Customizing Units

If you did not find a suitable Using Units in the standard libraries (ISO-80000), you can:

- Creating a custom Value Type
- Creating custom Unit

Creating a custom Value Type

If you want to use a different Value Type than our library provides, you can create a custom Value Type and specify a desired Using Units for it from the ISO-80000 package.

To create a custom Value Type

1. Select a package in the Containment tree where you want to create a new Value Type.
2. Right-click it and select **Create Element**.
3. In the opened dialog, search for a Value Type and select it.
4. Type its name in the following syntax: quantity name[unit name]. (e.g. volume[liter]).
5. Press Enter.
6. Double-click the newly created Value Type to open its Specification window.
7. In the Specification window, specify the Unit property value:

    a. Click ⬚.
    b. In the **Select Instance Specification** dialog, clear the **Apply Filter** box.
    c. Make sure the ISO-80000 library is loaded in your project.

    > ⊘ **Warning**
    > If the ISO-80000 library is not uploaded in your project, you can load it directly in the **Select Instance Specification** dialog by clicking the **Load button.**

    d. Select the required Unit from the ISO-80000 package (e.g.litre).
8. Click **Close.**
   The new Value Type is defined in your project and can be used as a type for a Value Property.

Creating custom Unit

If you need to use imperial units (e.g. inch, foot, mile) or other units that are not defined in the ISO-80000 standard, you can create a custom Unit in your project. A Using Units must always be related to a Quantity Kind, but a Quantity Kind need not have any associated Units. Often equations can be expressed in terms of quantities that include Quantity Kinds without specifying Units.

To create a custom Unit

1. From the Block Definition Diagram palette, expand the **Value Type** button and select the **Unit** button.

    > ⚠ If you do not see the Unit button, make sure the **Expert Mode** is turned on.

2. Click the mouse pointer on the diagram pane. The **Select Classifier** dialog opens automatically.
3. In the **Select Classifier** dialog, find the *Unit* Block, double-click it to select and click **OK**. The new Unit is created.
4. Type its name (e.g. mile).
5. Double-click the Unit shape to open its Specification window.
6. In the Specification window specify:
   - The **Quantity Kind** property value:

        a. Click ⬚.
        b. In the **Select Quantity Kind** dialog, clear the **Apply Filter** box.
        c. Make sure the ISO-80000 library is loaded in your project.

        > ⊘ **Warning**
        > If the ISO-80000 library is not uploaded in your project, you can load it directly in the **Select Quantity Kind** dialog by clicking the **Load button.**

        d. Select the required quantity from the ISO-80000 package (e.g. distance).
   - The symbol of Unit:
        a. In the Property group list, select Slots.
        b. Select the symbol slot and click the **Create Value** button.
        c. Type the unit symbol in the Value area (e.g. mi).
        d. Click **Close**.
   The new Unit is created and can now be specified for the Value Type and then used in your project as a type of Value Property.

Related pages

- SysML Block Definition Diagram
- Instance Table
- Package import
- Using QUDV model library
- Using Units
- Quantity Kind
- Value Type
- Value Property
- Block