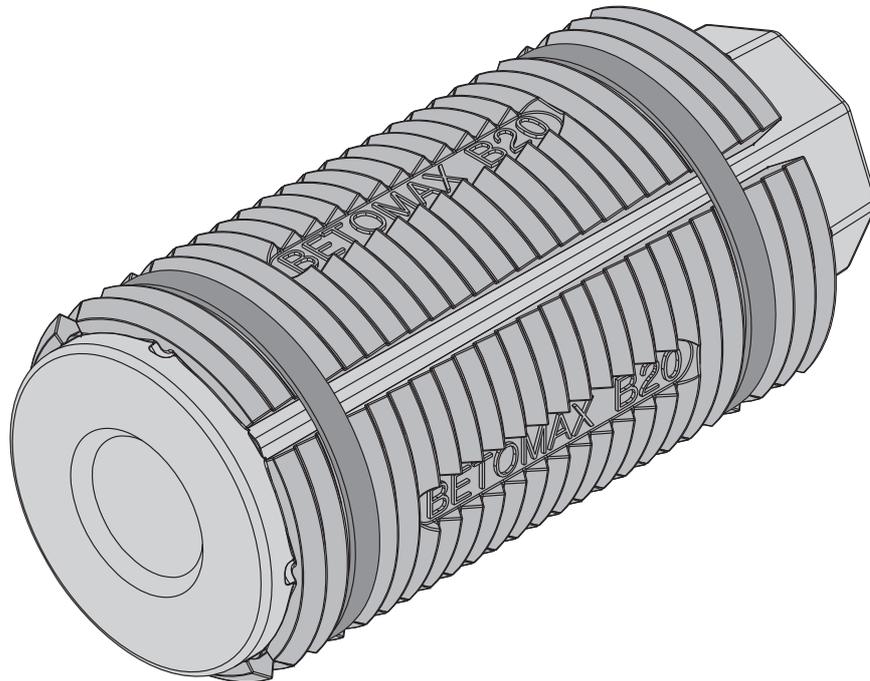


Rock anchor spreader unit 20.0

Art.n° 581468000



Product description

The Rock-anchor spreader unit is used to make single-sided formwork anchoring points in concrete.

-  It is strictly forbidden to use the spreader unit more than once, and to take the load off the anchoring points during use and then re-apply a load! (Except where using a "Suspension cone 15.0 with collar", and during the acceptance test.)
- When planning the anchoring point, remember that it is only permissible to subject it to tensile forces.
- The maximum period for which an anchoring point may in use is 6 months.

Items needed

Note:

Only use approved tie-rods!

After work is completed, the tie-rod can be re-used, while the "Rock anchor spreader unit" remains in the drilled hole.

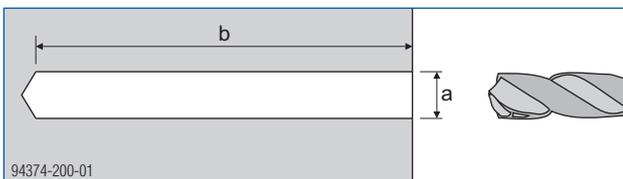
To make an anchoring point, the following items are needed:

Item	Designation	Art.n°
(A)	Tie-rod 20.0 (length as required)	
(B)	Rock-anchor spreader unit 20.0	581468000
(C)	Scaffold tube 48.3mmm	682001000
(D)	Tensioning instrument 300kN	581815000
(E)	Super-plate 20.0 B	581424000

Drilling the hole

-  It is not permitted to use diamond tipped hollow core-drills (trepanning cutter).

These cut through reinforcement steel in the concrete, leaving behind a smooth steel surface which causes slippage and deformation of the spreader segments. This prevents the rock-anchor from functioning as it should.



a ... nominal diameter 50-52 mm
b ... depth of drilled hole min. 400 mm

-  Check the diameter **a** of the drilled hole.
- Be sure to leave at least the minimum gap between the drilled hole and the edge of the structure, and between one drilled hole and the next (rupture cone).
- The depth of the hole **b** will depend upon the characteristics of the rock or concrete ($b_{min.} = 400$ mm). To determine the actual load-bearing capacity of the join (depth of hole), loading tests are necessary.
- Carefully clean the drilled hole, and blow out all the drill cuttings.

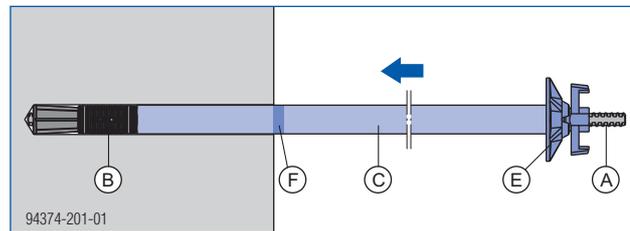
Installation

-  Make sure that you fit the Rock anchor spreader in the correct mounting position, as shown here.

- 1) Screw the tie-rod (length e.g. 750 mm) flush into the spreader cone of the Rock anchor spreader unit.
- 2) Push the Scaffold tube 48.3mm over the tie-rod and fix it with a Super-plate.

-  Make a chalk mark on the Scaffold tube 48.3mm to give you an easy-to-see check of the placement depth.

- 3) Push the assembled anchoring point all the way into the cleaned drilled hole, i.e. until it reaches the bottom of the hole.



- A Tie-rod 20.0
- B Rock-anchor spreader unit 20.0
- C Scaffold tube 48.3mmm (site-provided)
- E Super-plate 20.0 B
- F Depth mark made with e.g. chalk

- 4) Firmly tighten the Super-plate. This forces the segments to spread so that they bite into the walls of the drilled hole.
- 5) Remove the Super-plate and the Scaffold tube 48.3mm.
- 6) Tighten the anchorage point with the Tensioning instrument (see "Carrying out the acceptance test").

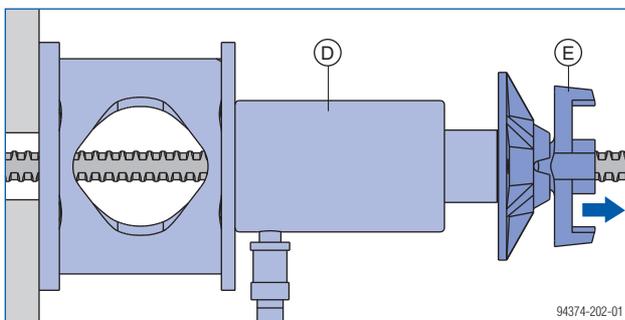
Carrying out the acceptance test



WARNING

- The load-bearing capacity of the anchoring point will depend upon how well the rock-anchor was fitted.
- The test-loading tests the load-bearing capacity of the anchoring point.
- If the material into which the rock-anchor has been fitted does not have sufficient bearing capacity, the tensioning instrument may suddenly loosen during the suitability test and/or acceptance test.
- For this reason, it is forbidden to stand beneath or behind the testing equipment.
- Secure the tensioning instrument so that it cannot drop.

- For the acceptance test, push the "Hollow-piston cylinder with pressure support" onto the tie-rod and mount the Super-plate 20.0 B.
- Apply the test force by operating the hand pump.



D Hollow-piston cylinder with pressure support

E Super-plate 20.0 B

Acceptance test

- Every anchoring point must undergo acceptance testing.
- The test load is 1.25 times the anchor force actually encountered.

Specimen calculation:

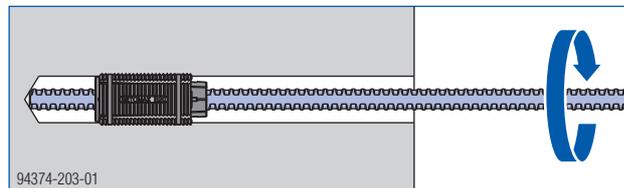
- **Test load:** 100 kN x 1.25 = 125 kN

Re-tightening the tie-rod



- In this situation, the rock anchor is very sensitive to knocks.

- Detach the tensioning instrument.
- Re-tighten the tie-rod all the way in to the bottom of the drilled hole.



The anchoring point is now ready for use.

After use

- Unscrew the tie-rod and close off the anchoring point so that it cannot be re-used.

Trial test to determine the permissible load, based on DIN 4125

Suitability test

- On every building site, test at least 3 anchors at a location where unfavourable results may be expected.
- Load these test anchor-points until they fail, but not to more than **max. 220 kN**.
- The permitted anchor force is determined from the load at failure with a **safety factor of 1.5**.

Permitted capacity of the tie-rod to DIN 18216:
150 kN

Specimen calculation:

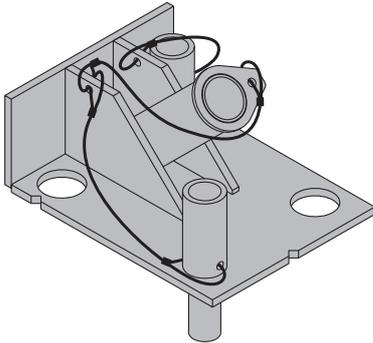
- Failure load: 160 kN
- Permitted anchor force: 160 kN/1.5 = 106.7 kN

- With reference to the permitted anchor force, space out the anchors and determine the anchor force actually encountered (e.g. 100 kN).

Testing truss for diagonal anchors 15.0/20.0

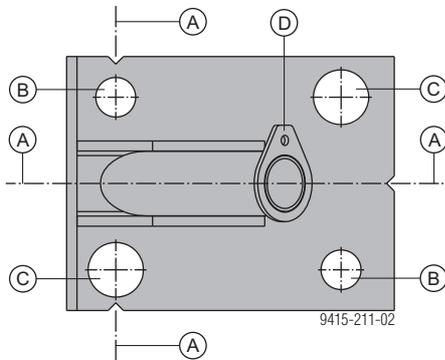
Is used for preparing an anchoring point at a 45° angle.

Art.n° 580514000



Positioning

- Align the notches of the testing truss to the guide-lines (A).

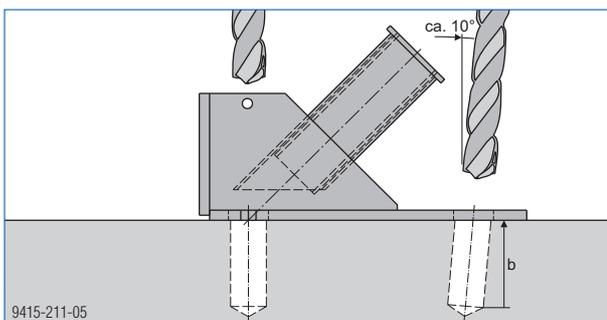


- A** Guide-lines for the desired anchor position
- B** Holes drilled for the pegging-tubes, when a Rock anchor 15.0 is to be used (drill bit diam. 37 mm)
- C** Holes drilled for the pegging-tubes, when a Rock anchor 20.0 is to be used (drill-bit diameter as specified by the manufacturers, DSI or SAH)
- D** Adapter tube for Rock anchor 15.0

Fixing the testing truss

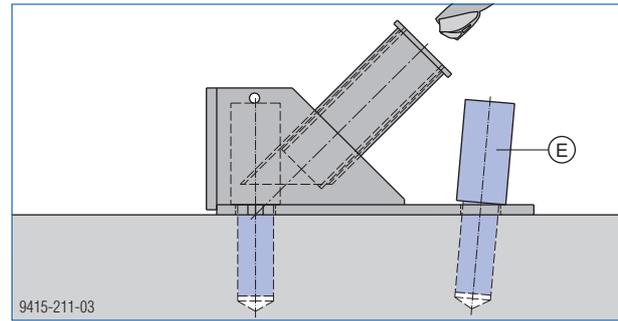
Variant 1: using pegging-tubes

- Drill 2 holes, diagonally opposite one another, for the dimension of rock-anchor that is going to be used.



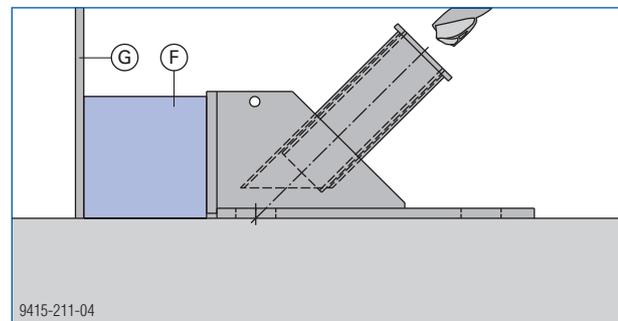
b ... Depth of drilled hole min. 5 cm

- Push in the pegging-tubes (E) and drill the hole in the diagonal.

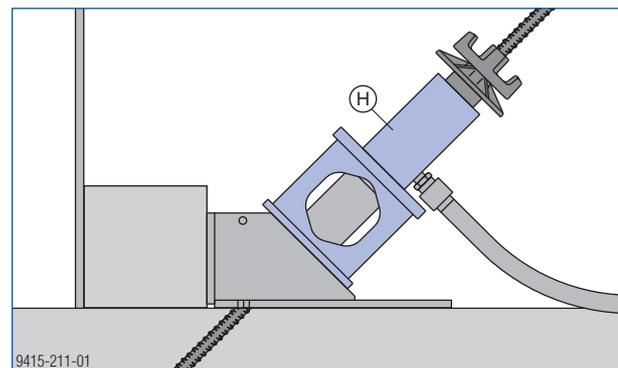


Variant 2: using a squared timber spacer

- Use a site-provided squared timber (F) as a spacer between the reinforcement (G) and the testing truss. Then drill the hole in the diagonal.



- The testing truss is now finally positioned. The procedure from now on is the same as for installing the Rock anchor spreader unit 20.0.



H Hollow-piston cylinder with pressure support