**ROBOT FRAME: TORSIONAL STIFFNESS ANALYSIS**

A blue metal frame with many holes

Description automatically generatedA metal frame with holes

Description automatically generated with medium confidence

* A picture containing text, envelope, case

  Description automatically generatedLaunch Inspire.
* Click Open Model on the Files icon. In the "Open File" window, select "Robot\_Frame. STEP" file and click "Open."
* Go to File > Preferences > Run Options. Then, select "SimSolid" as the analysis solver.
* Deactivate the following three highlighted support parts to exclude them from the analysis.

A metal frame with metal beams

Description automatically generated with medium confidence

* Assign the Aluminum material to the Robot Frame.
* Navigate to Structures > Contacts. Ensure that the contacts are "bonded" and not "sliding".
* Go to Structures > Loads > Support. Apply support to any one face to fix it.

A red and grey metal box

Description automatically generated

* In the Structure tab, under Loads > Forces, apply two equal and opposite forces with a magnitude of 412 N each on the unfixed faces.

A grey metal bridge with holes

Description automatically generatedA metal frame with metal supports

Description automatically generated with medium confidence

A picture containing shape

Description automatically generated

* Go to the "Structure" tab, then navigate to the "Analyze" ribbon.

A screenshot of a computer

Description automatically generated

* Ensure that Solution Adaption is set to "For Stiffness (Faster)".
* Click "Run" to initiate the analysis. The "Run Status" window will appear. A green check mark will appear when the analysis is complete (this may take a few minutes).

A picture containing text

Description automatically generated

* Look for the green flag on the "Analyze" tab. Click on it to view the results. The results will be displayed in the Analysis Explorer.

Activate the previously deactivated parts by going to View > Model Configuration. Then, repeat the above steps to perform the torsional analysis.

**Analysis Result:**

A rainbow colored metal frame

Description automatically generated**A rainbow colored metal frame

Description automatically generated**

Robot Frame Design 2

Robot Frame Design 1

A screenshot of a computer

Description automatically generated

A screen shot of a computer

Description automatically generated

A screen shot of a computer

Description automatically generated