

GROUTED ROCK ANCHORS

The Chance Grouted Rock Anchor is designed to be used in situations where the soil is too rocky to use screw anchors, but the rock is fractured preventing the use of wedge style rock anchors. The forged knob on the end of the anchor along with any extension couplings provides the interference fit with the grout. The holding capacity of the anchor is dependent on the bond stress between the rock and the grout. The Grouted Rock anchor is designed to be used inline with the guy. Failure to install within 5° of alignment with the guy load will significantly lower strength.

To install a Grouted Rock Anchor requires first drilling a 6"-diameter hole. Then insert the anchor, assembled with any Round Rod Extensions and Guy Adapter needed. Portland-cement grout pumped in to completely fill the hole around the anchor takes approximately five days to cure.

For Application Information, see next page.

Ordering Information

Galvanized per ASTM A-153

Grouted Rock Anchor — 1.25"-diameter rod

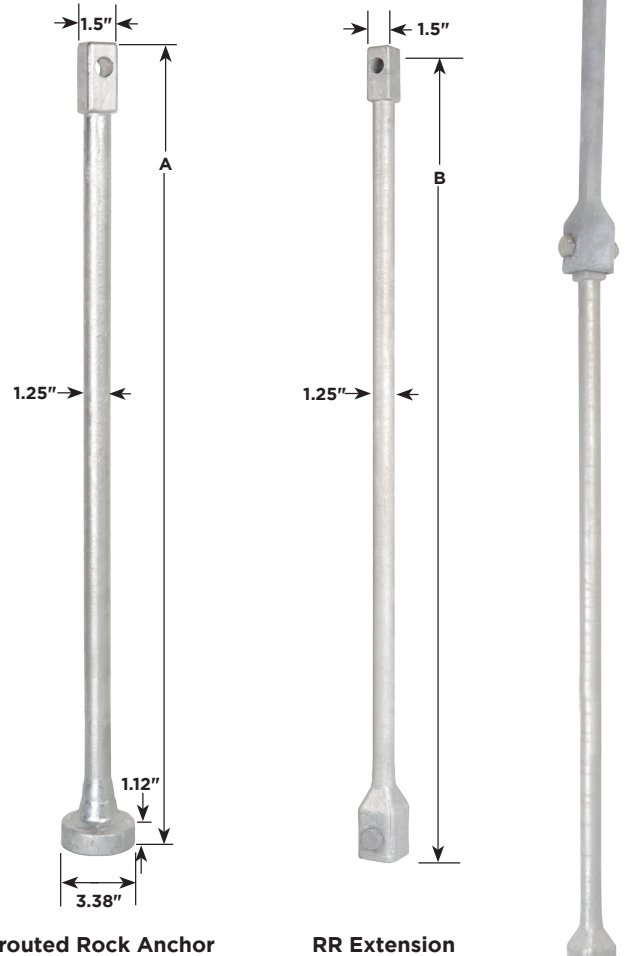
| Catalog No. | Length A | Approx. Ship Wt. Each | Approx. Wt. Each Lbs.(Kg) |
|-------------|----------|-----------------------|---------------------------|
| W1040004 | 36" | 17.6 lb. | 17.6 (8.0) |
| W1040055 | 84" | 38.0 lb. | 34.0 (15.4) |

RR (Round Rod) Extension — 1.25"-diameter rod

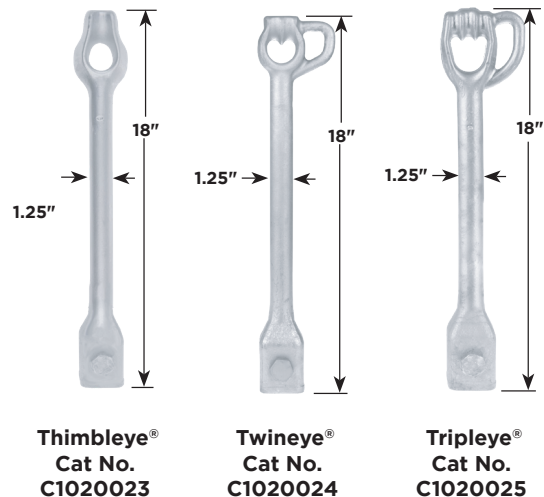
| Catalog No. | Length A | Approx. Ship Wt. Each | Approx. Wt. Each Lbs.(Kg) |
|-------------|----------|-----------------------|---------------------------|
| 12696 | 42" | 17.6 lb. | 20.0 (9.1) |
| 12697 | 60" | 38.0 lb. | 29.0 (13.2) |
| 12698 | 84" | 24.0 lb. | 34.5 (15.6) |
| 12699 | 120" | 46.8 lb. | 46.8 (21.2) |

Note: SS5 and SS150 extensions can be used in place of the RR extensions listed above.

Typical Assembly of Components as Installed, at right



Guy Adapters



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RR (Round Rod) Extension — 1.25"-diameter rod

| | Ultimate Bond Stress between Rock & Grout psi (see Notes 1, 2, 3) | Allowable Load Capacity for 6" dia x 1' long grout column lb/ft of length (see Note 4) |
|--|---|--|
| "Granite Basalt 200 15000 Dolomitic Limestone" | 200 | 15000 |
| "Soft Limestone Slates & Hard Shales 100 7500 Sandstone" | 100 | 7500 |
| Soft Shales | 30 | 1800 |
| Soil (see Note 18) | | |
| Class 5 | 8 | 600 |

NOTES:

1. Ultimate bond stress values from the PTI (Post Tensioning Institute) and the grout to ground bond values from the FHWA (Federal Highway Administration) were used to arrive at the indicated ultimate bond stress between rock and grout used in the above chart.
2. Identification of the rock and application of the chart values is the responsibility of those designing the rock anchor.
3. The values in the chart are intended to provide conservative results.
4. Higher bond stress values may be obtainable, but the associated investigation to determine appropriate values and the use of those values is left to those designing the rock anchor.
5. The given ultimate stresses were applied over the surface of a 6" diameter x 1' long grout column, then divided by 3 to obtain the recommended allowed load per foot of length in the indicated rock or soil.
6. Actual capacities will depend on the strength of the rock, the grout strength and the quality of the installation.
7. A rough surface in the drilled hole is preferred as well as a clean hole free of loose material, soil, dust, etc.
8. A 6" diameter hole is recommended for the use of the W1040004 and W1040055 rock anchors.
9. The minimum bond length of the rock anchor to be engaging the rock is 5 feet.
10. It is recommended that field testing be accomplished to confirm capacities.
11. Anchor grout is to be made using Type I, II, III, or V Portland Cement conforming to ASTM C-150 specifications. Pre-packaged blended mixes per ASTM C-595 are also acceptable.
12. The compressive strength of the grout shall be a minimum 3000 psi at the time of stressing.
13. The grout should be flowable to reach the bottom of the drilled hole or pumpable if it is to be placed via a grout pump.
14. The ultimate mechanical strength of the W1040004 and W1040055 rock anchors and associated extensions and terminations is 70,000 lbs when Chance/Hubbell anchor components are used.
15. Water used in the grout mix should be potable (suitable for public consumption), clean and free of substances known to be harmful to portland cement or steel.
16. It is recommended that grout be placed in the hole prior to inserting the rock anchor.
17. When using pre-packaged grout mixes follow directions and use the water cement ratio recommended by manufacturer.
18. For recommendations concerning bonded lengths and unbonded lengths, reference the PTI specifications.
19. The rock anchor is to be installed in line with the guywire. Any misalignment is to be no more than ± 5 degrees.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to Hubbell Power Systems, Inc.

