

***Instruction for installation of expansion shells for tie rods  
diam. Ø 15 mm, item no. 15F63037 (3 leafs)***

*Please note the following information for installing our expansion shells correctly:*

- 1) Drill borehole of diameter: 34 – 37mm. The borehole should be cleaned by flushing and air-blowing.  
depth of borehole (t): min. 32 cm. Distance to next borehole: min. 3 times depth of borehole (3 t). Distance from edge min: 1,5 times borehole depth.  
Quality of concrete: min. B25 (25 MPa) is required.*
- 2) Screw expansion shell on the bar (tie rod) and take care that the bar is screwed through the cone of the expansion shell. 1-2 pitches of thread should be extend out of the cone. The coloured plastic ring must remain on the expansion shell.*
- 3) Put the assembled anchor into the well prepared borehole. The coloured plastic ring must be removed through the edge of the borehole; if not it must be removed by hand.*
- 4) Please note the following important information:*
  - If the expansion shell is used in concrete please make sure that a sufficient bond length and the required reinforcement is given.*
  - Before putting a full load on the anchor you have to make a pull out test under the worst conditions (biggest possible borehole and worst quality of concrete or rock/soil). The pull out test has to be done with a centre-hole jack up to slippage of the anchor or up to reaching the yield load of the bar. If the anchor is pulled out before the yield load is reached, reduce the size/diameter of the borehole and conduct a new pull out test.*
  - The pull out tests should be conducted very carefully using experienced and skilled people only. There is high danger due to uncontrolled energy/power should the anchor slip out or break.*
  - Note that in general the breaking load of the expansion shell is higher than the bar's breaking load.*
  - In any case please be aware that the concrete quality or rock or soil as well as size of borehole will affect the anchor behaviour.*

*There is no special approval for expansion shells available as it is not required.*