
**Cutting tool data representation
and exchange —**

**Part 60:
Reference dictionary for connection
systems**

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

Partie 60: Dictionnaire de référence pour les systèmes de connexion



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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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.

ISO/TS 13399-60 was prepared by Technical Committee ISO/TC 29, *Small tools*.

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

- *Part 1: Overview, fundamental principles and general information model*
- *Part 2: Reference dictionary for the cutting items* [Technical Specification]
- *Part 3: Reference dictionary for tool items* [Technical Specification]
- *Part 4: Reference dictionary for adaptive items* [Technical Specification]
- *Part 5: Reference dictionary for assembly items* [Technical Specification]
- *Part 50: Reference dictionary for reference systems and common concepts* [Technical Specification]
- *Part 60: Reference dictionary for connection systems* [Technical Specification]
- *Part 100: Definitions, principles and methods for reference dictionaries* [Technical Specification]

Introduction

ISO 13399 provides the means to achieve an electronic representation of cutting tool data by providing the information structure needed to describe various data about cutting tools and cutting tool assemblies. It is intended to facilitate the use, manipulation and exchange of cutting tool data within and between manufacturing, distribution and usage.

This part of ISO 13399 defines the terms, properties and definitions for connection systems of cutting tools with defined cutting edges. The purpose of this part ISO 13399 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 tool to remove workpiece material through a shearing action at the cutting edge(s) of the tool. Cutting tool data are characteristics of the cutting tool and its use that must be known and evaluated in order to make manufacturing decisions and to perform manufacturing operations.

ISO 13399 includes the data representation of 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 endmill), assembled tools (e.g. boring bars, indexable drills and indexable milling cutters), adaptors (e.g. milling arbor and chucks), components (e.g. shims, screws and clamps) or any combination of the above can be exchanged.

Possible assemblies of the components of a cutting tool are illustrated in Figure 1.

The cutting tool data described include, but are not limited to, geometrical and dimensional data, identification and designation data, miscellaneous and spare part data, cutting material data, and component connectivity.

The use of the tool information model established by ISO 13399 will provide increased productivity for the user in the same way as do the tools. The effective management of tool information will improve the management of the tools themselves. Use of the tool information model will enable the identification of the “right” tool in every operation — from tool purchase, through planning, set-up in machine-tools, maintenance and reuse of the tools — with short lead times and with high reliability and product quality. Tool users will benefit from improved support from the tool vendors who will be able to provide a standard information product to accompany the tool products. Computer interfaces for information exchange will be more efficient.

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

- a) the EXPRESS language according to ISO 10303-11 for defining the information model;
- b) the file format for data exchange derived from the model and defined in ISO 10303-21;
- c) the data dictionary defined in ISO 13584.

ISO 13399 is intended for use by manufacturers, tool vendors or producers, and developers of manufacturing software, among others. It provides a common structure for exchanging data about cutting tools (see Figure 1), and is intended to allow or improve several capabilities, including

- provision of a common set of definitions for use in describing cutting tools and cutting tool assemblies,
- the integration and sharing of cutting tool and assembly data between software applications,
- direct import of vendor cutting tool data into customer databases or applications, and
- a reduction in the level of effort required for manufacturers to maintain accurate and current cutting tool information from multiple sources and for multiple applications.

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

ISO 13399 defines only that information which could be communicated; it does not specify what information must be communicated.

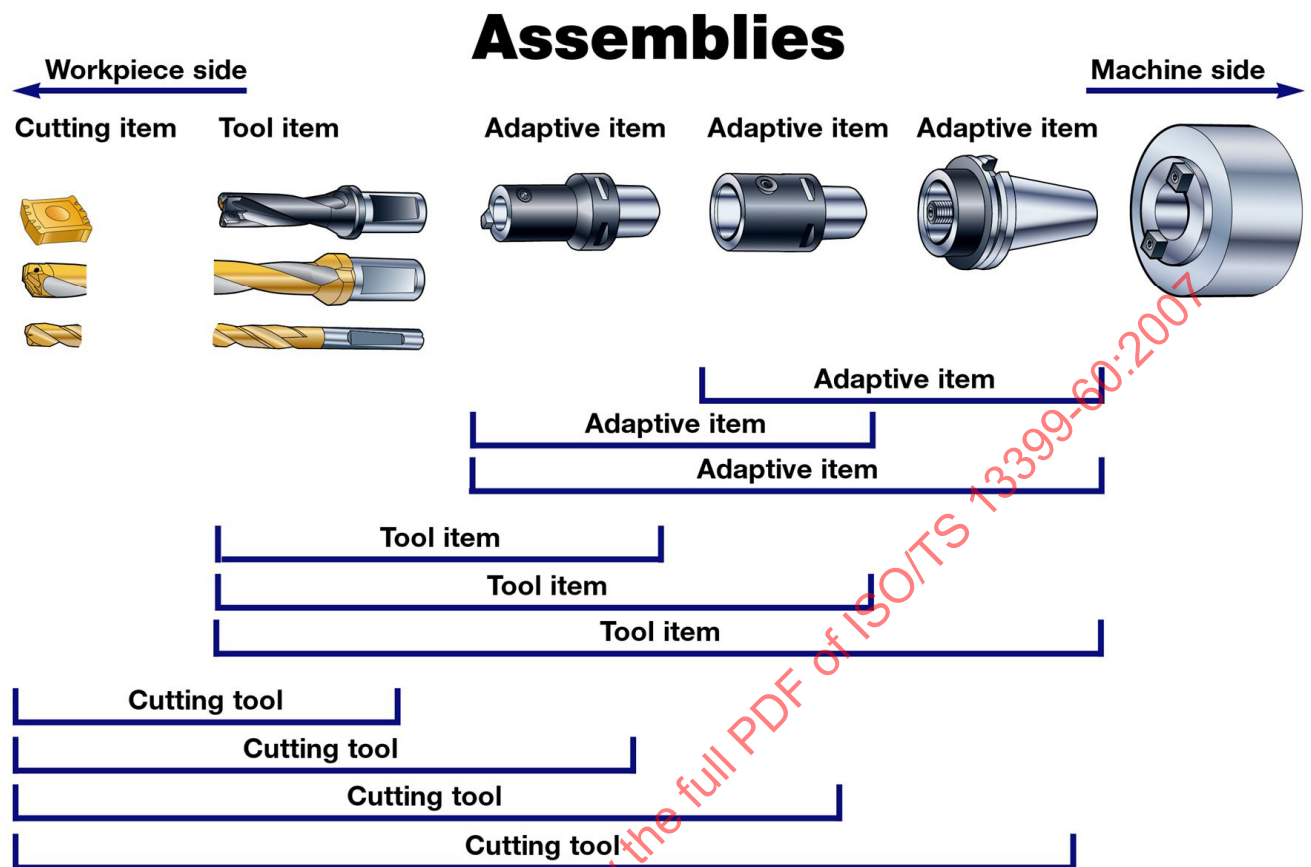


Figure 1 — Examples of different types of assemblies of items

Cutting tool data representation and exchange —

Part 60:

Reference dictionary for connection systems

1 Scope

This part of ISO 13399 specifies a reference dictionary for connection systems for cutting tools, together with their descriptive properties and domains of values.

This part of ISO 13399 specifies a reference dictionary that contains

- a) definitions and identifications of the classes of connection systems for cutting tools, with an associated classification scheme,
- b) definitions and identifications of the data element types that represent the properties of connection systems for cutting tools,
- c) definitions and identifications of domains of values for describing the above data element types.

Each class, property or domain of values of this application domain constitutes an entry of the reference dictionary defined in this part of ISO 13399. 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 13399-1.¹⁾

The following is within the scope of this part of ISO 13399:

- standard data that represent the various classes of connection systems for cutting tools;
- standard data that represent the various properties connection systems for cutting tools;
- standard data that represent domains of values used for properties of connection systems for cutting tools;
- a single implementation method by which the standard data defined in this part ISO 13399 can be exchanged (see ISO 10303-21).

The following is not within its scope:

- specialized or expert knowledge on the design and use of cutting tools;
- rules used to determine the information that should be communicated;
- applications where these standard data may be stored or referenced;

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 according to ISO 13584-24 and ISO 13584-25.

- implementation methods other than the one defined in this part of ISO 13399 by which the standard data can be exchanged and referenced;
- information models for cutting tools;
- definitions of classes and properties for cutting items, tool items, assembly items, adaptive items, or for reference systems and common concepts, these being covered by other parts of ISO 13399.

2 Normative references

The following referenced documents are indispensable for the application 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.

3.1 applicable property

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

[ISO 13584-24]

3.2 basic semantic unit

entity that provides an absolute and universal identification of classes and data element types in an application domain

[ISO 13584-42]

3.3 chip

material removed from a workpiece by a cutting process

[ISO/TS 13399-2]

3.4 cutting tool

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

NOTE A cutting tool could be the assembly of one or more adaptive items, a tool item and several cutting items on a tool item. See Figure 1.

[ISO 13399-1]

3.5 data

representation of facts concepts or instructions in a formal manner suitable for communication, interpretation or processing by human beings or computers

[ISO 10303-1]

3.6**data element type**

unit of data for which the identification, description and value representation have been specified

[ISO 13584-42]

3.7**data exchange**

storing, accessing, transferring and archiving of data

[ISO 10303-1]

3.8**data type**

domain of values

[ISO 10303-11]

3.9**dictionary**

structured set of entries with one and only one meaning corresponding to each entry and one and only one entry identifying a single meaning

[ISO 13584-511]

NOTE In ISO 13399, a dictionary is a formal and computer-sensible representation of an ontology.

3.10**entity**

class of information defined by its attributes that establishes a domain of values defined by common attributes and constraints

NOTE Adapted from ISO 10303-11.

3.11**entity data type**

representation of an entity

[ISO 10303-11]

3.12**entity instance**

named unit of data that represents a unit of information within the class defined by an entity and which is a member of the domain established by an entity data type

[ISO/TS 13399-2]

3.13**family of items**

simple or generic family of items

[ISO 13584-42]

3.14**generic family of items**

grouping of simple or generic families of items for the purpose of classification or for associating common information

[ISO 13584-42]

3.15

implementation method

means for computers to process or exchange data

[ISO 10303-1]

3.16

information

facts, concepts or instructions

[ISO 10303-1]

3.17

information model

formal description of a bounded set of information to meet a specific requirement

[ISO 10303-1]

3.18

machine side

identification of a direction pointing towards the machine

3.19

machined surface

surface produced by the action of a cutting tool

[ISO 3002-1]

3.20

ontology

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

[ISO 13584-511]

NOTE In ISO 13399 a dictionary is the formal and computer-sensible representation of an ontology.

3.21

property

characteristic of a product or process that may be represented by a data element type

NOTE Adapted from ISO 13584-42.

3.22

simple family of items

set of items in which each item may be described by the same group of properties

[ISO 13584-42]

3.23

visible property

property that is defined for some family of items that may or may not be applicable to the different members of the family

[ISO 13584-42]

3.24

workpiece

object on which a cutting action is performed

[ISO/TS 13399-2]

3.25**workpiece side**

identification of a direction pointing towards the workpiece

[ISO/TS 13399-2]

4 Abbreviated terms

BSU basic semantic unit

DET data element type

5 Representation of the ontology concepts as dictionary entries

In the following subclauses, 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 bold, lower-case characters with multiple words linked by an underscore character.

EXAMPLE “connection interface feature” is the name of a concept in the ontology. **connection_interface_feature** is the identifier of the class in the dictionary that represents the concept.

Each entry in the dictionary, whether a class or a property, is identified with a numerical code (BSU) that is generated at random when the dictionary is compiled. A BSU can be made unique by the addition of a code that is a reference to the supplier of the dictionary.

The structure of the classification is summarized in Annex B. The complete definitions of the classes in this part of ISO 13399 are provided in Annex C. The properties applicable to these classes are defined in Annex D.

5.1 connection_interface_feature

connection_interface_feature is a generic family of those parts of a tool item or assembly item that form a coupling to another tool item or assembly item or machine tool. Definitions and further sub-division of these classes can be found in Annex C.

connection_interface_feature has the following subclasses:²⁾

- **ABS_System_Komet;**
- **AIF_Adjustable_Interface_Dihart;**
- **AWN_Prisma_connection_Schwanog;**
- **BFA_drill_chuck_connection;**
- **BKA_boring_head_connection;**
- **BKC_boring_head_connection_Coromant;**
- **BRP_Bridgeport_connection;**

2) The identifications for some of these entities are derived from commercial trade names and company names that may be protected. Their use in this part of ISO 13399 is justified by their being in common use with no accepted generic alternatives. This information is given for the convenience of users of this part of ISO 13399 and does not constitute an endorsement by ISO of these products.

- **BTS_Block_Tool_System_Coromant;**
- **BUF_boring_and_chamfer_system;**
- **CBC_Coromant_bridge_connection;**
- **CCB_Coromant_CoroBore;**
- **CCM_Coromant_Cap_Mounting;**
- **CCS_Coromant_Capto_system;**
- **CDB_Coromant_Duobore;**
- **CFB_Coromant_Fine_Boring;**
- **CKB_Kaiser_bore_connection;**
- **CKS_Kaiser_shank_connection;**
- **CMB_Coromant_Modular_boring;**
- **CMS_Coromant_Modular_Serrated_mounting;**
- **FCM_Flexible_Coupling_Modular;**
- **FDA_milling_arbor_connection;**
- **FLC_flange_connection_Coromant;**
- **FLK_flange_connector_Kennametal;**
- **FTS_Flexible_Tooling_System_Kennametal;**
- **GMS_Graflex_Modular_System_SECO;**
- **GRL_Granlund_connection;**
- **HEE_HE-/HF-system_EMUGE;**
- **HFS_head_fitting_system_Mapal;**
- **HSK_hollow_taper_shank;**
- **HSZ_hollow_cylindrical_shank;**
- **HTS_deep_drilling_system;**
- **KKG_stub_taper;**
- **KKH_cartridge_interface;**
- **KMB_Kennametal_ModBore_system;**
- **KMC_Kennametal_cartridge_mounting;**
- **KMM_Kennametal_Micro_system;**

- KMT_KM-UTS_system_Kennametal/Widia;
- KRS_Kennametal_Romicron_system;
- KVT_KV_system_Kennametal;
- MBS_Multi_Blade_System_Coromant;
- MCS_modular_cartridge_system_Kennametal;
- MEG_metric_taper;
- MKG_Morse_taper;
- MVS_modular_connection_system_Wohlhaupter;
- NCT_Novex-NC-Tools_Walter;
- PMC_prismatic_connection_Coromant;
- PMD_prismatic_connection_standard;
- PMK_prismatic_connection_Kennametal;
- PMS_prismatic_connection_SECO;
- RFX_Rotaflex_system_Widia;
- SAC_screw_connection_Coromant;
- SBA_SBA-system_Komet;
- SCA_SECO_cartridge_mounting;
- SCR_SECO_crownlock_connection;
- SKG_Steep_taper;
- SMM_SECO_minimaster;
- SMS_SECO_modular_serrated_connection;
- SPK_holding_arbor;
- SRT_SECO_R2_shank;
- STH_automotive_shank;
- SWB_quick_change_connection;
- SZB_collet_shortened_design_Biax;
- SZC_collet_connection_Coromant;
- SZD_collet_connection_standard;
- SZE_collet_connection_Erikson;

- SZP_collet_Eminent-Perman;
- SZR_collet_KSF_Roehm;
- SZS_collet_Steinel_Bohrmaster;
- URM_Urma_connection;
- UTS_UTS_Widia;
- VAS_Variant_System_Coromant;
- VKT_rectangular_connection;
- VLS_Varilock_System_Coromant;
- ZYL_cylindrical_shank_connection;
- ZYV_VDI_shank.

6 Properties for connection interface feature

The properties that are applicable to items defined in Clause 5 are defined in Annex D, where the association of a property with a class is also 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 may be applicable to connection interface features, with their identification codes (BSU), are shown in Table 1.

NOTE The value domains for properties are specified in ISO/TS 13399-100.

Table 1 — Property names and identification codes

Property name	Identification code (BSU)
connection code machine side	71D102AE3B252
connection code workpiece side	71D102AE8A5A9

Annex A

(normative)

Information object registration

A.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 (60) version (1)}

is assigned to this part of ISO 13399.

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

A.2 Dictionary identification

The dictionary defined in this part of ISO 13399 is assigned the object identifier:

{ISO technical specification 13399 part (60) version (1) object (1) connection interface (1)}

Annex B (informative)

Classification structure

Table B.1 shows the classification structure of the generic families in the dictionary with an expanded structure for the class of connection interface feature. The purpose of the table is to show the relationships between the classes related to the connection interface feature and the other classes in ISO 13399.

NOTE Annex C contains the full definition of all the classes that are relevant to the connection interface feature. Definitions of reference systems that are used in the definition of some properties can be found in ISO/TS 13399-50.

Table B.1 — Classification structure

Classes	Parent class	Class BSU
cutting tool library	Root class	71CE7A72B6DA7
adaptive item type	71CE7A72B6DA7	71EAD37F18F34
adjustment	71CE7A72B6DA7	71ED884159C90
assembly item type	71CE7A72B6DA7	71CE7A795C05C
bolt hole circle	71CE7A72B6DA7	71E02520881F1
connection interface feature	71CE7A72B6DA7	71DF8C37D9115
ABS System Komet	71DF8C37D9115	71ED66AC44D48
variant 01 of ABS System Komet	71ED66AC44D48	71EF07EABDA7A
variant 02 of ABS System Komet	71ED66AC44D48	71EF07EB0646B
AIF Adjustable Interface Dihart	71DF8C37D9115	71EF0BAE19FE3
variant 01 of AIF Adjustable Interface Dihart	71EF0BAE19FE3	71EF0BAE384FA
AWN Prisma connection Schwanog	71DF8C37D9115	71EF0BAE640B8
variant 01 of AWN Prisma connection Schwanog	71EF0BAE640B8	71EF0BAE84362
BFA drill chuck connection	71DF8C37D9115	71ED66B6D07DD
variant 01 of BFS drill chuck connection	71ED66B6D07DD	71EF07FF67B22
variant 02 of BFS drill chuck connection	71ED66B6D07DD	71EF07FF8342C
variant 03 of BFS drill chuck connection	71ED66B6D07DD	71EF07FF9A5F1
BKA boring head connection	71DF8C37D9115	71ED66AC8B274
variant 01 of BKA boring head connection	71ED66AC8B274	71EF07F476F41
variant 02 of BKA boring head connection	71ED66AC8B274	71EF07F4BD4DB
variant 03 of BKA boring head connection	71ED66AC8B274	71EF07F4EADA0
variant 04 of BKA boring head connection	71ED66AC8B274	71EF07F50A5F7
variant 05 of BKA boring head connection	71ED66AC8B274	71EF07F53004D
variant 06 of BKA boring head connection	71ED66AC8B274	71EF07F54F030
BKC boring head connection Coromant	71DF8C37D9115	71ED66B62F072
variant 01 of BKC boring head connection Coromant	71ED66B62F072	71EF08001A258

Table B.1 (continued)

Classes	Parent class	Class BSU
BRP Bridgeport connection	71DF8C37D9115	71ED66B6EEC90
variant 01 of BRP Bridgeport connection	71ED66B6EEC90	71EF0804A302F
BTS Block Tool System Coromant	71DF8C37D9115	71ED66B0A4FC6
variant 01 of BTS Block Tool System	71ED66B0A4FC6	71EF0804C4329
BUF boring and chamfer system	71DF8C37D9115	71EF0BAEE28FC
variant 01 of BUF boring and chamfer system	71EF0BAEE28FC	71EF0BAF5FE3B
CBC Coromant bridge connection	71DF8C37D9115	71EF0BB8284F3
variant 01 of CBC Coromant bridge connection	71EF0BB8284F3	71EF0BB840816
CCB Coromant CoroBore	71DF8C37D9115	71EF0BB5F2859
variant 01 of CCB Coromant Corobore	71EF0BB5F2859	71EF0BB61BF20
variant 02 of CCB Coromant Corobore	71EF0BB5F2859	71EF0BB6E82EB
CCM Coromant Cap Mounting	71DF8C37D9115	71EF0BB70F7C7
variant 01 of CCM Coromant Cap Mounting	71EF0BB70F7C7	71EF0BB71801D
CCS Coromant Capto system	71DF8C37D9115	71ED66B709CAF
variant 01 of CCM Coromant Capto Sysytem	71ED66B709CAF	71EF0804EB914
CDB Coromant Duobore	71DF8C37D9115	71FACDBFF369F
variant 01 of CDB Coromant Duobore	71FACDBFF369F	71FACDC0554A1
variant 02 of CDB Coromant Duobore	71FACDBFF369F	71FACDC1144DE
CFB Coromant Fine Boring	71DF8C37D9115	71EF0BB74011A
variant 01 of CFB Coromant Fine Boring	71EF0BB74011A	71EF0BB74922A
variant 02 of CFB Coromant Fine Boring	71EF0BB74011A	71EF0BB763D01
variant 03 of CFB Coromant Fine Boring	71EF0BB74011A	71EF0BB775C8C
CKB Kaiser bore connection	71DF8C37D9115	71EF0BB792410
variant 01 of CKB Kaiser bore connection	71EF0BB792410	71EF0BB7BEFEC
CKS Kaiser shank connection	71DF8C37D9115	71EF0BB7DFCAE
variant 01 of CKS Kaiser shank connection	71EF0BB7DFCAE	71EF0BB804A8A
CMS Coromant Modular Serrated mounting	71DF8C37D9115	71EF080049770
variant 01 of CMS Coromant Modular Serrated system	71EF080049770	71EF080072664
variant 02 of CMS Coromant Modular Serrated system	71EF080049770	71EF08045D1DC
CUD Coromant U-drill connection	71DF8C37D9115	71FACDC80C1ED
variant 01 of CUD Coromant U-drill connection	71FACDC80C1ED	71FACDC87FE41
FCM Flexible Coupling Modular	71DF8C37D9115	71ED66ACB787C
variant 01 of FCM flexible coupling modular system	71ED66ACB787C	71EF07F5962C7
variant 02 of FCM flexible coupling modular system	71ED66ACB787C	71EF07F5CC5E9

Table B.1 (continued)

Classes	Parent class	Class BSU
FDA milling arbor connection	71DF8C37D9115	71ED66ACCAECB
variant 01 of FDA milling arbor	71ED66ACCAECB	71EF07F616F76
variant 02 of FDA milling arbor	71ED66ACCAECB	71EF07F6D9E5E
variant 03 of FDA milling arbor	71ED66ACCAECB	71EF07FB0C25D
variant 11 of FDA milling arbor	71ED66ACCAECB	71EF07FB3EFA1
variant 12 of FDA milling arbor	71ED66ACCAECB	71EF07FB6287C
variant 13 of FDA milling arbor	71ED66ACCAECB	71EF07FB984BB
variant 21 of FDA milling arbor	71ED66ACCAECB	71EF07FBDC4EF
variant 22 of FDA milling arbor	71ED66ACCAECB	71EF07FC1A78F
variant 23 of FDA milling arbor	71ED66ACCAECB	71EF07FC4228F
FLC flange connection Coromant	71DF8C37D9115	71EF0BB934E10
variant 01 of FLC flange connection Coromant	71EF0BB934E10	71EF0BB94B9C4
FLK flange connector Kennametal	71DF8C37D9115	71ED66B162A10
variant 02 of FLK flange connection Kennametal	71ED66B162A10	71EF08050689D
variant 03 of FLK flange connection Kennametal	71ED66B162A10	71EF0BB99721C
variant 04 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBE406B1
variant 05 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBE6A270
variant 06 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBE88271
variant 07 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBEA15EE
variant 08 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBEBE60D
variant 09 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBEE8C20
variant 10 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBEFDE0D
variant 11 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBF1AD8C
variant 12 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBF43055
variant 13 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBF4C436
variant 14 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBF67333
variant 15 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBF7F75A
variant 16 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBF9869E
variant 17 of FLK flange connection Kennametal	71ED66B162A10	71EF0BBFBD19F
FTS Flexible Tooling System	71DF8C37D9115	71ED66B653708
variant 01 of FTS Flexible Tooling System Kennametal	71ED66B653708	71EF0BBFDAAE7
GMS Graflex Modular System SECO	71DF8C37D9115	71ED66AD18B20
variant 01 of GMS Graflex modular system	71ED66AD18B20	71EF07FC94651
GRL Granlund connection	71DF8C37D9115	71ED66AD3543F
variant 01 of GRL Granlund connection	71ED66AD3543F	71EF07FD3C287
HEE HE-/HF-system EMUGE	71DF8C37D9115	71EF0BC1B193C
variant 01 of HEE HE-/HF system EMUGE	71EF0BC1B193C	71EF0BC26EC04

Table B.1 (continued)

Classes	Parent class	Class BSU
HFS head fitting system Mapal	71DF8C37D9115	71EF0BC29E34D
variant 01 of HFS head fitting system Mapal	71EF0BC29E34D	71EF0BC2B94A3
HSK hollow taper shank	71DF8C37D9115	71ED66B71F0A5
variant 01 of HSK hollow taper shank	71ED66B71F0A5	71EF0BC00EF7A
variant 02 of HSK hollow taper shank	71ED66B71F0A5	71EF0BC053A2A
variant 03 of HSK hollow taper shank	71ED66B71F0A5	71EF0BC085D25
variant 04 of HSK hollow taper shank	71ED66B71F0A5	71EF0BC0CCD59
HSZ hollow cylindrical shank	71DF8C37D9115	71ED66AD7B0D9
variant 01 of HSZ hollow cylindrical shank	71ED66AD7B0D9	71EF07FD7F301
variant 02 of HSZ hollow cylindrical shank	71ED66AD7B0D9	71EF0BC790F48
variant 03 of HSZ hollow cylindrical shank	71ED66AD7B0D9	71EF0BC7E4010
HTS deep drilling system	71DF8C37D9115	71ED66ADA5674
variant 01 of HTS deep drilling system Kennametal	71ED66ADA5674	71EF0BC823EAA
variant 02 of HTS deep drilling system Kennametal	71ED66ADA5674	71EF0BC8D1F91
KKG stub taper	71DF8C37D9115	71EF0BC91557B
variant 01 of KKG stub taper	71EF0BC91557B	71EF0BC9214D1
variant 02 of KKG stub taper	71EF0BC91557B	71EF0BC949990
KKH cartridge interface	71DF8C37D9115	71ED66B17CDFB
variant 01 of KKH ISO cartridge mounting	71ED66B17CDFB	71EF0BC984FAA
KMB Kennametal ModBore system	71DF8C37D9115	71ED66B65F546
variant 01 of KMB ModBore System Kennametal	71ED66B65F546	71EF0BC9FBDB7
variant 02 of KMB ModBore System Kennametal	71ED66B65F546	71EF0BCA2A5E6
KMC Kennametal cartridge mounting	71DF8C37D9115	71ED66B19A2E0
variant 02 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F685CEF
variant 03 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F6CC58B
variant 04 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F6E4567
variant 05 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F6F9430
variant 06 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F71619F
variant 07 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F730A50
variant 08 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F74607B
variant 09 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F75CACB
variant 10 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F773A6B
variant 11 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F78E88A
variant 12 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F7AF2F3
variant 13 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F7D7E43
variant 14 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F7F009F
variant 15 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F8038C3
variant 16 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F810899
variant 17 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F826471

Table B.1 (continued)

Classes	Parent class	Class BSU
variant 18 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F84D9E8
variant 19 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F858DB9
variant 20 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F86F70F
variant 21 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F884E83
variant 22 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F89C4E9
variant 23 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F8B170D
variant 24 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F8B0B2D
variant 25 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F8D168B
variant 26 of KMC Kennametal cartridge mounting	71ED66B19A2E0	71EF16F91618D
KMM Kennametal Micro system	71DF8C37D9115	71EF16F97D172
variant 01 of KMM Kennametal micro system	71EF16F97D172	71EF16F9A3BAE
variant 02 of KMM Kennametal micro system	71EF16F97D172	71EF16F9BF2B6
KMT KM-UTS system Kennametal/Widia	71DF8C37D9115	71ED66B74D6DF
variant 01 of KMT KM-UTS system Kennametal/Widia	71ED66B74D6DF	71EF16F9D45A6
variant 02 of KMT KM-UTS system Kennametal/Widia	71ED66B74D6DF	71EF16FA26760
variant 03 of KMT KM-UTS system Kennametal/Widia	71ED66B74D6DF	71EF16FE1F4DB
variant 04 of KMT KM-UTS system Kennametal/Widia	71ED66B74D6DF	71EF16FE2A60C
KRS Kennametal Romicon system	71DF8C37D9115	71ED66B983935
variant 01 of KRS Kennametal Romicon System	71ED66B983935	71EF16FE6C4DD
variant 02 of KRS Kennametal Romicon System	71ED66B983935	71EF16FE88AAB
KVT KV system Kennametal	71DF8C37D9115	71ED66B999EED
variant 01 of KVT KV system Kennametal	71ED66B999EED	71EF16FEBD7E4
variant 02 of KVT KV system Kennametal	71ED66B999EED	71EF16FED3D33
MBS Multi Blade System Coromant	71DF8C37D9115	71EF16FEFE0AF
variant 01 of MBS Multi Blade	71EF16FEFE0AF	71EF16FF1EB17
MCS modular cartridge system Kennametal	71DF8C37D9115	71ED66B1C3A98
variant 01 of MCS modular cartridge system Kennametal	71ED66B1C3A98	71EF16FF5C435
variant 02 of MCS modular cartridge system Kennametal	71ED66B1C3A98	71EF16FF75F49
variant 03 of MCS modular cartridge system Kennametal	71ED66B1C3A98	71EF16FF96879
variant 04 of MCS modular cartridge system Kennametal	71ED66B1C3A98	71EF16FFA94C6
MEG metric taper	71DF8C37D9115	71ED66B9B5DB8
variant 10 of MEG metric taper	71ED66B9B5DB8	71EF1E87A1AFC
variant 11 of MEG metric taper	71ED66B9B5DB8	71EF1E87C88D7
variant 12 of MEG metric taper	71ED66B9B5DB8	71EF1E87D60B5
variant 13 of MEG metric taper	71ED66B9B5DB8	71EF1E87FABF2
variant 20 of MEG metric taper	71ED66B9B5DB8	71EF1E88337E1
variant 21 of MEG metric taper	71ED66B9B5DB8	71EF1E884C33B
variant 22 of MEG metric taper	71ED66B9B5DB8	71EF1E886526B

Table B.1 (continued)

Classes	Parent class	Class BSU
variant 23 of MEG metric taper	71ED66B9B5DB8	71EF1E887AC99
variant 30 of MEG metric taper	71ED66B9B5DB8	71EF1E88A9D3B
variant 31 of MEG metric taper	71ED66B9B5DB8	71EF1E88D832F
variant 32 of MEG metric taper	71ED66B9B5DB8	71EF1E88F44A3
variant 33 of MEG metric taper	71ED66B9B5DB8	71EF1E89126E9
variant 40 of MEG metric taper	71ED66B9B5DB8	71EF1E8940F72
variant 41 of MEG metric taper	71ED66B9B5DB8	71EF1E895BA49
variant 42 of MEG metric taper	71ED66B9B5DB8	71EF1E8983142
variant 43 of MEG metric taper	71ED66B9B5DB8	71EF1E899E483
MKG Morse taper	71DF8C37D9115	71ED66B9CF5A0
variant 10 of MKG morse taper	71ED66B9CF5A0	71EF1E89BDD01
variant 11 of MKG morse taper	71ED66B9CF5A0	71EF1E89EB4C2
variant 12 of MKG morse taper	71ED66B9CF5A0	71EF1E8A033CA
variant 13 of MKG morse taper	71ED66B9CF5A0	71EF1E8A1AACC
variant 20 of MKG morse taper	71ED66B9CF5A0	71EF1E8A38E35
variant 21 of MKG morse taper	71ED66B9CF5A0	71EF1E8E2EE7E
variant 22 of MKG morse taper	71ED66B9CF5A0	71EF1E8E4A3B4
variant 23 of MKG morse taper	71ED66B9CF5A0	71EF1E8E797B3
variant 30 of MKG morse taper	71ED66B9CF5A0	71EF1E8E931E0
variant 31 of MKG morse taper	71ED66B9CF5A0	71EF1E8EADB27
variant 32 of MKG morse taper	71ED66B9CF5A0	71EF1E8ECB31A
variant 33 of MKG morse taper	71ED66B9CF5A0	71EF1E8EF27D8
variant 40 of MKG morse taper	71ED66B9CF5A0	71EF1E8F157CF
variant 41 of MKG morse taper	71ED66B9CF5A0	71EF1E8F42243
variant 42 of MKG morse taper	71ED66B9CF5A0	71EF1E8F6F981
variant 43 of MKG morse taper	71ED66B9CF5A0	71EF1E8F8B318
MVS modular connection system Wohlhaupter	71DF8C37D9115	71ED66AE75E58
variant 01 of MVS modular connection system Wohlhaupter	71ED66AE75E58	71EF1E8FB6234
NCT Novex-NC-Tools Walter	71DF8C37D9115	71ED66B9F6D76
variant 01 of NCT Novex-NC-Tools Walter	71ED66B9F6D76	71EF1E8FFD738
PMC prismatic connection Coromant	71DF8C37D9115	71EF1E9030508
variant 01 of PMC prismatic connection Coromant	71EF1E9030508	71EF1E906A58B
variant 02 of PMC prismatic connection Coromant	71EF1E9030508	71EF1E9082FF5
variant 04 of PMC prismatic connection Coromant	71EF1E9030508	71EF1E90F24F5
variant 07 of PMC prismatic connection Coromant	71EF1E9030508	71EF1E91159E3
PMD prismatic connection standard	71DF8C37D9115	71ED66B1DF8E1
variant 01 of PMD prismatic connection standard	71ED66B1DF8E1	71EF1E915B0BD
PMK prismatic connection Kennametal	71DF8C37D9115	71ED66B5E2C68

Table B.1 (continued)

Classes	Parent class	Class BSU
variant 01 of PMK prismatic connection Kennametal	71ED66B5E2C68	71EF1E918967F
PMS prismatic connection SECO	71DF8C37D9115	71EF1E91D5D4F
variant 01 of PMS prismatic connection SECO	71EF1E91D5D4F	71EF1E91EFA2F
RFX Rotaflex system Widia	71DF8C37D9115	71ED66ADD852B
variant 01 of RFX Rotaflex system Widia	71ED66ADD852B	71EF2242723DD
SAC screw connection Coromant	71DF8C37D9115	71EF2242B4D39
variant 01 of SAC screw connection Coromant	71EF2242B4D39	71EF22434D3F1
variant 02 of SAC screw connection Coromant	71EF2242B4D39	71EF2243668E1
variant 03 of SAC screw connection Coromant	71EF2242B4D39	71EF224379DA9
SBA SBA-system Komet	71DF8C37D9115	71EF2242CDE99
variant 01 of SBA SBA-system Komet	71EF2242CDE99	71EF224394D8C
SCA SECO cartridge mounting	71DF8C37D9115	71EF2242E8099
variant 01 of SCA SECO cartridge mounting	71EF2242E8099	71EF2243AFA09
variant 02 of SCA SECO cartridge mounting	71EF2242E8099	71EF2243CB404
variant 03 of SCA SECO cartridge mounting	71EF2242E8099	71EF2243E36FF
SCR SECO crownlock connection	71DF8C37D9115	71EF224302CF7
variant 01 of SCR SECO crownlock connection	71EF224302CF7	71EF2247CCF24
SKG Steep taper	71DF8C37D9115	71ED66BA0F1F7
variant 10 of SKG steep taper	71ED66BA0F1F7	71EF224817F39
variant 11 of SKG steep taper	71ED66BA0F1F7	71EF2248594F2
variant 16 of SKG steep taper	71ED66BA0F1F7	71EF2248775E3
variant 17 of SKG steep taper	71ED66BA0F1F7	71EF22489E8A3
variant 20 of SKG steep taper	71ED66BA0F1F7	71EF2248B8EAB
variant 21 of SKG steep taper	71ED66BA0F1F7	71EF2248CF17E
variant 26 of SKG steep taper	71ED66BA0F1F7	71EF2248DA3F5
variant 27 of SKG steep taper	71ED66BA0F1F7	71EF22490384F
variant 30 of SKG steep taper	71ED66BA0F1F7	71EF22492256B
variant 31 of SKG steep taper	71ED66BA0F1F7	71EF224948944
variant 36 of SKG steep taper	71ED66BA0F1F7	71EF2249532BC
variant 37 of SKG steep taper	71ED66BA0F1F7	71EF224979825
variant 40 of SKG steep taper	71ED66BA0F1F7	71EF224996880
variant 41 of SKG steep taper	71ED66BA0F1F7	71EF2249B2AF9
variant 46 of SKG steep taper	71ED66BA0F1F7	71EF2249D9BD8
variant 47 of SKG steep taper	71ED66BA0F1F7	71EF224A0E1FD
variant 50 of SKG steep taper	71ED66BA0F1F7	71EF224A4275A
variant 51 of SKG steep taper	71ED66BA0F1F7	71EF224A59B6E
variant 56 of SKG steep taper	71ED66BA0F1F7	71EF224A70519
variant 57 of SKG steep taper	71ED66BA0F1F7	71EF224A8BA27

Table B.1 (continued)

Classes	Parent class	Class BSU
SMM SECO minimaster	71DF8C37D9115	71EF224AAA436
variant 01 of SMM SECO minimaster	71EF224AAA436	71EF224ADA70A
SMS SECO modular serrated connection	71DF8C37D9115	71EF224ABDBD9
variant 01 of SMS SECO modular serrated connection	71EF224ABDBD9	71EF224AEF279
SPK holding arbor	71DF8C37D9115	71ED66ADFAA9B
variant 01 of SPK holding arbor	71ED66ADFAA9B	71EF25FA05521
variant 02 of SPK holding arbor	71ED66ADFAA9B	71EF25FA3739C
variant 03 of SPK holding arbor	71ED66ADFAA9B	71EF25FA830B8
variant 04 of SPK holding arbor	71ED66ADFAA9B	71EF25FAAB512
variant 05 of SPK holding arbor	71ED66ADFAA9B	71EF25FADB60F
variant 06 of SPK holding arbor	71ED66ADFAA9B	71EF25FAF655C
variant 07 of SPK holding arbor	71ED66ADFAA9B	71EF25FB14928
variant 08 of SPK holding arbor	71ED66ADFAA9B	71EF25FB3DCEC
variant 09 of SPK holding arbor	71ED66ADFAA9B	71EF25FB6D150
variant 10 of SPK holding arbor	71ED66ADFAA9B	71EF25FB8DE89
variant 11 of SPK holding arbor	71ED66ADFAA9B	71EF25FBB4F22
variant 12 of SPK holding arbor	71ED66ADFAA9B	71EF25FC1BBDA
SRT SECO R2 shank	71DF8C37D9115	71EF25FC490BF
variant 01 of SRT SECO R2 shank	71EF25FC490BF	71EF25FC62677
STH automotive shank	71DF8C37D9115	71ED66AE29B8D
variant 01 of STH automotive shank	71ED66AE29B8D	71EF25FCB20D6
SWB quick change connection	71DF8C37D9115	71ED66AE588FA
variant 01 of SWB quick change connection	71ED66AE588FA	71F8F4AAB6B82
SZB collet shortened design Biax	71DF8C37D9115	71EF2955BD8F5
variant 01 of SZB collet shortened design Biax	71EF2955BD8F5	71F8F4ACA903C
SZC collet connection Coromant	71DF8C37D9115	71EF2955D5933
variant 01 of SZC collet connection Coromant	71EF2955D5933	71F8F4AD0700A
variant 02 of SZC collet connection Coromant	71EF2955D5933	71F8F4AD0A9D3
SZD collet connection standard	71DF8C37D9115	71ED66BA26E2E
variant 01 of SZD collet connection standard	71ED66BA26E2E	71F8F4ADCFB28
variant 02 of SZD collet connection standard	71ED66BA26E2E	71F8F4ADDFD29
variant 03 of SZD collet connection standard	71ED66BA26E2E	71F8F4ADE49F6
variant 04 of SZD collet connection standard	71ED66BA26E2E	71F8F4ADE904D
variant 11 of SZD collet connection standard	71ED66BA26E2E	71F8F4ADF72B3
variant 12 of SZD collet connection standard	71ED66BA26E2E	71F8F4ADFB413
variant 13 of SZD collet connection standard	71ED66BA26E2E	71F8F4ADFFFF9
SZE collet connection Erikson	71DF8C37D9115	71EF2955F7771
variant 03 of SZE collet connection Erikson	71EF2955F7771	71F8F4AEABB7A
variant 04 of SZE collet connection Erikson	71EF2955F7771	71F8F4AEBB269

Table B.1 (continued)

Classes	Parent class	Class BSU
Classes	Parent class	Class BSU
SZP collet Eminent-Perman	71DF8C37D9115	71EF29560D5F6
variant 01 of SZP collet Eminent-Perman	71EF29560D5F6	71F8F4AFC5115
SZR collet KSF Roehm	71DF8C37D9115	71EF2956256D4
variant 01 of SZR collet KSF Roehm	71EF2956256D4	71F8F4B457636
SZS collet Steinel Bohrmaster	71DF8C37D9115	71EF29563BB7E
variant 01 of SZS collet Steinel Bohrmaster	71EF29563BB7E	71F8F4B475442
variant 02 of SZS collet Steinel Bohrmaster	71EF29563BB7E	71F8F4B479EA2
variant 03 of SZS collet Steinel Bohrmaster	71EF29563BB7E	71F8F4B47DB96
URM Urma connection	71DF8C37D9115	71EF2956584ED
variant 01 of URM Urma connection	71EF2956584ED	71F8F4B4A6D29
UTS UTS Widia	71DF8C37D9115	71EF29566E0D4
variant 01 of UTS UTS Widia	71EF29566E0D4	71F8F4B4C5B9A
VAS Variant System Coromant	71DF8C37D9115	71ED66AEA108B
variant 01 of VAS Variant System Coromant	71ED66AEA108B	71F8F4B4DF852
VKT rectangular connection	71DF8C37D9115	71ED66B5FAE04
variant 01 of VKT rectangular connection	71ED66B5FAE04	71F8F4B51A785
VLS Varilock System Coromant	71DF8C37D9115	71ED66AEBC779
variant 01 of VLS Varilock System Coromant	71ED66AEBC779	71F8F4B4F1367
ZYL cylindrical shank connection	71DF8C37D9115	71ED66AF2175B
variant 01 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B5348DB
variant 03 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B5390AF
variant 04 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B53E3D2
variant 10 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B54FA0D
variant 11 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B554639
variant 13 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B56465A
variant 14 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B56A63D
variant 15 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B56FE57
variant 16 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B57F583
variant 17 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B5853C1
variant 18 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B58A106
variant 19 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B597D0B
variant 20 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B5ACE12
variant 21 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B5B212B
variant 22 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B5B7D42
variant 23 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B5C5EC2
variant 24 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B5D1A6B
variant 50 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B82CEDE
variant 53 of ZYL cylindrical shank connection	71ED66AF2175B	71F8F4B832F8A

Table B.1 (continued)

Classes	Parent class	Class BSU
ZYV VDI shank	71DF8C37D9115	71ED66AF4BEFE
variant 01 of ZYV VDI shank	71ED66AF4BEFE	71F8F4B863718
variant 02 of ZYV VDI shank	71ED66AF4BEFE	71F8F4B87213D
coolant supply	71CE7A72B6DA7	71DF8C3C065EB
cutting item feature	71CE7A72B6DA7	71DD6C82F72DA
cutting item type	71CE7A72B6DA7	71D1AA6C8FC75
cutting operation	71CE7A72B6DA7	71DFF83D21D50
cutting tool	71CE7A72B6DA7	71CE7A7A5038B
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

The content of this annex is limited to the classes of the connection interface feature.

The information for each class is presented as follows.

BSU Code – version number **Revision number**

Preferred name **Short name**

Synonymous name

Definition

NOTE

REMARKS

Illustration reference: Figure <Annex.figure number>

Properties:

Subclasses:

NOTE A particular entry may not have all the elements of this presentation.

71DF8C37D9115-1 **1**

connection interface feature **connect**

family of features of those parts of a tool item or adaptive item that forms a coupling to another tool item or adaptive item or machine tool

Properties:

71D102AE3B252-1 conn code machine side

71D102AE8A5A9-1 conn code workpiece side

Subclasses:

71ED66AC44D48-001 ABS System Komet

71ED66AC8B274-001 BKA boring head connection

71ED66ACB787C-001 FCM Flexible Coupling Modular

71ED66ACCAECB-001 FDA milling arbor connection

71ED66AD18B20-001 GMS Graflex Modular System SECO

71ED66AD3543F-001	GRL Granlund connection
71ED66AD7B0D9-001	HSZ hollow cylindrical shank
71ED66ADA5674-001	HTS deep drilling system
71ED66ADD852B-001	RFX Rotaflex system Widia
71ED66ADFAA9B-001	SPK holding arbor
71ED66AE29B8D-001	STH automotive shank
71ED66AE588FA-001	SWB quick change connection
71ED66AE75E58-001	MVS modular connection system Wohlhaupter
71ED66AEA108B-001	VAS Variant System Coromant
71ED66AEBC779-001	VLS Varilock System Coromant
71ED66AF2175B-001	ZYL cylindrical shank connection
71ED66AF4BEFE-001	ZYV VDI shank
71ED66B0A4FC6-001	BTS Block Tool System Coromant
71ED66B162A10-001	FLK flange connector Kennametal
71ED66B17CDFB-001	KKH cartridge interface
71ED66B19A2E0-001	KMC Kennametal cartridge mounting
71ED66B1C3A98-001	MCS modular cartridge system Kennametal
71ED66B1DF8E1-001	PMD prismatic connection standard
71ED66B5E2C68-001	PMK prismatic connection Kennametal
71ED66B5FAE04-001	VKT rectangular connection
71ED66B62F072-001	BKC boring head connection Coromant
71ED66B653708-001	FTS Flexible Tooling System
71ED66B65F546-001	KMB Kennametal ModBore system
71ED66B6D07DD-001	BFA drill chuck connection
71ED66B6EEC90-001	BRP Bridgeport connection
71ED66B709CAF-001	CCS Coromant Capto system
71ED66B71F0A5-001	HSK hollow taper shank
71ED66B74D6DF-001	KMT KM-UTS system Kennametal/Widia
71ED66B983935-001	KRS Kennametal Romicron system
71ED66B999EED-001	KVT KV system Kennametal

71ED66B9B5DB8-001	MEG metric taper
71ED66B9CF5A0-001	MKG Morse taper
71ED66B9F6D76-001	NCT Novex-NC-Tools Walter
71ED66BA0F1F7-001	SKG Steep taper
71ED66BA26E2E-001	SZD collet connection standard
71EF080049770-001	CMS Coromant Modular Serrated mounting
71EF0BAE19FE3-001	AIF Adjustable Interface Dihart
71EF0BAE640B8-001	AWN Prisma connection Schwanog
71EF0BAEE28FC-001	BUF boring and chamfer system
71EF0BB5F2859-001	CCB Coromant CoroBore
71EF0BB70F7C7-001	CCM Coromant Cap Mounting
71EF0BB74011A-001	CFB Coromant Fine Boring
71EF0BB792410-001	CKB Kaiser bore connection
71EF0BB7DFCAE-001	CKS Kaiser shank connection
71EF0BB8284F3-001	CBC Coromant bridge connection
71EF0BB934E10-001	FLC flange connection Coromant
71EF0BC1B193C-001	HEE HE-/HF-system EMUGE
71EF0BC29E34D-001	HFS head fitting system Mapal
71EF0BC91557B-001	KKG stub taper
71EF16F97D172-001	KMM Kennametal Micro system
71EF16FEFE0AF-001	MBS Multi Blade System Coromant
71EF1E9030508-001	PMC prismatic connection Coromant
71EF1E91D5D4F-001	PMS prismatic connection SECO
71EF2242B4D39-001	SAC screw connection Coromant
71EF2242CDE99-001	SBA SBA-system Komet
71EF2242E8099-001	SCA SECO cartridge mounting
71EF224302CF7-001	SCR SECO crownlock connection
71EF224AAA436-001	SMM SECO minimaster
71EF224ABDBD9-001	SMS SECO modular serrated connection
71EF25FC490BF-001	SRT SECO R2 shank

71EF2955BD8F5-001	SZB collet shortened design Biax
71EF2955D5933-001	SZC collet connection Coromant
71EF2955F7771-001	SZE collet connection Erikson
71EF29560D5F6-001	SZP collet Eminent-Perman
71EF2956256D4-001	SZR collet KSF Roehm
71EF29563BB7E-001	SZS collet Steinel Bohrmaster
71EF2956584ED-001	URM Urma connection
71EF29566E0D4-001	UTS UTS Widia
71FACDBFF369F-001	CDB Coromant Duobore
71FACDC80C1ED-001	CUD Coromant U-drill connection

71ED66AC44D48-1 1

ABS System Komet

ABS

connection of cylindrical external shape with cylindrical mating surfaces on the machine side and the workpiece side with the values of dimensions conforming to Komet ABS ³⁾ with a sliding pin through the machine side connection to locate into the body of the workpiece side

Illustration reference: Figure E.1.

Subclasses:

71EF07EABDA7A-001	variant 01 of ABS System Komet
71EF07EB0646B-001	variant 02 of ABS System Komet

71EF07EABDA7A-1 1

variant 01 of ABS System Komet

ABS-01

normal version of ABS System Komet

71EF07EB0646B-1 1

variant 02 of ABS System Komet

ABS-02

version of ABS System Komet with tenon drive feature conforming to the dimensions of the ABS-N design

3) ABS is a registered trademark.

71EF0BAE19FE3-1 1

AIF Adjustable Interface Dihart AIF

connection of cylindrical external shape with a cylindrical mating surfaces on the workpiece side and a planar surface secured by screws from the machine side connection.

Illustration reference: Figure E.2.

Subclasses:

71EF0BAE384FA-001 variant 01 of AIF Adjustable Interface Dihart

71EF0BAE384FA-1 1

variant 01 of AIF Adjustable Interface Dihart AIF-01

normal version of AIF Adjustable Interface Dihart

71EF0BAE640B8-1 1

AWN Prisma connection Schwanog AWN

connection with dovetail mating surfaces conforming to the dimensions of the Schwanog Prisma system

Illustration reference: Figure E.3.

Subclasses:

71EF0BAE84362-001 variant 01 of AWN Prisma connection Schwanog

71EF0BAE84362-1 1

variant 01 of AWN Prisma connection Schwanog AWN-01

normal version of AWN Prisma connection Schwanog

71ED66B6D07DD-1 1

BFA drill chuck connection BFA

connection with conical mating surfaces held by an interference fit between the two surfaces

Illustration reference: Figure E.4.

Subclasses:

71EF07FF67B22-001 variant 01 of BFS drill chuck connection

71EF07FF8342C-001 variant 02 of BFS drill chuck connection

71EF07FF9A5F1-001 variant 03 of BFS drill chuck connection

71EF07FF67B22-1 1

variant 01 of BFS drill chuck connection BFA-01

version of BFS drill chuck connection with dimensions conforming to a Morse taper type

71EF07FF8342C-1 1

variant 02 of BFS drill chuck connection BFA-01

version of BFS drill chuck connection with dimensions conforming to a Jacobs taper type

71EF07FF9A5F1-1 1

variant 03 of BFS drill chuck connection BFA-03

version of BFS drill chuck connection with dimensions conforming to a tapered mandrel

71ED66AC8B274-1 1

BAK boring head connection BAK

connection with flanged mating surfaces located by a central boss and secured by screws into the machine side connector

Illustration reference: Figure E.5

Subclasses:

71EF07F476F41-001 variant 01 of BAK boring head connection

71EF07F4BD4DB-001 variant 02 of BAK boring head connection

71EF07F4EADA0-001 variant 03 of BAK boring head connection

71EF07F50A5F7-001 variant 04 of BAK boring head connection

71EF07F53004D-001 variant 05 of BAK boring head connection

71EF07F54F030-001 variant 06 of BAK boring head connection

71EF07F476F41-1 1

variant 01 of BAK boring head connection BAK-01

version of BAK boring head connection for use with interchangeable heads system H

71EF07F4BD4DB-1 1

variant 02 of BAK boring head connection BAK-02

version of BAK boring head connection conforming to the dimensions of the Hertel boring heads system

71EF07F4EADA0-1 1

variant 03 of BKA boring head connection BKA-03

version of BKA boring head connection for use with adjustable boring heads A

71EF07F50A5F7-1 1

variant 04 of BKA boring head connection BKA-04

version of BKA boring head connection for use with interchangeable screw-on boring heads

71EF07F53004D-1 1

variant 05 of BKA boring head connection BKA-04

version of BKA boring head connection with dimensions conforming to Erikson tenth set boring ring

71EF07F54F030-1 1

variant 06 of BKA boring head connection BKA-06

version of BKA boring head connection with dimensions conforming to Erikson tenth set screw-on-boring head

71ED66B62F072-1 1

BKC boring head connection Coromant BKC

connection of generally cylindrical form conforming to the dimensions of Coromant system 580⁴⁾ for connecting boring tool items secured by locking screws from the periphery of the machine side connector locating in threads in the workpiece side connector

Illustration reference: Figure E.6.

Subclasses:

71EF08001A258-001 variant 01 of BKC boring head connection Coromant

71EF08001A258-1 1

variant 01 of BKC boring head connection Coromant BKC-01

normal version of BKC boring head connection Coromant

4) Coromant system 580 is the trade name of a product supplied by AB Sandvik Coromant. This information is given for the convenience of users of this part of ISO 13399 and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

71ED66B6EEC90-1**1****BRP Bridgeport connection****BRP**

connection with cylindrical mating surfaces with a conical section at the entry. The machine side connector is located by a pin in the machine side connector that locates in a groove in the workpiece side connector and the assembly is secured by a screw into the workpiece side connector

Illustration reference: Figure E.7.

Subclasses:

71EF0804A302F-001 variant 01 of BRP Bridgeport connection

71EF0804A302F-1**1****variant 01 of BRP Bridgeport connection BRP-01**

normal version of BRP Bridgeport connection with dimensions confirming to R8

71ED66B0A4FC6-1**1****BTS Block Tool System Coromant****BTS**

connector with rectangular mating surfaces conforming to the dimensions of the Coromant Block Tool System⁵⁾ and a locking mechanism using a male form on the machine side connector that can be withdrawn by a drawbar to expand the workpiece side connector

Illustration reference: Figure E.8.

Subclasses:

71EF0804C4329-001 variant 01 of BTS Block Tool System

71EF0804C4329-1**1****variant 01 of BTS Block Tool System BTS-01**

normal version of BTS Block Tool System Coromant

71EF0BAEE28FC-1**1****BUF boring and chamfer system****BUF**

connection with cylindrical mating surfaces with components located by a guiding pin and secured by a locking screw

5) Block Tool System is the trade name of a product supplied by AB Sandvik Coromant. This information is given for the convenience of users of this part of ISO 13399 and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

Illustration reference: Figure E.9.

Subclasses:

71EF0BAF5FE3B-001 variant 01 of BUF boring and chamfer system

71EF0BAF5FE3B-1 1

variant 01 of BUF boring and chamfer system BUF-01

normal version of the BUF boring and chamfer system

71EF0BB8284F3-1 1

CBC Coromant bridge connection CBC

connection to a slide in a bridge by means of a keyway slot

Subclasses:

71EF0BB840816-001 variant 01 of CBC Coromant bridge connection

71EF0BB840816-1 1

variant 01 of CBC Coromant bridge connection CBC-01

normal version of CBC Coromant bridge connection

Illustration reference: Figure E.10.

71EF0BB5F2859-1 1

CCB Coromant CoroBore CCB

connection to hold adjustable cartridges of a boring tool assembly conforming to the dimensions of the Coromant CoroBore⁶⁾ system

Subclasses:

71EF0BB61BF20-001 variant 01 of CCB Coromant Corobore

71EF0BB6E82EB-001 variant 02 of CCB Coromant Corobore

6) CoroBore is the trade name of a product supplied by AB Sandvik Coromant. This information is given for the convenience of users of this part of ISO 13399 and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

71EF0BB61BF20-1 1

variant 01 of CCB Coromant Corobore CCB-01

version of CCB Coromant Corobore with three cartridges with radial adjustments

Illustration reference: Figure E.11.

71EF0BB6E82EB-1 1

variant 02 of CCB Coromant Corobore CCB-02

version of CCB Coromant Corobore with one cartridge with radial adjustments

Illustration reference: Figure E.12.

71EF0BB70F7C7-1 1

CCM Coromant Cap Mounting CCM

connection of cylindrical form to connect a milling cutter to an arbor secured by screws

Illustration reference: Figure E.13.

Subclasses:

71EF0BB71801D-001 variant 01 of CCM Coromant Cap Mounting

71EF0BB71801D-1 1

variant 01 of CCM Coromant Cap Mounting CCM-01

normal version of a CCM Coromant Cap Mounting

71ED66B709CAF-1 1

CCS Coromant Capto system CCS

connection with mating surfaces in the form of a tapered hollow polygon ⁷⁾

Illustration reference: Figure E.14.

Subclasses:

71EF0804EB914-001 variant 01 of CCM Coromant Capto System

7) Capto and Duobore are the trade names of products supplied by AB Sandvik Coromant. This information is given for the convenience of users of this part of ISO 13399 and does not constitute an endorsement by ISO of the products named. Equivalent products may be used if they can be shown to lead to the same results.

71EF0804EB914-1 1

variant 01 of CCM Coromant Capto System CCS-01

normal version of CCM Coromant Capto System

71FACDBFF369F-1 1

CDB Coromant Duobore CDB

connection between a dual boring cartridge assembly and another adaptive item ⁷⁾

NOTE Duobore is a registered trade mark of AB Sandvik Coromant.

Subclasses:

71FACDC0554A1-001 variant 01 of CDB Coromant Duobore

71FACDC1144DE-001 variant 02 of CDB Coromant Duobore

71FACDC0554A1-1 1

variant 01 of CDB Coromant Duobore CDB-01

version of CDB Coromant Duobore with radial adjustment and axial adjustment by the addition of a shim

Illustration reference: Figure E.15.

71FACDC1144DE-1 1

variant 02 of CDB Coromant Duobore CDB-01

version of CDB Coromant Duobore with radial adjustment and axial adjustment by movement of a cartridge

Illustration reference: Figure E.16.

71EF0BB74011A-1 1

CFB Coromant Fine Boring CFB

connections to enable the assembly of a fine boring tool conforming to the dimensions of a Coromant Fine Boring Unit

Subclasses:

71EF0BB74922A-001 variant 01 of CFB Coromant Fine Boring

71EF0BB763D01-001 variant 02 of CFB Coromant Fine Boring

71EF0BB775C8C-001 variant 03 of CFB Coromant Fine Boring

71EF0BB74922A-1 1

variant 01 of CFB Coromant Fine Boring CFB-01

version of CFB Coromant Fine Boring to hold a cartridge to enable the assembly of a fine boring tool

Illustration reference: Figure E.17.

71EF0BB763D01-1 1

variant 02 of CFB Coromant Fine Boring CFB-02

version of CFB Coromant Fine Boring to connect a boring head to a boring adaptor to enable the assembly of a fine boring tool

Illustration reference: Figure E.18.

71EF0BB775C8C-1 1

variant 03 of CFB Coromant Fine Boring CFB-03

version of CFB Fine Boring to connect a boring unit into a boring bar secured by three screws into the machine side connector to enable the assembly of a fine boring tool

Illustration reference: Figure E.19.

71EF0BB792410-1 1

CKB Kaiser bore connection CKB

connection of cylindrical form with cylindrical mating surfaces located with two diametrical keys on the machine side connector and secured by a pin through the two components

Illustration reference: Figure E.20.

Subclasses:

71EF0BB7BEFEC-001 variant 01 of CKB Kaiser bore connection

71EF0BB7BEFEC-1 1

variant 01 of CKB Kaiser bore connection CKB-01

normal version of CKB Kaiser bore connection

71EF0BB7DFCAE-1 1

CKS Kaiser shank connection CKS

connection of cylindrical form with cylindrical mating surfaces located with two diametrical keys on the workpiece side connector and secured by a pin through the two components

Illustration reference: Figure E.21.

Subclasses:

71EF0BB804A8A-001 variant 01 of CKS Kaiser shank connection

71EF0BB804A8A-1 1

variant 01 of CKS Kaiser shank connection **CKS-01**

normal version of Kaiser shank connection

71EF080049770-1 1

CMS Coromant Modular Serrated mounting **CMS**

connection between serrated mating surfaces locked together with screws with the values of the dimensions corresponding to Coromant 570 and Coromant SL⁸⁾

Illustration reference: Figure E.22.

Subclasses:

71EF080072664-001 variant 01 of CMS Coromant Modular Serrated system

71EF08045D1DC-001 variant 02 of CMS Coromant Modular Serrated system

71EF080072664-1 1

variant 01 of CMS Coromant Modular Serrated system **CMS-01**

Coromant 570

version of CMS Coromant Modular Serrated mounting with truncated ridges and radiused valleys

71EF08045D1DC-1 1

variant 02 of CMS Coromant Modular Serrated system **CMS-02**

Coromant SL

version of CMS Coromant Modular Serrated mounting with radiused ridges and valleys

8) Coromant 570 and SL are the trade names of products supplied by AB Sandvik Coromant. This information is given for the convenience of users of this part of ISO 13399 and does not constitute an endorsement by ISO of the products named. Equivalent products may be used if they can be shown to lead to the same results.

71FACDC80C1ED-1 **1**

CUD Coromant U-drill connection **CUD**

connection for a drill with a whistle-notch shank and a driving lug

Illustration reference: Figure E.23.

Subclasses:

71FACDC87FE41-001 variant 01 of CUD Coromant U-drill connection

71FACDC87FE41-1 **1**

variant 01 of CUD Coromant U-drill connection **CUD-01**

normal version of CUD Coromant U-drill connection

71ED66ACB787C-1 **1**

FCM Flexible Coupling Modular **FCM**

connection between cylindrical mating surfaces with specific detailed design

Illustration reference: Figure E.24.

Subclasses:

71EF07F5962C7-001 variant 01 of FCM flexible coupling modular system

71EF07F5CC5E9-001 variant 02 of FCM flexible coupling modular system

71EF07F5962C7-1 **1**

variant 01 of FCM flexible coupling modular system **FCM-01**

normal version of FCM flexible coupling modular system

71EF07F5CC5E9-1 **1**

variant 02 of FCM flexible coupling modular system **FCM-02**

version of FCM flexible modular coupling with dimensions conforming to FCM-F design

71ED66ACCAECB-1 **1**

FDA milling arbor connection **FDA**

connection between cylindrical mating surfaces with specific detailed design for a milling arbor

Illustration reference: Figure E.25.

Subclasses:

71EF07F616F76-001	variant 01 of FDA milling arbor
71EF07F6D9E5E-001	variant 02 of FDA milling arbor
71EF07FB0C25D-001	variant 03 of FDA milling arbor
71EF07FB3EFA1-001	variant 11 of FDA milling arbor
71EF07FB6287C-001	variant 12 of FDA milling arbor
71EF07FB984BB-001	variant 13 of FDA milling arbor
71EF07FBDC4EF-001	variant 21 of FDA milling arbor
71EF07FC1A78F-001	variant 22 of FDA milling arbor
71EF07FC4228F-001	variant 23 of FDA milling arbor

71EF07F616F76-1 **1**

variant 01 of FDA milling arbor **FDA-01**

version of FDA milling arbor with longitudinal key drive

71EF07F6D9E5E-1 **1**

variant 02 of FDA milling arbor **FDA-01**

version of FDA milling arbor with transverse key drive

71EF07FB0C25D-1 **1**

variant 03 of FDA milling arbor **FDA-03**

version of FDA milling arbor with longitudinal and transverse key drive

71EF07FB3EFA1-1 **1**

variant 11 of FDA milling arbor **FDA-11**

version of FDA milling arbor with longitudinal key drive with cutter retaining screw

71EF07FB6287C-1 1

variant 12 of FDA milling arbor **FDA-12**

version of FDA milling arbor with transverse key drive with cutter retaining screw

71EF07FB984BB-1 1

variant 13 of FDA milling arbor **FDA-13**

version of FDA milling arbor with longitudinal and transverse key drive with cutter retaining screw

71EF07FBDC4EF-1 1

variant 21 of FDA milling arbor **FDA-21**

version of FDA milling arbor with longitudinal key drive with socket headed cap screw

71EF07FC1A78F-1 1

variant 22 of FDA milling arbor **FDA-22**

version of FDA milling arbor with transverse key drive with socket head cap screw

71EF07FC4228F-1 1

variant 23 of FDA milling arbor **FDA-23**

version of FDA milling arbor with longitudinal and transverse key drive with socket head cap screw

71EF0BB934E10-1 1

FLC flange connection Coromant **FLC**

connection with a cylindrical mating surface on the workpiece side connector and a flange connection located with a pin and four screws

Illustration reference: Figure E.26.

Subclasses:

71EF0BB94B9C4-001 variant 01 of FLC flange connection Coromant

71EF0BB94B9C4-1 1

variant 01 of FLC flange connection Coromant **FLC-01**

normal version of FLC flange connection Coromant

71ED66B162A10-1 1

FLK flange connector Kennametal FLK

connection with flanged mating surfaces located by a central boss on the workpiece side connector and secured by screws into the machine side connector with dimensions conforming to the Kennametal flange connector

Illustration reference: Figure E.27.

Subclasses:

- 71EF08050689D-001 variant 02 of FLK flange connection Kennametal
- 71EF0BB99721C-001 variant 03 of FLK flange connection Kennametal
- 71EF0BBE406B1-001 variant 04 of FLK flange connection Kennametal
- 71EF0BBE6A270-001 variant 05 of FLK flange connection Kennametal
- 71EF0BBE88271-001 variant 06 of FLK flange connection Kennametal
- 71EF0BBEA15EE-001 variant 07 of FLK flange connection Kennametal
- 71EF0BBEBE60D-001 variant 08 of FLK flange connection Kennametal
- 71EF0BBEE8C20-001 variant 09 of FLK flange connection Kennametal
- 71EF0BBEFDE0D-001 variant 10 of FLK flange connection Kennametal
- 71EF0BBF1AD8C-001 variant 11 of FLK flange connection Kennametal
- 71EF0BBF43055-001 variant 12 of FLK flange connection Kennametal
- 71EF0BBF4C436-001 variant 13 of FLK flange connection Kennametal
- 71EF0BBF67333-001 variant 14 of FLK flange connection Kennametal
- 71EF0BBF7F75A-001 variant 15 of FLK flange connection Kennametal
- 71EF0BBF9869E-001 variant 16 of FLK flange connection Kennametal
- 71EF0BBFBD19F-001 variant 17 of FLK flange connection Kennametal

71EF08050689D-1 1

variant 02 of FLK flange connection Kennametal FLK-02

version of FLK flange connection Kennametal conforming to the dimensions of the design NCM-F

71EF0BB99721C-1 1

variant 03 of FLK flange connection Kennametal FLK-03

version of FLK flange connection Kennametal conforming to the dimensions of the design CL2NS-F

71EF0BBE406B1-1 1

variant 04 of FLK flange connection Kennametal FLK-04

version of FLK flange connection Kennametal confirming to the dimensions of the design CL2NT-F

71EF0BBE6A270-1 1

variant 05 of FLK flange connection Kennametal FLK-05

version of FLK flange connection Kennametal confirming to the dimensions of the designs NCM-EF and CL2N-EF

71EF0BBE88271-1 1

variant 06 of FLK flange connection Kennametal FLK-06

version of FLK flange connection Kennametal confirming to the dimensions of the design CLN-EF

71EF0BBEA15EE-1 1

variant 07 of FLK flange connection Kennametal FLK-07

version of FLK flange connection Kennametal confirming to the dimensions of the design CLN2NS-BC

71EF0BBEBE60D-1 1

variant 08 of FLK flange connection Kennametal FLK-08

version of FLK flange connection Kennametal confirming to the dimensions of the design CLN2NT-BC

71EF0BBEE8C20-1 1

variant 09 of FLK flange connection Kennametal FLK-09

version of FLK flange connection Kennametal confirming to the dimensions of the design SA-CLNS

71EF0BBEFDE0D-1 1

variant 10 of FLK flange connection Kennametal FLK-10

version of FLK flange connection Kennametal confirming to the dimensions of the design SA-CLNT

71EF0BBF1AD8C-1 1

variant 11 of FLK flange connection Kennametal FLK-11

version of FLK flange connection Kennametal confirming to the dimensions of the designs NACA and RACA

71EF0BBF43055-1 1

variant 12 of FLK flange connection Kennametal FLK-12

version of FLK flange connection Kennametal confirming to the dimensions of the design NCA-DS

71EF0BBF4C436-1 1

variant 13 of FLK flange connection Kennametal FLK-13

version of FLK flange connection Kennametal confirming to the dimensions of the design NCA-DS16B (KM32)

71EF0BBF67333-1 1

variant 14 of FLK flange connection Kennametal FLK-014

version of FLK flange connection Kennametal confirming to the dimensions of the design CLRR UNIVERSAL TURRET

71EF0BBF7F75A-1 1

variant 15 of FLK flange connection Kennametal FLK-015

version of FLK flange connection Kennametal confirming to the dimensions of the design CLANN UNIVERSAL TURRET

71EF0BBF9869E-1 1

variant 16 of FLK flange connection Kennametal FLK-16

version of FLK flange connection Kennametal confirming to the dimensions of the design NCM-F/EF Micro 4 Bolt

71EF0BBFBD19F-1 1

variant 17 of FLK flange connection Kennametal FLK-17

version of FLK flange connection Kennametal confirming to the dimensions of the design NCM-F/EF Micro 4 Bolt

71ED66B653708-1 1

FTS Flexible Tooling System Kennametal FTS

connection between serrated mating surfaces with a radial arrangement of serrations conforming to the dimensions of the Kennametal Flexible Tooling System

Illustration reference: Figure E.28.

Subclasses:

71EF0BBFDAEA7-001 variant 01 of FTS Flexible Tooling System Kennametal

71EF0BBFDAEA7-1 1

variant 01 of FTS Flexible Tooling System Kennametal FTS-01

normal version of FTS Flexible Tooling System Kennametal

71ED66AD18B20-1 1

GMS Graflex Modular System SECO GMS

connection between cylindrical mating surfaces with a rectangular boss to locate the machine side connection

Illustration reference: Figure E.29.

Subclasses:

71EF07FC94651-001 variant 01 of GMS Graflex modular system

71EF07FC94651-1 1

variant 01 of GMS Graflex modular system GMS-01

normal version of GMS Graflex modular system

71ED66AD3543F-1 1

GRL Granlund connection GRL

connection between cylindrical mating surfaces with flattened cylindrical surface on the machine side connector and a flat section on the workpiece side connector

Illustration reference: Figure E.30.

Subclasses:

71EF07FD3C287-001 variant 01 of GRL Granlund connection

71EF07FD3C287-1 1

variant 01 of GRL Granlund connection GRL-01

normal version of GRL Granlund connection

71EF0BC1B193C-1 1

HEE HE-/HF-system EMUGE HEE

connection between cylindrical mating surfaces with dimensions conforming to the HE and HF system of Emuge

Illustration reference: Figure E.31.

Subclasses:

71EF0BC26EC04-001 variant 01 of HEE HE-/HF system EMUGE

71EF0BC26EC04-1 1

variant 01 of HEE HE-/HF system EMUGE HEE-01

normal design of HEE HE-/HF system EMUGE

71EF0BC29E34D-1 1

HFS head fitting system Mapal HFS

connection between conical mating surfaces with dimensions conforming to the Mapal head fitting system

Illustration reference: Figure E.32.

Subclasses:

71EF0BC2B94A3-001 variant 01 of HFS head fitting system Mapal

71EF0BC2B94A3-1 1

variant 01 of HFS head fitting system Mapal HFS-01

normal version of HFS head fitting system Mapal

71ED66B71F0A5-1 1

HSK hollow taper shank HSK

connection between conical mating surfaces conforming to the dimensions of the Kennametal HSK design

Illustration reference: Figure E.33.

Subclasses:

71EF0BC00EF7A-001 variant 01 of HSK hollow taper shank

71EF0BC053A2A-001 variant 02 of HSK hollow taper shank

71EF0BC085D25-001 variant 03 of HSK hollow taper shank

71EF0BC0CCD59-001 variant 04 of HSK hollow taper shank

71EF0BC00EF7A-1 1

variant 01 of HSK hollow taper shank HSK-01

version of HSK hollow taper shank with small planar contact surface with dimensions corresponding to the Style A or C

71EF0BC053A2A-1 1

variant 02 of HSK hollow taper shank HSK-02

version of HSK hollow taper shank with large planar contact surface with dimensions corresponding to the Style B or D

71EF0BC085D25-1 1

variant 03 of HSK hollow taper shank HSK-03

version of HSK hollow taper shank with small planar contact surface with dimensions corresponding to the Style E

71EF0BC0CCD59-1 1

variant 04 of HSK hollow taper shank HSK-04

version of HSK hollow taper shank with large planar contact surface with dimensions corresponding to the Style F

71ED66AD7B0D9-1 1

HSZ hollow cylindrical shank HSZ

connection of generally cylindrical form with specific profiled mating surfaces conforming to the dimensions of the Kennametal hollow cylindrical shank

Illustration reference: Figure E.34.

Subclasses:

71EF07FD7F301-001 variant 01 of HSZ hollow cylindrical shank

71EF0BC790F48-001 variant 02 of HSZ hollow cylindrical shank

71EF0BC7E4010-001 variant 03 of HSZ hollow cylindrical shank

71EF07FD7F301-1 1

variant 01 of HSZ hollow cylindrical shank HSZ-01

version of HSZ hollow cylindrical shank with a double connection cylinder and with small planar contact surface

71EF0BC790F48-1 1

variant 02 of HSZ hollow cylindrical shank HSZ-02

version of HSZ hollow cylindrical shank with a double connection cylinder and with a large planar contact surface

71EF0BC7E4010-1 1

variant 03 of HSZ hollow cylindrical shank HSZ-03

version of HSZ hollow cylindrical shank with a single connection cylinder

71ED66ADA5674-1 1

HTS deep drilling system Kennametal HTS

connection for deep drilling tools with a cylindrical mating surfaces and projecting lugs on the machine side connector

Illustration reference: Figure E.35.

Subclasses:

71EF0BC823EAA-001 variant 01 of HTS deep drilling system Kennametal

71EF0BC8D1F91-001 variant 02 of HTS deep drilling system Kennametal

71EF0BC823EAA-1 1

variant 01 of HTS deep drilling system Kennametal HTS-01

normal version of the HTS deep drilling system Kennametal

71EF0BC8D1F91-1 1

variant 02 of HTS deep drilling system Kennametal HTS-02

version of the HTS deep drilling system Kennametal confirming to the design HTS-C

71EF0BC91557B-1 1

KKG stub taper KKG

connection between conical surfaces with specific detailed design

Illustration reference: Figure E.36.

Subclasses:

71EF0BC9214D1-001 variant 01 of KKG stub taper

71EF0BC949990-001 variant 02 of KKG stub taper

71EF0BC9214D1-1 **1**

variant 01 of KKG stub taper **KKG-01**

version of KKG stub taper conforming to the dimension of the design from Bilz

71EF0BC949990-1 **1**

variant 02 of KKG stub taper **KKG-02**

version of KKG stub taper conforming to the dimension of the design from Dihart

71ED66B17CDFB-1 **1**

KKH ISO cartridge mounting **KKH**

connection to enable the mounting of a cartridge conforming to the dimensions of ISO

Illustration reference: Figure E.37.

Subclasses:

71EF0BC984FAA-001 variant 01 of KKH ISO cartridge mounting

71EF0BC984FAA-1 **1**

variant 01 of KKH ISO cartridge mounting **KKH-01**

normal version of ISO cartridge mounting

71ED66B65F546-1 **1**

KMB Kennametal ModBore system **KMB**

connection between serrated mating surfaces with a parallel arrangement of serrations

Subclasses:

71EF0BC9FBDB7-001 variant 01 of KMB ModBore System Kennametal

71EF0BCA2A5E6-001 variant 02 of KMB ModBore System Kennametal

71EF0BC9FBDB7-1 **1**

variant 01 of KMB ModBore System Kennametal **KMB-01**

version KMB ModBore System Kennametal making a bridge tool connection with extension bridges

71EF0BCA2A5E6-1 1

variant 02 of KMB ModBore System Kennametal KMB-02

version of KMB ModBore System Kennametal making a bridge tool for fine boring heads

71ED66B19A2E0-1 1

KMC Kennametal cartridge mounting KMC

connection to a specific detailed design for holding a cartridge

Subclasses:

71EF16F685CEF-001	variant 02 of KMC Kennametal cartridge mounting
71EF16F6CC58B-001	variant 03 of KMC Kennametal cartridge mounting
71EF16F6E4567-001	variant 04 of KMC Kennametal cartridge mounting
71EF16F6F9430-001	variant 05 of KMC Kennametal cartridge mounting
71EF16F71619F-001	variant 06 of KMC Kennametal cartridge mounting
71EF16F730A50-001	variant 07 of KMC Kennametal cartridge mounting
71EF16F74607B-001	variant 08 of KMC Kennametal cartridge mounting
71EF16F75CACB-001	variant 09 of KMC Kennametal cartridge mounting
71EF16F773A6B-001	variant 10 of KMC Kennametal cartridge mounting
71EF16F78E88A-001	variant 11 of KMC Kennametal cartridge mounting
71EF16F7AF2F3-001	variant 12 of KMC Kennametal cartridge mounting
71EF16F7D7E43-001	variant 13 of KMC Kennametal cartridge mounting
71EF16F7F009F-001	variant 14 of KMC Kennametal cartridge mounting
71EF16F8038C3-001	variant 15 of KMC Kennametal cartridge mounting
71EF16F810899-001	variant 16 of KMC Kennametal cartridge mounting
71EF16F826471-001	variant 17 of KMC Kennametal cartridge mounting
71EF16F84D9E8-001	variant 18 of KMC Kennametal cartridge mounting
71EF16F858DB9-001	variant 19 of KMC Kennametal cartridge mounting
71EF16F86F70F-001	variant 20 of KMC Kennametal cartridge mounting
71EF16F884E83-001	variant 21 of KMC Kennametal cartridge mounting
71EF16F89C4E9-001	variant 22 of KMC Kennametal cartridge mounting
71EF16F8B170D-001	variant 23 of KMC Kennametal cartridge mounting

71EF16F8BCB2D-001 variant 24 of KMC Kennametal cartridge mounting

71EF16F8D168B-001 variant 25 of KMC Kennametal cartridge mounting

71EF16F91618D-001 variant 26 of KMC Kennametal cartridge mounting

71EF16F685CEF-1 1

variant 02 of KMC Kennametal cartridge mounting KMC-02

version of KMC Kennametal cartridge mounting for holding a milling cartridge

71EF16F6CC58B-1 1

variant 03 of KMC Kennametal cartridge mounting KMC-03

version of KMC Kennametal cartridge mounting for holding Erikson tenth set cartridges

71EF16F6E4567-1 1

variant 04 of KMC Kennametal cartridge mounting KMC-04

version of KMC Kennametal cartridge mounting for holding a Fix Perfect cartridge

71EF16F6F9430-1 1

variant 05 of KMC Kennametal cartridge mounting KMC-05

version of KMC Kennametal cartridge mounting for holding Kendex units

71EF16F71619F-1 1

variant 06 of KMC Kennametal cartridge mounting KMC-06

version of KMC Kennametal cartridge mounting for holding an HTS Drill Cartridge

71EF16F730A50-1 1

variant 07 of KMC Kennametal cartridge mounting KMC-07

version of KMC Kennametal cartridge mounting for holding an HTSR Drill cartridge

71EF16F74607B-1 1

variant 08 of KMC Kennametal cartridge mounting KMC-08

version of KMC Kennametal cartridge mounting for holding an FAS Drill Chamfering cartridge

71EF16F75CACB-1 1

variant 09 of KMC Kennametal cartridge mounting KMC-09

version of KMC Kennametal cartridge mounting for holding a Facemill Wiper Cartridge

71EF16F773A6B-1 1

variant 10 of KMC Kennametal cartridge mounting KMC-10

version of KMC Kennametal cartridge mounting for holding Fix Perfect Milling Cartridge conforming to the dimensions of 4.190

71EF16F78E88A-1 1

variant 11 of KMC Kennametal cartridge mounting KMC-11

version of KMC Kennametal cartridge mounting for holding a Facemill/Endmill Wedge Lock PCD Cartridge (Steel Body)

71EF16F7AF2F3-1 1

variant 12 of KMC Kennametal cartridge mounting KMC-12

version of KMC Kennametal cartridge mounting for holding a Facemill Screw-on PCD cartridge (Aluminium body)

71EF16F7D7E43-1 1

variant 13 of KMC Kennametal cartridge mounting KMC-13

version of KMC Kennametal cartridge mounting for holding a Facemill Screw-on Cartridge

71EF16F7F009F-1 1

variant 14 of KMC Kennametal cartridge mounting KMC-14

version of KMC Kennametal cartridge mounting for holding an Endmill Screw-on Cartridge

71EF16F8038C3-1 1

variant 15 of KMC Kennametal cartridge mounting KMC-15

version of KMC Kennametal cartridge mounting for holding a Romicron SVS Cartridge

71EF16F810899-1 1

variant 16 of KMC Kennametal cartridge mounting KMC-16

version of KMC Kennametal cartridge mounting for holding a Romicron SVU Cartridge

71EF16F826471-1 1

variant 17 of KMC Kennametal cartridge mounting KMC-17

version of KMC Kennametal cartridge mounting for holding a Romicron Modular Cartridge

71EF16F84D9E8-1 1

variant 18 of KMC Kennametal cartridge mounting KMC-18

version of KMC Kennametal cartridge mounting for holding a Romicron Modular Unit

71EF16F858DB9-1 1

variant 19 of KMC Kennametal cartridge mounting KMC-19

version of KMC Kennametal cartridge mounting for holding an M400 Milling Cartridge

71EF16F86F70F-1 1

variant 20 of KMC Kennametal cartridge mounting KMC-20

version of KMC Kennametal cartridge mounting for holding an M900 Milling Cartridge

71EF16F884E83-1 1

variant 21 of KMC Kennametal cartridge mounting KMC-21

version of KMC Kennametal cartridge mounting for holding a Dial Set Blade Set Cartridge

71EF16F89C4E9-1 1

variant 22 of KMC Kennametal cartridge mounting KMC-22

version of KMC Kennametal cartridge mounting for holding a MODBORE Twin Cutter Cartridge

71EF16F8B170D-1 1

variant 23 of KMC Kennametal cartridge mounting KMC-23

version of KMC Kennametal cartridge mounting for holding a MODBORE Fine Boring Head Cartridge

71EF16F8BCB2D-1 1

variant 24 of KMC Kennametal cartridge mounting KMC-24

version of KMC Kennametal cartridge mounting for holding a MODBORE BT Rough Bore Head Cartridge

71EF16F8D168B-1 1

variant 25 of KMC Kennametal cartridge mounting KMC-25

version of KMC Kennametal cartridge mounting for holding Cylindrical Clamping Cartridge for collars and chamfer rings

71EF16F91618D-1 1

variant 26 of KMC Kennametal cartridge mounting KMC-26

version of KMC Kennametal cartridge mounting for holding a RR Wheel Turning MM Cartridge

71EF16F97D172-1 1

KMM Kennametal Micro system KMM

connection between conical mating surfaces with a female location on the workpiece side connector.

Illustration reference: Figure E.38

Subclasses:

71EF16F9A3BAE-001 variant 01 of KMM Kennametal micro system

71EF16F9BF2B6-001 variant 02 of KMM Kennametal micro system

71EF16F9A3BAE-1 1

variant 01 of KMM Kennametal micro system KMM-01

normal version of KMM Kennametal Micro system

REMARKS: Previously known as KMR

71EF16F9BF2B6-1 1

variant 02 of KMM Kennametal micro system KMM-02

version of KMM Kennametal Micro system with an enlarged flange design

71ED66B74D6DF-1 1

KMT KM-UTS system Kennametal/Widia KMT

connection between complex conical mating surfaces conforming to the design of the Kennametal/Widia UTS system located by a pin through the two components

Illustration reference: Figure E.39.

Subclasses:

71EF16F9D45A6-001 variant 01 of KMT KM-UTS system Kennametal/Widia

71EF16FA26760-001 variant 02 of KMT KM-UTS system Kennametal/Widia

71EF16FE1F4DB-001 variant 03 of KMT KM-UTS system Kennametal/Widia

71EF16FE2A60C-001 variant 04 of KMT KM-UTS system Kennametal/Widia

71EF16F9D45A6-1 1

variant 01 of KMT KM-UTS system Kennametal/Widia KMT-01

normal version of KMT UTS-system Kennametal/Widia

71EF16FA26760-1 1

variant 02 of KMT KM-UTS system Kennametal/Widia KMT-02

version of KMT UTS-system Kennametal/Widia with an enlarged flange

71EF16FE1F4DB-1 1

variant 03 of KMT KM-UTS system Kennametal/Widia KMT-03

version of KMT UTS-system Kennametal/Widia with three holes for an automatic tool changer

71EF16FE2A60C-1 1

variant 04 of KMT KM-UTS system Kennametal/Widia KMT-04

version of KMT UTS-system Kennametal/Widia with four holes for an automatic tool changer

71ED66B983935-1 1

KRS Kennametal Romicon system KRS

connection between conical mating surfaces and making a connection to a screw protruding from the machine

Illustration reference: Figure E.40.

Subclasses:

71EF16FE6C4DD-001 variant 01 of KRS Kennametal Romicon System

71EF16FE88AAB-001 variant 02 of KRS Kennametal Romicon System

71EF16FE6C4DD-1 1

variant 01 of KRS Kennametal Romicon System KRS-01

normal version of KRS Kennametal Romicon System

71EF16FE88AAB-1 1

variant 02 of KRS Kennametal Romicon System KRS-02

version of KRS Kennametal Romicon system conforming to the design of the SVU serrated flange mount

71ED66B999EED-1 1

KVT KV system Kennametal KVT

connection between conical mating surfaces with a central location for the workpiece side connector to a specific design

Illustration reference: Figure E.41.

Subclasses:

71EF16FEBD7E4-001 variant 01 of KVT KV system Kennametal

71EF16FED3D33-001 variant 02 of KVT KV system Kennametal

71EF16FEBD7E4-1

variant 01 of KVT KV system Kennametal KVT-01

normal version of KVT KV system Kennametal

71EF16FED3D33-1 1

variant 02 of KVT KV system Kennametal KVT-02

version of KVT KV system Kennametal with enlarged flange

71EF16FEFE0AF-1 1

MBS Multi Blade System Coromant MBS

connection between a grooving or parting blade and a tool shank

Illustration reference: Figure E.42.

Subclasses:

71EF16FF1EB17-001 variant 01 of MBS Multi Blade

71EF16FF1EB17-1 1

variant 01 of MBS Multi Blade MBS-01

normal version of MBS Multi Blade System Coromant

71ED66B1C3A98-1 1

MCS modular cartridge system Kennametal MCS

connection to enable the holding of a cartridge for specific applications

Subclasses:

71EF16FF5C435-001 variant 01 of MCS modular cartridge system Kennametal

71EF16FF75F49-001 variant 02 of MCS modular cartridge system Kennametal

71EF16FF96879-001 variant 03 of MCS modular cartridge system Kennametal

71EF16FFA94C6-001 variant 04 of MCS modular cartridge system Kennametal

71EF16FF5C435-1 1

variant 01 of MCS modular cartridge system Kennametal MCS-01

version of MCS modular cartridge system Kennametal for use for deep grooving

71EF16FF75F49-1 1

variant 02 of MCS modular cartridge system Kennametal MCS-02

version of MCS modular cartridge system Kennametal confirming to the dimensions for Kendex 2000

71EF16FF96879-1 1

variant 03 of MCS modular cartridge system Kennametal MCS-03

version of MCS modular cartridge system Kennametal confirming to the dimensions for 411-VR

71EF16FFA94C6-1 1

variant 04 of MCS modular cartridge system Kennametal MCS-04

version of MCS modular cartridge system Kennametal confirming to the dimensions for ranger cartridge

71ED66B9B5DB8-1 1

MEG metric taper MEG

connection between conical mating surfaces with specific details of the design and dimensions in metric units

Illustration reference: Figure E.43.

Subclasses:

71EF1E87A1AFC-001 variant 10 of MEG metric taper
 71EF1E87C88D7-001 variant 11 of MEG metric taper
 71EF1E87D60B5-001 variant 12 of MEG metric taper
 71EF1E87FABF2-001 variant 13 of MEG metric taper
 71EF1E88337E1-001 variant 20 of MEG metric taper
 71EF1E884C33B-001 variant 21 of MEG metric taper
 71EF1E886526B-001 variant 22 of MEG metric taper
 71EF1E887AC99-001 variant 23 of MEG metric taper
 71EF1E88A9D3B-001 variant 30 of MEG metric taper
 71EF1E88D832F-001 variant 31 of MEG metric taper
 71EF1E88F44A3-001 variant 32 of MEG metric taper
 71EF1E89126E9-001 variant 33 of MEG metric taper
 71EF1E8940F72-001 variant 40 of MEG metric taper
 71EF1E895BA49-001 variant 41 of MEG metric taper
 71EF1E8983142-001 variant 42 of MEG metric taper
 71EF1E899E483-001 variant 43 of MEG metric taper

71EF1E87A1AFC-1 1

variant 10 of MEG metric taper MEG-10

version of MEG metric taper with attachment thread but without coolant supply

71EF1E87C88D7-1 **1**

variant 11 of MEG metric taper **MEG-11**

version of MEG metric taper with attachment thread and with axial coolant entry

71EF1E87D60B5-1 **1**

variant 12 of MEG metric taper **MEG-12**

version of MEG metric taper with attachment thread and with radial coolant entry

71EF1E87FABF2-1 **1**

variant 13 of MEG metric taper **MEG-13**

version of MEG metric taper with attachment thread and with axial and radial coolant entry

71EF1E88337E1-1

variant 20 of MEG metric taper **MEG-20**

version of MEG metric taper with tenon but without coolant supply

71EF1E884C33B-1 **1**

variant 21 of MEG metric taper **MEG-21**

version of MEG metric taper with tenon and with axial coolant entry

71EF1E886526B-1 **1**

variant 22 of MEG metric taper **MEG-22**

version of MEG metric taper with tenon and with radial coolant entry

71EF1E887AC99-1 **1**

variant 23 of MEG metric taper **MEG-23**

version of MEG metric taper with tenon with axial and with radial coolant entry

71EF1E88A9D3B-1 **1**

variant 30 of MEG metric taper **MEG-30**

version of MEG metric taper with tenon and hold back key but without coolant supply

71EF1E88D832F-1 1

variant 31 of MEG metric taper MEG-31

version of MEG metric taper with tenon and hold back key and with axial coolant entry

71EF1E88F44A3-1 1

variant 32 of MEG metric taper MEG-32

version of MEG metric taper with tenon and hold back key and with radial coolant entry

71EF1E89126E9-1 1

variant 33 of MEG metric taper MEG-33

version of MEG metric taper with tenon and hold back key and with axial and radial coolant entry

71EF1E8940F72-1 1

variant 40 of MEG metric taper MEG-40

version of MEG metric taper with attachment thread and positive drive but without coolant supply

71EF1E895BA49-1 1

variant 41 of MEG metric taper MEG-41

version of MEG metric taper with attachment thread and positive drive and with axial coolant entry

71EF1E8983142-1 1

variant 42 of MEG metric taper MEG-42

version of MEG metric taper with attachment thread and positive drive and with radial coolant entry

71EF1E899E483-1 1

variant 43 of MEG metric taper MEG-43

version of MEG metric taper with attachment thread and positive drive with axial and radial coolant entry

71ED66B9CF5A0-1 1

MKG Morse taper MKG

connection between conical mating surfaces with specific details of the design

Illustration reference: Figure E.44.

Subclasses:

71EF1E89BDD01-001	variant 10 of MKG morse taper
71EF1E89EB4C2-001	variant 11 of MKG morse taper
71EF1E8A033CA-001	variant 12 of MKG morse taper
71EF1E8A1AACC-001	variant 13 of MKG morse taper
71EF1E8A38E35-001	variant 20 of MKG morse taper
71EF1E8E2EE7E-001	variant 21 of MKG morse taper
71EF1E8E4A3B4-001	variant 22 of MKG morse taper
71EF1E8E797B3-001	variant 23 of MKG morse taper
71EF1E8E931E0-001	variant 30 of MKG morse taper
71EF1E8EADB27-001	variant 31 of MKG morse taper
71EF1E8ECB31A-001	variant 32 of MKG morse taper
71EF1E8EF27D8-001	variant 33 of MKG morse taper
71EF1E8F157CF-001	variant 40 of MKG morse taper
71EF1E8F42243-001	variant 41 of MKG morse taper
71EF1E8F6F981-001	variant 42 of MKG morse taper
71EF1E8F8B318-001	variant 43 of MKG morse taper

71EF1E89BDD01-1 1

variant 10 of MKG Morse taper MKG-10

version of MKG Morse taper with attachment thread but without coolant supply

71EF1E89EB4C2-1 1

variant 11 of MKG Morse taper MKG-11

version of MKG Morse taper with attachment thread and with axial coolant entry

71EF1E8A033CA-1 1

variant 12 of MKG Morse taper MKG-12

version of MKG Morse taper with attachment thread and with radial coolant entry

71EF1E8A1AACC-1 1

variant 13 of MKG Morse taper MKG-13

version of MKG Morse taper with attachment thread with axial and radial coolant entry

71EF1E8A38E35-1 1

variant 20 of MKG Morse taper MKG-20

version of MKG Morse taper with tenon but without coolant supply

71EF1E8E2EE7E-1 1

variant 21 of MKG Morse taper MKG-21

version of MKG Morse taper with tenon and with axial coolant entry

71EF1E8E4A3B4-1 1

variant 22 of MKG Morse taper MKG-22

with tenon with radial coolant entry

71EF1E8E797B3-1 1

variant 23 of MKG Morse taper MKG-23

version of MKG Morse taper with tenon with axial and radial coolant entry

71EF1E8E931E0-1 1

variant 30 of MKG Morse taper MKG-30

version of MKG Morse taper with tenon and hold back key but without coolant supply

71EF1E8EADB27-1 1

variant 31 of MKG Morse taper MKG-31

version of MKG Morse taper with tenon and hold back key but with axial coolant entry

71EF1E8ECB31A-1 1

variant 32 of MKG Morse taper MKG-32

version of MKG Morse taper with tenon and hold back key and with radial coolant entry

71EF1E8EF27D8-1 1

variant 33 of MKG Morse taper **MKG-33**

version of MKG Morse taper with tenon and hold back key and with axial and radial coolant entry

71EF1E8F157CF-1 1

variant 40 of MKG Morse taper **MKG-40**

version of MKG Morse taper with attachment thread and positive drive but without coolant supply

71EF1E8F42243-1 1

variant 41 of MKG Morse taper **MKG-41**

version of MKG Morse taper with attachment thread and positive drive and with axial coolant entry

71EF1E8F6F981-1 1

variant 42 of MKG Morse taper **MKG-42**

version of MKG Morse taper with attachment thread and positive drive and with radial coolant entry

71EF1E8F8B318-1 1

variant 43 of MKG Morse taper **MKG-43**

version of MKG Morse taper with attachment thread and positive drive with axial and radial coolant entry

71ED66AE75E58-1 1

MVS modular connection system Wohlhaupter MVS

connection between cylindrical mating surfaces with the connection located with a dowel on the machine side connector and the workpiece side connector secured by a screw through the machine side connector

Illustration reference: E.45

Subclasses:

71EF1E8FB6234-001 variant 01 of MVS modular connection system Wohlhaupter

71EF1E8FB6234-1 1

variant 01 of MVS modular connection system Wohlhaupter MVS-01

normal design of MVS modular connection system Wohlhaupter

71ED66B9F6D76-1 1

NCT Novex-NC-Tools Walter nct

connection between conical mating surfaces with projecting lugs on the machine side connector that locate with slots in the workpiece side connector

Illustration reference: Figure E.46.

Subclasses:

71EF1E8FFD738-001 variant 01 of NCT Novex-NC-Tools Walter

71EF1E8FFD738-1 1

variant 01 of NCT Novex-NC-Tools Walter NCT-01

normal design of NCT Novex-NC-Tools Walter

71EF1E9030508-1 1

PMC prismatic connection Coromant PMC

connection between specially profiled mating surfaces on the machine side and the workpiece side conforming to the dimensions of Sandvik Coromant design 470

Illustration reference: Figure E.47.

Subclasses:

71EF1E906A58B-001 variant 01 of PMC prismatic connection Coromant

71EF1E9082FF5-001 variant 02 of PMC prismatic connection Coromant

71EF1E90F24F5-001 variant 04 of PMC prismatic connection Coromant

71EF1E91159E3-001 variant 07 of PMC prismatic connection Coromant

71EF1E906A58B-1 1

variant 01 of PMC prismatic connection Coromant PMC-01

version of PMC prismatic connection Coromant to mount a cut off blade

71EF1E9082FF5-1 1

variant 02 of PMC prismatic connection Coromant PMC-02

version of PMC prismatic connection Coromant to make a connection between a cutting head and a boring bar located and clamped by a lever

71EF1E90F24F5-1 1

variant 04 of PMC prismatic connection Coromant PMC-04

version of PMC prismatic connection Coromant to make a connection between a clamping unit and a tool post or turret disk held in place by an adjustable wedge

71EF1E91159E3-1 1

variant 07 of PMC prismatic connection Coromant PMC-07

version of PMC prismatic connection Coromant that is Capto screw mounted

71ED66B1DF8E1-1 1

PMD prismatic connection standard PMD

connection between mating surfaces with a specific dovetail profile

Illustration reference: Figure E.48.

Subclasses:

71EF1E915B0BD-001 variant 01 of PMD prismatic connection standard

71EF1E915B0BD-1 1

variant 01 of PMD prismatic connection standard PMD-01

normal version of PMD prismatic connection standard

71ED66B5E2C68-1 1

PMK prismatic connection Kennametal PMK

connection between prismatic mating surfaces of specific detailed design

Illustration reference: Figure E.49.

Subclasses:

71EF1E918967F-001 variant 01 of PMK prismatic connection Kennametal

71EF1E918967F-1 1

variant 01 of PMK prismatic connection Kennametal PMK-01

version of PMK prismatic connection Kennametal to support a cutoff support blade A1-A3

71EF1E91D5D4F-1 1

PMS prismatic connection SECO PMS

connection between prismatic mating surfaces with detailed specific design

Subclasses:

71EF1E91EFA2F-001 variant 01 of PMS prismatic connection SECO

71EF1E91EFA2F-1 1

variant 01 of PMS prismatic connection SECO PMS-01

version of PMS prismatic connection SECO conforming to the dimensions of SECO SPB

71ED66ADD852B-1 1

RFX Rotaflex system Widia RFX

connection between stepped cylindrical mating surfaces conforming to the dimensions of the Widia Rotaflex system

Illustration reference: Figure E.50.

Subclasses:

71EF2242723DD-001 variant 01 of RFX Rotaflex system Widia

71EF2242723DD-1 1

variant 01 of RFX Rotaflex system Widia RFX-01

normal design of RFX Rotoflex system Widia

71EF2242B4D39-1 1

SAC screw connection Coromant SAC

connection formed by a screwed in thread

Illustration reference: Figure E.51.

Subclasses:

71EF22434D3F1-001 variant 01 of SAC screw connection Coromant

71EF2243668E1-001 variant 02 of SAC screw connection Coromant

71EF224379DA9-001 variant 03 of SAC screw connection Coromant

71EF22434D3F1-1

1

variant 01 of SAC screw connection Coromant SAC-01

version of SAC screw connection Coromant with a four-start square thread between a drilling head and a drilling tube in deep hole drilling with an second inner tube

71EF2243668E1-1

1

variant 02 of SAC screw connection Coromant SAC-02

version of SAC screw connection Coromant with a four-start square thread between a drilling head and a single drilling tube in deep hole drilling

71EF224379DA9-1

1

variant 03 of SAC screw connection Coromant SAC-03

version of SAC screw connection Coromant to provide a threaded connector for end-mills

71EF2242CDE99-1

1

SBA SBA-system Komet**SBA**

connection of profiled cylindrical mating surface on the workpiece side secured by a locking pin in the machine side

Illustration reference: Figure E.52.

Subclasses:

71EF224394D8C-001 variant 01 of SBA SBA-system Komet

71EF224394D8C-1

1

variant 01 of SBA SBA-system Komet SBA-01

normal design of SBA-system Komet

71EF2242E8099-1

1

SCA SECO cartridge mounting**SCA**

connection for the mounting of a cartridge

Illustration reference: E.53

Subclasses:

71EF2243AFA09-001 variant 01 of SCA SECO cartridge mounting

71EF2243CB404-001 variant 02 of SCA SECO cartridge mounting

71EF2243E36FF-001 variant 03 of SCA SECO cartridge mounting

71EF2243AFA09-1 1

variant 01 of SCA SECO cartridge mounting SCA-01

version of SCA SECO cartridge mounting with rectangular mating surfaces

71EF2243CB404-1 1

variant 02 of SCA SECO cartridge mounting SCA-02

version of SCA SECO cartridge mounting with serrated mating surfaces

71EF2243E36FF-1 1

variant 03 of SCA SECO cartridge mounting SCA-03

version of SCA SECO cartridge mounting conforming to the dimensions of Seco 230.19

71EF224302CF7-1 1

SCR SECO crownlock connection SCR

connection between two mating surfaces with serrations in two directions at right angles

Illustration reference: Figure E.54.

Subclasses:

71EF2247CCF24-001 variant 01 of SCR SECO crownlock connection

71EF2247CCF24-1 1

variant 01 of SCR SECO crownlock connection SCR-01

normal version of SECO crownlock connection

71ED66BA0F1F7-1 1

SKG Steep taper skg

connection between conical mating surfaces with a cylindrical extension of the end section

Illustration reference: Figure E.55.

Subclasses:

71EF224817F39-001	variant 10 of SKG steep taper
71EF2248594F2-001	variant 11 of SKG steep taper
71EF2248775E3-001	variant 16 of SKG steep taper
71EF22489E8A3-001	variant 17 of SKG steep taper
71EF2248B8EAB-001	variant 20 of SKG steep taper
71EF2248CF17E-001	variant 21 of SKG steep taper
71EF2248DA3F5-001	variant 26 of SKG steep taper
71EF22490384F-001	variant 27 of SKG steep taper
71EF22492256B-001	variant 30 of SKG steep taper
71EF224948944-001	variant 31 of SKG steep taper
71EF2249532BC-001	variant 36 of SKG steep taper
71EF224979825-001	variant 37 of SKG steep taper
71EF224996880-001	variant 40 of SKG steep taper
71EF2249B2AF9-001	variant 41 of SKG steep taper
71EF2249D9BD8-001	variant 46 of SKG steep taper
71EF224A0E1FD-001	variant 47 of SKG steep taper
71EF224A4275A-001	variant 50 of SKG steep taper
71EF224A59B6E-001	variant 51 of SKG steep taper
71EF224A70519-001	variant 56 of SKG steep taper
71EF224A8BA27-001	variant 57 of SKG steep taper

71EF224817F39-1 1

variant 10 of SKG steep taper **SKG-10**

version of SKG steep taper conforming to the dimensions of DIN 69871 form A without coolant supply

71EF2248594F2-1 1

variant 11 of SKG steep taper **SKG-11**

version of SKG steep taper conforming to the dimensions of DIN 68971 form AD with central coolant entry

71EF2248775E3-1 1

variant 16 of SKG steep taper SKG-16

version of SKG steep taper conforming to the dimensions of DIN 69871 form B with decentral coolant entry on the collar

71EF22489E8A3-1 1

variant 17 of SKG steep taper SKG-17

version of SKG steep taper conforming to the dimensions of DIN 69871 form AD/B with central and decentral coolant entry

71EF2248B8EAB-1 1

variant 20 of SKG steep taper SKG-20

version of SKG steep taper conforming to the dimensions of DIN 2080 without coolant supply

71EF2248CF17E-1 1

variant 21 of SKG steep taper SKG-21

version of SKG steep taper conforming to the dimensions of DIN 2080 with central coolant entry

71EF2248DA3F5-1 1

variant 26 of SKG steep taper SKG-26

version of SKG steep taper conforming to the dimensions of DIN 2080 with decentral coolant entry on the collar

71EF22490384F-1 1

variant 27 of SKG steep taper SKG-27

version of SKG steep taper conforming to the dimensions of DIN 2080 with central and decentral coolant entry on the collar

71EF22492256B-1 1

variant 30 of SKG steep taper SKG-30

version of SKG steep taper conforming to the dimensions of ANSI Caterpillar inch retention knob thread without coolant supply

71EF224948944-1 1

variant 31 of SKG steep taper **SKG-31**

version of SKG steep taper conforming to the dimensions of ANSI Caterpillar inch retention knob thread with central coolant entry

71EF2249532BC-1 1

variant 36 of SKG steep taper **SKG-36**

version of SKG steep taper conforming to the dimensions of ANSI Caterpillar inch retention knob thread with decentral coolant entry on the collar

71EF224979825-1 1

variant 37 of SKG steep taper **SKG-37**

version of SKG steep taper conforming to the dimensions of ANSI Caterpillar inch retention knob thread with central and decentral coolant entry

71EF224996880-1 1

variant 40 of SKG steep taper **SKG-40**

version of SKG steep taper conforming to the dimensions of ANSI Caterpillar metric retention knob thread without coolant supply

71EF2249B2AF9-1 1

variant 41 of SKG steep taper **SKG-41**

version of SKG steep taper conforming to the dimensions of ANSI Caterpillar metric retention knob thread with central coolant entry

71EF2249D9BD8-1 1

variant 46 of SKG steep taper **SKG-46**

version of SKG steep taper conforming to the dimensions of ANSI Caterpillar metric retention knob thread with decentral coolant entry

71EF224A0E1FD-1 1

variant 47 of SKG steep taper **SKG-47**

version of SKG steep taper conforming to the dimensions of ANSI Caterpillar metric retention knob thread with central and decentral coolant entry

71EF224A4275A-1 1

variant 50 of SKG steep taper SKG-50

version of SKG steep taper conforming to the dimensions of MAS BT without central coolant supply

71EF224A59B6E-1 1

variant 51 of SKG steep taper SKG-51

version of SKG steep taper conforming to the dimensions of MAS BT with central coolant entry

71EF224A70519-1 1

variant 56 of SKG steep taper SKG-56

version of SKG steep taper conforming to the dimensions of MAS BT with decentral coolant entry on the collar

71EF224A8BA27-1 1

variant 57 of SKG steep taper SKG-57

version of SKG steep taper conforming to the dimensions of MAS BT with central and decentral coolant entry

71EF224AAA436-1 1

SMM SECO minimaster SMM

connection between conical mating surfaces with a locking profile of specific design at the narrow end

Illustration reference: Figure E.56

Subclasses:

71EF224ADA70A-001 variant 01 of SMM SECO minimaster

71EF224ADA70A-1 1

variant 01 of SMM SECO minimaster SMM-01

normal version of SMM SECO minimaster

71EF224ABDBD9-1 1

SMS SECO modular serrated connection SMS

connection between serrated mating surfaces secured by screws

Illustration reference: Figure E.57.

Subclasses:

71EF224AEF279-001 variant 01 of SMS SECO modular serrated connection

71EF224AEF279-1 1

variant 01 of SMS SECO modular serrated connection SMS-01

normal version of SECO modular serrated connection conforming to the dimensions of SECO SV21

71ED66ADFAA9B-1 1

SPK holding arbor SPK

connection between cylindrical mating surfaces with specific detailed design

Illustration reference: Figure E.58.

Subclasses:

71EF25FA05521-001 variant 01 of SPK holding arbor

71EF25FA3739C-001 variant 02 of SPK holding arbor

71EF25FA830B8-001 variant 03 of SPK holding arbor

71EF25FAAB512-001 variant 04 of SPK holding arbor

71EF25FADB60F-001 variant 05 of SPK holding arbor

71EF25FAF655C-001 variant 06 of SPK holding arbor

71EF25FB14928-001 variant 07 of SPK holding arbor

71EF25FB3DCEC-001 variant 08 of SPK holding arbor

71EF25FB6D150-001 variant 09 of SPK holding arbor

71EF25FB8DE89-001 variant 10 of SPK holding arbor

71EF25FBB4F22-001 variant 11 of SPK holding arbor

71EF25FC1BBDA-001 variant 12 of SPK holding arbor

71EF25FA05521-1 1

variant 01 of SPK holding arbor SPK-01

version of SPK holding arbor with a bolt hole circle diameter of 66.7 mm

NOTE Equivalent to holding arbor size 40.

71EF25FA3739C-1 1

variant 02 of SPK holding arbor SPK-02

version of SPK holding arbor with a bolt hole circle diameter of 101.6

NOTE Equivalent to holding arbor size 50.

71EF25FA830B8-1 1

variant 03 of SPK holding arbor SPK-03

version of SPK holding arbor with a bolt hole circle diameter of 177.8 mm

NOTE Equivalent to holding arbor size 60.

71EF25FAAB512-1 1

variant 04 of SPK holding arbor SPK-04

version of SPK holding arbor with bolt hole circles of diameter 66.7mm and 177.8 mm

71EF25FADB60F-1 1

variant 05 of SPK holding arbor SPK-05

version of SPK holding arbor with bolt hole circles of diameter 101.6 mm and 177.8 mm

71EF25FAF655C-1 1

variant 06 of SPK holding arbor SPK-06

version of SPK holding arbor with a bolt hole circle diameter of 54 mm

NOTE Equivalent to holding arbor size 30.

71EF25FB14928-1 1

variant 07 of SPK holding arbor SPK-07

version of SPK holding arbor with a bolt hole circle diameter of 80 mm

NOTE Equivalent to holding arbor size 45.

71EF25FB3DCEC-1 1

variant 08 of SPK holding arbor SPK-08

version of SPK holding arbor with a bolt hole circle diameter of 120.6 mm

NOTE Equivalent to holding arbor size 55.

71EF25FB6D150-1 1

variant 09 of SPK holding arbor **SPK-09**

version of SPK holding arbor with a bolt hole circle diameter of 220 mm

NOTE Equivalent to holding arbor size 65.

71EF25FB8DE89-1 1

variant 10 of SPK holding arbor **SPK-10**

version of SPK holding arbor with a bolt hole circle diameter of 265 mm

NOTE Equivalent to holding arbor size 70.

71EF25FBB4F22-1 1

variant 11 of SPK holding arbor **SPK-11**

version of SPK holding arbor with a bolt hole circle diameter of 315 mm

NOTE Equivalent to holding arbor size 75

71EF25FC1BBDA-1 1

variant 12 of SPK holding arbor **SPK-12**

version of SPK holding arbor with a bolt hole circle diameter of 400 mm

NOTE Equivalent to holding arbor size 80.

71EF25FC490BF-1 1

SRT SECO R2 shank **SRT**

connection with a profiled prismatic male surface on the workpiece side connector and secured by screws through the machine side connector conforming to the dimensions of the SECO R2 design

Illustration reference: Figure E.59.

Subclasses:

71EF25FC62677-001 variant 01 of SRT SECO R2 shank

71EF25FC62677-1 1

variant 01 of SRT SECO R2 shank **SRT-01**

normal version of SRT SECO R2 shank

71ED66AE29B8D-1 1

STH automotive shank STH

connection between cylindrical mating surfaces with a Woodruff key on the workpiece side

Illustration reference: Figure E.60.

Subclasses:

71EF25FCB20D6-001 variant 01 of STH automotive shank

71EF25FCB20D6-1 1

variant 01 of STH automotive shank STH-01

normal version of STH automotive shank

71ED66AE588FA-1 1

SWB quick change connection SWB

connection with profiled cylindrical mating surfaces that can easily be separated

Illustration reference: Figure E.61.

Subclasses:

71F8F4AAB6B82-001 variant 01 of SWB quick change connection

71F8F4AAB6B82-1 1

variant 01 of SWB quick change connection SWB-01

normal version of SWB quick change connection

71EF2955BD8F5-1 1

SZB collet shortened design Biax SZB

connection to a cylindrical mating surface by means of a slotted sleeve that can be expanded or contracted

Subclasses:

71F8F4ACA903C-001 variant 01 of SZB collet shortened design Biax

71F8F4ACA903C-1 1

variant 01 of SZB collet shortened design Biax SZB-01

normal version of SZB collet shortened design Biax conforming to the dimension of type 7

71EF2955D5933-1 **1**

SZC collet connection Coromant SZC

connection by means of a slotted sleeve that can be compressed onto a on cylindrical mating surface

Subclasses:

71F8F4AD0700A-001 variant 01 of SZC collet connection Coromant

71F8F4AD0A9D3-001 variant 02 of SZC collet connection Coromant

71F8F4AD0700A-1 **1**

variant 01 of SZC collet connection Coromant SZC-01

Hydrogrip ⁹⁾

version of SZC collet connection Coromant where the compression is applied by hydraulic force activated by a screw and maintained in use

Illustration reference: Figure E.62.

71F8F4AD0A9D3-1 **1**

variant 02 of SZC collet connection Coromant SZC-02

Corogrip ⁹⁾

version of SZC collet connection Coromant that uses hydraulic compression to activate and release a self-locking mechanism to hold the tool

Illustration reference: Figure E.73.

71ED66BA26E2E-1 **1**

SZD collet connection standard SZD

connection by means of a slotted sleeve that can be compressed onto a conical mating surface

Illustration reference: Figure E.64.

Subclasses:

71F8F4ADCFB28-001 variant 01 of SZD collet connection standard

71F8F4ADDFD29-001 variant 02 of SZD collet connection standard

71F8F4ADE49F6-001 variant 03 of SZD collet connection standard

⁹⁾ Hydrogrip and Corogrip are the trade names of products supplied by AB Sandvik Coromant. This information is given for the convenience of users of this part of ISO 13399 and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

71F8F4ADE904D-001 variant 04 of SZD collet connection standard

71F8F4ADF72B3-001 variant 11 of SZD collet connection standard

71F8F4ADFB413-001 variant 12 of SZD collet connection standard

71F8F4ADFFFF9-001 variant 13 of SZD collet connection standard

71F8F4ADCFB28-1 1

variant 01 of SZD collet connection standard SZD-01

version of SZC collect connection standard w/ith 1:10 taper

71F8F4ADDFD29-1 1

variant 02 of SZD collet connection standard SZD-02

version of SZC collect connection standard with 8 degree taper

71F8F4ADE49F6-1 1

variant 03 of SZD collet connection standard SZD-03

version of SZC collect connection standard w/ith draw-in collets with 40 degree taper

71F8F4ADE904D-1 1

variant 04 of SZD collet connection standard SZD-04

version of SZC collect connection standard of dead length type with 30 degree taper

71F8F4ADF72B3-1 1

variant 11 of SZD collet connection standard SZD-11

version of SZC collect connection standard with 26 degree taper

REMARKS: Druck-Lamellen-Spannzangen

71F8F4ADFB413-1 1

variant 12 of SZD collet connection standard SZD-12

version of SZC collect connection standard w/ith 40 degree taper

REMARKS: Druck-Lamellen-Spannzangen

71F8F4ADFFF9-1 1

variant 13 of SZD collet connection standard SZD-13

version of SZC collect connection standard w/ith 45 degree taper

REMARKS: Druck-Lamellen-Spannzangen

71EF2955F7771-1 1

SZE collet connection Erikson SZE

connection by means of a slotted sleeve that can be compressed onto a conical mating surface with dimensions specified by Erikson

Illustration reference: Figure E.65.

Subclasses:

71F8F4AEABB7A-001 variant 03 of SZE collet connection Erikson

71F8F4AEBB269-001 variant 04 of SZE collet connection Erikson

71F8F4AEABB7A-1 1

variant 03 of SZE collet connection Erikson SZE-03

version of SZE collect connection Erikson with dimensions conforming to the DF design

71F8F4AEBB269-1 1

variant 04 of SZE collet connection Erikson SZE-04

version of SZE collect connection Erikson with dimensions conforming to the DK shortened design

71EF29560D5F6-1 1

SZP collet Eminent-Perman SZP

connection by means of a slotted sleeve that can be compressed on the mating surface with dimensions specified by Eminent-Perman

Subclasses:

71F8F4AFC5115-001 variant 01 of SZP collet Eminent-Perman

71F8F4AFC5115-1 1

variant 01 of SZP collet Eminent-Perman SZP-01

normal design of SZP collet Eminent-Perman

71EF2956256D4-1 1

SZR collet KSF Roehm SZR

connection by means of a slotted sleeve that can be compressed on the mating surface with dimensions specified by Roehm

Subclasses:

71F8F4B457636-001 variant 01 of SZR collet KSF Roehm

71F8F4B457636-1 1

variant 01 of SZR collet KSF Roehm SZR-01

version of SZR collect KSF Roehm conforming to the dimensions of KSF-16, KSF-25 and KSF-30

71EF29563BB7E-1 1

SZS collet Steinel Bohrmaster SZS

connection by means of a slotted sleeve that can be compressed on a conical mating surface with dimensions specified by Steinel Bohrmaster

Subclasses:

71F8F4B475442-001 variant 01 of SZS collet Steinel Bohrmaster

71F8F4B479EA2-001 variant 02 of SZS collet Steinel Bohrmaster

71F8F4B47DB96-001 variant 03 of SZS collet Steinel Bohrmaster

71F8F4B475442-1 1

variant 01 of SZS collet Steinel Bohrmaster SZS-01

version of SZS collet Steinel Bohrmaster with 10° taper

71F8F4B479EA2-1 1

variant 02 of SZS collet Steinel Bohrmaster SZS-02

version of SZS collet Steinel Bohrmaster with 15° taper

71F8F4B47DB96-1 1

variant 03 of SZS collet Steinel Bohrmaster SZS-03

version of SZS collet Steinel Bohrmaster with 20° taper

71EF2956584ED-1 **1**

URM Urma connection **URM**

connection between multiple cylindrical mating surfaces with different diameters

Illustration reference: Figure E.66.

Subclasses:

71F8F4B4A6D29-001 variant 01 of URM Urma connection

71F8F4B4A6D29-1 **1**

variant 01 of URM Urma connection **URM-01**

normal version of URM Urma connection

71EF29566E0D4-1 **1**

UTS UTS Widia **UTS**

connection between stepped conical mating surfaces

Illustration reference: Figure E.67.

Subclasses:

71F8F4B4C5B9A-001 variant 01 of UTS UTS Widia

71F8F4B4C5B9A-1 **1**

variant 01 of UTS UTS Widia **UTS-01**

normal version of UTS UTS Widia

71ED66AEA108B-1 **1**

VAS Variant System Coromant **VAS**

connection of generally cylindrical form with a bayonet connection secured by a nut ¹⁰⁾

Illustration reference: Figure E.68.

10) Variant System is the trade name of a product supplied by AB Sandvik Coromant. This information is given for the convenience of users of this part of ISO 13399 and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

Subclasses:

71F8F4B4DF852-001 variant 01 of VAS Variant System Coromant

71F8F4B4DF852-1 1

variant 01 of VAS Variant System Coromant VAS-01

normal version of VAS Variant System Coromant

71ED66B5FAE04-1 1

VKT rectangular connection VKT

connection between rectangular cross section mating surfaces

NOTE The definition includes the square cross-section form.

Illustration reference: Figure E.69.

Subclasses:

71F8F4B51A785-001 variant 01 of VKT rectangular connection

71F8F4B51A785-1 1

variant 01 of VKT rectangular connection VKT-01

normal version of the VKT rectangular connection

71ED66AEBC779-1 1

VLS Varilock System Coromant VLS

Connection of generally cylindrical form with a centering device formed by a boss with two diameters ¹¹⁾

Illustration reference: Figure E.70.

Subclasses:

71F8F4B4F1367-001 variant 01 of VLS Varilock System Coromant

11) Varilock System is the trade name of a product supplied by AB Sandvik Coromant. This information is given for the convenience of users of this part of ISO 13399 and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

71F8F4B4F1367-1**1****variant 01 of VLS Varilock System Coromant VLS-01**

normal version of VLS Varilock System Coromant

71ED66AF2175B-1**1****ZYL cylindrical shank connection ZYL**

connection to a cylindrical mating surface by either a jaw chuck or a screw clamp

Illustration reference: Figure E.71.**Subclasses:**

71F8F4B5348DB-001	variant 01 of ZYL cylindrical shank connection
71F8F4B5390AF-001	variant 03 of ZYL cylindrical shank connection
71F8F4B53E3D2-001	variant 04 of ZYL cylindrical shank connection
71F8F4B54FA0D-001	variant 10 of ZYL cylindrical shank connection
71F8F4B554639-001	variant 11 of ZYL cylindrical shank connection
71F8F4B56465A-001	variant 13 of ZYL cylindrical shank connection
71F8F4B56A63D-001	variant 14 of ZYL cylindrical shank connection
71F8F4B56FE57-001	variant 15 of ZYL cylindrical shank connection
71F8F4B57F583-001	variant 16 of ZYL cylindrical shank connection
71F8F4B5853C1-001	variant 17 of ZYL cylindrical shank connection
71F8F4B58A106-001	variant 18 of ZYL cylindrical shank connection
71F8F4B597D0B-001	variant 19 of ZYL cylindrical shank connection
71F8F4B5ACE12-001	variant 20 of ZYL cylindrical shank connection
71F8F4B5B212B-001	variant 21 of ZYL cylindrical shank connection
71F8F4B5B7D42-001	variant 22 of ZYL cylindrical shank connection
71F8F4B5C5EC2-001	variant 23 of ZYL cylindrical shank connection
71F8F4B5D1A6B-001	variant 24 of ZYL cylindrical shank connection
71F8F4B82CEDE-001	variant 50 of ZYL cylindrical shank connection
71F8F4B832F8A-001	variant 53 of ZYL cylindrical shank connection

71F8F4B5348DB-1 1

variant 01 of ZYL cylindrical shank connection **ZYL-01**

version of ZYL cylindrical shank connection to a straight shank without any clamping features

71F8F4B5390AF-1 1

variant 03 of ZYL cylindrical shank connection **ZYL-03**

Clarkson

version of ZYL cylindrical shank connection to a shank with attachment thread without planar contact surface

71F8F4B53E3D2-1 1

variant 04 of ZYL cylindrical shank connection **ZYL-04**

Clarkson

version of ZYL cylindrical shank connection to a shank with attachment thread with planar contact surface

71F8F4B54FA0D-1 1

variant 10 of ZYL cylindrical shank connection **ZYL-10**

Weldon

version of ZYL cylindrical shank connection to a shank with plain clamping surface without planar contact surface

71F8F4B554639-1 1

variant 11 of ZYL cylindrical shank connection **ZYL-11**

drill shank

version of ZYL cylindrical shank connection to a shank with plain clamping surface with planar contact surface

71F8F4B56465A-1 1

variant 13 of ZYL cylindrical shank connection **ZYL-13**

Whistle Notch

version of ZYL cylindrical shank connection to a shank with 2 degree inclined clamping surface without planar contact surface

71F8F4B56A63D-1 1

variant 14 of ZYL cylindrical shank connection ZYL-14

combined Weldon/Whistle Notch

version of ZYL cylindrical shank connection to a shank with plain and 2 degree inclined clamping surface with planar contact surface

71F8F4B56FE57-1 1

variant 15 of ZYL cylindrical shank connection ZYL-15

version of ZYL cylindrical shank connection to a shank with 15-20 degree inclined clamping surface without planar contact surface

71F8F4B57F583-1 1

variant 16 of ZYL cylindrical shank connection ZYL-16

version of ZYL cylindrical shank connection to a shank with 2 degree inclined clamping surface without planar contact surface

71F8F4B5853C1-1 1

variant 17 of ZYL cylindrical shank connection ZYL-17

combined Weldon/Clarkson

version of ZYL cylindrical shank connection to a shank with plain clamping surface and attachment thread without planar contact surface

71F8F4B58A106-1 1

variant 18 of ZYL cylindrical shank connection ZYL-18

combined Weldon/Whistle Notch

version of ZYL cylindrical shank connection to a shank with plain and 2 degree inclined clamping surface with planar contact surface

71F8F4B597D0B-1 1

variant 19 of ZYL cylindrical shank connection ZYL-19

version of ZYL cylindrical shank connection to a shank with bayonet connection

71F8F4B5ACE12-1 1

variant 20 of ZYL cylindrical shank connection ZYL-20

version of ZYL cylindrical shank connection to a shank with tenon

71F8F4B5B212B-1 1

variant 21 of ZYL cylindrical shank connection ZYL-21

version of ZYL cylindrical shank connection to a shank with driving squares

71F8F4B5B7D42-1 1

variant 22 of ZYL cylindrical shank connection ZYL-22

version of ZYL cylindrical shank connection to a shank for boring bars

71F8F4B5C5EC2-1 1

variant 23 of ZYL cylindrical shank connection ZYL-23

version of ZYL cylindrical shank connection to a shank with two plain clamping surfaces

71F8F4B5D1A6B-1 1

variant 24 of ZYL cylindrical shank connection ZYL-24

version of ZYL cylindrical shank connection to a shank with four plain clamping surfaces

71F8F4B82CEDE-1 1

variant 50 of ZYL cylindrical shank connection YL-50

version of ZYL cylindrical shank connection to a bf-drill shank

71F8F4B832F8A-1 1

variant 53 of ZYL cylindrical shank connection ZYL-53

Whistle Notch

version of ZYL cylindrical shank connection to a shank with 2 degree inclined clamping surface with cylindrical shank end without planar contact surface

71ED66AF4BEFE-1 **1**

ZYV VDI shank **ZYW**

connection between cylindrical mating surfaces

Illustration reference: Figure E.72.

Subclasses:

71F8F4B863718-001 variant 01 of ZYV VDI shank

71F8F4B87213D-001 variant 02 of ZYV VDI shank

71F8F4B863718-1 **1**

variant 01 of ZYV VDI shank **ZYV-01**

version of ZYV VDI shank with a serrated section of the surface to provide location and holding

71F8F4B87213D-1 **1**

variant 02 of ZYV VDI shank **ZYV-02**

version of ZYV VDI shank without a serrated section

Annex D (informative)

Connection interface feature property definitions

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		synonymous name
source of definition		
BSU of condition property = name of condition property		
Code = meaning of code		
Source of code definition		
Requirement		
NOTE		
REMARKS		
Illustration reference: Figure Annex.figure number>		
Visible class:		
Applicable classes:		

NOTE 1 An entry might not necessarily contain all the information specified.

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

71D102AE3B252-1 **1** **X 14**

simple string

connection code machine side ccms CCMS

identifier for the capability to connect any component of a cutting tool together, except assembly items, on the machine side

The value of a code shall be constructed from the combination of the item feature class short name and the values of connection size code, variant, connection units basis, coolant supply property and form type.

Two items may be connected together if they have the same value of code.

REMARKS: Example for a cylindrical shank conforming to ISO 3338-2 with shank diameter of 25 mm, with internal coolant would be: ZYL025010M1EXT.

Visible class:

71CE7A72B6DA7-1 cutting tool library

Applicable classes:

71DF8C37D9115-1	connection interface feature
71E01A004C775-1	tool item type
71EAD37F18F34-1	adaptive item type

71D102AE8A5A9-1 **1** **X 14**

simple string

connection code workpiece side ccws CCWS

identifier for the capability to connect any component of a cutting tool together, except cutting items and assembly items, on the workpiece side

The value of a code shall be constructed from the combination of the item feature class short name and the values of: connection size code, variant, connection units basis, coolant supply property and form type.

Two items may be connected together if they have the same value of code.

REMARKS: Example for a collet chuck adaptor fitting a collet conforming to DIN 6499 with a size of 16 mm without coolant would be: SZD016002M0INT.

Visible class:

71CE7A72B6DA7-1 cutting tool library

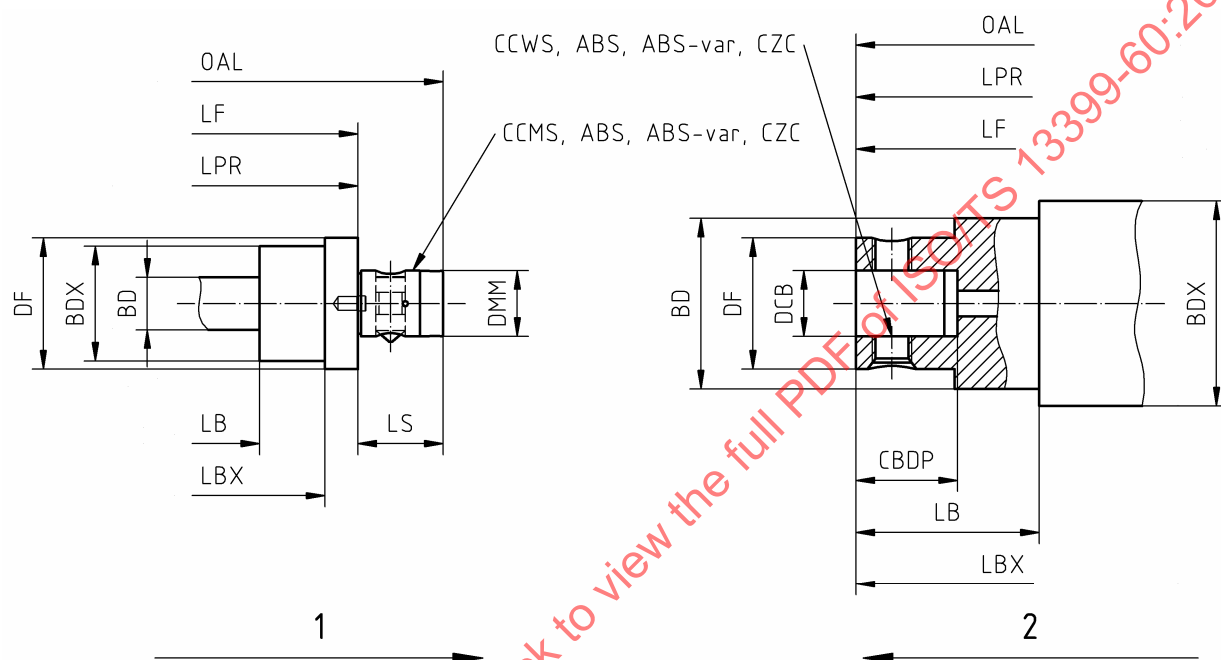
Applicable classes:

71DF8C37D9115-1	connection interface feature
71E01A008D13F-1	mill
71E01A00BD93C-1	drill
71E01A04C377D-1	broach
71E01A05104CF-1	turn
71E0251F304E1-1	rotating borer
71EAD37F18F34-1	adaptive item type

Annex E (informative)

Illustrations of connection systems

Figures E.1 to E.72 illustrate connection systems that are defined in Annex C. The properties indicated in the diagrams are as defined in ISO/TS 13399-4. The following key applies for all figures in this annex.



Key

- 1 machine side connection
- 2 workpiece side connection

Figure E.1 — ABS System Komet

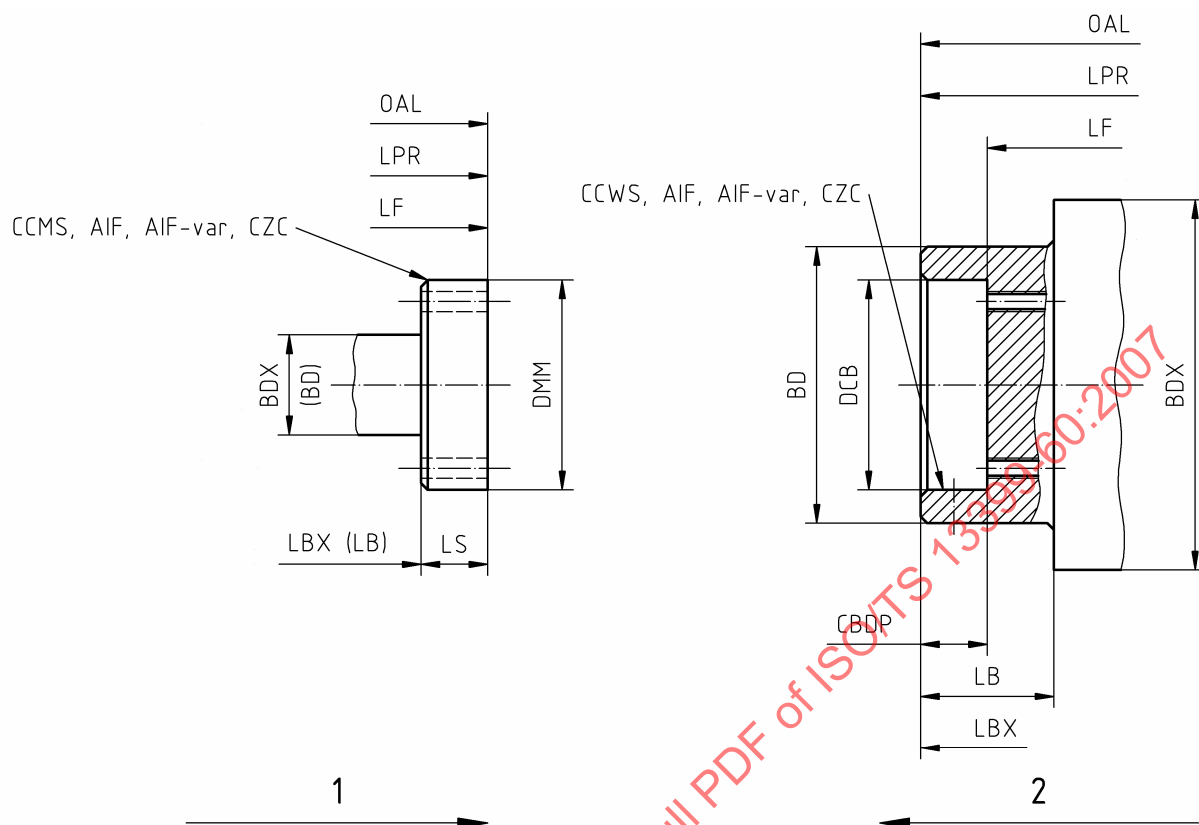


Figure E.2 — AIF Adjustable Interface Detail

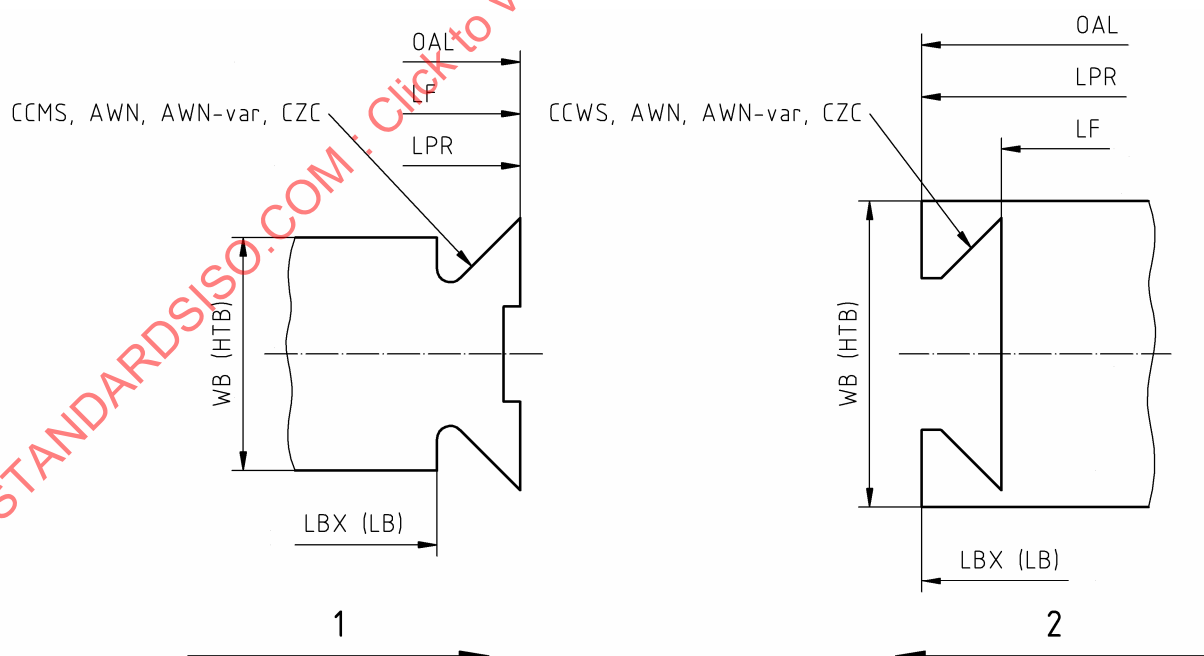


Figure E.3 — AWN Prisma connection Schwanog

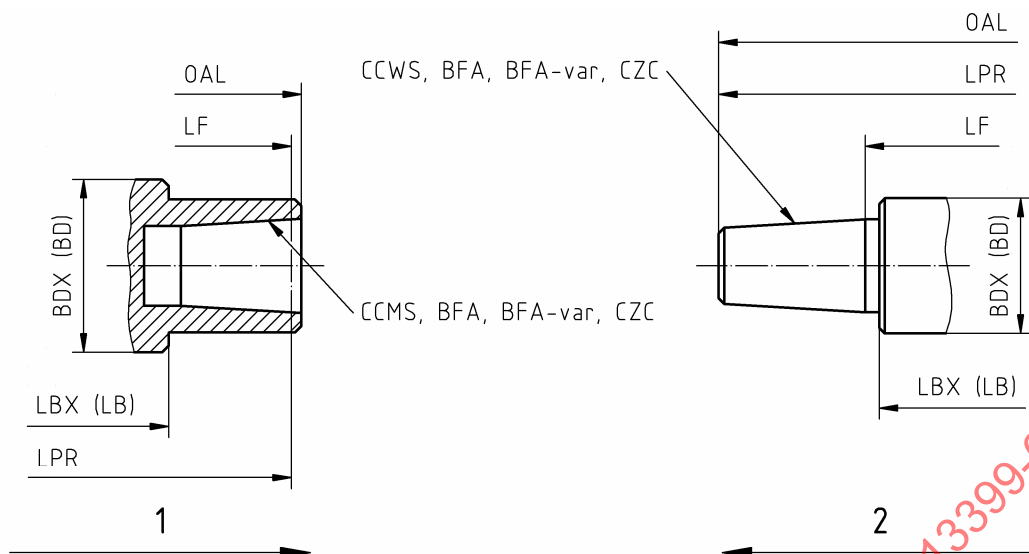


Figure E.4 — BFA drill chuck connection

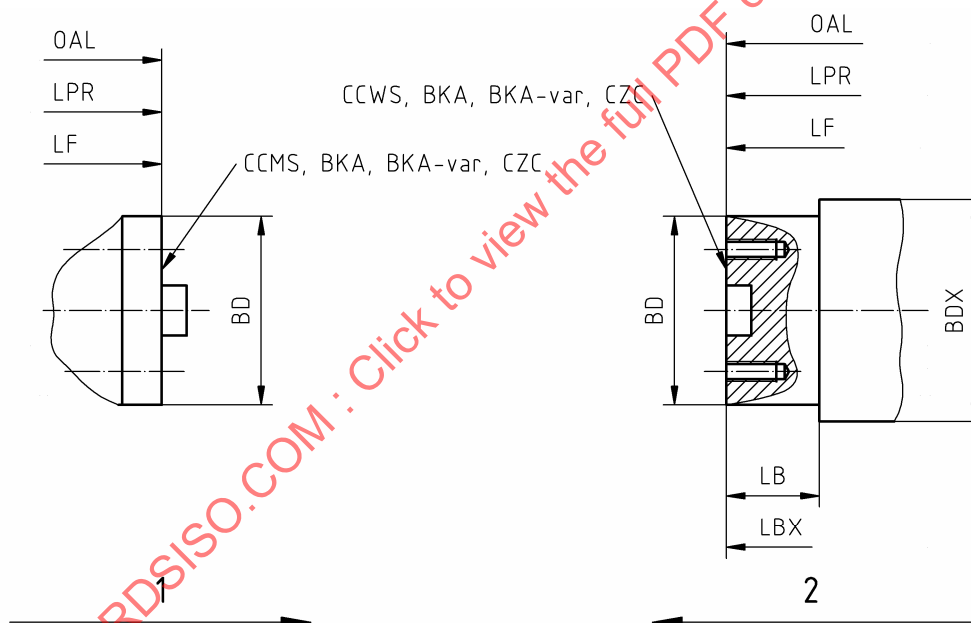


Figure E.5 — BKA boring head connection

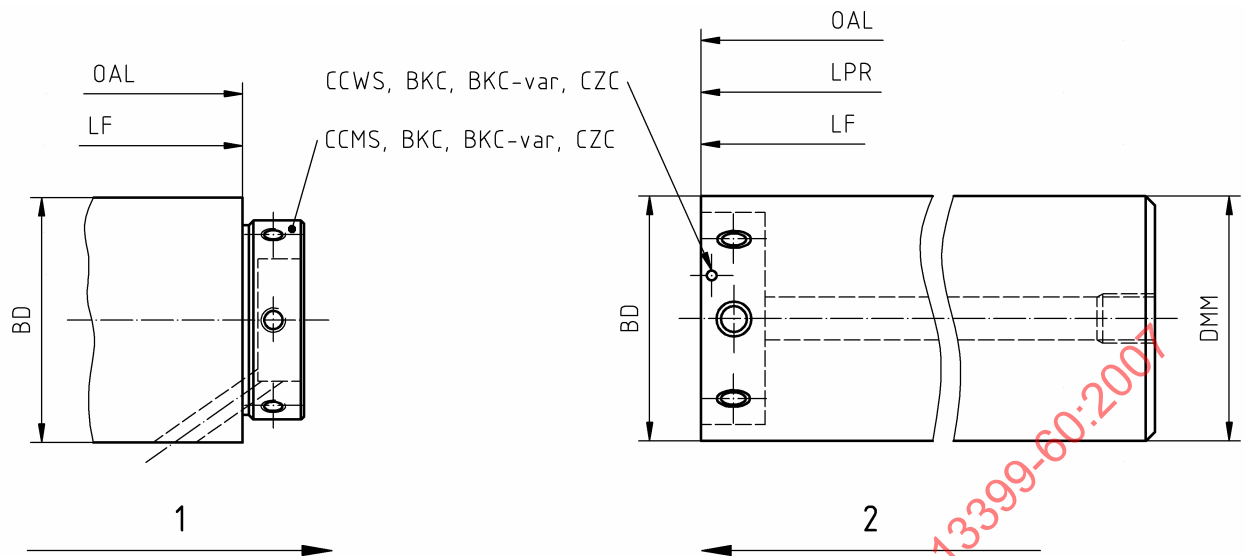


Figure E.6 — BKC boring head connection Coromant

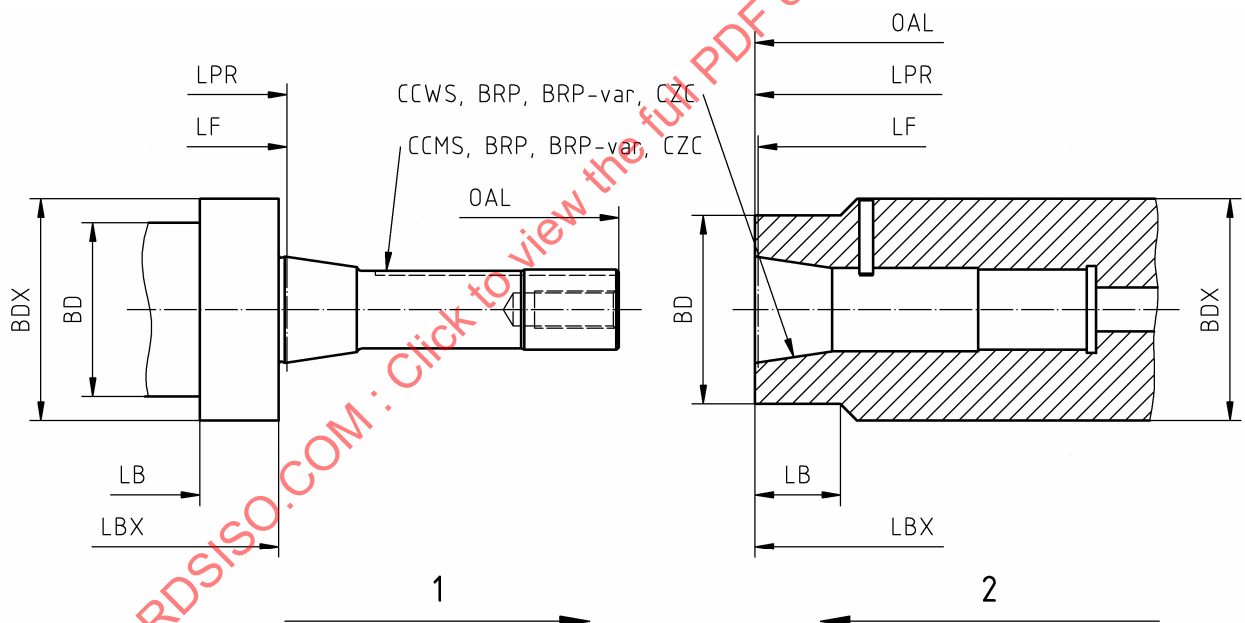


Figure E.7 — BRP Bridgeport connection

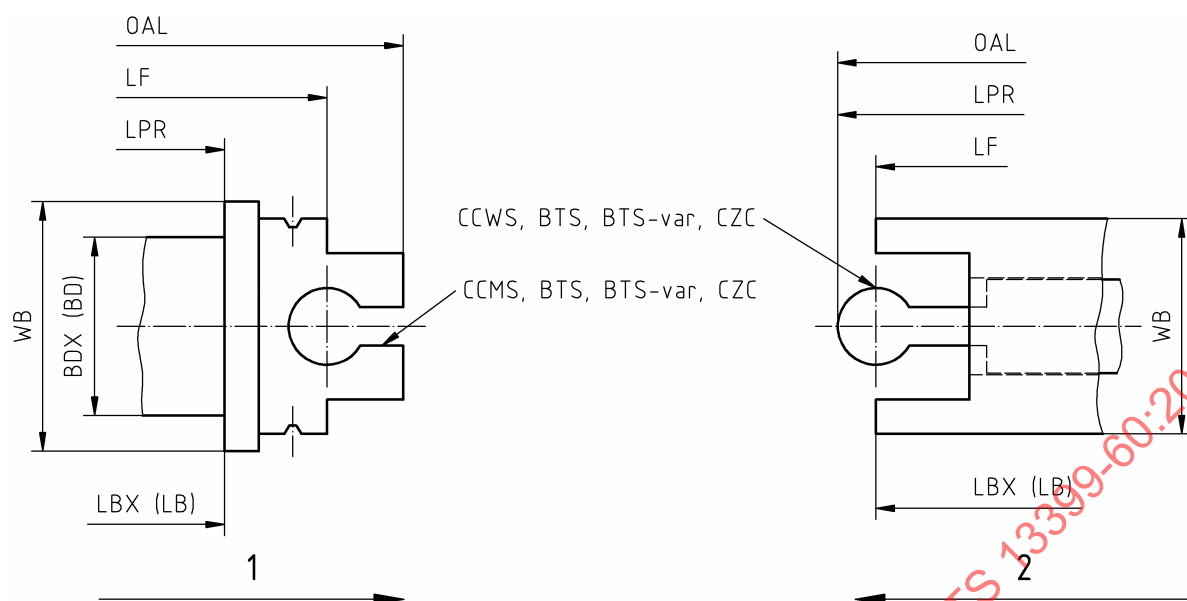


Figure E.8 — BTS Block Tool System Coromant

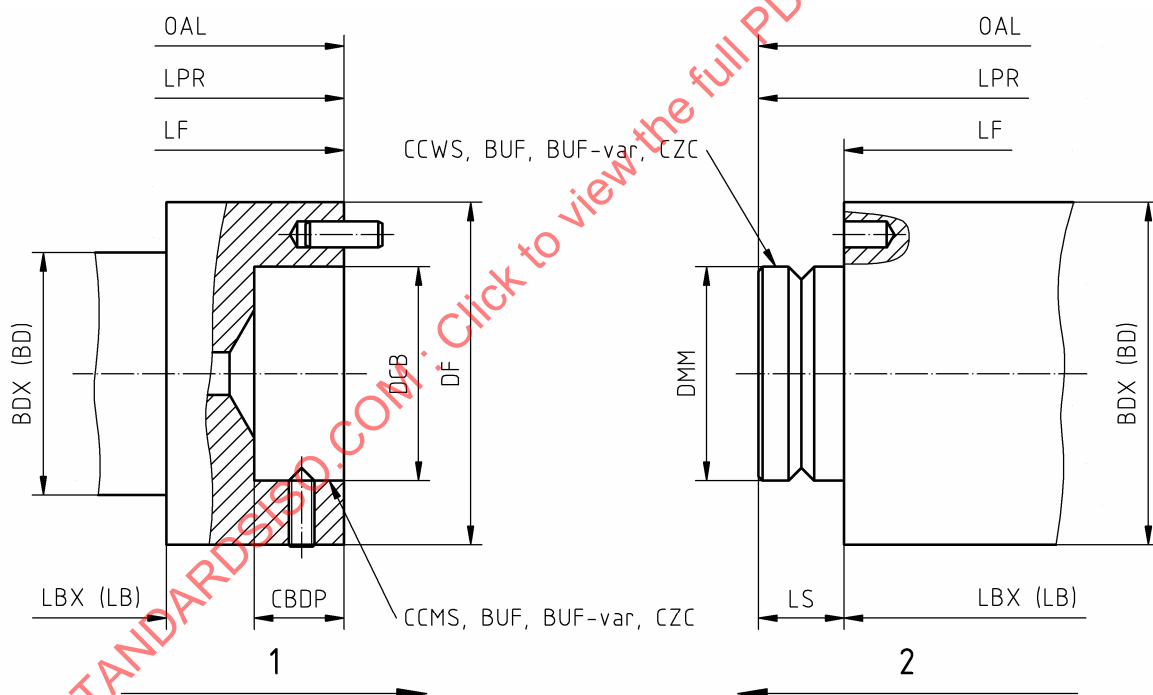


Figure E.9 — BUF boring and chamfer system

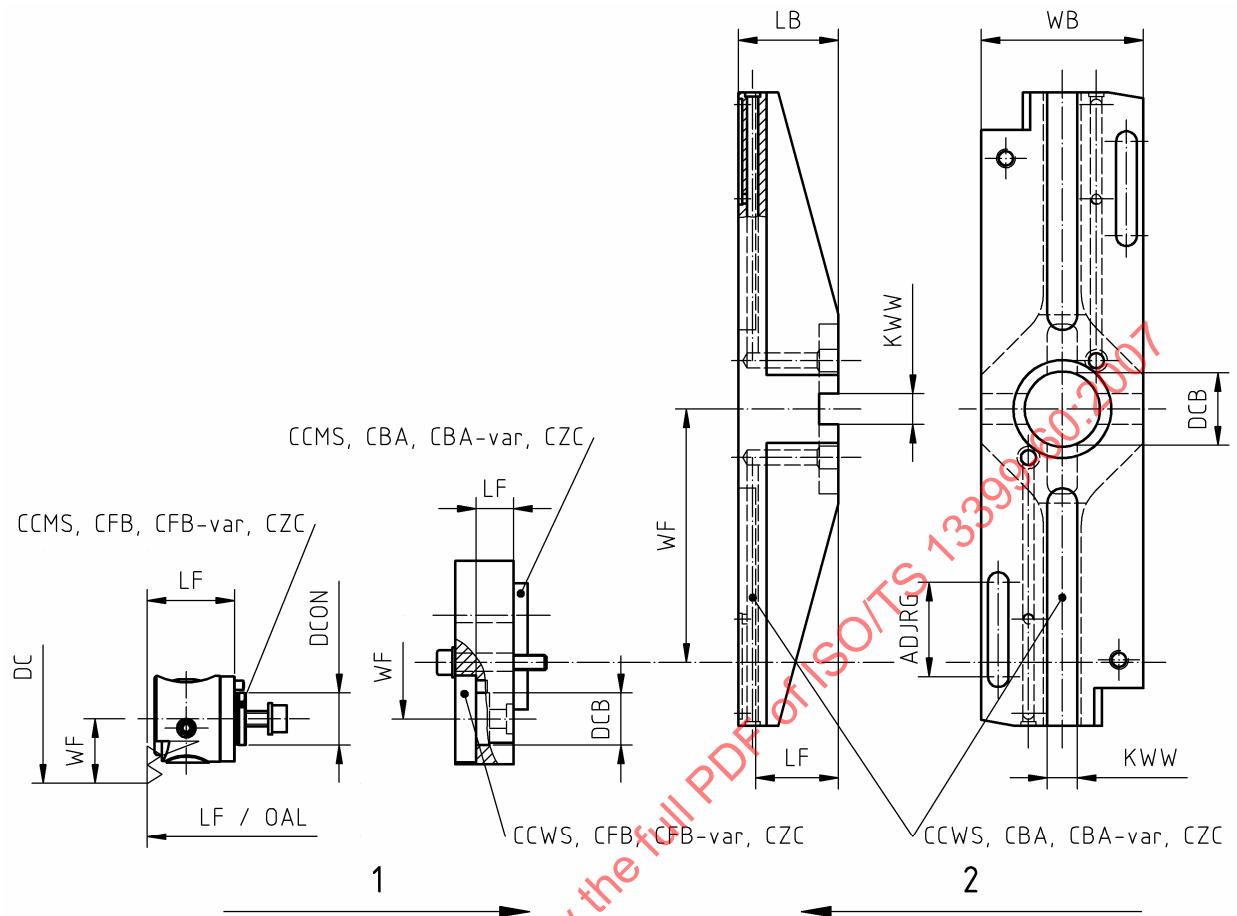


Figure E.10 — CBC Coromant Bridge Connection

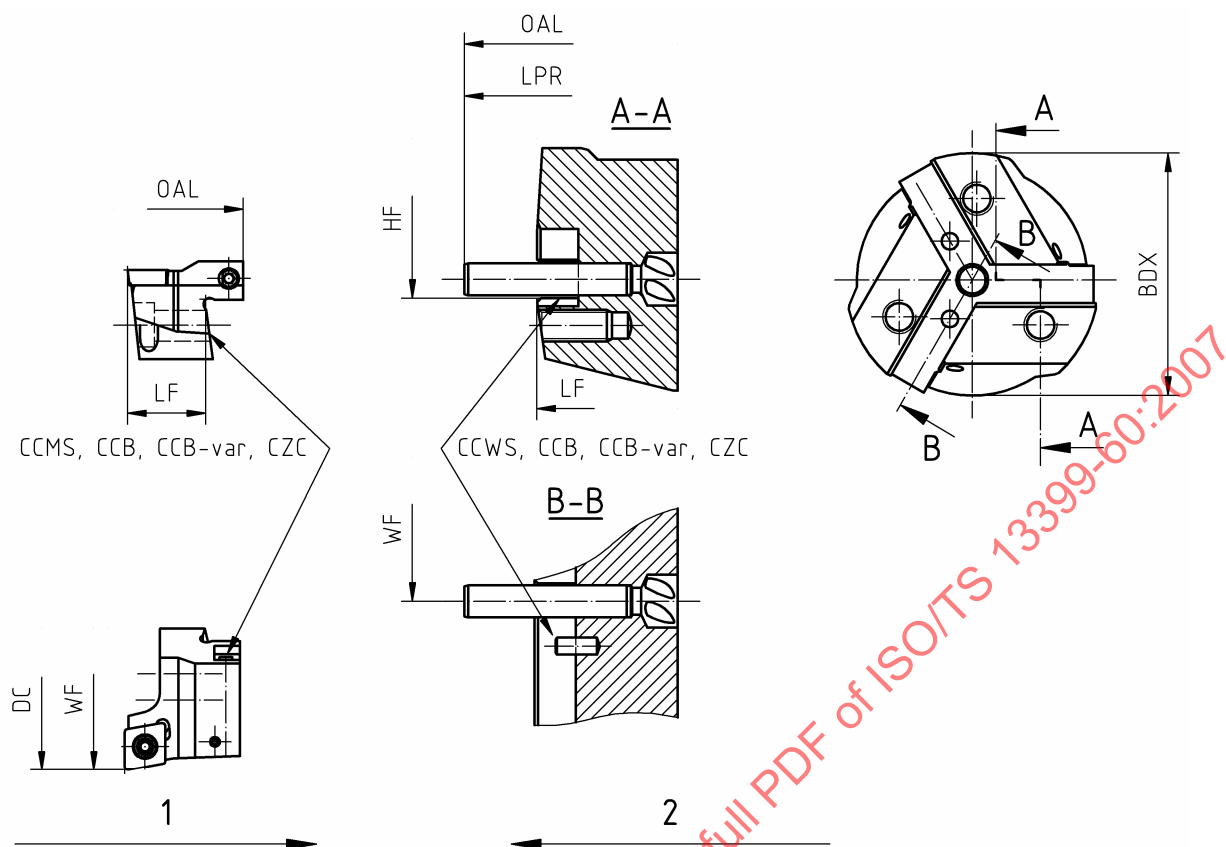


Figure E.11 — variant 01 of CCB Coromant CoroBore

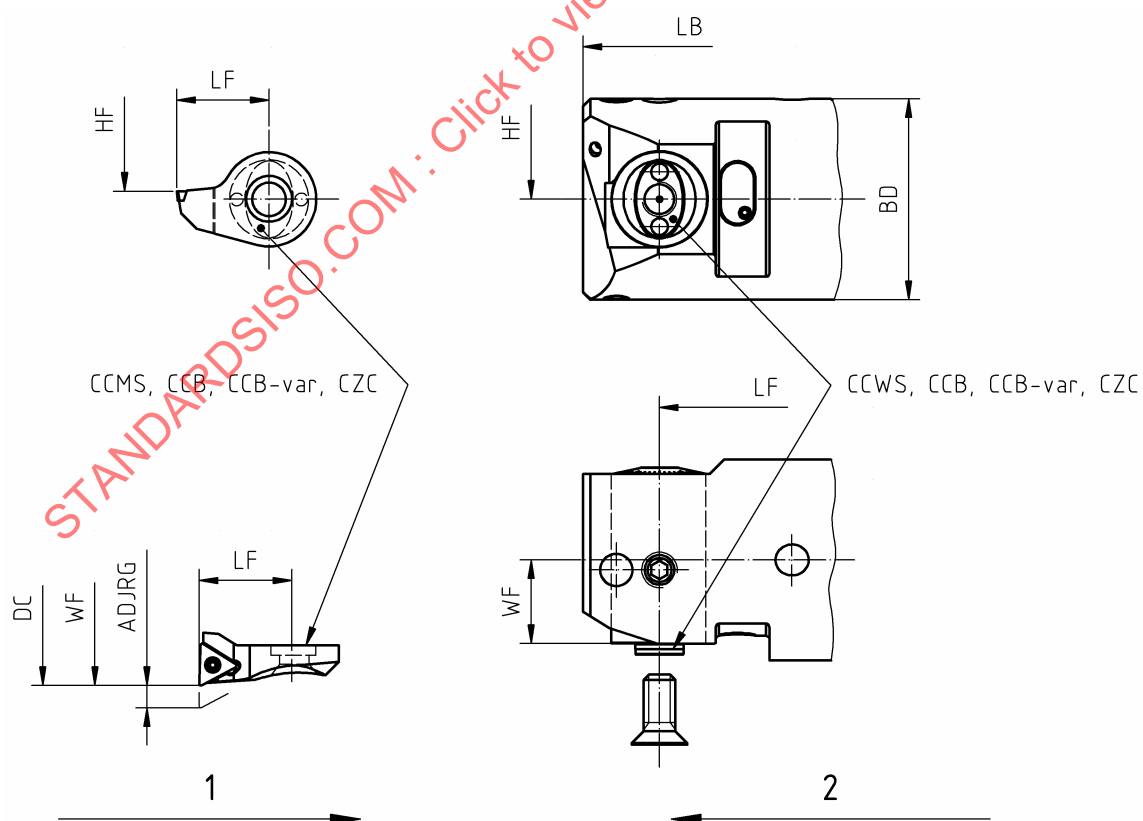


Figure E.12 — variant 02 of Coromant Corobore

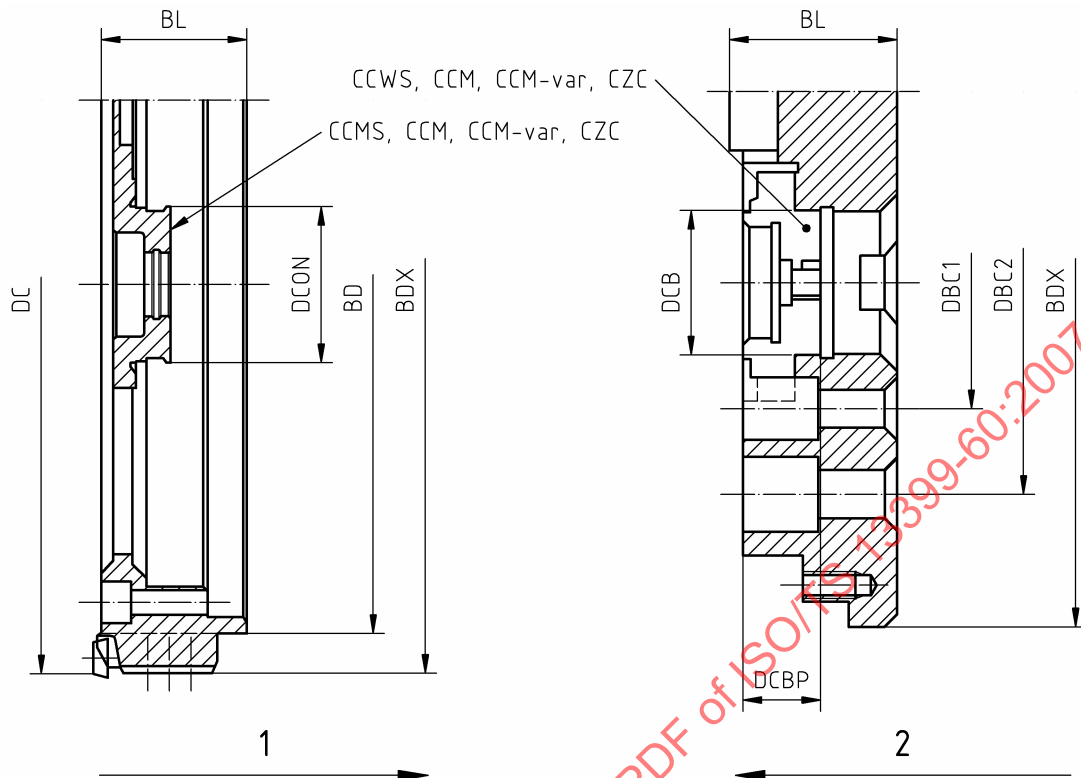


Figure E.13 — CCM Coromant Cap Mounting

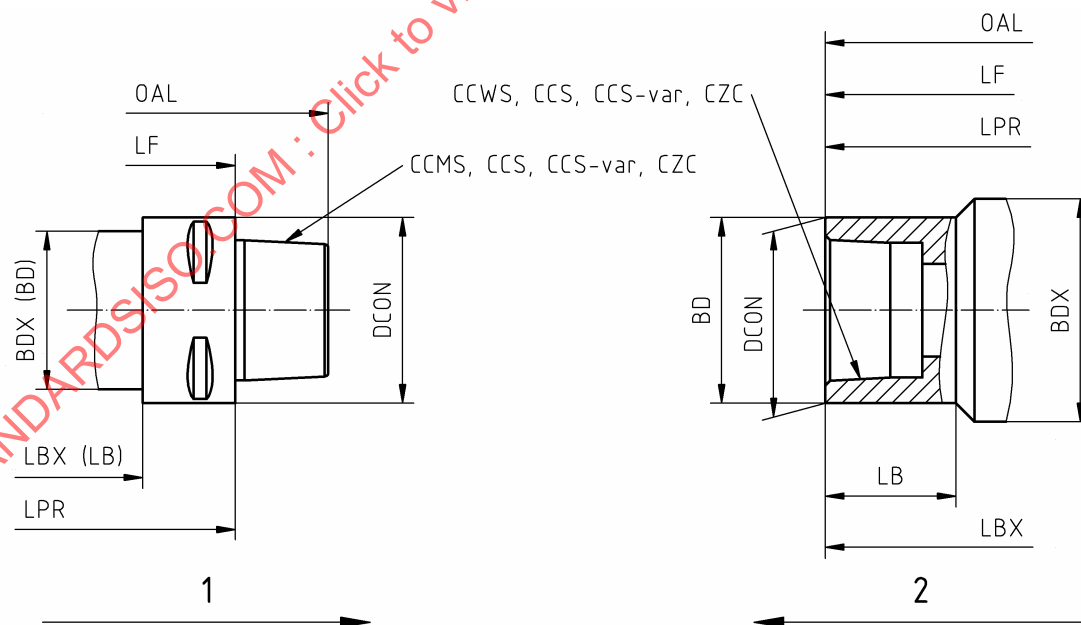


Figure E.14 — CCS Coromant Capto system

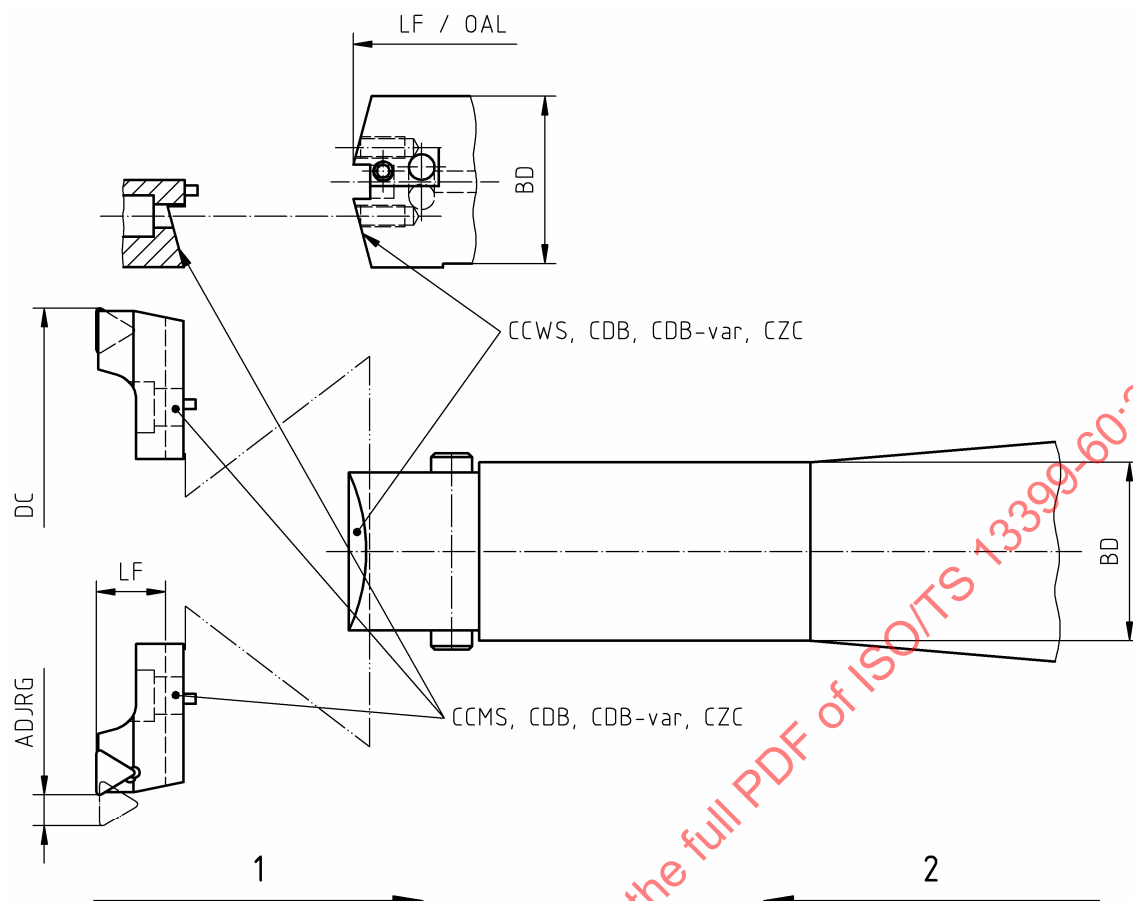


Figure E.15 — variant 01 of CDB Coromant Duobore

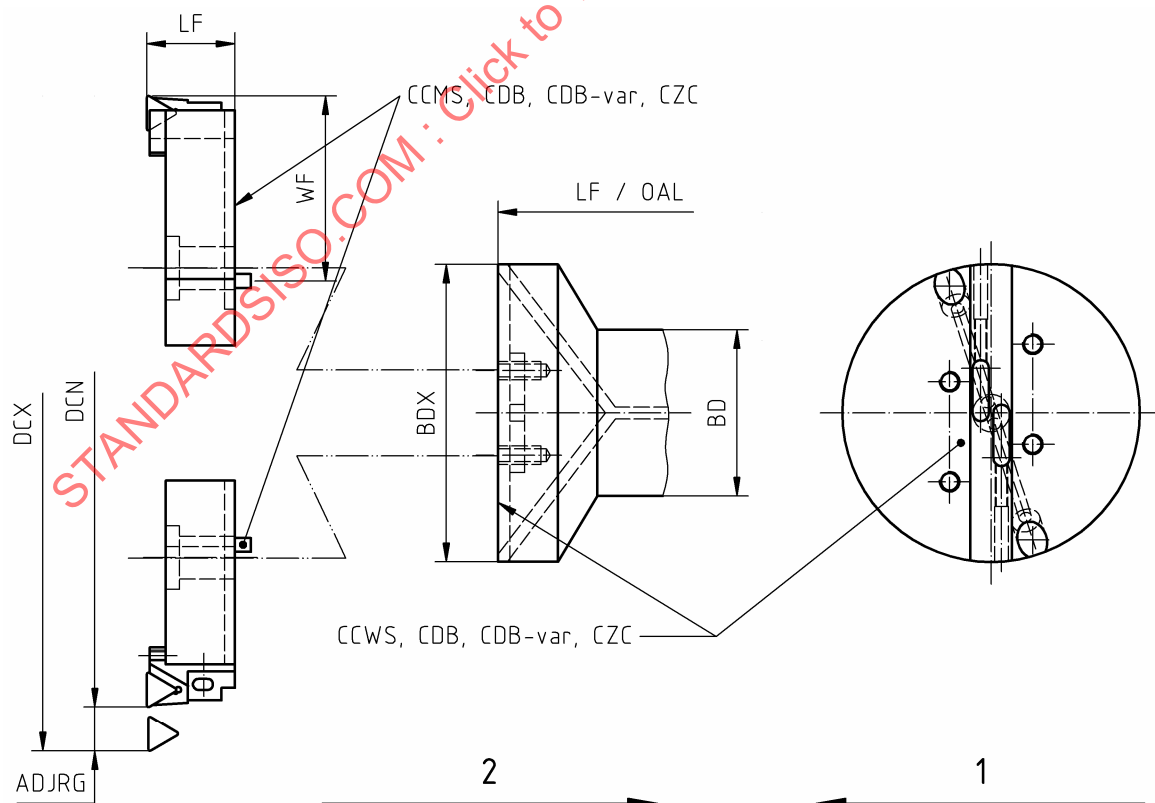


Figure E.16 — variant 02 of CDB Coromant Duobore

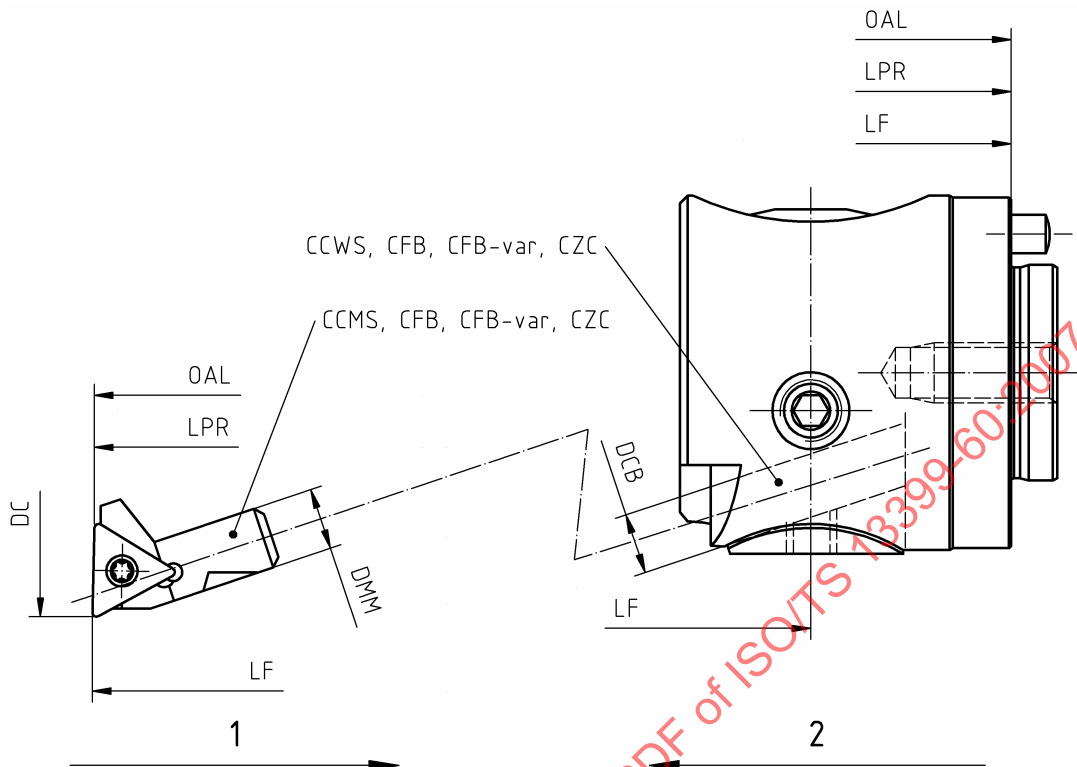


Figure E.17 — variant 01 of CFB Coromant Fine Boring

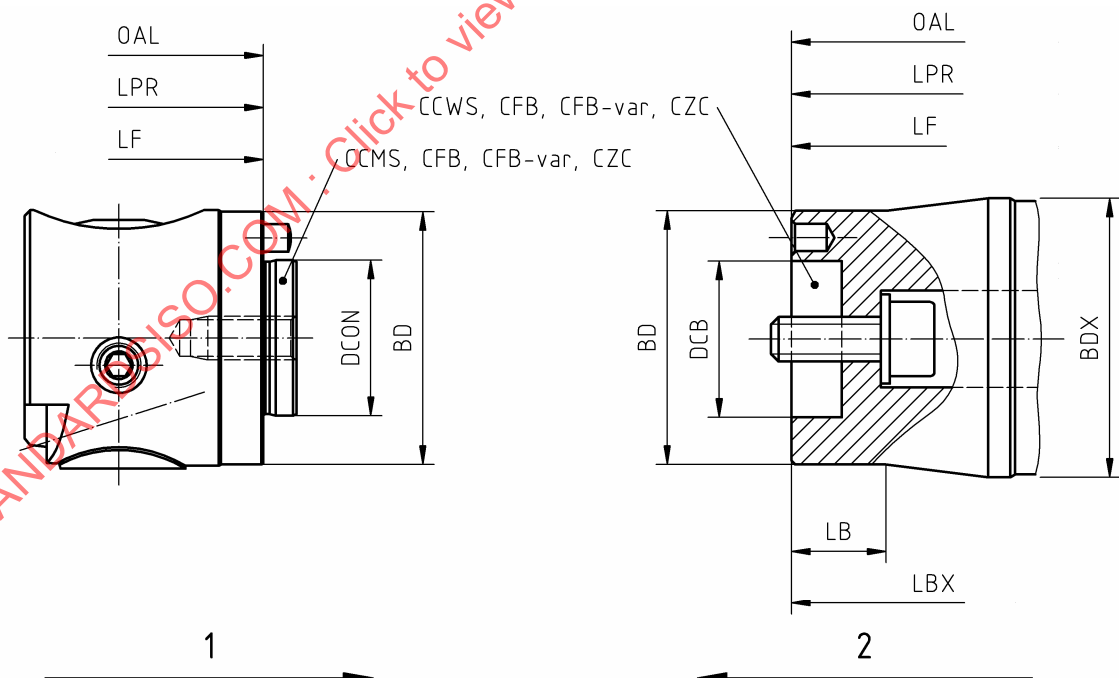


Figure E.18 — variant 02 of CFB Coromant Fine Boring

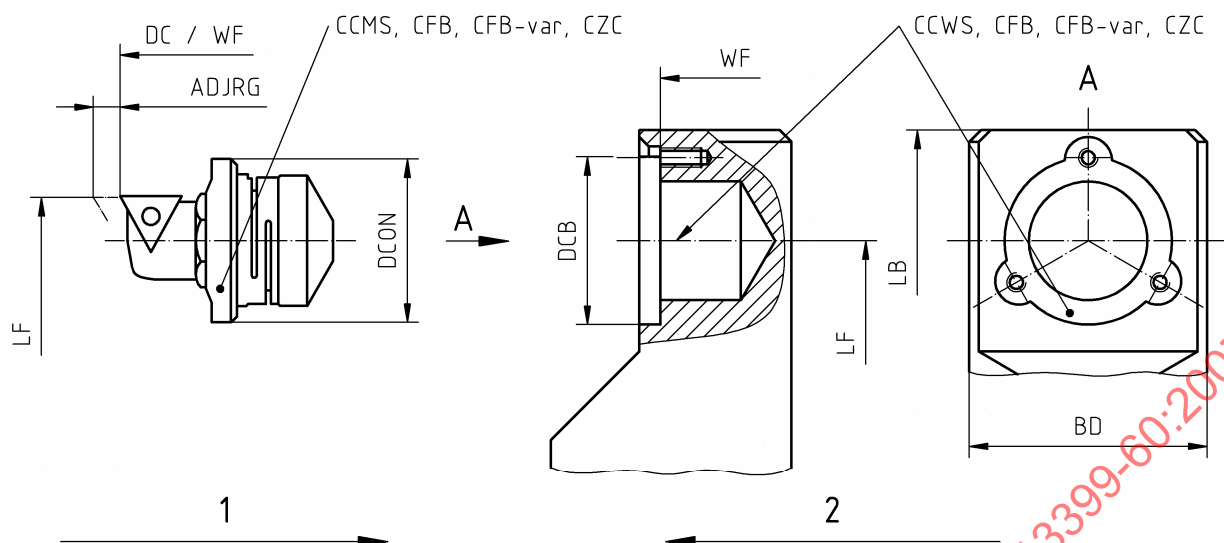


Figure E.19 — variant 03 of CFB Coromant Fine Boring

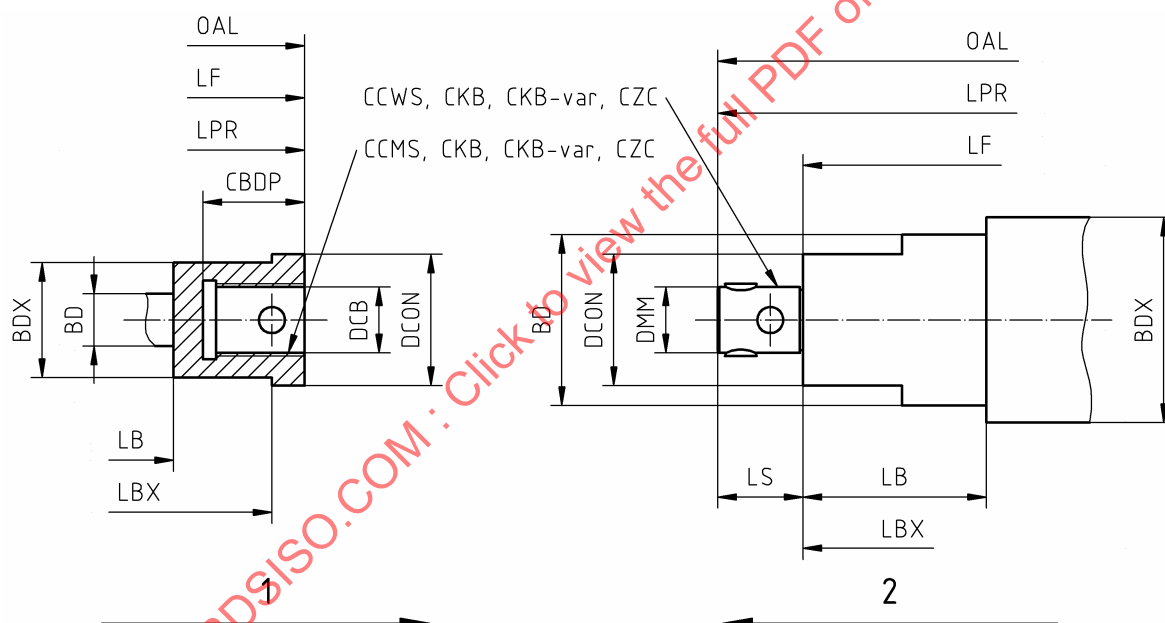


Figure E.20— variant 01 of CKB Kaiser bore connection

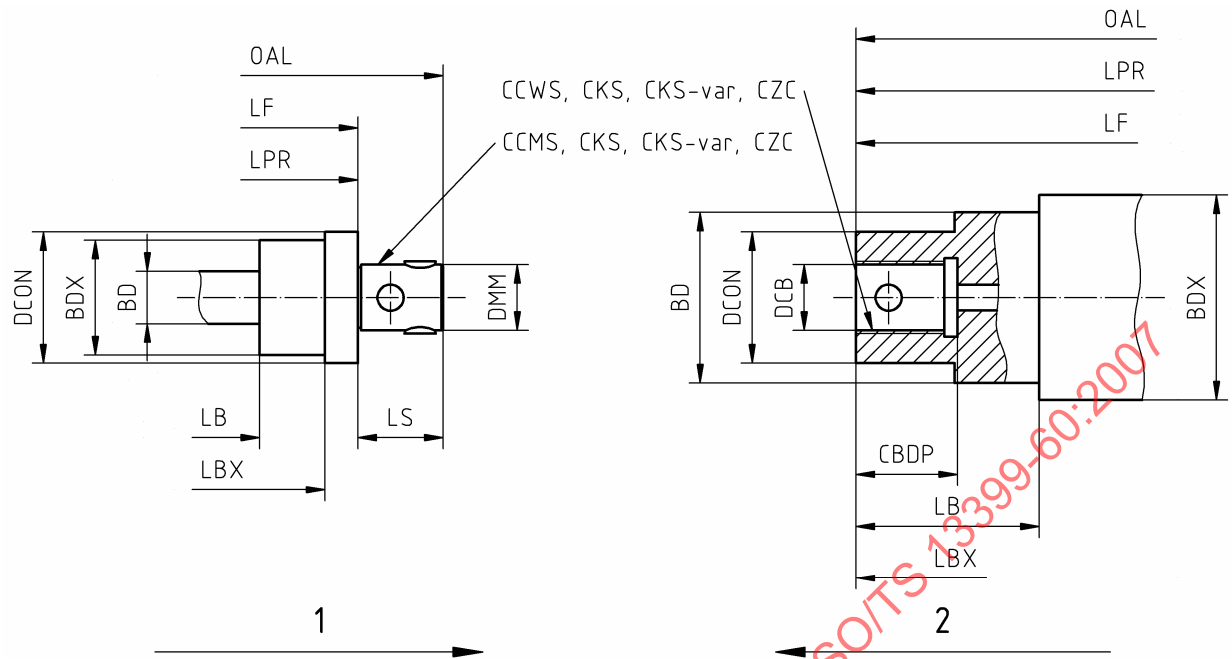


Figure E.21 — CKS Kaiser shank connection

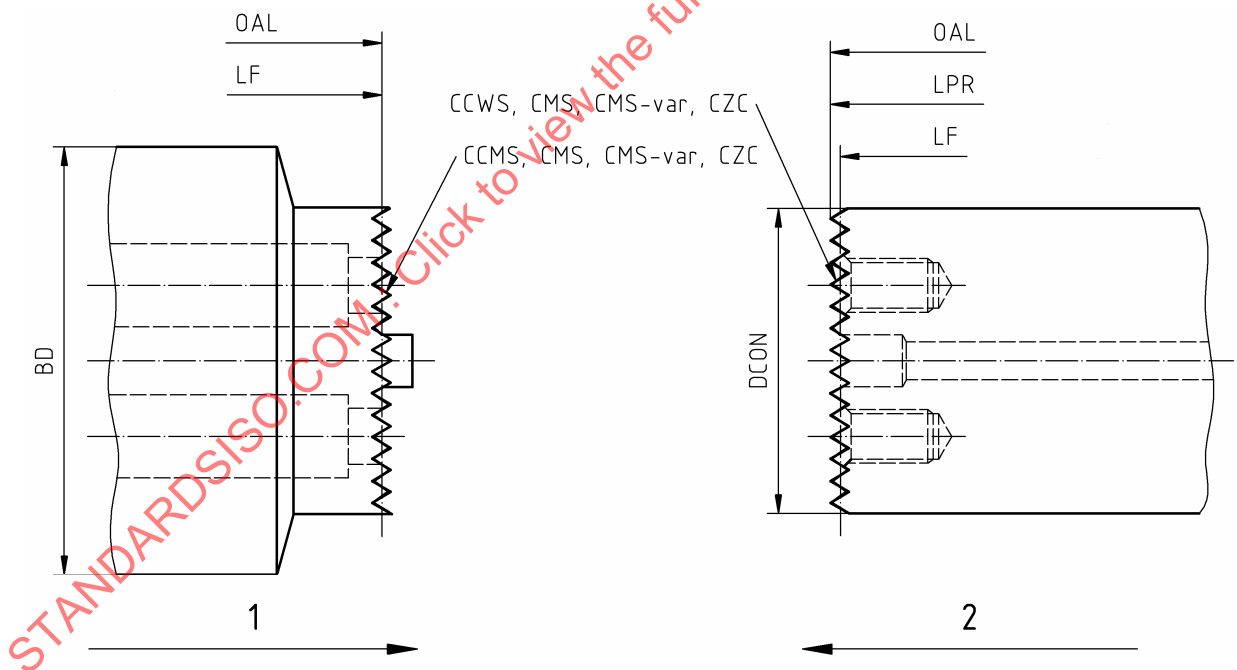


Figure E.22 — CMS Coromant Modular Serrated mounting

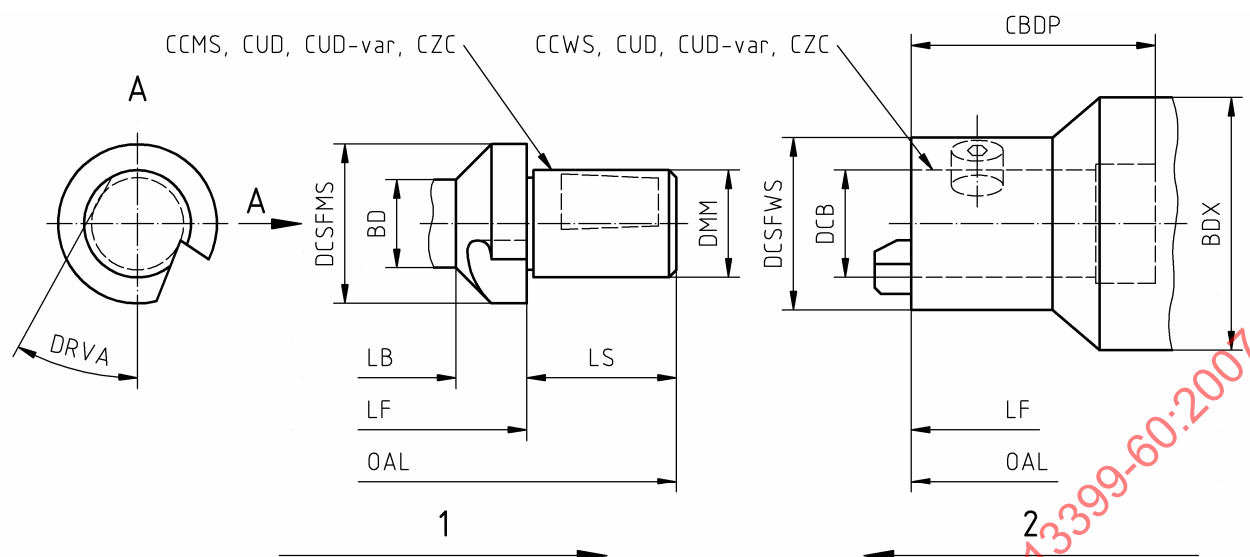


Figure E.23 — CUD Coromant U-drill connection

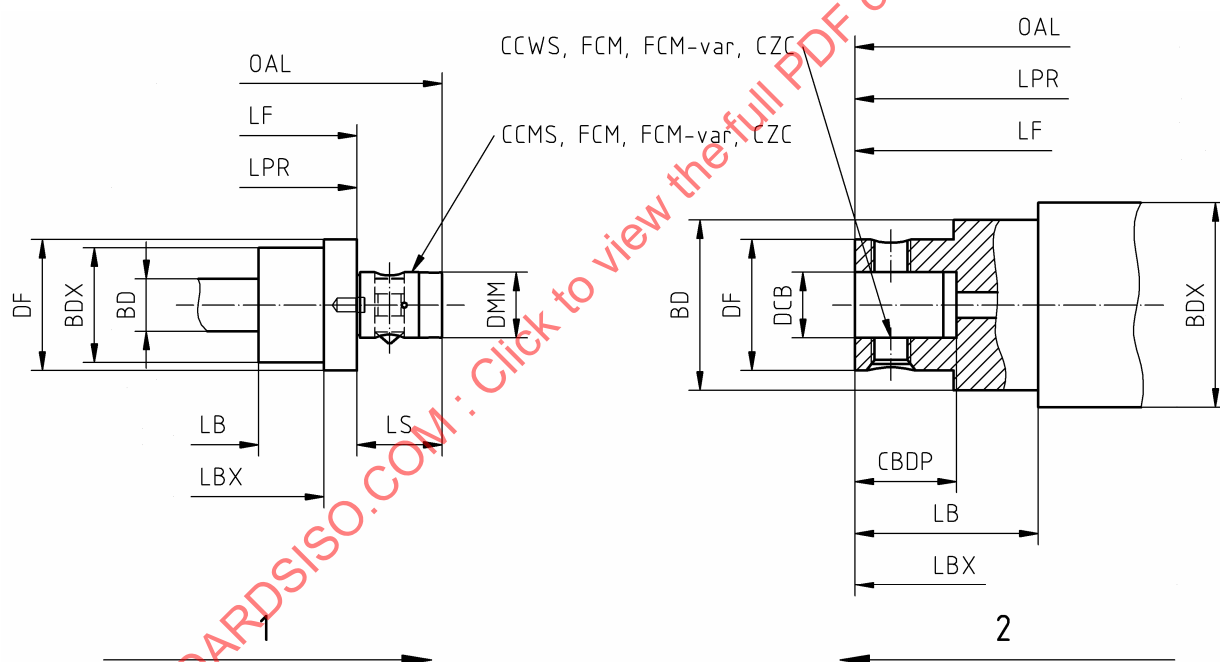


Figure E.24 — FCM Flexible Coupling Modular

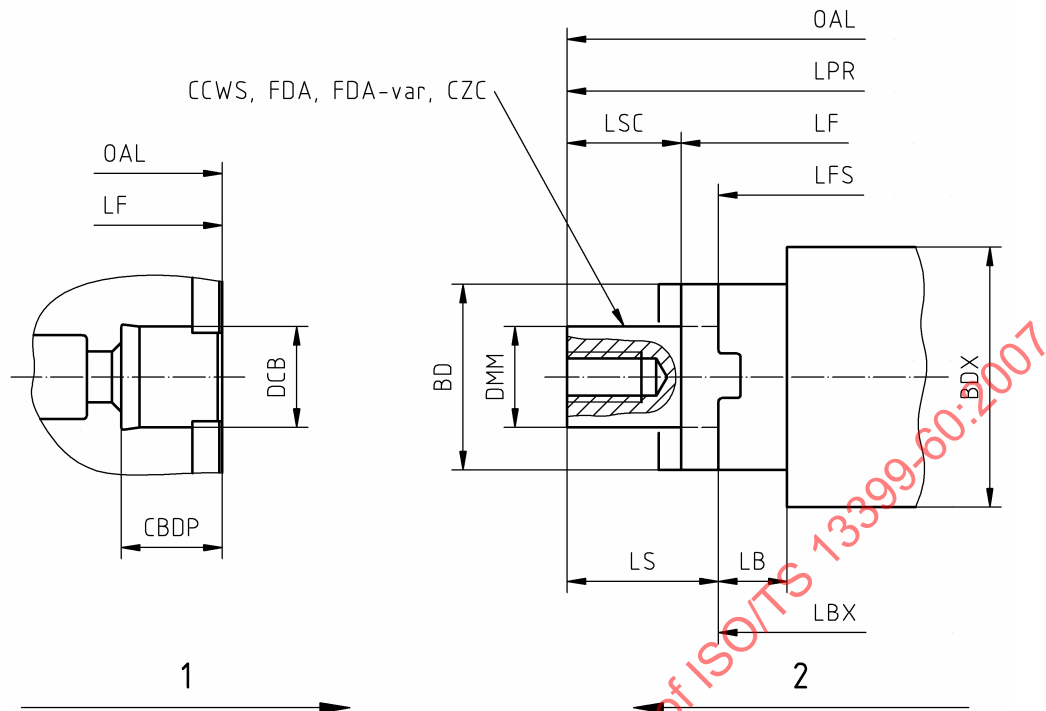


Figure E.25 — FDA milling arbor connection

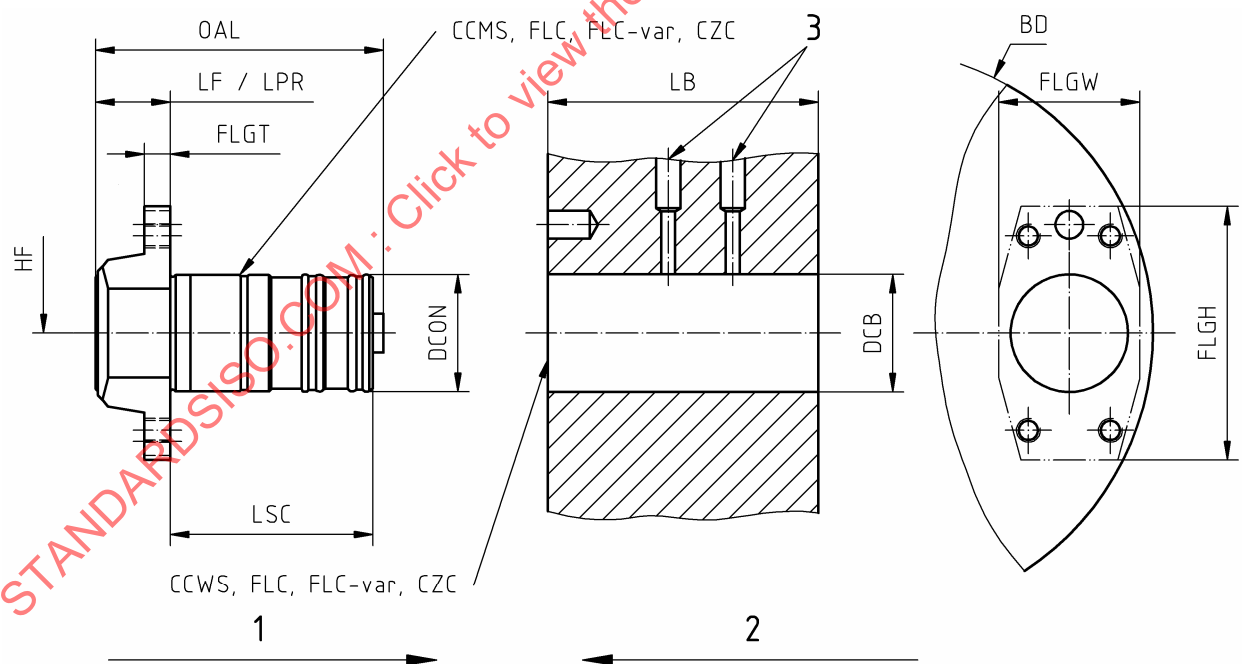


Figure E.26— FLC flange connection Coromant