper edge

NOTE See ISO 3365.

REMARKS: Used mainly for regular inserts with wiper edges.

Illustration reference: [Figure E.1](#), [Figure E.5](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C9A21689-001 wiper edge

71CE7AA3440B4-003 002 NR2S..3.6

Real measure degree of angle

cutting edge angle major left hand cutedgangmajlefhan PSIRL

Angle in the XY-plane between the X-axis and the major cutting edge measured in a negative direction (clockwise)

NOTE Used for irregular inserts.

Illustration reference: [Figure F.2](#), [Figure F.3](#), [Figure F.4](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C9466F30-001 cutting edge major

71DDA089C8D1E-003 specific profile insert

71CE7AA78C2F0-003 002 NR2S..3.6

Real measure degree of angle

cutting edge angle major right hand cutedgangmajrighan PSIRR

Angle in the XY-plane between the X-axis and the major cutting edge measured in a positive direction (counter clockwise)

NOTE Used for irregular inserts.

Illustration reference: [Figure F.2](#), [Figure F.3](#), [Figure F.4](#), [Figure H.14](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C9466F30-001 cutting edge major

71DDA089C8D1E-003 specific profile insert

71DD6C90953D8-003 002 X 1

Enumeration of codes

cutting edge condition code **cutedgconcod** **CECC**

Identifier for the state of a cutting edge

NOTE See ISO 1832:2017, 6.2.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71DD6C8C4F46C-001 cutting edge condition

71CEAE9B489F4-003 002 NR1S..4

Integer

cutting edge count **cutedgcou** **CEDC**

Number of edges of a cutting profile that can participate in the cutting process

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

71DDA089C8D1E-003 specific profile insert

71DD6C950E7CC-003 003 NR2S..4.6

Real measure mm

cutting edge curvature **cutedgcur** **CECV**

Curvature of the major cutting edge measured in the xy-plane

NOTE Curvature is the inverse of the radius.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C9466F30-001 cutting edge major

71DDA089C8D1E-003 specific profile insert

71DD6C958C615-003 002 NR2S..4.6

Real measure mm

cutting edge effective length cutedgefflen LE

Portion of the length of a cutting edge of a cutting item that is intended to perform the cutting operation

Illustration reference: [Figure E.9](#), [Figure E.10](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71DD6C9466F30-001 cutting edge major

71DD6C8B86265-003 003 NR1S..4

Integer

cutting edge identity cutedgide CEID

Integer number in the range $-n < 0 < n$ that identifies a cutting edge

NOTE The identifier 0 is applied to the edge on the X-axis of the cutting item reference system with the least value of the x dimension. From this point, edges are numbered in sequence by negative integers in a clockwise direction and by positive integers in a counter-clockwise direction.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C8B42A9E-001 cutting edge

71DD6C9A21689-001 wiper edge

71DD6C961D7FE-001 cutting edge minor
71DD6C9466F30-001 cutting edge major
71DD6C8C4F46C-001 cutting edge condition
71DD6C93E8F02-001 cutting edge interrupted
71DDA089C8D1E-003 specific profile insert

71DD6C95DA49B-003 003 NR2S..4.6

Real measure mm

cutting edge length cutedglen L

Theoretical length of the cutting edge of a cutting item over sharp corners

Illustration reference: [Figure E.2](#), [Figure E.3](#), [Figure E.4](#), [Figure E.9](#), [Figure E.10](#), [Figure E.12](#), [Figure E.14](#), [Figure E.16](#), [Figure E.17](#), [Figure E.18](#), [Figure H.1](#), [Figure H.2](#), [Figure H.3](#), [Figure H.4](#), [Figure H.5](#), [Figure H.6](#), [Figure H.7](#), [Figure H.8](#), [Figure H.9](#), [Figure H.25](#), [Figure H.26](#), [Figure H.27](#), [Figure H.28](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular
71DD68D91938A-001 rectangular insert
71D1AA489FD6E-003 nonequilateral nonequiangular
71DD68D966F52-002 parallelogram insert
71D1AA486FF89-004 equilateral equiangular
71DD68D829217-001 square insert
71DD68D7CB4FA-001 octagonal insert
71DD68D8446CE-001 triangular insert
71DD68D7A8E5F-001 hexagonal insert
71DD68D80B094-001 pentagonal insert
7224CCDD587CF-003 non replaceable cutting item
71D1AE11B8B77-003 equilateral nonequiangular
71DD68D73218C-003 trigon insert
71DD68D301C30-001 rhombic insert
71DD6C9466F30-001 cutting edge major
71E01A04A8AEC-003 ream
71E01A07BC535-001 cylindrical reamer
71E01A07ECCCF-001 profile reamer

71E01A07FF350-001 stepped reamer

71E01A07D2A1B-003 tapered reamer

726E3E6E8B8EB-003 001 NR2S..4.6

Real measure mm

cutting edge major radius **cutedmajrad** **CEMR**

Dimension of the curved major cutting edge that creates a radius

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD68D73218C-003 trigon insert

71DDA089C8D1E-003 specific profile insert

71FD1E2EDD973-003 002 NR2S..4.6

Real measure mm

cutting point translation X-direction **cutpoitraxdir** **CTX**

Difference in the direction of the X-axis between the cutting reference point and the theoretical sharp point

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

ISO/TS 13399-2:2021(E)

71DD68D301C30-001 rhombic insert

71D0808DA853B-003 master insert

71DDA089C8D1E-003 specific profile insert

71FD1E2F66B38-003 002 NR2S..4.6

Real measure mm

cutting point translation Y-direction cutpoitraydir CTY

Difference in the direction of the Y-axis between the cutting reference point and the theoretical sharp point

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D0808DA853B-003 master insert

71DDA089C8D1E-003 specific profile insert

71CEAEBE2B825-003 003 R2S..4.6

Real measure mm

cutting width cutwid CW

Width of the cut made by the cutting item(s) as it (they) penetrates into the work surface

REMARKS: This is also used as a property of a tool item.

Illustration reference: [Figure H.1](#), [Figure H.12](#), [Figure H.13](#), [Figure H.14](#), [Figure H.15](#), [Figure H.16](#), [Figure H.17](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

72C4A721F1835-001 001 NR2S..3.3

Real measure mm

cutting width lower tolerance cutwidlowtol CWTOLL

Lower tolerance for the cutting width

NOTE Applicable to this document and ISO/TS 13399-3.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

72C4A72270CF9-001 001 NR2S..3.3

Real measure mm

cutting width upper tolerance cutwidupptol CWTOLU

Upper tolerance for the cutting width

NOTE Applicable to this document and ISO/TS 13399-3.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71D07576C0558-003 002

Level mm

depth of cut maximum depofcutmax APMX

Maximum engagement of the cutting edge or edges with the workpiece measured perpendicular to the feed motion

NOTE See ISO 3002-3:1984, 6.1.1.

Illustration reference: [Figure F.1](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71E01A008D13F-003 mill

71E01A05B627B-003 face mill

71E01A05EA320-003 half side mill

71E01A05D27A8-003 end mill

71E01A0600702-003 ring mill

71EF07E037025-003 slotting cutter

71EF07E083383-003 threading grooving mill

71EF07DFC283C-003 double half side mill

71E01A0540BE7-003 slab mill

71E0251F304E1-003 rotating borer

71DD700BFD9B9-003 grooving parting profile

71E0250E32A07-002 cylindrical broach

71E01A04E0236-003 threading tap

71E01A0E34C7F-002 conical tap

71E01A0A5355D-001 cylindrical tap

728ECFD4A0629-003 001 X40

String

designation des DES

Code of an item that describes the item without material specification

NOTE See this document, ISO/TS 13399-3, ISO/TS 13399-4 and ISO/TS 13399-5.

REMARKS: e.g. ISO 1832, ISO 11529.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71EAD37F18F34-003 adaptive item type

71EAD388173EE-003 driver

71EAD3871D313-003 converter
 726F59BDC3B08-003 collet
 727BE50E057F1-003 adaptive feature type
 727BE50E9FE57-001 torque bracing
 71EEBDADB63BE-002 extender
 71EAD385E51A0-002 reducer
 71D1AA6C8FC75-003 cutting item type
 71D1AE120D96E-003 nonequilateral equiangular
 71DD68D91938A-001 rectangular insert
 71D1AA489FD6E-003 nonequilateral nonequiangular
 71DD68D966F52-002 parallelogram insert
 71D1AA486FF89-004 equilateral equiangular
 71DD68D829217-001 square insert
 71DD68D7CB4FA-001 octagonal insert
 71DD68D8446CE-001 triangular insert
 71DD68D7A8E5F-001 hexagonal insert
 71DD68D80B094-001 pentagonal insert
 72550E1361C6C-003 drilling insert
 7224CCDD587CF-003 non replaceable cutting item
 71D1AE11B8B77-003 equilateral nonequiangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D1AA6635E76-003 round insert
 726E3AAC68D91-003 reaming insert
 71DDA089C8D1E-003 specific profile insert
 71CE7A795C05C-003 assembly item type
 71EC56BBA9A2E-001 sleeve
 71FAD519268DE-001 centre pin
 71EC56BA16ACB-001 spring
 71EC56E106606-001 flat wire compression spring
 71EC56E165BC7-001 cup spring
 71EC56E223664-001 leaf spring
 71EC56E04199D-001 helical coil spring

71EC56E0D4D19-001 helical disk spring
71EC56E1C4C7D-001 gas spring
71EC56BD5DCD8-001 insert shim
71ED80DF6F976-002 insert clamp
71FAD54E5A5BF-001 floating wedge clamp
71FAD54E002D6-001 cantilever clamp
71FAD54EABA17-001 wedge clamp
71FAD54E2FE26-001 lever top clamp
72719B3479E49-003 retention knob
727CE214BF281-003 nut
727CE216A3092-001 adjustment nut
727CE21C733E3-001 lock nut
71EC56B608ADC-001 insert wedge
71ED80E1EC9F6-001 nozzle
71EC56BC68ED7-001 bearing
71EC56B51596E-001 driving key
71EC56B58A355-001 driving ring
71EC56BAC1A7E-001 insert clamping system
71EC56D6D0499-001 cantilever clamping
71EC56D828198-001 wedge clamping
71EC6588A8C9E-001 lever insert clamping
71EC56D8A655A-001 insert screw clamping
71EC56D7601AD-001 floating wedge clamping
71EC56D97E8B0-001 deflection screw clamping
71EC56D908782-001 eccentric screw clamping
71FAD547E744B-001 integrated clamping
71EC56D71B815-001 lever top clamping
71EC56BA2E64E-001 screw thread lining
71EC61E259139-001 bush
71EC56B5B6465-001 pin
71EC5A6CFD68B-001 spacer
71EAD70F1B95A-001 nest
71ED80DFB6371-001 insert lever

71EC5A6E85D77-001 sealing ring
 71EC5A6E9F6F0-001 retaining ring
 71FA4B678C52A-002 externally threaded fastener component
 71ED798F61BC2-002 insert screw
 71FAE07C0A4A6-001 differential screw
 71FAE07B90EEC-002 eccentric screw
 71FC030E04050-002 deflection screw
 71FAE07BCAC80-002 lever screw
 71FC81BA3ECE9-002 shim screw
 71ED80E62E75A-001 coolant deflector
 71E01A004C775-003 tool item type
 71E01A00BD93C-003 drill
 71E01A065F635-002 deep hole drill
 71FAE7AAE8247-003 core drill
 71E01A073CA28-003 centre drill
 71E01A069566C-002 chamfer drill
 71E01D8A88F65-002 pilot drill
 71E01A0608FE4-002 twist drill
 71E01A0751456-003 conical drill
 71E01A06BF88D-003 counterbore drill
 71E01A06A8A08-003 countersink drill
 71E01A067F73C-002 step drill
 71E01A0769982-002 trepanning drill
 71E01A008D13F-003 mill
 71E01A05B627B-003 face mill
 71E01A05EA320-003 half side mill
 71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill
 71EF07E037025-003 slotting cutter
 71EF07E083383-003 threading grooving mill
 71EF07DFC283C-003 double half side mill
 71E01A0540BE7-003 slab mill
 71E01A04F70F7-003 threading die

71E01A0E4EE75-001 cylindrical die
71E01A0E79239-001 hexagonal die
71E02C544BABE-003 burr tool
71E0251F304E1-003 rotating borer
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder
71D1066F279AD-002 cartridge
71E01A04C377D-003 broach
71E01A082DE72-002 disk broach
71E01A0838E9B-002 prismatic broach
71E01A081855D-003 tapered broach
71E0250E32A07-002 cylindrical broach
7272127CBD7B8-003 feed-out tool, machine operated
71E01A04E0236-003 threading tap
71E01A0E34C7F-002 conical tap
71E01A0A5355D-001 cylindrical tap
71E01A04A8AEC-003 ream
71E01A07BC535-001 cylindrical reamer
71E01A07ECCCF-001 profile reamer
71E01A07FF350-001 stepped reamer
71E01A07D2A1B-003 tapered reamer

71DD6C9332D2C-003 002 NR2S..3.6

Real measure degree of angle

face land angle faclanang GB

Angle of the face land measured from the xy-plane

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C8B42A9E-001 cutting edge

71DD6C9A21689-001 wiper edge

71DD6C961D7FE-001 cutting edge minor
 71DD6C9466F30-001 cutting edge major
 71DD6C8C4F46C-001 cutting edge condition
 71DD6C93E8F02-001 cutting edge interrupted

71DD6C9371B86-003 002 X 17

String

face land size code faclansizcod FLSC

Identifier for the width and the angle of a face land

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C8B42A9E-001 cutting edge
 71DD6C9A21689-001 wiper edge
 71DD6C961D7FE-001 cutting edge minor
 71DD6C9466F30-001 cutting edge major
 71DD6C8C4F46C-001 cutting edge condition
 71DD6C93E8F02-001 cutting edge interrupted

71DD6C9394F40-003 002 NR2S..4.6

Real measure mm

face land width faclanwid BN

Projected length of the face land measured from a plane that is orthogonal to the xy- plane and passes through the cutting edge

Illustration reference: [Figure E.7.](#)

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C8B42A9E-001 cutting edge
 71DD6C9A21689-001 wiper edge
 71DD6C961D7FE-001 cutting edge minor
 71DD6C9466F30-001 cutting edge major
 71DD6C8C4F46C-001 cutting edge condition
 71DD6C93E8F02-001 cutting edge interrupted

726E3AAFF0C9-003 001 NR2S..3.6

Real measure degree of angle

fixing hole chamfer angle fixholchaang FHCA

Nominal angle of a chamfer measured in the XZ plane from the axis of the fixing hole

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD7014BF2A1-003 fixing hole

726E3AB7AACED-003 001 NR2S..4.6

Real measure mm

fixing hole chamfer width fixholchawid FHCW

Projected length of the chamfer on a fixing hole of a cutting item measured in the XZ-plane parallel to the X-axis

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD7014BF2A1-003 fixing hole

726E3AB5E90FD-003 001 NR2S..3.6

Real measure degree of angle

fixing hole countersunk angle fixholcouang FHCSA

Included angle between generatrices of a conical part of the fixing hole measured in the XZ plane

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD7014BF2A1-003 fixing hole

726E3AB6E5726-003 001 NR2S..4.6

Real measure mm

fixing hole countersunk depth fixholcoudep FHCSDP

Depth of the countersunk of a fixing hole measured from the top face of an insert in negative Z-direction

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD7014BF2A1-003 fixing hole

726E3AB654EA6-003 001 NR2S..4.6

Real measure mm

fixing hole countersunk diameter fixholcoudia FHCS

Diameter of the enlarged portion of a hole through the body of an insert

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD7014BF2A1-003 fixing hole

726E3AB757259-003 001 NR2S..4.6

Real measure mm

fixing hole countersunk radius fixholcourad FHCSR

Radius of the curved section of the countersunk of a fixing hole

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD7014BF2A1-003 fixing hole

71CE7A968C8FE-003 002 NR2S..4.6

Real measure mm

fixing hole diameter fixholdia D1

Diameter of the hole through the body of an insert

Illustration reference: [Figure E.16](#), [Figure E.19](#), [Figure H.11](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD7014BF2A1-003 fixing hole

71D1C829BC044-003 003 B 1

Boolean type

fixing hole property **fixholpro** **FXHLP**

Possession by a cutting insert type of a hole through the body of the insert that is used for attaching the insert to a tool item

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

71DDA089C8D1E-003 specific profile insert

71DD70158265C-003 002 NR1S..4

Integer

flank identity **flaide** **FLID**

Ordinal number of a flank

REMARKS: Flank surfaces of a cutting item are numbered in sequence starting from the cutting edge.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD70155A4B1-002 flank

71DD70163AA42-001 flank wiper edge

71DD7015F073B-001 flank major

71DD701618C71-001 flank minor

71DCD39338974-003 002 NR2S..4.6

Real measure mm

functional length funlen LF

Distance from the gauge plane or from the end of the shank, if a gauge plane does not exist, to the cutting reference point determined by the main function of the tool on tool item types or to the gauge plane on the workpiece side or the seating surface on adaptive items, if a gauge plane does not exist

NOTE The functional length is multiplied on stepped tools.

REMARKS: The positioning of LF can be different for cylindrical shanks according to ISYC 307-01 (cylindrical shanks), ISYC 307-02 (weldon shanks) and cylindrical shanks with planar contact surface.

Illustration reference: [Figure H.22](#), [Figure H.23](#) and [Figure H.24](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill

71E01A073CA28-003 centre drill

71E01A069566C-002 chamfer drill

71E01D8A88F65-002 pilot drill

71E01A0608FE4-002 twist drill

71E01A0751456-003 conical drill

71E01A06BF88D-003 counterbore drill

71E01A06A8A08-003 countersink drill

71E01A067F73C-002 step drill

71E01A0769982-002 trepanning drill

71E01A008D13F-003 mill

71E01A05B627B-003 face mill

71E01A05EA320-003 half side mill

71E01A05D27A8-003 end mill

71E01A0600702-003 ring mill

71EF07E037025-003 slotting cutter
71EF07E083383-003 threading grooving mill
71EF07DFC283C-003 double half side mill
71E01A0540BE7-003 slab mill
71E02C544BABE-003 burr tool
71EAD37F18F34-003 adaptive item type
71EAD388173EE-003 driver
71EAD3871D313-003 converter
726F59BDC3B08-003 collet
727BE50E057F1-003 adaptive feature type
727BE50E9FE57-001 torque bracing
71EEBDADB63BE-002 extender
71EAD385E51A0-002 reducer
72550E1361C6C-003 drilling insert
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder
71D1066F279AD-002 cartridge
71E01A04C377D-003 broach
71E01A082DE72-002 disk broach
71E01A0838E9B-002 prismatic broach
71E01A081855D-003 tapered broach
71E0250E32A07-002 cylindrical broach
71E01A04E0236-003 threading tap
71E01A0E34C7F-002 conical tap
71E01A0A5355D-001 cylindrical tap
71DDA089C8D1E-003 specific profile insert
71E01A04A8AEC-003 ream
71E01A07BC535-001 cylindrical reamer
71E01A07ECCCF-001 profile reamer
71E01A07FF350-001 stepped reamer
71E01A07D2A1B-003 tapered reamer

72550A75A58F9-003 003 B 1

Boolean type

gauge circle property gaucirpro GACIRP

Possession of a measuring device such as gauge roll or gauge ball to control dimensions of an item

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71DDA089C8D1E-003 specific profile insert

71EBC1E1074AB-003 003 NR2S..4.6

Real measure mm

gauge diameter gaudia DG

Dimension of a measuring device such as a cylinder or a ball

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

72550A77D9DB9-001 gauge circle

729A91AB4451E-001 001 X 3

Enumeration of codes

grade application main graappmai GRDAPPM

Recommended value of hard cutting material range

NOTE See this document and ISO/TS 13399-3.

REMARKS: Indexable item.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill

71E01A073CA28-003 centre drill

71E01A069566C-002 chamfer drill

71E01D8A88F65-002 pilot drill

71E01A0608FE4-002 twist drill

71E01A0751456-003 conical drill

71E01A06BF88D-003 counterbore drill

71E01A06A8A08-003 countersink drill

71E01A067F73C-002 step drill
 71E01A0769982-002 trepanning drill
 71E01A008D13F-003 mill
 71E01A05B627B-003 face mill
 71E01A05EA320-003 half side mill
 71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill
 71EF07E037025-003 slotting cutter
 71EF07E083383-003 threading grooving mill
 71EF07DFC283C-003 double half side mill
 71E01A0540BE7-003 slab mill
 71E01A04F70F7-003 threading die
 71E01A0E4EE75-001 cylindrical die
 71E01A0E79239-001 hexagonal die
 71E02C544BABE-003 burr tool
 71E0251F304E1-003 rotating borer
 71E01A05104CF-003 turn
 71E01A0E9CBA9-003 boring bar
 71E01A0EAF067-003 system tool
 71E01A0E85121-003 prismatic tool holder
 71D1066F279AD-002 cartridge
 71E01A04C377D-003 broach
 71E01A082DE72-002 disk broach
 71E01A0838E9B-002 prismatic broach
 71E01A081855D-003 tapered broach
 71E0250E32A07-002 cylindrical broach
 7272127CBD7B8-003 feed-out tool, machine operated
 71E01A04E0236-003 threading tap
 71E01A0E34C7F-002 conical tap
 71E01A0A5355D-001 cylindrical tap
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer
 71E01A07ECCCF-001 profile reamer

71E01A07FF350-001 stepped reamer

71E01A07D2A1B-003 tapered reamer

729A91AAEB181-001 001 X 3

Enumeration of codes

grade application range max graappranmax GRDAPRX

Maximum value of hard cutting material application range

NOTE See this document and ISO/TS 13399-3.

REMARKS: Indexable item.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill
 71FAE7AAE8247-003 core drill
 71E01A073CA28-003 centre drill
 71E01A069566C-002 chamfer drill
 71E01D8A88F65-002 pilot drill
 71E01A0608FE4-002 twist drill
 71E01A0751456-003 conical drill
 71E01A06BF88D-003 counterbore drill
 71E01A06A8A08-003 countersink drill
 71E01A067F73C-002 step drill
 71E01A0769982-002 trepanning drill
 71E01A008D13F-003 mill
 71E01A05B627B-003 face mill
 71E01A05EA320-003 half side mill
 71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill
 71EF07E037025-003 slotting cutter
 71EF07E083383-003 threading grooving mill
 71EF07DFC283C-003 double half side mill
 71E01A0540BE7-003 slab mill
 71E01A04F70F7-003 threading die
 71E01A0E4EE75-001 cylindrical die
 71E01A0E79239-001 hexagonal die
 71E02C544BABE-003 burr tool
 71E0251F304E1-003 rotating borer
 71E01A05104CF-003 turn
 71E01A0E9CBA9-003 boring bar
 71E01A0EAF067-003 system tool
 71E01A0E85121-003 prismatic tool holder
 71D1066F279AD-002 cartridge
 71E01A04C377D-003 broach
 71E01A082DE72-002 disk broach
 71E01A0838E9B-002 prismatic broach

71E01A081855D-003 tapered broach
71E0250E32A07-002 cylindrical broach
7272127CBD7B8-003 feed-out tool, machine operated
71E01A04E0236-003 threading tap
71E01A0E34C7F-002 conical tap
71E01A0A5355D-001 cylindrical tap
71E01A04A8AEC-003 ream
71E01A07BC535-001 cylindrical reamer
71E01A07ECCCF-001 profile reamer
71E01A07FF350-001 stepped reamer
71E01A07D2A1B-003 tapered reamer

729A91A635147-001 001 X 3

Enumeration of codes

grade application range min graappranmin GRDAPRN

Minimum value of hard cutting material application range

NOTE See this document and ISO/TS 13399-3.

REMARKS: Indexable item.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type
71D1AE120D96E-003 nonequilateral equiangular
71DD68D91938A-001 rectangular insert
71D1AA489FD6E-003 nonequilateral nonequangular
71DD68D966F52-002 parallelogram insert
71D1AA486FF89-004 equilateral equiangular
71DD68D829217-001 square insert
71DD68D7CB4FA-001 octagonal insert
71DD68D8446CE-001 triangular insert
71DD68D7A8E5F-001 hexagonal insert
71DD68D80B094-001 pentagonal insert
72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item
 71D1AE11B8B77-003 equilateral nonequangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D1AA6635E76-003 round insert
 726E3AAC68D91-003 reaming insert
 71DDA089C8D1E-003 specific profile insert
 71E01A004C775-003 tool item type
 71E01A00BD93C-003 drill
 71E01A065F635-002 deep hole drill
 71FAE7AAE8247-003 core drill
 71E01A073CA28-003 centre drill
 71E01A069566C-002 chamfer drill
 71E01D8A88F65-002 pilot drill
 71E01A0608FE4-002 twist drill
 71E01A0751456-003 conical drill
 71E01A06BF88D-003 counterbore drill
 71E01A06A8A08-003 countersink drill
 71E01A067F73C-002 step drill
 71E01A0769982-002 trepanning drill
 71E01A008D13F-003 mill
 71E01A05B627B-003 face mill
 71E01A05EA320-003 half side mill
 71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill
 71EF07E037025-003 slotting cutter
 71EF07E083383-003 threading grooving mill
 71EF07DFC283C-003 double half side mill
 71E01A0540BE7-003 slab mill
 71E01A04F70F7-003 threading die
 71E01A0E4EE75-001 cylindrical die
 71E01A0E79239-001 hexagonal die
 71E02C544BABE-003 burr tool

71E0251F304E1-003 rotating borer
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder
71D1066F279AD-002 cartridge
71E01A04C377D-003 broach
71E01A082DE72-002 disk broach
71E01A0838E9B-002 prismatic broach
71E01A081855D-003 tapered broach
71E0250E32A07-002 cylindrical broach
7272127CBD7B8-003 feed-out tool, machine operated
71E01A04E0236-003 threading tap
71E01A0E34C7F-002 conical tap
71E01A0A5355D-001 cylindrical tap
71E01A04A8AEC-003 ream
71E01A07BC535-001 cylindrical reamer
71E01A07ECCCF-001 profile reamer
71E01A07FF350-001 stepped reamer
71E01A07D2A1B-003 tapered reamer

729A919BF211A-001 001 X 2

Enumeration of codes

grade identification **grade** **GRDID**

Identification letter from ISO 513

NOTE See this document and ISO/TS 13399-3.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type
71D1AE120D96E-003 nonequilateral equiangular
71DD68D91938A-001 rectangular insert
71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert
 71D1AA486FF89-004 equilateral equiangular
 71DD68D829217-001 square insert
 71DD68D7CB4FA-001 octagonal insert
 71DD68D8446CE-001 triangular insert
 71DD68D7A8E5F-001 hexagonal insert
 71DD68D80B094-001 pentagonal insert
 72550E1361C6C-003 drilling insert
 7224CCDD587CF-003 non replaceable cutting item
 71D1AE11B8B77-003 equilateral nonequiangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D1AA6635E76-003 round insert
 726E3AAC68D91-003 reaming insert
 71DDA089C8D1E-003 specific profile insert
 71E01A004C775-003 tool item type
 71E01A00BD93C-003 drill
 71E01A065F635-002 deep hole drill
 71FAE7AAE8247-003 core drill
 71E01A073CA28-003 centre drill
 71E01A069566C-002 chamfer drill
 71E01D8A88F65-002 pilot drill
 71E01A0608FE4-002 twist drill
 71E01A0751456-003 conical drill
 71E01A06BF88D-003 counterbore drill
 71E01A06A8A08-003 countersink drill
 71E01A067F73C-002 step drill
 71E01A0769982-002 trepanning drill
 71E01A008D13F-003 mill
 71E01A05B627B-003 face mill
 71E01A05EA320-003 half side mill
 71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill

71EF07E037025-003 slotting cutter
71EF07E083383-003 threading grooving mill
71EF07DFC283C-003 double half side mill
71E01A0540BE7-003 slab mill
71E01A04F70F7-003 threading die
71E01A0E4EE75-001 cylindrical die
71E01A0E79239-001 hexagonal die
71E02C544BABE-003 burr tool
71E0251F304E1-003 rotating borer
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder
71D1066F279AD-002 cartridge
71E01A04C377D-003 broach
71E01A082DE72-002 disk broach
71E01A0838E9B-002 prismatic broach
71E01A081855D-003 tapered broach
71E0250E32A07-002 cylindrical broach
7272127CBD7B8-003 feed-out tool, machine operated
71E01A04E0236-003 threading tap
71E01A0E34C7F-002 conical tap
71E01A0A5355D-001 cylindrical tap
71E01A04A8AEC-003 ream
71E01A07BC535-001 cylindrical reamer
71E01A07ECCCF-001 profile reamer
71E01A07FF350-001 stepped reamer
71E01A07D2A1B-003 tapered reamer

729A919C3D239-001 001 X 1

Enumeration of codes

grade main application group identification letter gramaiaappgroidalet GRDMAPID

Group application of hard cutting materials

NOTE See this document and ISO/TS 13399-3.

REMARKS: Indexable item.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill

71E01A073CA28-003 centre drill

71E01A069566C-002 chamfer drill

71E01D8A88F65-002 pilot drill

71E01A0608FE4-002 twist drill

71E01A0751456-003 conical drill
71E01A06BF88D-003 counterbore drill
71E01A06A8A08-003 countersink drill
71E01A067F73C-002 step drill
71E01A0769982-002 trepanning drill
71E01A008D13F-003 mill
71E01A05B627B-003 face mill
71E01A05EA320-003 half side mill
71E01A05D27A8-003 end mill
71E01A0600702-003 ring mill
71EF07E037025-003 slotting cutter
71EF07E083383-003 threading grooving mill
71EF07DFC283C-003 double half side mill
71E01A0540BE7-003 slab mill
71E01A04F70F7-003 threading die
71E01A0E4EE75-001 cylindrical die
71E01A0E79239-001 hexagonal die
71E02C544BABE-003 burr tool
71E0251F304E1-003 rotating borer
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder
71D1066F279AD-002 cartridge
71E01A04C377D-003 broach
71E01A082DE72-002 disk broach
71E01A0838E9B-002 prismatic broach
71E01A081855D-003 tapered broach
71E0250E32A07-002 cylindrical broach
7272127CBD7B8-003 feed-out tool, machine operated
71E01A04E0236-003 threading tap
71E01A0E34C7F-002 conical tap
71E01A0A5355D-001 cylindrical tap

71E01A04A8AEC-003 ream

71E01A07BC535-001 cylindrical reamer

71E01A07ECCCF-001 profile reamer

71E01A07FF350-001 stepped reamer

71E01A07D2A1B-003 tapered reamer

726E3EA930D39-003 001 X 10

String

grade manufacturers designation gramandes GRDMFG

Identifier for the manufacturer's designation of the basic material of the cutting part of a tool or the replaceable insert

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill
71E01A065F635-002 deep hole drill
71FAE7AAE8247-003 core drill
71E01A073CA28-003 centre drill
71E01A069566C-002 chamfer drill
71E01D8A88F65-002 pilot drill
71E01A0608FE4-002 twist drill
71E01A0751456-003 conical drill
71E01A06BF88D-003 counterbore drill
71E01A06A8A08-003 countersink drill
71E01A067F73C-002 step drill
71E01A0769982-002 trepanning drill
71E01A008D13F-003 mill
71E01A05B627B-003 face mill
71E01A05EA320-003 half side mill
71E01A05D27A8-003 end mill
71E01A0600702-003 ring mill
71EF07E037025-003 slotting cutter
71EF07E083383-003 threading grooving mill
71EF07DFC283C-003 double half side mill
71E01A0540BE7-003 slab mill
71E01A04F70F7-003 threading die
71E01A0E4EE75-001 cylindrical die
71E01A0E79239-001 hexagonal die
71E02C544BABE-003 burr tool
71E0251F304E1-003 rotating borer
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder
71D1066F279AD-002 cartridge
71E01A04C377D-003 broach
71E01A082DE72-002 disk broach

71E01A0838E9B-002 prismatic broach
 71E01A081855D-003 tapered broach
 71E0250E32A07-002 cylindrical broach
 7272127CBD7B8-003 feed-out tool, machine operated
 71E01A04E0236-003 threading tap
 71E01A0E34C7F-002 conical tap
 71E01A0A5355D-001 cylindrical tap
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer
 71E01A07ECCCF-001 profile reamer
 71E01A07FF350-001 stepped reamer
 71E01A07D2A1B-003 tapered reamer

726E3EA8A9ED6-003 001 X 10

String

grade standard designation main application grastadesmaiapp GRDPRI0

Identifier for the designation of the basic material of the cutting part of a tool or the replaceable insert that will be suitable for the main application

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type
 71D1AE120D96E-003 nonequilateral equiangular
 71DD68D91938A-001 rectangular insert
 71D1AA489FD6E-003 nonequilateral nonequangular
 71DD68D966F52-002 parallelogram insert
 71D1AA486FF89-004 equilateral equiangular
 71DD68D829217-001 square insert
 71DD68D7CB4FA-001 octagonal insert
 71DD68D8446CE-001 triangular insert
 71DD68D7A8E5F-001 hexagonal insert
 71DD68D80B094-001 pentagonal insert
 72550E1361C6C-003 drilling insert
 7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill

71E01A073CA28-003 centre drill

71E01A069566C-002 chamfer drill

71E01D8A88F65-002 pilot drill

71E01A0608FE4-002 twist drill

71E01A0751456-003 conical drill

71E01A06BF88D-003 counterbore drill

71E01A06A8A08-003 countersink drill

71E01A067F73C-002 step drill

71E01A0769982-002 trepanning drill

71E01A008D13F-003 mill

71E01A05B627B-003 face mill

71E01A05EA320-003 half side mill

71E01A05D27A8-003 end mill

71E01A0600702-003 ring mill

71EF07E037025-003 slotting cutter

71EF07E083383-003 threading grooving mill

71EF07DFC283C-003 double half side mill

71E01A0540BE7-003 slab mill

71E01A04F70F7-003 threading die

71E01A0E4EE75-001 cylindrical die

71E01A0E79239-001 hexagonal die

71E02C544BABE-003 burr tool

71E0251F304E1-003 rotating borer

71E01A05104CF-003 turn
 71E01A0E9CBA9-003 boring bar
 71E01A0EAF067-003 system tool
 71E01A0E85121-003 prismatic tool holder
 71D1066F279AD-002 cartridge
 71E01A04C377D-003 broach
 71E01A082DE72-002 disk broach
 71E01A0838E9B-002 prismatic broach
 71E01A081855D-003 tapered broach
 71E0250E32A07-002 cylindrical broach
 7272127CBD7B8-003 feed-out tool, machine operated
 71E01A04E0236-003 threading tap
 71E01A0E34C7F-002 conical tap
 71E01A0A5355D-001 cylindrical tap
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer
 71E01A07ECCCF-001 profile reamer
 71E01A07FF350-001 stepped reamer
 71E01A07D2A1B-003 tapered reamer

72550E3BD998C-003 002 NR1S..2

Enumeration of integers

grind style code gristycod GRDSYC

Identifier for the general form of the cutting edges of a drilling profile, a drilling insert or a drill

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BE1D04-003 drilling profile

71CF29872F0AB-003 002 X 1

Enumeration of codes

hand han HAND

Identifier used for the direction of rotation of rotating tool items and rotating adaptive items and for the position of the cutting edge of a stationary tool item and for the position of the connection used for

a tool item or adaptive item with respect to the axis of the item and for the orientation of a replaceable cutting item with respect to the insert reference system and for the orientation of a clamp

NOTE See ISO 3002-1.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill

71E01A073CA28-003 centre drill

71E01A069566C-002 chamfer drill

71E01D8A88F65-002 pilot drill

71E01A0608FE4-002 twist drill

71E01A0751456-003 conical drill

71E01A06BF88D-003 counterbore drill

71E01A06A8A08-003 countersink drill

71E01A067F73C-002 step drill

71E01A0769982-002 trepanning drill

71E01A008D13F-003 mill

71E01A05B627B-003 face mill
 71E01A05EA320-003 half side mill
 71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill
 71EF07E037025-003 slotting cutter
 71EF07E083383-003 threading grooving mill
 71EF07DFC283C-003 double half side mill
 71E01A0540BE7-003 slab mill
 71E01A04F70F7-003 threading die
 71E01A0E4EE75-001 cylindrical die
 71E01A0E79239-001 hexagonal die
 71E02C544BABE-003 burr tool
 71E0251F304E1-003 rotating borer
 71E01A05104CF-003 turn
 71E01A0E9CBA9-003 boring bar
 71E01A0EAF067-003 system tool
 71E01A0E85121-003 prismatic tool holder
 71D1066F279AD-002 cartridge
 71E01A04C377D-003 broach
 71E01A082DE72-002 disk broach
 71E01A0838E9B-002 prismatic broach
 71E01A081855D-003 tapered broach
 71E0250E32A07-002 cylindrical broach
 7272127CBD7B8-003 feed-out tool, machine operated
 71E01A04E0236-003 threading tap
 71E01A0E34C7F-002 conical tap
 71E01A0A5355D-001 cylindrical tap
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer
 71E01A07ECCCF-001 profile reamer
 71E01A07FF350-001 stepped reamer
 71E01A07D2A1B-003 tapered reamer
 71EC56B608ADC-001 insert wedge

71FAD54E2FE26-001 lever top clamp

71D0808DA853B-003 master insert

71DDA089C8D1E-003 specific profile insert

72719B167AE15-003 001 NR1S..4

Enumeration of integers

hole type holtyp HTY

Identifier for the capability to machine or to work in such kind of holes

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill
 71E01A073CA28-003 centre drill
 71E01A069566C-002 chamfer drill
 71E01D8A88F65-002 pilot drill
 71E01A0608FE4-002 twist drill
 71E01A0751456-003 conical drill
 71E01A06BF88D-003 counterbore drill
 71E01A06A8A08-003 countersink drill
 71E01A067F73C-002 step drill
 71E01A0769982-002 trepanning drill
 71E01A008D13F-003 mill
 71E01A05B627B-003 face mill
 71E01A05EA320-003 half side mill
 71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill
 71EF07E037025-003 slotting cutter
 71EF07E083383-003 threading grooving mill
 71EF07DFC283C-003 double half side mill
 71E01A0540BE7-003 slab mill
 71E01A04F70F7-003 threading die
 71E01A0E4EE75-001 cylindrical die
 71E01A0E79239-001 hexagonal die
 71E02C544BABE-003 burr tool
 71E0251F304E1-003 rotating borer
 71E01A05104CF-003 turn
 71E01A0E9CBA9-003 boring bar
 71E01A0EAF067-003 system tool
 71E01A0E85121-003 prismatic tool holder
 71D1066F279AD-002 cartridge
 71E01A04C377D-003 broach
 71E01A082DE72-002 disk broach
 71E01A0838E9B-002 prismatic broach
 71E01A081855D-003 tapered broach

71E0250E32A07-002 cylindrical broach
7272127CBD7B8-003 feed-out tool, machine operated
71E01A04E0236-003 threading tap
71E01A0E34C7F-002 conical tap
71E01A0A5355D-001 cylindrical tap
71E01A04A8AEC-003 ream
71E01A07BC535-001 cylindrical reamer
71E01A07ECCCF-001 profile reamer
71E01A07FF350-001 stepped reamer
71E01A07D2A1B-003 tapered reamer

71CE7A96D9F7D-003 002 NR2S..4.6

Real measure mm

inscribed circle diameter inscirdia IC

Diameter of a circle to which all edges of an equilateral insert are tangential

Illustration reference: [Figure E.1](#), [Figure E.2](#), [Figure E.3](#), [Figure E.4](#), [Figure E.5](#), [Figure E.8](#), [Figure E.12](#), [Figure E.13](#), [Figure E.15](#), [Figure E.16](#), [Figure H.1](#), [Figure H.2](#), [Figure H.3](#), [Figure H.6](#), [Figure H.7](#), [Figure H.8](#), [Figure H.9](#), [Figure H.10](#), [Figure H.17](#), [Figure H.18](#), [Figure H.19](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD7032B51CD-001 inscribed circle

71D1C82A5036D-003 003 B 1

Boolean type

inscribed circle property inscirpro INCLP

Possession by a cutting insert type of an inscribed circle

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert
 71DD68D80B094-001 pentagonal insert
 72550E1361C6C-003 drilling insert
 71D1AE11B8B77-003 equilateral nonequangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D1AA6635E76-003 round insert
 71DDA089C8D1E-003 specific profile insert

728F4E7B06CA7-003 001 NR2S..4.6

Real measure mm

insert body diameter insboddia INSBD

Diameter of the cylinder designed at the bottom of the insert to be seated in the pocket mating hole

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type
 71D1AE120D96E-003 nonequilateral equiangular
 71DD68D91938A-001 rectangular insert
 71D1AA489FD6E-003 nonequilateral nonequangular
 71DD68D966F52-002 parallelogram insert
 71D1AA486FF89-004 equilateral equiangular
 71DD68D829217-001 square insert
 71DD68D7CB4FA-001 octagonal insert
 71DD68D8446CE-001 triangular insert
 71DD68D7A8E5F-001 hexagonal insert
 71DD68D80B094-001 pentagonal insert
 72550E1361C6C-003 drilling insert
 7224CCDD587CF-003 non replaceable cutting item
 71D1AE11B8B77-003 equilateral nonequangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71CE7A979F41C-003 003 X 1

Enumeration of codes

insert hand inshan IH

Identifier for the orientation of a replaceable cutting item with respect to the insert reference system

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71DDA089C8D1E-003 specific profile insert

71CE7A96BC122-003 002 NR2S..3.6

Real measure degree of angle

insert included angle insincang EPSR

Angle between the major and the minor cutting edges of a cutting item

Illustration reference: [Figure E.3](#), [Figure E.4](#), [Figure E.9](#), [Figure E.10](#), [Figure E.18](#), [Figure H.1](#), [Figure H.2](#), [Figure H.3](#), [Figure H.4](#), [Figure H.5](#), [Figure H.6](#), [Figure H.7](#), [Figure H.8](#), [Figure H.9](#), [Figure H.18](#), [Figure H.19](#), [Figure H.25](#), [Figure H.26](#), [Figure H.27](#), [Figure H.28](#), [Figure H.29](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular
 71DD68D91938A-001 rectangular insert
 71D1AA489FD6E-003 nonequilateral nonequiangular
 71DD68D966F52-002 parallelogram insert
 71D1AA486FF89-004 equilateral equiangular
 71DD68D829217-001 square insert
 71DD68D7CB4FA-001 octagonal insert
 71DD68D8446CE-001 triangular insert
 71DD68D7A8E5F-001 hexagonal insert
 71DD68D80B094-001 pentagonal insert
 7224CCDD587CF-003 non replaceable cutting item
 71D1AE11B8B77-003 equilateral nonequiangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D0808DA853B-003 master insert
 71DDA089C8D1E-003 specific profile insert

727C7D93D0F08-003 001 NR2S..3.6

Real measure degree of angle

insert included angle minor (deprecated) insincangmin EPSRN

Angle between two minor cutting edges of a trigon-shaped cutting item

REMARKS: The value of this minor included angle is always 60 degrees.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD68D73218C-003 trigon insert

71CE7AA1998FF-003 003 NR1S..4

Integer

insert index count insindcou NOI

Maximum recommended times an insert can be mounted until the tool is worn out

REMARKS: Valid only for indexable tools.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill

71E01A073CA28-003 centre drill

71E01A069566C-002 chamfer drill

71E01D8A88F65-002 pilot drill

71E01A0608FE4-002 twist drill

71E01A0751456-003 conical drill

71E01A06BF88D-003 counterbore drill

71E01A06A8A08-003 countersink drill

71E01A067F73C-002 step drill

71E01A0769982-002 trepanning drill

71E01A008D13F-003 mill

71E01A05B627B-003 face mill

71E01A05EA320-003 half side mill

71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill
 71EF07E037025-003 slotting cutter
 71EF07E083383-003 threading grooving mill
 71EF07DFC283C-003 double half side mill
 71E01A0540BE7-003 slab mill
 71E01A04F70F7-003 threading die
 71E01A0E4EE75-001 cylindrical die
 71E01A0E79239-001 hexagonal die
 71E02C544BABE-003 burr tool
 71E0251F304E1-003 rotating borer
 71E01A05104CF-003 turn
 71E01A0E9CBA9-003 boring bar
 71E01A0EAF067-003 system tool
 71E01A0E85121-003 prismatic tool holder
 71D1066F279AD-002 cartridge
 71E01A04C377D-003 broach
 71E01A082DE72-002 disk broach
 71E01A0838E9B-002 prismatic broach
 71E01A081855D-003 tapered broach
 71E0250E32A07-002 cylindrical broach
 7272127CBD7B8-003 feed-out tool, machine operated
 71E01A04E0236-003 threading tap
 71E01A0E34C7F-002 conical tap
 71E01A0A5355D-001 cylindrical tap
 71E01A04A8AEC-003 ream
 71E01A07BC535-001 cylindrical reamer
 71E01A07ECCCF-001 profile reamer
 71E01A07FF350-001 stepped reamer
 71E01A07D2A1B-003 tapered reamer
 71DDA089C8D1E-003 specific profile insert

71CE7A9936610-003 002 X 17

String

insert interface code **insintcod** **IIC**

Identifier for the condition that a particular replaceable cutting item can be mounted on a particular tool item

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

71DDA089C8D1E-003 specific profile insert

71CF30F9DFE37-003 002 NR2S..3.6

Real measure degree of angle

insert lead angle **insleaang** **PSIRINS**

Angle between the major edge and a plane that is perpendicular to the wiper edge

REMARKS: Used mainly for regular inserts with wiper edges.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C9A21689-001 wiper edge

71CE7A9DFA23A-003 002 NR2S..4.6

Real measure mm

insert length inslen INSL

Distance between two sides of an insert when the inscribed circle cannot be used because of the shape of the insert

REMARKS: Measured between the two minor cutting edges.

Illustration reference: [Figure E.13](#), [Figure E.17](#), [Figure E.19](#), [Figure H.5](#), [Figure H.11](#), [Figure H.12](#), [Figure H.13](#), [Figure H.14](#), [Figure H.15](#), [Figure H.16](#), [Figure H.18](#), [Figure H.19](#), [Figure H.20](#), [Figure H.21](#), [Figure H.25](#), [Figure H.26](#), [Figure H.27](#), [Figure H.28](#), [Figure H.29](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

71DD700BC8BE2-002 ball-nosed profile

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D0808DA853B-003 master insert

71DDA089C8D1E-003 specific profile insert

71CE7A97711B8-003 002 NR1S..4

Enumeration of integers

insert mounting style code insmoustycod IFS

Identifier for the method of holding a cutting item onto a tool item

NOTE See DIN 4000-95.

Illustration reference: [Figure F.12](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD7014BF2A1-003 fixing hole

71CE7A9EDACA1-003 002 NR2S..3.6

Real measure degree of angle

insert rake angle insrakang GAN

Angle of the rake measured from the XY-plane perpendicular to the cutting edge

Illustration reference: [Figure E.6](#), [Figure E.7](#), [Figure F.1](#), [Figure F.2](#), [Figure F.3](#), [Figure F.4](#), [Figure F.5](#), [Figure F.6](#), [Figure F.7](#), [Figure F.8](#), [Figure H.11](#), [Figure H.17](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C870BCCA-001 chip breaker

71CE7A9F0C79F-001 001 X 17

Enumeration of codes

insert shape code insshacod SC

Identifier for the shape of a regular insert

NOTE See ISO 1832:2017, 5.1.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert
 71D1AE11B8B77-003 equilateral nonequangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D1AA6635E76-003 round insert
 71D0808DA853B-003 master insert
 71EAD70F1B95A-001 nest

72719B203D712-003 001 X 17

Enumeration of codes

insert side count inssidcou NIS

Identifier for the number of sides of a cutting item that can be used for a machining process

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type
 71D1AE120D96E-003 nonequilateral equiangular
 71DD68D91938A-001 rectangular insert
 71D1AA489FD6E-003 nonequilateral nonequangular
 71DD68D966F52-002 parallelogram insert
 71D1AA486FF89-004 equilateral equiangular
 71DD68D829217-001 square insert
 71DD68D7CB4FA-001 octagonal insert
 71DD68D8446CE-001 triangular insert
 71DD68D7A8E5F-001 hexagonal insert
 71DD68D80B094-001 pentagonal insert
 72550E1361C6C-003 drilling insert
 7224CCDD587CF-003 non replaceable cutting item
 71D1AE11B8B77-003 equilateral nonequangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D1AA6635E76-003 round insert
 726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71CE7A9F5308C-003 002 NR2S..4.6

Real measure mm

insert thickness insthi S

Distance between the bottom and the cutting edge of a replaceable cutting item

Illustration reference: [Figure E.1](#), [Figure E.2](#), [Figure E.8](#), [Figure E.11](#), [Figure E.16](#), [Figure E.19](#), [Figure F.1](#), [Figure F.8](#), [Figure H.1](#), [Figure H.2](#), [Figure H.3](#), [Figure H.4](#), [Figure H.5](#), [Figure H.6](#), [Figure H.7](#), [Figure H.8](#), [Figure H.9](#), [Figure H.10](#), [Figure H.11](#), [Figure H.12](#), [Figure H.13](#), [Figure H.14](#), [Figure H.15](#), [Figure H.16](#), [Figure H.18](#), [Figure H.19](#), [Figure H.20](#), [Figure H.21](#), [Figure H.25](#), [Figure H.26](#), [Figure H.27](#), [Figure H.28](#), [Figure H.29](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

71DD700BC8BE2-002 ball nosed profile

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

71D0808DA853B-003 master insert

71DDA089C8D1E-003 specific profile insert

72550E143C993-003 003 NR2S..4.6

Real measure mm

insert thickness total insthitot S1

Distance between the bottom and the top surface of a replaceable cutting item, if the top of the surface is above or below the cutting edge

NOTE If the insert thickness and the insert thickness total of a replaceable cutting item show the same value, only the insert thickness will be shown.

Illustration reference: [Figure H.13](#), [Figure H.14](#), [Figure H.15](#), [Figure H.16](#), [Figure H.18](#), [Figure H.19](#), [Figure H.20](#), [Figure H.21](#), [Figure H.23](#), [Figure H.25](#), [Figure H.26](#), [Figure H.27](#), [Figure H.28](#), [Figure H.29](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

71DDA089C8D1E-003 specific profile insert

71CE7A9FB11C3-003 002 NR2S..4.6

Real measure mm

insert width inswid W1

Distance between two sides of an insert when the inscribed circle cannot be used because of the shape of the insert

REMARKS: Measured between the two major cutting edges.

Illustration reference: [Figure E.9](#), [Figure E.10](#), [Figure E.14](#), [Figure E.19](#), [Figure H.4](#), [Figure H.5](#), [Figure H.11](#), [Figure H.17](#), [Figure H.21](#), [Figure H.25](#), [Figure H.26](#), [Figure H.27](#), [Figure H.28](#), [Figure H.29](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

71DD700BC8BE2-002 ball nosed profile

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D0808DA853B-003 master insert

71DDA089C8D1E-003 specific profile insert

71DD701175021-003 002 B 1

Boolean type

interrupted edge property **intedgpro IEP**

Possession by a cutting item of an interrupted cutting edge

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BE1D04-003 drilling profile

726E424FE9EC2-003 001 X..6

Enumeration of codes

item style code **itestycod ISYC**

Identifier for the main design or shape of cutting item, tool item or adaptive item

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71EAD37F18F34-003 adaptive item type

71EAD388173EE-003 driver

71EAD3871D313-003 converter

726F59BDC3B08-003 collet

727BE50E057F1-003 adaptive feature type

727BE50E9FE57-001 torque bracing

71EEBDADB63BE-002 extender

71EAD385E51A0-002 reducer

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill

71E01A073CA28-003 centre drill
71E01A069566C-002 chamfer drill
71E01D8A88F65-002 pilot drill
71E01A0608FE4-002 twist drill
71E01A0751456-003 conical drill
71E01A06BF88D-003 counterbore drill
71E01A06A8A08-003 countersink drill
71E01A067F73C-002 step drill
71E01A0769982-002 trepanning drill
71E01A008D13F-003 mill
71E01A05B627B-003 face mill
71E01A05EA320-003 half side mill
71E01A05D27A8-003 end mill
71E01A0600702-003 ring mill
71EF07E037025-003 slotting cutter
71EF07E083383-003 threading grooving mill
71EF07DFC283C-003 double half side mill
71E01A0540BE7-003 slab mill
71E01A04F70F7-003 threading die
71E01A0E4EE75-001 cylindrical die
71E01A0E79239-001 hexagonal die
71E02C544BABE-003 burr tool
71E0251F304E1-003 rotating borer
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder
71D1066F279AD-002 cartridge
71E01A04C377D-003 broach
71E01A082DE72-002 disk broach
71E01A0838E9B-002 prismatic broach
71E01A081855D-003 tapered broach
71E0250E32A07-002 cylindrical broach

7272127CBD7B8-003 feed-out tool, machine operated

71E01A04E0236-003 threading tap

71E01A0E34C7F-002 conical tap

71E01A0A5355D-001 cylindrical tap

71E01A04A8AEC-003 ream

71E01A07BC535-001 cylindrical reamer

71E01A07ECCCF-001 profile reamer

71E01A07FF350-001 stepped reamer

71E01A07D2A1B-003 tapered reamer

71CE7AA05C819-003 003 NR2S.4.6

Real measure mm

m2-dimension m2dim M2

Distance between the nominal inscribed circle and the corner of an insert that has the secondary included angle

NOTE This is used only for regular inserts with the ISO identifiers C, D, E, F, M and V. See also ISO 1832:2017, 5.3.

REMARKS: For inserts with the ISO identifiers A, B, K and L, the distance is measured between the gauge diameter and the secondary included angle.

Illustration reference: [Figure E.4](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

71D1AE11B8B77-003 equilateral nonequangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71CE7AA0972DB-003 002 NR2S..4.6

Real measure mm

m-dimension mdim M

Distance between the nominal inscribed circle and the corner of an insert that has the primary included angle

NOTE See ISO 1832:2017, 5.3.

REMARKS: This property is defined for different shapes of regular inserts in ISO 1832.

Illustration reference: [Figure E.1](#), [Figure E.3](#), [Figure E.5](#), [Figure E.8](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71CEAEBEAB020-003 002 NR2S..3.6

Real measure degree of angle

profile angle left hand proanglefhan PAL

Angle measured in the XY-plane in a positive direction (counter clockwise) between a plane parallel to the Y-axis and the left hand cutting edge of the profile of a cutting item

NOTE Applies to irregular inserts.

Illustration reference: [Figure E.3](#), [Figure E.5](#), [Figure E.8](#), [Figure H.15](#), [Figure H.18](#), [Figure H.19](#), [Figure H.20](#), [Figure H.21](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71CEAEBED837E-003 002 NR2S..3.6

Real measure degree of angle

profile angle right hand proangrighan PAR

Angle measured in the XY-plane in a negative direction (clockwise) between a plane parallel to the Y-axis and the right hand cutting edge of the profile of a cutting item

Illustration reference: [Figure E.3](#), [Figure E.5](#), [Figure E.8](#), [Figure H.15](#), [Figure H.18](#), [Figure H.19](#), [Figure H.20](#), [Figure H.21](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71CEAEBFEF1B4-003 003 NR2S..4.6

Real measure mm

profile distance ex prodisex PDX

Distance measured in the XY-plane from the profile point of a threading insert to the side of the insert that is parallel to the YZ-plane

NOTE Only applicable to laid-down triangular threading inserts.

Illustration reference: [Figure E.12](#), [Figure E.14](#), [Figure E.16](#), [Figure F.2](#), [Figure F.10](#), [Figure H.11](#), [Figure H.17](#), [Figure H.18](#), [Figure H.19](#), [Figure H.20](#), [Figure H.21](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71CEAEC0139BB-003 003 NR2S..4.6

Real measure mm

profile distance ey prodisey PDY

Distance measured in the XY-plane from the profile point of a threading insert to a plane parallel to the XZ-plane that passes through the theoretical sharp corner of the sides of the insert

NOTE Only applicable to laid-down triangular threading inserts.

Illustration reference: [Figure E.12](#), [Figure E.13](#), [Figure E.14](#), [Figure E.16](#), [Figure F.6](#), [Figure F.7](#), [Figure F.8](#), [Figure F.9](#), [Figure H.11](#), [Figure H.18](#), [Figure H.19](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71CEAEBF0C234-003 004 NR2S..3.6

Real measure degree of angle

profile included angle proincang PNA

Angle subtended by the cutting edges of a cutting profile either on irregular insert or tool items

REMARKS: Mainly applies to threading profiles.

Illustration reference: [Figure E.12](#), [Figure E.13](#), [Figure E.14](#), [Figure E.16](#), [Figure F.7](#), [Figure F.8](#), [Figure F.9](#), [Figure H.15](#), [Figure H.18](#), [Figure H.19](#), [Figure H.20](#), [Figure H.21](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71E01A008D13F-003 mill

71E01A05B627B-003 face mill

71E01A05EA320-003 half side mill

71E01A05D27A8-003 end mill

71E01A0600702-003 ring mill

71EF07E037025-003 slotting cutter

71EF07E083383-003 threading grooving mill

71EF07DFC283C-003 double half side mill

71E01A0540BE7-003 slab mill

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71E019EBAE1B1-003 003 NR2S..4.6

Real measure mm

profile radius prorad PRFRAD

Radius of a cutting profile

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71E01A008D13F-003 mill

71E01A05B627B-003 face mill

71E01A05EA320-003 half side mill

71E01A05D27A8-003 end mill

71E01A0600702-003 ring mill

71EF07E037025-003 slotting cutter

71EF07E083383-003 threading grooving mill

71EF07DFC283C-003 double half side mill

71E01A0540BE7-003 slab mill

71E02C544BABE-003 burr tool

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71CEAEBDE5798-003 003 NR1S..2

Enumeration of integers

profile style code prostycod PFS

Identifier for the profile of an irregular insert

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71DD9D00193A7-003 003 NR2S..3.6

Real measure degree of angle

relief angle relang RA

Angle measured in the xy-plane between a plane parallel to the Y-axis and the relief edge of the profile of a cutting item

NOTE A relief edge is a non-cutting portion of a profile.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BC8BE2-002 ball nosed profile

71CE7E6520B87-003 003 NR2S..3.6

Real measure degree of angle

relief angle left hand relanglefhan RAL

Angle measured in the xy-plane in a negative direction (clockwise) between a plane parallel to the Y-axis and the left hand relief edge of the profile of a cutting item

NOTE A relief edge is a non-cutting portion of a profile.

REMARKS: Applies to irregular inserts.

Illustration reference: [Figure F.1](#), [Figure F.2](#), [Figure F.4](#), [Figure F.5](#), [Figure F.10](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71CE7E6569AB5-003 003 NR2S..3.6

Real measure degree of angle

relief angle right hand relangrighan RAR

Angle measured in the xy-plane in a positive direction (counter clockwise) between a plane parallel to the Y-axis and the right hand relief edge of the profile of a cutting item

NOTE A relief edge is a non-cutting portion of a profile.

REMARKS: Applies to irregular inserts.

Illustration reference: [Figure F.1](#), [Figure F.5](#), [Figure F.10](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700BFD9B9-003 grooving parting profile

71DDA089C8D1E-003 specific profile insert

71DD7011A3D86-003 003 B 1

Boolean type

rounded corner property roucorpro RCP

Possession of a corner with a constant radius

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71DD700BFD9B9-003 grooving parting profile

71DD700BE1D04-003 drilling profile

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

72719B2B51519-003 001 B 1

Boolean type

seal sea SALP

Identifier whether a seal is existing to be used within a coolant, hydraulic or pneumatic system to prevent the media from flowing out of the system

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA6C8FC75-003 cutting item type

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

72550E1361C6C-003 drilling insert

7224CCDD587CF-003 non replaceable cutting item

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

726E3AAC68D91-003 reaming insert

71DDA089C8D1E-003 specific profile insert

71E01A004C775-003 tool item type

71E01A00BD93C-003 drill

71E01A065F635-002 deep hole drill

71FAE7AAE8247-003 core drill

71E01A073CA28-003 centre drill

71E01A069566C-002 chamfer drill
 71E01D8A88F65-002 pilot drill
 71E01A0608FE4-002 twist drill
 71E01A0751456-003 conical drill
 71E01A06BF88D-003 counterbore drill
 71E01A06A8A08-003 countersink drill
 71E01A067F73C-002 step drill
 71E01A0769982-002 trepanning drill
 71E01A008D13F-003 mill
 71E01A05B627B-003 face mill
 71E01A05EA320-003 half side mill
 71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill
 71EF07E037025-003 slotting cutter
 71EF07E083383-003 threading grooving mill
 71EF07DFC283C-003 double half side mill
 71E01A0540BE7-003 slab mill
 71E01A04F70F7-003 threading die
 71E01A0E4EE75-001 cylindrical die
 71E01A0E79239-001 hexagonal die
 71E02C544BABE-003 burr tool
 71E0251F304E1-003 rotating borer
 71E01A05104CF-003 turn
 71E01A0E9CBA9-003 boring bar
 71E01A0EAF067-003 system tool
 71E01A0E85121-003 prismatic tool holder
 71D1066F279AD-002 cartridge
 71E01A04C377D-003 broach
 71E01A082DE72-002 disk broach
 71E01A0838E9B-002 prismatic broach
 71E01A081855D-003 tapered broach
 71E0250E32A07-002 cylindrical broach
 7272127CBD7B8-003 feed-out tool, machine operated

71E01A04E0236-003 threading tap
71E01A0E34C7F-002 conical tap
71E01A0A5355D-001 cylindrical tap
71E01A04A8AEC-003 ream
71E01A07BC535-001 cylindrical reamer
71E01A07ECCCF-001 profile reamer
71E01A07FF350-001 stepped reamer
71E01A07D2A1B-003 tapered reamer
72719B234F9E0-003 cutting data association

72807E1CC4B50-003 001 X..5

String

standard letter stalet STDLET

Label for the identification of different products or different designs of a product that is based on a standard referenced in the property "standard number"

NOTE If applicable, the property shall only be used in conjunction with the property "standard number" value. See this document, ISO/TS 13399-3 and ISO/TS 13399-4.

REMARKS: For example, ISO 6462 contains forms A, B, C, D for a milling cutter. The valid value for a milling cutter with tenon drive and cutter retaining screw according to ISO 6462 is "B", in connection with the property "standard number" where the entry shall be "ISO6462".

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71EAD37F18F34-003 adaptive item type
71EAD388173EE-003 driver
71EAD3871D313-003 converter
726F59BDC3B08-003 collet
727BE50E057F1-003 adaptive feature type
727BE50E9FE57-001 torque bracing
71EEBDADB63BE-002 extender
71EAD385E51A0-002 reducer
71D1AA6C8FC75-003 cutting item type
71D1AE120D96E-003 nonequilateral equiangular
71DD68D91938A-001 rectangular insert
71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert
 71D1AA486FF89-004 equilateral equiangular
 71DD68D829217-001 square insert
 71DD68D7CB4FA-001 octagonal insert
 71DD68D8446CE-001 triangular insert
 71DD68D7A8E5F-001 hexagonal insert
 71DD68D80B094-001 pentagonal insert
 72550E1361C6C-003 drilling insert
 7224CCDD587CF-003 non replaceable cutting item
 71D1AE11B8B77-003 equilateral nonequiangular
 71DD68D73218C-003 trigon insert
 71DD68D301C30-001 rhombic insert
 71D1AA6635E76-003 round insert
 726E3AAC68D91-003 reaming insert
 71DDA089C8D1E-003 specific profile insert
 71E01A004C775-003 tool item type
 71E01A00BD93C-003 drill
 71E01A065F635-002 deep hole drill
 71FAE7AAE8247-003 core drill
 71E01A073CA28-003 centre drill
 71E01A069566C-002 chamfer drill
 71E01D8A88F65-002 pilot drill
 71E01A0608FE4-002 twist drill
 71E01A0751456-003 conical drill
 71E01A06BF88D-003 counterbore drill
 71E01A06A8A08-003 countersink drill
 71E01A067F73C-002 step drill
 71E01A0769982-002 trepanning drill
 71E01A008D13F-003 mill
 71E01A05B627B-003 face mill
 71E01A05EA320-003 half side mill
 71E01A05D27A8-003 end mill
 71E01A0600702-003 ring mill

71EF07E037025-003 slotting cutter
71EF07E083383-003 threading grooving mill
71EF07DFC283C-003 double half side mill
71E01A0540BE7-003 slab mill
71E01A04F70F7-003 threading die
71E01A0E4EE75-001 cylindrical die
71E01A0E79239-001 hexagonal die
71E02C544BABE-003 burr tool
71E0251F304E1-003 rotating borer
71E01A05104CF-003 turn
71E01A0E9CBA9-003 boring bar
71E01A0EAF067-003 system tool
71E01A0E85121-003 prismatic tool holder
71D1066F279AD-002 cartridge
71E01A04C377D-003 broach
71E01A082DE72-002 disk broach
71E01A0838E9B-002 prismatic broach
71E01A081855D-003 tapered broach
71E0250E32A07-002 cylindrical broach
7272127CBD7B8-003 feed-out tool, machine operated
71E01A04E0236-003 threading tap
71E01A0E34C7F-002 conical tap
71E01A0A5355D-001 cylindrical tap
71E01A04A8AEC-003 ream
71E01A07BC535-001 cylindrical reamer
71E01A07ECCCF-001 profile reamer
71E01A07FF350-001 stepped reamer
71E01A07D2A1B-003 tapered reamer

71CEAEC02FEBD-003 003 NR2S..3.3

Real

taper gradient tapgra TG

Ratio of the difference between the diameters of two sections to the distance between these sections

NOTE See ISO 1119.

REMARKS: Also known as rate of taper.

Illustration reference: [Figure E.14](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71E01A07D2A1B-003 tapered reamer

71DD700C151B5-003 threading profile

71DF154901E44-003 002 NR1S..4

Integer

taper thread count tapthrcou ZTT

Number of incomplete threads in the tapered section of a threading tool

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700C151B5-003 threading profile

72550E426D771-003 003 NR2S..4.6

Real measure mm

thread cutting part length thrcutparlen THL

Distance between the ends of a portion of an item that includes the full and incomplete profile of a thread

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71E01A04F70F7-003 threading die

71E01A0E4EE75-001 cylindrical die

71E01A0E79239-001 hexagonal die

71E01A04E0236-003 threading tap

71E01A0E34C7F-002 conical tap

71E01A0A5355D-001 cylindrical tap

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

726E3E7863BBC-003 001 X 17

String

thread designation inside thrdesins THID

Label that describes an inner thread like form, size, pitch or hand

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71E02520881F1-003 bolt hole circle

71DD700C151B5-003 threading profile

726E3E73D1CF2-003 001 X 17

String

thread designation outside thrdesout THOD

Label that describes an outer thread like form, size, pitch or hand

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71E02520881F1-003 bolt hole circle

71DD700C151B5-003 threading profile

71D1A69F60053-003 003 X..20

Enumeration of codes

thread form type thrfortyp THFT

Identifier for the cross section shape of a thread profile

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71E033FCBB61C-003 002 X 17

Enumeration of codes

thread hand **thrhan** **THDH**

Direction of the screwing motion of a screw thread

NOTE See ISO 5408.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700C151B5-003 threading profile

71DF5BE65F86F-003 002 NR2S..4.6

Real measure mm

thread height actual **thrheiact** **HC**

Distance along the axis of symmetry of the thread cutting profile from the actual cutting edge to the point where a normal to this axis meets the cutting profile at the maximum usable cutting edge length

Illustration reference: [Figure F.12](#), [Figure H.18](#), [Figure H.19](#), [Figure H.21](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700C151B5-003 threading profile

71DF5BE617131-003 002 NR2S..4.6

Real measure mm

thread height difference **thrheidif** **HB**

Distance along the axis of symmetry of the thread cutting profile from the theoretical sharp point to the actual cutting edge

Illustration reference: [Figure F.12](#), [Figure H.18](#), [Figure H.19](#), [Figure H.21](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700C151B5-003 threading profile

71DF5BE5BCEBE-003 002 NR2S..4.6

Real measure mm

thread height theoretical **thrheithe** **HA**

Distance along the axis of symmetry of the thread cutting profile from the theoretical sharp point to the point where a normal to this axis meets the cutting profile at the maximum usable cutting edge length

Illustration reference: [Figure F.12](#), [Figure H.18](#), [Figure H.19](#), [Figure H.21](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD700C151B5-003 threading profile

71CEAEC08D4B0-003 002 NR2S..4.6

Real measure mm

thread pitch thrpit TP

Axial distance between a point on a thread flank and the equivalent point of the immediately adjacent and corresponding flank

NOTE See ISO 5408.

Illustration reference: [Figure E.14](#), [Figure E.15](#), [Figure E.18](#), [Figure H.19](#), [Figure H.21](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71D1A6A283836-003 002

Level mm

thread pitch maximum thrpitmax TPX

Maximum thread pitch that a cutting item can produce

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71D1A6A247E1F-003 002

Level mm

thread pitch minimum thrpitmin TPN

Minimum thread pitch which a cutting item can produce

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71CEAEC114603-003 003 X 1

Enumeration of codes

thread profile type thrprotyp TPT

Identifier for how much of the profile of a threading insert is used

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71D1A6A16E6ED-003 003 X 3

Enumeration of codes

thread type thrtyp TTP

Identifier for whether a thread is internal or external or both

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71D1A6AAC8707-003 003 NR2S..3.3

Real

threads per inch thrperinc TPI

Number of threads in a one-inch length of a thread

Illustration reference: [Figure E.18](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71FC1D22BF4CD-002 tool thread external

71FC20991AEE8-001 thread inch external

71FC2098BC963-001 thread metric external

71FC209969F43-001 thread trapezoidal external

71FC1D25097D7-002 tool thread internal

71FC209A5C7F3-001 thread metric internal

71FC209B39D51-001 thread trapezoidal internal

71FC209ACEA25-001 thread inch internal

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71D1A6AB8F739-003 003

Level

threads per inch maximum thrperincmax TPIX

Maximum number of threads in a one-inch length of a threaded work piece that can be produced by a cutting item

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71D1A6AB6FB19-003 003

Level

threads per inch minimum thrperincmin TPIN

Minimum number of threads in a one-inch length of a threaded work piece that can be produced by a cutting item

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71CE7AA1E3D75-003 003 X 1

Enumeration of codes

tipped cutting edge code tipcutedgcod TCE

Identifier for the style and the numbers of modified cutting edges composed of materials other than the main body of the cutting item

NOTE See ISO 1832.

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71DD700BFD9B9-003 grooving parting profile

71DD700BE1D04-003 drilling profile

71D1AA6635E76-003 round insert

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71CE7AA215888-003 003 X 17

Enumeration of codes

tolerance class insert tolclains TCINS

Identifier for the tolerances of the inscribed circle, the insert thickness and the m-dimension on a replaceable cutting item

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71D1AA6635E76-003 round insert

71CEAEBF8A68E-003 003 NR1S..4

Integer

tooth count toocou NT

Number of teeth per cutting edge on a threading insert

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DDA089C8D1E-003 specific profile insert

71DD700C151B5-003 threading profile

71CED03C97AAB-003 003 NR2S..3.3

Real measure kg

weight of item weiofite WT

Force exerted by the mass of an item

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71CE7AA249F88-003 002 NR2S..4.6

Real measure mm

wiper edge length wipedge BS

Measure of the length of a wiper edge of a cutting item

Illustration reference: [Figure E.1](#), [Figure E.5](#), [Figure E.8](#).

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C9A21689-001 wiper edge

71CE7AA2E50BE-003 002 NR2S..4.6

Real measure mm

wiper edge radius wipedge BSR

Measure of the radius of a curved wiper edge

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71DD6C9A21689-001 wiper edge

71CED022114EC-003 003 B 1

Boolean type

wiper edge property wipedgepro WEP

Possession of a wiper edge on a cutting item

Visible class:

71CE7A72B6DA7-003 cutting tool library

Applicable classes:

71D1AE120D96E-003 nonequilateral equiangular

71DD68D91938A-001 rectangular insert

71D1AA489FD6E-003 nonequilateral nonequiangular

71DD68D966F52-002 parallelogram insert

71D1AA486FF89-004 equilateral equiangular

71DD68D829217-001 square insert

71DD68D7CB4FA-001 octagonal insert

71DD68D8446CE-001 triangular insert

71DD68D7A8E5F-001 hexagonal insert

71DD68D80B094-001 pentagonal insert

71D1AE11B8B77-003 equilateral nonequiangular

71DD68D73218C-003 trigon insert

71DD68D301C30-001 rhombic insert

71DDA089C8D1E-003 specific profile insert

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Annex E (informative)

Illustration of properties

Figures E.1 to E.21 illustrate properties that are defined in Annex D.

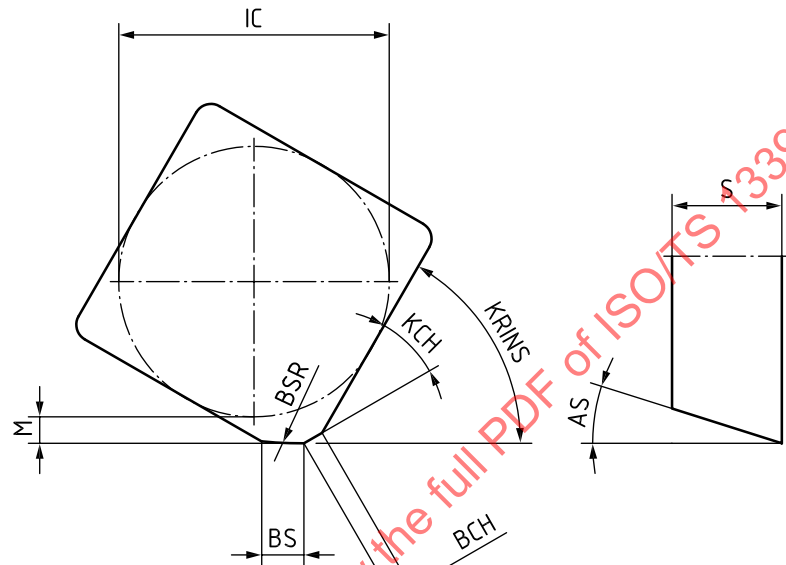


Figure E.1

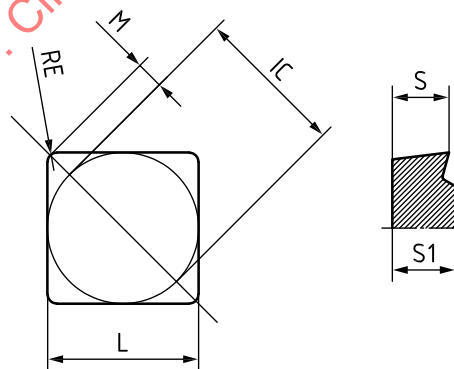


Figure E.2

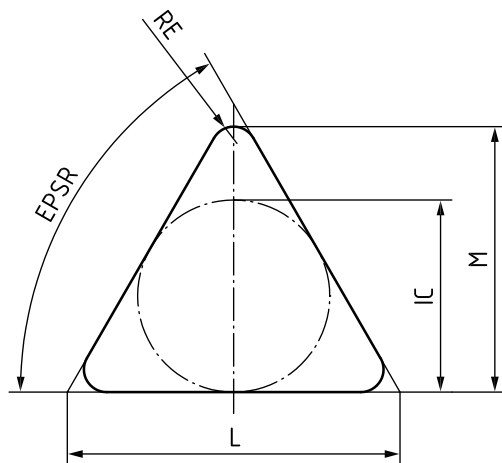


Figure E.3

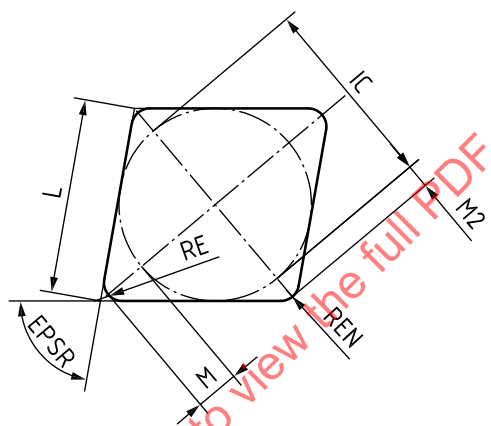


Figure E.4

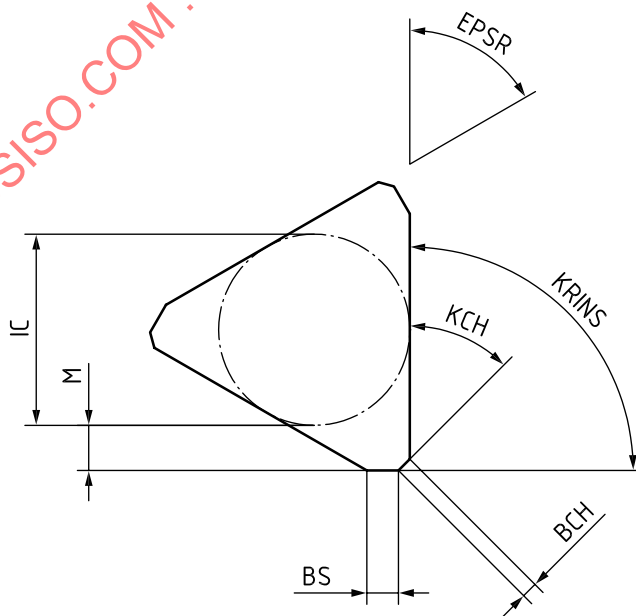


Figure E.5

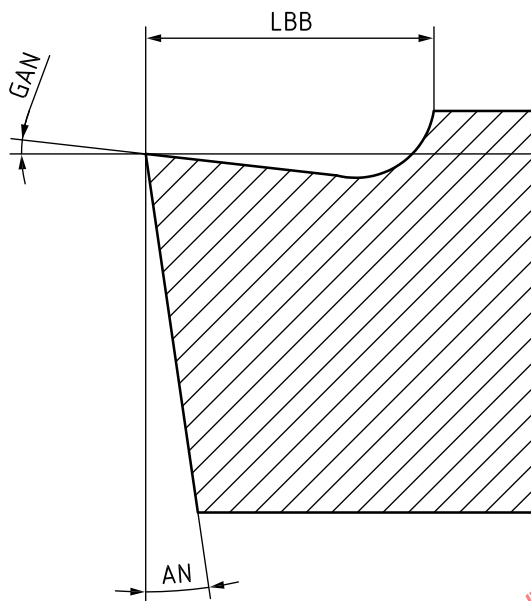


Figure E.6

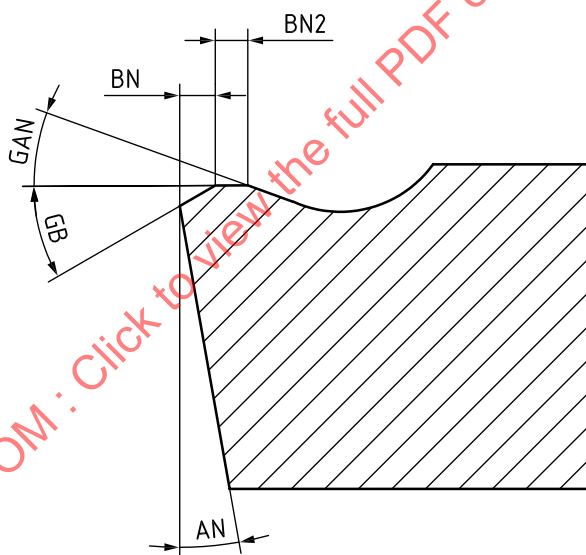


Figure E.7

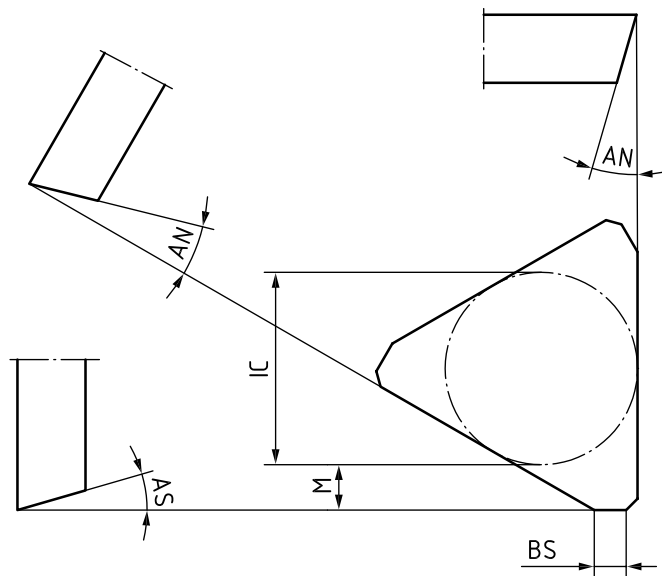


Figure E.8

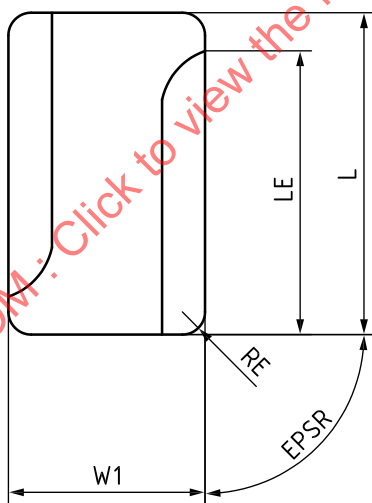


Figure E.9

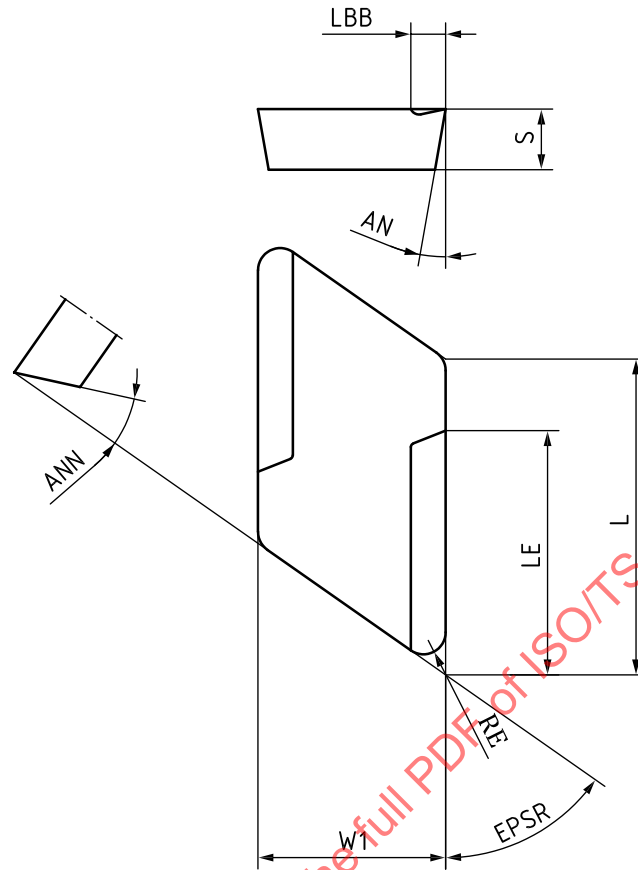


Figure E.10

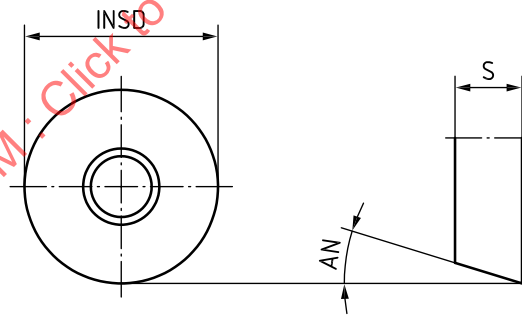


Figure E.11

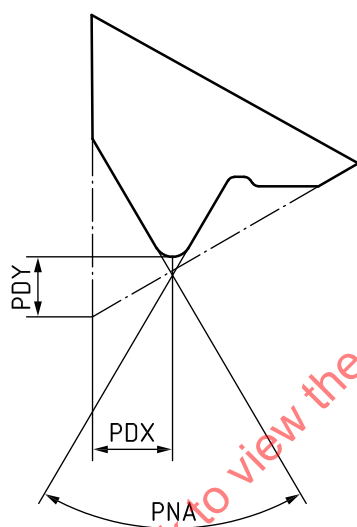
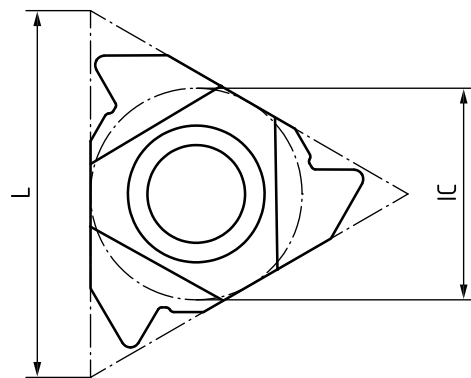


Figure E.12