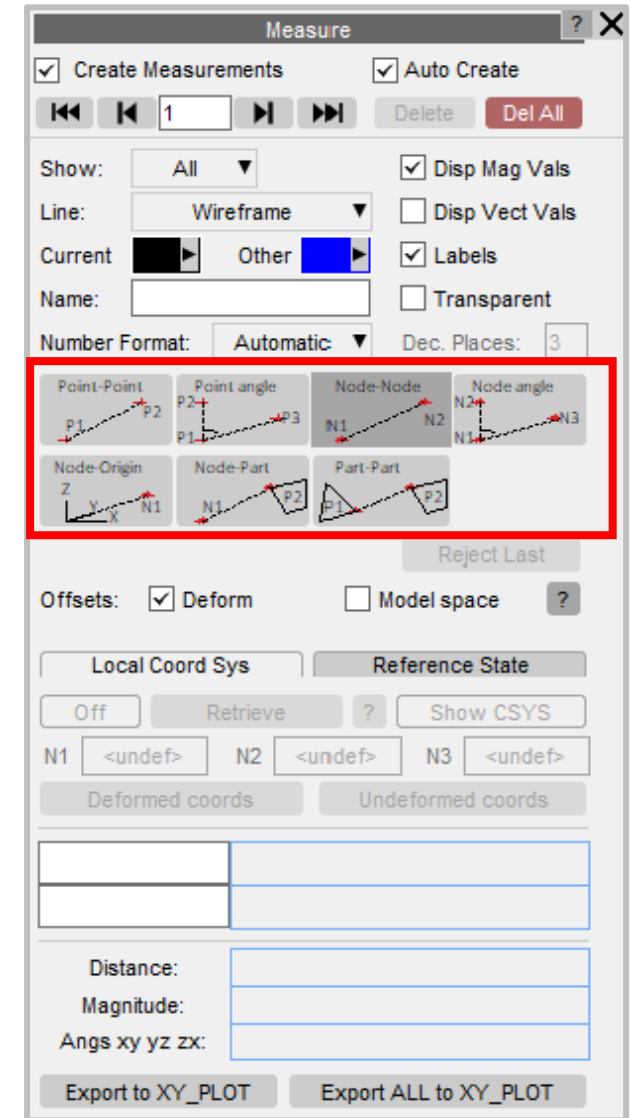


Measure

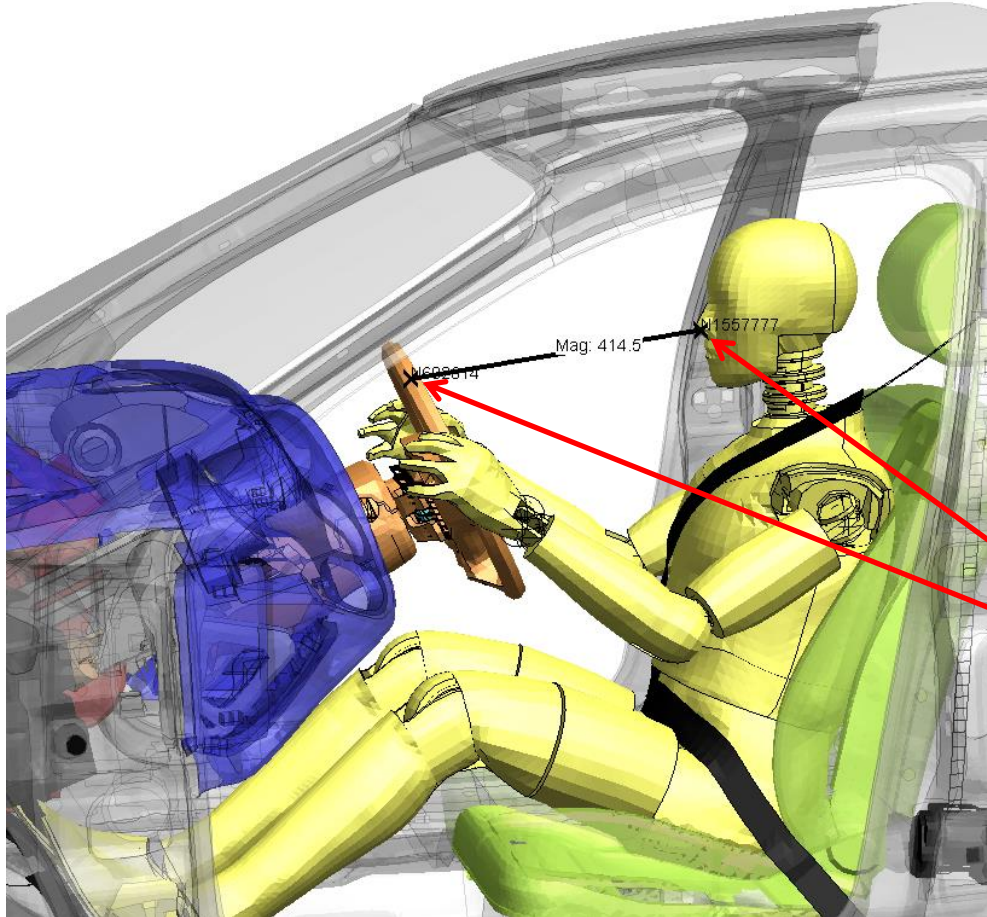


Measure Functions

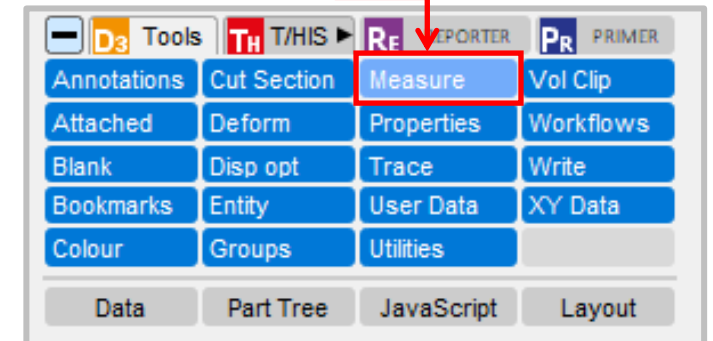
- **Point-Point** – Measure the distance between two points.
- **Point angle** – Measure the angle between 3 points.
- **Node-Node** – Measure the distance between 2 nodes.
- **Node angle** – Measure the angle between 3 nodes.
- **Node-Origin** – Retrieve nodal position and distance from [0,0,0].
- **Node-Part** – Retrieve the shortest distance between a node and a part.
- **Part-Part** – Retrieve the shortest distance between two parts.



Worked Example - Node-Node



(1) The distance between nodes can be measured by either accessing the **Measure** panel or by pressing the 'M' button on a keyboard.

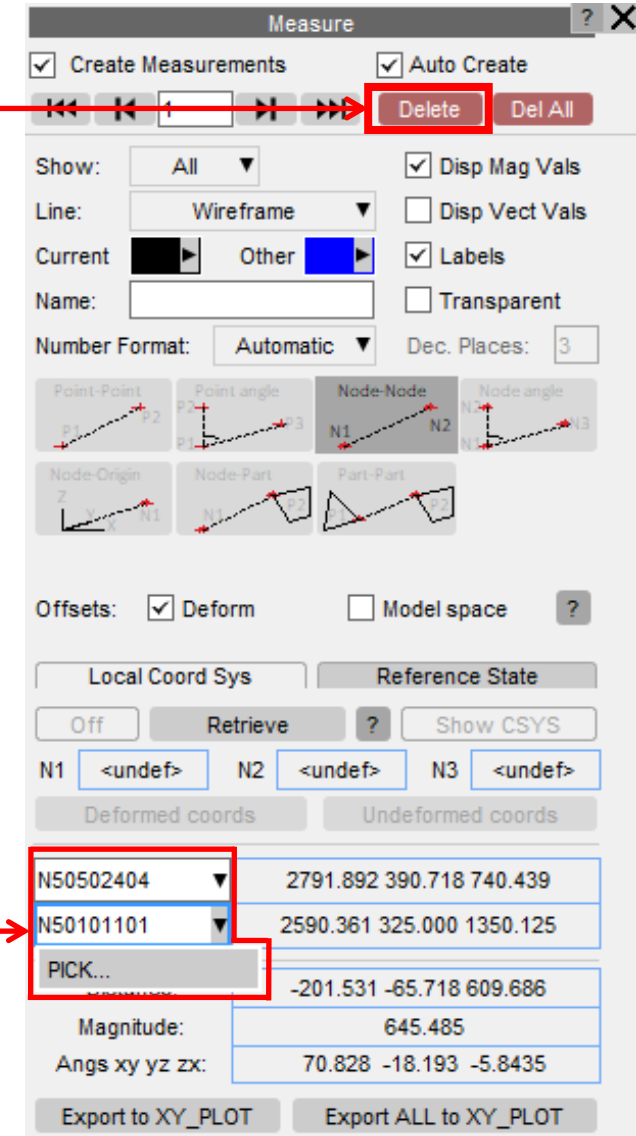


(2) Pick 2 nodes.

Modifying a Measurement

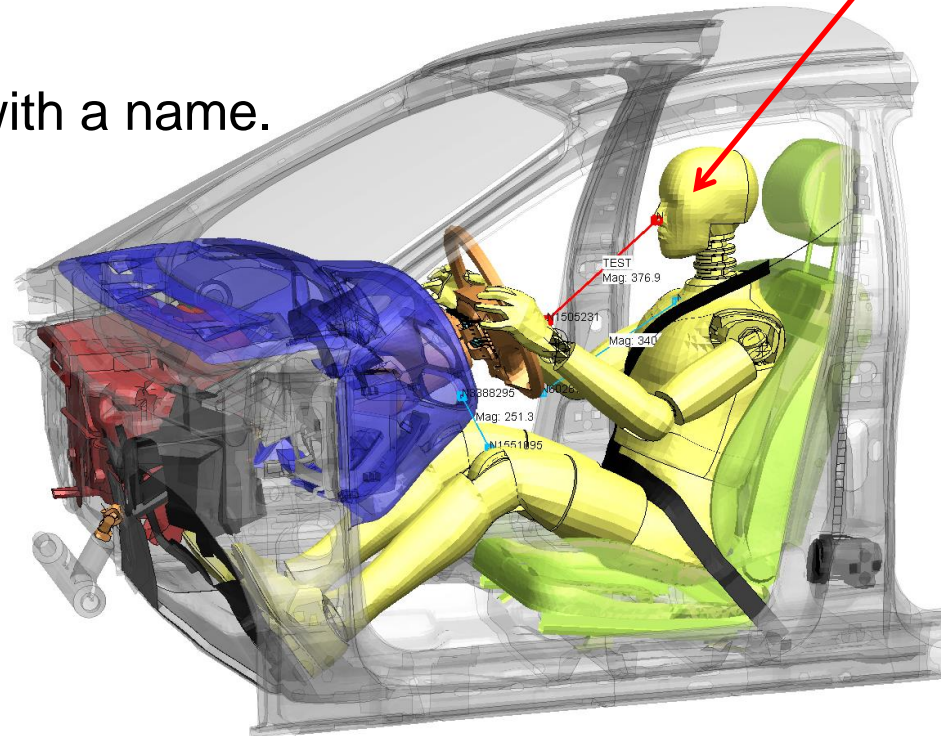
The measurement can be deleted by pressing the **Delete** button.

Or nodes selected for the current measurement can be modified by right-clicking the text boxes and clicking the **PICK** button.



Formatting Options

- **Show** – choose which measurements are displayed.
- **Line** – select if the measurement lines are on top of the model (Wireframe) or Hidden.
- **Current** – specify the colour of the current measurement.
- **Other** – specify the colour of measurements, excluding the current measurement.
- **Name** – define the measure with a name.



Measure

☒ Create Measurements ☒ Auto Create

1

Show: All

Line: Hidden

Current Other

Name:

☒ Disp Mag Vals ☐ Disp Vect Vals

☒ Labels ☐ Transparent

Number Format: Automatic Dec. Places: 3

Point-Point Point angle Node-Node Node angle

Node-Origin Node-Part Part-Part

Offsets: ☒ Deform ☐ Model space

Local Coord Sys Reference State

N1 <undef> N2 <undef> N3 <undef>

Deformed coords Undeformed coords

N50502404	2791.892 390.718 740.439
N50101101	2590.361 325.000 1350.125

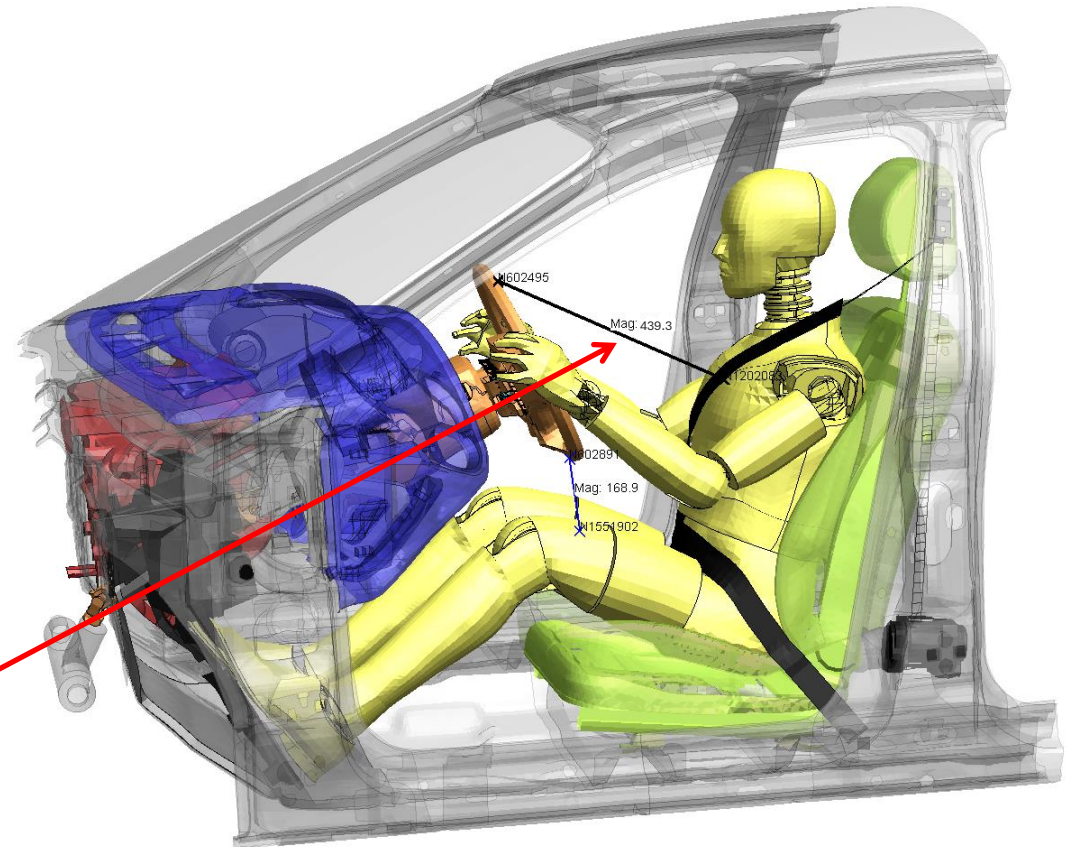
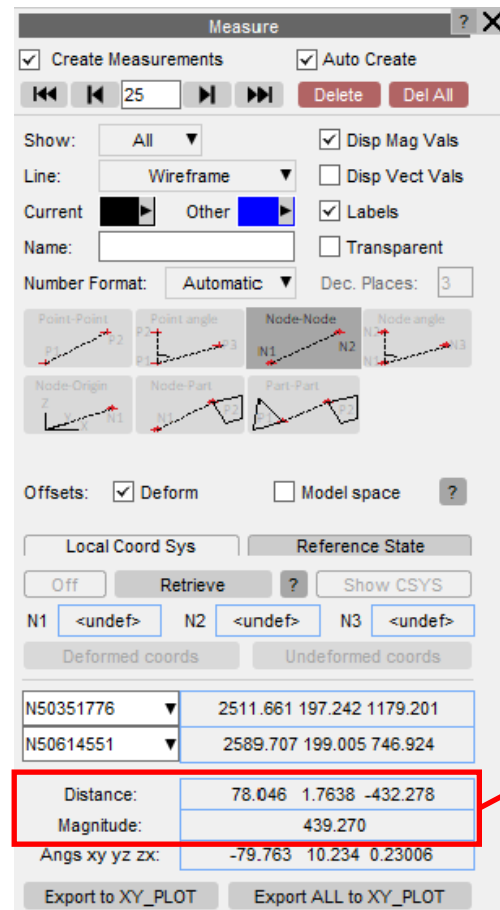
Distance: -201.531 -65.718 609.686

Magnitude: 645.485

Angs xy yz zx: 70.828 -18.193 -5.8435

Measurement Display

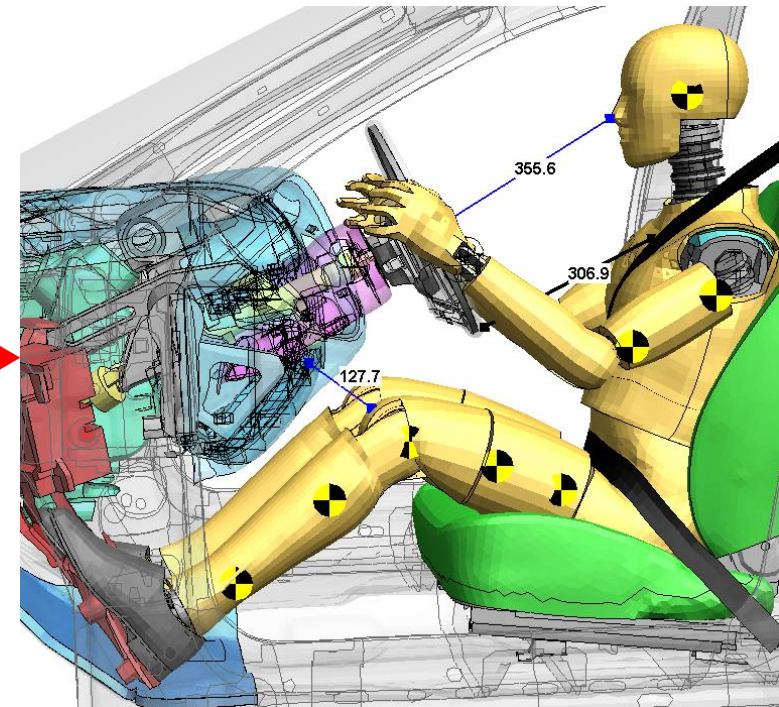
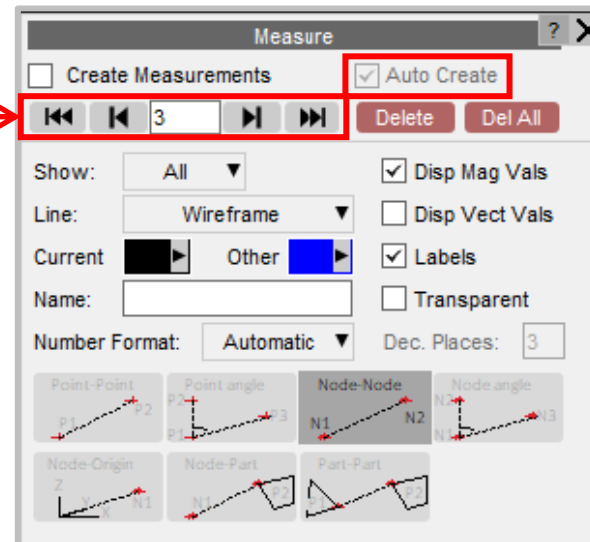
- The value of the current measurement can be seen in the **Magnitude** box within the **Measure** menu. Also, the magnitude of the measurements can be displayed on the model by selecting the **Disp mag Vals** option.
- The vector between both points chosen for “measure” is displayed in the **Distance** box within the **Measure** menu.



Multiple Measurements

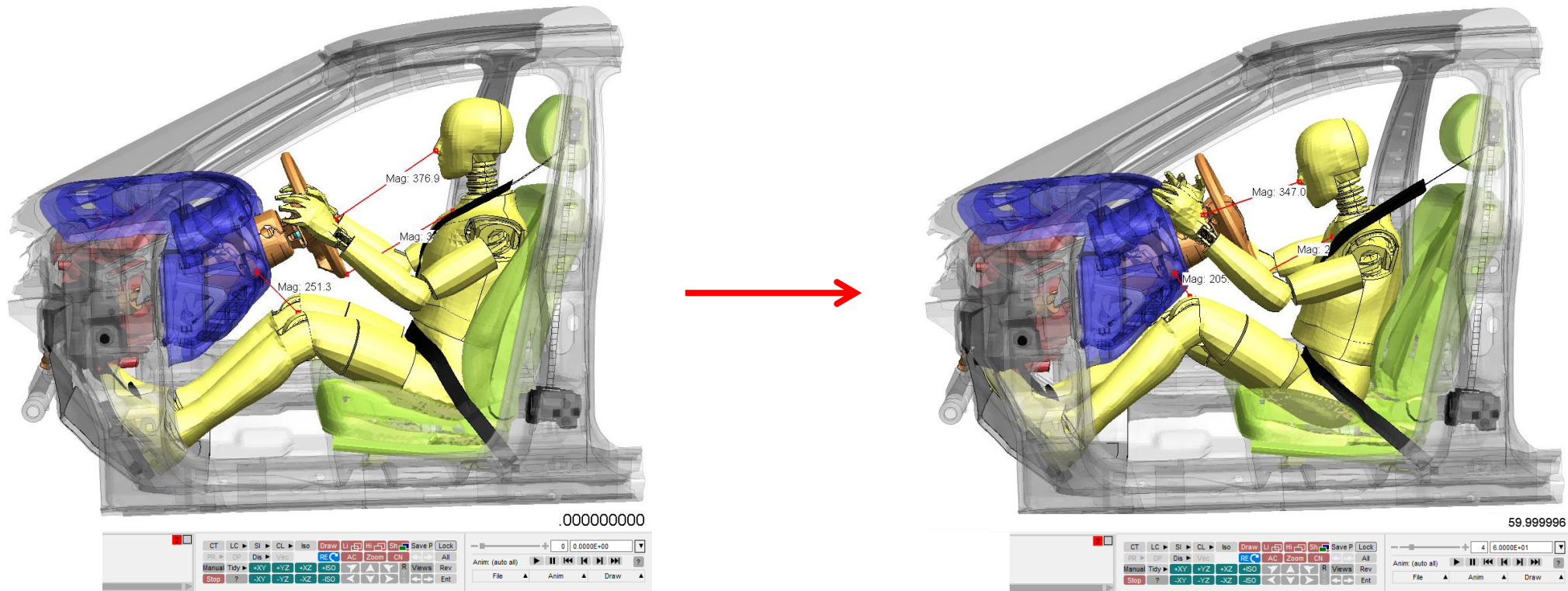
Up to 100 measures may be defined. With the **Auto Create** option selected, each time the user clicks on another pair of nodes, a new measure is created. If the **Auto Create** option is not selected, creating a new “measure” requires navigating to the next undefined measurement using the **>>|** button and then creating the measurement (e.g. picking 2 nodes).

The measure which is ‘current’ can be selected.



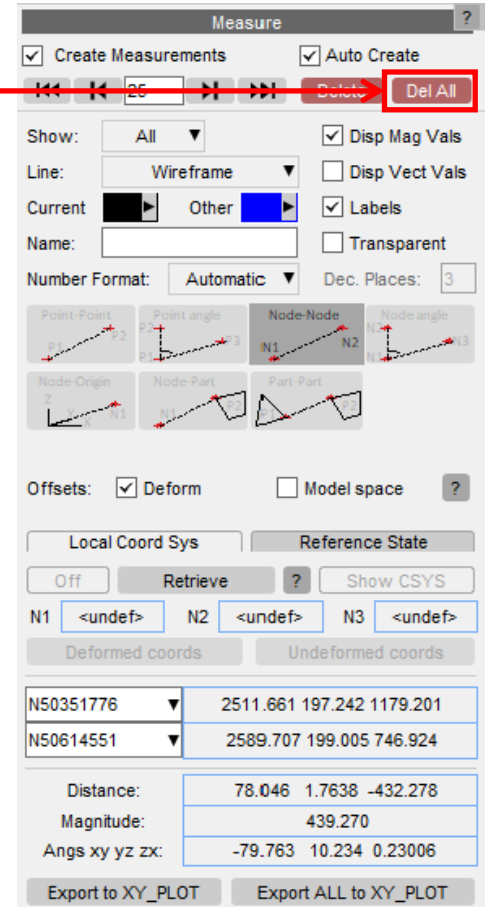
Measurement Data

The measurement data (distance) is updated automatically when a different time-state is loaded.



Deleting Measures

The measures remain visible until deleted. To remove all the “measures”, click the **Delete All** button in the Measure panel or press the **Delete** button on a keyboard.



Local Coordinate System

Measurements can be transformed to a local coordinate system using the **Local Coord Sys** function within the **Measure** Panel.

Coordinate systems can be retrieved from “csys.loc” files or coordinates defined in a ZTF file, using the **Retrieve** button. Alternatively, if no coordinate system can be retrieved. A coordinate system can be created and stored in the **Deform -> Shift Def** menu.

The user has a choice of whether the local coordinate system is defined by the undeformed coordinates of the nodes, or changes with each state to following the deformed coordinates.

Different coordinate systems can be used for different measures.

Measure

☒ Create Measurements ☒ Auto Create

25 Delete Del All

Show: All ☒ Disp Mag Vals

Line: Wireframe ☐ Disp Vect Vals

Current: ☒ Other ☒ Labels

Name: ☐ Transparent

Number Format: Automatic Dec. Places: 3

Point-Point Point angle Node-Node Node angle

Node-Origin Node-Part Part-Part

Offsets: ☒ Deform ☐ Model space ?

Local Coord Sys Reference State

Off Retrieve ? Show CSYS

N1 <undef> N2 <undef> N3 <undef>

Deformed coords Undeformed coords

N50351776	2511.661 197.242 1179.201
N50614551	2589.707 199.005 746.924

Distance: 78.046 1.7638 -432.278

Magnitude: 439.270

Angs xy yz zx: -79.763 10.234 0.23006

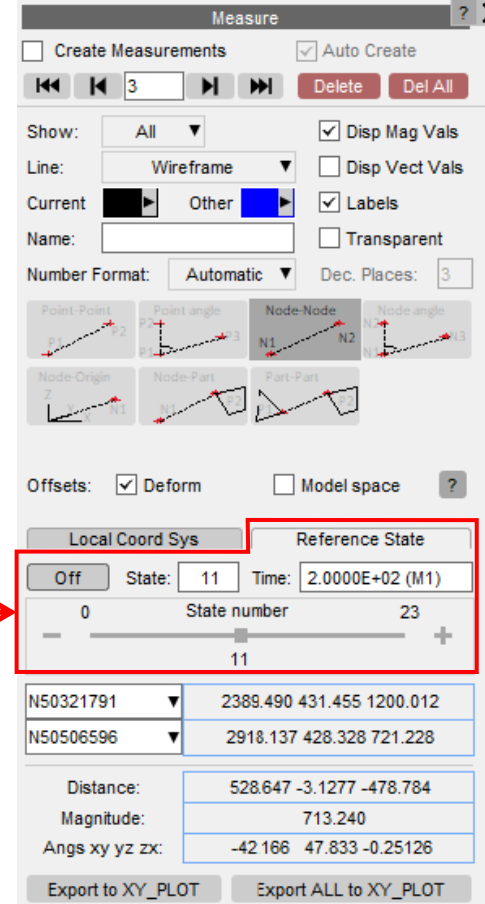
Export to XY_PLOT Export ALL to XY_PLOT

Reference State

The **Reference State** menu within the **Measure** panel allows for a reference value to be applied to the measurement.

The measurement displayed when the reference state is on is the difference in distance at the current time from the distance at the reference time.

The reference state can be turned on and off for each measurement. The same reference state is used for all measurements.



Exporting Measurements

The measurements can be graphed over time in the XY-Data tool by clicking the **Export ALL to XY_PLOT** button.

Measure

☒ Create Measurements ☒ Auto Create

25 Delete Del All

Show: All ☒ Disp Mag Vals

Line: Wireframe ☐ Disp Vect Vals

Current ☒ Other ☒ Labels

Name: ☐ Transparent

Number Format: Automatic Dec. Places: 3

Point-Point Point angle Node-Node Node angle

Node-Origin Node-Part Part-Part

Offsets: ☒ Deform ☐ Model space ?

Local Coord Sys Reference State

Off Retrieve ? Show CSYS

N1 <undef> N2 <undef> N3 <undef>

Deformed coords Undeformed coords

N50351776	2511.661 197.242 1179.201
N50614551	2589.707 199.005 746.924

Distance: 78.046 1.7638 -432.278

Magnitude: 439.270

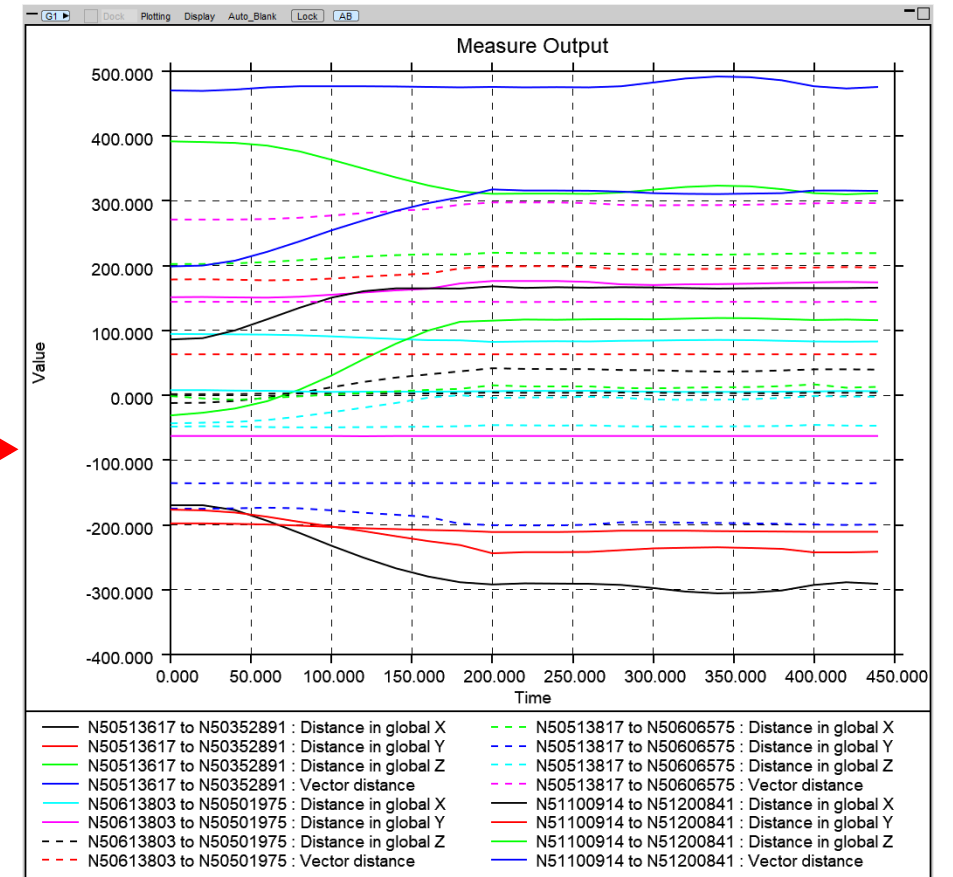
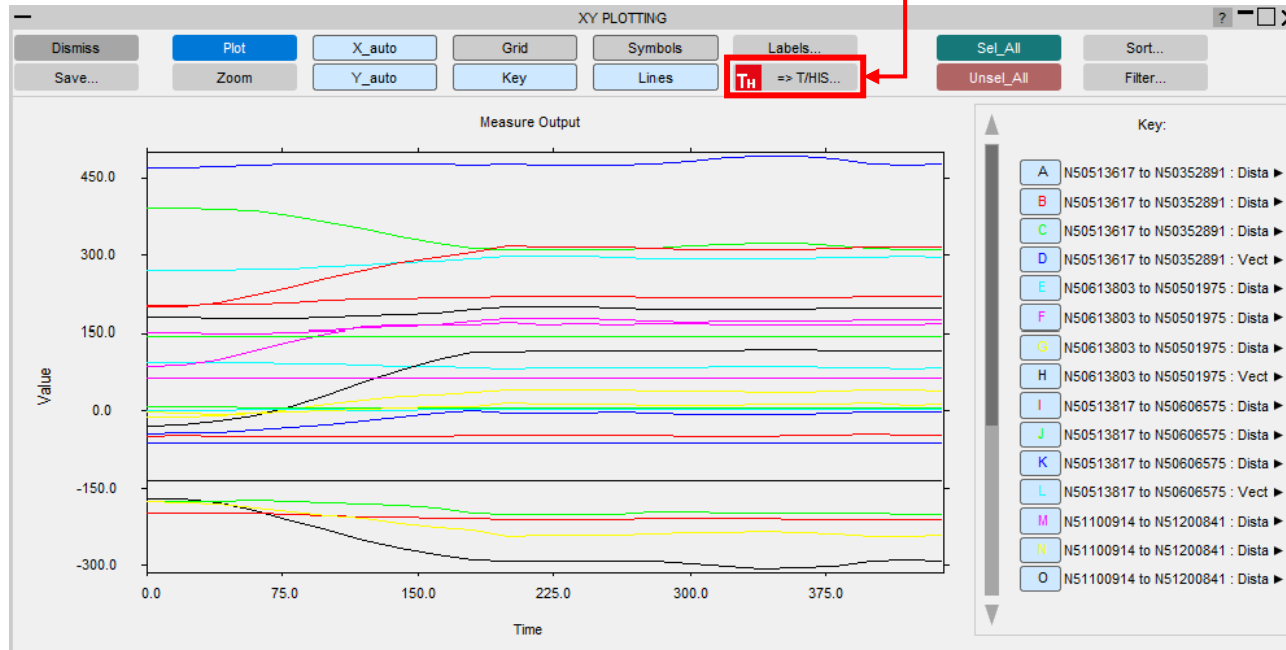
Angs xy yz zx: -79.763 10.234 0.23006

Export to XY_PLOT Export ALL to XY_PLOT

Exporting Measurements

- Four separate curves are generated for each measurement: Distance in X,Y and Z and Vector distance.

Tip: Click the **=> T/HIS** button to further process the curves within T/HIS.



Contact us

Global / UK

T: +44 121 213 3399

E: dyna.support@arup.com

India

T: +91 40 69019723 / 98

E: india.support@arup.com

China

T: +86 21 3118 8875

E: china.support@arup.com

USA

T: +1 415 940 0959

E: us.support@arup.com

Subscribe to
our newsletter:



Follow us on:



@Oasys LS-DYNA
Environment



@Oasys LS-DYNA
Environment



@Oasys



@Oasys

<https://www.oasys-software.com/dyna/>