For further details, see the CCX documentation on *CONTACT PAIR, *SURFACE INTERACTION, *SURFACE BEHAVIOR and *FRICTION.

10.9 Flexible joint on beam

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| Analysis types: Static 3D |
| Solvers: Internal |

This releases the rotational stiffness of the end of a beam element allowing it to rotate freely even when it's connected to another element or has constrained rotation.

Flexible joint on beam can only be applied to end faces of beam elements.

The joint can allow rotation about any combination of the three local axes (U,V,W) of the beam element. The meaning of some combinations are:

- U – The element can rotate about its own axis like being connected to a roller bearing.
- V or W – A pin joint which allows the element to pivot about one axis.
- V and W – A universal joint which transmits torque but not bending moments.
- U,V and W – A ball joint which allows the element to rotate in any direction.

To put a flexible joint at an internal node like this
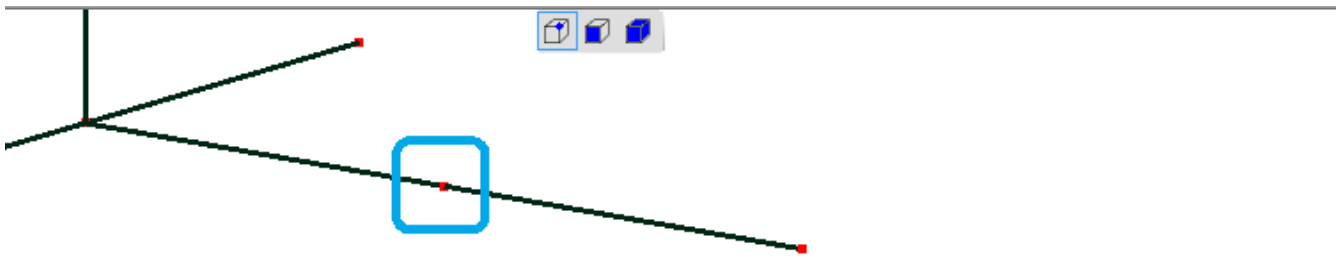
, turn on **Show element surfaces**, change to **Select faces** mode, and use the **Cutting plane** slider to hide the foreground element(s). Then right click the exposed end face and choose **Loads & Constraints → New flexible joint on beam**.
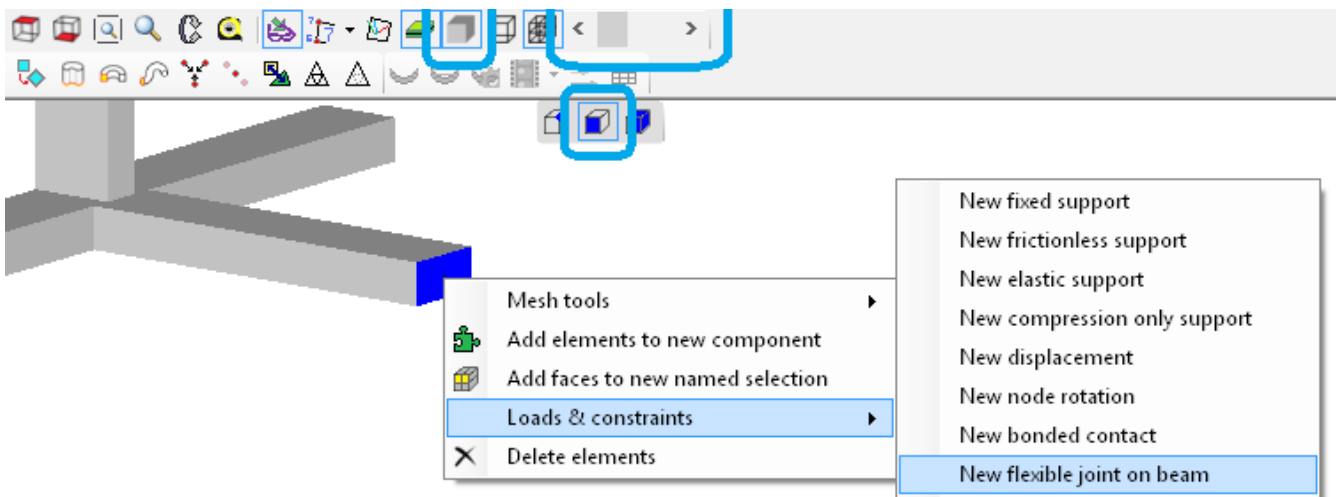
The graphics area then shows pins representing the axes of free rotation.