TEB

Tunnel Frame

The TEB application allows the calculation of rectangular single-cell (TEB-1) and twin-cell (TEB-2) frames with a continuously bedded base plate.

TEB-1: A camber or projection can be defined for the base.

The horizontal member can have a larger thickness in the middle than at the ends. It can optionally be omitted completely. The connection options are rigid or pinned.

The vertical members, the ceiling and the floor slab may have different thicknesses. The minimum width required for the definition of the system and the loading is one metre at least.

Concentrated, uniformly distributed and trapezoidal loads can apply to the vertical and horizontal members.

Standards

- DIN EN 1992
- ÖNORM EN 1992
- BS EN 1992
- NTC EN 1992
- DIN 1045 / DIN 1045-1

Calculation

The calculation is based on the displacement method and the subgrade reaction modulus method. The stiffness matrix is generated from the system values. Subsequently, the nodes' shift and torsion is assessed and the internal forces and the soil pressure are calculated on this basis. The stiffness of the members is calculated for state I. The structural system is a sway system.

Output

- System data in the form of tables
- Modulus of elasticity
- Concrete volume
- Self-weight
- Cross sectional properties A and I of the vertical and horizontal members and the base
- System graph with dimensions
- Load cases: The internal forces N, Q, f, As for all members at the break points of the corresponding state line as well as the displacement of the floor slab and the pertinent soil pressure can be put out as results of the individual load case calculations.
- In addition to this, the bending design (M, N, h, kh, As and As'), the shear stresses (Q, Tau0 and Tau) and the moment diagram can be put out as graphical representations.
- Superposition: Calculation and output of the superposition results (internal forces, floor slab shifts and pertaining soil pressures, design, graph of moments).