

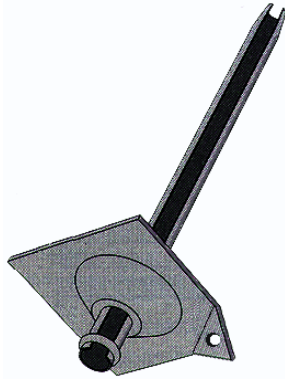
PHQ STFB20T Friction Bolt Pull Tester

Parts Headquarters Inc., manufactures a lightweight Friction Bolt Pull Tester. A fabricated steel frame inclosing a hydraulic cylinder connected to an anvil. The hydraulic cylinder powered by a hydraulic hand pump pulls the anvil away from the rock face. A graduated gauge on the pump records the maximum force exerted as the bolt begins to move out of the rock face.



Holes are drilled in the back (roof) or the wall using a jackleg or stoper drill to facilitate placing of Skema friction rock bolts.

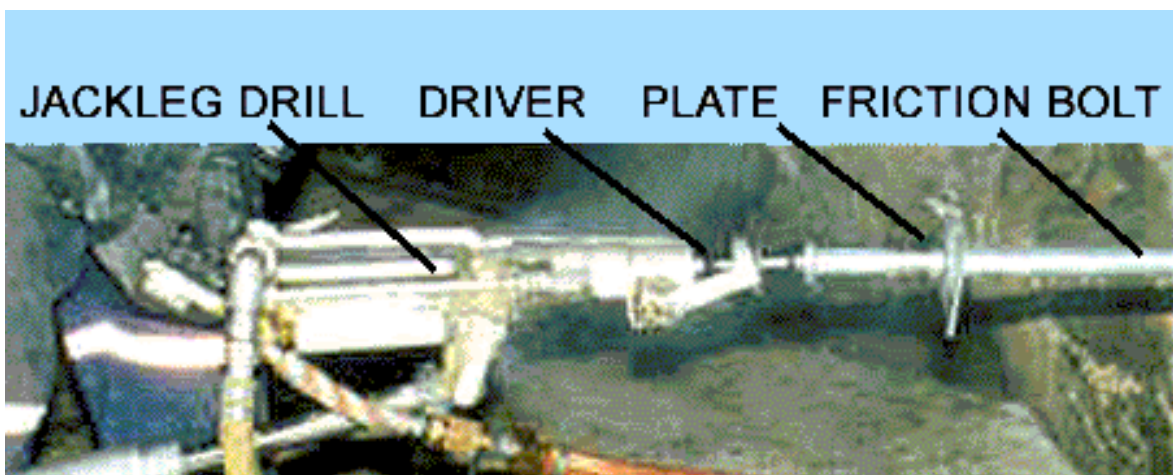




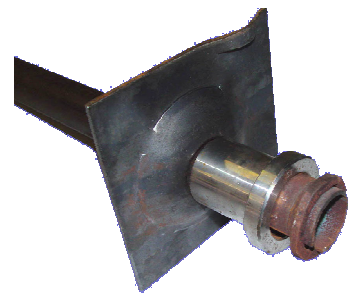
Skema friction bolts are driven into rock using a rock bolt driver made to fit in the 7/8" by 4 1/4" chuck of a jackleg or stoper drill. The rock bolt driver has a round shank end, and a custom made adapter designed to fit into the driving ring of the bolt.

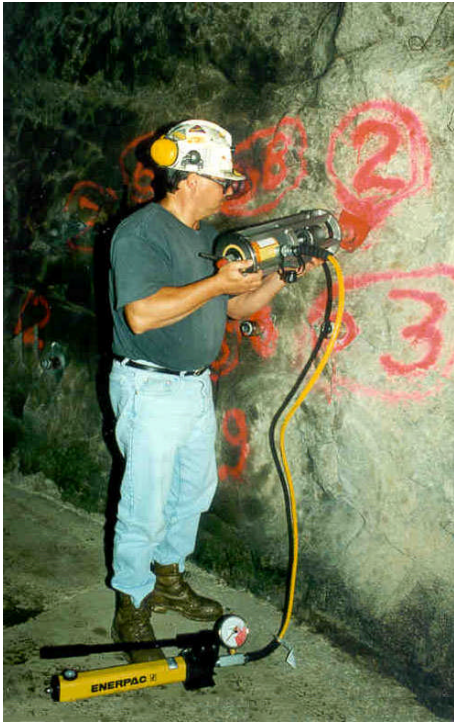


The round shank prevents the hex chuck in the rock drill from turning the driver and allows the hammer (piston) in the drill to strike the end of the shank. The hammering force of the rock drill combined with the strength of the pusher leg drives the friction bolt to the bottom of the hole to seat firmly into place.

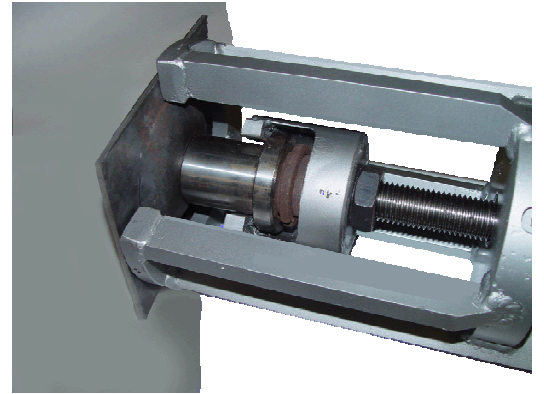


If one wishes to test the force required to pull the bolt from the hole, a special pull collar is required. The pull collar is placed over the friction bolt between the wall plate, and the welded ring before driving the bolt into the hole.





Once the friction bolt is installed in the rock face, with the pull collar in place, the pull tester can be put into position. The pull tester has an anvil designed to slip over the pull collar.



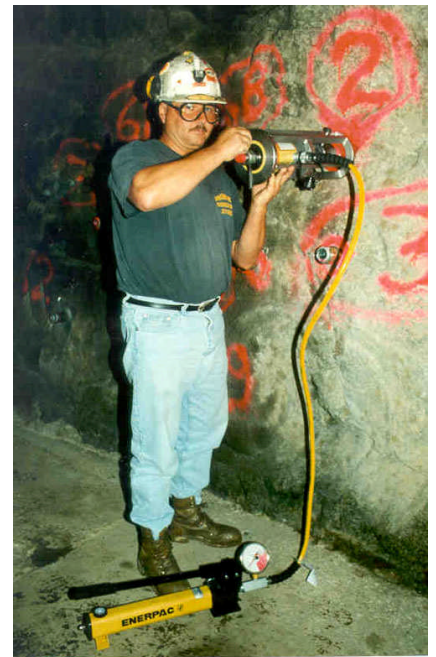
The anvil is attached to the hydraulic cylinder within the frame. The device is designed so that the anvil pulls on the pull collar while the outer frame of the puller is firmly anchored against the friction bolt wall plate, next to the rock face.

The friction bolt tester has a screw that allows the operator to manually tighten the pull tester against the friction bolt wall plate with the anvil gripping the pull collar. As



the screw is tightened the operator takes care to be sure that

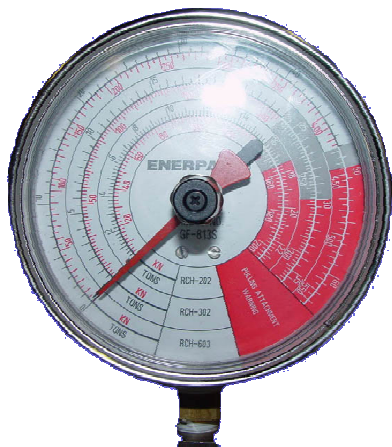
the mechanism is square and properly aligned. He re-checks the alignment of the mechanism and the bolt once the puller is firmly in place.





Once the puller is in position the miner pumps a lever mechanism pressurizing the hydraulic cylinder in the puller. Pressure applied by the anvil on the bolt collar pulls the friction bolt from the rock face. Eventually the friction bolt begins to move out of the hole. A gauge on the pump records maximum force exerted at any time during the process. The Engineer reads the gauge to record the force or “pull strength of the friction bolt.

Set the red (free-moving) needle on the gauge to “0”. As the cylinder is pressurized the black needle will move around the gauge carrying the red needle to the maximum pressure recorded. Once movement of the bolt begins the needle will no longer advance. Read the tonnage or KN pressure exerted on the inner dial of the gauge

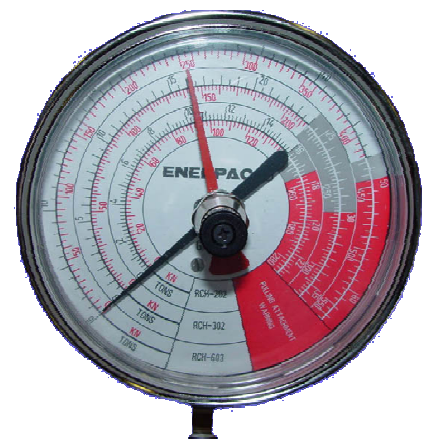


Gauge set at “0”

Read the inner gauge scale marked:

RCH202

Measures:
tons or KN



Gauge reads 12 tons



The PHQ STFB20T Friction Bolt Pull Tester produces accurate and repeatable test results. The tester shows the maximum amount of force that is required to pull installed bolts out of holes drilled in rock.

The PHQ Friction Bolt Pull Tester comes packaged in a wooden storage box and is complete with four pull collars, this operating manual, and a manual for the ENERPAC hydraulic cylinder.

Bolt pull collars can be manufactured from tubing or solid bar stock. The hole through the center should be large enough to slip over the bolt that is to be tested. The outside diameter of the body of the collar should be no larger than $1 \frac{7}{8}$ " with a shoulder of $2 \frac{1}{2}$ " to fit properly into the anvil block of the bolt puller.

