

Use Case:

Create/Use Physical Cutting Tool -made simple by use of ISO13399

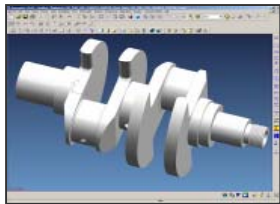
(This is what I plan to show at NIST in June 2010)

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Smart Decisions

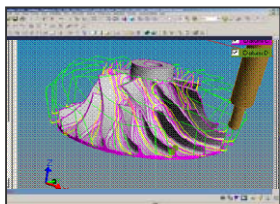
Influenced by Cutting Tool Information



- CAD/CAM
 - choice of operations, machines, cutting tools
 - creation of efficient tool paths



- Resource Management
 - tool planning, efficient inventory and service of items in tool crib
 - selection and creation of tool assemblies



- Simulation
 - verification of tool paths
 - selection of cutting data



- CNC Machining
 - optimization of process

Cutting Tool Information Standard

ISO13399 – What Can Be Communicated?

- Tool item information

- Classification
- Property values



- Tool assembly

- Assembly instructions for tool room
- Tool information used by CAM/CNC



- References to external documents

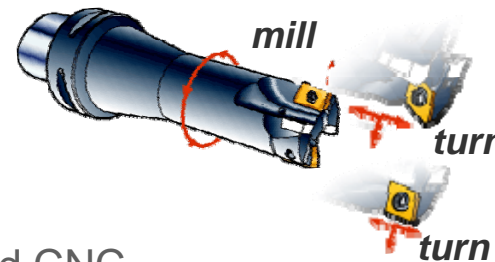
- 3D model of single tool or complete tool assembly

- Multi-function

- "Multiple tools" on one body

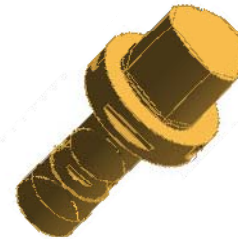
- Nominal and physical tool

- Nominal tool information to CAM and tool room
- Physical tool information between tool room and CNC



Case: Physical Cutting Tool

In The Tool Crib: Create Cutting Tool

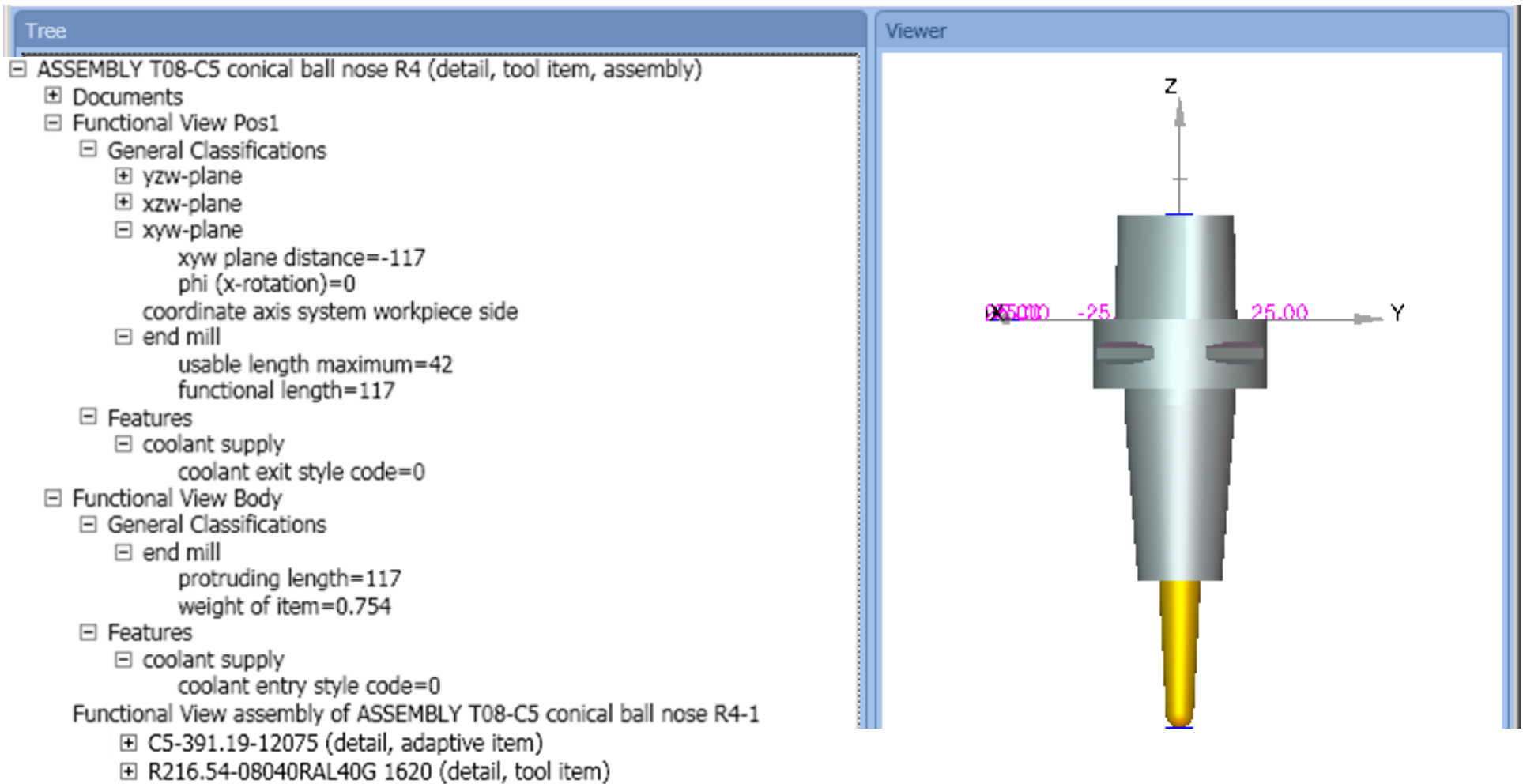


1. Receives tool item information
 - from cutting tool supplier
2. Receives assembly instructions
 - from process planning
3. Builds the physical tool
 - Tool ready for transfer to CNC
 - Information ready for transfer to CNC

ISO13399

- [-] T10 -Indexable Mill Assembly COROMILL790 44mm
 - [-] General Classifications
 - [-] end mill
 - functional length=132
 - cutting diameter maximum=44
 - corner radius=4
 - [-] T10-1 Current data about physical tool
 - [-] Properties
 - functional length=132.266
 - cutting diameter maximum=44.072
 - corner radius=4





Product Data Example – Milling Cutter

- Product Identification, Classification and Property Values
- Cutting Tool Assembly (adapter/holder/insert)
- Referenced information (CAD model of above)

Summary

Benefits of Using ISO13399

Enabling smart decision making

- CAD/CAM
 - operations, machines, cutting tools, tool paths
- Resource Management
 - inventory control, service, tool assemblies
- Simulation
 - verification of tool paths, selection of cutting data
- CNC Machining
 - optimization of process

Information which could be communicated

- Catalog data
 - Classification
 - Geometrical data
- 3D models
 - detailed view (for visual communication)
 - profile view (for simulation)
- Tool assembly information
 - tool room instructions
 - tool room results
 - instructions for automated 3D assembly
- Usage data (in combination with other standards)
 - cutting data range
 - cutting method
 - tool life