

## ATB / S8

### Antenna Mast Design / Steel Chimney Design

The S8 application is intended for the calculation of steel chimneys in line with DIN 4133. The ATB application allows the calculation of aerial poles in accordance with DIN 4131.

Both applications calculate deformations and internal forces in first and second order elasticity analyses as well as resonance frequencies, which are used to verify the structural safety, the service strength and the serviceability.

In line with DIN 18800 T1, the partial safety factor of the resistance is taken into account on the action side in the structural safety verifications. Correspondingly, the resistances have to be calculated using the characteristic values.

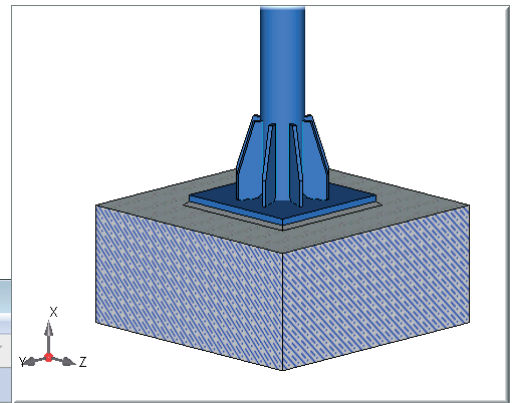
When including permanent and variable loads, the decisive wind direction is automatically assessed.

The following systems can be handled: supporting pipes with any cross-sectional characteristic either freely projecting, unsupported or three-dimensionally supported.

As an additional feature, the ATB application allows the selection 3 or 4 guy ropes with several supporting points over the pole height. The user can optionally define ice coats on the ropes or wind exposure.

#### Additional calculations

- Flange design
- Base design
- Pole openings
- Earthquake analysis
- Examination of resonance frequencies
- Buckling safety verification
- Service strength verification
- Optional alternative calculation of the pre-tensioning force



The screenshot shows the software interface for 'ATB Antenna Mast Design'. The main window displays a 'Quadratic base plate' dialog box with the following settings:

- Material: Concr C 20/25
- Steel: 1 | St 37-2
- Base plate: L= 50,00 cm, di= 0,00 cm, t= 2,50 cm, aw= 0,20 cm
- Anchor: ds20-BSt500
- Dist: 3,00 cm
- No.: 3 Seite
- Ribs: 8

The dialog box includes a 3D diagram of the base plate and a 2D diagram showing the layout of the base plate with dimensions. The 2D diagram shows a square base plate with a central circular hole and four anchor bolts. The dimensions are: L=50,00 cm, di=0,00 cm, t=2,50 cm, aw=0,20 cm, Dist=3,00 cm, No.=3 Seite, Ribs=8. The 2D diagram also shows the layout of the base plate with dimensions: 22,0, 22,0, 8,0.

The software interface also shows a 'Loading' section with a list of load cases (1-16) and a 'Remarks' section. The 'Remarks' section contains the following text:

```

Calculation of radio mast
Position 'ATB1' successfully loaded
Section (1): Q1: 2 -> Q1:
Section (1): Q2: 2 -> Q2:
Section (1): M: 1 -> M:
    
```

The software interface also shows a 'Project' section with 'Input' and 'Output' buttons. The status bar at the bottom shows 'Press F1 button for help' and '0,00 [m] CS NUM'.