



## Enhanced Isometric Deliverables

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**CAD Applications Manager**

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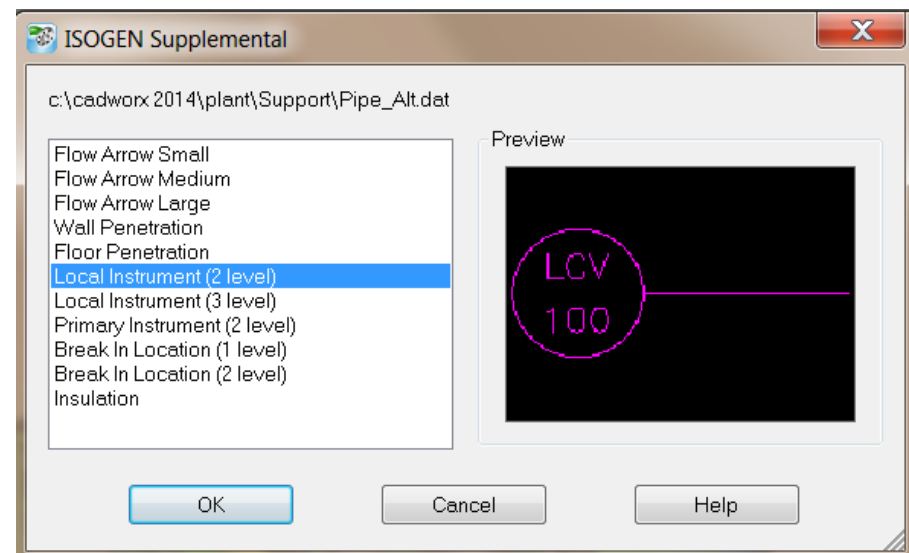


# Enhanced Isometric Deliverables



## ■ Isogen Supplemental

- Places supplemental ISOGEN blocks in the model that export to the Isometric.
- Arrow, wall, and floor blocks must be inserted along the center line of a pipe component.
- Instrument blocks must have the instrument line connected to the end of a valve component, olet component, TAP component, or a weld gap component.
- Break in (Tie in) points must be connected to the end point of a component.
- To add other blocks to this menu, the block name must contain **ISOGEN\_Arrow**, **ISOGEN\_Instrument**, **ISOGEN\_Wall**, **ISOGEN\_Floor**, or **ISOGEN\_BreakIn** for export to ISOGEN. For example, to add another instrument type, you could name the block **ISOGEN\_Instrument\_4**, and add it to the menu.

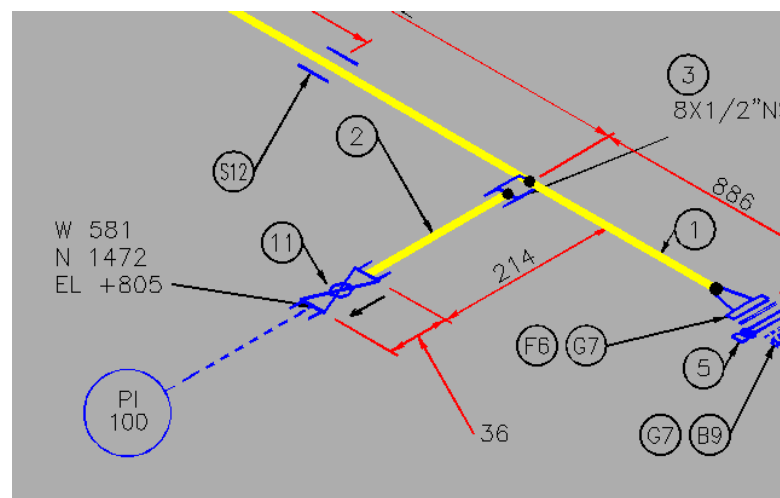
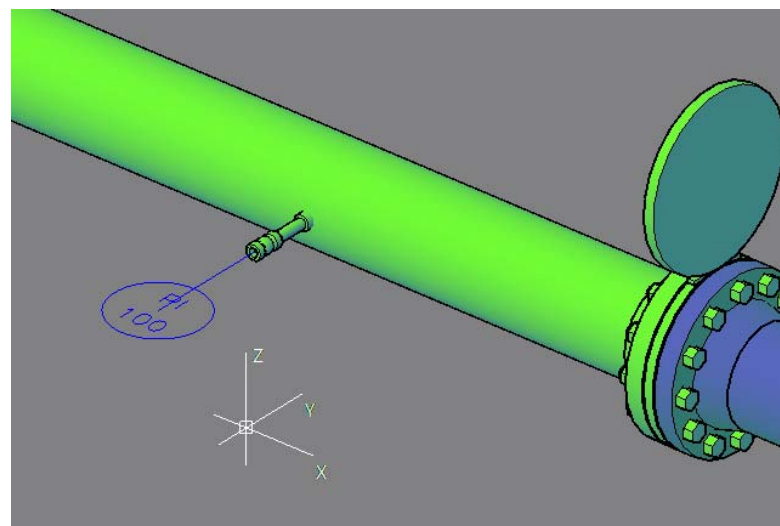




# Enhanced Isometric Deliverables

- Isolate 8"-CM1-4500-300\_M
- Use the Isogen Supplemental local Instrument 2 level and place on the ½" branch in the model.
- Label the Instrument PI 101 when prompted.
- Optionally the GENERIC command can be run directly on the supplemental block if the instrument is needed on the BOM.
- Properties palette can be used to update the instrument information.

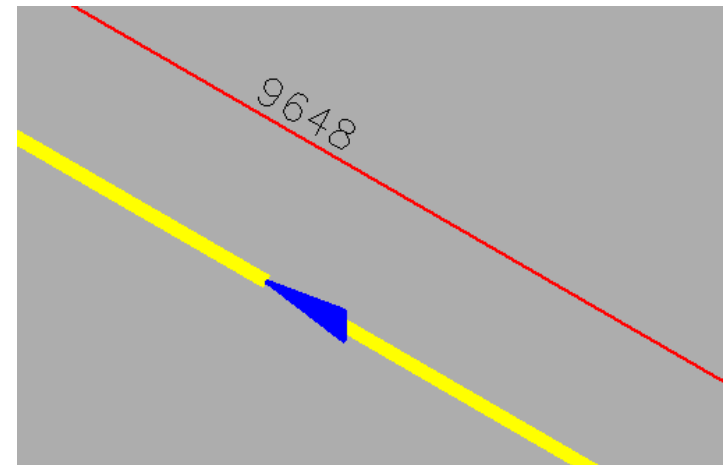
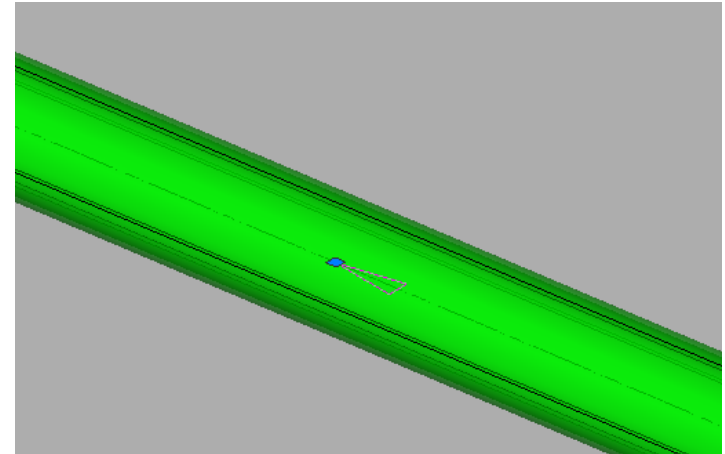
| Attributes |     |
|------------|-----|
| F1         | PI  |
| F2         | 100 |





# Enhanced Isometric Deliverables

- On the same line : 8"-CM1-4500-300\_M
- Use the Isogen Supplemental Flow Arrow Large and position on the midpoint of the pipe run supported by the pipe rack.
- The different blocks, small, medium and large all translate to the same size flow arrow on the ISO.





# Enhanced Isometric Deliverables

## ■ ISOGENSETTINGS

- Controls parameters for transposing the system by X, Y, and Z offsets. The whole system can be rotated by any angle. This allows any user-defined north arrow direction.
- **X** - Specifies the X-direction offset.
- **Y** - Specifies the Y-direction offset.
- **Z** - Specifies the Z-direction offset.
- **Angle** - Specifies the north arrow direction:
  - **90** = World positive Y-axis as north direction. This is the default value.
  - **180** = World positive X-axis as north direction.
  - **270** = World negative Y-axis as north direction.
  - **0** = World negative X-axis as north direction.

## ■ Isogen Project Data Setup

- Controls parameters for setting position text (POS) that can be displayed on the isometric drawing file. Review the \Plant\Isogen\Isogen\_Utils\POS\_Help.pdf file to locate the POS number associated with each item. These values are stored with the configuration file and are used when an isometric is exported. For I-Configure projects, this is the only option for setting these values. For Project Manager projects, these values can be set from the **Project Manager > Project Default** dialog boxes or with this dialog box.

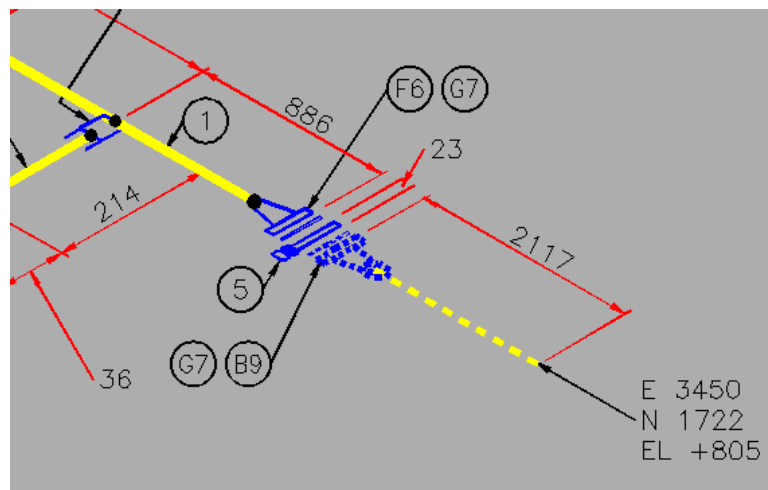
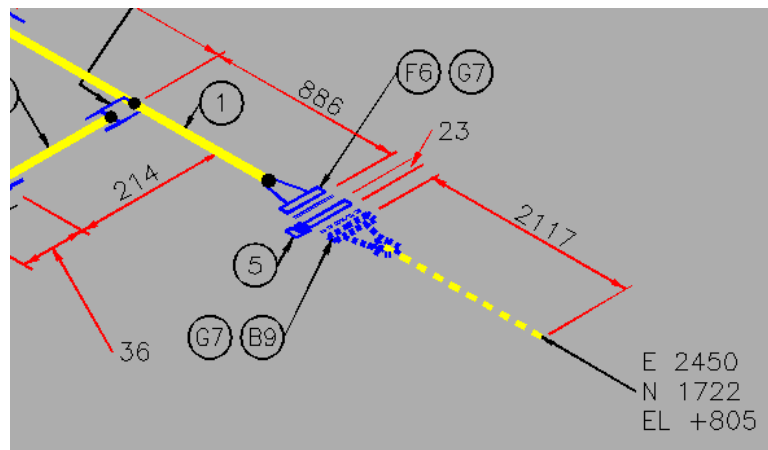
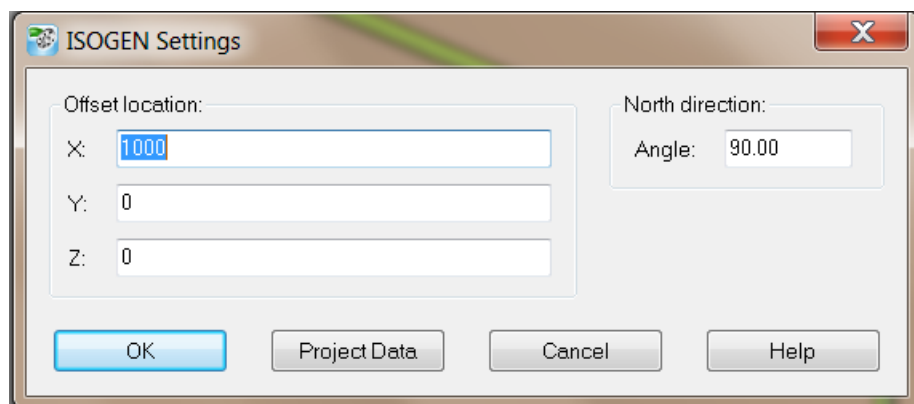
The image shows two overlapping dialog boxes from the ISOGEN software. The top dialog, titled 'ISOGEN Settings', contains input fields for 'Offset location' (X, Y, Z) and 'North direction' (Angle). The bottom dialog, titled 'ISOGEN Project Data Setup', shows a table of project data settings.

| Name               | Use                                 | Value                       |
|--------------------|-------------------------------------|-----------------------------|
| PROJECT-IDENTIFIER | <input checked="" type="checkbox"/> | HxGN LIVE ENHANCED ISOGE... |
| INSULATION-SPEC    | <input type="checkbox"/>            |                             |
| TRACING-SPEC       | <input type="checkbox"/>            |                             |
| PAINTING-SPEC      | <input type="checkbox"/>            |                             |
| MISC-SPEC1         | <input type="checkbox"/>            |                             |
| MISC-SPEC2         | <input type="checkbox"/>            |                             |
| MISC-SPEC3         | <input type="checkbox"/>            |                             |



# Enhanced Isometric Deliverables

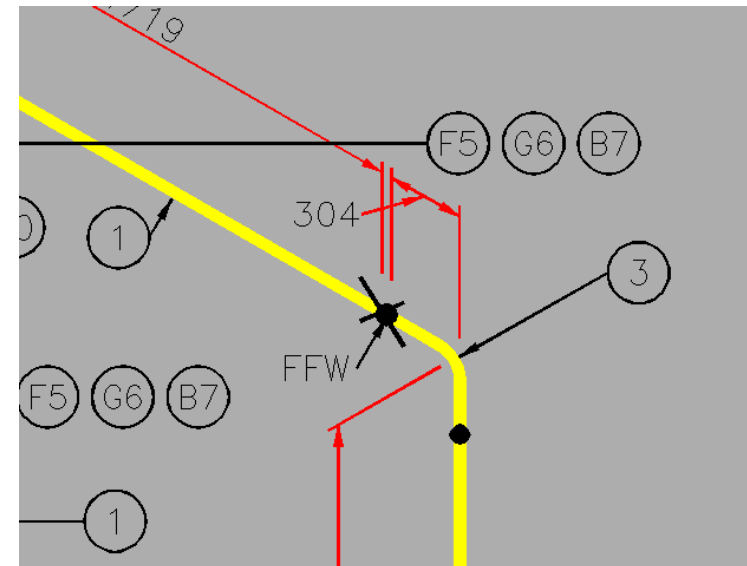
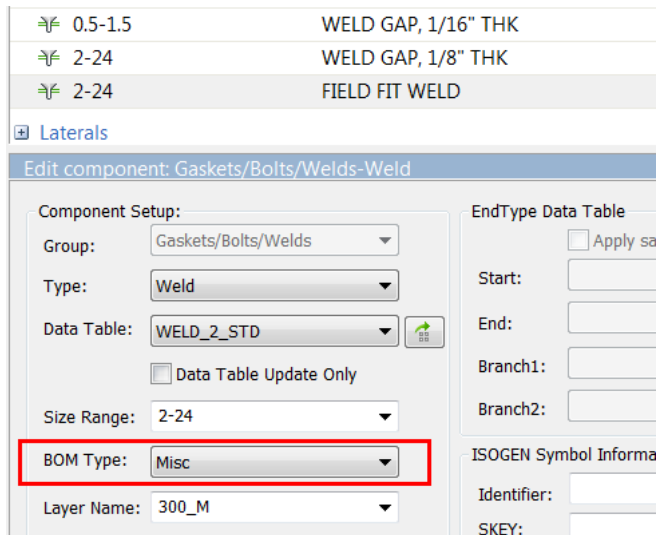
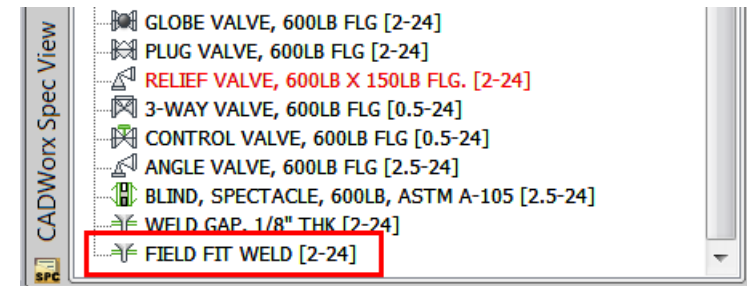
- Run an ISO on line 8"-CM1-4500-300\_M
- Use ISOGENSETTINGS to specify an X (east) offset value of 1000.
- Run the ISO again and notice the difference in the east coordinate values on the Isometric.



# Enhanced Isometric Deliverables



- Isolate line 8"-CM2-5400-600\_M
- Set Spec to 600\_M
- Place field weld from the Specview palette on the pipeline





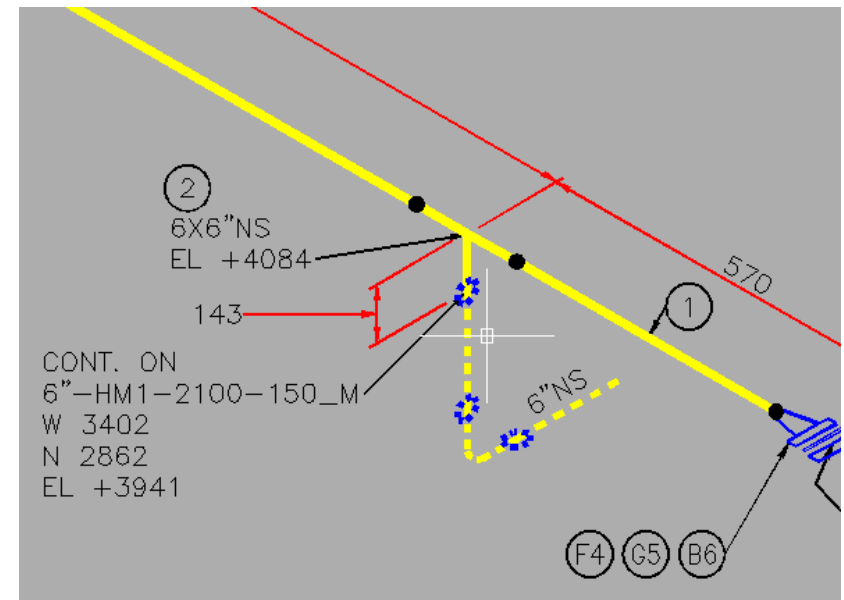
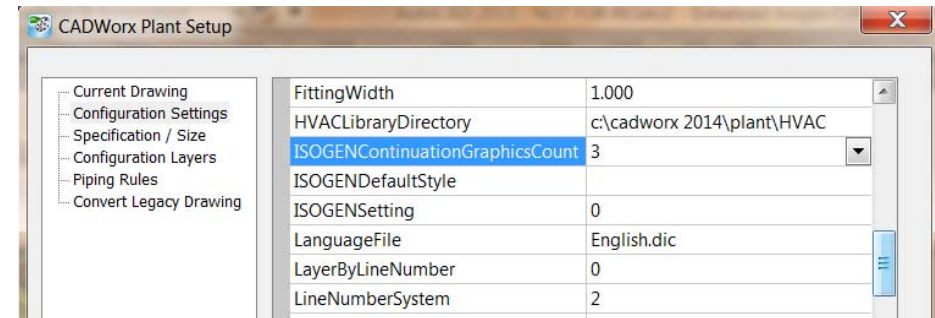
# Enhanced Isometric Deliverables



## ■ IsogenOut vs IsogenBatch

### □ ISOGENContinuationGraphicsCount

- Displays continuation graphics based on the following selections:
- **0** - Display no continuation graphics when running ISOGEN.
- **1** - Display one continuation graphic when running ISOGEN.
- **2** - Display two continuation graphics when running ISOGEN.
- **3** - Displays three continuation graphics when running ISOGEN.





# Enhanced Isometric Deliverables



## ■ ISOGEN Data - ICEDIT

- **Symbol Information** – Controls Symbol information.
- **Message** - Specifies the message displayed with the component on the isometric drawing.
- **Spindle / Flat / Support Direction** - Specifies a valve spindle direction,
- **Flow Arrow** - Specifies how flow arrows are displayed for valves.
- **Miter Pipe Export Options** - Specifies how miter pipe is exported to ISOGEN.
- **Other**
  - **Spool** - Specifies the spool identification. This value overrides the default spool value created by ISOGEN. Type the required alpha or numeric character.
  - **Sketch** - Specifies a .dwg detailed sketch to display with the isometric drawing. For more information on detailed sketches, see the Information Notes.pdf and Detailed Sketches.pdf files in the [Product Folder]\Plant\IsoGen\IsoGen\_Utils folder.
  - **Dim Status** - Specifies the dimensioning of individual components. Select **Default**, **Dimensioned**, **Dotted Dimensioned**, or **Dotted Un-dimensioned**.
  - **Sheet #** - Specifies the sheet number of an ISOGEN drawing. Type the required alpha or numeric character.
  - **Mark** - Specifies the mark number for a component. Type the required alpha or numeric character.
- **End Connections and Conditions** - Specifies a set of conditions for up to four ends
- **Reference Dimensions** - Specifies dimension to use as reference for the component.

# Enhanced Isometric Deliverables



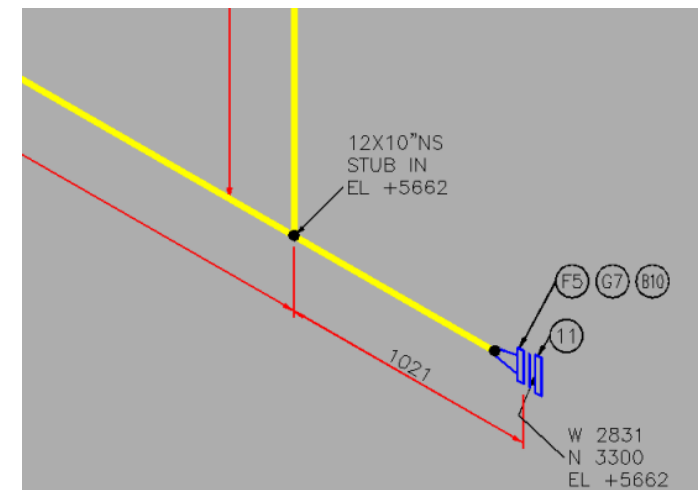
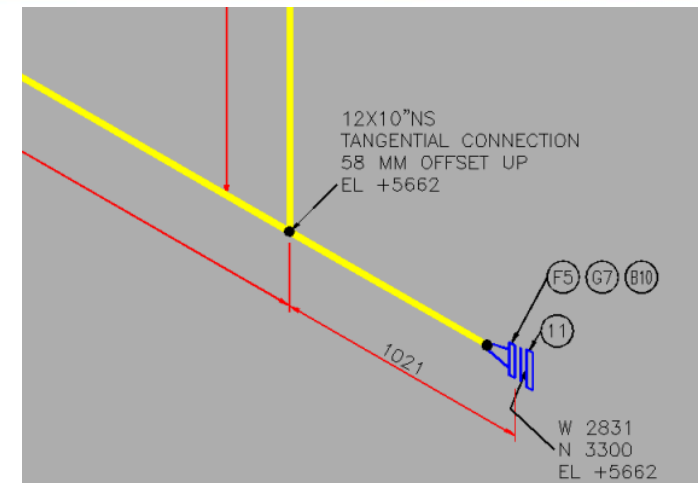
- Run an ISO of 10"-HM2-2200-150\_M
- Use ICEDIT to change the OTAP SKEY = TSSO
- Notice the difference in results.
- Refer to OTAP-SKEY-REFERENCE drawings in the project folder for full details of OTAP and SKEY combinations
- Optional exercise, change the spring hanger support SKEY = SPRG

ISOGEN Data

Symbol Information:

Identifier: TEE-SET-ON ☐ Overwrite

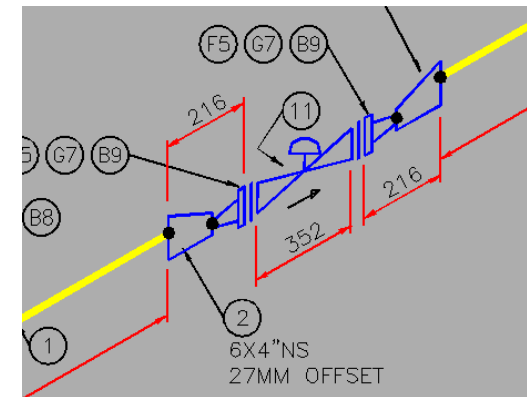
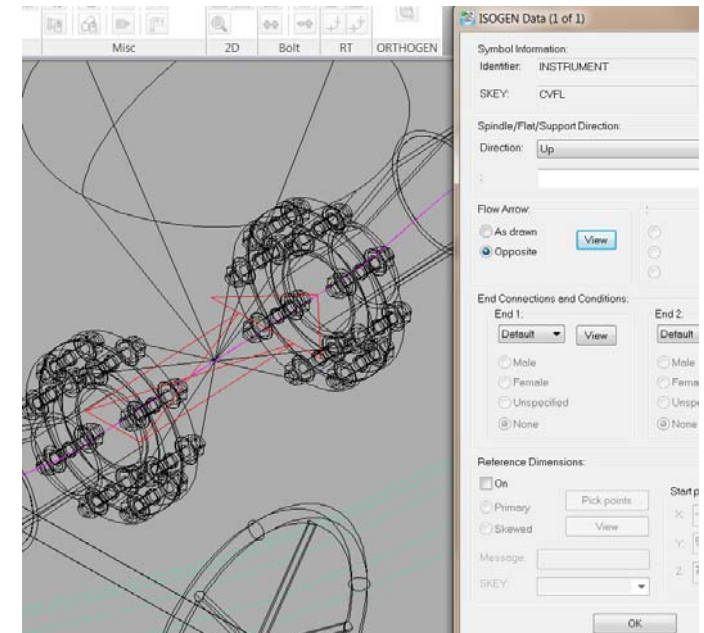
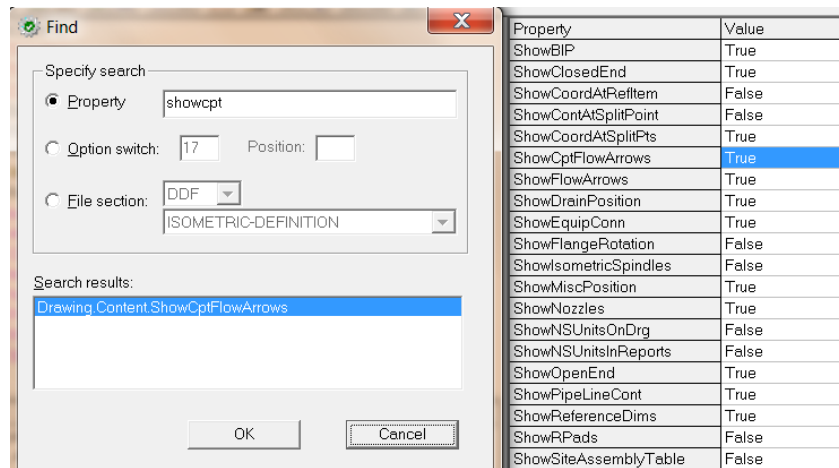
SKEY: TSSO ☒ Overwrite



# Enhanced Isometric Deliverables



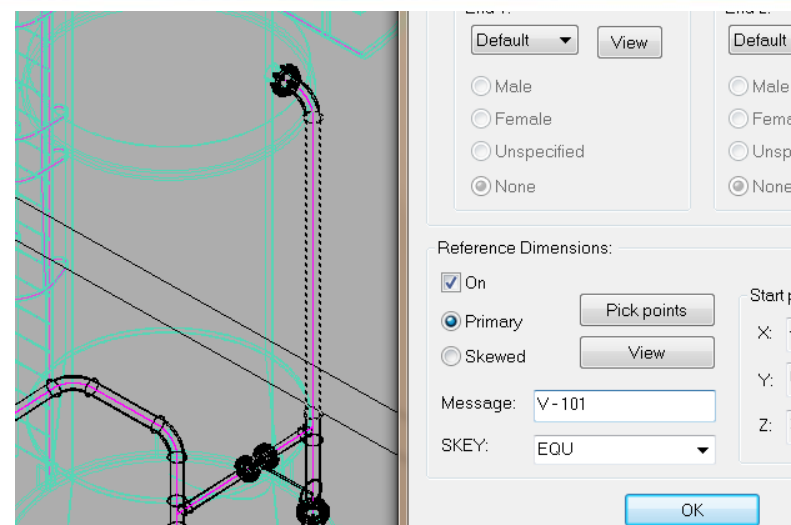
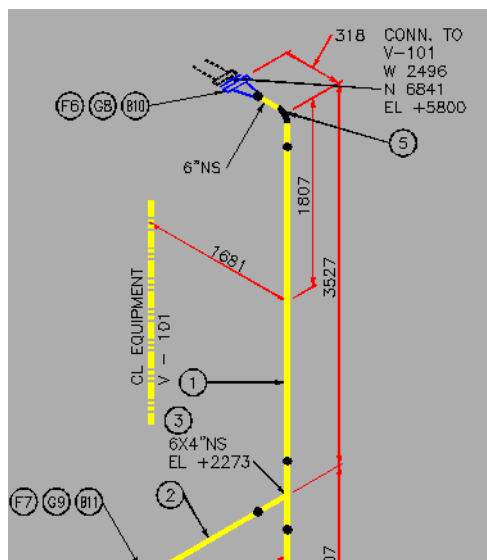
- Check the flow arrows with ICEDIT on line 6"-HM1-2100-150\_M
- Use the View option to confirm the flow arrow direction, modify if needed.
- The display on the ISO is controlled by OS 17 or ShowCptFlowArrows





# Enhanced Isometric Deliverables

- Add a reference dimension to the Vessel.
- Use Point filters to get a correct ISO representation.
- Custom SKEY and Linetype combinations can also be done e.g. EQU4

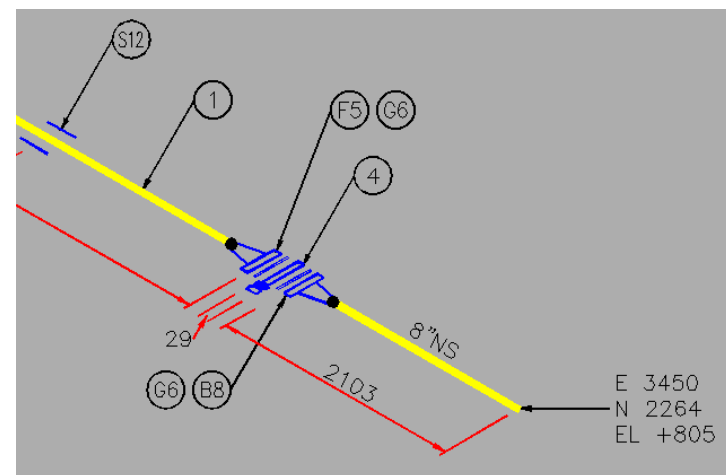
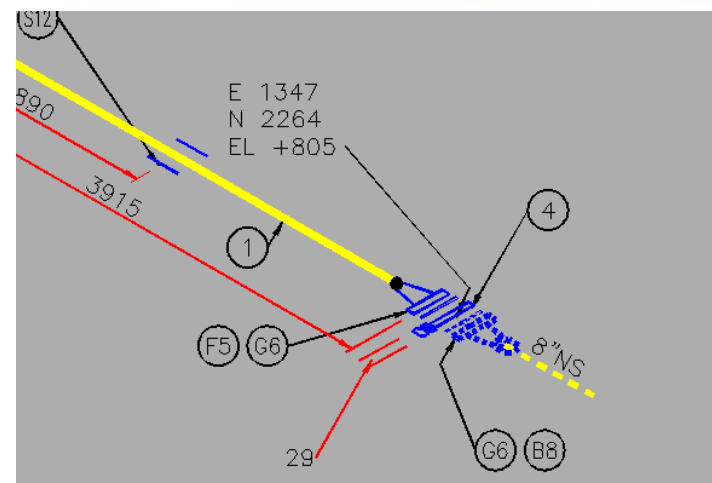
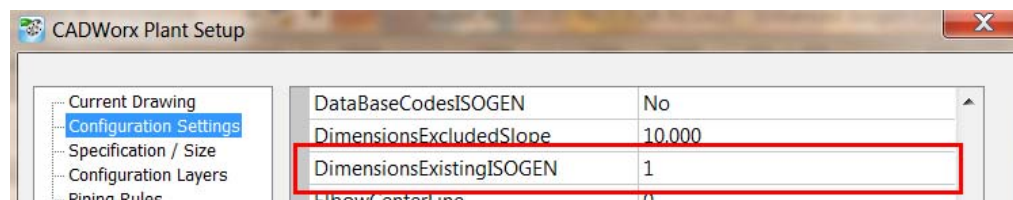
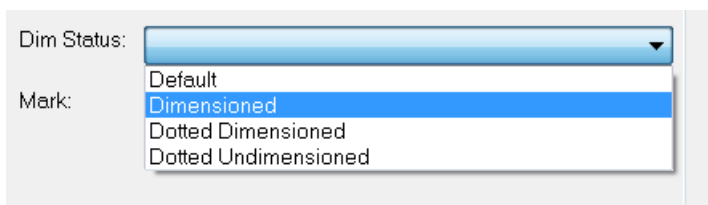


| SKEY | Item Category                         | Default Dotted Line No. | Default Plotted Line Type |
|------|---------------------------------------|-------------------------|---------------------------|
| BLD  | Building                              | 2                       | -----                     |
| EQU  | Equipment Item                        | 2                       | -----                     |
| FLR  | Floor Level                           | 3                       | -----                     |
| GRD  | Grid Line                             | 3                       | -----                     |
| HST  | Horizontal Steelwork element          | 1                       | -----                     |
| PIP  | Pipeline                              | 4                       | -----                     |
| VST  | Vertical Steelwork element            | 1                       | -----                     |
| WAL  | Wall                                  | 3                       | -----                     |
| XXX  | Miscellaneous category (User defined) | 'Normal'                | -----                     |



# Enhanced Isometric Deliverables

- Existing components dimensions are controlled by the CFG settings
- Individual overrides are provided in the ICEDIT dialog .
- Modify the Dimstatus on line number : 8"-CM2-5400-600\_M for the existing components.

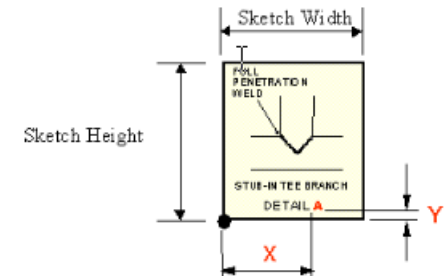


# Enhanced Isometric Deliverables



## ■ Detail Sketches

- Before the detail sketch option from ICEDIT will work some changes need to be made to the I-Configure style.
- In Supplementary >> DetailSketches, some properties need to be defined.

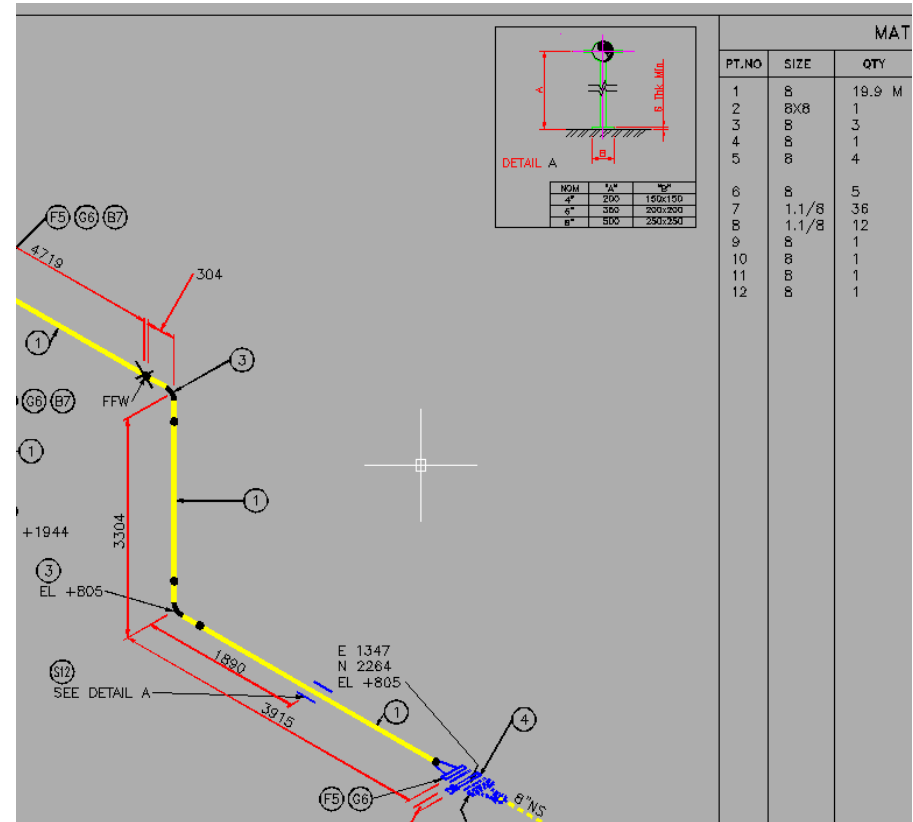
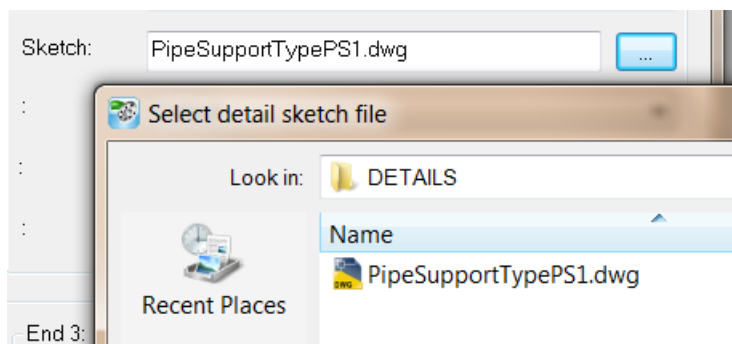


| Overview                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Detail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|------------|-----|------|--------------------|--------|---|------------|----|-----------|-------|--------|-------|--------|----------|--------------|-------|----------------|---------|-------------|-------|------------|--------|------------|---|----------|--|-------------|-------|------------|-----|------------|-------|--------------|--|-----------|-------|
| <ul style="list-style-type: none"><li>Supplementary<ul style="list-style-type: none"><li>AdditionalData</li><li>AuxiliaryPrograms</li><li>BendingReport</li><li>CentreOfGravity</li><li>DataFiles<ul style="list-style-type: none"><li><b>DetailSketches</b></li><li>LocalSketches<ul style="list-style-type: none"><li>LocalSketches(0)</li></ul></li></ul></li><li>DwglInfoFile<ul style="list-style-type: none"><li>TextColumns(0)</li></ul></li><li>EquipmentTrim</li><li>Fonts</li><li>HeatTreatment</li><li>InstrumentSKEYS<ul style="list-style-type: none"><li>InstrumentSKEYs(0)</li></ul></li><li>PipeLineAtts</li><li>ReferencePlanes</li><li>RepeatFile</li></ul></li></ul> | <table><tr><th>Property</th><th>Value</th></tr><tr><td>FileFormat</td><td>DWG</td></tr><tr><td>Path</td><td>\$STYLE\$\DETAILS\</td></tr><tr><td>Colour</td><td>0</td></tr><tr><td>LabelLayer</td><td>40</td></tr><tr><td>LabelType</td><td>ALPHA</td></tr><tr><td>LabelX</td><td>16 mm</td></tr><tr><td>LabelY</td><td>18.25 mm</td></tr><tr><td>SketchHeight</td><td>60 mm</td></tr><tr><td>SketchPosition</td><td>Default</td></tr><tr><td>SketchWidth</td><td>60 mm</td></tr><tr><td>TextHeight</td><td>2.5 mm</td></tr><tr><td>TextWeight</td><td>0</td></tr><tr><td>TextFont</td><td></td></tr><tr><td>PositionFix</td><td>False</td></tr><tr><td>NoteFormat</td><td>DWG</td></tr><tr><td>NoteHeight</td><td>36 mm</td></tr><tr><td>NotePosition</td><td></td></tr><tr><td>NoteWidth</td><td>16 mm</td></tr></table> | Property | Value | FileFormat | DWG | Path | \$STYLE\$\DETAILS\ | Colour | 0 | LabelLayer | 40 | LabelType | ALPHA | LabelX | 16 mm | LabelY | 18.25 mm | SketchHeight | 60 mm | SketchPosition | Default | SketchWidth | 60 mm | TextHeight | 2.5 mm | TextWeight | 0 | TextFont |  | PositionFix | False | NoteFormat | DWG | NoteHeight | 36 mm | NotePosition |  | NoteWidth | 16 mm |
| Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| FileFormat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | DWG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| Path                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | \$STYLE\$\DETAILS\                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| Colour                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| LabelLayer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| LabelType                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ALPHA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| LabelX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 16 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| LabelY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 18.25 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| SketchHeight                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 60 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| SketchPosition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Default                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| SketchWidth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 60 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| TextHeight                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2.5 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| TextWeight                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| TextFont                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| PositionFix                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | False                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| NoteFormat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | DWG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| NoteHeight                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 36 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| NotePosition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |
| NoteWidth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 16 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |       |            |     |      |                    |        |   |            |    |           |       |        |       |        |          |              |       |                |         |             |       |            |        |            |   |          |  |             |       |            |     |            |       |              |  |           |       |

# Enhanced Isometric Deliverables



- Run ICEDIT on the pipe support
- Browse to the ...HxGN\2014\_A2\DETAILS folder. Choose the PipeSupport.dwg file
- Run the ISO and note the detail sketch added to the ISO.
- Optionally modify the support SKEY = GUID







# Enhanced Isometric Deliverables

- Pipeline Attributes
  - User defined data accessed by Isogen and output on the Isometric.

File

Home

Insert

Page Layout

Formulas

Data

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View

Add-Ins

Paste

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Format Painter

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Font

Alignment

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Number

General

Conditional Formatting

Format as Table

Normal

Bad

Good

Neutral

Calculation

Check Cell

Styles

E17

|   | A                  | B             | C    | D              | E          | F                 | G               | H            | I          | J          | K      | L        | M        |
|---|--------------------|---------------|------|----------------|------------|-------------------|-----------------|--------------|------------|------------|--------|----------|----------|
| 1 | Line Number        | Service       | Area | Operating Temp | DesignTemp | Operating Pressue | Design Pressure | Heat Tracing | Insulation | Paint Code | Rating | Revision | Drawn By |
| 2 | 900                | 901           | 902  | 903            | 904        | 905               | 906             | 907          | 908        | 909        | 910    | 911      | 912      |
| 3 | 10"-HM2-2200-150_M | HOT MEDIUM 2  | A34  | 72             | 85         | 9                 | 14              | None         | None       | AB29       | 150 Lb | 0        | V.M.     |
| 4 | 6"-HM1-2000-150_M  | HOT MEDIUM 1  | A34  | 72             | 85         | 9                 | 14              | None         | None       | AB29       | 150 Lb | 0        | V.M.     |
| 5 | 6"-HM1-2100-150_M  | HOT MEDIUM 1  | A34  | 72             | 85         | 9                 | 14              | None         | None       | AB29       | 150 Lb | 0        | V.M.     |
| 6 | 8"-CM1-4500-300_M  | COLD MEDIUM 1 | A34  | 20             | 85         | 2                 | 14              | None         | None       | AB44       | 300 Lb | 0        | V.M.     |
| 7 | 8"-CM2-5400-600_M  | COLD MEDIUM 2 | A34  | 30             | 85         | 2.5               | 14              | None         | None       | AB44       | 600 Lb | 0        | V.M.     |



|                    |                   |                 |          |                                        |    |     |  |
|--------------------|-------------------|-----------------|----------|----------------------------------------|----|-----|--|
| LINE NUMBER        | 8"-CM2-5400-600_M | INSULATION      | None     |                                        |    |     |  |
| SERVICE            | COLD MEDIUM 2     | PAINT CODE      | AB44     |                                        |    |     |  |
| AREA               | A34               | HEAT TRACING    | None     |                                        |    |     |  |
| OPERATING TEMP     | 30                | DESIGN PRESSURE | 14       |                                        |    |     |  |
| DESIGN TEMP        | 85                | RATING          | 600 Lb   | PROJECT: HxGN LIVE ENHANCED ISOGEN LAB |    |     |  |
| OPERATING PRESSURE | 2.5               | DRAWN BY        | V.M.     | PIPELINE REFERENCE:                    |    |     |  |
|                    |                   | DATE            | 12/04/14 | 8"-CM2-5400-600_M                      |    |     |  |
|                    |                   |                 |          | SHT                                    | OF | REV |  |
|                    |                   |                 |          | 1                                      | 1  | 0   |  |



# Enhanced Isometric Deliverables

- Pipeline Attribute source data is usually held in a data system such as Microsoft Excel or Access but this must be output to a CSV (Comma Delimited) file to produce the form of text file that ISOGEN can read.
- Rename as \*.att and load to the project under Supplementary PipeLineAtts.

The screenshot shows a Notepad window titled "PipeLineAttributes.att" containing a CSV file. The CSV data is as follows:

| Line Number                                         | Service          | Area                                                           | Operating Temp | DesignTemp | Operating Pressue | Design Pressure | Heat |
|-----------------------------------------------------|------------------|----------------------------------------------------------------|----------------|------------|-------------------|-----------------|------|
| 900,901,902,903,904,905,906,907,908,909,910,911,912 |                  |                                                                |                |            |                   |                 |      |
| "10"                                                | -HM2-2200-150_M" | HOT MEDIUM 2,A34,72,85,9,14, None, None, AB29,150 Lb,0,V.M.    |                |            |                   |                 |      |
| "6"                                                 | -HM1-2000-150_M" | HOT MEDIUM 1,A34,72,85,9,14, None, None, AB29,150 Lb,0,V.M.    |                |            |                   |                 |      |
| "6"                                                 | -HM1-2100-150_M" | HOT MEDIUM 1,A34,72,85,9,14, None, None, AB29,150 Lb,0,V.M.    |                |            |                   |                 |      |
| "8"                                                 | -CM1-4500-300_M" | COLD MEDIUM 1,A34,20,85,2,14, None, None, AB44,300 Lb,0,V.M.   |                |            |                   |                 |      |
| "8"                                                 | -CM2-5400-600_M" | COLD MEDIUM 2,A34,30,85,2.5,14, None, None, AB44,600 Lb,0,V.M. |                |            |                   |                 |      |

Below the Notepad window is a software interface with an "Overview" and "Detail" pane. The "Overview" pane shows a tree structure with "PipeLineAtts" selected. The "Detail" pane shows a table with the following properties:

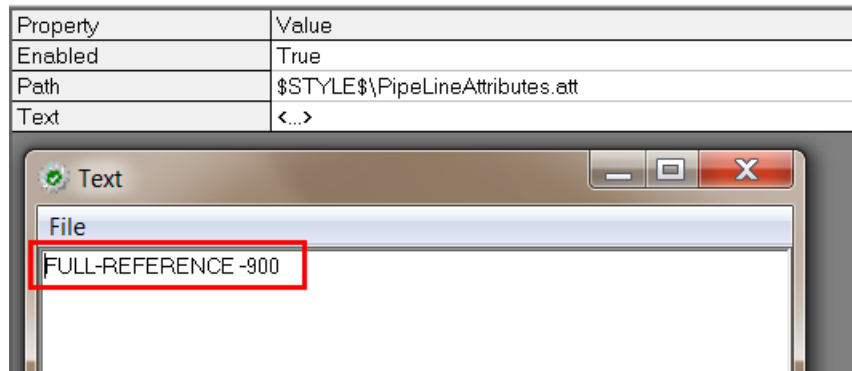
| Property | Value                            |
|----------|----------------------------------|
| Enabled  | True                             |
| Path     | \$STYLE\$\PipeLineAttributes.att |
| Text     | <...>                            |

A "Specify path for file" dialog box is open, showing the path "\$STYLE\$\PipeLineAttributes.att" in the text field, with "OK" and "Cancel" buttons.



# Enhanced Isometric Deliverables

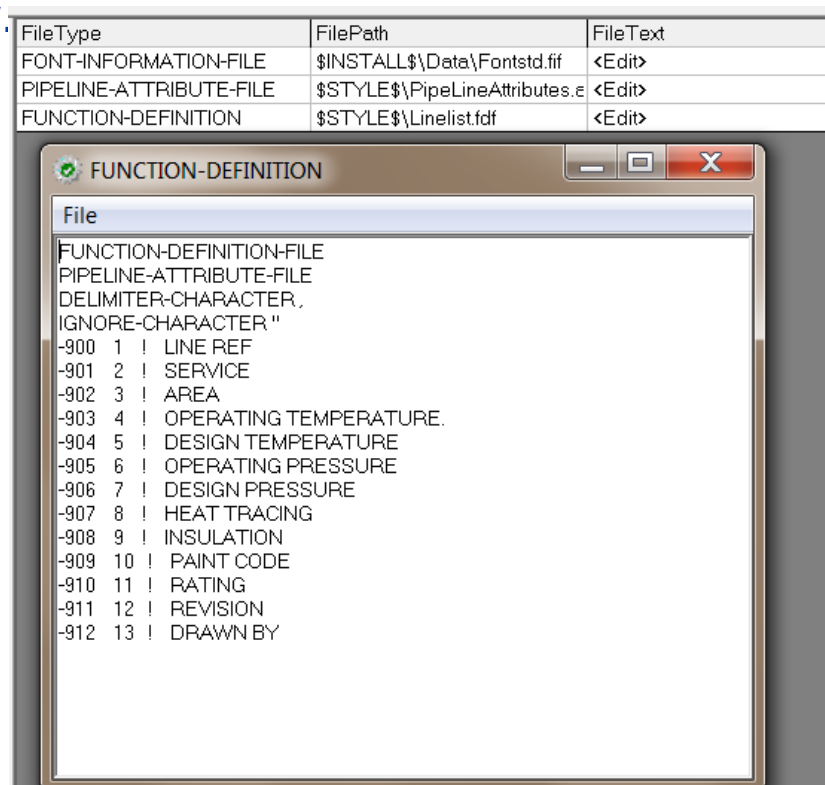
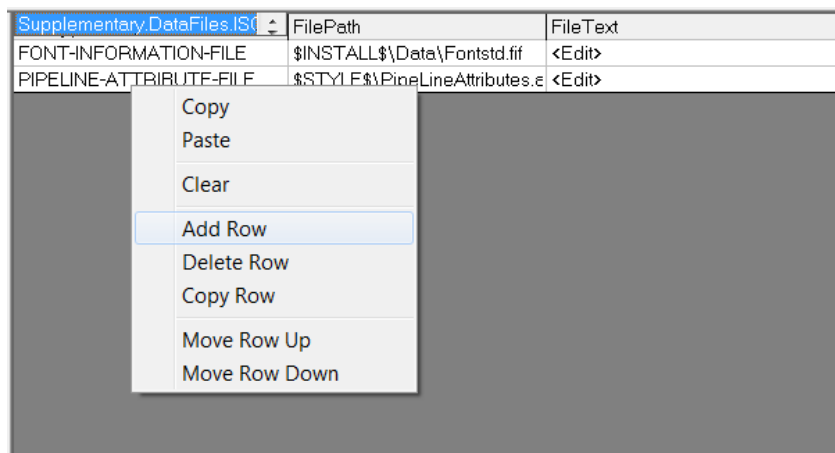
- Set Enabled property = True
- In the Text field add FULL-REFERENCE-900 and update.
- This data is then written to the DDF (only when the Enabled property = True)
- **FULL-REFERENCE** is defined as the Pipeline Reference in the PCF, and data is the data record in the Pipeline attributes file (\*.att), which corresponds to the Pipeline Reference.





# Enhanced Isometric Deliverables

- Prepare the function definition file (\*.FDF)
- This file assigns the Attribute Data field value from the \*.att file to an Isogen -900 series attribute, thus enabling Isogen to place the -900 attributes.
- Under Supplementary Data files, Add a row.
- Set the file type as Function-Definition
- Browse to the file.



# Enhanced Isometric Deliverables



- Add the attributes to the drawing border with the setup wizard
- Attribute100 = 900, 901 = 101 etc.
- Pipeline attributes are limited to a maximum of 100 attributes, being Attribute 100 - 199

Basic Setup | Drawing Areas | Material List | **Attributes**

| Attributes   |        |       |             |                 |         |               |  |
|--------------|--------|-------|-------------|-----------------|---------|---------------|--|
| Attribute    | X      | Y     | Text Height | Font            | Barcode | Justification |  |
| ATTRIBUTE100 | 324.71 | 44.69 | 2.4         | AutoDesk ROMANS | 0       | Left          |  |
| ATTRIBUTE101 | 326.93 | 37.57 | 2.5         | AutoDesk ROMANS | 0       | Left          |  |
| ATTRIBUTE102 | 338.91 | 31.33 | 2.5         | AutoDesk ROMANS | 0       | Left          |  |
| ATTRIBUTE103 | 338.78 | 24.72 | 2.5         | AutoDesk ROMANS | 0       | Left          |  |
| ATTRIBUTE104 | 338.78 | 18.23 | 2.5         | AutoDesk ROMANS | 0       | Left          |  |
| ATTRIBUTE105 | 338.91 | 11.62 | 2.5         | AutoDesk ROMANS | 0       | Left          |  |
| ATTRIBUTE106 | 430.48 | 25.15 | 2.5         | AutoDesk ROMANS | 0       | Left          |  |
| ATTRIBUTE107 | 430.02 | 44.53 | 2.5         | AutoDesk ROMANS | 0       | Left          |  |
| ATTRIBUTE108 | 430.82 | 31.25 | 2.5         | AutoDesk ROMANS | 0       | Left          |  |
| ATTRIBUTE109 | 430.48 | 37.52 | 2.5         | AutoDesk ROMANS | 0       | Left          |  |
| ATTRIBUTE110 | 430.48 | 18.38 | 2.5         | AutoDesk ROMANS | 0       | Left          |  |

# Enhanced Isometric Deliverables



- Repeatability Setup
  - Enabled = True
  - Create an empty notepad file and rename to \*.rpt
  - Set the content to Revised ASCII
  - Set the Isogen Repeat options of what information is to be output to the repeat file. Material list, split points, weld no etc.
  - Lastly set the ISOGENsetting in the CFG file to write this information back to the 3D model.

| Property      | Value                |
|---------------|----------------------|
| Enabled       | True                 |
| Path          | \$STYLE\$\Repeat.rpt |
| ByPass        | True                 |
| ComponentInfo | With Numeric         |
| Content       | Revised ASCII        |
| MatList       | False                |
| SplitPoints   | True                 |
| SpoolID       | Off                  |
| StartPoint    | True                 |
| WeldNos       | False                |

|                                 |                            |
|---------------------------------|----------------------------|
| HVACLibraryDirectory            | c:\cadworx 2014\plant\HVAC |
| ISOGENContinuationGraphicsCount | 3                          |
| ISOGENDefaultStyle              |                            |
| <b>ISOGENSetting</b>            | 1                          |
| LanguageFile                    | English.dic                |

**ISOGENSetting**  
 0=All settings off  
 1=Import Mark/Sheet data from repeat file  
 2=Import Spool data from repeat file  
 3=Import Mark/Sheet/Spool data from repeat file

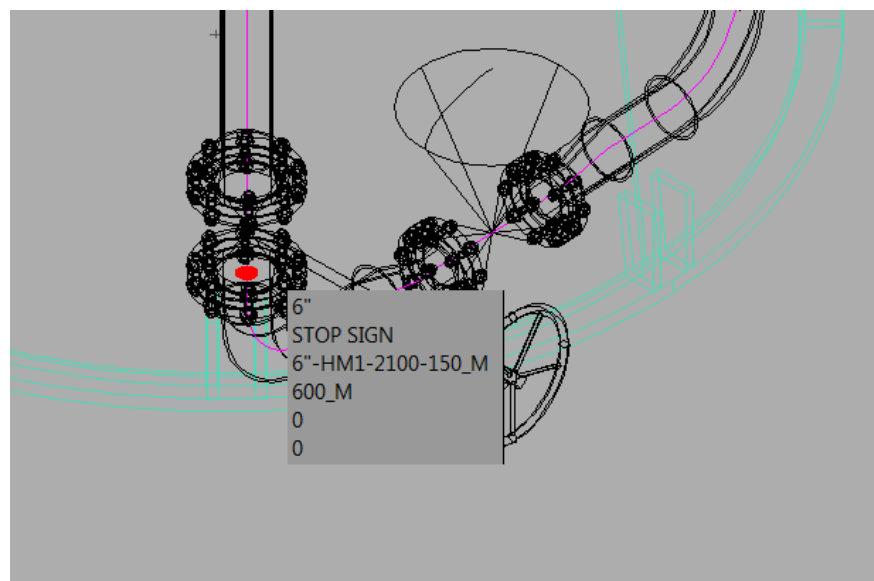


# Enhanced Isometric Deliverables

- Isolate Line 6"-HM1-2100-150\_M
- Run the IGO command.
- You may be prompted to confirm line numbers, this is CADWorx writing the start and split points back to the 3D model from the repeatability file.
- This is controlled by the Line number Pipe Rule.

```
Command: igo IGO
Enter an option [Line number/Select components] <Select components>:
Select objects: Specify opposite corner: 52 found, 52 groups
Select objects:
Exported Nozzle: V-101 @ -3495.5992,6841.1525,5800.0000
PIPELINE-REFERENCE set to 6"-HM1-2100-150_M
PCF Header Data: PROJECT-IDENTIFIER HxGN LIVE ENHANCED ISOGEN LAB
PCF Header Data (CFG) file: G:\Advanced Isogen\Isogen.cfg
Sent 52 component(s) to ISOGEN for processing...
[ 1] ISOGEN Start Point Added @ -3495.6000,6841.1500,5800.0000
[ 1] ISOGEN Stop Point Added @ -3174.9000,5149.6500,1095.8600
Repeat File Updates: None
```

```
-Enter an option [Exact copy of parent line number: 6"-HM1-2100-150_M
Current line number setup: 6"-SERVICE-COUNT-600_M] <Exact>E
```





# Enhanced Isometric Deliverables



- Modify the repeat properties in I-Config so that Matlist = True
- Run the IGO command again on the same line.
- Notice how the Sheet and Mark updates from the repeat file on the command line.
- Use the ICEDIT command to confirm the information has been written to the 3D model.

| Property      | Value                |
|---------------|----------------------|
| Enabled       | True                 |
| Path          | \$STYLE\$\Repeat.rpt |
| ByPass        | True                 |
| ComponentInfo | With Numeric         |
| Content       | Revised ASCII        |
| MatList       | True                 |
| SplitPoints   | True                 |
| SpoolID       | Off                  |
| StartPoint    | True                 |
| WeldNos       | False                |

```
Repeat File Updates : Mark Data : 52
Repeat File Updates : Sheet Data : 52
Repeat File Updates : Spool Data : 0
```

Other:

Spool:

Sketch:

:

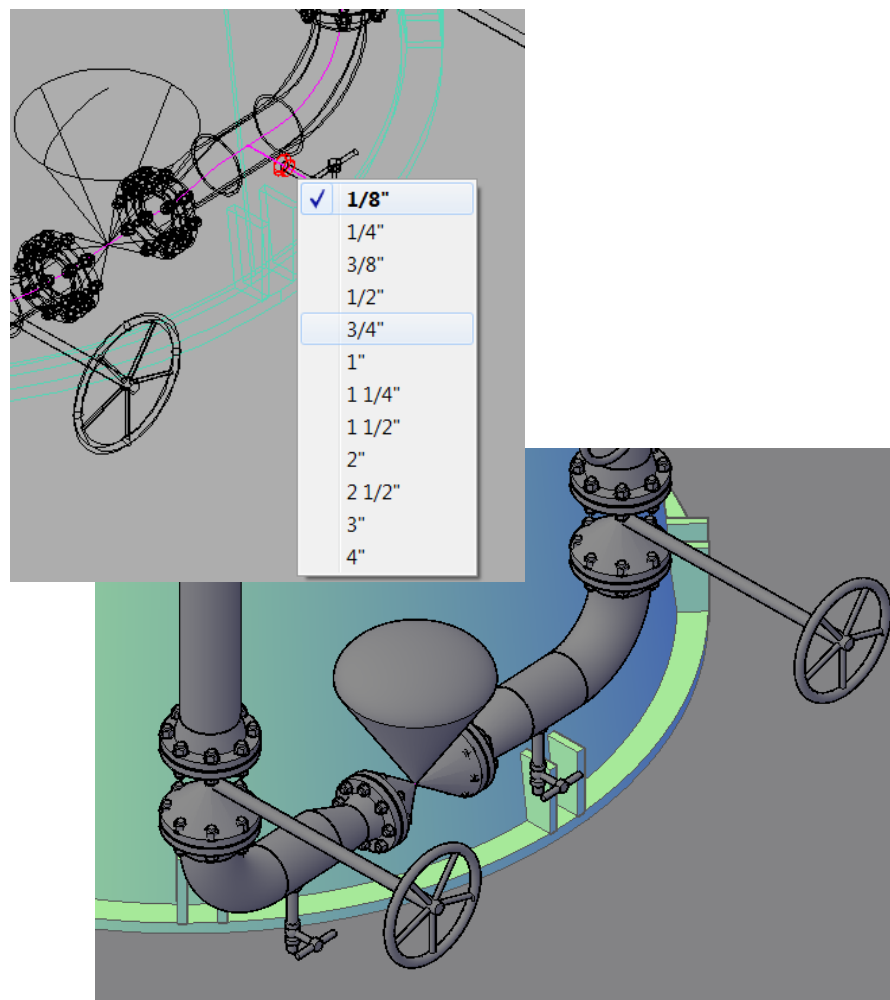
: Sheet #

Mark:



# Enhanced Isometric Deliverables

- Open the Assembly Manager
- Place the Control Station Drain on the model in between the reducers and the elbows.
- Make sure the line number is the same as the main line.

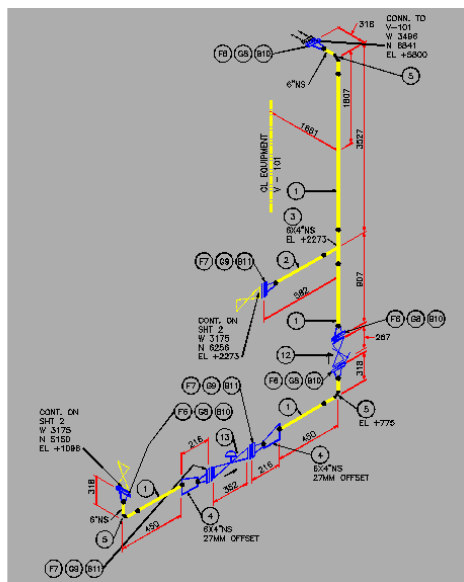
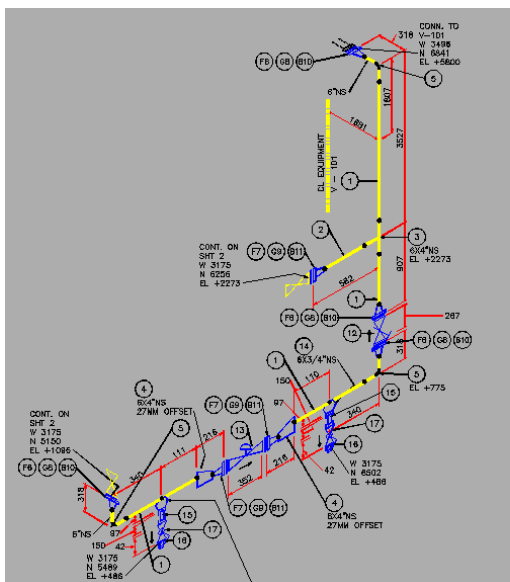




# Enhanced Isometric Deliverables

- Run the ISO again.
- Notice how the split points have been retained and how all existing mark numbers for the BOM have also been retained.
- Use ISOGENRESET to clear the repeat settings.

```
New components on Sheet # 1 will start with Mark # 14
New components on Sheet # 2 will start with Mark # 13
Sent 62 component(s) to ISOGEN for processing...
Repeat File Updates : Mark Data :      8
Repeat File Updates : Sheet Data :     8
Repeat File Updates : Spool Data :     0
```



| MATERIAL LIST: 6"-HM1-2100-150_M |       |       |                                                                |                      |
|----------------------------------|-------|-------|----------------------------------------------------------------|----------------------|
| PT.NO                            | SIZE  | QTY   | DESCRIPTION                                                    | ITEM CODE            |
| 1                                | 6     | 4.3 M | PIPE, SMLS, SCH STD, ASTM A106 GR B                            | 9121-0015--DG-       |
| 2                                | 4     | 0.4 M | PIPE, SMLS, SCH STD, ASTM A106 GR B                            | 9121-0013--OG-       |
| 3                                | 6X4   | 1     | TEE RED, SCH STD, ASTM A234 GR WPB                             | D221-0015-0013-OG-OG |
| 4                                | 6X4   | 2     | RED ECC, SCH STD, ASTM A234 GR WPB                             | A221-0015-0013-OG-OG |
| 14                               | 6X3/4 | 2     | THRD-O-LET, THRD, 3000LB, ASTM A105                            | 8261-0015-0005-OG-OH |
| 5                                | 6     | 3     | 90 LR ELL, SCH STD, ASTM A234 GR WPB                           | 4222-0015--OG-       |
| 15                               | 3/4   | 2     | NIPPLE, SCH XXS, ASTM A106 GR B (150 MM LG)                    | 92G1-0005--OI-       |
| 16                               | 3/4   | 2     | PLUG, THRD_ENG, 316 SS BAR STOCK, ASTM A105                    | 12G1-0005--OH-       |
| 6                                | 6     | 4     | FLG WELD NECK, 150LB, SCH STD, ASTM A105                       | 5421-0015--OG-       |
| 7                                | 4     | 3     | FLG WELD NECK, 150LB, SCH STD, ASTM A105                       | 5421-0013--OG-       |
| 8                                | 6     | 4     | GASKET, 150LB, 1/8" THK                                        | 6201-0015--OG-       |
| 9                                | 4     | 3     | GASKET, 150LB, 1/8" THK                                        | 6201-0013--OG-       |
| 10                               | 3/4   | 32    | STUD BOLTS W/ NUTS, 115 LG, ASTM A193/194 GR B7/2H (115 MM LG) | 6101-0015--OG-       |
| 11                               | 5/8   | 24    | STUD BOLTS W/ NUTS, 100 LG, ASTM A193/194 GR B7/2H (100 MM LG) | 6101-0013--OG-       |
| 12                               | 6     | 1     | GATE VALVE, FLG, 150LB                                         | FA31-0015--OG-       |
| 17                               | 3/4   | 2     | BALL VALVE, THRD, 800LB                                        | F4G1-0005--OH-       |
| 13                               | 4     | 1     | CONTROL VALVE, FLG, 150LB                                      | FB31-0013--OG-       |



# Enhanced Isometric Deliverables

- Dynamic Filenames
  - ISOGEN allows files to be dynamically named using text attributes contained within the pipeline data.
  - Not supported for Project Manager Styles / Projects
  - Refer to I-Configure help for full list of supported filename attributes.

```
PIPELINE-REFERENCE (-6)
SPOOL-PREFIX (-7)
REVISION (-8)
PROJECT-IDENTIFIER (-9)
BATCH (-10)
AREA (-10)
PIPING-SPEC (-11)
NOMINAL-CLASS (-12)
NOMINAL-RATING (-12)
PIPELINE-TYPE (-13)
DATE-DMY (-14)
INSULATION-SPEC (-15)
TRACING-SPEC (-16)
PAINTING-SPECNCE (-17)
PIPELINE-TEMP (-19)
SYSTEM-ISOMETRIC-REFERENCE (-25)
SPOOL-NAME (-28)
EQUIPMENT-TRIM (-29)
EQUIPMENT-TRIM-REFERENCE (-29)
MISC-SPEC1 (-41)
MISC-SPEC2 (-42)
MISC-SPEC3 (-43)
MISC-SPEC4 (-44)
MISC-SPEC5 (-45)
JACKET-SPEC (-65)
OUTPUT-FILE-NAME (-66)
PIPELINE-DRAWING-SEQUENCE-NUMBER (-90)
SPOOL-DRAWING-SEQUENCE-NUMBER (-91)
CLIENT-DRAWING-IDENTIFIER (-92)
PCF-FILE-NAME (-100)
PIPELINE-ATTRIBUTES (-600 TO -699) (-900 to -999)
```



# Enhanced Isometric Deliverables

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■ Questions ?