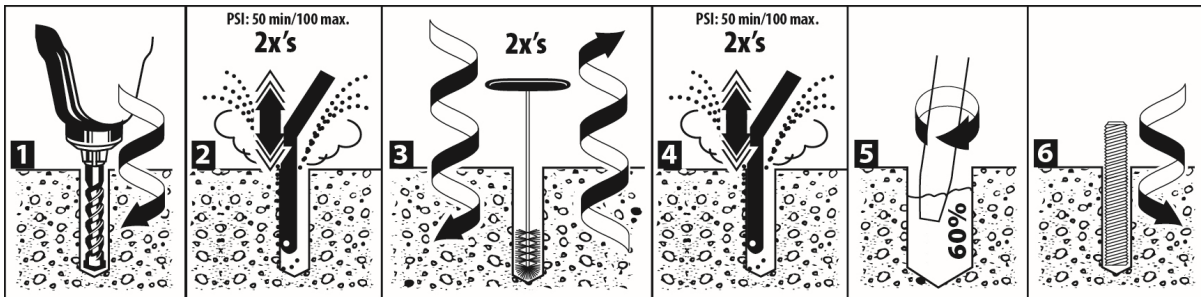


RED HEAD EPCON A7+ ADHESIVE ANCHOR INSTALLATION INSTRUCTIONS



* Water-saturated concrete, water-filled holes and submerged concrete applications require 4x's air, 4x's brushing and 4x's air

- 1)
 - Use a rotary hammer drill or pneumatic air drill with a carbide drill bit complying to ANSI B212.15-1994 tolerance requirements. Drill hole to the required embedment depth. See attached table for drill bit specifications and min/maximum embedment depths.
 - Installations may be used with maximum 1-1/4" diameter rods/rebar for floor, wall and overhead applications.
 - Per construction specification, adhere to minimum spacing, minimum edge distance, and minimum member thickness.
 - 2)
 - For dry holes, oscillate a clean air nozzle in and out of the dry hole two times, for a total of two seconds, starting at the bottom of the hole with contaminant-free compressed air, exhausting hole until visually clean (i.e., no dust, debris, etc.)
 - For water-saturated concrete and water-filled hole applications, oscillate a clean air nozzle in and out of the damp, water-filled or submerged hole four times, for a total of four seconds, starting at the bottom of the hole with contaminant-free compressed air, exhausting hole until visually clean (i.e., no dust, debris, etc.)
 - If required, use an extension on the end of the air nozzle to reach the bottom of the hole.
 - 3)
 - Select an appropriately sized Red Head brush for the anchor diameter. Brush must be checked for wear before use. See attached table for brush specifications, including minimum diameter.
 - Insert the brush into the hole with a clockwise motion. For every 1/2" forward advancement, complete one full turn until bottom of hole is reached. For faster and more suitable cleaning, attach the brush to a drill.
 - Using a clockwise motion, for every full turn of the brush, pull the brush 1/2" out of the hole.
 - For dry holes, twist/spin the brush two times in/out of the hole.
 - For water-saturated concrete and water-filled hole applications, twist/spin the brush four times in/out of the hole.
 - If required, use a wire brush extension (part nos. ESDS-38 or EHAN-38) to reach the bottom of the hole.
 - Air clean the dust off the brush to prevent clogging of the brush.
 - 4)
 - For dry holes, oscillate a clean air nozzle in and out of the dry hole two times, for a total of two seconds, starting at the bottom of the hole with contaminant-free compressed air, exhausting hole until visually clean (i.e., no dust, debris, etc.)
 - For water-saturated concrete and water-filled hole applications, oscillate a clean air nozzle in and out of the damp, water-filled or submerged hole four times, for a total of four seconds, starting at the bottom of the hole with contaminant-free compressed air, exhausting hole until visually clean (i.e., no dust, debris, etc.)
 - 5)
 - Review the Safety Data Sheet (SDS) before use.
 - Check the "Use By" date on the cartridge and that the cartridge has been stored in out of direct sunlight.
 - Review the gel time/cure time chart, based on the temperature at time of installation, in order to determine tool, cartridge and nozzle requirements.
 - Assemble the Red Head supplied cartridge and nozzle. Do not modify or remove mixing elements in nozzle.
 - 6)
 - If nozzle does not reach the bottom of the hole, use Red Head E25-6 extension tubing (0.44" O.D.) positioned on the end of nozzle or use the S75EXT (nozzle extension) on the end of the S75 nozzle.
 - Place the assembly into a hand injection tool or a pneumatic injection tool.
 - Dispense mixed adhesive outside of hole until uniform color is achieved.
 - During installations, concrete must be between 14 and 110 degrees F, or artificially maintained.
 - Insert the nozzle to the bottom of the hole and inject the adhesive at an angle, leaving the nozzle tip always slightly below the fill level.
 - In a slow circular direction, work the adhesive into the sides of the hole, filling slowly to ensure proper adhesive distribution, until the hole is approximately 60% filled.
 - For holes that contain water, keep injecting the adhesive below the water in order to displace the water upward.
- HORIZONTAL AND OVERHEAD INJECTION OF ADHESIVE:**
- For 3/8" thru 1 1/4" diameter anchors installed horizontal and overhead, the adhesive may be injected directly to the end of the hole using the Red Head E25-6 extension tubing (0.44" O.D.) for the 3/8" diameter anchors, and Red Head E916-6 extension tubing (0.56" O.D.) for the 1/2" thru 1 1/4" diameter anchors.
 - Alternatively, for 5/8" diameter rod (#5 rebar) and larger anchors installed horizontal and overhead, assemble Red Head E916-6 extension tubing and appropriate sized piston plug on end of tubing:
 - PL-5834 for 5/8" & 3/4" diameter rod (No. 5 and No. 6 rebar)
 - PL-7810 for 7/8" & 1" diameter rod (No. 7 and No. 8 rebar)
 - PL-1250 for 1-1/4" diameter rod (No. 9 and No. 10 rebar)
 - The use of the Red Head pneumatic tool may be required for larger diameter anchors and/or deeper embedment installations at temperatures up to 110 degrees F.
- 6)
 - Immediately insert the oil, rust and scale free rod/rebar assembly to the required embedment depth, using a counterclockwise motion to ensure proper adhesive distribution.
 - The anchor rod/rebar must be marked with the required embedment depth.
 - For wall (horizontal) and overhead installations with concrete or adhesive over 70 degrees F, the anchor rod/rebar must be marked with the required embedment depth and assembled with a Red Head hole plug positioned on the rod/rebar at the required embedment depth.
 - After installing the anchor, the gap between the rod and the concrete must be completely filled with adhesive. The adhesive must fill voids, crevices and uniformly coat the rod and concrete.
 - After installation, do not disturb the anchor until the full cure time has elapsed. Overhead installations must be supported until full cure time has elapsed.
 - Adhesive must be fully cured before applying any load or torque. Do not over torque the anchor as this could adversely affect its performance.

FIGURE 3—RED HEAD EPCON A7+ ADHESIVE INSTALLATION INSTRUCTIONS

SPECIFICATIONS FOR INSTALLATION OF RED HEAD EPCON A7+ ADHESIVE ANCHORS IN CONCRETE

FOR INSTALLATION USING U.S. CUSTOMARY UNIT THREADED ROD

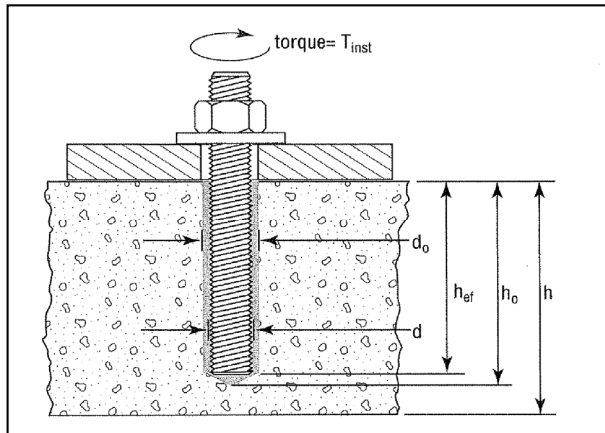
CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ROD DIAMETER (inch)						
			$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$
Nominal carbide bit diameter	-	in.	$\frac{7}{16}$	$\frac{9}{16}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{3}{8}$
Anchor embedment depth - minimum	$h_{ef, min}$	in.	$2\frac{3}{8}$	$2\frac{3}{4}$	$3\frac{1}{8}$	$3\frac{1}{2}$	$3\frac{1}{2}$	4	5
Anchor embedment depth - maximum	$h_{ef, max}$	in.	$7\frac{1}{2}$	10	$12\frac{1}{2}$	15	$17\frac{1}{2}$	20	25
Minimum spacing	s_{min}	in.	$\frac{15}{16}$	$1\frac{1}{2}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5
Minimum edge distance	c_{min}	in.	$\frac{15}{16}$	$1\frac{1}{2}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5
Minimum concrete thickness	h_{min}	in.	$h_{ef} + 1\frac{1}{4}$			$h_{ef} + 2d_o$			
Maximum tightening torque for pretension clamping	T_{inst}	ft lb	9	16	47	70	90	110	370

FOR INSTALLATION USING U.S. CUSTOMARY UNIT REINFORCING BARS

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL REBAR DIAMETER (inch)							
			No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10
Nominal carbide bit diameter	-	in.	$\frac{7}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$
Anchor embedment depth - minimum	$h_{ef, min}$	in.	$2\frac{3}{8}$	$2\frac{3}{4}$	$3\frac{1}{8}$	$3\frac{1}{2}$	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
Anchor embedment depth - maximum	$h_{ef, max}$	in.	$7\frac{1}{2}$	10	$12\frac{1}{2}$	15	$17\frac{1}{2}$	20	$22\frac{1}{2}$	25
Minimum spacing	s_{min}	in.	$\frac{15}{16}$	$1\frac{1}{2}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
Minimum edge distance	c_{min}	in.	$\frac{15}{16}$	$1\frac{1}{2}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
Minimum concrete thickness	h_{min}	in.	$h_{ef} + 1\frac{1}{4}$			$h_{ef} + 2d_o$				

For SI: 1 inch = 25.4mm, 1 lbf = 4.45N, 1ft-lbf = 1.356N-m, 1psi = 0.006895MPa.

ANCHOR INSTALLATION



BRUSH SPECIFICATIONS

Anchor diameter (in)	Brush Part No.	Minimum brush diameter (in)
$\frac{3}{8}$ No. 3	SB038	0.563
$\frac{1}{2}$ No. 4	SB012	0.675
$\frac{5}{8}$ No. 5	SB058	0.900
$\frac{3}{4}$ No. 6	SB034	1.125
$\frac{7}{8}$ No. 7	SB078	1.350
1 No. 8, and No. 9	SB010	1.463
$1\frac{1}{4}$ No. 10	SB125	1.575

FIGURE 3—ITW RED HEAD A7+ ADHESIVE INSTALLATION INSTRUCTIONS (Continued)