limitstate:RING
RAPID MASONRY ARCH BRIDGE ANALYSIS

LIMITSTATE:RING VERSION 4

LimitState:RING v4 is the latest version of the highly successful RING software line for the analysis of masonry arch bridges.

VERSATILE

Trusted by leading engineering firms, bridge owners and academic institutions worldwide, LimitState:RING provides engineers with many of the the advanced features normally associated with finite element software, while retaining the speed and user-friendly aspects of simpler tools.

From rapid capacity checks of simple single-span arch bridges to comprehensive analysis of complex multi-ring, multi-span viaducts with a range of defects, LimitState:RING addresses a wide range of engineering needs.

Developed in association with leading industry bodies, each release undergoes rigorous validation against a wide range of laboratory and full-scale test data.

LimitState:RING is the only commercial software to implement the rigid block limit analysis technique, a method described in a key industry guide as being: 'a significant improvement from basic limit analysis formulations', and 'a very versatile tool' CIRIA C656 (2006).

USER-FRIENDLY

LimitState believe that your time should be spent as productively as possible and have developed LimitState:RING with this in mind. By combining an intuitive user interface with a powerful analysis engine, users can quickly obtain realistic ultimate limit state (ULS) and support movement analysis solutions, as well as undertake optional (permissible limit state, PLS) analyses.

INFORMATIVE

LimitState:RING users can swiftly investigate numerous 'what if' scenarios, viewing corresponding failure mechanisms to develop a clear understanding of the relative importance of key problem parameters. Users can also investigate the root causes of existing cracks and identify resultant load paths.
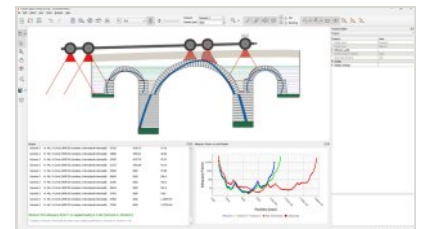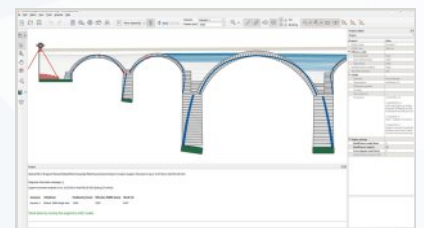
Model a wide range of bridge types, including multi-ring and multi-span structures
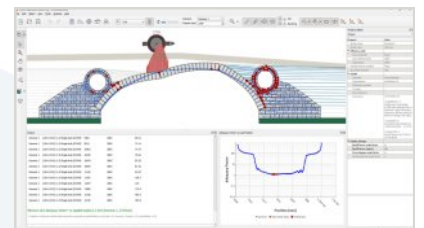
Import geometries from CAD to define more complex problems
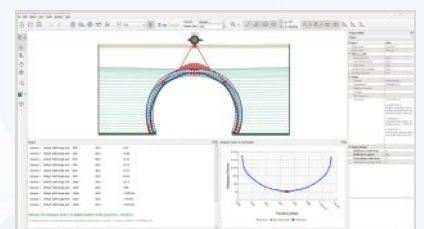
Carry out ultimate limit state, support movement, or permissible limit state analyses

Model support settlements to determine load paths and the likely causes of cracks
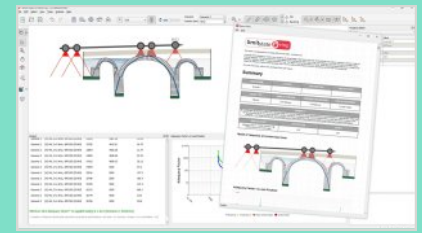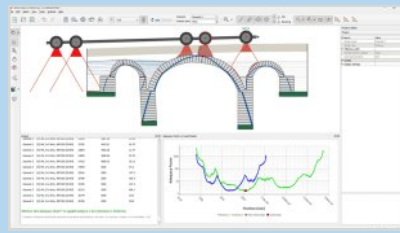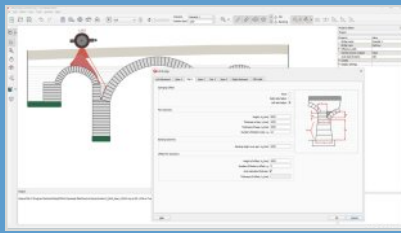
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SETUP

- Intuitive interface and a shallow learning curve
- Rapid problem setup using the 'New Bridge Wizard'
- CAD import for definition of complex bridge geometries
- Create template files to handle common scenarios
- Incorporate local defects such as weak masonry or mortar loss
- Optionally model bridges incorporating reinforcement
- Large and expandable database of highway and railway vehicles

ANALYSIS

- Ultimate limit state analysis quickly identifies the critical collapse state
- Support movement mode to explore the causes of cracks
- Optionally model service load behaviour e.g. to CIRIA C800/CS454
- Optimization technology offers fast, accurate solutions
- Problem diagnostics tool provides helpful model insights and advice
- Console mode for parametric studies and batch analysis
- Streamlined load management with auto-load functionality

OUTPUT

- Determine factor on applied loading at collapse
- Clear visual representation of the critical collapse mechanism
- Output a comprehensive and customizable report document
- Interactive plot of adequacy factor for each loading scenario
- Query plots of contact shear, normal and moment magnitudes
- Access valuable analysis output data through the Property Editor
- Easy identification of hinging, crushing and/or sliding modes

ABOUT LIMITSTATE

We specialize in the development of powerful, yet easy-to-use software tools for the civil and structural engineers.

Our expert support team are on hand for swift assistance with technical and licensing queries.

From independent firms to multinational corporations, engineers in over 30 countries around the world rely on our software.

OUR PRODUCTS

Discover unique software solutions that set themselves apart by taking full advantage of state-of-the-art optimization algorithms to rapidly and accurately analyse the critical mode of response.

We strive to ensure our software output is as useful for the user as possible. Query forces and failure mechanisms, gain a deeper insight into your engineering problems and address crucial 'what if?' questions.

SCAN ME

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