## How to include instruments in the isometric BOM in AutoCAD Plant 3D

Dec 16, 2013

## **Issue:**

You would like any instruments that are part of your pipe model to be included in the isometric BOM.

## Solution:

By default, instruments are not output to the BOM table in the out-of-box styles. To add instruments to the BOM table, please add a new group for Instruments, shown in RED below, to the AggregatedList/Groups element in the IsoConfig.xml file. For this example the Final\_ANSI-C iso style is being used. The IsoConfig.xml file is located within the Isometric\Final\_ANSI-C folder of the project.

```
<Group Name="PIPE SUPPORTS">
<RowFilter Filter="Support" />
<Labels>
 <Label Name="pipe supports" />
         </Labels>
<Columns>
 <Column Name="Category" />
 <Column Name="Code" />
</Columns>
<Sort SortBy="Type ASC,ConnectionSize ASC" />
<Precisions />
     </Group>
<Group Name="Instrument">
<RowFilter Filter="Instrument" />
<Labels>
 <Label Name="instrument" />
</Labels>
<Columns>
 <Column Name="Category" />
 <Column Name="Code" />
</Columns>
<Sort SortBy="Type ASC,ConnectionSize ASC" />
<Precisions />
     </Group>
   </Groups>
</AggregatedList>
<AggregatedList xsi:type="IsoCompositeDataListConfig" Name="ShopMaterials">
  <RowFilter Filter="ItemCodeNotNullAndCategoryFabItem" />
  <Index Name="PartNumber" Format="" Characters="" ModelSpecified="false" ContinuousIndexing="false" />
```

Now, that you have a way of identifying & grouping instruments, you will need to 'define' an area (or a row template) in your Iso.dwt template file so that the iso engine knows that it has to populate that area with the newly created instruments group. If you open up the Iso.dwt file for the Final\_ANSI-C iso style, this is what the default Final\_ANSI-C looks like. The default does not include a row for instruments.

	BILL OF MATERIALS						
ID	QTY	ND	SCH/CLASS		DESCRIPTIC	)N	
	PIPE <pipe></pipe>						
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td></descrip<>	TION>		
	FITTINGS <fittings></fittings>						
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td></descrip<>	TION>		
	OLETS <olets></olets>						
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td></descrip<>	TION>		
	FLANGES <flanges></flanges>						
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td></descrip<>	TION>		
			FASTEN	ERS <faste< td=""><td>eners&gt;</td><td></td></faste<>	eners>		
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td></descrip<>	TION>		
			VALV	/ES <valve< td=""><td>s&gt;</td><td></td></valve<>	s>		
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td></descrip<>	TION>		
	PIPE SUPPORTS <pipe supports=""></pipe>						
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td></descrip<>	TION>		
	CUT PIECE LIST						
IC	)	LENGTH		ND	END1	END2	
<[[	<id> <length></length></id>			<nd></nd>	<end1></end1>	<end2></end2>	

Now, Just copy and paste the 2 rows for 'VALVES <valves>' and rename it to 'INSTRUMENT <instrument>'. The value in the angle brackets is the label that helps identifies what components should go in there (This SHOULD match the label in the newly created group in IsoConfig.xml). Once the row has been added, save you changes and return to the model drawing.

			BILL (	)F MATEI	RIALS					
ID	QTY	ND	SCH/CLASS		DESCRIP	TION				
PIPE <pipe></pipe>										
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td><td></td><td></td><td></td><td></td></descrip<>	TION>					
FITTINGS <fittings></fittings>										
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td><td></td><td></td><td></td><td></td></descrip<>	TION>					
OLETS <olets></olets>										
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td><td></td><td></td><td></td><td></td></descrip<>	TION>					
			FLAN	GES <flang< td=""><td>les&gt;</td><td></td><td></td><td></td><td></td><td></td></flang<>	les>					
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td><td></td><td></td><td></td><td></td></descrip<>	TION>					
			FASTEN	ERS <faste< td=""><td>eners&gt;</td><td></td><td></td><td></td><td></td><td></td></faste<>	eners>					
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td><td></td><td></td><td></td><td></td></descrip<>	TION>					
			VAL	VES <valve< td=""><td>s&gt;</td><td>Adda</td><td>d INIST</td><td>RLIMI</td><td>ENT roy</td><td>~</td></valve<>	s>	Adda	d INIST	RLIMI	ENT roy	~
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td>Aude</td><td></td><td></td><td></td><td>NV I</td></descrip<>	TION>	Aude				NV I
			PIPE SUPPO	RTS <pipe< td=""><td>supports&gt;</td><td></td><td></td><td></td><td></td><td></td></pipe<>	supports>					
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td><td><b>1</b></td><td></td><td></td><td></td></descrip<>	TION>		<b>1</b>			
	INSTRUMENT <instrument></instrument>									
<id></id>	<qty></qty>	<nd></nd>	<sch clas<br="">S&gt;</sch>	<descrip< td=""><td>TION&gt;</td><td></td><td></td><td></td><td></td><td></td></descrip<>	TION>					
			CUT	PIECE L	IST					
ID	)	LENGTH		ND	END1		END2			
<1D	)>	<length></length>		<nd></nd>	<end1></end1>		<end2></end2>			

Finally, in the model drawing select the instrument valve and right click on the valve to select properties so that the property window is visible. In the properties window in the General area find the Content Iso Symbol Definition. Here the Type will need to be changed to INSTRUMENT. Once the type has been changed make sure to save the drawing. This will allow the added instrument area in the bill of material to be populated when the iso is created.

7	Line Number Tay	2001	
G	eneral	<b>^</b>	
	Short Description	Gate Valve	Set type to equal
	Long Description (Size)	GATE VALVE, DOUBLE DISC, 6" ND, 30	
	Long Description (Family)	Gate Valve, Double Disc, 300 LB, RF, A	INSTRUMENT.
4	Insulation Thickness	?	
4	Insulation Type	?	
4	Service	?	
	Compatible Standard	ASME B16.10	
	Manufacturer		
	Item Code		
	Design Std	Double Disc	
	Design Pressure Factor		a standard and a standard a
	Weight		
	Weight Unit		
	Flange Thickness	1 7/16"	
	Content Iso Symbol Definition	SKEY=VTFL,TYPE=INSTRUMENT	
	Status	New	
4	Tracing Type	?	
4	Tracing Spec	?	
4	Insulation Spec	?	
	Tie In Number		
	Spool Number		
	Unit		
	Chan (Field	CUOD	

With these changes in place, run an iso using the iso style modified. The Iso that is generated will now generate a row in the bill of material that shows instruments.

				BILL OF MATERIALS		
	ID	QTY	ND	SCH/CLASS	DESCRIPTION	
					PIPE	
	1	8'-1"	6″	40	PIPE, SEAMLESS, PE, ASME B36.10, ASTM A106 GR B SMLS, SCH 40	
					FLANGES	
	2	4	6″	300	FLANGE WN, 300 LB, RF, ASME B16.5, ASTM A105	
		FASTENERS				
	3	48	3/4"X4 3/4"	300	BOLT SET, RF, 300 LB, STUD BOLT	
	4	4	6″	300	GASKET, SWG, 1/8" THK, RF, 300 LB, ASME B16.20, CS/PTFE	
	VALVES					
	5	2	6″	300	GATE VALVE, DOUBLE DISC, 300 LB, RF, ASME B16.10	
			INSTRUMENT			
	6	1	6″	300	GATE VALVE, DOUBLE DISC, 300 LB, RF, ASME B16.10	