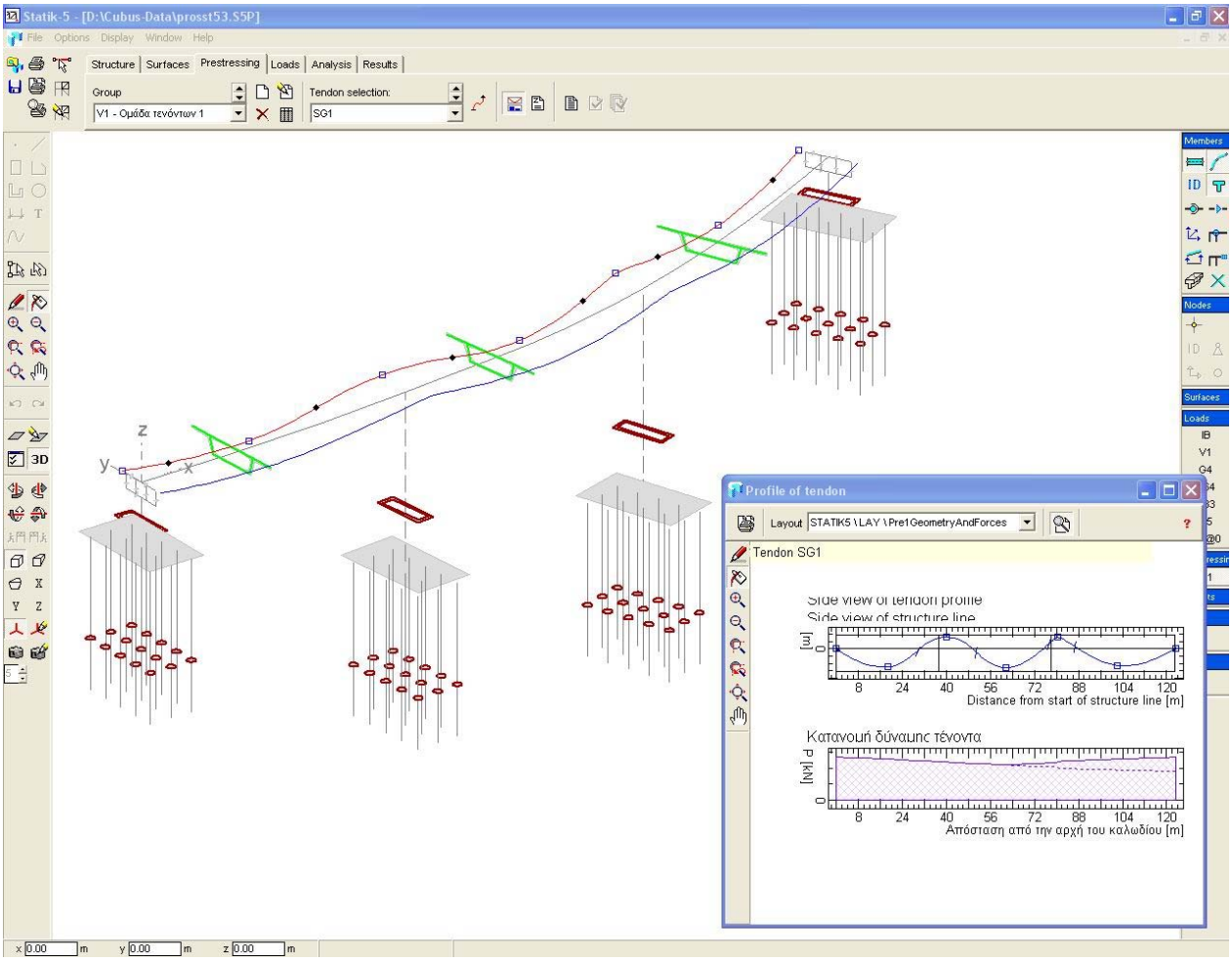
STATIK-5V

Prestressing
Design
Verification



The optional prestressing module to STATIK-5 allows the input of tendons regarding geometry, prestressing procedure and other attributes. All actions on the structure related to this are calculated automatically. Therefore STATIK-5 is able to calculate and design prestressed frames by the pre- or posttensioning method.

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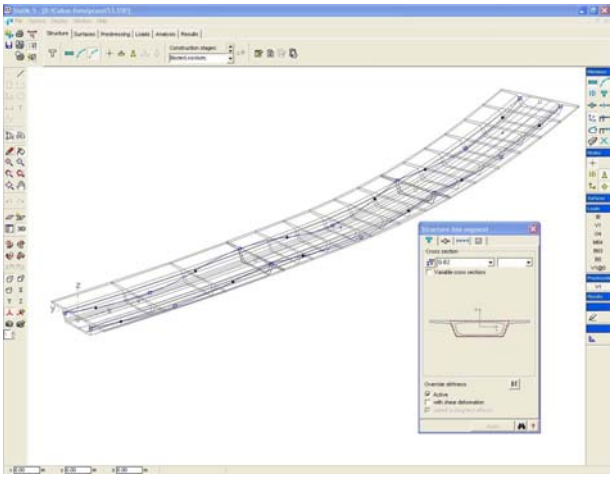
The Input of tendons includes:

The Geometry of the tendons

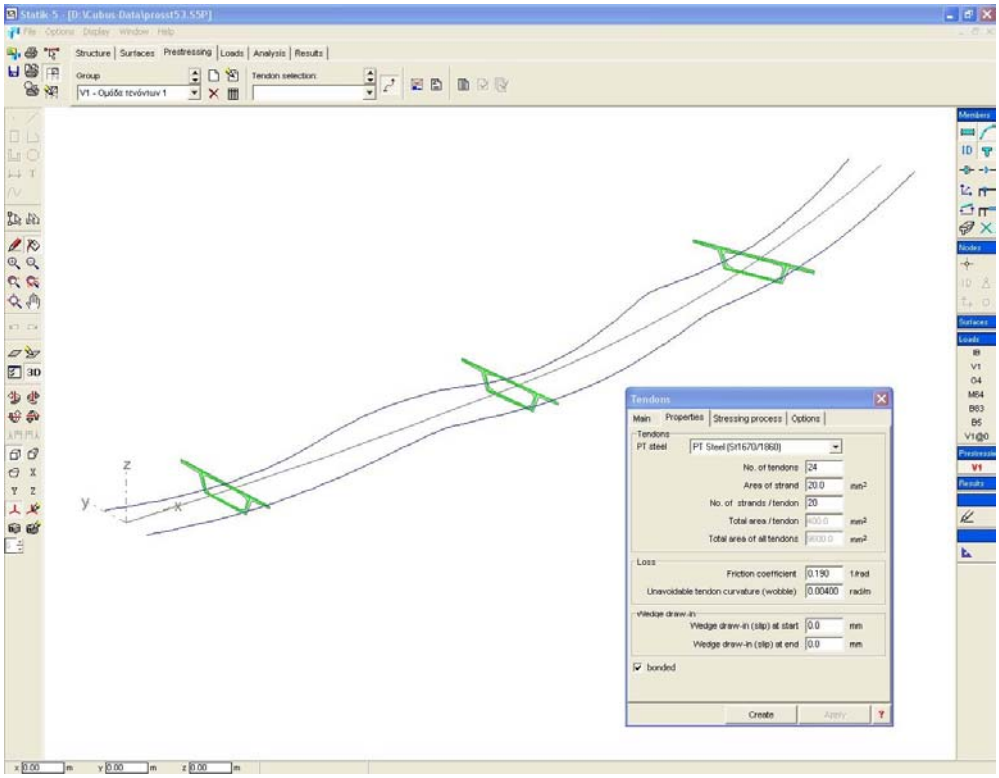
- The input is interactive by graphics. As reference lines “structure lines” are used, for example the lane axis of a bridge, which can be defined as a straight line or a space curve of arbitrary shape



- The vertical profile is a curve through arbitrary positioned points, in whitch you can define the tangent direction and the tangent weight. Pieces with constant (minimum) radius of curvature and polygonal profiles for external tendons are also supported
- The horizontal profile results from the leader line, defined on the cross-section of the continuous beams

The tendon attributes

- Steel - quality
- With / without bonding
- Friction values, accidental deviation, wedge draw-in at anchorage
- Area and amount of stands
- Minimum radius of curvature



The prestressing procedure

The following procedures in arbitrary sequence at the ends of tendons allow a realistic application of the tensioning forces (tensioning forces are expressed in percentage of f_{pk})

- Tressing / releasing till to a given force
- Releasing, so that the 1st maximum of the prestressing force, starting from the tensioning end, after anchoring, reaches a given value
- After the last tensioning procedure at the tendon end an automatic anchoring is introduced, with consideration of the wedge draw-in if specified

Prestressing tendon can be stressed at a certain construction stage and restressed at later construction stages

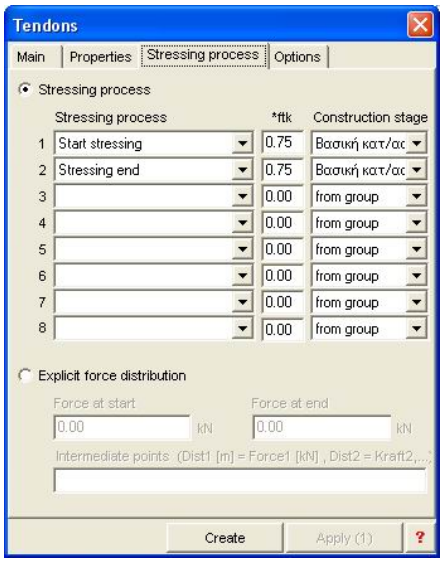
Tendon groups and construction stages

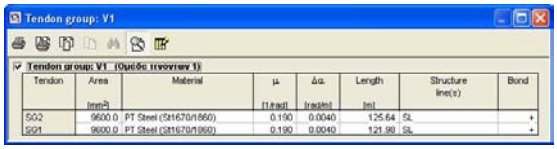
The grouping of tendons offers the following advantages:

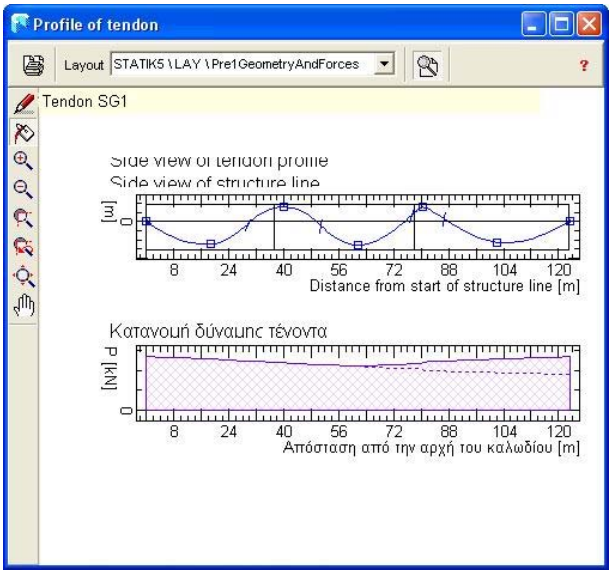
- Better overview of big amount of tendons
- From the actions of the prestressing forces on the structure, a loading will be created per tendon group, for which results are calculated and combined
- Tendon groups can be assigned to a construction stage. The corresponding tendon will get active first at this stage

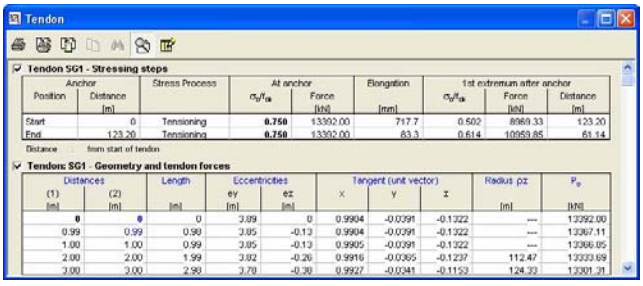
Results

- Because of the character of the prestressing actions as normal loadings, the usual results for envelopes with prestressing loadings can also be obtained. The parts of restraint actions and equilibrium can be obtained also separately
- STATIK-5 dimensions also the required non-prestressed reinforcement in prestressed members









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