

# Thorbolt with top expansion shell

## For immediate rock reinforcement

This product is designed to be used as a complement to today's Thorbolt where **immediate** rock reinforcement is required in leaking boreholes and where injection with 5-10 Bar overpressure in addition to the current water column is planned (injection pressures up to approx. 100 Bar are possible)

The product is delivered complete; Thorbolt, rebar (in desired length), evacuation system and top expander. The delivery also includes a dome plate, hemisphere and M24 nut. The product is available with two different types of surface treatment; Galvanized or Epoxy combi-coated.

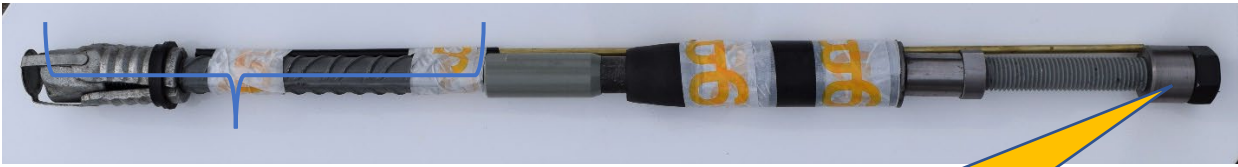
A number of necessary mounting tools are also required for these complete rock securing bolts, i.e. screw socket for top expander, screw socket for Thorbolt packer and quick coupling for grouting.

A picture of all components shows:



- 1 Thorbolt complete, with rebar and top expansion shell
- 2 Screw socket to top expander (short socket, ordered separately as tools)
- 3 Screw socket to Thorbolt packer (long socket, ordered separately as tools)
- 4 Nut, spherical washer (hemisphere) and dome plate.
- 5 Quick coupling M24 (levereras i lämpligt antal ifh till antal Thorbolt)

Thorbolt with top expansions shell incl assembled screw sleeve for *top expander*.



Total length Thorbolt with top expander shell, to be decided by client).  
(Rebar =  $L_{tot} - 400\text{mm}$ )

Screw socket *top expander*

Thorbolt with top expansions shell incl assembled screw sleeve for *Thorbolt packer*.



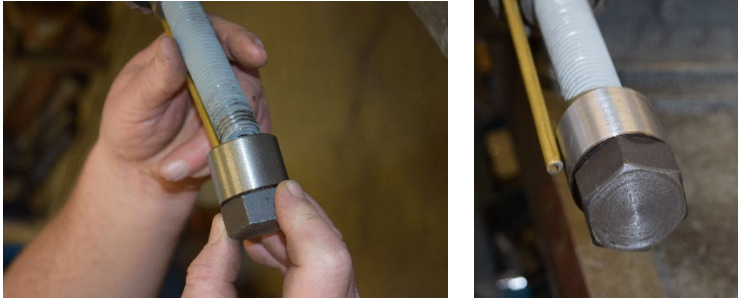
Screw socket *Thorbolt packer*

**NOTE:** Nut for Thorbolt, screw socket top expander and Screw socket Thorbolt packer all have a **spanner width of 36mm**.

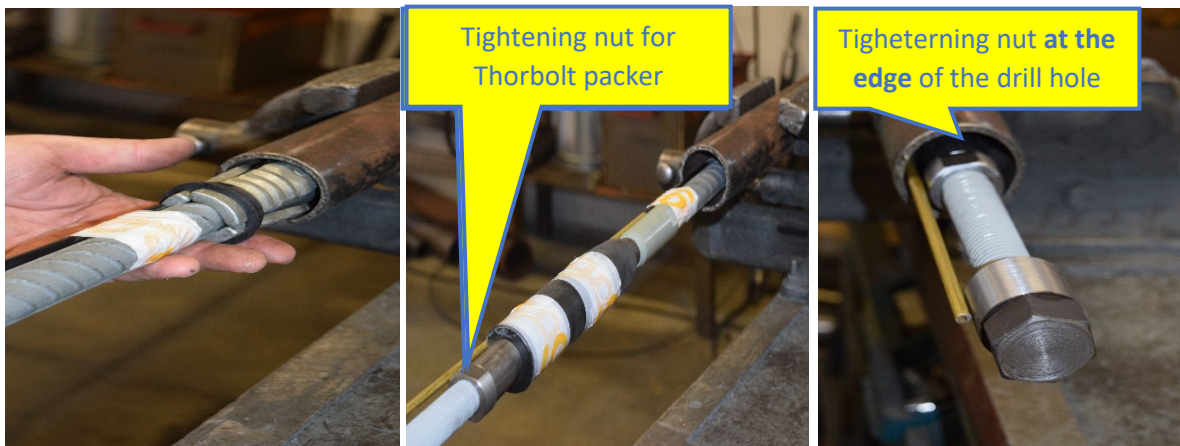


## Assembly instructions Thorbolt with top expander

1. Mount the screw socket for top expander on the Thorbolt thread (short socket).



Adjust the top expander so it fits into drill hole and insert Thorbolt so Thorbolt Packer tightening nut ends up at edge of drill hole.



- 2 Tighten the top expander by turning the entire Thorbolt clockwise (right hand), using a nut runner.



- 3 Disassemble the screw socket for the top expander (thread counter-clockwise), shear on the screw sleeve for the Thorbolt packer (long socket).



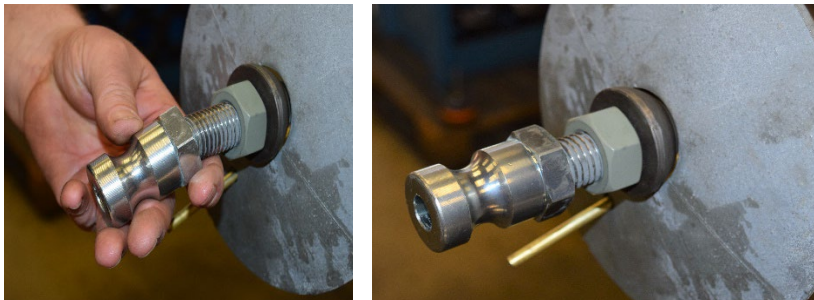
- Expand the Thorbolt packer with the screw socket by turning the nut under the packer clockwise (right hand), use a nut runner.



- Remove long screw socket, if possible apply plastic mortar around the end of the Thorbolt / entrance of the drill hole, fit the dome plate, hemisphere and nut. Buckle up ditto. (**Note:** If plastering cannot take place in this step, it must be carried out in connection with step 7, grouting)



- Mount the quick coupling for grouting



- Grout (leave ventilation open until water/air stops coming, when only grout are coming will bend ventilation pipe and carry out grouting until stop criteria for grouting is reached)

