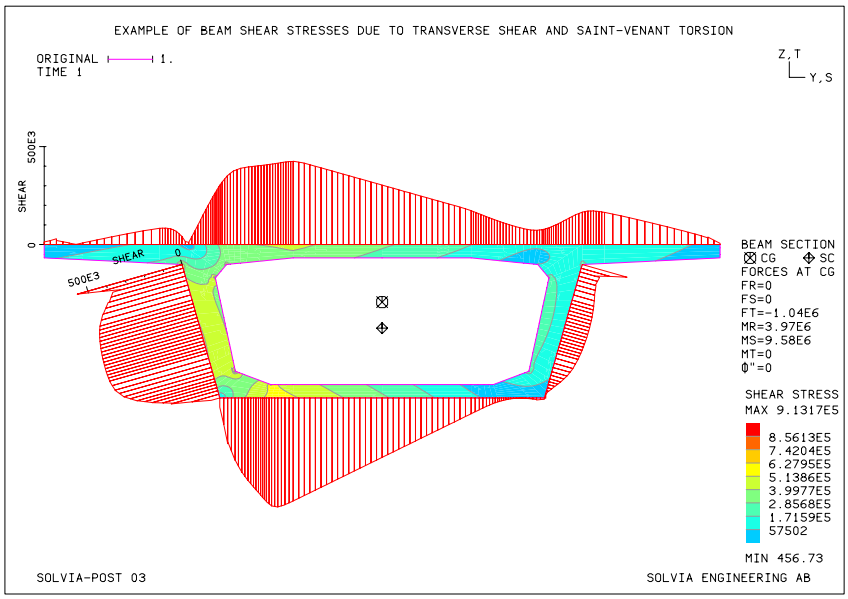
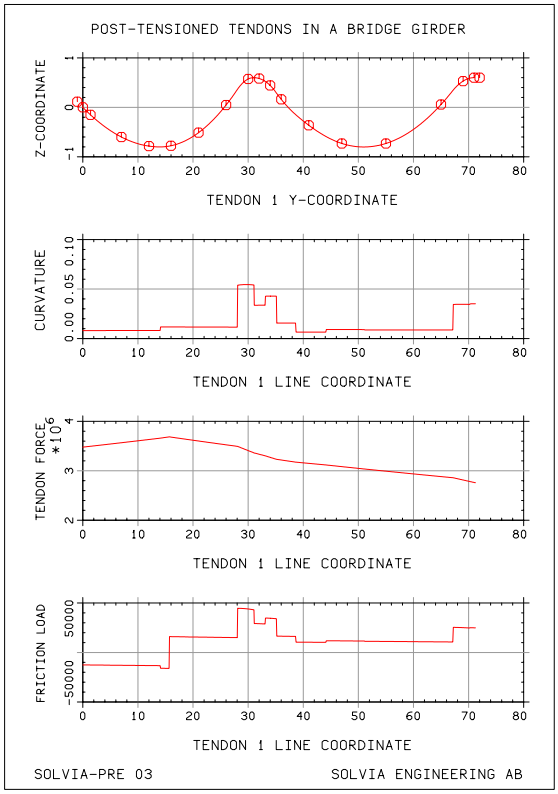
Examples of Capabilities in the SOLVIA® Finite Element System

Beam Cross-Section Stresses and Post-Tensioned Tendons



This is an example of a bridge analyzed with a BEAM element model and the new capability T-BEAMSTRESS. The plot shows the distribution of shear stresses over the cross-section due to a set of calculated forces and moments obtained from the BEAM element model. The new option of plotting XY-diagrams in the mesh of the model is also shown.



Post-tensioning of tendons in beams can be specified using non-uniform B-splines for the 2D or 3D tendon geometry. One or both of the ends of each tendon can be tensioned in a sequence of applied end forces and length changes from anchorage set. The curvature and wobble frictional losses are calculated and the resulting friction and pressure loads from the tendon as well as the end forces are applied to the BEAM elements.

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