## ISO/TS 13399-406:2019 (E)

# Cutting tool data representation and exchange — Part 406: Creation and exchange of 3D models — Modelling of connection interface

## Contents

Foreword

### Introduction

- 1 Scope
- 2 Normative references
- 3 Terms and definitions
- 4 Abbreviated terms
- 5 Starting elements, coordinate systems and planes
  - 5.1 General
  - 5.2 Reference system (PCS Primary coordinate system)
  - 5.3 Position of the connection interface
  - 5.3.1 General
  - 5.3.2 Prismatic connection interface
  - 5.3.3 Round connection interface
  - 5.4 Mounting coordinate system
  - 5.5 Planes
- 6 Design of the connection interface
- 7 BFA-drill chuck taper
  - 7.1 General
  - 7.2 Necessary properties
  - 7.3 Contours (sketches) for solid bodies
  - 7.4 Solid bodies of the drill chuck taper
- 8 CCS-polygonal taper interface with flange contact surface
  - 8.1 General
  - 8.2 Necessary properties
  - 8.3 Contours (sketches) for solid bodies
  - 8.3.1 Outside sketch
  - 8.3.2 Inside sketch
  - 8.4 Solid bodies of the polygonal taper
  - 8.4.1 Tapered shank
  - 8.4.2 Internal contour
  - 8.4.3 Flange and tool changer grooves
  - 8.4.4 Completed polygonal taper shank
  - 8.4.5 Tapered hole of receiver
  - 8.4.6 Completed polygonal receiver
- 9 FDA-milling arbour connection
  - 9.1 General
  - 9.2 Necessary properties
  - 9.3 Contours (sketches) for solid bodies
  - 9.3.1 Sketch for connection on workpiece side
  - 9.3.2 Sketch for connection on machine side
  - 9.4 Solid bodies of the connection
  - 9.4.1 Solid body for connection on workpiece side
  - 9.4.2 Solid body for connection on machine side

- 10 HSK-hollow taper interface with flange contact
  - 10.1 General
  - 10.2 Necessary properties
  - 10.3 Contours (sketches) for solid bodies
  - 10.3.1 Outside sketch
  - 10.3.2 Inside sketch
  - 10.4 Solid bodies of the hollow taper interface with flange contact
  - 10.4.1 Solid body for connection on machine side
  - 10.4.2 Solid body for connection on workpiece side

#### 11 KMT-modular taper interface with ball track system

- 11.1 General
- 11.2 Necessary properties
- 11.3 Contours (sketches) for solid bodies
- 11.3.1 Outside sketch
- 11.3.2 Inside sketch
- 11.4 Solid bodies of the modular taper with ball track system
- 11.4.1 Solid body for connection on machine side
- 11.4.2 Solid body for connection on workpiece side

#### 12 MEG/MKG-metric/Morse taper

- 12.1 General
- 12.2 Necessary properties
- 12.3 Contours (sketches) for solid bodies
- 12.3.1 Outside sketch
- 12.3.2 Inside sketch
- 12.4 Solid bodies of the metric or Morse taper
- 12.4.1 Solid body for connection on machine side
- 12.4.2 Solid body for connection on workpiece side

#### 13 SKG-tool shanks with 7/24 and steep tapers

- 13.1 General
- 13.2 Necessary properties
- 13.3 Contours (sketches) for solid bodies
- 13.3.1 Outside sketch
- 13.3.2 Inside sketch
- 13.4 Solid bodies of the 7/24 taper
- 13.4.1 Solid body for connection on machine side
- 13.4.2 Solid body for connection on workpiece side

#### 14 SZD-collet standard connection

- 14.1 General
- 14.2 Necessary properties
- 14.3 Contour (sketch) for solid body
- 14.4 Solid bodies of the collet receiver

#### 15 ZYL-cylindrical shanks

- 15.1 General
- 15.2 Necessary properties
- 15.3 Contours (sketches) for solid bodies
- 15.4 Solid bodies of the cylindrical connections
- 15.4.1 Solid body for connection on machine side
- 15.4.2 Solid body for connection on workpiece side
- 16 ZYV-cylindrical connection for stationary tools ISO 10889-1
  - 16.1 General
  - 16.2 Necessary properties
  - 16.3 Contours (sketches) for solid bodies
  - 16.4 Solid bodies of the cylindrical connection for stationary tools
  - 16.4.1 Solid body for connection on machine side
  - 16.4.2 Solid body for connection on workpiece side
- 17 Manufacturer specific connection interfaces

- 18 Structure of the design elements (tree of model)
- Annex A (informative) Nominal dimensions

Page count: 43