

NC-Bolt M20 Combination Bolt/Rock Support

Combination Bolt designed for immediate and permanent anchoring



NC-Bolt M20 combination bolt for rock anchoring. The bolt is used with an expansion shell for immediate work safety support. The bolt is subsequently grouted for permanent anchoring. The bolt is approved by both the Norwegian Public Roads Administration and Norwegian National Rail Administration for use as a combination bolt/rock support bolt in tunnels.

Stock program:

M20x2400
M20x3000
M20x4000
M20x5000
Other lengths can be made to order

Technical information:

Material: HRB500E compliant with GB 1499.2-2007 or equivalent
Rebar bolt diameter 20mm.
Thread length: 2xM20x150mm (the threads are cold rolled)
Weight: 2.47 kg/m

Specifications:

Reference drawing PTC-173 series
Characteristic values:

| Dimension: | Tension area A_s Thread-stem | Yield ReH | Tensile Rm | Ductility Agt |
|------------|-----------------------------------|----------------------------|----------------------------|------------------|
| M20x2.5 | 245- 314 N/mm ² | Min. 500 N/mm ² | Min. 600 N/mm ² | Min. 8% |

Minimum load capacity:

Point anchored: Yield: 123kN Failure: 147kN
Fully grouted: Yield: 157kN Failure: 186kN

Typical test values show that we achieve approx. 200 kN for both shear and tension at failure load. Tests are done at SINTEF recommended torque: 150-250 Nm. Tests show that the specified torque range normally generates 40-60 kN of bolt tension, with the possibility of deviant individual values due to varying friction.

Corrosion protection/Pc-Coat

Hot-dip galvanization is carried out in compliance with NS-EN-ISO 1461 and epoxy powder coating in compliance with NS-EN 13438. With regard to coating thickness and further information, please see Document Q/PTC-T19A – Specification for Pc-Coat – SVV/JBV. Please also refer to the Pc-Coat Product Data Sheet and accompanying FDV documentation.

Grouting: Typical water/cement-ratio is 0,3-0,4. For more detailed information, please see own brochure "Grout recommendations" on www.pretec.no.

Recommended drilling:

Drill diameter: 45-48mm. Drill depth equals bolt length + 150mm

Accessories:

Spherical bearing plate with holes for evacuation of air and expansion shell BL-M20x45/45-48 zinc plate. Spherical bearing plate and expansion shell to be mounted on the bolt before insertion into the borehole.