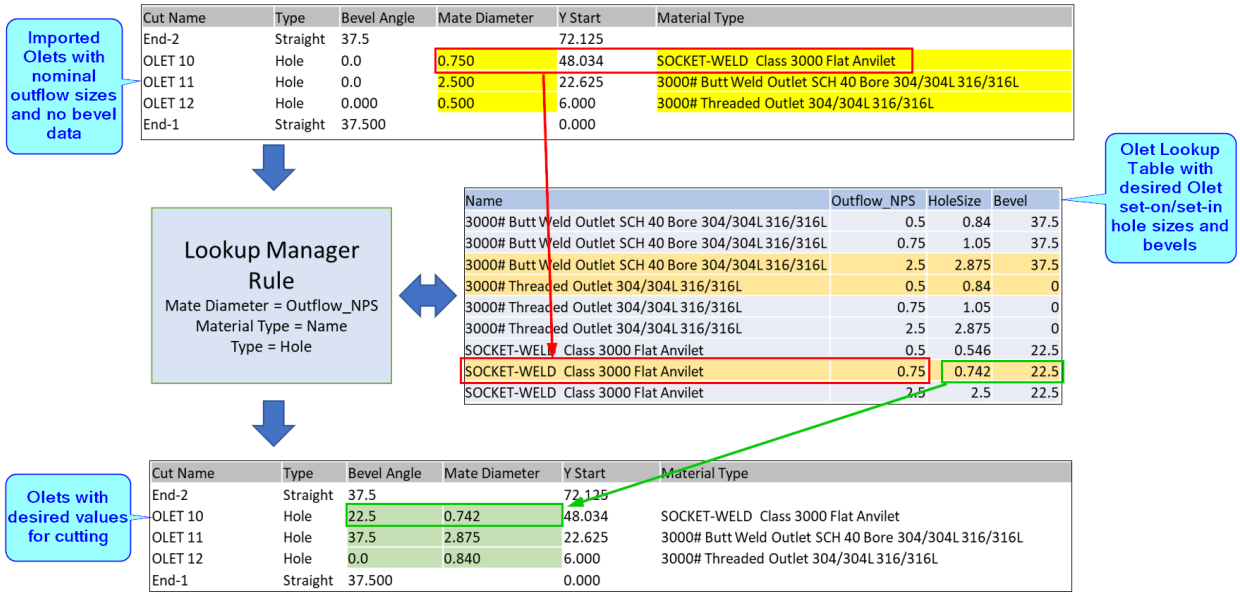
Lookup System

Introduction

The importing lookup system can be used to selectively update parts and cuts with values queried from lookup tables. One or more Lookup Rules are configured as Rule Sets to filter a list of parts, query a lookup table, and replace values in parts and cuts using the query results. Any missing replacements are displayed where they can be easily updated with new values that are saved back to the lookup table for future use.

A common use for lookups is during importing where incoming parts have holes for fittings defined with just the nominal hole size and not the needed set-on or set-in hole size for the connecting run-pipe. Lookups can refer to a table of stock fittings to update these nominal hole properties with desired cut values. For example, a hole for an Olet may be specified with a nominal size of 1” and no bevel while the Olet fitting from your preferred supplier may require a 1.315” hole with a 22.5-degree bevel angle.



Lookup System Overview

Above is an example of how a lookup rule can update cuts from a catalog of fittings.

- The rule is configured to look for just hole cuts and use their mate diameter and material type to find a match in the lookup table. A match is found when a cut’s mate diameter is equal to the lookup Outflow_NPS and the Material Type is equal to the lookup name.

- When a match is found the lookup manager will replace the cut's Bevel Angle and Mate Diameter with the values found in the lookup table.

Lookup Rule Sets and Rules

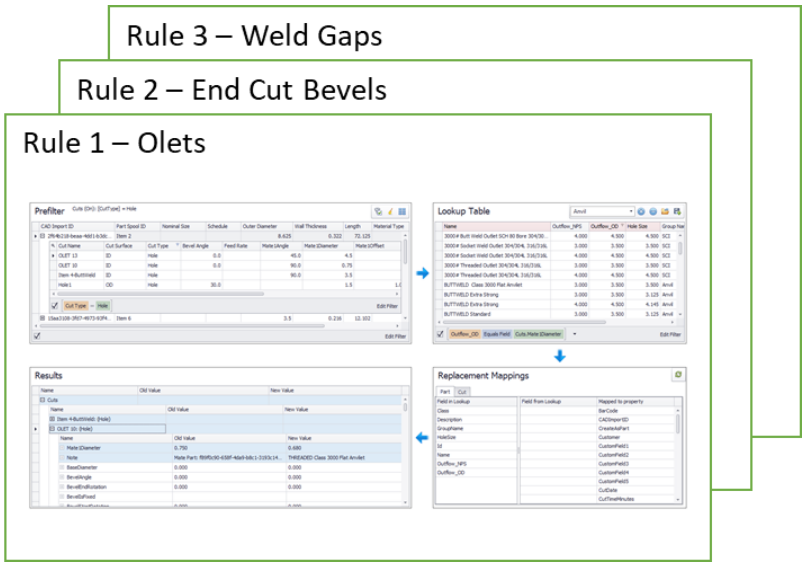
Rule Sets contain a collection of rules that define how to look up and replace part and cut values. Each rule in a rule set has configurations that define which parts should be processed, queries used to lookup values, and which part/cut properties will be replaced by the lookup results. Rules in a rule set can be disabled or reordered to adjust to changes in the supply chain.

Note: Setting up rules is often performed by PypeServer. Please contact PypeServer for help getting started.

Rule Sets

A Rule Set contains one or more lookup rules and defines how the rules are processed during an import.

- Each rule is processed in sequential order, i.e., rule 1 is processed before rule 2 and before rule 3.
- Rules can be re-ordered or disabled to change how rules are applied during import.
- The rule set supports two search and replace methods:
  - Once a part or cut has been updated, do not update it again in later rules.
  - Once a part or cut has been updated, allow later rules to update it again.
  - See "Lookup System – Editing" in the training section for details.



A Lookup Rule Set

Rules

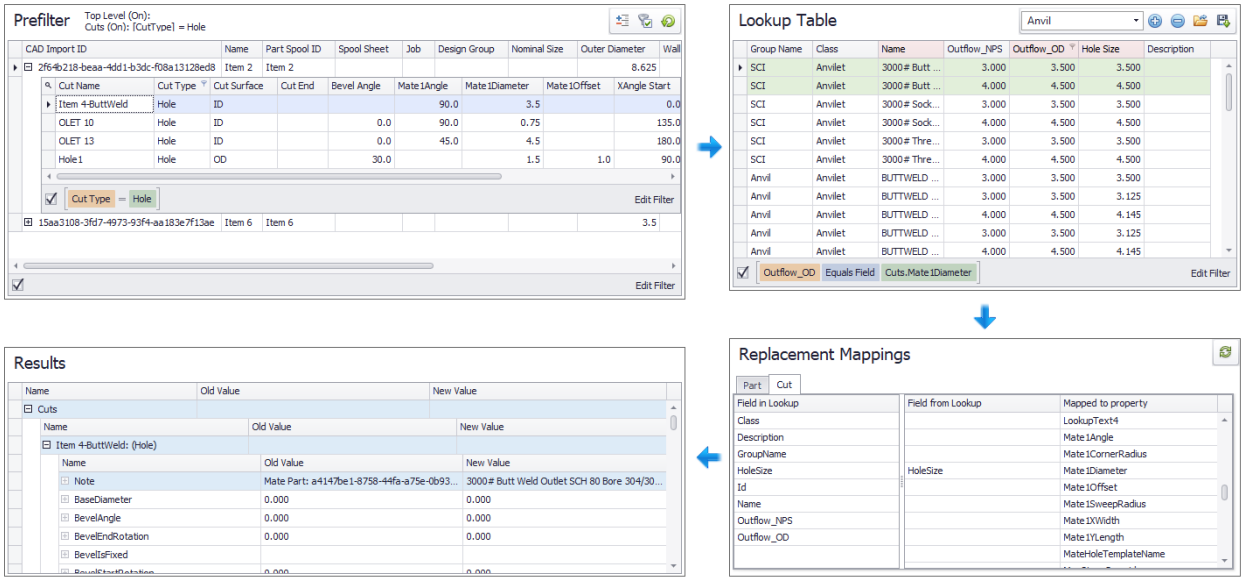
A Lookup Rule has three sections, an optional source prefilter, a lookup filter and a replacement mapping set. These three sections work together to process each part and cut through the rule during importing.

The optional prefilter is used to filter parts and cuts down to just those that should be processed. This allows the Lookup Processor to ignore parts that should not be processed which reduces the lookup load

and improves overall lookup rule performance. For example, prefilters may exclude parts without hole cuts or parts made of copper.

The lookup filter is required to locate replacement values and contains a set of conditions used to a find replacement values from a lookup table. Custom field filters allow for comparing part/cut field values to those in the lookup table to find replacement values.

A Replacements mapping set is required to update parts and cuts. When one or more lookup table rows meeting the lookup filter conditions are found, the replacement process will update the values from the lookup table. The mapping set is automatically configured to match the currently selected lookup table and should be reset when a different lookup table is selected.

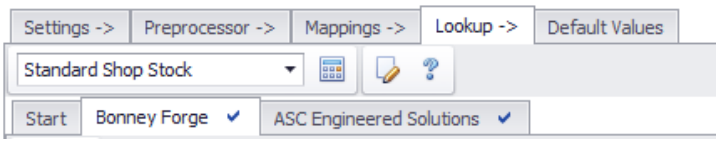


A Lookup Rule

Lookup Manager

The Lookup Manager is integrated into the Import Manager as an optional step in the importing workflow. It uses the Lookup Processor to process a list of parts using a Rule Set containing one or more rules. During importing each part is processed through a rule and updated when a lookup match is found. All parts are then passed on to the next rule until all rules in the Rule Set are processed.

Lookup Manager Toolbar



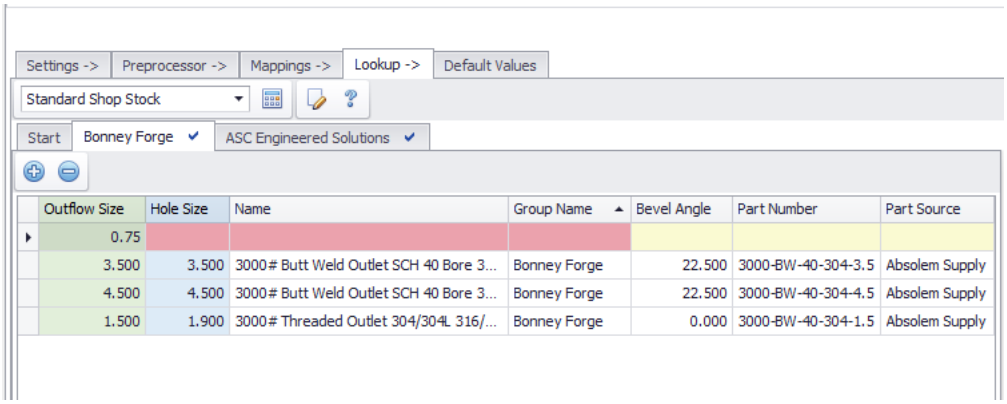
Lookup Manager Toolbar

The toolbar dropdown contains all saved rule sets and a Calculate button causes the Import Manager to recalculate all lookups based on recent lookup table changes. The Editor button provides access to two different editors. The default Results Editor view is used during importing while the “Rule Set Editor”

view is password protected and used only for editing rules and lookup tables. Rules can be enabled and disabled clicking on rule tab checkmark.

Results Editor

After importing and lookup processing has been completed, each rule in the Lookup Manager displays a list of lookup results found during processing. Source and replacement fields used by the lookup filter are color coded. Any failed lookups are shown as new rows that can be edited. Any changes are automatically saved back to the lookup table for later use.



Outflow Size	Hole Size	Name	Group Name	Bevel Angle	Part Number	Part Source
0.75						
3.500	3.500	3000# Butt Weld Outlet SCH 40 Bore 3...	Bonney Forge	22.500	3000-BW-40-304-3.5	Absolem Supply
4.500	4.500	3000# Butt Weld Outlet SCH 40 Bore 3...	Bonney Forge	22.500	3000-BW-40-304-4.5	Absolem Supply
1.500	1.900	3000# Threaded Outlet 304/304L 316/...	Bonney Forge	0.000	3000-BW-40-304-1.5	Absolem Supply

Lookup Manager – Results Editor

Using Lookup Rules during import

The Lookup Manager dropdown selects the rule set to use during import. When a rule set is selected the Import Manager will load the rule set into the Lookup Processor and during import will pass the output from the importer to it for rule processing.

After lookup processing has been completed, a Results Editor for each rule in the Lookup Manager shows a list of rows found in the lookup table during processing. Fields that contain search values from parts and cuts used by the lookup filter are colored green while those used for replacement values are blue. Any source values that have failed lookups are shown as new yellow rows with empty required fields highlighted in red.

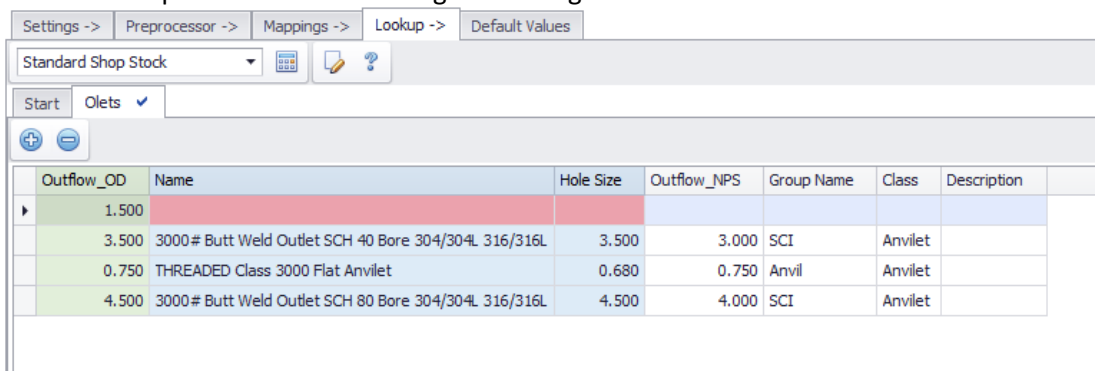
Each new row represents a potential new entry in the lookup table. These rows will have one or more green columns containing the unique source values found by the rule lookup filter. When these source values match a known Olet or other fitting then missing values for that fitting can be filled in. Rows can be added and removed using the toolbar buttons and all changes are automatically saved back to the lookup table. After lookup result rows have been edited click the Calculate button in the Lookup Manager toolbar to recalculate the lookup rules and update the staged parts and cuts with any changes.

Example

A lookup rule set named “Standard Shop Stock” containing 1 rule was previously created that uses a lookup table containing a list of standard fittings normally used by the shop. A detailer needs to import a CAD file from a customer and set all Olet hole sizes using the rule set.

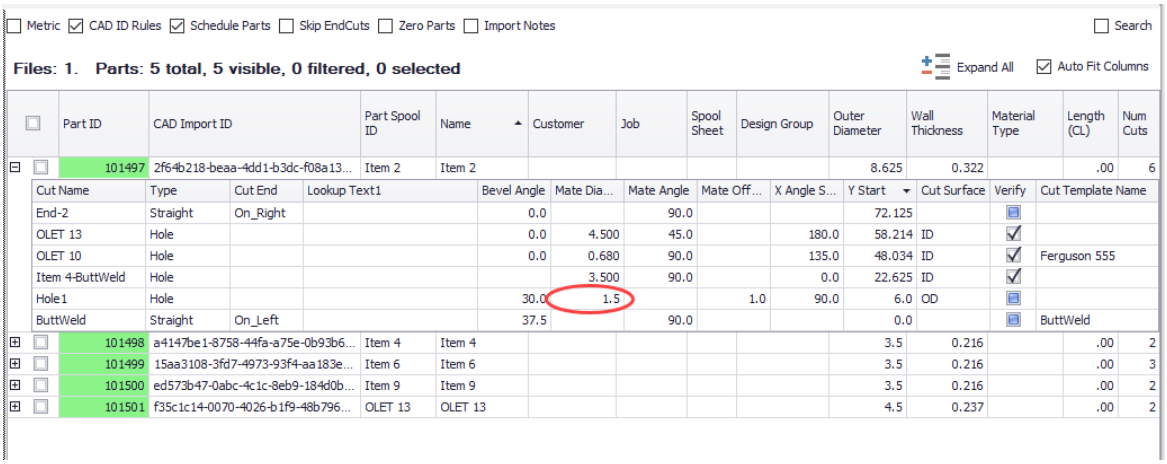
1) The detailer uses the Importer Manager to load the rule set “Standard Shop Stock” and import the CAD file. After import the Lookup Manager displays the rule’s Results Editor for review as shown

here. The detailer sees that 4 Olets have been found in the CAD import and 3 have been updated from the lookup table. The empty row indicates the CAD file contains an Olet with 1.500 diameter, but the lookup table has no matching Olet fitting for this size.



Outflow_OD	Name	Hole Size	Outflow_NPS	Group Name	Class	Description
1.500						
3.500	3000# Butt Weld Outlet SCH 40 Bore 304/304L 316/316L	3.500	3.000	SCI	Anvilet	
0.750	THREADED Class 3000 Flat Anvilet	0.680	0.750	Anvil	Anvilet	
4.500	3000# Butt Weld Outlet SCH 80 Bore 304/304L 316/316L	4.500	4.000	SCI	Anvilet	

Results Editor – 3 found rows and 1 new row



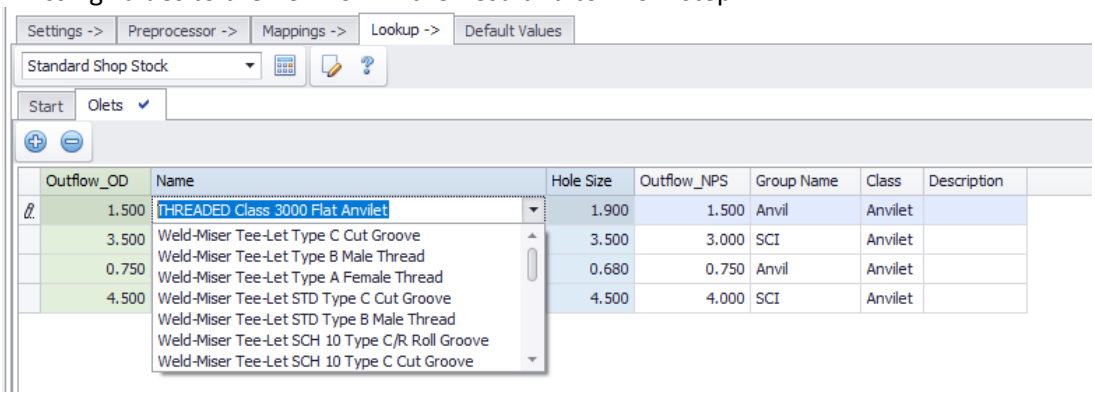
Part ID	CAD Import ID	Part Spool ID	Name	Customer	Job	Spool Sheet	Design Group	Outer Diameter	Wall Thickness	Material Type	Length (CL)	Num Cuts
101497	2f64b218-beaa-4dd1-b3dc-f08a13...	Item 2	Item 2					8.625	0.322		.00	6

Cut Name	Type	Cut End	Lookup Text1	Bevel Angle	Mate Dia...	Mate Angle	Mate Off...	X Angle S...	Y Start	Cut Surface	Verify	Cut Template Name
End-2	Straight	On_Right		0.0		90.0			72.125		☐	
OLET 13	Hole			0.0	4.500	45.0		180.0	58.214	ID	☑	
OLET 10	Hole			0.0	0.680	90.0		135.0	48.034	ID	☑	Ferguson 555
Item 4-ButtWeld	Hole				3.500	90.0		0.0	22.625	ID	☑	
Hole 1	Hole			30.0	1.5		1.0	90.0	6.0	OD	☐	
ButtWeld	Straight	On_Left		37.5		90.0			0.0		☐	ButtWeld

Part ID	CAD Import ID	Part Spool ID	Name	Customer	Job	Spool Sheet	Design Group	Outer Diameter	Wall Thickness	Material Type	Length (CL)	Num Cuts
101498	a4147be1-8758-44fa-a75e-0b93b6...	Item 4	Item 4					3.5	0.216		.00	2
101499	15aa3108-3fd7-4973-93f4-aa183e...	Item 6	Item 6					3.5	0.216		.00	3
101500	ed573b47-0abc-4c1c-8eb9-184d0b...	Item 9	Item 9					3.5	0.216		.00	2
101501	f35c1c14-0070-4026-b1f9-48b796...	OLET 13	OLET 13					4.5	0.237		.00	2

Import Manager – Staged Parts and Cuts

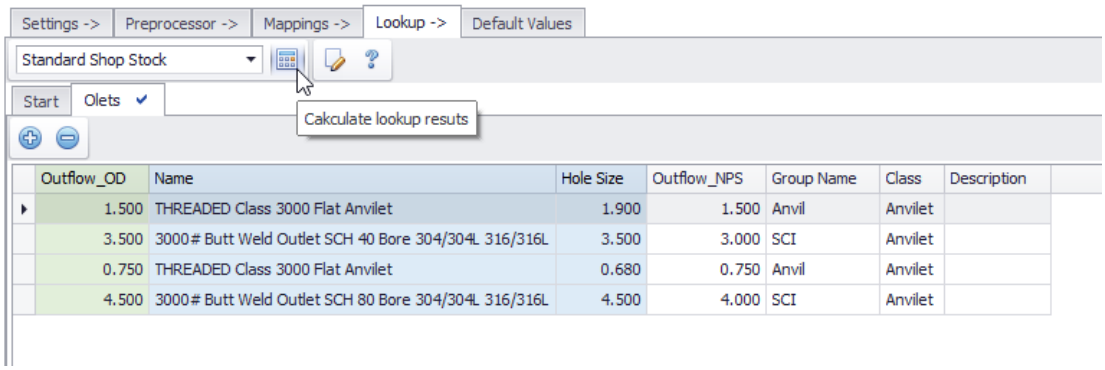
2) The detailer finds another Olet can be substituted and using the Olet data sheet they add the missing values to the new row in the Result Editor from step 1.



Outflow_OD	Name	Hole Size	Outflow_NPS	Group Name	Class	Description
1.500	THREADED Class 3000 Flat Anvilet	1.900	1.500	Anvil	Anvilet	
3.500		3.500	3.000	SCI	Anvilet	
0.750		0.680	0.750	Anvil	Anvilet	
4.500		4.500	4.000	SCI	Anvilet	

Results Editor – Edit new row

3) The Calculate button is then clicked to update the staged parts in the Import Manager.



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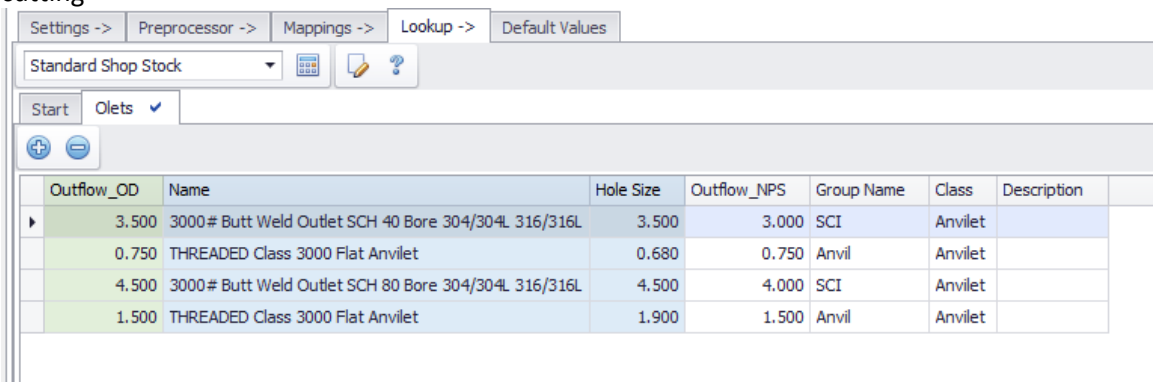
3.500	3000# Butt Weld Outlet SCH 40 Bore 304/304L 316/316L	3.500	3.000	SCI	Anvilet	
0.750	THREADED Class 3000 Flat Anvilet	0.680	0.750	Anvil	Anvilet	
4.500	3000# Butt Weld Outlet SCH 80 Bore 304/304L 316/316L	4.500	4.000	SCI	Anvilet	

Results Editor – 3 found rows

4) The detailer then reviews the Results Editor and the updated staged parts in the Import Manager. After confirming the updated values, they import the staged parts into Enterprise for scheduling and cutting



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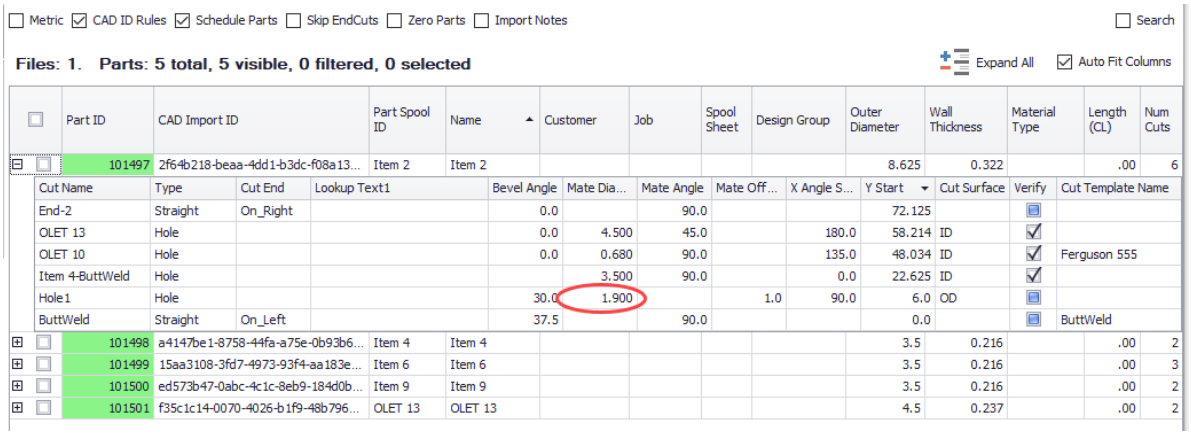
0.750	THREADED Class 3000 Flat Anvilet	0.680	0.750	Anvil	Anvilet	
4.500	3000# Butt Weld Outlet SCH 80 Bore 304/304L 316/316L	4.500	4.000	SCI	Anvilet	
1.500	THREADED Class 3000 Flat Anvilet	1.900	1.500	Anvil	Anvilet	

Results Editor – 4 found rows and no new rows



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Cut Name	Type	Cut End	Lookup Text1	Bevel Angle	Mate Dia...	Mate Angle	Mate Off...	X Angle S...	Y Start	Cut Surface	Verify	Cut Template Name
End-2	Straight	On_Right		0.0		90.0			72.125		☑	
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Item 4-ButtWeld	Hole				3.500	90.0		0.0	22.625	ID	☑	
Hole 1	Hole			30.0	1.900		1.0	90.0	6.0	OD	☑	
ButtWeld	Straight	On_Left		37.5		90.0			0.0		☑	ButtWeld

Part ID	CAD Import ID	Part Spool ID	Name	Outer Diameter	Wall Thickness	Length (CL)	Num Cuts
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101499	15aa3108-3fd7-4973-93f4-aa183e...	Item 6	Item 6	3.5	0.216	.00	3
101500	ed573b47-0abc-4c1c-8eb9-184d0b...	Item 9	Item 9	3.5	0.216	.00	2
101501	f35c1c14-0070-4026-b1f9-48b796...	OLET 13	OLET 13	4.5	0.237	.00	2

Import Manager – Staged Parts and Cuts

Configuring Rule Sets and Rules

Editing rule sets is an advanced topic that requires a solid understanding of PypeServer importing concepts. Please see “Lookup System – Editing” in the Training section for details on how to use the “Rule Set Editor” and “Lookup Rule Editor” to manage rule sets and their rules.