



ANCHOR BOLT GROUTING GUIDE

INTRODUCTION

This guide addresses proper procedures for the anchoring of embedments (bolts, threaded rod, rebar) into concrete.

The Euclid Chemical Company manufactures a range of ASTM C881 epoxy resin construction adhesives used to adhere embedments into hardened portland cement concrete in new construction, rehabilitation, and maintenance applications. These anchor systems develop their holding capacities by the bonding of the adhesive to both the anchor and the concrete at the wall of a pre-drilled hole.

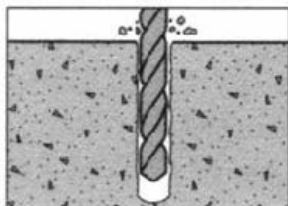
Typically, a structural engineer evaluates several factors before proceeding with an anchor bolt grout project. Anchor strength and long term performance are dependent on a variety of factors. Some factors to be considered include material strength, hole diameter and drilling system used, embedment length, annular gap between the anchor and the drilled hole, concrete strength and condition, type and direction of load application, spacing of anchors and edges, temperature, hole cleaning, mode of failure of the anchor system, environmental conditions such as moisture and/or subsequent chemical attack. In critical applications it is often recommended that a site test take place to verify performance.

Since every project is unique such evaluation is beyond the scope of this document. This document is meant to provide general guidelines for anchor bolt grouting.

Once these factors have been taken into consideration the procedures for installing the anchors is generally straightforward.

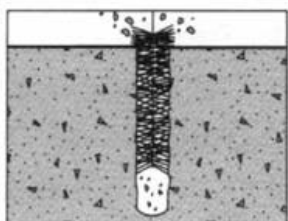
DIRECTIONS FOR USE

The steps to properly install anchors using Euclid Chemical epoxy adhesives are as follows:



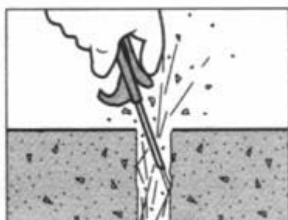
Step 1

Drill a hole the diameter size and depth of embedment required. Typically the diameter of the hole should be no larger than $\frac{1}{4}$ inch (6 mm) wider than the diameter of the anchor. For good quality concrete the hole depth is generally 10-15 times the diameter of the embedded anchor.



Step 2

Scrub the hole with a stiff bristle brush to remove all dust, dirt, debris or any other bond-inhibiting material from the drilling procedure.



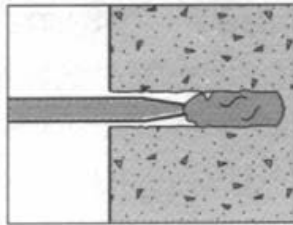
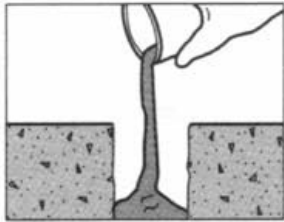
Step 3

Blow the hole clean with oil-free compressed air, brush, and blow it clean again. Holes should be clean and sound.

Step 4

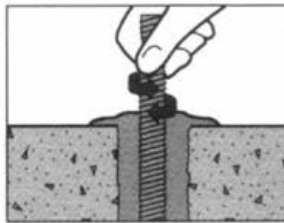
Mix the epoxy in accordance with the technical data sheet of the product being used. If setting anchors in horizontal slabs you may use a LV, MV, or GEL epoxy formulation. If setting anchors into a wall you must use a GEL epoxy. Also, select your epoxy formulation based upon ambient and surface temperatures, setting times, etc. Condition epoxies prior to use when working in cold or hot environments.

Pre-packaged dual cartridge kits are available for the utmost convenience. If using dual cartridge kits, place the kit in a dual plunger dispensing gun and remove end caps from both sides of the cartridge. Attach a static mixer nozzle using the reusable threaded retaining nut. Keep cartridge upright until use. Bleed off any air inside cartridge by slightly squeezing handle. Dispense the resins by working the trigger of the gun. Dispense and discard into a waste container a small amount to start the material mixing (2-4 trigger pulls or until uniform mixture is attained). Proceed with application. Do not point mixer upward after material is flowing. To stop dispensing, release pressure by pressing the lever on the gun and pulling back the plungers. When application is complete, remove the used static mixer and dispose of properly. A new static mixer should be used for each cartridge. Bleed off a few drops of material to clear away any mixed product. Clean the threaded area and openings and replace the end caps on the cartridge. Loosely replace the locking nut.



Step 5

Place the mixed resin adhesive in the rear of the prepared drilled anchor bolt hole. Avoid creating air pockets within the hole. If using a static mixer put the nozzle of the mixer to the back of the hole and slowly withdraw the nozzle as the material is dispensed. Fill to approximately $\frac{1}{2}$ the hole depth.



Step 6

Insert the anchor slowly with a twisting motion into the hole forcing it to the bottom until the resin adhesive flows to the top. Twist the anchor to ensure intimate contact and establish bond.

Step 7

Allow the epoxy adhesive to cure undisturbed for the specified time prior to applying any load.

ESTIMATING MATERIAL REQUIREMENTS: If you would like help estimating the amount of material needed for your project, please see the estimating charts located in the back of our Construction Products catalog, or contact your local Euclid Chemical representative.