

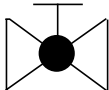
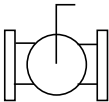
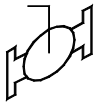
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Symbols Editor

Introduction

The Symbols Editor is supplied to allow users of Alias products to quickly redefine the standard shapes of components that are plotted on the isometric. The program allows the user to graphically create/modify a component on screen and to pass the new information when generating the isometric.

For Example:

Standard Isogen Shape	Redefined Isogen Shape	Isometric view
		

Understanding SKEY's

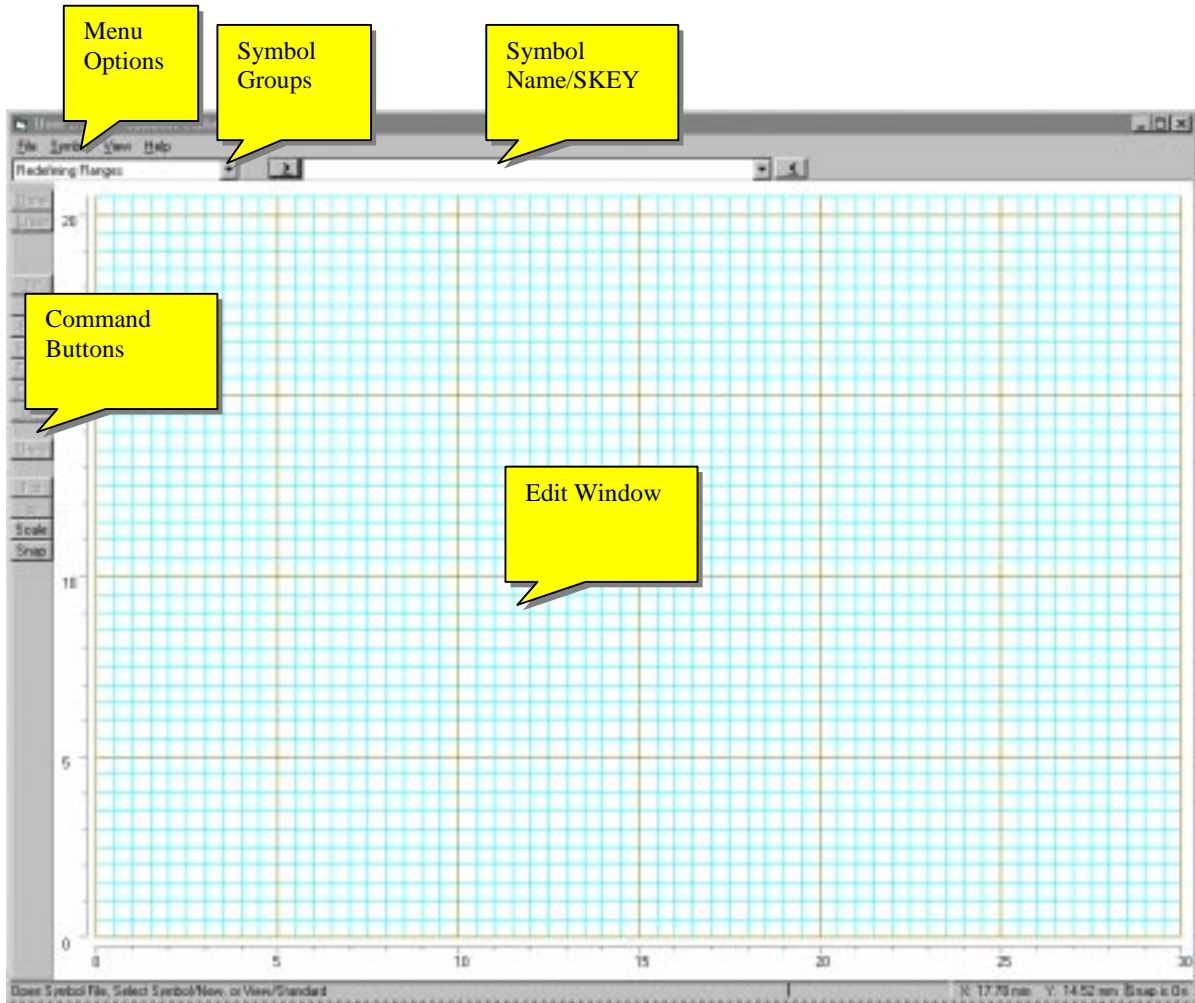
All components generated by Isogen are defined by a unique code called an SKEY (symbol key). All components have a 2 to 4 letter SKEY, the first two characters define the type of component it is and if the component can have different end types such as flanged, butt weld, screwed etc. then these are defined by the last two characters. For example please see the table above, this demonstrates the redefinition of a globe valve which has an SKEY of VGFL.

A redefined symbol can have an SKEY of an existing component or a new user defined unique SKEY. If using an existing SKEY then all these components will take on the new plotted shape. But if a user defined SKEY is assigned it means new component shapes can be processed, although user defined SKEY's must be based on an SKEY of an existing component.

Using the Symbols Editor

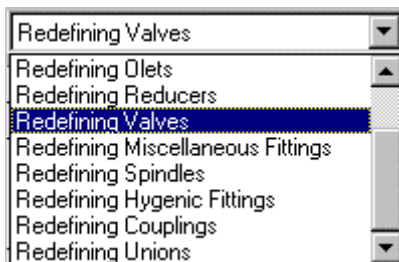
When starting the symbols editor you are prompted with a screen as shown below, this is the main working window and is divided into areas.

- **Symbol groups** are divided into logical categories according to type of component.
- **Symbol Name** contains the individual SKEY code
- **Menu options** contain the available options from the pull down menu.
- **Command buttons** contain the options available for editing/creating the symbol.
- The **Edit window** contains the current symbol and is the main area for "drawing" the symbol.

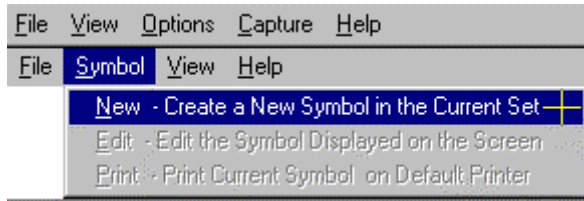


Defining A New Symbol

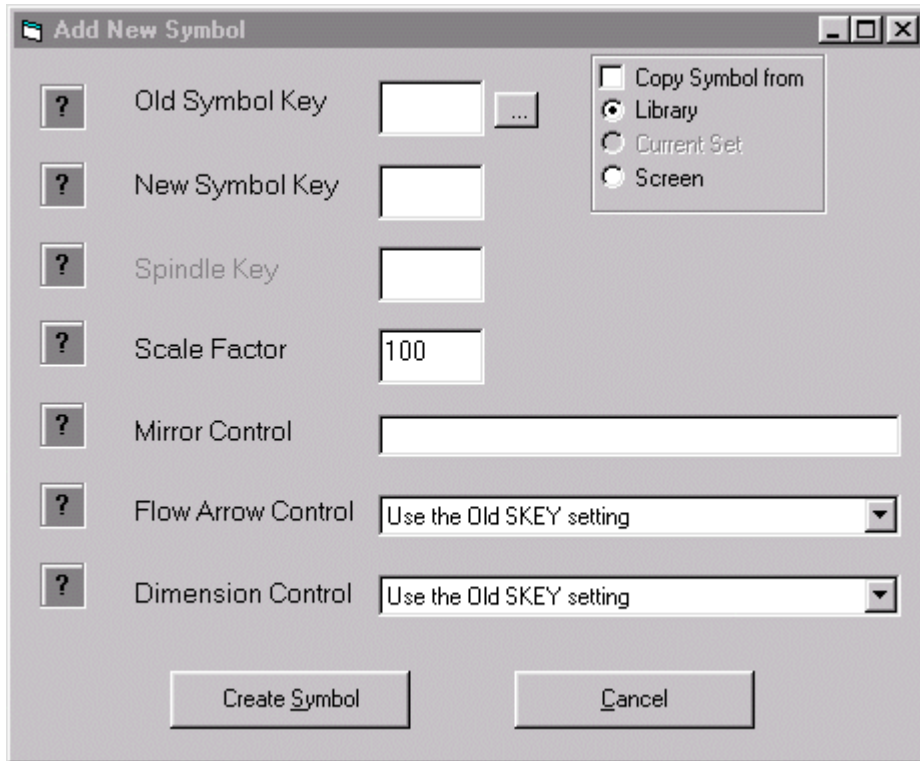
In this section we will guide you through redefining the Globe Valve shown in the table above. The first step to defining a new symbol is to select the appropriate group from the **Symbol Groups** list:



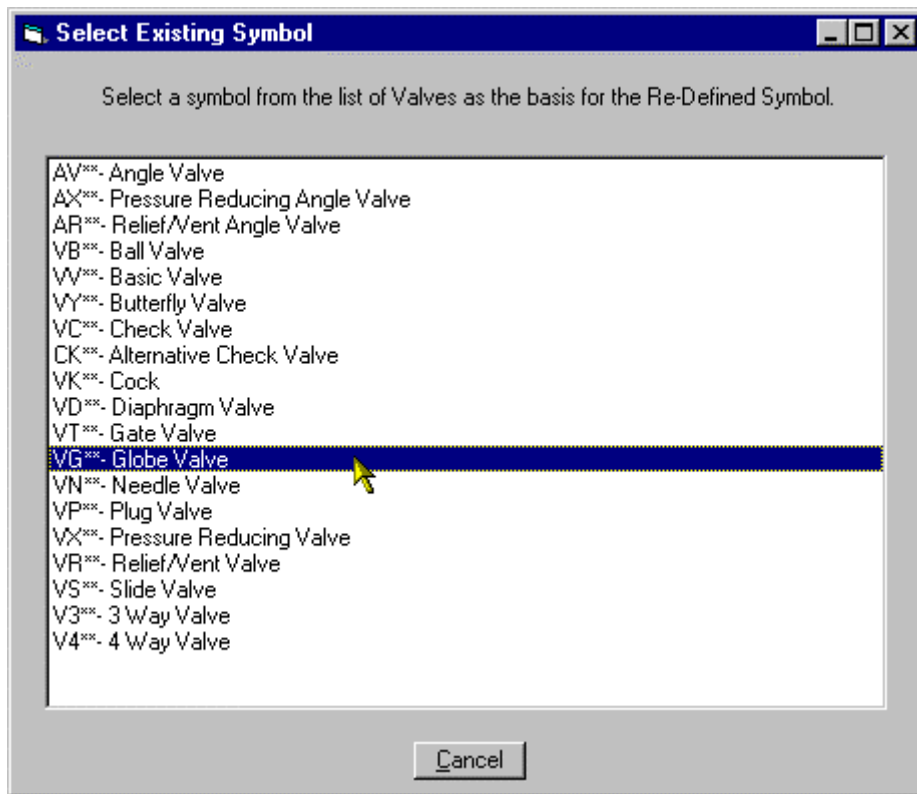
Now select Symbol > New from the **Menu Options**:



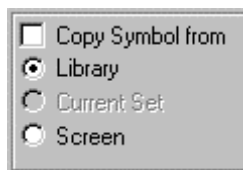
You will then be prompted with the dialogue below.



This is the dialogue where you set the properties for your new symbol. You must now specify an old SKEY to identify the standard symbol that the new symbol will be based on. Depending on the group you selected you will be constrained to specify an old SKEY from that particular group only, if you find you are in the wrong group you can re-select the correct group from the Symbol Group menu. You can now either directly type in the old SKEY code or you can click on the button to the right of the old SKEY field and select the appropriate SKEY from the available list.



Next to the old SKEY field you will find a frame containing a check box and two options:



These controls allow you to copy a symbol into the edit window as a basis for your new symbol. You can copy from the Isogen library of standard symbols or if you have already created a new shape based on the old SKEY and this is held in the current set of symbols in memory, you can choose to copy this shape rather than the library shape. If you want to copy an existing shape, simply click in the Check Box then select the option to copy from Library or Current Set and the shape will be copied into the Edit Window where it can be modified as required. If the selected old SKEY can not be found in the Current Set when requested, a message will be given and you will have the chance to deselect the copy, choose copy from Library, or change the old SKEY. If there is more than one instance of symbols based on the selected old SKEY within the Current Set, the first instance will be selected if copy from Current Set is requested.

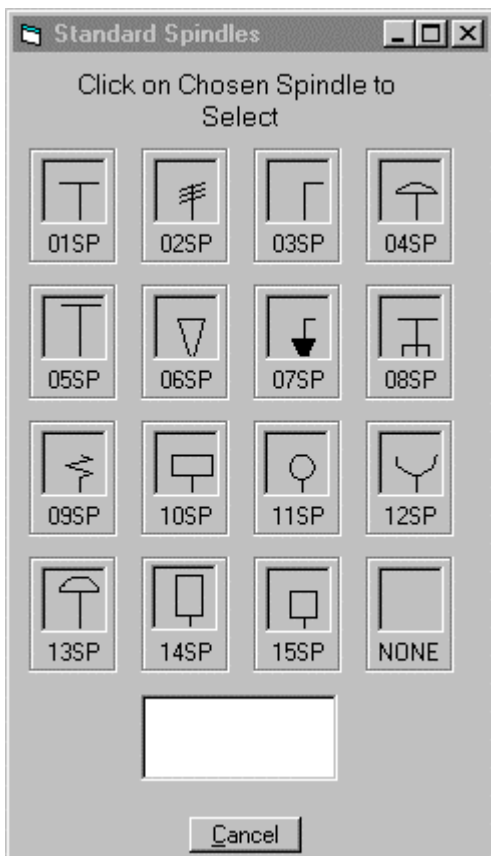
Next you have the option to specify a New Symbol Key. Leave this blank if you wish to REPLACE the standard SKEY with your new one. If however you wish to add a new SKEY and still have the original one available, you should enter a new unique SKEY of 2 to 4 characters taking care to avoid any SKEY already used for either a standard Symbol or any other User Defined Symbol you have created in the current file. The rules for naming New SKEY's are as follows:

New SKEY Naming Rules:

1. New SKEY cannot be the same as any standard SKEY.
2. If old SKEY is "***" type then New SKEY must have last two characters which describe a standard End Condition or "***".

3. If old SKEY is "***" type then New SKEY must not have the same first 2 characters as the old SKEY.
4. If the old SKEY and the New SKEY have the same first two characters then the last two characters of the New SKEY must not match any of the standard End Conditions as this could be interpreted as a Standard SKEY.
5. If the first 2 characters of the New SKEY do not match the Old SKEY then they must not match any other Standard SKEY.
6. The New SKEY must not match any other New SKEY in the current set.

Next, because we have selected an old SKEY that can have a Spindle, you have the option to specify a Spindle SKEY to be used with the new Symbol. Once again you can enter the Spindle SKEY directly if you know it or click on the button to the right of the text box. You will then be presented with a list including all the available standard Spindles. Select the spindle SKEY 03SP.



Click on the Spindle you wish to use, or alternatively you can select from the drop down box to use any Spindle SKEY that you have already re-defined in the Current Set. If you wish to remove the standard Spindle from the "Old Symbol Key" and not replace it, click on the Blank Picture window (NONE). Note that certain Symbols cannot have Spindles and if one of these has been selected the Text box and Browse Button for specifying Spindles will be disabled.

You now have the option to specify 4 more parameters:

- **Scale Factor**
The Scale Factor has a default value of 100%. Entering a value greater or less than 100% will cause the Symbol to be scaled up or down accordingly on the Isometric.
- **Mirror Control**
Orientation can either be mirrored or symmetrical, the mirror property specifies whether or not the symbol is symmetrical and therefore whether ISOGEN will prepare a "mirrored" version for display on

the isometric. Symmetrical components look the same each way and have no special logic associated with their ends.

- **Flow Arrow Control**

Flow Arrow Control is used to determine whether or not a flow arrow is added to the symbol. Certain standard symbols have flow arrows built in by default and these are plotted adjacent to the component on the Iso unless flow arrows are turned off with Option Switch 17.

- **Dimension Control**

Dimension Control is used to control how fitting symbols are dimensioned. If the setting is selected to use the old SKEY then its properties will be inherited. The other settings will override the properties of the old SKEY e.g. if Dimensions Off is selected, dimensions will be suppressed regardless of the standard actions. Please note however, that the option switches controlling dimensions will still be obeyed.

The dialogue should now look like the diagram below, when you are satisfied with the data entered, click Create Symbol to clear the Add New Symbol dialogue and begin drawing the symbol.

The screenshot shows the 'Add New Symbol' dialog box with the following settings:

- Old Symbol Key: VG^{ack}
- New Symbol Key: (empty)
- Spindle Key: 03SP
- Scale Factor: 100
- Mirror Control: Symbol is Symmetrical
- Flow Arrow Control: Flow Arrow On
- Dimension Control: Use the Old SKEY setting

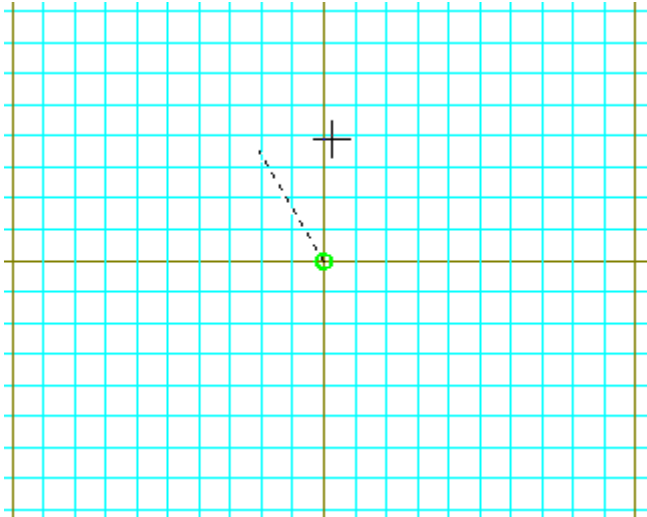
On the right side, the 'Copy Symbol from' group box has the following options:

- Copy Symbol from:
- Library:
- Current Set:
- Screen:

Buttons at the bottom: Create Symbol, Cancel

Drawing the Symbol

The **Edit Window** comprises a drawing grid and to the left, several **Command buttons** that allow you to create new symbols in the form required by ISOGEN. You must begin each Symbol with a Start Point that is the first Connect Point that ISOGEN will use when drawing tube or other Symbols connecting to this Symbol. The Editor will automatically start in this mode so the first move you should make is to position the mouse pointer and click the left mouse button to place the Start Point.

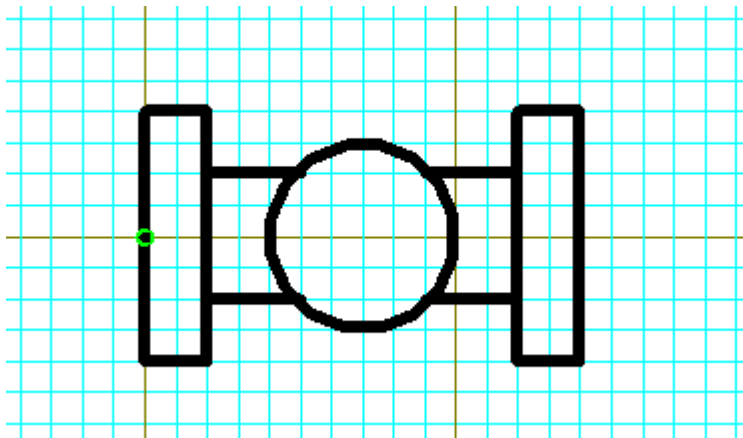


The first point placed will default to be the Start Point of the symbol.

You should allow enough space to the left and below the Start Point to accommodate the entire symbol as you draw it, although you can move the Symbol later (Move Symbol from the menu) if you need more space. A small green circle indicates the start point.

Having placed the Start Point the Editor will automatically change to 'line drawing mode' and will assume that you wish to draw a line from the Start Point. (If you do not want to draw from the Start Point just click on the right mouse button and you can then move to a new point then click the right mouse button to start drawing again.) Once a line has been started, a dotted "stretch line" is shown from the start point of the line to the current mouse position. Move the cursor to the end point of the line and click the left mouse button. You can continue to move to new end points and click the left mouse button to draw as often as you like. When you come to the point where you wish to stop drawing, press the right mouse button. You can now move the cursor about the screen without drawing.

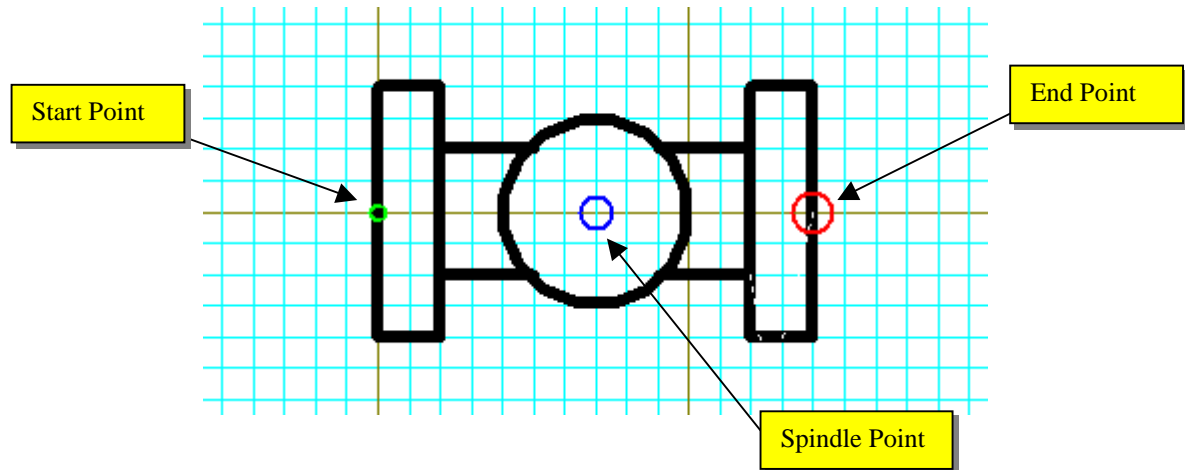
When you wish to start drawing again, move the cursor to the start of the new line and press the left mouse button. You can now move to the end point of the line and draw as described above. Now add more detail to the symbol.



Construction of the symbol using lines & circles.


When you are satisfied with the shape of the symbol you must place an End Point, that is the exit Connect Point to which ISOGEN will attach tube or other Symbols. To place an End Point, press the "End" button then move to the required location and press the left mouse button. You can only have one End Point per Symbol and the Editor will not let you save the Symbol without an End Point. The end point is indicated by a small red circle.

If you specified a Spindle SKEY on the Add New Symbol dialogue, or the old Symbol Key that you specified uses a Spindle and you have not suppressed it by selecting NONE, then you must also indicate the Spindle connection point by pressing the “SP” button and indicating the location by pressing the left mouse button. You may only have one Spindle connection point per Symbol. A small blue circle indicates the spindle point.



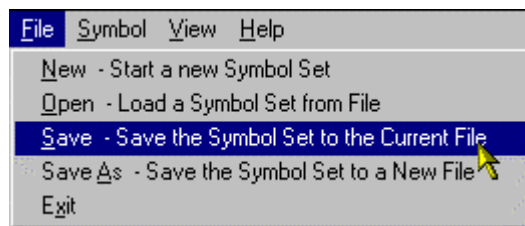
This symbol now has all the detail required.

Completing the procedure

When you have finished constructing the Symbol, press “**Done**”  and the Editor will validate the symbol and then copy it into its internal storage system.

Please note that the symbol has not yet been written to a file. This is a separate step after you have finished creating and or editing a batch of symbols for a given file, (known as the Current Set).

At regular intervals it is recommended you save the file by selecting File > Save from the Menu options:



When you save the file for the first time it will prompt you for a filename, this will save the file as:

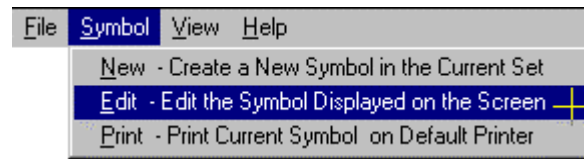
- An ASCII file which can be later re-opened and edited to create/modify more symbols
- A Binary file which is the binary equivalent of the ASCII file but this is the file that is read by Isogen to re-define the plotted symbols

(for more information about this see the section “Producing an isometric with your new symbols”)

When you are finished creating in this session select Exit from the same menu to leave the program.

Editing an Existing Symbol

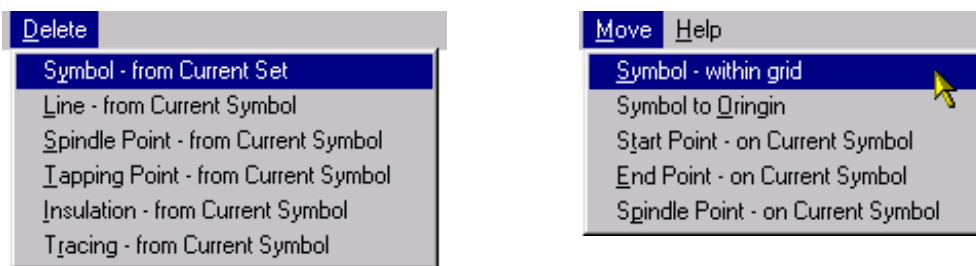
You can edit any existing Symbol which has either been read from a file or created earlier in the current session, to do so display the symbol on the screen (select View Current Set from menu, then choose from right hand list) and then selecting Symbol > Edit:



This will bring up the Edit Symbol dialogue (which is similar to the Add New Symbol Dialogue) in which you can change the various parameters specified when the Symbol was created.

Note that if you wish to change the old Symbol Key to one which is in a different Group you must first change group by selecting from the drop down box.


When you are satisfied with the settings, select Edit Symbol and the Edit Symbol dialogue will disappear. You are now in edit mode and two extra items will appear in the menu (Delete and Move).



The default condition for edit mode enables all the drawing methods described under **Defining a New Symbol** above.

If you select Delete a sub-menu will give options to Delete the whole Symbol from the Current Set or allow you to select various items that can be deleted from the current Symbol. (Line, Spindle Point, Tapping Point, Insulation, and Tracing) The Guide Field will tell you what to do in each case. When in the Delete mode the Command buttons used to add items to the Symbol are all disabled. You can stay in this mode for several operations e.g. to delete several lines. If you want to quit Delete mode, simply select another menu item or press the Right mouse button.

Similarly if you select Move the second drop down menu will appear and give you the options to move the complete symbol around the drawing grid, or move the Start Point, the End Point, or the Spindle Point within the Symbol. In this case the next click of the Left Mouse button on the screen will determine a new position for the selected Point. You will then stay in "move mode" for the selected Point and can continue to move it around by clicking the Left button until you select another action from the menu, or any of the drawing methods described above, or press the Right button to cancel the move and revert to the Line Drawing Mode.

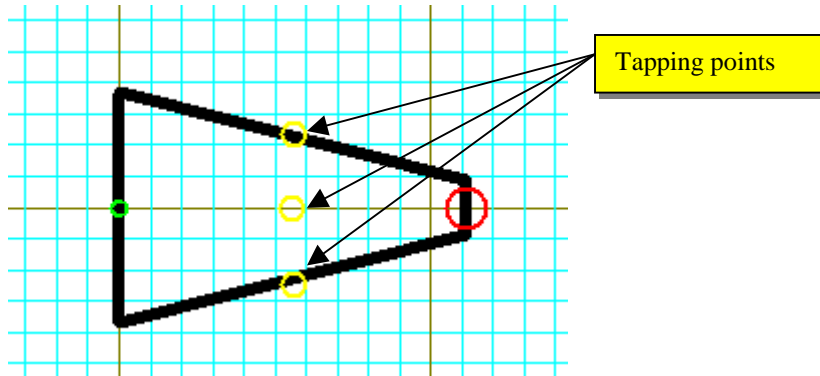
When you have finished editing the symbol, press “**Done**”  from the **Command Buttons** and the Symbols Editor will validate the Symbol and then re-save it to the internal storage system.

Please note that if you have used Undo, the End Point will have been deleted by the first Undo and if there was a Spindle Point this will have been deleted by the second Undo. You must therefore replace the End Point and Spindle Point if required, before the symbol is re-saved.

Other Features

Tapping Points

In addition to drawing lines and placing an End Point or a Spindle Point, the editor also allows you to place up to 9 Tapping Points (use the “**TP**” button), Tapping points are indicated by a small yellow circle.



Above is a concentric reducer shown with the maximum of three tapping points.

There are, however, some rules about the use of Tapping Points. In placing them you should imagine vertical and horizontal axes through the middle of the symbol. You may now position Tapping Points as follows:

- No more than three Tapping Points may be on the vertical axis
- No more than three Tapping Points may be to the left of the vertical axis
- No more than three Tapping Points may be to the right of the vertical axis
- No more than three Tapping Points may be on the horizontal axis
- No more than three Tapping Points may be to the left of the horizontal axis
- No more than three Tapping Points may be to the right of the horizontal axis

The Symbols Editor does not check these rules so you must take care yourself.

Insulation & Tracing

You can also add insulation & tracing to your symbol which is represented by dotted and dashed lines to indicate respectively, to see the effects of this feature on the plotted isometric you must set option switches 61 & 62 accordingly. This feature should be self-explanatory and can be easily mastered with a little practice.

Arcs & Circles

Arcs & circles can also be drawn in the symbols editor, all symbols must be created entirely from straight lines, therefore the symbols editor creates arcs & circles as a series of straight lines connected together. This will become evident if you try to undo a circle or arc command, as it will remove segments of the circle/arc one by one.

Using the Undo feature

If you make a mistake during creation of a symbol, each Click on the “**Undo**” button will delete the last stored action. In this way you can "wind back" to before the mistake and then rebuild the Symbol. The undo command only undoes actions such as drawing lines, circles/arcs and placing start/end/spindle and tapping points it does not undo commands such as moving or flipping the symbol.

Some Useful Tips

- Use the right mouse button to refresh the screen or to cancel a current command.
- In most scenarios try and use snap on, this enables connecting points easier.
- When creating arcs make sure you don't create with more than 180 degrees, this is not allowed in the editor, if this is required create it in parts from the same centre point, this will work better with snap on.
- Don't make symbols too large, examine some of the standard Isogen symbols and try to create your own to a similar size.
- You can produce Hangar symbols by redefining spindles. See the relevant section for more details.
- Always place your start point to the left of the redefined symbol.

Configuring the Symbols Editor

Supplied with the symbols editor is a file called symbols.cfg, this file allows the user to customise the Symbols Editor by defining the values of certain settings that will override the program defaults. It is recommended that most of these settings should not to be modified unless the user fully understands the rules applying to Isogen symbols. There is however a part of the Symbols.cfg file which should be explained to help understand the procedure for transferring the correct information to your Alias application.

Below is an extract from the symbols.cfg file

```
WriteBin = 1
!Set WriteBin = 1 to create Binary Files as well as ASCII files. Set = 0 for ASCII only
BinFormat = 0

!Set BinFormat = 0 for Binary files for PDS on NT, Personal ISOGEN on NT, PASCE on Intel NT.
!Set BinFormat = 1 for Binary files for any DOS ISOGEN or SPOOLGEN implementation plus NT
SPOOLGEN.
!Set BinFormat = 2 for Binary files for CLIX systems
!Set BinFormat = 3 for Binary files for VAX VMS systems
```

The first section "WriteBin" tells the symbols editor whether or not to save a Binary file when you save the ASCII file, if set to =1 it will save a binary file, if set to =0 it will not save a binary file. For virtually all cases this setting should be set to 1

The second section "BinFormat" tells the symbols editor what type of binary file to save, while the basic format is the same, different operating systems require slightly different information in a binary file. It is therefore necessary to set the BinFormat to suit your system.

In most cases the user will not need to modify this file as it is pre-set to suit the most common operating systems.

Producing an Isometric with your new Symbols

As explained above redefined symbols are passed to Isogen via a binary file which is automatically created when you save the ASCII file in the symbols editor. So in practice you use the ASCII file to create/modify symbols in the Symbols Editor and when you save the file you transfer the resultant binary file to the system.

Depending if your system is IDF or PCF based determines how to transfer the redefined symbols binary file to your isometrics.

Symbols Editor

- If using an IDF based system you must add an -103 entry in the files section of your OPT file like below:

Files	File Type
-----	-----
-103 /C:\PROJECT\SYMBOLS.BIN	! Symbols File

- If using a PCF based system you must add an entry in the FLS file like below:

BINARY-SYMBOLS	C:\PROJECT\SYMBOLS.BIN
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The next time you run an isometric with these new entries the isometric will show the new/modified symbol(s).