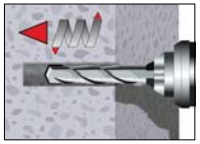
POWERS Pure50+ - Instruction Card

I. Setting instructions for solid base material - For any application not covered by this document please contact Powers Fasteners

Drilling



1. Drill a hole into the base material with a rotary hammer drill to the size and embedment required by the selected steel hardware element (see Table IV). The tolerances of the carbide drill bit must meet the requirements of ANSI Standard B212.15.

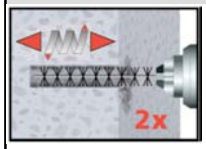
Precaution: Wear suitable eye and skin protection. Avoid inhalation of dusts during drilling and/or removal.

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

Hole cleaning → In order: *Blow 2x, Brush 2x, Blow 2x*

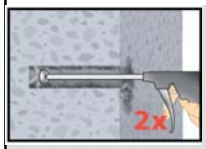
2a. Starting from the bottom or back of the anchor hole, blow the hole clean a minimum of *two* times (2x).

- Use a compressed air nozzle (min. 90 psi) for anchor rod 3/8" to 1-1/4" diameter or reinforcing bar (rebar) sizes #3 to #8.



2b. Determine brush diameter (see Table II) 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 by Powers Fasteners) 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 II). 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.

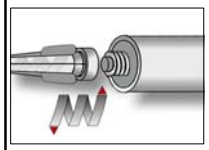


2c. Finally, blow the hole clean again a minimum of *two* times (2x).

- Use a compressed air nozzle (min. 90 psi) for anchor rod 3/8" to 1-1/4" diameter or reinforcing bar (rebar) sizes #3 to #8.

When finished the hole should be clean and free of dust, debris, ice, grease, oil or other foreign material.

Preparing

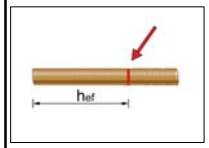


3. Check adhesive expiration date on cartridge label. Do not use expired product. Review Material Safety Data Sheet (MSDS) before use. Cartridge temperature must be between 50°F - 104°F (10°C - 40°C) when in use. Review published working and cure times. Consideration should be given to the reduced gel (working) time of the adhesive in warm temperatures.

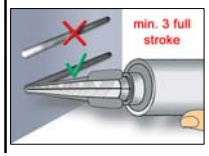
For the permitted range of the base material temperature see Table III.

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.*



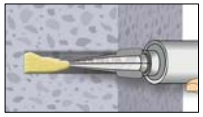
4. Prior to inserting the anchor rod or rebar into the filled bore hole, the position of the embedment depth has to be marked on the anchor. Verify anchor element is straight and free of surface damage.



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 ***dark gray*** color.

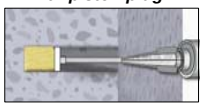
Review and note the published working and cure times (see Table III) prior to injection of the mixed adhesive into the cleaned anchor hole.

Installation



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 7-1/2" a plastic extension tube supplied by Powers Fasteners must be used with the mixing nozzle.

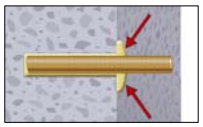
with piston plug:



Piston plugs (see Table VI) must be used with and attached to mixing nozzle and extension tube for horizontal and overhead installations with anchor rod from 3/4" to 1-1/4" diameter and rebar sizes #6 to #10. 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.

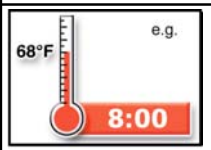
Attention! *Do not install anchors overhead without proper training and installation hardware provided by Powers Fasteners. Contact Powers for details prior to use.*

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.



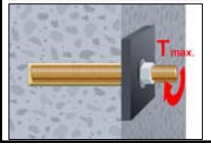
8. Be sure that the anchor is fully seated at the bottom of the hole and that some adhesive has flowed from the hole and all around the top of the anchor. If there is not enough adhesive in the hole, the installation must be repeated. The anchor shall not be moved after placement and during cure.

Curing and fixture



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

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

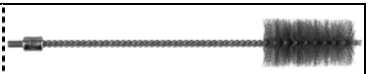


10. After full curing of the adhesive anchor, a fixture can be installed to the anchor and tightened up to the maximum torque (shown in Table IV) by using a calibrated torque wrench.

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

II. Hole cleaning tools - wire brushes and air blowers

Threaded rod diameter (inch)	Rebar size (no.)	ANSI drill bit diameter[2] (inch)	Min. brush diameter, D_{min} (inches)	Brush length, L[1] (inches)	Steel wire brush (Cat. #)
3/8	#3	7/16	0.475	6-3/4	08284
1/2	#4	9/16	0.600	6-3/4	08285
5/8	#5	11/16	0.735	7-7/8	08286
		3/4	0.790	7-7/8	08278
3/4	#6	7/8	0.920	7-7/8	08287
7/8	#7	1	1.045	11-7/8	08288
1	#8	1-1/8	1.175	11-7/8	08289
1-1/4	-	1-3/8	1.425	11-7/8	08290

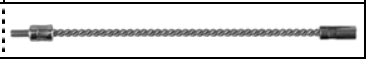


Air blowers

Compressed air nozzle only (min. 90 psi)

Compressed air nozzle - Cat. #08292

[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.

POWERS Pure50+

Instruction Card

DESCRIPTION:
Pure50+ is an easy dispensing, high strength, 100% solids epoxy anchoring adhesive which is formulated for use by trained professionals. Please refer to installation instructions and MSDS 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 Material Safety Data Sheet (MSDS).
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 41°F (5°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.

Before use see expiration date on product label. ***Do not use expired product.***

Partially used cartridges may be stored with hardened adhesive in the attached mixing nozzle. **Note:** *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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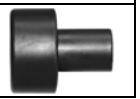
[B]

VI. Adhesive Piston Plugs

Threaded rod diameter (inch)	Rebar size (no.)	ANSI drill bit diameter (inch)	Plug Size (inch)	Plastic Plug (Cat. #)	Horizontal and overhead installations
3/4	#6	7/8	7/8	08300	
7/8	#7	1	1	08301	
1	#8	1-1/8	1-1/8	08303	
1-1/4	-	1-3/8	1-3/8	08305	

A plastic extension tube supplied by Powers must be used with piston plugs.

III. Gel (working) times and curing times

Temperature of base material		Gel (working) time	Full curing time
50°F	10°C	90 minutes	24 hours
68°F	20°C	25 minutes	8 hours
86°F	30°C	20 minutes	8 hours
95°F	35°C	15 minutes	6 hours
104°F	40°C	12 minutes	4 hours

IV. Setting parameters

Specifications for installation of threaded rods

Anchor property / Setting information	Nominal threaded rod size						
	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1-1/4"
d = Nominal anchor rod diameter (in.)	0.375	0.500	0.625	0.750	0.875	1.000	1.250
A_{se} = Nominal area of threaded rod (in.²)	0.078	0.142	0.226	0.335	0.462	0.606	0.969
d_o (d_{bit}) = Nominal ANSI drill bit size (in.)	7/16	9/16	11/16 or 3/4	7/8	1	1-1/8	1-3/8
T_{max} = Maximum torque (ft.-lb.)	15	33	60	105	125	165	280
T_{max} = Maximum torque (ft.-lb.) for low strength steel **only**	10	25	50	90			
$h_{ef,min}$ = Minimum embedment (inches)	2-3/8	2-3/4	3-1/8	3-1/2	3-1/2	4	5
$h_{ef,max}$ = Maximum embedment (inches)	7-1/2	10	12-1/2	15	17-1/2	20	25
s_{min} = Minimum spacing (inches)	1-7/8	2-1/2	3-1/8	3-3/4	4-3/8	5	6-1/4
c_{min} = Minimum edge distance (inches)	1-7/8	2-1/2	3-1/8	3-3/4	4-3/8	5	6-1/4
h_{min} = Minimum member thickness (inches)	h_{ef} + 1-1/4		h_{ef} + $2d_o$				

Specifications for installation of deformed steel reinforcing bars

Anchor property / Setting information						
	#3	#4	#5	#6	#7	#8
d = Nominal bar diameter (in.)	3/8	1/2	5/8	3/4	7/8	1
d_o (d_{bit}) = Nominal ANSI drill bit size (in.)	7/16	9/16	11/16 or 3/4	7/8	1	1-1/8
$h_{ef,min}$ = Minimum embedment (inches)	2-3/8	2-3/4	3-1/8	3-1/2	3-1/2	4
$h_{ef,max}$ = Maximum embedment (inches)	7-1/2	10	12-1/2	15	17-1/2	20
s_{min} = Minimum spacing (inches)	1-7/8	2-1/2	3-1/8	3-3/4	4-3/8	5
c_{min} = Minimum edge distance (inches)	1-7/8	2-1/2	3-1/8	3-3/4	4-3/8	5
h_{min} = Minimum member thickness (inches)	h_{ef} + 1-1/4		h_{ef} + $2d_o$			

V. Pure50+ epoxy adhesive anchor system selection table

Injection tools		Plastic cartridge system	Extra mixing nozzles
21 fl. oz. manual dispensers	Cat. #08409 – Standard all-metal	Pure50+ 21 fl. oz. dual cartridge w/nozzle Cat. #08605	Extra mixing nozzle Cat. 08294
	Cat. #08421 – High performance	Pure50+ 21 fl. oz. dual cartridge w/nozzle Cat. #08605	Extra mixing nozzle Cat. 08294
21 fl. oz. air powered dispenser	Cat. #08459 - Pneumatic tool	Pure50+ 21 fl. oz. dual cartridge w/nozzle Cat. #08605	Extra mixing nozzle Cat. 08294
21 fl. oz. battery powered dispenser	Cat. #08442 - Battery tool	Pure50+ 21 fl. oz. dual cartridge w/nozzle Cat. #08605	Extra mixing nozzle Cat. 08294
51 fl. oz. air powered dispenser	Cat. #08438 - Pneumatic tool	Pure50+ 51 fl. oz. dual cartridge w/nozzle Cat. #08651	Extra hi-flow mixing nozzle Cat. 08609

A plastic extension tube supplied by Powers must be used for embedment depths greater than 7-1/2 inches.