



MANUFACTURING STEP ON A PAGE



ISO 10303 Standard for the Exchange of Product model data (STEP)

Organizations and industries all over the world exchange product model data. These exchanges can be between requirements/concept, analysis, detailed design/BoM, manufacturing, or lifecycle support processes. Industry and government collaborators developed a suite of standards in the International Organization for Standardization (ISO) to exchange neutral product model data. It is referred to as **ST**andard for the **EX**change of **PR**oduct model data (STEP).

ISO 10303 for Manufacturing Product Model Data Exchange

The STEP development community is working to ensure these standards support international product model exchange requirements. The manufacturing community is participating to ensure that their product model data can be exchanged to support real business processes. Integrated Resource parts in STEP address geometry, materials, tolerances, configuration management, product data management, and other general requirements. Application Protocol (APs) parts have been developed to address specific products and processes.

MANUFACTURING STEP STANDARDS

Almost every AP can be used by most industries. These are the key manufacturing industry needs for product model data exchange using ISO 10303 STEP. Many requirements have been harmonization across the manufacturing data exchange: machining features, geometric and dimensional tolerances, shape, properties, etc.

Generic Standards

AP 203 - Configuration controlled 3D designs of mechanical parts and assemblies



AP 203 is used to exchange geometry, product structure, and configuration management data. Edition 2 adds tolerances, construction history, layers and colors to the 3D exchanges with ISO 10303 re-usable data modules.

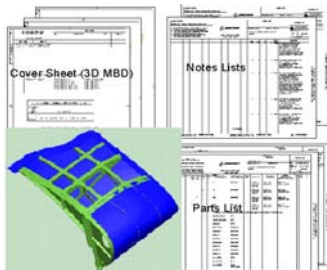
AP 214 - Core data for automotive mechanical design processes



AP 214 is used to exchange mechanical geometry, product structure, configuration management, assemblies, supplier, tolerances and other information for all kinds of mechanical systems. It includes drawing exchange ensuring that a complete manufacturing technical data package can be exchanged.

Detailed Design/Bill of Materials Standards

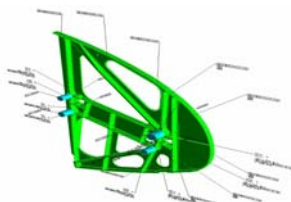
AP 232 - Technical data packaging: core information and exchange



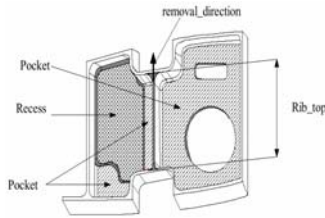
AP 232 provides the structure to package/relate groups of product information so that configuration controlled exchanges can be achieved. Product information may be exchanged in this AP's STEP format, another AP STEP format, or any other format. This capability will satisfy the industrial need to communicate and share the total design definition of a product among originating organization, partners, vendors, and customers from both a product item perspective and a document based perspective.

Manufacturing (Make and Buy) Standards

AP 219 - Dimensional Inspection

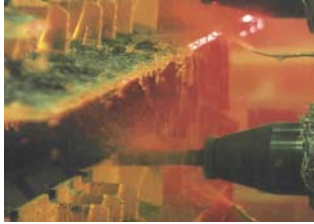


AP 219 will specify information requirements to manage dimensional inspection of solid parts or assemblies, which includes administering, planning, and executing dimensional inspection as well as analyzing and archiving the results. Dimensional inspection can occur at any stage of the life cycle of a product where checking for conformance with a design specification is required.



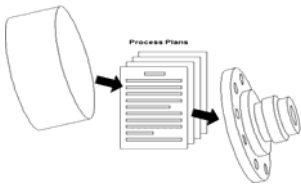
AP 224 - Mechanical product definition for process planning using machining features

AP224 contains all of the information necessary to manufacture a mechanical part. It provides part features such as pockets, holes, slots, threads and gears, assembly information, geometric and dimensional tolerances, and geometry to support automated generation of macro process plans.



AP 238 - Computer numerical controllers

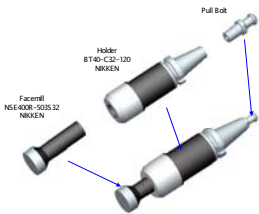
AP 238 defines a machine independent data input standard for Computerized Numerical Control (CNC) systems. Using STEP-NC, Path Planning and CAD/CAM systems can create machine independent CNC control instructions for cutting, drilling, milling, turning and probing with a machine tool. AP 238 is a STEP integrated version of the ISO 1469.



AP 240 - Process plans for machined products

AP 240 defines the information for macro process planning. It provides process plans, revisions, machine tool resources such as fixtures and tools, process planning activities, activity sequencing, setups, materials, properties, process requirement documents, and part shape with features and tolerances.

Library and Catalog Exchange Standards



ISO 13399 Cutting Tool Data Representation and Exchange

ISO 13399 is intended for use by manufacturers, tool vendors or producers, and developers of manufacturing software, among others. The standard provides a common structure for exchanging data about cutting tools and is intended to allow or improve several capabilities. ISO 13399 data is represented using ISO 13584 Parts libraries data structure.



ISO 13584 Parts libraries and catalogs (PLIB)

PLIB supports exchange of parts catalogue information between external vendors and internal engineering and procurement parts libraries.

ISO 13584-511 Parts Library Structure

ISO 13584 is a series of International Standards for the computer-sensible representation and exchange of parts library data to provide a mechanism capable of transferring parts library data, independent from any particular system. Part 511 is a reference dictionary for fasteners.



ISO 22745 electronic Open Technical Dictionary (eOTD)

The eOTD is a dictionary of terminology where terms, definitions and images are linked to concept identifiers, these concept identifiers are used to create encoded descriptions of individuals, organizations, locations, goods and services. The supports exchange of master catalog data between two parties.

SUMMARY

Geometry is just one aspect of the product that needs to be shared and archived. The STEP APs capture additional data on components and systems to improve sharing of important manufacturing information. Additional information on ISO 10303 parts is at:

ISO TC 184/SC 4 On-Line Information Service for STEP and PLIB - <http://www.tc184-sc4.org/>

ISO Catalog - <http://www.iso.org/iso/en/CatalogueListPage.CatalogueList>

ANSI Catalog - <http://webstore.ansi.org/ansidocstore/default.asp/>

US Technical Advisory Group - <http://www.tc184-sc4-ustag.org>

PDES, Inc. - <http://pdesinc.aticorp.org/>

ProSTEP iViP Association - <http://www.prostep.org/en/>

Product Lifecycle Support, Inc. - <http://www.plcsinc.org/>