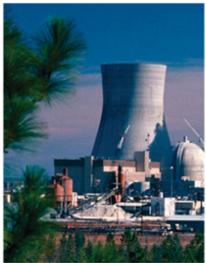
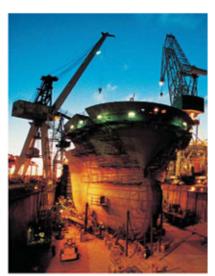
Drawings and Reports Reference Data Guide

Process, Power & Marine









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Preface

This document is a reference data guide for the SmartPlant® 3D Drawings and Reports task. The purpose of this document is to describe the reference data delivered with the software for this task.

Reference data includes both catalog data and specification data. Catalog data includes the parts that you place in the model, such as piping components and equipment. Specification data includes the rules that govern how those parts are placed and connected.

For more information, refer to the Drawings and Reports task user documentation:

- Orthographic Drawings User's Guide
- Piping Isometric Drawings User's Guide
- Reports User's Guide

SmartPlant 3D Documentation Set

The SmartPlant[®] 3D documentation set is available as Adobe[®] PDF files. The content of the PDF files is the same content as online Help. To access these PDF documents in the software, click **Help > Printable Guides**.

The documentation set is divided into four categories:

- Administrative guides contain information about installing, configuring, customizing, and troubleshooting SmartPlant 3D.
- User's guides provide command reference and how-to information for working in each SmartPlant 3D task.
- Reference data guides define the reference data workbooks. Not all tasks have reference data.
- ISOGEN guides

Administrative Guides

Project Management User's Guide - Provides instructions for setting up the databases, creating permission groups, backing up and restoring project data, assigning access permissions to the model, managing interference detection, defining and managing locations for Global Workshare, controlling duplication and consolidation of plants, tools for synchronization, regeneration of report databases, and version upgrade.

SmartPlant 3D Database Integrity Guide - Provides information about the error messages in the database integrity reports, including meaning, cause, and possible corrective action.

SmartPlant 3D Global Workshare Guide - Provides instructions for setting up the software and the databases to work in a workshare environment.

SmartPlant 3D Installation Guide - Provides instructions on installing and configuring the software on both the client and server computers.

SmartPlant 3D Installation Checklist - Provides a recommended installation workflow for installing SmartPlant 3D. The installation checklist, SP3DInstall_Checklist.pdf and SP3DInstall_Checklist.xls, is available in two file formats in the Help folder on the product CD.

SmartPlant 3D/IntelliShip Programmer's Guide - Provides information about custom commands, naming rules, and symbol programming.

SmartPlant 3D Integration Reference Guide - Provides information about installing, configuring, and using SmartPlant 3D in an integrated environment.

SmartPlant 3D Interference Checking Guide - Provides information on installing, configuring, and using the interference detection service.

SmartPlant 3D Interpreting Human Piping Specifications - Provides information about how to interpret human piping specifications so that you can create the corresponding piping specification in the software.

SmartPlant 3D Plant Design System (PDS) Guide - Provides all information needed to use PDS with SmartPlant 3D. Topics include referencing active PDS projects in SmartPlant 3D, exporting PDS data and importing that data into SmartPlant 3D, converting PDS reference data to SmartPlant 3D reference data, and converting EDEN symbols to Visual Basic symbols.

SmartPlant 3D Release Bulletin - Provides what's new, hardware/software requirements, and support information for the current release.

SmartPlant 3D Troubleshooting Guide - Provides information on how to resolve errors that you may encounter in the software by documenting troubleshooting tips, error messages, and to do list messages.

User's Guides

Catalog User's Guide - Provides information about viewing, editing, and creating reference data and select lists (codelists).

Common User's Guide - Provides information about defining workspaces, navigating in the model, precision input, filtering, manipulating views, and running reports.

Electrical User's Guide - Provides information about routing electrical cable, cableway, cable tray, and conduit.

Equipment and Furnishings User's Guide - Provides information about placing equipment.

Grids User's Guide - Provides instructions for creating coordinate systems, elevation grid planes, vertical grid planes, radial cylinders, radial planes, grid arcs, and grid lines.

Hangers and Supports User's Guide - Provides instructions on placing piping, duct, cableway, and conduit supports in the model.

HVAC User's Guide - Provides instructions for routing HVAC duct.

Orthographic Drawings User's Guide - Provides information about creating and managing orthographic drawings.

Piping Isometric Drawings User's Guide - Provides information about creating and managing piping isometric drawings.

Piping User's Guide - Provides instructions for routing pipe and placing valves, taps, and pipe joints.

Reports User's Guide - Provides information about creating and managing spreadsheet reports.

Space Management User's Guide - Provides instructions for placing volumes (such as drawing volumes, obstruction zones) in the model.

Structural Analysis User's Guide - Provides instructions for defining loads, load cases, load combinations, and the importing and exporting of analytical data.

Structure User's Guide - Provides instructions for placing structural members such as: beams, columns, braces, slabs, openings, stairs, ladders, equipment foundations, and handrails.

Systems and Specifications User's Guide - Provides instructions for creating systems and their hierarchies and selecting which specifications are available for each system type.

SmartPlant 2D Symbols User's Guide - Provides instructions for creating cross section symbols.

Reference Data Guides

Drawings and Reports Reference Data Guide - Provides information about reports reference data.

Electrical Reference Data Guide - Provides information about electrical cable, cableway, cable tray, and conduit reference data.

Equipment and Furnishings Reference Data Guide - Provides information about equipment reference data and name rules.

Hangers and Supports Reference Data Guide - Provides information about hangers and supports reference data.

HVAC Reference Data Guide - Provides information about HVAC reference data.

Piping Reference Data Guide - Provides information about piping reference data including piping specifications, piping specification rules, piping parts, piping symbols, and name rules.

SmartPlant 2D Symbols Reference Data Guide - Provides information about the twodimensional symbols used in all tasks.

SmartPlant 3D Reference Data Guide - Provides instructions about the Bulkload utility, codelists, and the reference data common to several disciplines.

SmartPlant 3D Symbols Reference Data Guide - Provides information about the Visual Basic Part Definition Wizard and the three-dimensional symbols used in all tasks.

Space Management Reference Data Guide - Provides information about space management reference data.

Structure Reference Data Guide - Provides information about structural reference data and name rules.

ISOGEN Guides

AText Reference Guide - Provides information about alternative text for isometric drawings. This guide is from Alias, the makers of ISOGEN[®].

Option Switches Reference Guide - Provides information about the ISOGEN option switches for isometric drawings. This guide is from Alias, the makers of ISOGEN.

Symbol Keys Reference Guide - Provides information about the symbol keys for isometric drawings. This guide is from Alias, the makers of ISOGEN.

Documentation Comments

Send documentation comments or suggestions to PPMdoc@intergraph.com.

What's New in Drawings and Reports Reference Data

The following changes have been made to the Drawings and Reports reference data.

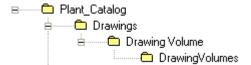
Version 2007

• No changes were made to the Drawings and Reports Reference Data in Version 2007.

Drawings Reference Data: An Overview

The drawings reference data defines drawing volumes, which are used in the creation of all drawings.

In the Catalog task, you can view a hierarchy of folders containing the drawing volumes.



The hierarchy is derived from the **Drawings.xls** workbook that contains the reference data for drawing volumes. This workbook is located at [Product *Directory*/\CatalogData\BulkLoad\DataFiles.

The Drawings sheet is unique to **Drawings.xls**. You use the Drawings sheet to modify the Drawings reference data. For more information on modifying sheets, see the SmartPlant 3D Reference Data Guide accessible from the **Help > Printable** Guides command.

Related Topics

Drawing Volume Properties Sheet, page 12

Drawing Volume Properties Sheet

The **Drawing Volume Properties** sheet in the **Drawings.xls** workbook defines the part class information for drawing volumes.

You can place drawing volumes in the Space Management task for use in the creation of volume drawings. Drawing volumes are also automatically placed when creating snapshot views for composed drawings. For more information about drawing volume placement, refer to the *Drawings and Reports User's Guide* available from the **Help > Printable Guides** command in the software.

The left-most column (column A) of the sheet specifies the bulkload action taken with regard to the row. For example, an **A** in the column indicates the drawing volume part class is being added; the letter **D** specifies the class is deleted; the letter **M** indicates the class is modified. A! symbol specifies that the row is ignored during bulkloading.

PartNumber - Specifies the part number.

• Important

• All part numbers must be unique across the entire catalog.

PartDescription - Describes the part.

SymbolDefinition - Specifies a symbol definition. If the symbol definition for a part is the same as the definition for the part class, type **NULL** or leave blank.

MirrorBehaviorOption - Indicates whether mirroring functionality is activated.

Notes

- For more information on modifying the **Drawings.xml** workbook, refer to the *SmartPlant 3D Reference Data Guide* available from the **Help** > **Printable Guides** command in the software.
- All files must be located in the correct Symbol share for bulkloading to be successful.

Related Topics

• Add A Drawing Volume Part Class, page 12

Add A Drawing Volume Part Class

- 1. Open the **Drawings.xls** workbook.
- 2. Select the **Drawing Volume Properties** sheet.
- 3. Select a row after the **Start** keyword but before the **End** keyword, and click **Insert > Rows**.

4. In column A, type A to indicate a new drawing volume part class will be added during the next bulkload.

Notes

- The left-most column (column A) of the sheet specifies the bulkload action taken with regard to the row. For example, an A in the column indicates the drawing volume part class is being added; the letter **D** specifies the class is deleted; the letter **M** indicates the class is modified. A! symbol specifies that the row is ignored during bulkloading.
- 5. In the **PartNumber** column, type a part number for the drawing volume part class.
- 6. Define the remaining properties for the new drawing volume part class.
- 7. Save the **Drawings.xls** workbook.

Notes

- For more information on modifying the **Drawings.xml** workbook, see the SmartPlant 3D Reference Data Guide available from the **Help** > **Printable Guides** command in the software.
- All files must be located in the correct Symbol share for bulkloading to be successful.
- If you add new part classes after creating the Reports databases, you must re-create the Reports databases in order to report on the new part classes.

Related Topics

Drawing Volume Properties Sheet, page 12

Piping Manufacturing Reference Data: An Overview

In the Drawings and Reports task, reference data defines various extraction settings for each isometric drawing style. One important setting is the output location for isometric drawings extracted. Before you can extract any drawings, you must specify the output location in this workbook and bulk load. For more information, see *Modify Default Isometric Paths*, page 18.

The reference data also allows you to specify the locations for the style option database files, backing sheets, and Intergraph option files.

The **BulkLoadIsoKeys.xls** workbook contains the reference data for isometric drawings within the Drawings and Reports task. The sheets that are unique to **BulkLoadIsoKeys.xls** are described below. For more information on common sheets, see the *SmartPlant 3D Reference Data Guide* accessible from the **Help > Printable Guides** command.

PipeMfgRules Sheet

This sheet lists isometric drawing extraction styles and drawing output locations. This sheet contains information about the databases and XML files that store the isometric drawing options. For more information, see *PipeMfgRules Sheet*, page 15.

PipeMfgMapSymbol Sheet

In previous versions, this sheet mapped the symbol key information between ISOGEN and SmartPlant 3D. You map the symbol keys using the **Isometric Style Options Browser** in the software. For more information, see *PipeMfgMapSymbol Sheet*, page 16.

PipeMfgSpoolRule Sheet

You set these options when you run the spooling commands in the Piping task. For more information, see *PipeMfgSpoolRule Sheet*, page 17.

PipeMfgRules Sheet

The **PipeMfgRules** sheet in the **BulkLoadIsoKeys.xls** workbook shows the isometric drawing styles defined for the project. It also defines the paths for the isometric drawing output and other files associated with isometric drawing extraction.

IsoNames - Specifies the different isometric drawing styles. The delivered styles are Iso_Pipeline, Iso_Piperun, Iso_Spool, Iso_PenSpool, Iso_WBS, and Iso_Stress.

RuleType - Specifies the type of drawing extraction rule applied within the style.

RuleProgID - Displays a unique identifier for the drawing extraction rule. Each rule is associated with an isometric drawing style. For example, the Iso_Pipeline style is associated with the PMfgIsoExtractionRule.PipeLineIso rule progID.



The ProgID is analogous to the Line ID Definition in PDS.

Description - Displays a text description of the rule action.

OutputIsoDrawingLocation - Specifies the UNC path to the isometric drawing output location for each style. If your workflow includes concurrent users, you must create sharing permissions on the output location folders.

! Important

- The output location is optional. You do not have to specify a location in this box.
- If you specify a location and bulk load, the software stores the drawings at this location. If you do not specify a location, the software temporarily stores the drawings in the C:\Temp folder while the task is active and deletes the files when you exit the task.

You can point more than one drawing style to the same Access database if you want.

IsoBackingSheet - Specifies the UNC path to the location for the backing sheet documents.

IngrOption - Specifies the UNC path to the location for the XML files that control the Intergraph options.

Related Topics

- PipeMfgMapSymbol Sheet, page 16
- Piping Manufacturing Reference Data: An Overview, page 14

PipeMfgMapSymbol Sheet

The **PipeMfgMapSymbol** sheet in the **BulkLoadIsoKeys.xls** workbook shows the symbol mapping between SmartPlant 3D and ISOGEN, which is the third-party software used to create isometric drawings. The columns are described as follows:

MapType - Identifies the map type referenced from the Map Type codelist. For more information, see the *SmartPlant 3D Reference Data Guide* available from **Help** > **Printable Guides**.

CodeList - Specifies the End Prep Code associated with the Part Class Name.

PartClassName - Identifies the SmartPlant 3D Part Class Name.

SKEY - Identifies the ISOGEN symbol key.

PCFComponentID - Specifies the Piping Component File (PCF) identification text for the piping component. This ID must be a valid ISOGEN Component Type Identifier as described in the ISOGEN documentation, which is accessible from the **Help > Printable Guides** command.

Related Topics

- *PipeMfgRules Sheet*, page 15
- Piping Manufacturing Reference Data: An Overview, page 14

PipeMfgSpoolRule Sheet

The PipeMfgSpoolRule sheet in the BulkLoadIsoKeys.xls workbook specifies how the software breaks pipes into spools. When you make changes to this sheet, you need to bulkload the workbook into the Catalog. You can also use the spooling commands in the Piping task to specify these rules, but the changes are not saved to the Catalog or the session file.

Name - Specifies the naming rule for spools.

BreakatUnion - Specifies that the software breaks the spools at unions.

IncludeStubIn - Specifies that a spool can include the stub-in pipe and all the parts of this stub-in branch until the first spool breaking component is encountered.

IncludeWeldedParts - Includes welded objects, such as pipe hanger or support parts, in the same spool as the components to which they are welded.

InSituON - Not used at this time.

Updation - Specifies whether or not existing spools are deleted.

Warning

The **Updation** option should always be set to "on". It prevents the loss of existing spools during re-spooling operations. You should only override this option using the interactive options provided with the commands available in the Piping task.

MaxLength - Provides the maximum length of a spool for oversizing calculation purposes. You should enter ft (feet) for the units. If you specify units other than feet, the software uses meters as the units.

MaxWidth - Provides the maximum width of a spool for oversizing calculations purposes. You should enter ft (feet) for the units. If you specify units other than feet, the software uses meters as the units.

MaxHeight - Provides the maximum height of a spool for oversizing calculation purposes. You should enter ft (feet) for the units. If you specify units other than feet, the software uses meters as the units.

SequencingType - Not used at this time.

SpoolingBasis - Controls the user interface displayed when spooling operations run. If set to **Pipeline**, the software user interface is set to pipeline spooling within the system hierarchy. If set to **Block**, the software user interface is set to block spooling within the assembly hierarchy.

Warning

• The **SpoolingBasis** option should be set at the beginning of a project and not changed for the duration of the project.

IgnoreBoundaries - When set to **False**, the software will not cross the boundary of the pipeline or block. When set to **True**, the software will cross the boundary of the pipeline or block for spool generation until an intrinsic spool break is found. This feature is intended for use when pooling by block.

SpoolBreakByControlPoint - Specifies if spools should break at control points. You can place control points using the **Insert Control Point** command in the Piping task. You must set the control point **Subtype** to **Spool Break** in order to use the control point with this option. For information on setting isometric break controls points for drawings, see *Set Isometric Break Control Points for Drawings* in the *Drawings and Reports User's Guide* available from **Help > Printable Guides**.

Select **Ignore Control Points** to ignore the control points during spooling. Select **Break at Control Points** to break spools at the normal intrinsic line breaks and at control points. Select **Break Only at Control Points** to break spools only at control points.

Related Topics

• Piping Manufacturing Reference Data: An Overview, page 14

Modify Default Isometric Paths

Output is saved in the Symbols folder on the server by default. You can specify an output location in the *BulkLoadIsoKeys.xls* file on the **PipeMfgRules** sheet if you want to save isometric drawings to a different location.

- 1. Log on to the SmartPlant 3D administrator computer using an account that has database ownership privileges.
- 2. In Windows Explorer, create folders in which you want to store isometric drawings.

Important

- Create a folder on the server named **PipingMfgDrawings**.
- Within the PipingMfgDrawings folder, create five folders for the different isometric drawing types. Name the folders Iso_Pipeline, Iso_Piperun, Iso_Spool, Iso_PenSpool, Iso_WBS, and Iso_Stress.
- 3. In Windows Explorer, create sharing permissions on the root folder. In this example, **PipingMfgDrawings** should be shared.

💡 Tip

- To share a folder, select the folder in Windows Explorer. Then click File > Sharing and select Shared As.
- 4. Back up your Excel workbooks before you begin to modify them.
- 5. Open the default Excel workbook for Piping Manufacturing: [Product Directory]\CatalogData\BulkLoad\DataFiles\BulkLoadIsoKeys.xls.
- 6. Click the **PipeMfgRules** sheet to make it active.
- 7. In the **OutputIsoDrawingLocation** column, edit the paths to show the Uniform Naming Convention (UNC) locations for the isometric drawing types on the server. For example, if the node name of the server is **smith** and you want to store the Iso_Pipeline isometric drawings in the Iso_Pipeline folder that you created earlier, type \\smith\PipingMfgDrawings\Iso_Pipeline in the row for the Iso Pipeline isometric type.

! Important

- Repeat this step for the other isometric drawing styles.
- 8. In the **IsoBackingSheet** and **IngrOption** columns, edit the paths to show the UNC locations of these files on the server. The server setup installs these files by default at [Product Directory]\CatalogData\Symbols\PmfgIsoStyleData.

• Important

- Repeat this procedure for the other rows and columns.
- 9. In the **Head** column under **Start**, mark the beginning of each modified row with M.
- 10. Click **File > Save** to store the modifications.
- 11. Run the Bulkload utility in the **Add/Modify/Delete** mode to modify the reference data. For more information about bulkloading, see the SmartPlant 3D Reference Data Guide accessible from the Help > Printable Guides command.

Notes

- If you want to modify the isometric paths again, you must edit the workbook and bulk load.
- The left-most column (column A) of the sheet specifies the bulkload action taken with regard to the row. For example, an A in the column indicates the drawing volume part class is being added; the letter **D** specifies the class is deleted; the letter **M** indicates the class is modified. A ! symbol specifies that the row is ignored during bulkloading.

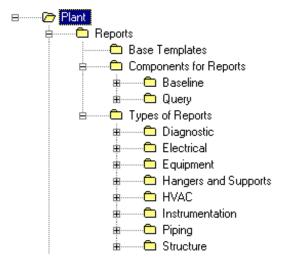
Related Topics

Piping Manufacturing Reference Data: An Overview, page 14

Reports Reference Data: An Overview

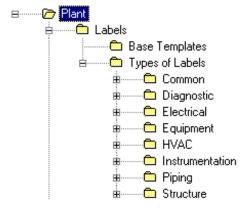
The reports reference data includes a list of the templates associated with reporting in the software. These templates include label templates, query templates, query parameters templates, formatting templates, and reports templates.

In the Catalog task, you can view a hierarchy of folders containing the report and label templates and components.



The hierarchy is derived from the **Reports.xls** workbook that contains the report reference data. The **Reports\Components** category includes the baseline, display, formatting, and query templates. The **Reports\Templates** category groups the report templates by discipline.

The **Labels** category contains the templates for catalog labels, isometric drawing labels, Icarus cost-estimation labels, and ToolTip labels.



The report and label templates are available in the \CatalogData\Symbols\Drawings\Catalog folders on the SmartPlant 3D server.

For information about setting up the reporting databases, refer to the SmartPlant 3D *Installation Guide* available from the **Help > Printable Guides** command. For more information about running reports while in a 3D task, see the Common User's Guide also available from the **Help > Printable Guides** command.

The **Reports.xls** workbook contains the reference data for reports and labels. This workbook is located at [Product Directory]\CatalogData\BulkLoad\DataFiles. The following sheets are used to modify the Reports and Label reference data:

- **Reports sheet** Defines the locations of the report and label templates. For more information, see *Report Sheet*, page 22.
- **R-Hierarchy sheet** Maps parent and child relationships between folders in the Catalog Reports hierarchy. For more information, see *R-Hierarchy* Sheet, page 23.

For more information on modifying sheets, see the SmartPlant 3D Reference Data *Guide* accessible from the **Help > Printable Guides** command.

Notes

- The Catalog Reports hierarchy also controls the display of the Catalog Reports tab on the **Tools > Run Report** command in the Common task.
- If you add new part classes after creating the Reports databases, you must re-create the Reports databases in order to report on the new part classes.

Related Topics

- Report Sheet, page 22
- R-Hierarchy Sheet, page 23

Report Sheet

The **Report** sheet in the **Reports.xls** workbook defines the locations for the report and label templates.

The upper portion of this sheet lists the valid report and label templates and descriptions. This portion is commented out with! characters at the beginning of each row, so the Bulkload utility does not read this information.

The left-most column (column A) of the sheet specifies the bulkload action taken with regard to the row. For example, an **A** in the column indicates the report or label template is being added; the letter **D** specifies the template is deleted; the letter **M** indicates the template is modified. A! symbol specifies that the row is ignored during bulkloading.

Name (Column B) - Specifies the report or label template name. This name appears in the XML for the template. This name must match the name specified on the **R-Hierarchy sheet**.

Type (Column C) - Specifies the type of template. The types include label templates, query templates, query parameters templates, report templates, and formatting templates.

Description (Column D) - Provides some descriptive text about the template.

Filename (Column E) - Shows the path to the template.

The Name column (Column B) includes the hierarchy folders shown in the Catalog task. You add new report or label templates based on where you want them to be stored within the hierarchy. To help make the hierarchy easier to read, the Report section of the sheet has a yellow background, while the Label Template section has a green background.

Notes

- For more information on modifying the **Reports.xml** workbook, refer to the *SmartPlant 3D Reference Data Guide* available from the **Help** > **Printable Guides** command in the software.
- All files must be located in the correct Symbol share for bulkloading to be successful.

Related Topics

• *Add A Report Template*, page 23

R-Hierarchy Sheet

The **R-Hierarchy** sheet maps parent and child relationships between folders and files in the Catalog Reports and Catalog Labels hierarchies.

The folder names are object names, not names that appear on the user interface. These names must be unique in the Catalog. Also, the names must match between the **Report sheet** and the **R-Hierarchy** sheet.

A parent folder can have any number of children. However, a child folder can only have one parent. A familiar example is the hierarchy of folders in Windows Explorer.

The left-most column (column A) of the sheet specifies the bulkload action taken with regard to the row. For example, an A in the column indicates the report template is being added; the letter **D** specifies the template is deleted; the letter **M** indicates the report template is modified. A! symbol specifies that the row is ignored during bulkloading.



You should copy the **Reports.xls** spreadsheet to another name before bulkloading. Once bulkloading occurs, the values in Column A will reset.

RelationSource - Specifies the parent object names. For report templates, the background is yellow. For label templates, the background is green.

RelationDestination - Specifies the child object names.



The **R-Hierarchy** sheet specifies relationships between all parent and children folders, except part classes and the classification folders right above the part classes in the hierarchy. These folders are related on the **R**-**ClassNodeDescribes** sheet. For more information, refer to the *SmartPlant* 3D Reference Data Guide accessible from the Help > Printable Guides command.

Related Topics

Add A Report Template, page 23

Add A Report Template

You can use this procedure to add label templates also.

- 1. Open the **Reports.xls** workbook.
- 2. Select the **Report** sheet.

- 3. Select a row after the **Start** keyword and within the appropriate hierarchy division, and click **Insert** > **Rows**.
- 4. In column **A**, type **A** to indicate a new report template will be added during the next bulkload.

Note

- The left-most column (column A) of the sheet specifies the bulkload action taken with regard to the row. For example, an A in the column indicates the report or label template is being added; the letter D specifies the template is deleted; the letter M indicates the template is modified. A! symbol specifies that the row is ignored during bulkloading.
- 5. In the **Name** column (Column B), type a name for the new report template. Make sure the name is unique.
- 6. In the **Type** column (Column C), specifies the type of template. The types include label templates, query templates, query parameters templates, report templates, and formatting templates.
- 7. Include a description for the report or label in the **Description** column (Column D).
- 8. Specify the report or label filename and location in the **Filename** column (Column E).
- 9. Select the **R-Hierarchy** sheet.
- 10. Specify a parent name and child name. The **RelationSource** name must match the name specified on the **Report** sheet.
- 11. Save the **Reports.xls** workbook.
- 12. Bulk load the updated **Report.xls** spreadsheet.

Notes

- All files must be located in the correct Symbol share for bulkloading to be successful.
- If you add new part classes after creating the Reports databases, you must re-create the Reports databases in order to report on the new part classes.

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