ALLPLAN
A NEMETSCHEK COMPANY

PERFORMANCE HIGHLIGHTS
ALLPLAN BRIDGE PRESTRESSING

Allplan Bridge Prestressing is the powerful solution for four-dimensional parametric modeling of bridges. The software supports engineers in all planning phases, from the initial concept to the execution plan. The parametric description of the bridge model with the prestressing cables takes usability to a new level and allows engineers to work flexibly and quickly.

PRESTRESSING MADE SIMPLE

Allplan Bridge Prestressing makes it easy to model a wide range of types of pre-stressing: with immediate or later bond, internal and external, longitudinal, transverse and vertical, as well as with non-standard geometry. Based on user-defined 3D points, the program automatically generates the geometry of a tendon along the bridge structure. Each 3D Tendon point is specified by the position along the axis, and the position in the cross-section in relation to a reference point. In addition, direction angle and curvature radius of the tendon can be specified in each point. Selective parameters can be defined as variable. When calculating the detailed tendon geometry, the program determines these values automatically, using an intelligent algorithm minimizing the friction losses in the stressing process. A special point grid is available in the cross-section to ease the specification of the tendon position in the cross-section plane. This point grid facilitates copying and mirroring of the tendon in longitudinal and transverse direction.

CHANGES MADE IN NO TIME AT ALL

Allplan Bridge Prestressing helps you to manage the inevitable changes that occur during the design process. The parametric model description is an ideal base for adapting design changes. The modifications are incorporated only at their origin and all other linked members are automatically updated. For example, if the road axis changes the prestressing tendon geometry will be adjusted. If only a certain structural member is modified only directly linked elements will be recalculated.

PLANNING STRESSING SEQUENCES IN ALLPLAN BRIDGE

A stressing sequence can be defined for each tendon specified in the model. Stressing, wedge slip, and releasing are available actions. These actions are carried out at the begin of the tendon, at the end, or at both sides simultaneously. To optimize the management of tendon stressing, the sequences of stressing actions are stored as named "stress groups". The tendons are assigned to the corresponding group via Drag&Drop, and automatically stressed in accordance with the group definition. In addition, the values can be adjusted individually for each tendon.

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3D TANGENTS FOR TENDON MODELING

Allplan Bridge provides several workflows of modeling the tendon geometry and makes it easy to model a wide range of pre-stressing types: with immediate or later bond, internal and external, longitudinal, transverse and vertical, as well as with non-standard geometry. A new approach was developed allowing to define certain tendon geometries even easier: the user defined 3D tendon points (tangent intersections points) define the tendon tangents in 3D space which represent the basis for calculating the tendon geometry using the given curvature radius.

TECHNICAL SUPPORT FROM BRIDGE EXPERTS

ALLPLAN's bridge design experts have over 30 years' experience supporting engineers worldwide. ALLPLAN's clients can benefit from our technical experts providing comprehensive consultancy, training and support.

Current system requirements can be found at allplan.com/info/sysinfo

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