PE1000+

Instruction Card

DESCRIPTION: PE1000+ is an easy dispensing, high strength, 100% solids epoxy anchoring adhesive which is formulated for use in anchoring applications by trained professionals. Please refer to installation instructions and SDS for additional detailed information.

PRECAUTION: Safety glasses and dust masks should be used when drilling holes into concrete, stone and masonry. Wear gloves and safety glasses when handling and dispensing adhesive. Do not sand the adhesive and create silica dust which could be inhaled. Avoid skin and eye contact. Use a NIOSH-approved chemical mask to avoid respiratory discomfort if working indoors or in a confined area, or if sensitive to adhesive odors. Wash hands or other affected body parts with soap and water if skin contact occurs. Flush eyes with plenty of water and seek immediate medical attention if eye contact occurs. Move to fresh air if adhesive odor begins to cause discomfort.

IMPORTANT! Before using, read and review Safety Data Sheet (SDS). This product contains crystalline silica and as supplied does not pose a dust hazard. IARC classifies crystalline silica (quartz sand) as a Group I carcinogen based upon evidence among workers in industries where there has been long term and chronic exposure (via inhalation) to silica dust; e.g. mining, quarry, stone crushing, refractory brick and pottery workers. This product does not pose a dust hazard; therefore, this classification is not relevant. However, if reacted (fully cured) product is further processed (e.g. sanded, drilled) be sure to wear proper respiratory and eye protection to avoid health risk.

HANDLING AND STORAGE: Store in a cool, dry, well ventilated area at temperatures between 32°F (0°C) and 95°F (35°C). Keep away from excessive heat and flame. Keep partially used containers closed when not in use. Protect from damage. Store away from heat and light.

Note expiration date on product label before use. Do not use expired product. Cartridge temperature must be between 41°F - 95°F (5°C - 35°C) when in use. Partially used cartridges may be stored with hardened adhesive in the attached mixing nozzle. If the cartridge is reused, attach a new mixing nozzle and discard the initial quantity of the anchor adhesive as described in the setting instructions (steps #3 and #5).

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1. PE1000+ epoxy adhesive anchor system selection table

Injection tool	Plastic cartridge system	Extra mixing nozzle
Heavy duty manual dispensing tool Cat. #08298 Battery powered tool Cat. #8279SD (Battery Cat. #08277) Pneumatic dispensing tool Cat. #8497SD	13 fl. oz. dual cartridge w/ nozzle Cat. #0500SD	Mixing nozzle w/ extension tube Cat. #08294 Nozzle extension Cat. #08281
Heavy duty manual dispensing tool Cat. #08298 Battery powered tool Cat. #8279SD (Battery Cat. #08277) Pneumatic dispensing tool Cat. #8497SD	20 fl. oz. dual cartridge w/ nozzle Cat. #0502SD	

One PE1000+ mixing nozzle is packaged with each cartridge. PE1000+ mixing nozzles must be used to ensure complete and proper mixing of the adhesive. A plastic extension tube (3/8" dia. Cat. # 08281) must be used for embedment depths greater than 8 inches.

2. Gel (working) times and curing times

Temperature of base material		Gel (working) time	Full curing time
41°F	5°C	180 minutes	50 hours
50°F	10°C	120 minutes	30 hours
68°F	20°C	30 minutes	10 hours
86°F	30°C	20 minutes	6 hours
95°F	35°C	12 minutes	4 hours

3. Installation parameters - Specifications for installation of threaded rods

Anchor property / Setting information	Threaded rod (inch) / reinforcing bar size (rebar)									
	3/8" or #3	1/2"	#4	5/8" or #5	3/4" or #6	7/8" or #7	1" or #8	#9	1-1/4"	#10
d = Threaded rod outside diameter (in.)	0.375	0.500	-	0.625	0.750	0.875	1.000	-	1.250	-
d = Nominal rebar diameter (in.)	0.375	-	0.500	0.625	0.750	0.875	1.000	1.125	-	1.250
d_o (d_{bit}) = Nominal ANSI drill bit size (in.)	7/16	9/16	5/8	11/16 or 3/4	7/8	1	1-1/8	1-3/8	1-3/8	1-1/2
d_o (d_{bit}) = Nominal diamond core bit size (in.)	7/16	9/16	5/8	3/4	7/8	1	1-1/8	1-3/8	1-3/8	1-1/2
$h_{ef,min}$ = Minimum embedment (inches)	2-3/8	2-3/4	2-3/4	3-1/8	3-1/2	3-1/2	4	4-1/2	5	5
$h_{ef,max}$ = Maximum embedment (inches)	4-1/2	6	6	7-1/2	9	10-1/2	12	13-1/2	15	15
s_{min} = Minimum spacing (inches)	1-7/8	2-1/2	2-1/2	3-1/8	3-3/4	4-3/8	5	5-5/8	6-1/4	6-1/4
c_{min} = Minimum edge distance (inches)	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	2-3/4	2-3/4	2-3/4
h_{min} = Mimimum member thickness (inches)	h_{ef} + 1-1/4			h_{ef} + $2d_o$						
T_{max} = Maximum torque (ft.-lb.)	15	33	33	60	105	125	165	165	280	280
T_{max} = Maximum torque (ft.-lb.) for low strength steel ONLY	10	25	25	50	90	125	165	165	280	280

For installations between the minimum edge distance and 5 anchor diameters, the tabulate maximum torque must be reduced (multiplied) by a factor of 0.45.

4. Hole cleaning tools (wire brushes and air blowers, and piston plugs[1,2,3]

Fractional anchor sizes								Wire brush and brush extension
Threaded rod dia. (inch)	Rebar size (No.)	Hammer-drill bit/ core bit diameter (inch)	Min. brush diameter D_{min} (inch)	Brush length L[1] (inches)	Steel wire brush (Cat. #)	Plug size (inch)	Plastic plug (Cat. #)	
3/8	#3	7/16	0.475	6-3/4	08284	-	-	Compressed air nozzle, (min. 90 psi) Cat. # 8292
1/2	-	9/16	0.600	6-3/4	08285	9/16	08302	
-	#4	5/8	0.670	7-7/8	08286	5/8	08304	
5/8	#5	11/16	0.735	7-7/8	08286	11/16	08258	
		3/4	0.790	7-7/8	08278	3/4	08259	Hand Pump Cat. # 08280
3/4	#6	7/8	0.920	7-7/8	08287	7/8	08300	
7/8	#7	1	1.045	11-7/8	08288	1	08301	
1	#8	1-1/8	1.175	11-7/8	08289	1-1/8	08303	Piston Plug
1-1/4	#9	1-3/8	1.425	11-7/8	08290	1-3/8	08305	
-	#10	1-1/2	1.550	11-7/8	08291	1-1/2	08309	

1. A brush extension (Cat. #08282) must be used with a steel wire brush for holes drilled deeper than the listed brush length.
2. For installations with 5/8-inch threaded rod and #5 rebar size, the preferred ANSI drill bit diameter is 3/4-inch. If an 11/16-inch ANSI drill bit is used the user must check before injecting the adhesive to verify that the steel anchor element can be inserted into the cleaned borehole without resistance.
3. A plastic extension tube (Cat# 08281) or equivalent approved by DEWALT / Powers must be used with piston plugs.

Installation instructions for solid base material – For any application not covered by this document please contact DEWALT / Powers

PE100+Instruction Card, Continued

SELECT HAMMER DRILLING AS SUITABLE FOR APPLICATION

SELECT CORE DRILLING AS SUITABLE FOR APPLICATION

HAMMER DRILLING

1. Drill a hole into the base material with rotary hammer drill tool to the size and embedment required by the selected steel hardware element (see Table 3). Tolerances of carbide drill bits must meet ANSI Standard B212.15.

Precaution: Wear suitable eye and skin protection. Avoid inhalation of dusts during drilling and/or removal.

Note: In case of standing water in the drilled bore hole (flooded hole condition), all the water has to be removed from the hole (e.g. vacuum, compressed air, etc.) prior to cleaning.

HOLE CLEANING -HAMMER DRILLING

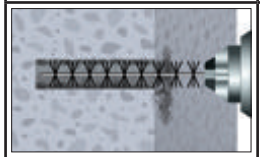
Blow 4x

Blow 4x

2a. Starting from the bottom or back of the anchor hole, blow the hole clean a minimum of four times (4x).

Use a compressed air nozzle (min. 90 psi) OR a hand pump (min. volume 25 fl. oz. supplied by DEWALT / Powers) for anchor rod 3/8" to 3/4" diameter or reinforcing bar (rebar) sizes #3 to #6.

Use a compressed air nozzle only (min. 90 psi) for anchor rod 7/8" to 1-1/4" diameter and rebar sizes #7 to #10 (a hand pump must not be used with these large anchor sizes).



Brush 4x

2b. Determine brush diameter (see Table 4) for the drilled hole and attach the brush with adaptor to a rotary drill tool or battery screw gun. Brush the hole with the selected wire brush a minimum of four times (4x).

A brush extension (supplied by DEWALT / Powers) must be used for holes drilled deeper than the listed brush length. The wire brush diameter must be checked periodically during use ($Ø_{brush} > D_{min}$, see Table 4). The brush should resist insertion into the drilled hole, if not the brush is too small and must be replaced with the proper brush diameter.

Repeat Blow 4x

2c. Repeat Step 2a again by blowing the hole clean a minimum of four times (4x).
When finished the hole should be clean and free of dust, debris, ice, grease, oil or other foreign material. ***Next go to Step 3.***

CORE DRILLING

1. Drill a hole into the base material with core drill to the size and embedment required by the selected steel hardware element (see Table 3).

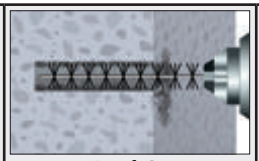
Precaution: Wear suitable eye and skin protection. Avoid inhalation of dusts during drilling and/or removal.

HOLE CLEANING -CORE DRILL

Rinse

2a. Starting from the bottom or back of the drilled anchor hole, rinse/flush the hole clean with water (water line pressure) until clear water comes out.

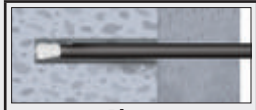
HOLE CLEANING -CORE DRILL



Brush 2x

2b. Determine brush diameter (see Table 4) for the drilled hole and attach the brush with adaptor to a rotary drill tool or battery screw gun. Brush the hole with the selected wire brush a minimum of two times (2x).

A brush extension (supplied DEWALT / Powers) must be used for holes drilled deeper than the listed brush length. The wire brush diameter must also be checked periodically during use ($Ø_{brush} > D_{min}$, see Table 4). The brush should resist insertion into the drilled hole, if not the brush is too



Rinse

2c. Repeat Step 2a again by rinse/flushing the hole clean with water.

Following this remove all standing water completely (e.g. vacuum, compressed air, etc.) prior to further cleaning. To attain a dried bore hole a compressed air nozzle is recommended.

Blow 2x

2d. Starting from the bottom or back of the drilled anchor hole, blow the hole clean (free of noticeable dust) a minimum of two times (2x). Use a compressed air nozzle (min. 90 psi) for all sizes of anchor rod and reinforcing bar (rebar).

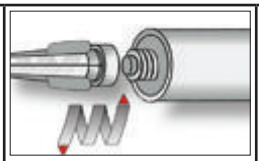
Repeat Brush 2x

2e. Repeat Step 2b again by brushing the hole with a wire brush a minimum of two times (2x).

Repeat Blow 2x

2f. Repeat Step 2d again by blowing the hole clean a minimum of two times (2x).
Next go to Step 3.

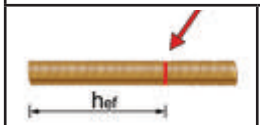
PREPARATION



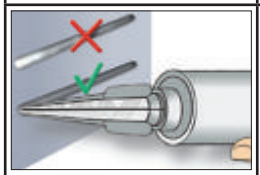
3. Check adhesive expiration date on cartridge label. Do not use expired product. Review Safety Data Sheet (SDS) before use. Cartridge temperature must be between 41°F - 95°F (5°C - 35°C) when in use. Review published working and cure times. Consideration should be given to the reduced gel (working) time of the adhesive in warm temperatures. For the permitted range of the base material temperature see Table 2.

Attach a supplied mixing nozzle to the cartridge. Do not modify the mixer in any way and make sure the mixing element is inside the nozzle. Load the cartridge into the correct dispensing tool.

Note: Always use a new mixing nozzle with new cartridges of adhesive and also for all work interruptions exceeding the published gel (working) time of the adhesive.



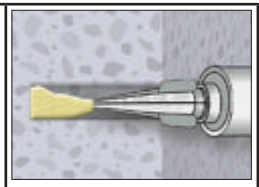
4. Prior to inserting the anchor rod or rebar into the filled bore hole, the position of the embedment depth has to be marked on the anchor. Verify anchor element is straight and free of surface damage.

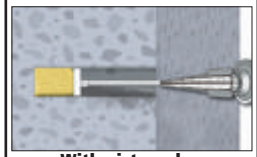


5. Adhesive must be properly mixed to achieve published properties. Prior to dispensing adhesive into the drilled hole, separately dispense at least three full strokes of adhesive through the mixing nozzle until the adhesive is a consistent **red** color.

Review and note the published working and cure times (see Table 2) prior to injection of the mixed adhesive into the cleaned anchor hole.

INSTALLATION



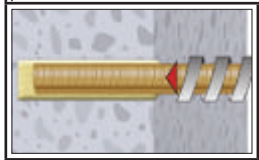


With piston plug

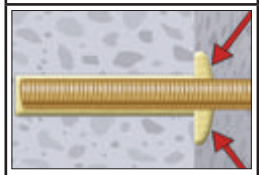
6. Fill the cleaned hole approximately two-thirds full with mixed adhesive starting from the bottom or back of the anchor hole. Slowly withdraw the mixing nozzle as the hole fills to avoid creating air pockets or voids. For embedment depths greater than 8" a plastic extension tube supplied by DEWALT / Powers must be used with the mixing nozzle (see Table 1).

Piston plugs (see Table 3) must be used with and attached to mixing nozzle and extension tube for horizontal and overhead i installations except for anchor rod 3/8" diameter and rebar size #3. Insert piston plug to the back of the drilled hole and inject as described in the method above. During installation the piston plug will be naturally extruded from the drilled hole by the adhesive pressure.

Attention! Do not install anchors overhead without proper training, and installation hardware provided by DEWALT / Powers*; Contact* DEWALT / Powers *prior to use.*

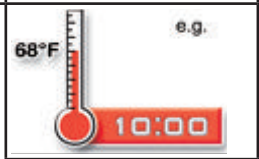


7. The anchor should be free of dirt, grease, oil or other foreign material. Push clean threaded rod or reinforcing bar into the anchor hole while turning slightly to ensure positive distribution of the adhesive until the embedment depth is reached. Observe the gel (working) time.



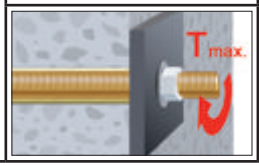
8. Be sure that the anchor is fully seated at the bottom of the hole and that some adhesive has flowed from the hole and all around the top of the anchor. If there is not enough adhesive in the hole, the installation must be repeated. For overhead applications and applications between horizontal and overhead the anchor must be secured from moving/falling during the cure time (e.g. wedges). Minor adjustments to the anchor may be performed during the gel time but the anchor shall not be moved after placement and during cure.

CURING AND FIXTURE



9. Allow the adhesive anchor to cure to the specified full curing time prior to applying any load (see Table 2).

Do not disturb, torque or load the anchor until it is fully cured.



10. After full curing of the adhesive anchor, a fixture can be installed to the anchor and tightened up to the maximum torque (shown in Table 3) by using a calibrated torque wrench.

Note: Take care not to exceed the maximum torque for the selected anchor.

Follow steps #1 through #10 for recommended installation