Tip: Bore deformation calculation in Optistruct.

Product: Optistruct
Product Version: 14.210 (Solvers patch) or above

Topic Objective

Bore deformation calculation (distortion of cylinder in engine)

Topic Details

This functionality identifies magnitude of deformation for different orders of distortion of the Bore for each layer based on the displacement on the bore surface using Fast Fourier Transform. The BORED Bulk Data Entry can be used to define the surface, coordinate system, and parameters required to request Bore Deformation output for Static Analysis Subcases.

Bulk Data Entry

BORED – Bored Deformation

Format

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<td>ORDER</td>
<td>MIDPNT</td>
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- The BORED Bulk Data Entry determines the various orders of Bore Distortion from Displacement results associated with the grid points of the Bore surface. The Distortion Orders are determined by representing the Bore Deformation profile by means of a Fourier series and evaluating the Fourier series using the Fast Fourier Transform (FFT).
If BORED Bulk Data Entries are present in the input deck, two output files, `<filename>_bdst.mvw` and `<filename>.bdst` are generated. The magnitude of bore distortion for each order is plotted vs the depth of the Bore (Z-depth), where Bore Deformation is calculated (Layer L).

- Bore deformation output is currently only available for Static Subcases.