E3D Piping Operation in Project Execution

AVEVA Everything 3D Piping Administration Automation

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Agenda

Introduction

– SC (Spec Converter)

SmartAdmin™ – SM (Spec Manager)

Demo Images

SmartModel™ – IG (ISOGEN)

SmartAdmin™ – MTO (Material Take Off)

SmartAdmin™ – LM (License Monitor)

SmartModel™ – AI (Attribute Import)

SmartModel™ – REPORT

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Introduction

AVEVA Everything 3D Piping Administration Automation

What we get from 3D system

- 3D model review
- Clash(Interference) check
- Piping isometric drawing generation
- Material take off (piping)
- Layout drawing generation
- Material take off (other discipline)
- Construction Management
- Others

Efficient operation with minimal effort

- Standardized Procedure (administration, modeling, …)
- Professional Operation Staff
- Efficient Program

Standardization

- Clearly-Defined Modeling Scope.
- Consistent Administration Method.
- Consistent Modeling Hierarchy & Name Rule
- Consistent Modeling Method for Same Modeling Item.
- Well-Organized Master Database (Catalogue & Dictionary)
- Standardized Operation.

3D Admin Workflow for Piping Department

- Piping Catalogue Management
- Modeling Specification Management
- Modeling Rule Define (Hierarchy & Name)
- Isometric Drawing Setup
- Material Take Off

3D Admin Workflow for Piping Department

- Piping Catalogue Management
  > Initial piping catalogue
- Modeling Specification Management
  > SmartAdmin™ - SC (Specification Converter)
  > SmartAdmin™ - SM(Specification Manager)
- Modeling Rule Define (Hierarchy & Name)
- Isometric Drawing Setup
  > SmartModel™ – IG (IsoGen)
- Material Take Off
  > SmartAdmin™ – MTO (Material Take Off)

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SmartAdmin™ – SC (Specification Converter)

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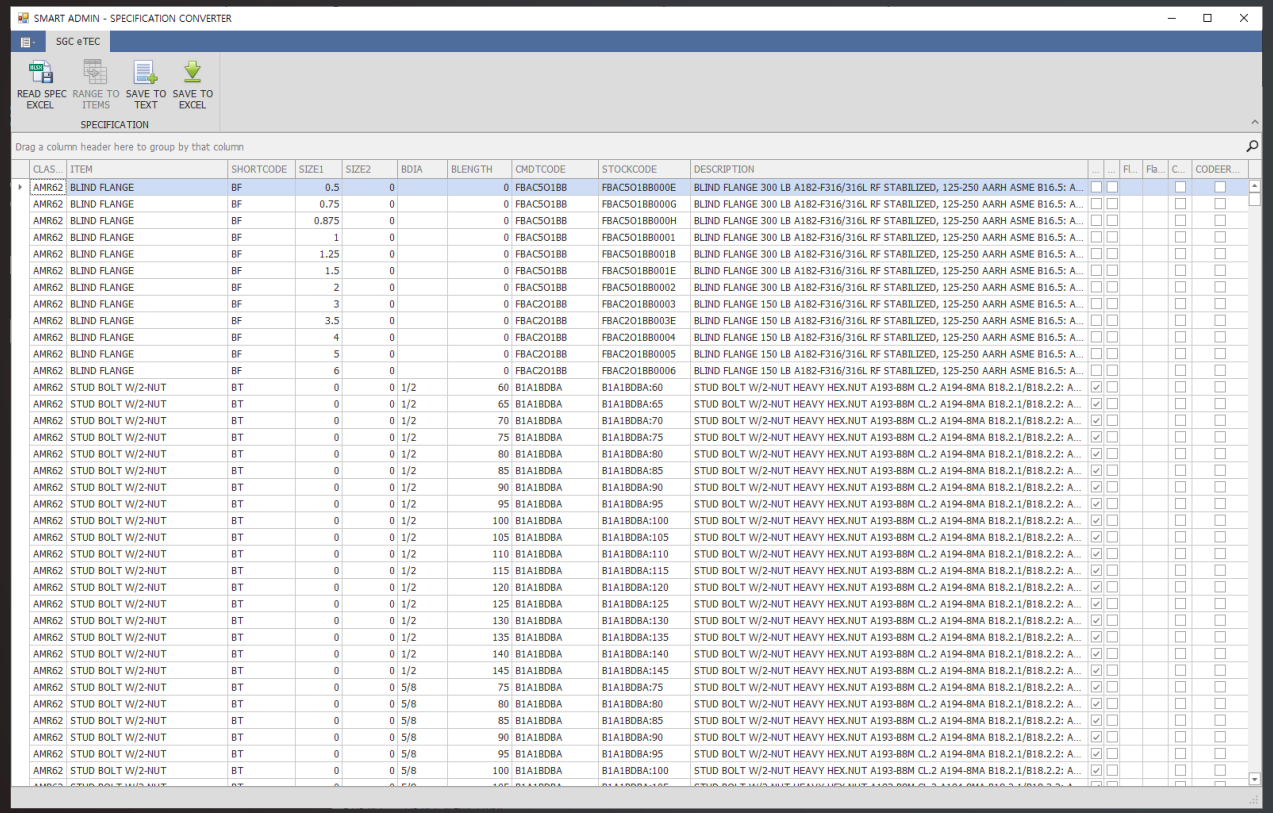
SmartAdmin™ – SC (Specification Converter)

- Convert Piping Material Specification files in various formats to standardized text format.
- It should contain enough content to create an E3D piping modeling specification.

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166   45 ELBOW(LR) SMLS A234-WPB BW ASME B16.9 (for LUMMUS SPEC) STD
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SmartAdmin™ – SM (Specification Manager)

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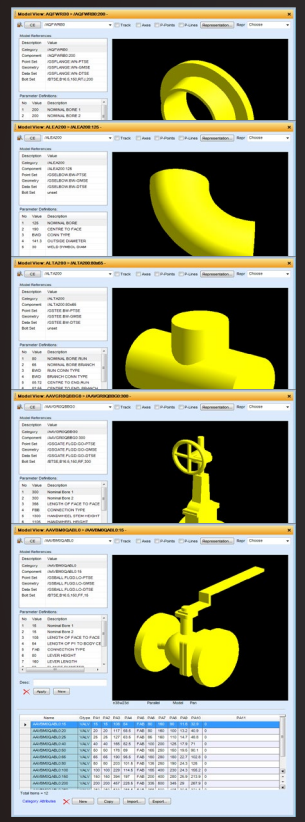
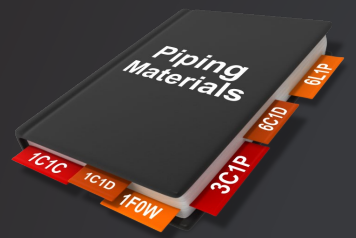
SmartAdmin™ - SM Main Function

- Piping 3D modeling specification Automatic Creation
- Piping material description library Automatic Creation
- Bolt length table / Bolt-list table Automatic Creation
- Piping itemcode (commodity / ident) Automatic import
- Automatic Comparison of added/modified/deleted items for revised piping specification
- Effective 3D Catalog shape selection for each piping item
- Fast processing speed (less than 10 min. based on 65,000 piping specification items, including comparison, creation and modification)

AVEVA Typical workflow for 3D specification (Rev. 0)

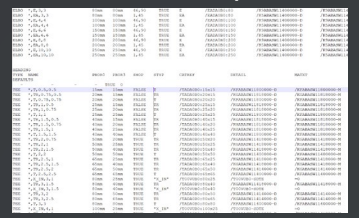
3D Catalog Preparation



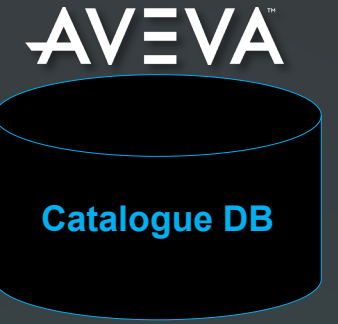


Rev. 0

Write Text Files (for Added item)



Upload to 3D



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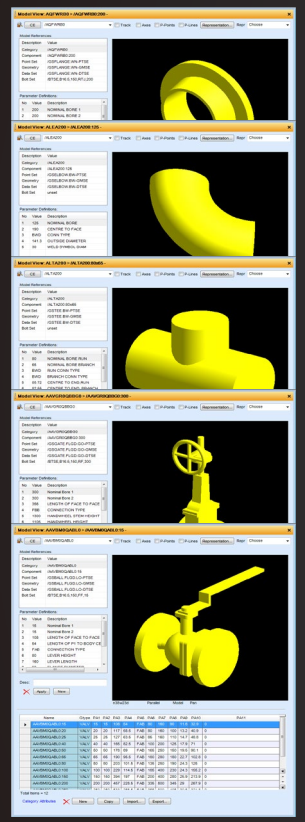
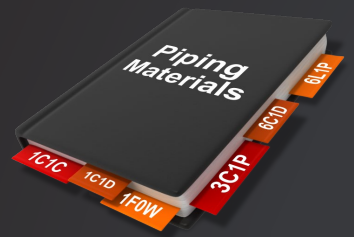
AVEVA Typical workflow for 3D specification (Rev. 1 ~)

3D Catalog Preparation



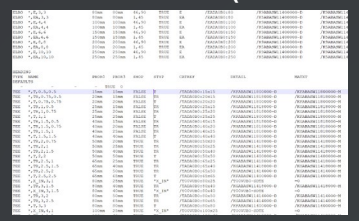


Specification Revision

Specification Comparision

- Compare piping specification with the current 3D modeling specification
- Categorize each piping item into added / modified / deleted

Write Text Files (for Added item)



Upload to 3D

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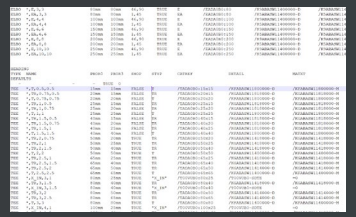
Catalogue DB

Write Text Files (for Modified item)



Upload to 3D

Manual Delete

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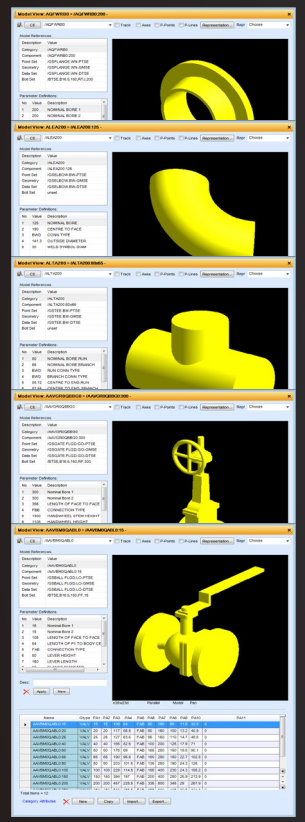
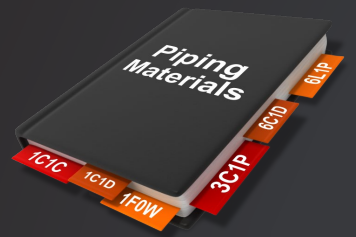
SmartAdmin™ - SM workflow for 3D specification

3D Catalog Preparation

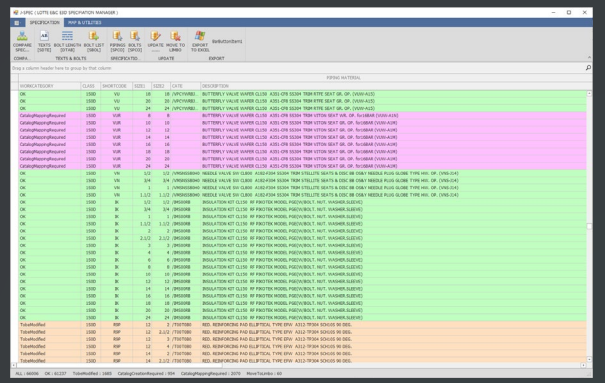




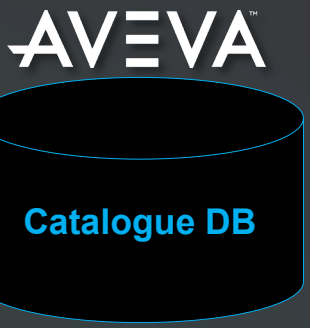
1st Issue

Specification Revision

SmartAdmin™ - SM



Direct Write To Database



- Automatic Comparison between current 3D modeling specification & piping material specification
- Categorize comparison results to show users what actions to take place. (Comparison results can be created as an excel file)
- Direct 3D database manipulation without intermediate text file creation
- Modifications can be reverted to before modification using the AVEVA basic function

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Benefits of SmartAdmin™ - SM

- Accelerate the initial schedule by creating the piping 3D modeling specification early in the project without delay.

- Eliminate BOM errors caused by human input errors (item code, description)

- Avoid different specification writing methods based on the habits of each Admin, Use a quick and standardized specification writing method.

- Save 3D Administration M/H or OutSourcing Cost.

Demo Images

AVEVA Everything 3D Piping Specification Automation Program

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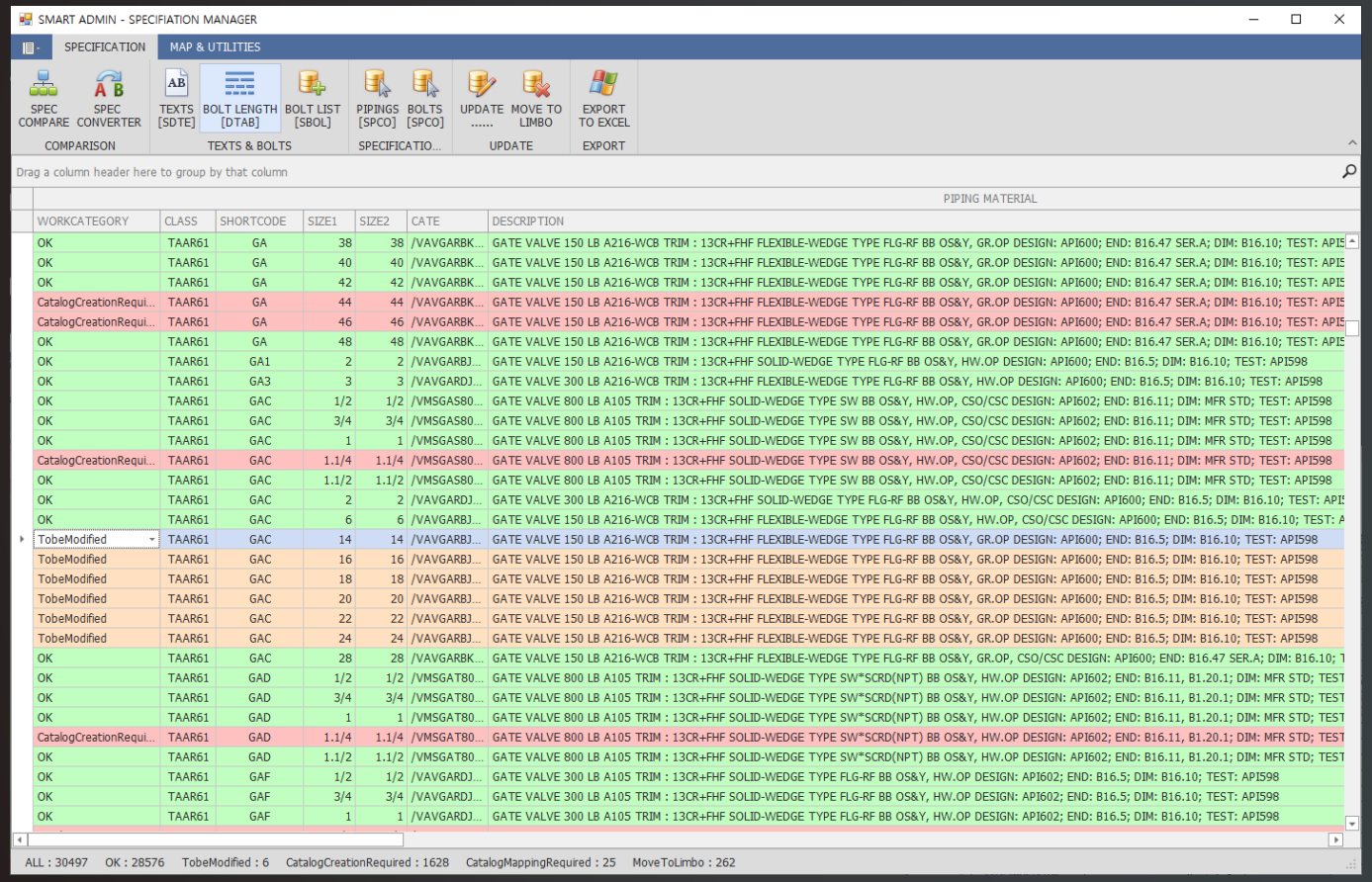
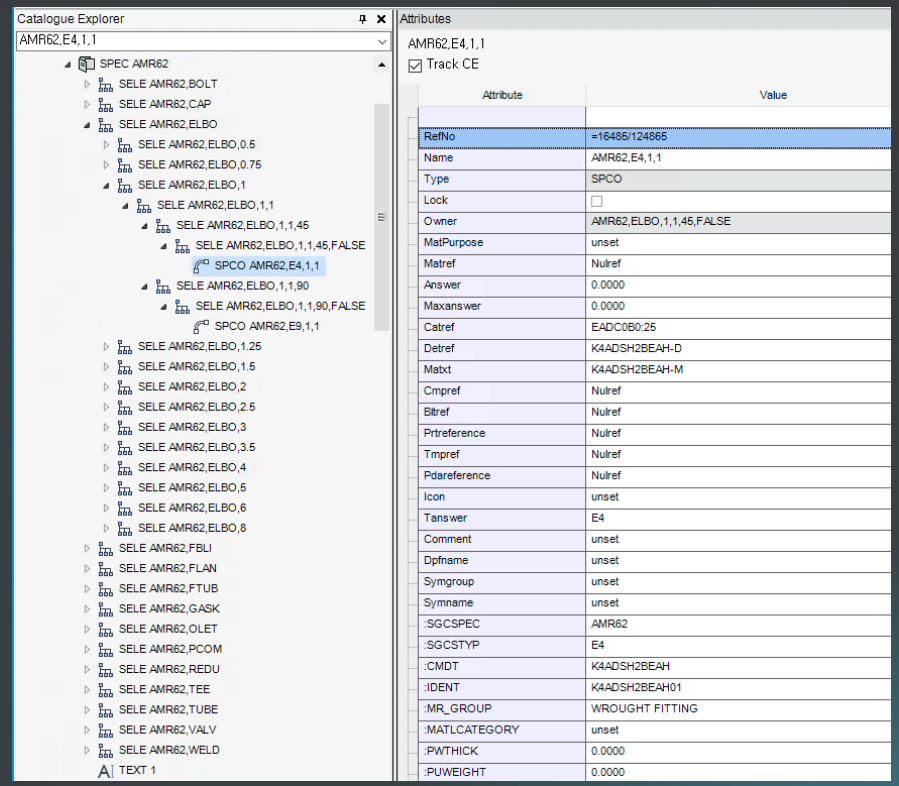
Specification Creation & modification

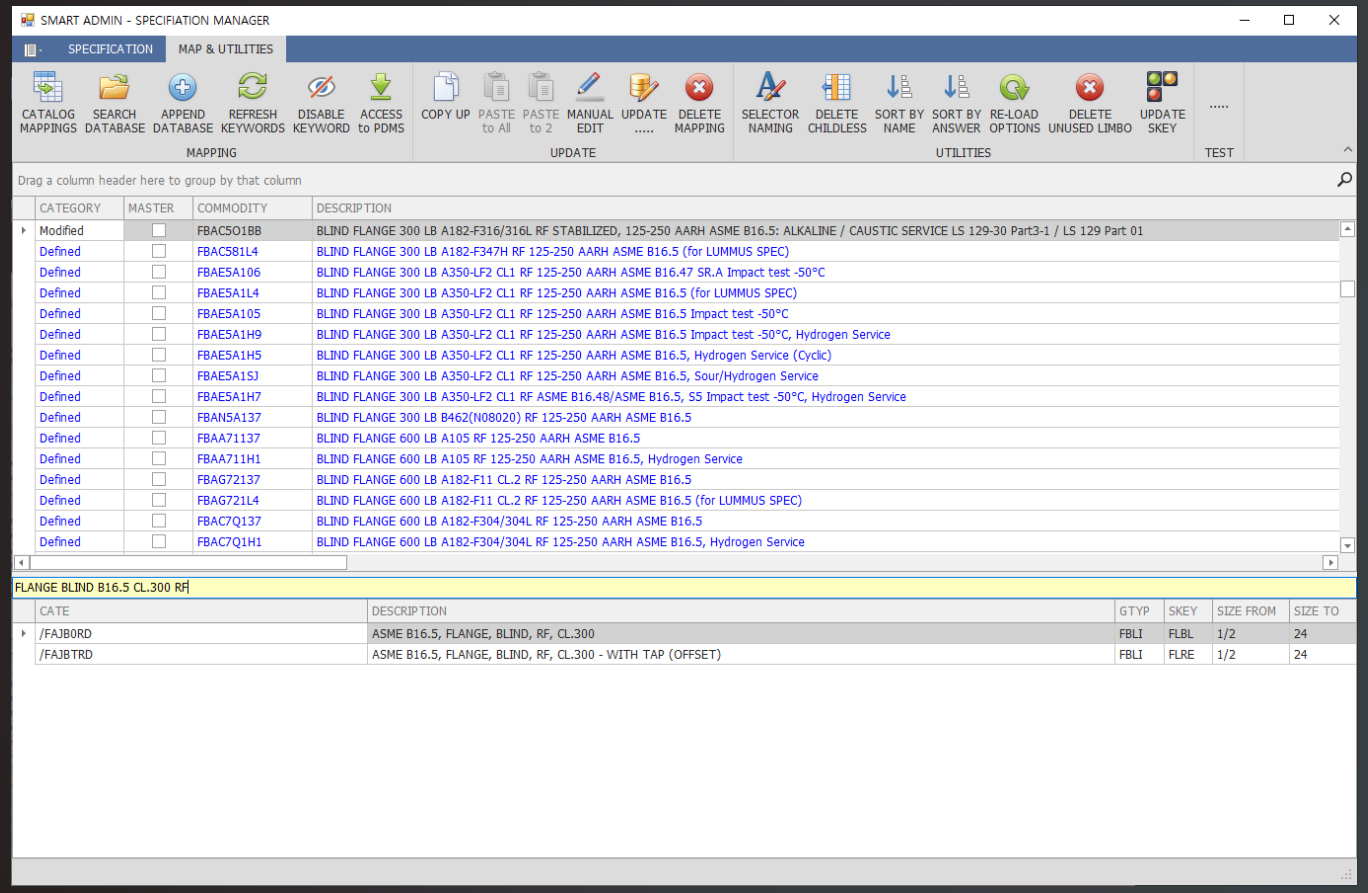
- Powerful change management capabilities
- Takes only 2 minutes to process over 30,000 specification components





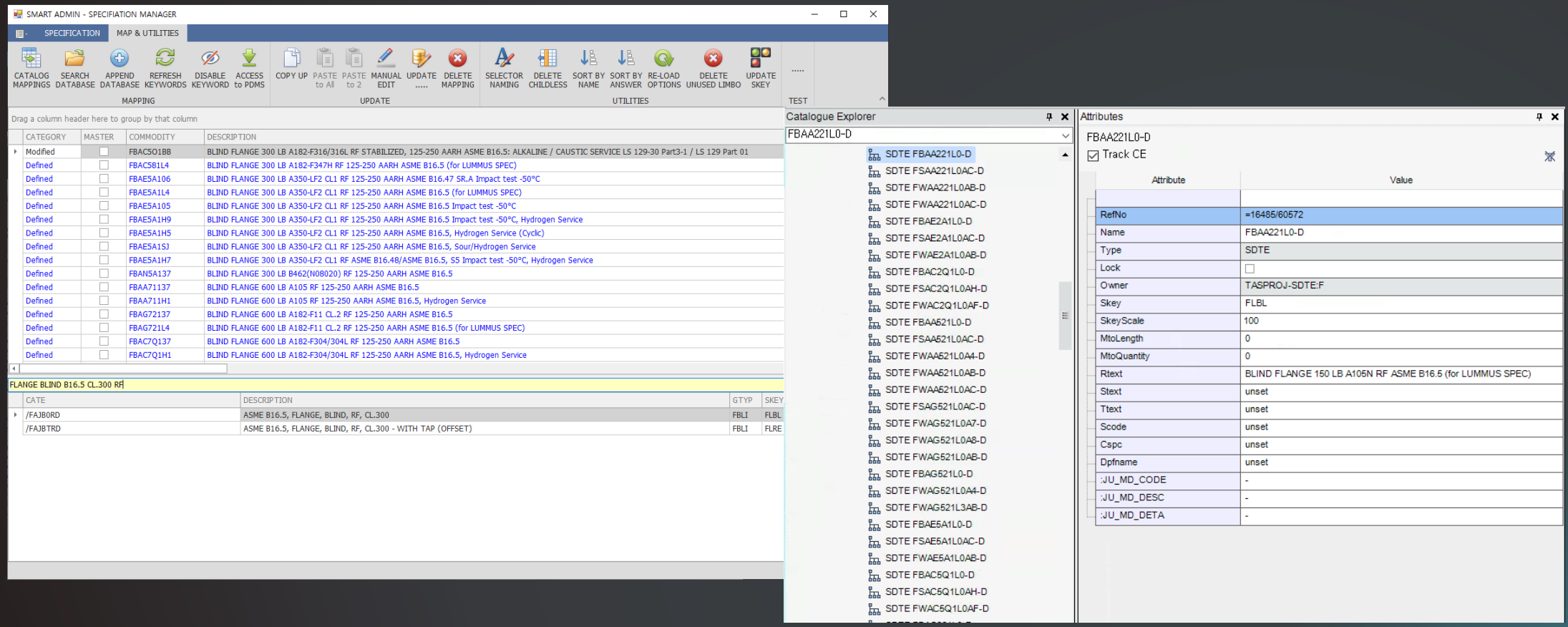
Mappings between catalog – material description

- **Convenient Catalogue mapping task using keyword search**



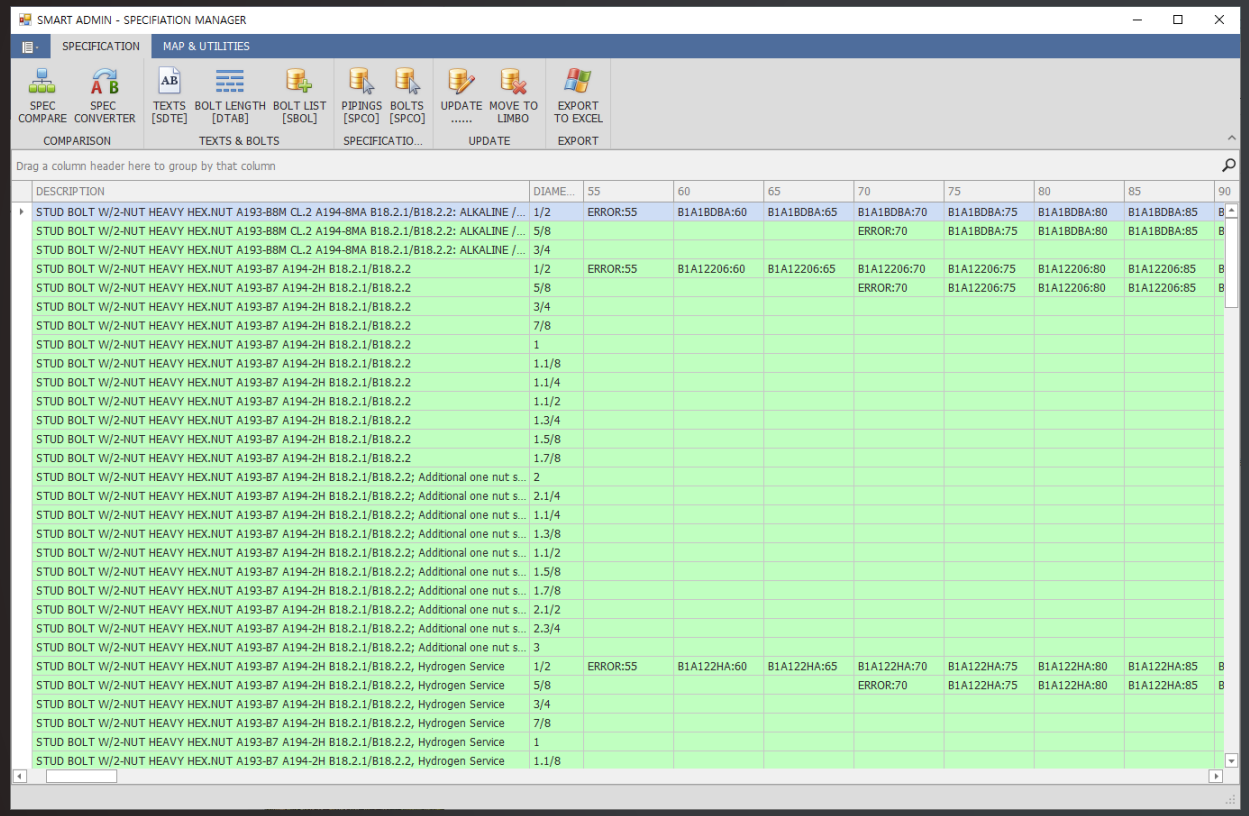
Material description library creation & modification

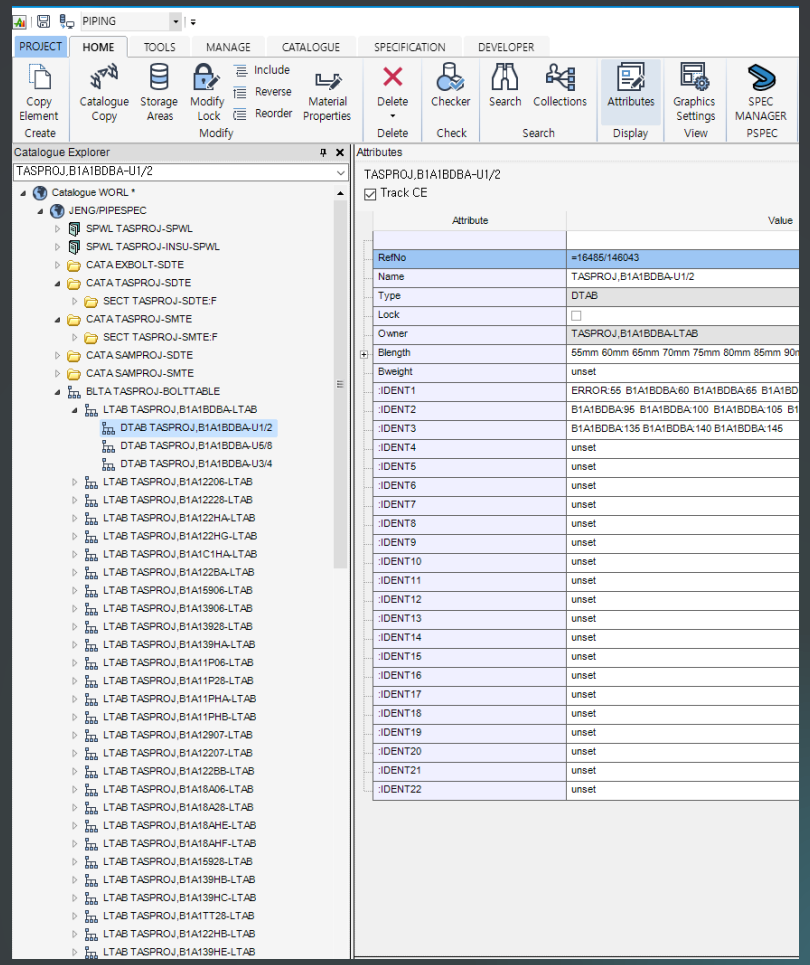
- **Eliminates human error completely. (including symbol key)**



Bolt length table creation & modification

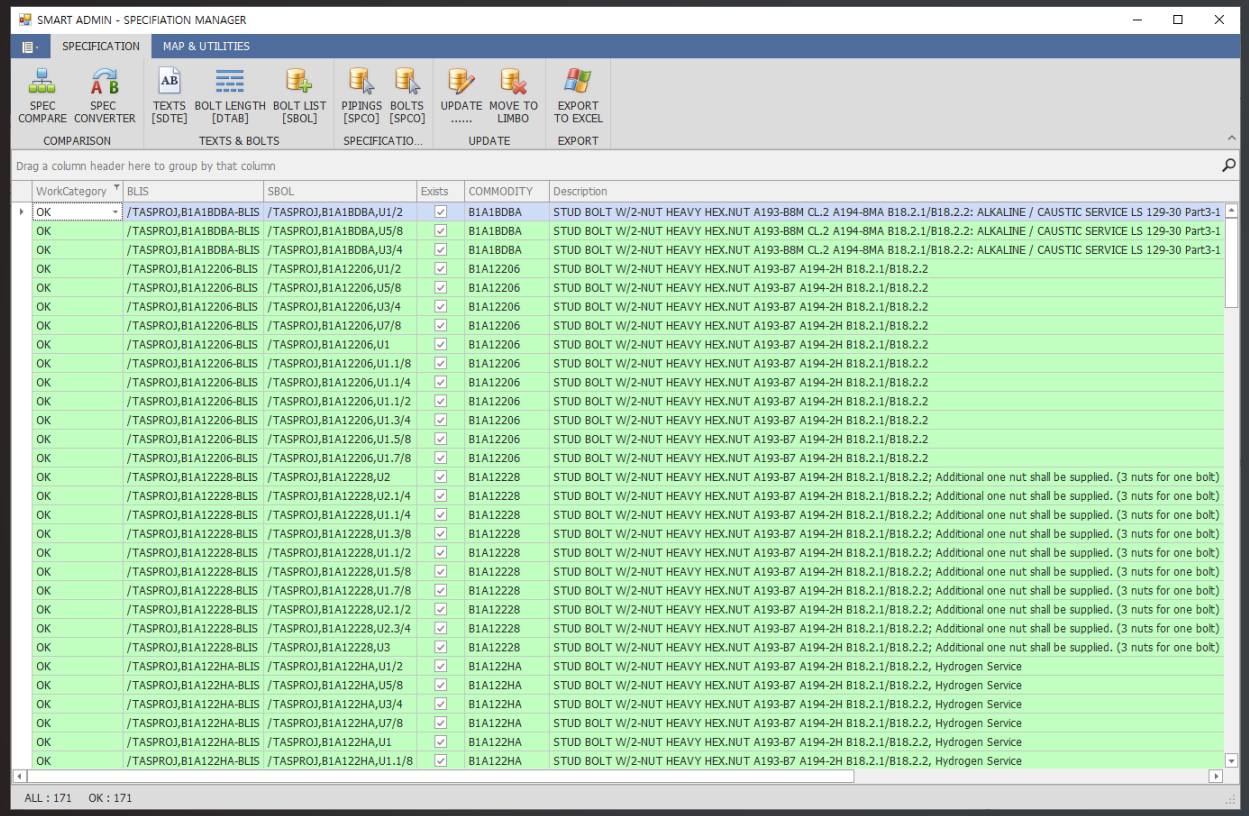
- **Automatically grouped by material and bolt diameter and sorted by length.**

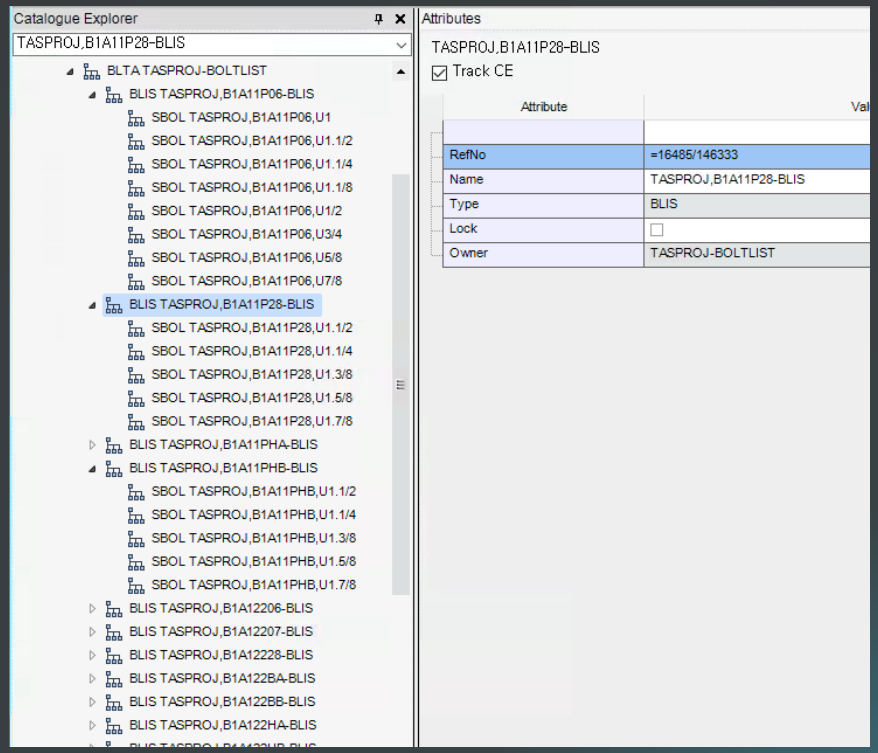




Bolt list library creation & modification

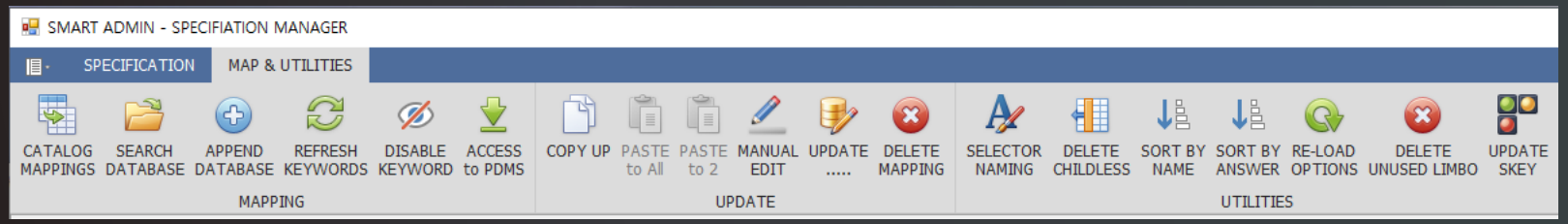
- **Automatically grouped by material and bolt diameter.**





Additional Functions

- Customizing keywords for convenient mapping.
- Automatic selection naming
- Remove unnecessary selections
- Sorting specification components by answer
- Deletes unused limbo specification components
- Automatic symbol key input



SmartModel™ – IG (Isogen)

AVEVA Everything 3D Piping Admin. Automation

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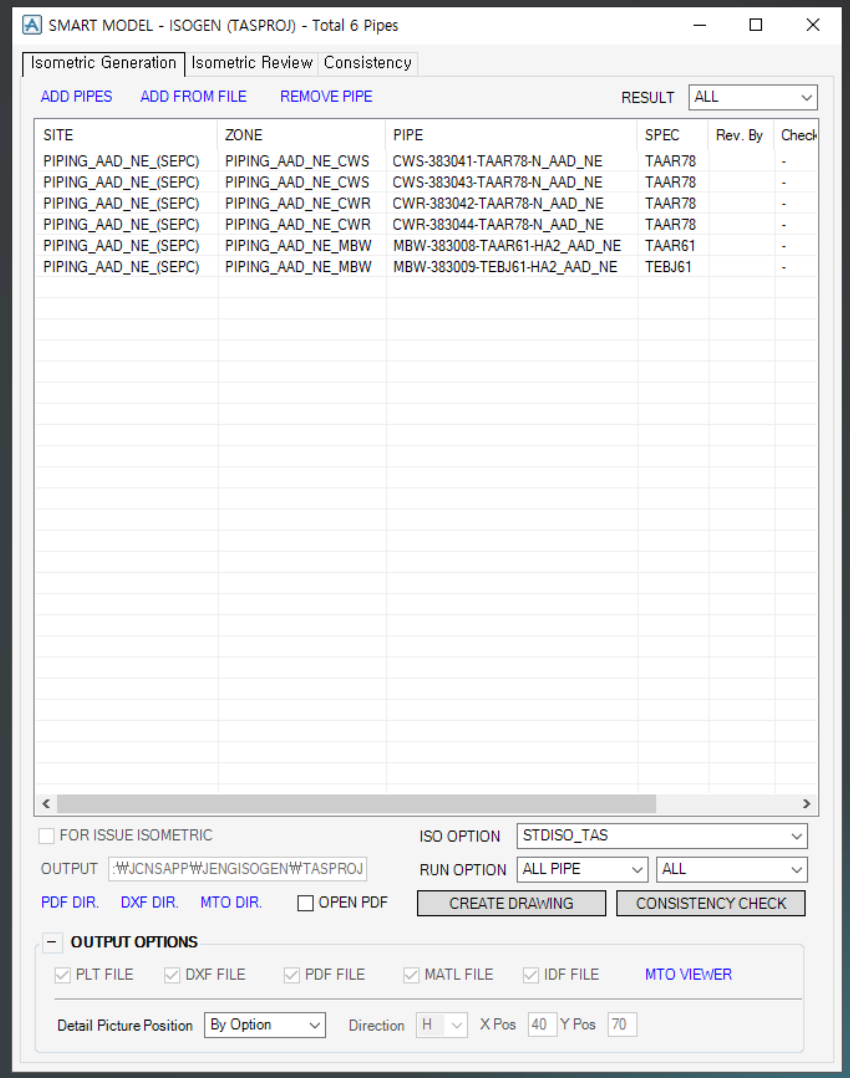
SmartModel™ – IG (isometric generation)

- Customizes easily isometric format using xml option.
- Supports center alignment of text
- Consistency-check within program
- PDF/DXF/IDF/PLT file creation
- Creating mto-files for the mto-program



SmartAdmin™ – MTO (Material Take-Off)

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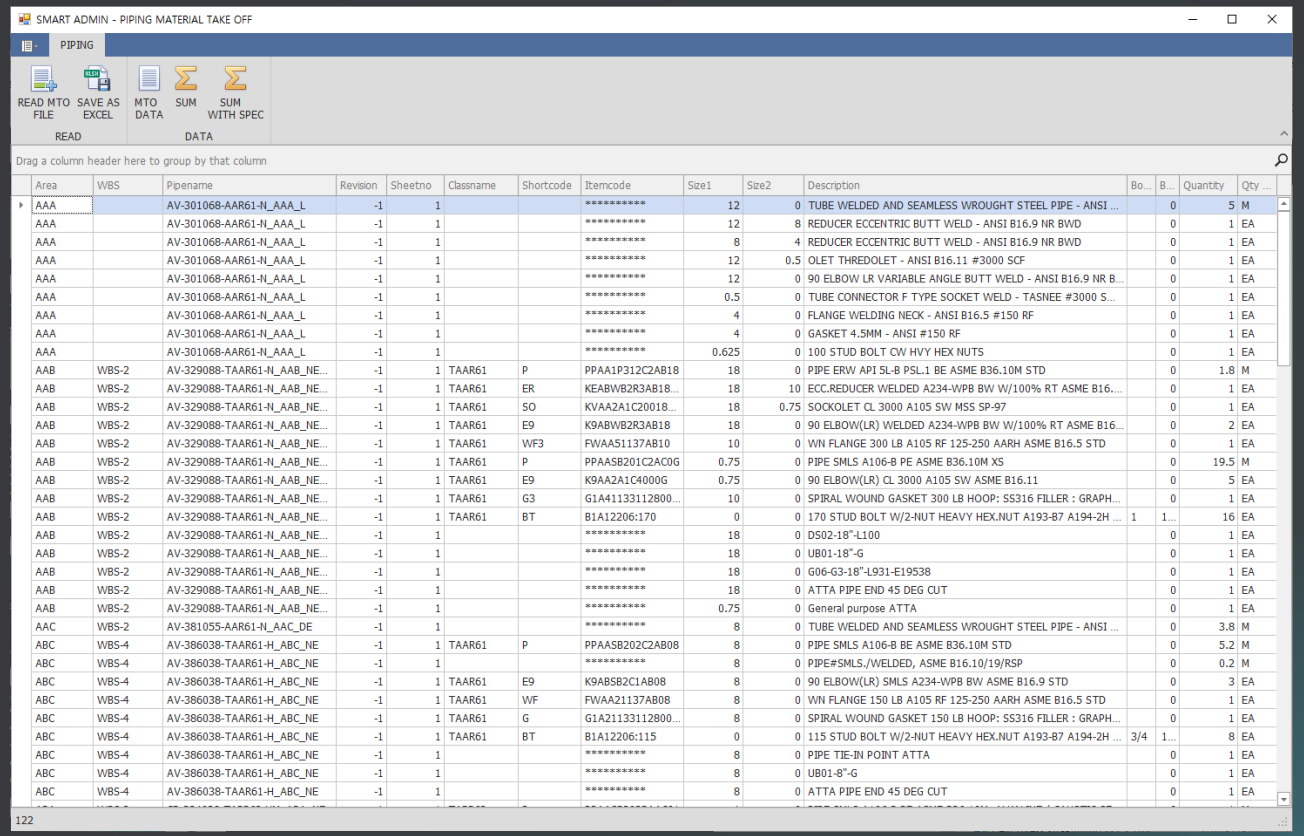
SmartAdmin™ – MTO (Material Take Off)

- Reads the mto-file generated with the isometric.
- Calculates the total by material & sizes.
- Supports Excel-export.



SmartAdmin™ / Samrt Model (Miscellaneous)

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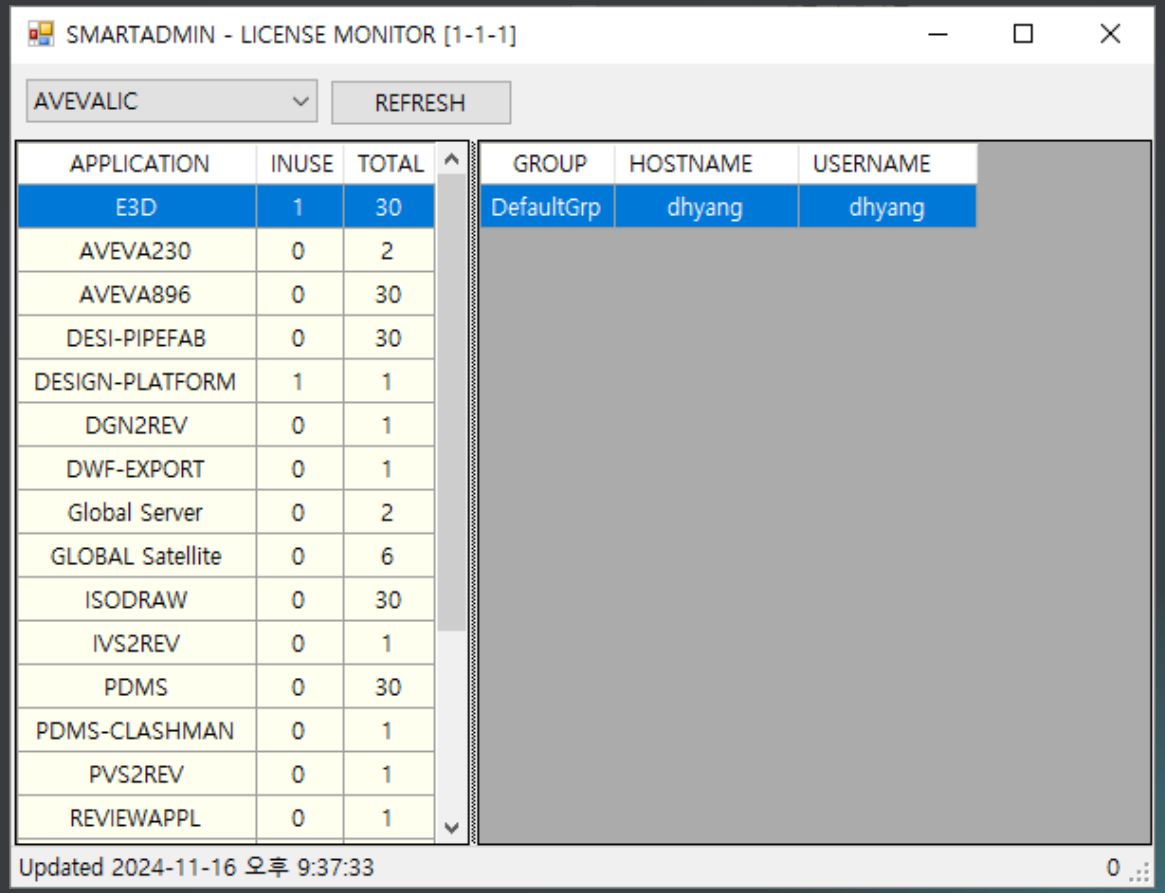
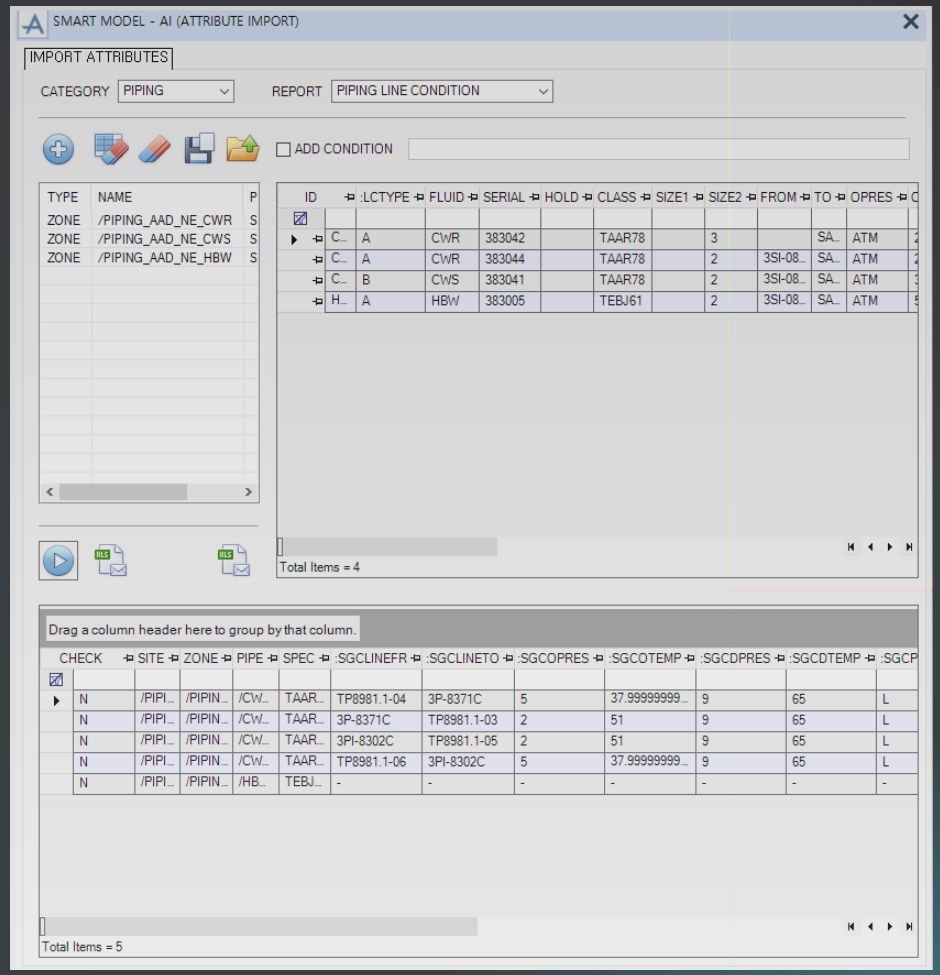
SmartAdmin™ – LM (License Monitor)

- **Real-time monitoring of AVEVA license holding status and usage.**



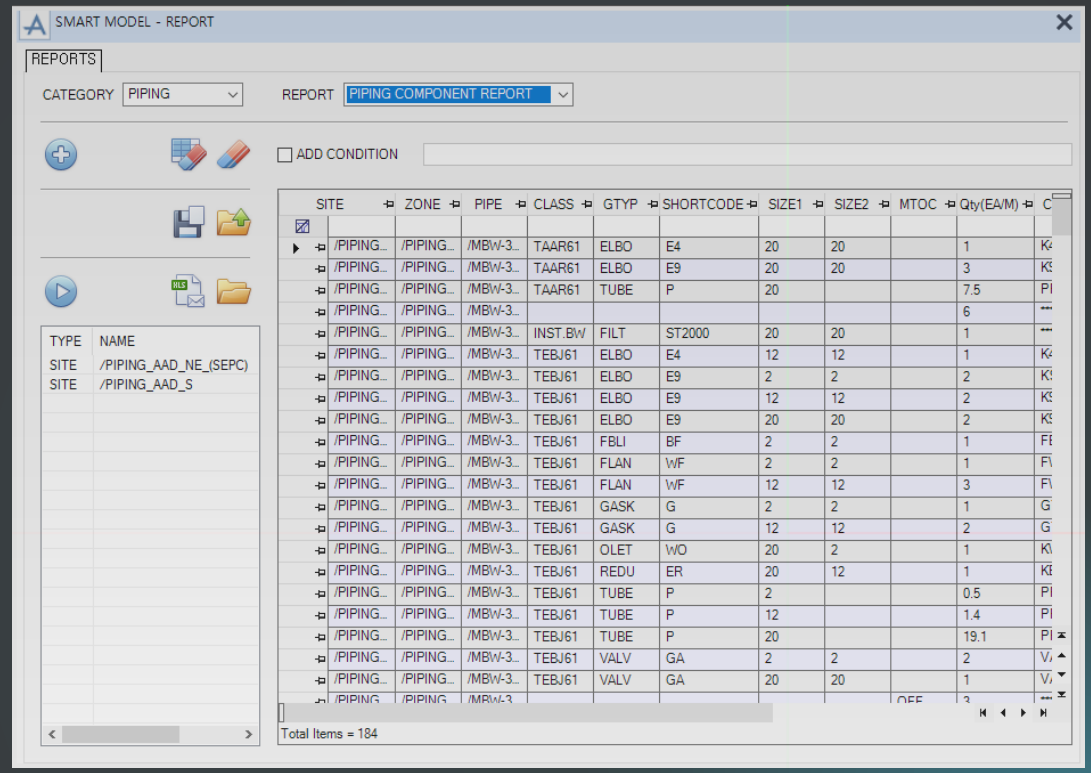
SmartModel™ – AI (Attribute Import)

- Automatically inputs data in Microsoft Excel format into user-defined properties of E3D system.
- Process Line Condition of piping Line-List can be imported easily.
- The content and properties being imported can be easily adjusted using E3D PML.



SmartModel™ – REPORT (Report Utility)

- Program that generates REPORT in the E3D system
- REPORT types can be added easily using E3D PML.
- For example, you can customize report like the below:
  - Piping Component Report
  - Instrument Report
  - Equipment Report



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