Installation Instructions

Job site preparation and work flow – to achieve the desired results, carefully follow these procedures!

WARNING: For code compliance, manufacturers instructions must be followed.

It is recommended that the procedures below and on opposite page be read in advance and fully understood before any anchors are set.

- To achieve optimum work flow and productivity, complete the hole preparation and cartridge set up in advance, prior to installing any adhesive. This can be accomplished by having the holes already drilled and cleaned prior to dispensing the adhesive and having the cartridges pre-balanced and nozzles already attached.
- If at all possible, schedule dispensing to consume an entire cartridge at one time with no interruption of adhesive flow. This can be accomplished by having one worker continuously dispensing epoxy while another installs the anchor into the hole.

Dual Cartridge Anchoring & Doweling – Hole Preparation

See opposite page for instructions on Cartridge Set up & Installation Procedures

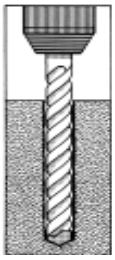


Fig. 1

I. Use a rotary hammer drill or pneumatic air drilling machine with a drill bit complying with ANSI B121.15.1994 tolerance standards. Drill hole to proper diameter and depth: Drill depth is a minimum four times rod diameter thru maximum nine times rod diameter.

a) Drill hole that is 1/16" diameter larger for 3/8"-1/2" nominal rod anchors and #3 rebar.
b) Drill hole that is 1/8" diameter larger for 5/8"–1-1/4" diameter threaded rods (#4 - #11 rebar).

Adhere to minimum spacing, minimum edge distance, and minimum member thickness per construction specifications.

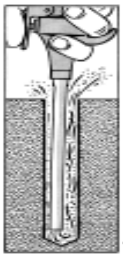


Fig. 2

II. Using an air nozzle connected to contaminant-free compressed air (minimum 50 psi – maximum 100 psi), rotate air nozzle in drill hole, while at the same time moving air nozzle in and out of the drill hole. Note, a minimum of four (4) full in and out strokes as well as a minimum of four (4) seconds of blowing out drill hole is required.
Continue to clean hole until it is visually clean and there are no signs of contamination (i.e., no trace oils, dirt, dust etc.).
If hole is filled with water or contains slurry/debris, it can be cleaned with pressurized water for optimum cleaning method versus compressed air.

III. Select and insert the appropriate sized hole brush (see Page 11)

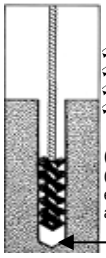


Fig. 3

Rotate brush a minimum of **4** turns at bottom of hole.

Insert hole brush into drill hole with a clockwise motion until brush reaches the bottom of hole (see diagram at left). For faster and easier cleaning operation, the brush can be attached to a drill. Rotate (spin) the brush a minimum of two (2) full rotations (turns) for each 1" of hole depth. In addition, rotate (spin) the brush a minimum of four rotations (turns) at the bottom of the hole.

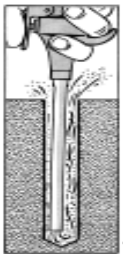
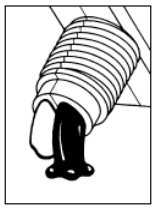


Fig. 2

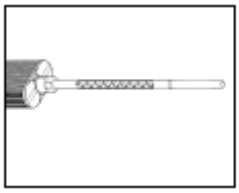
IV. Repeat step II above. Blow out drill hole with an air nozzle connected to contaminant-free compressed air (minimum 50 psi – maximum 100 psi), rotate air nozzle in drill hole, while at the same time moving air nozzle in and out of the drill hole. Note, a minimum of four (4) full in and out strokes as well as a minimum of four (4) seconds of blowing out drill hole is required. Continue to clean hole until it is visually clean and there are no signs of contamination (i.e., no trace oils, dirt, dust etc.).

Dual Cartridge Anchoring & Doweling – Cartridge Set up & Installation Procedures

V. Insert cartridge into manual or pneumatic dispenser making sure it is properly positioned with shoulder of cartridge flush with front bracket of the dispenser and the length of the cartridge is parallel to the side rails of the tool.
If using pneumatic dispenser make certain air pressure does not exceed 100 psi.

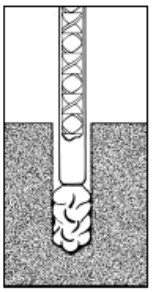


VI. Remove plastic cap and pry off tip with a screw-driver. Dispense a small amount of adhesive into a disposable container until flow of both components is evident (white and dark material).
It is imperative that the Installation Instructions for balancing the cartridge are followed each and every time to achieve the perfect mix ratio of the two components so that a uniform color with no streaks is attained by the time the product reaches the tip of the nozzle.



VII. Place nozzle onto cartridge and secure by threading in a clockwise direction. Make sure that nozzle and cartridge assembly is secure. Dispense mixed adhesive into a disposable container until the color becomes a uniform gray with no streaks. These procedures must be repeated whenever starting a new cartridge or using a new nozzle.

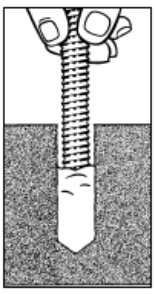
Dual Cartridge Anchoring & Doweling – Installation Procedures



VIII. Insert the nozzle tip to the bottom of the hole (as defined in fig. 3 above). Dispense the material starting from the bottom and to the top while leaving the nozzle tip slightly below the fill level, working in a slow circular motion and working the adhesive into the walls of the hole. Fill the hole approximately 5/8 to 2/3 of the hole depth while slowly withdrawing the nozzle, taking care to prevent air entrapment.

Important Information:

- During installation, concrete temperature must be between 70°F and 110°F.
- For holes that contain water, keep injecting below the water and the adhesive will displace the water upward and prevent drawing the water into the adhesive.
- If holes are under-filled and the working time has not expired, the anchor rod can be removed and additional adhesive can be injected into the hole as described above. Otherwise the installation shall be rejected.
- For cosmetics, wipe off excess material with a trowel before adhesive begins to gel.



IX. Immediately after dispensing adhesive into hole (step VII above), insert the threaded rod or rebar into the mixed adhesive all the way to the bottom of the hole while turning in a counter-clockwise motion. Ensure that the adhesive fills the voids, crevices and uniformly coats rod and concrete.

- Immediately after installation (as described above), slightly lift anchor rod up and push back down (approximately 1/2-inch) while twisting rod at the same time. This will help to workout any air pockets and also help to encapsulate the anchor rod.
- Do not disturb or bolt-up until minimum bolt-up time has passed.
- The threaded rod or rebar should be free of dirt, grease, oil, or other foreign materials.

WARNING: Instruction Insert must be distributed with each cartridge.

ESTIMATING GUIDES - ANCHORS PER CARTRIDGE

Rod Dia (in.)	Hole Dia (in.)	Ultrabond 4CC Usage Estimate Guide – 22 oz. Cartridge System – Threaded Rod Embedment Depth (in.)															
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1/4	5/16	359.5	239.7	179.7	143.8	119.8	102.7	89.9	79.9	71.9	65.4	59.9	55.3	51.4	47.9	44.9	42.3
3/8	7/16	209.1	139.4	104.5	83.6	69.7	59.7	52.3	46.5	41.8	38.0	34.8	32.2	29.9	27.9	26.1	24.6
1/2	9/16	150.3	100.2	75.2	60.1	50.1	43.0	37.6	33.4	30.1	27.3	25.1	23.1	21.5	20.0	18.8	17.7
5/8	11/16	160.2	106.8	80.1	64.1	53.4	45.8	40.1	35.6	32.0	29.1	26.7	24.6	22.9	21.4	20.0	18.8
	3/4	76.5	51.0	38.2	30.6	25.5	21.8	19.1	17.0	15.3	13.9	12.7	11.8	10.9	10.2	9.6	9.0
3/4	13/16	126.8	84.5	63.4	50.7	42.3	36.2	31.7	28.2	25.4	23.1	21.1	19.5	18.1	16.9	15.9	14.9
	7/8	61.0	40.6	30.5	24.4	20.3	17.4	15.2	13.5	12.2	11.1	10.2	9.4	8.7	8.1	7.6	7.2
7/8	15/16	104.3	69.5	52.2	41.7	34.8	29.8	26.1	23.2	20.9	19.0	17.4	16.0	14.9	13.9	13.0	12.3
	1	50.4	33.6	25.2	20.2	16.8	14.4	12.6	11.2	10.1	9.2	8.4	7.8	7.2	6.7	6.3	5.9
1	1-1/16	86.3	57.5	43.1	34.5	28.8	24.6	21.6	19.2	17.3	15.7	14.4	13.3	12.3	11.5	10.8	10.1
	1-1/8	41.9	27.9	20.9	16.7	14.0	12.0	10.5	9.3	8.4	7.6	7.0	6.4	6.0	5.6	5.2	4.9
1-1/8	1-3/16	70.8	47.2	35.4	28.3	23.6	20.2	17.7	15.7	14.2	12.9	11.8	10.9	10.1	9.4	8.9	8.3
	1-1/4	34.5	23.0	17.2	13.8	11.5	9.9	8.6	7.7	6.9	6.3	5.7	5.3	4.9	4.6	4.3	4.1
1-1/4	1-5/16	63.9	42.6	32.0	25.6	21.3	18.3	16.0	14.2	12.8	11.6	10.7	9.8	9.1	8.5	8.0	7.5
	1-3/8	31.2	20.8	15.6	12.5	10.4	8.9	7.8	6.9	6.2	5.7	5.2	4.8	4.5	4.2	3.9	3.7

Rod Dia	Hole Dia	Ultrabond 4CC Usage Estimating Guide – 22 oz. Cartridge System – Deformed Bar Embedment Depth (in.)															
(in.)	(in.)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
#3	1/2	194.1	129.4	97.1	77.6	64.7	55.5	48.5	43.1	38.8	35.3	32.4	29.9	27.7	25.9	24.3	22.8
#4	5/8	147.4	98.3	73.7	59.0	49.1	42.1	36.8	32.8	29.5	26.8	24.6	22.7	21.1	19.7	18.4	17.3
#5	3/4	112.5	75.0	56.3	45.0	37.5	32.1	28.1	25.0	22.5	20.5	18.8	17.3	16.1	15.0	14.1	13.2
#6	7/8	91.1	60.8	45.6	36.5	30.4	26.0	22.8	20.3	18.2	16.6	15.2	14.0	13.0	12.2	11.4	10.7
#7	1-1/8	43.5	29.0	21.7	17.4	14.5	12.4	10.9	9.7	8.7	7.9	7.2	6.7	6.2	5.8	5.4	5.1
#8	1-1/4	38.9	25.9	19.4	15.5	13.0	11.1	9.7	8.6	7.8	7.1	6.5	6.0	5.6	5.2	4.9	4.6
#9	1-3/8	40.4	27.0	20.2	16.2	13.5	11.6	10.1	9.0	8.1	7.4	6.7	6.2	5.8	5.4	5.1	4.8
#10	1-1/2	33.1	22.1	16.5	13.2	11.0	9.5	8.3	7.4	6.6	6.0	5.5	5.1	4.7	4.4	4.1	3.9
#11	1-3/4	20.2	13.4	10.1	8.1	6.7	5.8	5.0	4.5	4.0	3.7	3.4	3.1	2.9	2.7	2.5	2.4