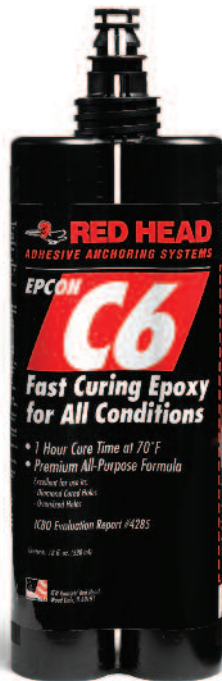


**C6**

**Reliable  
Performance—  
Even Under the  
Most Severe  
Installation  
Conditions**



**C6-18**

## DESCRIPTION/SUGGESTED SPECIFICATIONS\*

\*Suggested Specifications see page 34

### Fast Curing Epoxy for All Conditions

The hardener and resin are completely mixed as they are dispensed from the dual cartridge through a static mixing nozzle. The pre-mixed adhesive is injected directly into the anchor hole. C6 can be used with threaded rod or rebar (for fastening to hollow base materials, see pages 43 and 46).

## ADVANTAGES

- 1 hour cure time (see below)
- Works in damp holes and underwater applications
- Minimum shrinkage—can be used in oversized holes and diamond cored holes
- High heat deflection temperature: 140°F (ASTM D648)
- One formula for both solid and hollow base materials
- NSF standard 61 certified for drinking water systems
- Extensively tested—earthquake, underwater, creep, freeze-thaw, radiation, fire, fatigue, electrical isolation, ozone and many more test programs have been conducted on C6
- Extensive use—C6 has been used on projects all over the world for almost 20 years

Easy to open,  
snap-off tip, no  
cutting required



### Curing Times



BASE MATERIAL (F°/C°)	WORKING TIME	FULL CURE TIME
120°/ 49°	4 minutes	1 hour
90°/ 32°	5 minutes	1 hour
70°/ 20°	7 minutes	1 hour
60°/ 16°	10 minutes	2 hours
50°/ 10°	20 minutes	24 hours
40°/ 4°	45 minutes	32 hours



**E102 with cartridge  
and nozzle**



### EPCON DRIVE

**RH7030 Cordless, battery  
powered dispensing tool  
for the C6-18 cartridge**

## APPLICATIONS



### Tunnel Construction

Over 40,000 anchors were installed overhead in damp holes with water seeping through using C6 and our "dosage control" screens.



### Water Treatment Plant

Skimmers and brackets with chain plates fastened with C6, which is **NSF approved** for potable drinking water systems.



### Underwater Installations

C6 was used to install four 1-1/4" eye bolts underwater to lift this 37 ton block of concrete out of the ocean.

## FEATURES



### ANCHORAGE TO SOLID CONCRETE

Threaded Rod (Carbon or Stainless Steel) or Rebar supplied by contractor; rod does not need to be chisel pointed

C6 adhesive completely fills area between rod and hole creating a stress-free, high load anchorage

Pre-drilled hole in concrete; see performance tables for suggested hole sizes

## APPROVALS/LISTINGS

ICC Evaluation Service, Inc. – #ER4285

City of Los Angeles – RR#24975

City of Los Angeles – RR#24927

NSF Standard 61 Certified for Drinking Water Components

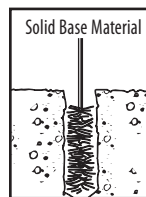
ASTM C881-90, Type IV, Grade 3, Class A, B, and C

DOT Approvals

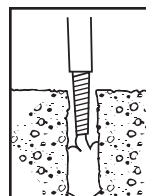


Certified to  
ANSI/NSF 61

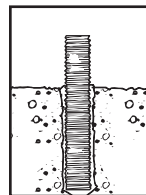
## INSTALLATION STEPS



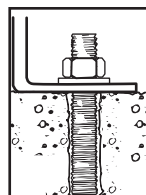
1. Drill 1/16" oversize diameter holes for 1/4"–1/2" diameter threaded rods and #3 rebar. Drill 1/8" oversize diameter holes for 5/8"–1-1/4" diameter threaded rods, #4 rebar, grout filled blocks and brick pinning. Clean out hole from bottom with forced air. Complete hole preparation with brush and repeat cleaning with forced air (leave no dust or slurry).



2. When starting new cartridge or new nozzle, dispense and discard enough adhesive until uniform light grey color is achieved. Insert the nozzle into the bottom of the hole and fill to 1/2 the hole depth.



3. Insert rod slowly by hand into the bottom of the hole with a slow twisting motion. This insures adhesive fills voids and crevices and uniformly coats the anchor rod.






4. See table for working times and curing times. After the suggested cure time is met, install and tighten fixture into place.





**E200  
Dispenser**

## C6-18 fl. oz. Ordering Information

PART NUMBER	DESCRIPTION	CTN QTY
 C6-18	C6 Adhesive, 18 Fl. Oz. Cartridge	6
 E24XL	Mixing Nozzle for C6-18 Cartridge Nozzle diameter fits 9/16" holes (overall length of nozzle 10-3/8")	24
 E102	Hand Dispenser for C6-18 Cartridges Dispenses both 18 oz. and 22 oz. Cartridges	1

Refer to page 49 for ordering information on brushes, hole plugs, and extension tubing for deep holes.

PART NUMBER	DESCRIPTION	CTN QTY
 RH7030	<b>EPCON DRIVE</b> Cordless, battery powered dispensing tool for the C6-18 Cartridge	1
 E200	Pneumatic Dispenser for C6-18 Cartridge	1

### ESTIMATING TABLE

#### **C6** Number of Anchoring Installations Per Cartridge\* 18 Fluid Ounce Cartridge Using Reinforcing Bar with C6 Adhesive in Solid Concrete

REBAR	DRILL HOLE DIA. INCHES	EMBEDMENT DEPTH IN INCHES (mm)														
		1 (25.4)	2 (50.8)	3 (76.2)	4 (101.6)	5 (127.0)	6 (152.4)	7 (177.8)	8 (203.2)	9 (228.6)	10 (254.0)	11 (279.4)	12 (304.8)	13 (330.2)	14 (355.6)	15 (381.0)
# 3	1/2	316.7	158.4	105.6	79.2	63.3	52.8	45.2	39.6	35.2	31.7	28.8	26.4	24.4	22.6	21.1
# 4	5/8	239.3	119.6	79.8	59.8	47.9	39.9	34.2	29.9	26.6	23.9	21.8	19.9	18.4	17.1	16.0
# 5	3/4	183.5	91.8	61.2	45.9	36.7	30.6	26.2	22.9	20.4	18.4	16.7	15.3	14.1	13.1	12.2
# 6	7/8	148.2	74.1	49.4	37.0	29.6	24.7	21.2	18.5	16.5	14.8	13.5	12.3	11.4	10.6	9.9
# 7	1-1/8	71.0	35.5	23.7	17.7	14.2	11.8	10.1	8.9	7.9	7.1	6.5	5.9	5.5	5.1	4.7
# 8	1-1/4	63.2	31.6	21.1	15.8	12.6	10.5	9.0	7.9	7.0	6.3	5.7	5.3	4.9	4.5	4.2
# 9	1-3/8	65.9	33.0	22.0	16.5	13.2	11.0	9.4	8.2	7.3	6.6	6.0	5.5	5.1	4.7	4.4
# 10	1-1/2	53.9	27.0	18.0	13.5	10.8	9.0	7.7	6.7	6.0	5.4	4.9	4.5	4.1	3.9	3.6
# 11	1-3/4	33.0	16.5	11.0	8.2	6.6	5.5	4.7	4.1	3.7	3.3	3.0	2.7	2.5	2.4	2.2

\* The number of anchoring installations is based upon calculations of hole volumes using ANSI tolerance carbide tipped drill bits, the nominal areas of the reinforcing bars and the stress areas of the threaded rods. These estimates do not account for waste.

\* Oversized holes acceptable but volume of adhesive will increase.

### ESTIMATING TABLE

CLAMPING FORCE PROVIDED ON PAGE 34

#### **C6** Number of Anchoring Installations Per Cartridge\* 18 Fluid Ounce Cartridge Using Threaded Rod with C6 Adhesive in Solid Concrete

ROD In. (mm)	DRILL HOLE DIA. INCHES	EMBEDMENT DEPTH IN INCHES (mm)														
		1 (25.4)	2 (50.8)	3 (76.2)	4 (101.6)	5 (127.0)	6 (152.4)	7 (177.8)	8 (203.2)	9 (228.6)	10 (254.0)	11 (279.4)	12 (304.8)	13 (330.2)	14 (355.6)	15 (381.0)
1/4 (6.4)	5/16	587.3	293.7	195.8	146.8	117.5	97.9	83.9	73.4	65.3	58.7	53.4	48.9	45.2	42.0	39.2
3/8 (9.5)	7/16	340.0	170.0	113.3	85.0	68.0	56.7	48.6	42.5	37.8	34.0	30.9	28.3	26.2	24.3	22.7
1/2 (12.7)	9/16	244.7	122.4	81.6	61.2	48.9	40.8	35.0	30.6	27.2	24.5	22.2	20.4	18.8	17.5	16.3
5/8 (15.9)	3/4	125.2	62.6	41.7	31.3	25.0	20.9	17.9	15.7	13.9	12.5	11.4	10.4	9.6	8.9	8.3
3/4 (19.1)	7/8	99.1	49.5	33.0	24.8	19.8	16.5	14.2	12.4	11.0	9.9	9.0	8.3	7.6	7.1	6.6
7/8 (22.2)	1	82.0	41.0	27.4	20.5	16.4	13.7	11.7	10.3	9.1	8.2	7.5	6.8	6.3	5.9	5.5
1 (25.4)	1-1/8	67.6	33.8	22.5	16.9	13.5	11.3	9.7	8.4	7.5	6.8	6.1	5.6	5.2	4.8	4.5
1-1/4 (31.8)	1-3/8	51.2	25.6	17.0	12.8	10.2	8.5	7.3	6.4	5.7	5.1	4.6	4.3	3.9	3.7	3.4

\* The number of anchoring installations is based upon calculations of hole volumes using ANSI tolerance carbide tipped drill bits, the nominal areas of the reinforcing bars and the stress areas of the threaded rods. These estimates do not account for waste.

\* Oversized holes acceptable but volume of adhesive will increase.

## PACKAGING

1. Disposable, self-contained cartridge system capable of dispensing both epoxy components in the proper mixing ratio
2. Epoxy components dispensed through a static mixing nozzle that thoroughly mixes the material, and places the epoxy at the base of the pre-drilled hole
3. Cartridge markings: Include manufacturer's name, batch number and best-used-by date, mix ratio by volume, ANSI hazard classification, and appropriate ANSI handling precautions

## SUGGESTED SPECIFICATIONS

### EPOXY ADHESIVE:

1. Two component, 100% solid (containing no solvents), non-sag paste, insensitive to moisture, grey in color
2. Meets NSF Standard 61 for use in conjunction with drinking water systems
3. Meets ASTM C881-90, Type IV, Grade 3, Class A, B, and C with the exception of gel time
4. Shrinkage during cure per ASTM D2566: .00051 in./in. maximum
5. Compressive strength, ASTM D695: 10,300 psi minimum
6. Shelf life: Best if used within 2 years
7. Water solubility: None
8. Heat deflection temperature, ASTM D648: 140°F minimum

## PERFORMANCE TABLE

DRILL HOLE DIAMETERS  
PROVIDED ON PAGE 33

### C6 Epoxy Adhesive

### Average Ultimate Tension and Shear Loads<sup>1,2,3</sup> for Threaded Rod Installed in Solid Concrete

THREADED ROD DIA. In. (mm)	MAX. CLAMPING FORCE AFTER PROPER CURE Ft.-Lbs. (Nm)	EMBEDMENT IN CONCRETE In. (mm)	2000 PSI (13.8 MPa) CONCRETE		4000 PSI (27.6 MPa) CONCRETE		6000 PSI (41.4 MPa) CONCRETE	
			ULTIMATE TENSION Lbs. (kN)	ULTIMATE SHEAR Lbs. (kN)	ULTIMATE TENSION Lbs. (kN)	ULTIMATE SHEAR Lbs. (kN)	ULTIMATE TENSION Lbs. (kN)	ULTIMATE SHEAR Lbs. (kN)
3/8 (9.5)	13 - 18 (17.6-24.4)	3-3/8 (85.7)	7,195 (32.0)	5,209 (23.2)	8,445 (37.6)	5,869 (26.1)	10,621 (47.2)	5,941 (26.4)
		4-1/2 (114.3)	8,317 (37.0)	5,209 (23.2)	10,021 (44.6)	5,869 (26.1)	10,603 (47.2)	5,941 (26.4)
1/2 (12.7)	22 - 25 (29.8-33.9)	4-1/2 (114.3)	13,271 (59.0)	11,427 (50.8)	17,684 (78.7)	12,585 (56.0)	17,684 (78.7)	12,585 (56.0)
		6 (152.4)	19,127 (85.1)	11,427 (50.8)	19,608 (87.2)	12,585 (56.0)	19,608 (87.2)	12,585 (56.0)
5/8 (15.9)	55 - 80 (74.6-108.5)	5-5/8 (142.9)	17,704 (78.8)	18,294 (81.4)	24,526 (109.1)	19,802 (88.1)	24,526 (109.1)	19,802 (88.1)
		7-1/2 (190.5)	22,642 (100.7)	18,294 (81.4)	28,766 (128.0)	19,802 (88.1)	29,456 (131.0)	19,802 (88.1)
3/4 (19.1)	106-160 (143.7-216.9)	6-3/4 (171.5)	28,779 (128.0)	25,723 (114.4)	31,521 (140.2)	25,723 (114.4)	33,759 (150.2)	25,723 (114.4)
		9 (228.6)	31,758 (141.3)	25,723 (114.4)	41,384 (184.0)	25,723 (114.4)	41,384 (184.0)	25,723 (114.4)
7/8 (22.2)	185-250 (250.8-338.9)	7-7/8 (200.0)	35,257 (156.8)	-- --	37,714 (167.8)	30,295 (134.8)	41,023 (182.5)	32,573 (144.9)
		10-1/2 (266.7)	-- --	-- --	51,211 (227.8)	30,295 (134.8)	51,211 (227.8)	32,573 (144.9)
1 (25.4)	276-330 (374.2-447.4)	9 (228.6)	40,334 (179.4)	38,519 (171.3)	47,886 (213.0)	40,341 (179.5)	47,886 (213.0)	46,416 (206.5)
		12 (304.8)	48,719 (216.7)	38,519 (171.3)	62,194 (276.7)	40,341 (179.5)	63,053 (280.5)	46,416 (206.5)
1-1/4 (31.8)	370-660 (501.6-894.8)	11-1/4 (285.8)	55,654 (247.6)	65,085 (289.5)	56,981 (253.5)	65,085 (289.5)	-- --	65,085 (289.5)
		15 (381.0)	65,728 (289.5)	65,085 (289.5)	79,726 (354.7)	65,085 (289.5)	-- --	65,085 (289.5)

1 Allowable working loads for the single installations under static loading should not exceed 25% capacity or the allowable load of the anchor rod.

2 Ultimate load values in 2000, 4000, and 6000 psi stone aggregate concrete. Ultimate loads are indicated for the embedment shown in the Embedment in Concrete column. Performance values are based on the use of high strength threaded rod (ASTM A193 Gr. B7). The use of lower strength rods will result in lower ultimate tension and shear loads.

3 Linear interpolation may be used for intermediate spacing and edge distances (see page 35).

## PERFORMANCE TABLE

### C6 Epoxy Adhesive

### Average Ultimate Tension Loads<sup>1,2,3</sup> for Threaded Rod Installed in Solid Concrete, Shallow Embedment

ANCHOR DIAMETER In. (mm)	DRILL HOLE DIAMETER In. (mm)	EMBEDMENT IN CONCRETE In. (mm)	3500 PSI (24.2 MPa) ULTIMATE TENSION Lbs. (kN)
1/4 (6.4)	5/16 (7.9)	1 (25.4)	1,653 (7.4)
		2-1/4 (57.2)	2,818 (12.5)
		3 (76.2)	3,599 (16.0)
3/8 (9.5)	7/16 (11.1)	1-1/2 (38.1)	3,426 (15.2)
1/2 (12.7)	9/16 (14.3)	2 (50.8)	6,100 (27.1)
5/8 (15.9)	3/4 (19.1)	2-1/2 (63.5)	8,775 (39.0)
3/4 (19.1)	7/8 (22.2)	3 (76.2)	12,625 (56.2)
7/8 (22.2)	1 (25.4)	3-1/2 (88.9)	18,650 (83.0)
1 (25.4)	1-1/8 (28.6)	4 (101.6)	25,034 (111.4)
1-1/4 (31.8)	1-3/8 (34.9)	5 (127.0)	37,100 (165.0)

1 Allowable working loads for the single installations under static loading should not exceed 25% capacity or the allowable load of the anchor rod.

2 Ultimate load values in 2000, 4000, and 6000 psi stone aggregate concrete. Ultimate loads are indicated for the embedment shown in the Embedment in Concrete column. Performance values are based on the use of high strength threaded rod (ASTM A193 Gr. B7). The use of lower strength rods will result in lower ultimate tension and shear loads.

3 Linear interpolation may be used for intermediate spacing and edge distances (see page 35).

## PERFORMANCE TABLE

### C6 Epoxy Adhesive

### Average Ultimate Tension and Shear Loads<sup>1,2,3</sup> for Threaded Rod Installed in Grout Filled Concrete Block

THREADED ROD DIA. In. (mm)	DRILL HOLE DIAMETER In. (mm)	EMBEDMENT DEPTH In. (mm)	ANCHOR LOCATION	ULTIMATE TENSION Lbs. (kN)	ULTIMATE SHEAR Lbs. (kN)
3/8 (9.5)	7/16 (11.1)	3 (76.2)	GROUTED CELL	4,862 (21.6)	-- --
1/2 (12.7)	5/8 (15.9)	3 (76.2)	GROUTED CELL	4,953 (22.0)	-- --
1/2 (12.7)	5/8 (15.9)	6 (152.4)	GROUTED CELL	8,214 (36.5)	-- --
5/8 (15.9)	3/4 (19.1)	5 (127.0)	GROUTED CELL	7,355 (32.7)	-- --
3/4 (19.1)	7/8 (22.2)	6 (152.4)	Note 1	17,404 (77.4)	19,588 (87.1)
3/4 (19.1)	7/8 (22.2)	6 (152.4)	Note 2	17,404 (77.4)	8,668 (38.6)

1 Anchor can be located in grouted cell, "T" joint, or bed joint.

2 Anchor can be located in first grouted cell from edge.

3 Allowable working loads for the single installations under static loading should not exceed 25% (an industry standard) capacity or the allowable load of the anchor rod. Loads based upon testing with ASTM A193, Grade B7 rods.

## PERFORMANCE TABLE

DRILL HOLE DIAMETERS  
PROVIDED ON PAGE 33

### C6 Epoxy Adhesive

### Allowable Tension Loads<sup>1,2,3</sup> for Threaded Rod Installed in Solid Concrete

THREADED ROD DIA. In. (mm)	EMBEDMENT DEPTH In. (mm)	ALLOWABLE TENSION LOAD BASED ON ADHESIVE BOND STRENGTH			ALLOWABLE TENSION LOAD BASED ON STEEL STRENGTH		
		2000 PSI (13.8 MPa) CONCRETE Lbs. (kN)	4000 PSI (27.6 MPa) CONCRETE Lbs. (kN)	6000 PSI (41.4 MPa) IN CONCRETE Lbs. (kN)	ASTM A307 (SAE 1018) Lbs. (kN)	ASTM A193 GR. B7 (SAE 4140) Lbs. (kN)	ASTM F593 AISI 304 SS Lbs. (kN)
3/8 (9.5)	3-3/8 (85.7)	1,800 (8.0)	2,110 (9.4)	2,655 (11.8)	2,080 (9.3)	4,340 (19.3)	3,995 (17.8)
	4-1/2 (114.3)	2,080 (9.2)	2,505 (11.1)	2,655 (11.8)	2,080 (9.3)	4,340 (19.3)	3,995 (17.8)
1/2 (12.7)	4-1/2 (114.3)	3,315 (14.8)	4,420 (19.7)	4,420 (19.7)	3,730 (16.6)	7,780 (34.6)	7,155 (31.8)
	6 (152.4)	4,780 (21.3)	4,900 (21.8)	4,900 (21.8)	3,730 (16.6)	7,780 (34.6)	7,155 (31.8)
5/8 (15.9)	5-5/8 (142.9)	4,425 (19.7)	6,130 (27.3)	6,130 (27.3)	5,870 (26.1)	12,230 (54.4)	11,250 (50.0)
	7-1/2 (190.5)	5,660 (25.2)	7,190 (32.0)	7,364 (32.8)	5,870 (26.1)	12,230 (54.4)	11,250 (50.0)
3/4 (19.1)	6-3/4 (171.5)	7,195 (32.0)	7,885 (35.1)	8,440 (37.5)	8,490 (37.8)	17,690 (78.7)	14,860 (66.1)
	9 (228.6)	7,940 (35.3)	10,345 (46.0)	10,345 (46.0)	8,490 (37.8)	17,690 (78.7)	14,860 (66.1)
7/8 (22.2)	7-7/8 (200.0)	8,810 (39.2)	9,430 (41.9)	10,260 (45.6)	11,600 (51.6)	25,510 (113.5)	20,835 (92.7)
	10-1/2 (266.7)	-- --	12,080 (57.0)	12,805 (57.0)	11,600 (51.6)	25,510 (113.5)	20,835 (92.7)
1 (25.4)	9 (228.6)	10,085 (44.9)	11,970 (53.3)	11,970 (53.0)	15,180 (67.5)	31,620 (140.7)	26,560 (118.1)
	12 (304.8)	12,180 (54.2)	15,545 (69.2)	15,760 (70.1)	15,180 (67.5)	31,620 (140.7)	26,560 (118.1)
1-1/4 (31.8)	11-1/4 (285.8)	13,915 (61.9)	14,245 (63.4)	14,245 (63.4)	23,800 (105.9)	49,580 (220.6)	34,670 (154.2)
	15 (381.0)	16,340 (72.7)	19,930 (88.7)	19,930 (88.7)	23,800 (105.9)	49,580 (220.6)	34,670 (154.2)

1 Use lower value of either bond or steel strength for allowable tensile load.

2 Allowable loads taken from ICC Evaluation Report #4285 (formerly ICB0).

3 Linear interpolation may be used for intermediate spacing and edge distances (see below).

### C6 Adhesive Anchoring System Spacing/Edge Distance Load Factor Summary<sup>1,2</sup>

#### LOAD FACTOR

##### Critical Edge Distance—Tension

100% Tension Load

##### Minimum Edge Distance—Tension

70% Tension Load

##### Critical Edge Distance—Shear

100% Shear Load

##### Minimum Edge Distance—Shear

30% Shear Load

#### DISTANCE FROM EDGE OF CONCRETE

1.25 x Anchor Embedment (or greater)

0.50 x Anchor Embedment

1.25 x Anchor Embedment (or greater)

0.30 x Anchor Embedment

#### LOAD FACTOR

##### Critical Spacing—Tension

100% Tension Load

##### Minimum Spacing—Tension

75% Tension Load

##### Critical Spacing—Shear

100% Shear Load

##### Minimum Spacing—Shear

30% Shear Load

#### DISTANCE FROM ANOTHER ANCHOR

1.50 x Anchor Embedment (or greater)

0.75 x Anchor Embedment

1.50 x Anchor Embedment (or greater)

0.50 x Anchor Embedment

1 Use linear interpolation for load factors at edge distances or spacing distances between critical and minimum.

2 Anchors are affected by multiple combination of spacing and/or edge distance loading and direction of the loading. Use the product of tension and shear loading factors in design.



## PERFORMANCE TABLE

DRILL HOLE DIAMETERS  
PROVIDED ON PAGE 33

# C6 Epoxy Adhesive Allowable Shear Loads<sup>1,2,3</sup> for Threaded Rod Installed in Solid Concrete

THREADED ROD DIA. In. (mm)	MINIMUM EMBEDMENT DEPTH In. (mm)	ALLOWABLE SHEAR LOAD BASED ON CONCRETE STRENGTH			ALLOWABLE SHEAR LOAD BASED ON STEEL STRENGTH		
		2000 PSI (13.8 MPa) CONCRETE Lbs. (kN)	4000 PSI (27.6 MPa) CONCRETE Lbs. (kN)	6000 PSI (41.4 MPa) CONCRETE Lbs. (kN)	ASTM A307 (SAE 1018) Lbs. (kN)	ASTM A193 GR. B7 (SAE 4140) Lbs. (kN)	ASTM F593 AISI 304 SS Lbs. (kN)
3/8 (9.5)	3-3/8 (85.7)	1,300 (5.8)	1,465 (6.5)	1,500 (6.7)	1,040 (4.6)	2,170 (9.7)	1,995 (8.9)
1/2 (12.7)	4-1/2 (114.3)	2,855 (12.7)	3,145 (14.0)	3,145 (14.0)	1,870 (8.3)	3,895 (17.3)	3,585 (15.9)
5/8 (15.9)	5-5/8 (142.9)	4,575 (20.3)	4,950 (22.0)	4,950 (22.0)	2,940 (13.1)	6,125 (27.2)	5,635 (25.1)
3/4 (19.1)	6-3/4 (171.5)	6,430 (28.6)	6,430 (28.6)	6,430 (28.6)	4,250 (18.9)	8,855 (39.4)	7,440 (33.1)
7/8 (22.2)	7-7/8 (200.0)	-- --	7,575 (33.7)	8,140 (36.2)	5,800 (25.8)	12,760 (56.8)	10,730 (47.7)
1 (25.4)	9 (228.6)	9,630 (42.8)	10,085 (44.9)	11,600 (51.6)	7,590 (33.8)	15,810 (70.3)	13,285 (59.1)
1-1/4 (31.8)	11-1/4 (285.8)	16,270 (72.4)	16,270 (72.4)	16,270 (72.4)	11,900 (52.9)	24,790 (110.3)	18,840 (83.8)

1 Use lower value of either concrete or steel strength for allowable shear load.

2 Allowable loads taken from ICC Evaluation Report #4285 (formerly ICBO).

3 Linear interpolation may be used for intermediate spacing and edge distances (see page 35).

## PERFORMANCE TABLE

DRILL HOLE DIAMETERS  
PROVIDED ON PAGE 33

# C6 Epoxy Adhesive Average Ultimate Tension Loads<sup>1,2,3</sup> for Reinforcing Bar Installed in Solid Concrete

REINFORCING BAR In. (mm)	EMBEDMENT IN CONCRETE In. (mm)	2000 PSI (13.8 MPa) CONCRETE ULTIMATE TENSION Lbs. (kN)	4000 PSI (27.6 MPa) CONCRETE ULTIMATE TENSION Lbs. (kN)	ULTIMATE TENSILE AND YIELD STRENGTH GRADE 60 REBAR	
				MINIMUM YIELD STRENGTH Lbs. (kN)	MINIMUM ULTIMATE TENSILE STRENGTH Lbs. (kN)
# 3 (9.5)	3-3/8 (85.7)	7,020 (31.2)	9,200 (40.9)	6,600 (29.4)	9,900 (44.0)
	4-1/2 (114.3)	9,000 (40.1)	11,540 (51.3)	6,600 (29.4)	9,900 (44.0)
# 4 (12.7)	4-1/2 (114.3)	11,940 (53.1)	15,140 (67.3)	12,000 (53.4)	18,000 (80.1)
	6 (152.4)	16,703 (74.3)	18,880 (84.0)	12,000 (53.4)	18,000 (80.1)
# 5 (15.9)	5-5/8 (142.9)	14,120 (62.8)	27,740 (123.4)	18,600 (82.7)	27,900 (124.1)
	7-1/2 (190.5)	20,040 (89.1)	30,727 (136.7)	18,600 (82.7)	27,900 (124.1)
# 6 (19.1)	6-3/4 (171.5)	17,940 (79.8)	29,200 (129.9)	26,400 (117.4)	39,600 (176.2)
	9 (228.6)	25,520 (113.5)	41,640 (185.2)	26,400 (117.4)	39,600 (176.2)
	10 (254.0)	-- --	45,000 (200.2)	26,400 (117.4)	39,600 (176.2)
# 7 (22.2)	7-7/8 (200.0)	-- --	45,850 (204.0)	36,000 (160.1)	54,000 (240.2)
	10-1/2 (266.7)	-- --	60,375 (268.6)	36,000 (160.1)	54,000 (240.2)
	13 (330.2)	-- --	65,300 (290.5)	36,000 (160.1)	54,000 (240.2)
# 8 (25.4)	9 (228.6)	30,960 (137.7)	54,180 (241.1)	47,400 (210.9)	71,100 (316.3)
	12 (304.8)	30,960 (137.7)	65,420 (291.0)	47,400 (210.9)	71,100 (316.3)
	16 (406.4)	-- --	86,700 (385.7)	47,400 (210.9)	71,100 (316.3)
# 9 (28.6)	10-1/8 (257.2)	-- --	61,530 (273.7)	60,000 (266.9)	90,000 (400.4)
	13-1/2 (342.9)	-- --	81,240 (361.4)	60,000 (266.9)	90,000 (400.4)
	19 (482.6)	-- --	108,000 (480.4)	60,000 (266.9)	90,000 (400.4)
# 10 (31.8)	11-1/4 (285.8)	44,600 (198.4)	76,500 (340.3)	76,200 (339.0)	114,300 (508.5)
	15 (381.0)	49,220 (218.9)	82,320 (366.2)	76,200 (339.0)	114,300 (508.5)
	19 (482.6)	-- --	120,000 (533.8)	76,200 (339.0)	114,300 (508.5)

1 Allowable working loads for the single installations under static loading should not exceed 25% ultimate capacity or the allowable load of the anchor rod.

2 Ultimate load values in 2000 and 4000 psi stone aggregate concrete. Ultimate loads are indicated for the embedment shown in the Embedment in Concrete column. Performance values are based on minimum Grade 60 reinforcing bar. The use of lower strength rods will result in lower ultimate tension and shear loads.

3 SHEAR DATA: Provided the distance from the rebar to the edge of the concrete member exceeds 1.25 times the embedment depth of the rebar, calculate the ultimate shear load for the rebar anchorage as 60% of the ultimate tensile strength of the rebar.

## Combined Shear and Tension Loading—for Adhesive Anchors

Allowable loads for anchors under tension and shear loading at the same time (combined loading) will be lower than the allowable loads for anchors subjected to 100% tension or 100% shear. Use the following equation to evaluate anchors in combined loading conditions:

$$\left(\frac{N_a}{N_s}\right)^{5/3} + \left(\frac{V_a}{V_s}\right)^{5/3} \leq 1$$

$N_a$  = Applied Service Tension Load

$N_s$  = Allowable Tension Load

$V_a$  = Applied Service Shear Load

$V_s$  = Allowable Shear Load