

Bridges and design elements (-> DECREATOR) - what works and what doesn't?

What works in principle?

"Checking" QUAD systems (-> in principle also for beam systems, but less relevant there):

- Internal forces from individual load cases
- Tendon information (position in cross-section, etc.)

Verifications in which residual stresses (creep + shrinkage) are not relevant:

- Reinforcement determination in ULS for reinforced concrete bridges (approximately also prestressed concrete*)
 - * (-> $\sigma_{p,GZT} \geq f_{p,0.1k} / \gamma_s$), ergeben sich jedoch praktisch keine Unterschiede bei den ermittelten Bewehrungsmengen.
Since creep and shrinkage are not taken into account, the prestressing steel is not entirely correct when determining the reinforcement in ULS. For the frequent case that the prestressing steel starts to "flow" in ULS (-> $\sigma_{p,ULS} \geq f_{p,0.1k} / \gamma_s$), there are practically no differences in the calculated reinforcement quantities.
- SLS checks for reinforced concrete bridges if creep + shrinkage is negligible
- Determination of stresses / verification of cross-sections for steel bridges

What is not possible / only with restrictions?

Cross-section measurements where residual stresses are relevant

Why: There are no internal forces on the total cross-section due to eigen stresses
This means that eigen stresses are practically non-existent for DECREATOR.

Consequence: no SLS verifications for prestressed concrete bridges
and usually no ULS and SLS verifications for composite steel bridges

Processing of superimposed load cases

Superimposed load cases are not processed by the DECREATOR

Why: Possibly nonsensical results if in quad systems superimposed load cases are combined into a "beam section", especially with regard to the associated internal forces

Consequence: no processing of load cases from ELLA / Traffic Loader

If superimposed results with MAXIMA are desired:

DECREATOR must run before a superposition with MAXiMA
=> for this a SUPP... ETYP DSLN must be defined in MAXIMA
=> or design elements must be selected in superpositioning manager

If a superposition is desired with the CSM DESI MAXI:

=> Add input SUPP... ETYP DSLN manually into the maxi.dat