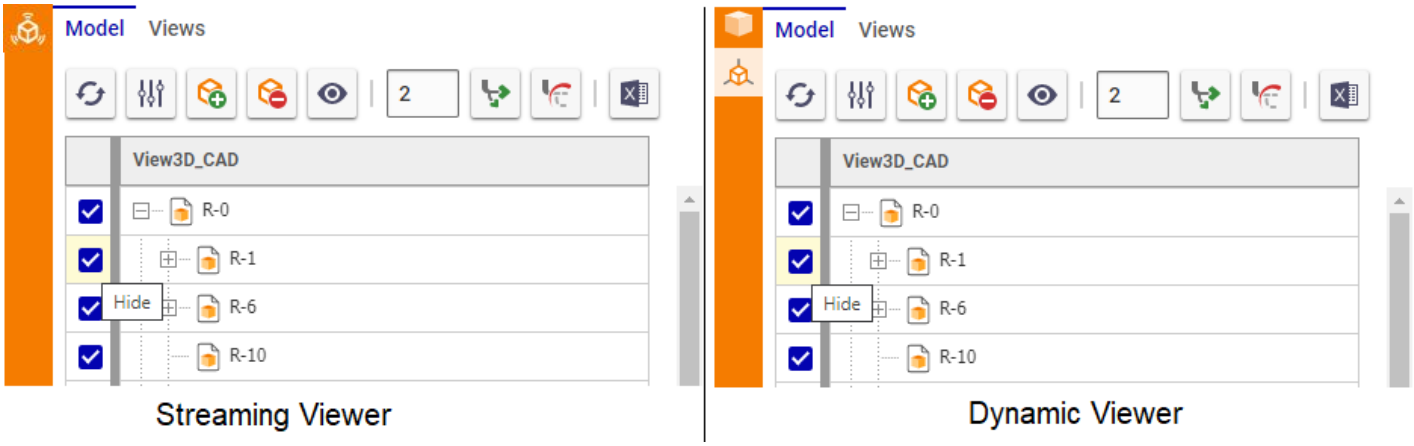
Browsing CAD Model Parts in Dynamic and Streaming Viewers

The **Model** tab of the **Model Browser** section is a Tree Grid View (TGV) showing a tree of CAD Documents included in a CAD assembly representing a given 3D CAD model. End-users can quickly navigate through the assembly structure, configure which part versions are shown through Structure Resolution Parameters, and create digital mockups as discussed in this section.

The **Model** TGV browser reuses the standard TGV toolbar, context menu, grid, and behavior.



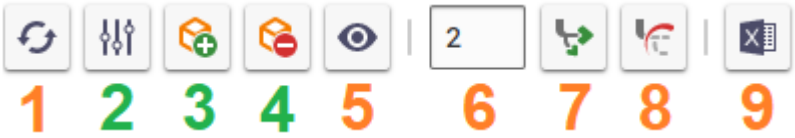
For the **Model** TGV toolbar details, see the TGV Model Browser Toolbar subsection.

For the **Model** TGV context menu details, see the TGV Part Context Menu subsection.

The **Model** TGV grid shows a CAD Document tree recursively: the first level is the immediate children of the top-most parent, the second level is the children of the immediate children, and so on. A child with its own children is a separate tree branch.

TGV Model Browser Toolbar

The **Model** TGV reuses the standard TGV toolbar and extends it with the following features to explore and manage a multi-level CAD Document structure of a given CAD Document:



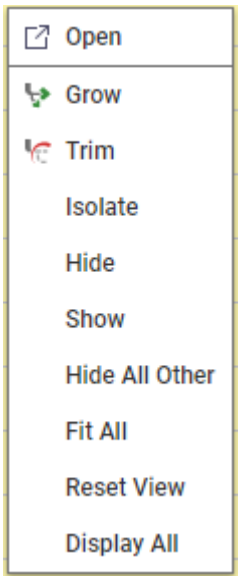
1. **Refresh**: to update the multi-level CAD Document structure with the latest data.
2. **Parameters**: to display the **Parameters** dialog box for selecting which versions of child CAD Documents to retrieve from the dataset and show in the Dynamic and Streaming Viewers; see the *CAD Structure Version Preferences* section.
3. **Add Model**: to add an additional 3D CAD model of an assembly, subassembly, or part to the 3D CAD scene with a 3D CAD model of the given CAD Document; see the *Adding Additional Models to 3D Scene* section.
4. **Remove Model**: to remove an additional 3D CAD model of an assembly, subassembly, or part from the 3D CAD scene with a 3D CAD model of the given CAD Document; see the *Removing Additional Models from 3D Scene* section.
5. **Visibility**: to display the **Display Settings** dialog box for setting up Item TGV visibility.
6. **Grow Depth**: to set up the level of the multi-level CAD Document expansion.
7. **Grow**: to expand the given multi-level CAD Document structure.
8. **Trim**: to collapse the given multi-level CAD Document structure.
9. **Export to Excel**: to save the given multi-level CAD Document structure as an Excel file.

This document discusses only the feature specific to the Dynamic and the Streaming Viewers: **Parameters** (2), **Add Model**, **Remove Model** (4).

TGV Part Context Menu

Right-clicking a CAD Document in the **Model** TGV browser grid displays the **Part** TGV context menu for this CAD Document and its represented part or assembly.

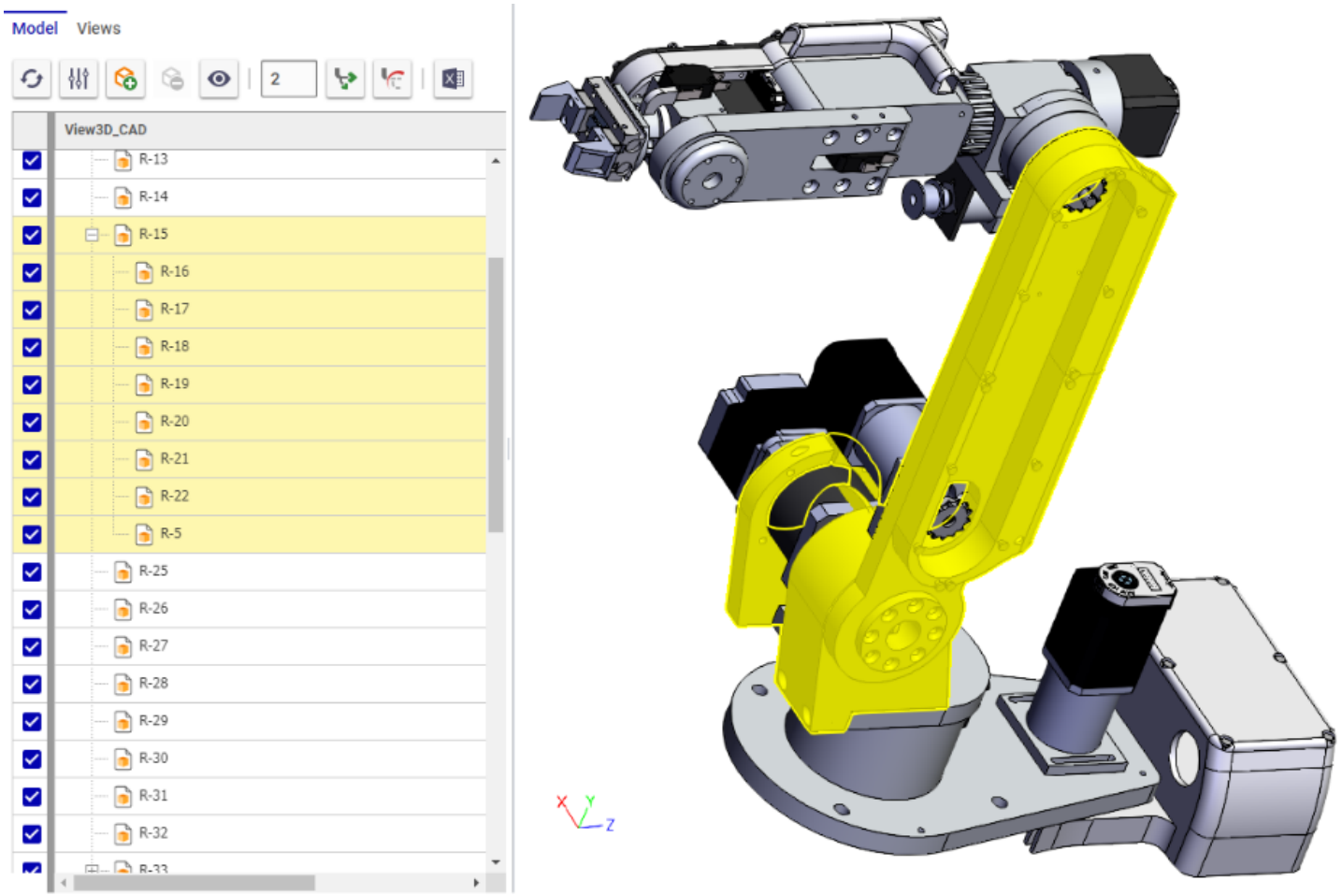
The **Model** TGV browser grid fully reuses the general **Part** context menu, its commands, and their behavior as outlined in the *Part Context Menu* section. In addition to the reused commands, the **Part** TGV context menu includes the following ones:



- **Grow**: to expand the given multi-level CAD Document structure.
- **Trim**: to collapse the given multi-level CAD Document structure.
- **Show**: to make a given hidden part or assembly visible on a 3D CAD model.

Selecting Parts in TGV Model Browser

Part selection is synchronized between the **Model** TGV browser and a given 3D CAD model. Clicking a part or surface on the model selects this part on the model and its CAD Document in the TGV grid. And vice versa, clicking a CAD Document in the TGV grid selects its part or assembly on the model as well.



Hiding and Showing Parts with TGV Model Browser

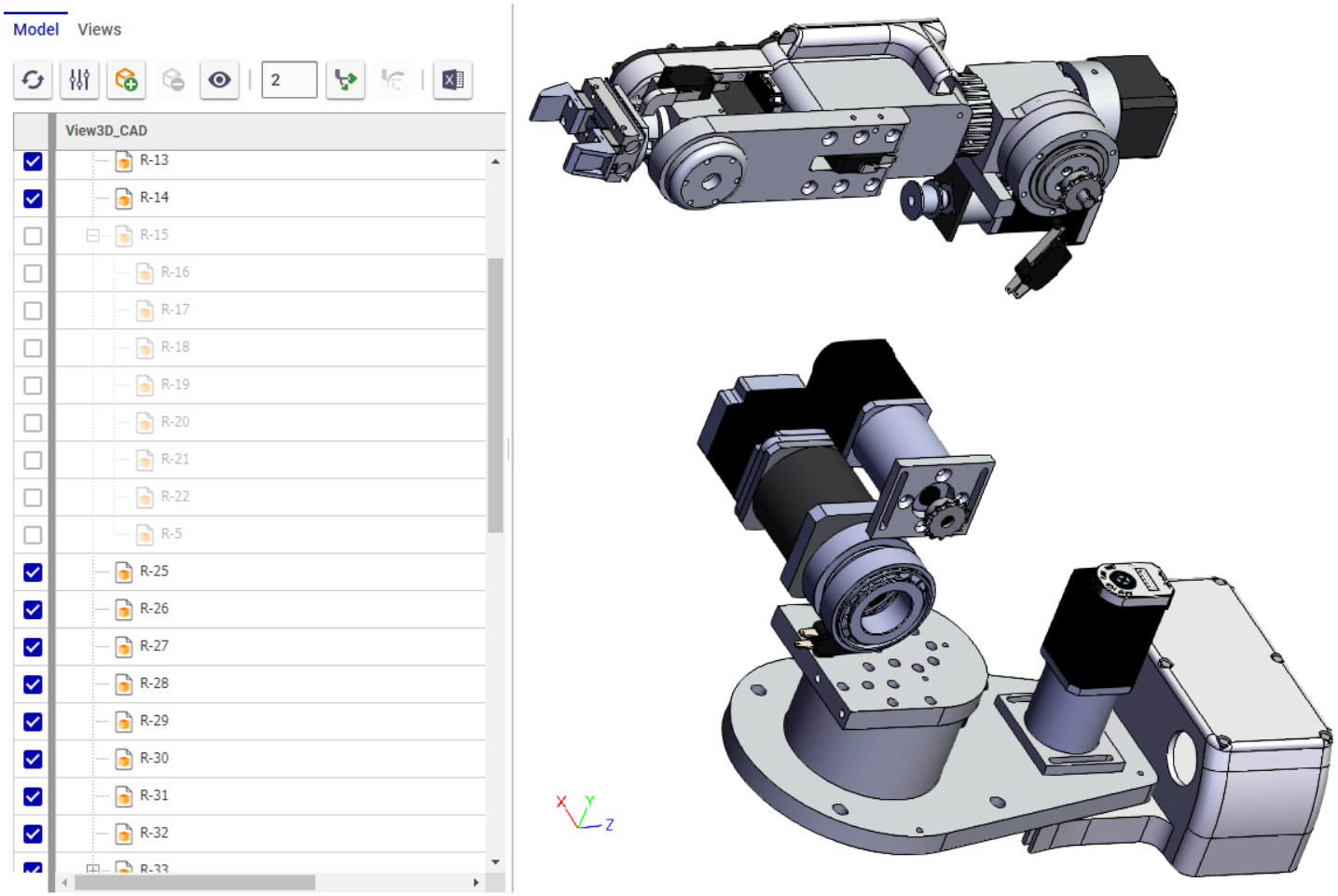
Each CAD Document in the **Model** TGV grid has a check box to hide or show its represented part or subassembly on the model:

- **Selected**: a given part or subassembly is visible.

- **Cleared**: a given part or subassembly is hidden.

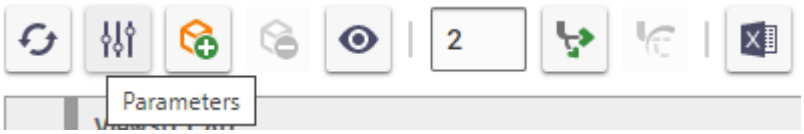
When hiding or showing a subassembly, all parts included in this subassembly (child parts) are automatically hidden or displayed as well.

CAD Documents of hidden parts and assemblies are light grey in the tree.



CAD Structure Version Preferences

The **Parameters** button on the **Model** TGV toolbar provides access to the **Parameters** dialog with options on which versions of child CAD Documents should be retrieved from the dataset and shown in the Dynamic or in the Streaming Viewer.



As a CAD Document is a versionable Item and has the Item States, a child CAD Document attached to a parent CAD Document can have multiple versions, and the attached child version may or may not be:

- The latest
- In the **Released** State

To set which child CAD Document versions should be retrieved from the dataset and shown in the Dynamic/Streaming Viewer, the **Parameters** dialog has the following options:

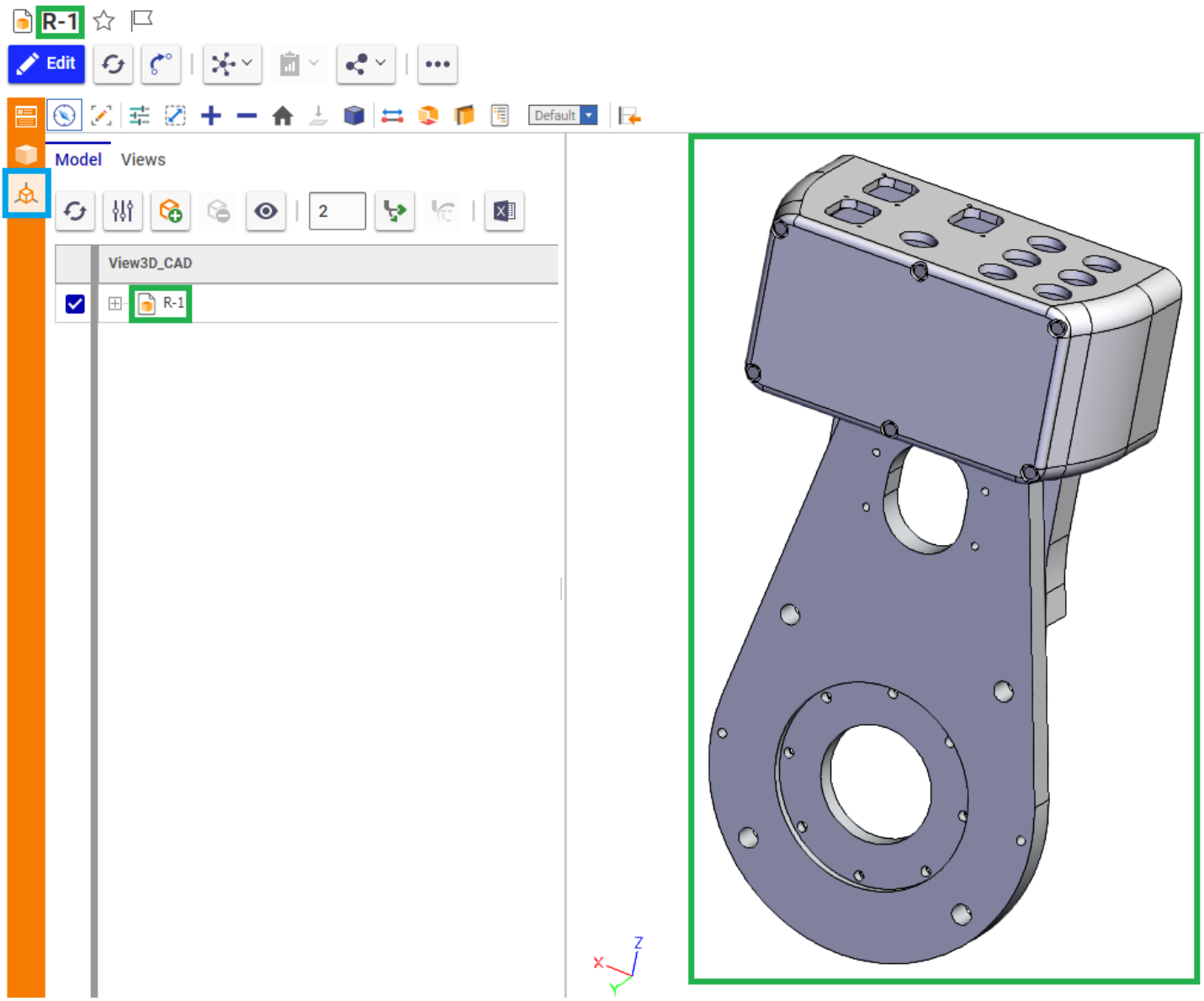
- **Default**: only the versions of children that are attached to given versions of parents, regardless of the States of these children and whether they are the latest or not.
- **Latest**: only the latest versions of children, regardless of their current State and whether they are attached to given parents or not. This is the default setting.
- **Latest Released**: only the latest versions of children in the **Released** State, regardless of whether they are currently attached to given parents or not.
- **Latest Released Or Latest**: the latest versions of children in the **Released** State if they exist; otherwise, their latest versions, regardless of whether they are currently attached to given parents or not.

Both the Dynamic and the Streaming Viewer resolves the CAD Document structure according to the current setting in the **Parameters** dialog recursively for each branch. A child with its own children is a separate tree branch. At first, the Viewer validates the immediate children of the top-most parent (the first level), then the children of each immediate child (the second level), and so on for each level.

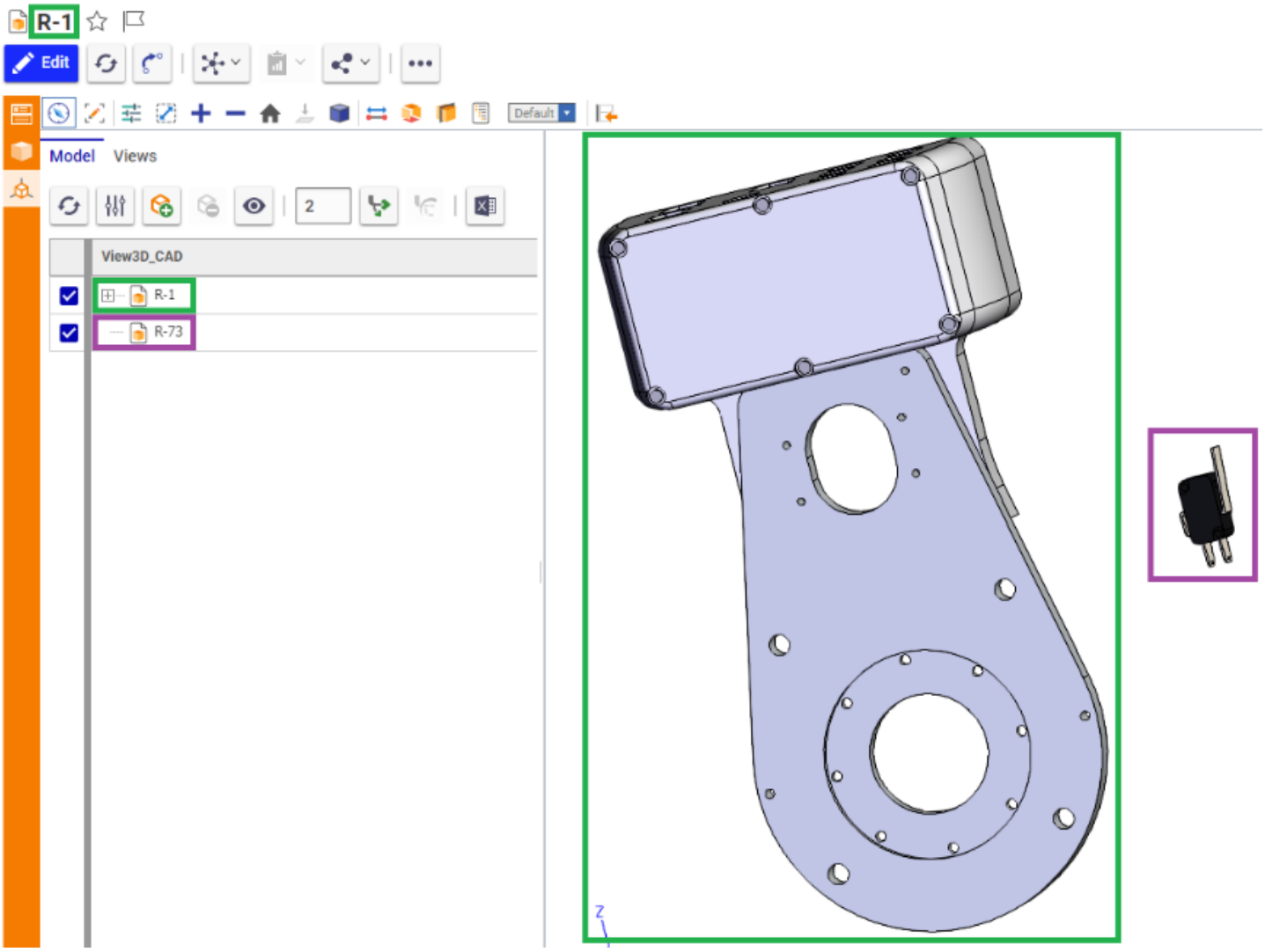
Adding Additional Models to 3D Scene

The **Add Model** button on the **Model** TGV toolbar enables end users to create a digital mockup by adding additional 3D CAD models onto a single 3D CAD scene with a context 3D CAD model. For the digital mockup details, see the Digital Mockup section.

A context 3D CAD model is a 3D CAD model on a 3D scene shown from a CAD Document of this model.

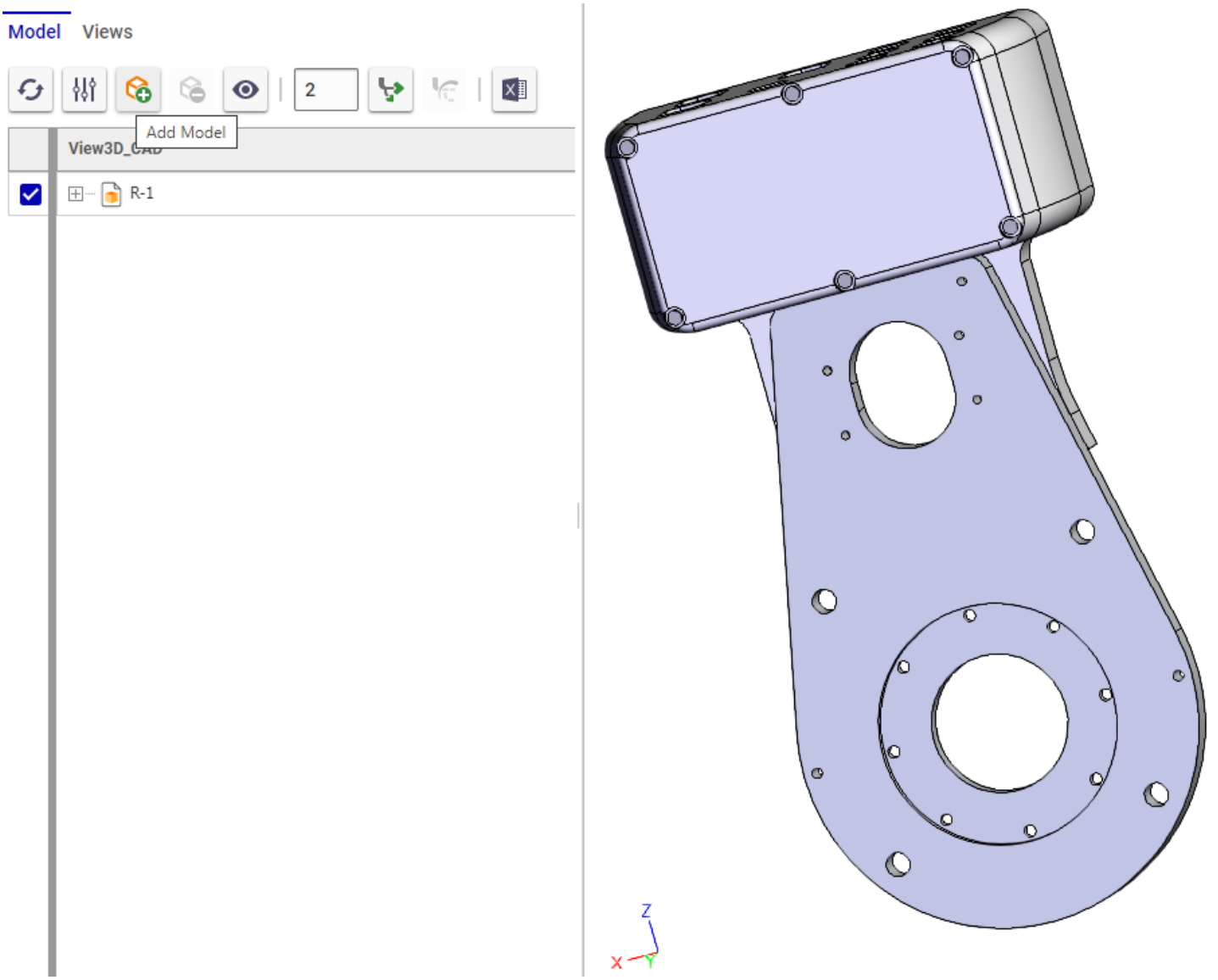


An additional 3D CAD model is a 3D CAD model on a 3D scene shown from a CAD Document of another model present on this scene.

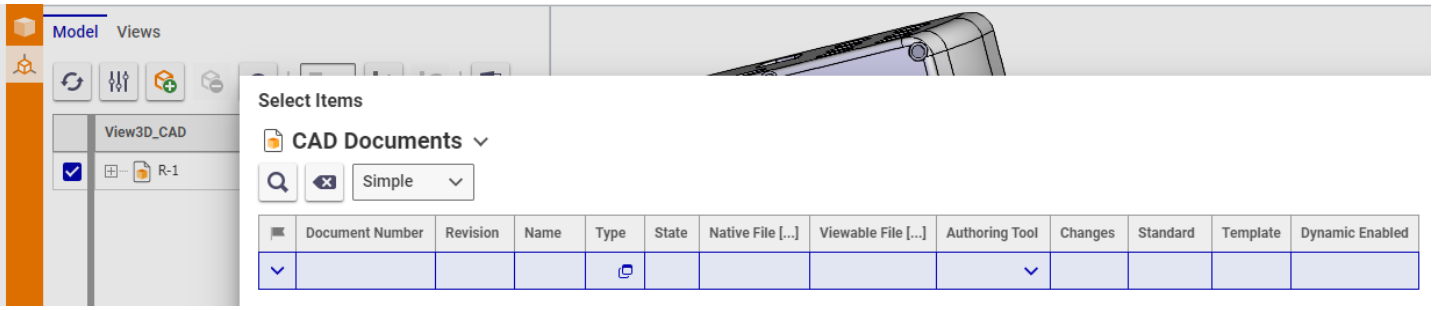


To add an additional 3D CAD model of an assembly, subassembly, or part to a context 3D CAD model of an assembly or subassembly shown in the Dynamic or in the Streaming Viewer:

1. Click the **Add Model** button on the **Model** TGV toolbar.

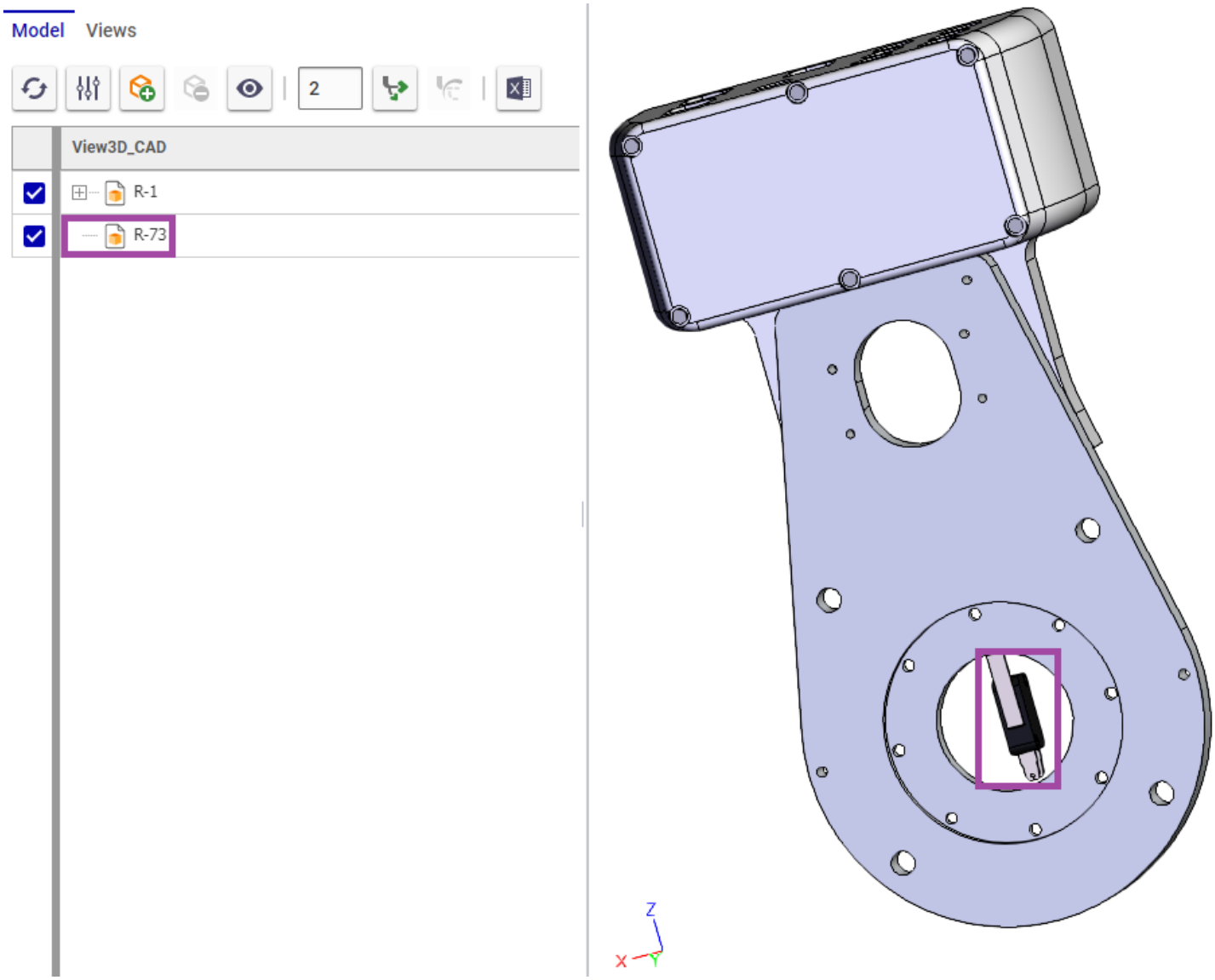


2. The Select Items – CAD Documents dialog appears.



3. Using the standard search procedure, search for a CAD Document whose 3D CAD model should be added to the 3D scene.

4. Select the searched CAD Document and click OK. The Dynamic /Streaming Viewer and its Model TGV browser are refreshed. The context 3D CAD model keeps its position and orientation. A 3D CAD model from the selected CAD Document appears on the 3D scene in the original position and orientation of the context 3D CAD model. The selected CAD Document appears in the Model TGV grid as another root item.



5. Adjust the position and orientation of the newly added 3D CAD model as necessary by moving and rotating this model as discussed in the *Manual Geometry Transformation* section.

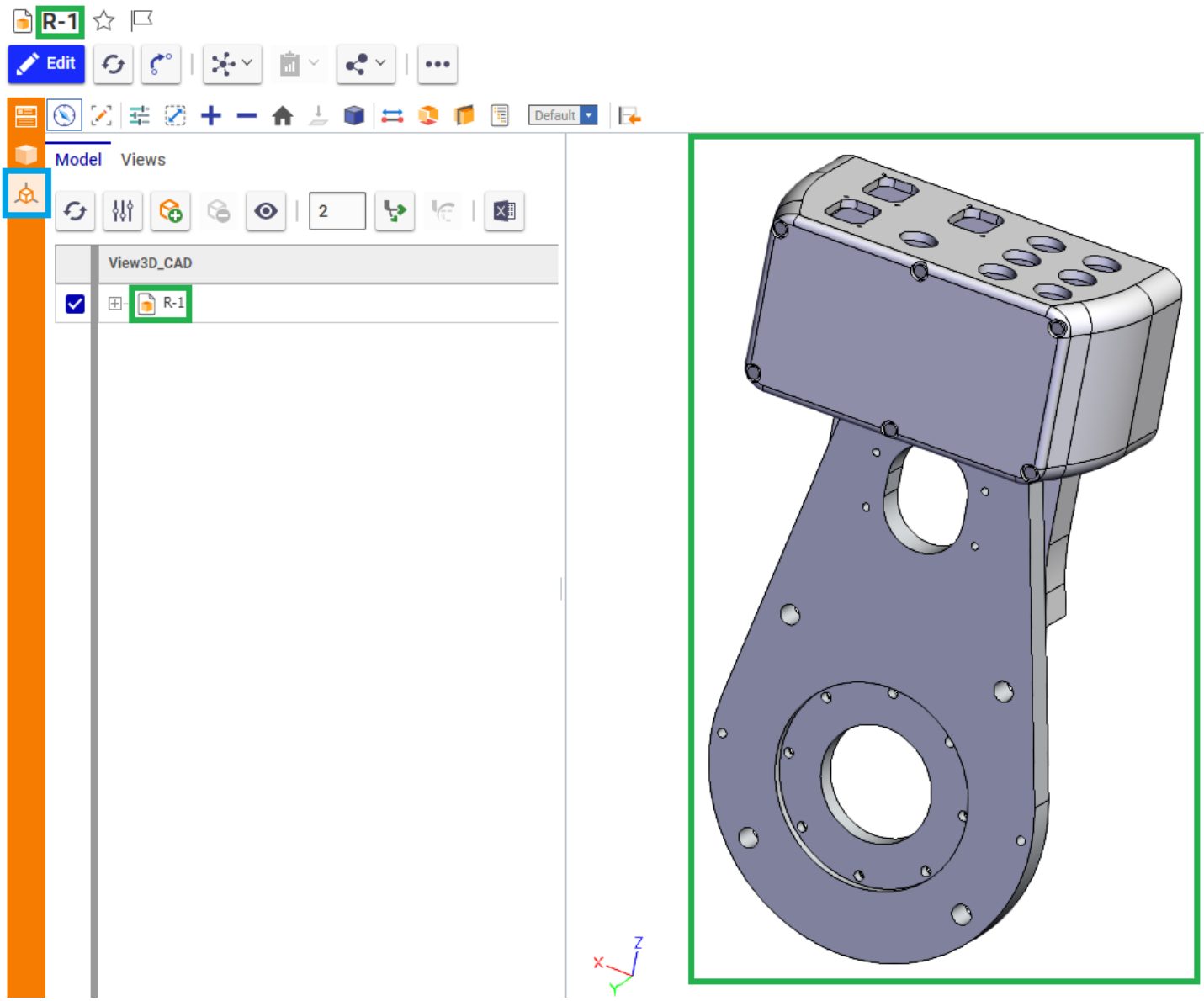
Important

In the **Model** TGV grid, the context CAD Document may not be at the top because this grid is sorted using the sorting logic of an associated Query Definition.

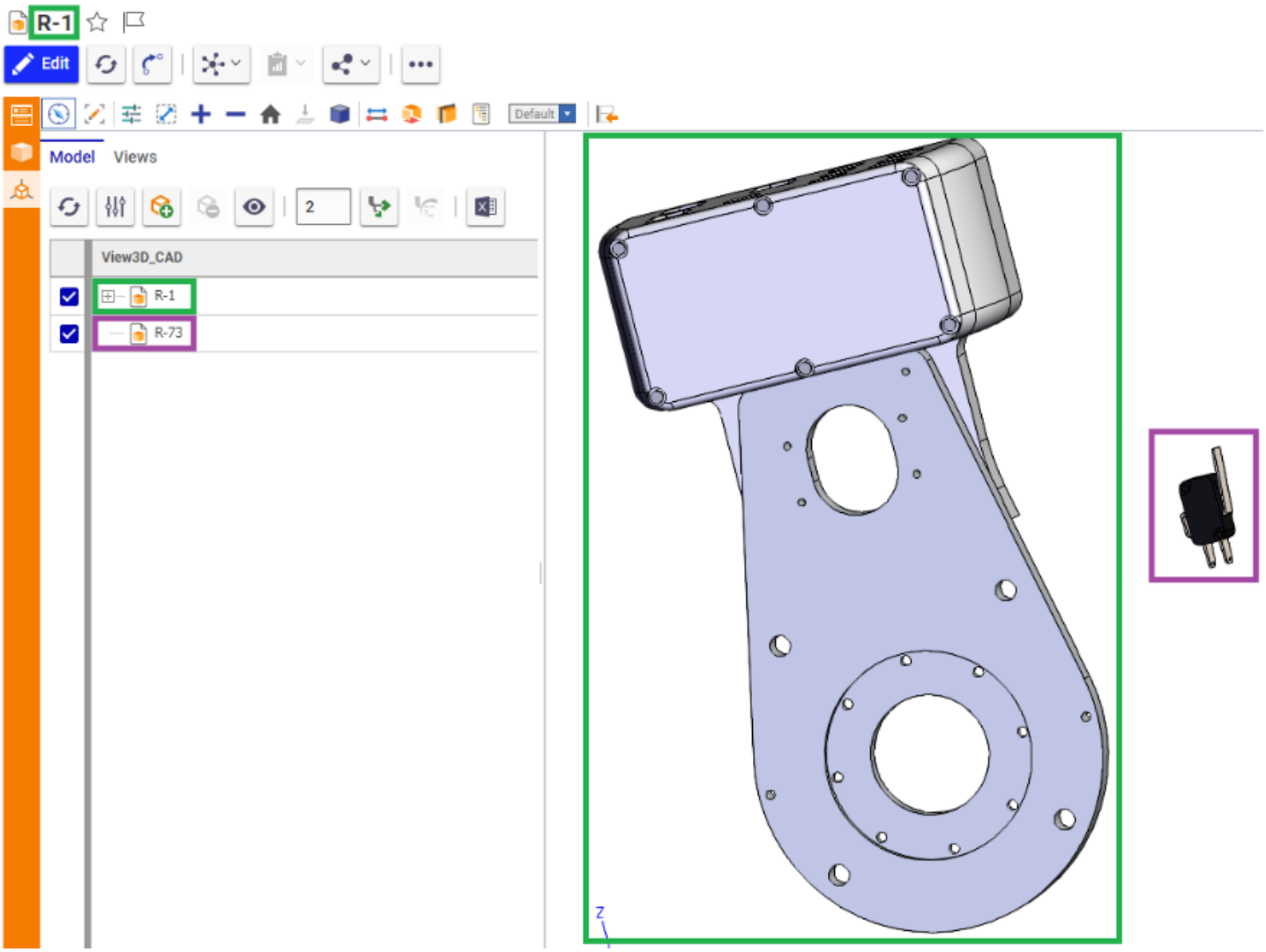
Removing Additional Models from 3D Scene

The **Remove Model** button on the **Model** TGV toolbar enables end users to modify a digital mockup by removing additional 3D CAD models from a single 3D CAD scene with a context 3D CAD model. For the digital mockup details, see the *Digital Mockup* section.

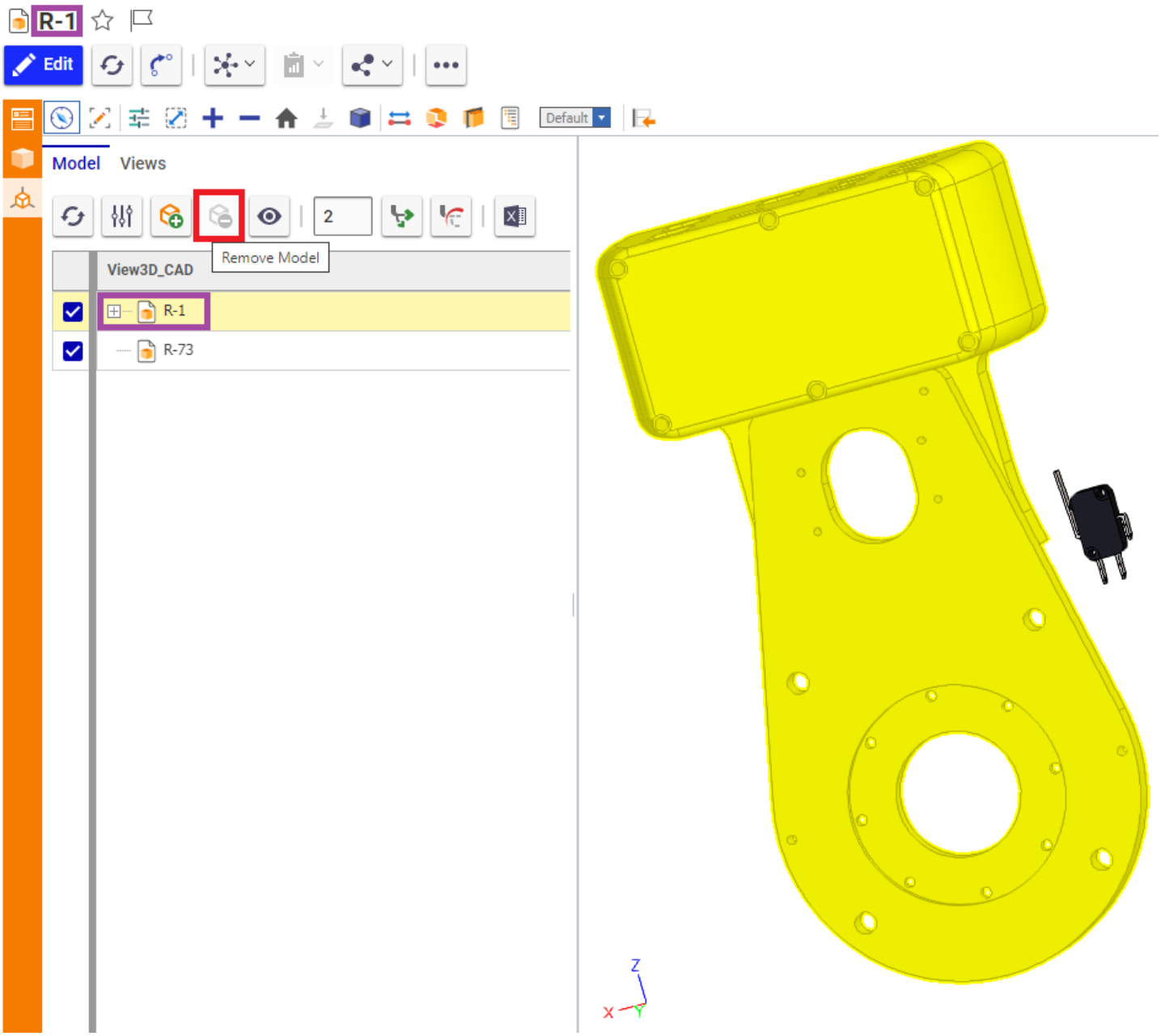
A context 3D CAD model is a 3D CAD model on a 3D scene shown from a CAD Document of this model.



An additional 3D CAD model is a 3D CAD model on a 3D scene shown from a CAD Document of another model present on this scene.



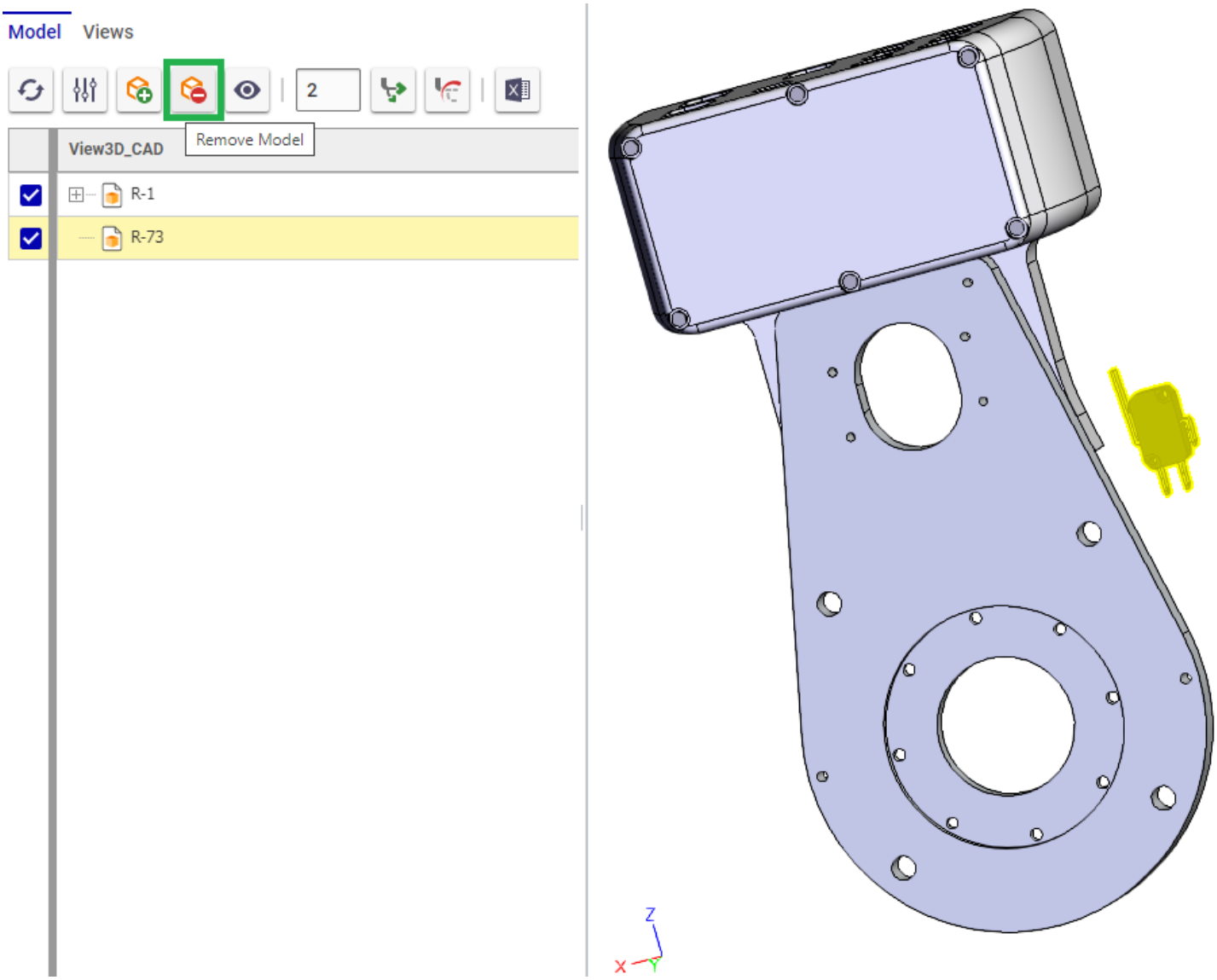
The context 3D CAD model cannot be removed from the 3D scene: the **Remove Model** button is disabled when the context 3D CAD model assembly, its subassembly, or part is selected.



The **Remove Model** button is also disabled when no assemblies, subassemblies, or parts are selected. It becomes enabled only when an additional assembly, subassembly, or part is selected.

To remove an additional 3D CAD model of an assembly, subassembly, or part from a context 3D CAD model of an assembly or subassembly shown in the Dynamic/Streaming Viewer:

1. Select the 3D CAD model or CAD Document of the additional assembly, subassembly, or part to be deleted from the 3D scene.



2. Click the **Remove Model** button on the **Model** TGV toolbar. The Dynamic/Streaming Viewer and its **Model** TGV browser are refreshed. The context 3D CAD model keeps its position and orientation. The 3D CAD model of the deleted assembly, subassembly, or part disappears from the 3D scene. The CAD Document of the deleted assembly, subassembly, or part disappears from the **Model** TGV grid.

Important

Be careful when clicking the **Remove Model** button because there is no warning or prompt to confirm the removal. An unsaved 3D scene view will be lost, and it will not be possible to restore it.