



At the Frontiers of Structural Engineering

## Features & Capabilities

<b>Modeling features</b>	<b>Standard</b>	<b>Plus</b>
Parametric modeling of most common bridge types: slab bridges, frame bridges, beam bridges, box girder bridges, integral bridges, culverts, skewed bridges, curved bridges.	x	
Parametric modeling of general geometries: long span bridges, spectacular bridge geometries, tunnels, dams, high-rise buildings, local models etc.		x
Automated meshing	x	x
CAD import/export		x
Scripting		x

<b>Analysis procedures</b>	<b>Standard</b>	<b>Plus</b>
Static stress/displacement analysis	x	x
Natural frequency analysis	x	x
Modal transient dynamic analysis		x
Non-linear transient dynamic analysis		x
Steady state dynamic analysis		x
Response spectra analysis	x	x
Random response analysis		x
Eigenvalue buckling		x
Non-linear buckling and post-buckling		x
Sub model analysis		x
Segmental construction analysis		x
Time dependent creep and shrinkage analysis		x
Heat transfer analysis		x

<b>Moving loads</b>	<b>Standard</b>	<b>Plus</b>
Static effects of moving loads	x	x
Influence surfaces/lines	x	x
Mesh-independent lanes	x	x
Multiple simultaneous vehicles	x	x
Library of predefined vehicles in accordance with various design codes	x	x
User-defined vehicles	x	x
Dynamic effects of moving loads		x
Library of predefined high-speed trains in accordance with Eurocode		x
User-defined vehicles		x
Automatic enveloping of dynamic response from moving loads		x

<b>Pre-stress</b>	<b>Standard</b>	<b>Plus</b>
Arbitrary cable alignment	x	x
Automated calculation of losses	x	x

<b>Load combination</b>	<b>Standard</b>	<b>Plus</b>
Advanced load combination	x	x
Predefined load combination rules in accordance with various bridge design codes	x	x
User-defined load combinations	x	x

<b>Non-linear capabilities</b>	<b>Standard</b>	<b>Plus</b>
Geometric non-linearity: large deflections and rotations		x
Material non-linearity		x
Contact conditions		x

<b>Element library</b>	<b>Standard</b>	<b>Plus</b>
Beam elements	x	x
Truss elements	x	x
Shell elements	x	x
Membrane elements		x
Solid elements		x
Spring elements	x	x
Dashpots		x
Connector elements		x
Rigid elements		x
Mass elements		x

<b>Result visualization</b>	<b>Standard</b>	<b>Plus</b>
Contour plots	x	x
Deformation plots	x	x
Diagram plots	x	x
Tick mark plots		x
Overlay plots		x
Tabulated results	x	x
Animation of results	x	x