

BOLTHOLD™ Anchor Installation Guide v5.7

BoltHold™ is a family of anchors specifically designed for anchoring to asphalt. The anchors are suitable for attaching barriers, signs, bicycle stands and similar structures to asphalt. This document provides instructions and a guide to the installation of our line of anchors.

Additional updated information on anchor installation can be found on our web site asphaltanchors.com

Static vs. Dynamic Stress

Asphalt “flows” if under continuous excessive stress, especially in warmer weather. It is therefore recommended to mount the structure in a way that will not apply a significant, continuous, static stress to the asphalt. For this reason we discourage the use of BoltHold anchors to hold up structures that will not stand on their own. Continuous forces in the range of 25% of rating are considered a problem. Please refer to Table 1 for data on the available models.

Ratings are based on a minimum distance of 12” between anchors. If the distance is less than 12”, decrease the pull force by 6% for every inch less than 12. Ratings are based on asphalt thickness of 2.25”. For heavier asphalt, increase the allowed forces proportionately. For example, SP10 rated at 1,500 lb. pull can withstand 2,000 lb. at 3” asphalt thickness [1500 x (3/ 2.25)].

Bolt Length

The minimum required thread inside the anchors is 5 turns of the bolt or 0.5”. The maximum length is the length of the anchor less 2”. There is no strength benefit having more than 0.75” of thread inside the anchor.

Grout Selection

The anchors are designed to be used with grout. The term “grout” is used in a broad meaning; the actual material can be expanding concrete or epoxy.

The grout must be self-leveling (meaning that it flows easily, to fill in all the crevices and voids). It must cure to a hard material. The cured grout must be immune to extended exposure to water. UV exposure is not an issue. **DO NOT USE ROCKITE OR KWIXSET** as they are water soluble.

The most cost effective anchoring results are achieved

	SP10	SP12	SP18	SP58
Drill Depth	6”	12”	12”	10”
Drill diameter (min)	7/8”	7/8”	1”	1.25”
Drill Part Number	83-1002	83-1002	83-1003	n/a
Anchors per EPX2 bag	3	1.5	1.2	0.6
Anchors per EPX2 tub	45	22	16	10
Grout required, cc	60	120	150	290
Rated Pull, lb.	1,500	2,000	2,500	TBD
Bolt Torque lb-in	200	200	280	

Table 1

using our EPX2, an expanding anchoring cement.

The EPX2 is packaged in bags of 12oz (P/N 82-

5002.K for a six-pack). The anchors to hold up structures that will not stand on their own. Continuous forces in the range of 25% of rating are considered a problem. Please refer to Table 1 for data on the available models.

The EPX2 is also available in 10 lbs. tubs at a lower cost (P/N 82-5002.010).

See application note AN36 for instructions on the grout when temperatures are below 50 F.

The amount of grout required depends on the model of the anchor you selected. See Table 1 for a guide to the quantity of grout required.

Do not use the EPX2 with Dacromet coated anchors, as chemicals in the cement may attack the coating. Use a 2-part hard epoxy instead. Epoxy cartridges for use as grout are commonly available from other vendors, at a higher cost than EPX2.

Required Supplies

Before starting the installation, make sure that you have the following items:

1. EPX2 grout in quantity per table 1
2. Water
3. If the item you are attaching is thicker than 3/8”, procure the required bolts. Otherwise, the bolts provided with the anchors will do.
4. If you provide your own bolts, you will need Permatex anti-seize paste to facilitate removal of the bolts in the future.
5. Masonry drill bit per Table 1
6. Tools — hammer-drill, hammer, wrench for

bolts, vacuum cleaner or blower.

For Really Flush Installation

The head of the anchor is about 0.080" (2mm) high. That only presents a problem if the structure is removed for the winter for snow removal. Some snowplows may snag the head of the anchor.

The asphalt may be compacted to accommodate the entire head of the anchor using our Flattener tool (P/N 01-6390). The tool is placed in the hole before grout is applied, and hammered in to compact the area below the head. Do not use the tool on an installed anchor.

EPX2 Bag Use Directions

1. Prior to the activation of the grout, make sure that you have the anchors on hand. Do not separate the bolts from the anchors.
2. Note that the EPX2 is fast curing; you have less than 10 minutes handling time.
3. Drill a hole in the diameter and length per table in previous page. If you use a larger drill diameter or drill deeper than specified, you will need more grout.
4. With the zipper on top, carefully open the bag in the middle of the zipper. Do not press on the bag as it will send a cloud of dust which should be avoided.
5. Slowly add water. There is large variability in the required amount, depending on the water content of the grout as provided in the bag. Typically you will need just short of 1/2 cup of water. The end consistency of the mixture should be heavy syrup-like. Note that the transition from dry powder to liquid is quite abrupt, so add the water slowly.
6. If too much water was added, the consistency will be too liquid and the grout will require much longer to cure and may not reach full strength. If an inadequate amount of water is applied, there will be lumps in the mixture and it will clog the top of the hole and the grout will not flow to the full length of the hole. The pull resistance will be severely reduced.
7. Roll the top section of the bag that has no mixture to remove trapped air from the bag, then carefully zip the bag closed.
8. Knead the mixture for 2 minutes until all the powder was dissolved and no lumps are present. As you knead, rotate the bag 90 degrees at a time, knead and rotate again.
9. If more water is required, add one tablespoon at a

time.

10. If there was too much water in the mix, add grout from another bag.
11. Slowly pour the mixture into the hole from a corner of the bag.
12. **Make sure that the grout reaches the very top of the hole, even a little above it.** Failure to fill to the top will greatly weaken the bond between the anchor and the asphalt.

Insert Anchor

1. Push the anchor into the hole. When the anchor head is about 2" from the asphalt, inspect the level of the grout in the hole. If the level is below the surface, top up the grout without pulling out the anchor.
2. Push the anchor in until its head is flush with the surface.
3. Immediately wet-clean the area around the anchor to remove unsightly grout before it cures. You may also scrape the excess using a trowel or a piece of cardboard.
4. The time for full cure of the installation varies with the mixture, temperature and humidity. Allow 1-2 hours before exerting a pull load (250 lbs or more) or heavy torque on the anchors.

Attach Structure

1. Remove the bolt and washer from the anchor.
2. If you need to use your own bolt, apply a small amount of the Permatex paste along its thread (one side is enough).
3. Making sure that the plate to be attached is flat and in contact with the head of the anchor, align the hole in the plate with the anchor.
4. Insert the washer and the bolts, and tighten. Do not exceed the torque allowed in Table 1. Do not use an impact wrench.

Warnings:

- Once mixed with water, the grout is caustic and can cause burns to eyes and skin.
- Prevent aluminum from coming in contact for a lengthy period with the installed grout.
- Do not use with Dacromet or similar coating

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