BOLTHOLD™

Tents on Asphalt Primer v0

BoltHold^{tm} is a family of anchors specifically designed for anchoring to **asphalt**.

Do not court trouble by using **concrete** mounting methods on asphalt. These methods are GUARANTEED TO FAIL within hours or days

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Audience

This primer is intended for anyone who is considering mounting objects to asphalt surfaces. Mounting tents is a special and demanding case that is covered here in detail due to Covid-19 pressure to add outdoor spaces. "Tents" is meant to include canopies, awnings, pavilions, shelters and the like.

Options

When attempting to affix objects to asphalt, there are a few options available. See table below for comparisons.

1. Stake pegs through the asphalt
2. Use our asphalt anchors
3. Remove a patch of asphalt and replace it with concrete, then proceed with anchoring to concrete
4. Use heavy weights to tie down posts
5. Break through a patch of asphalt and use Earth augers

Tent Mounting Methods Comparison

Method	Multi-seaso	Relia ble	surface damage	landlord issues	Cost	Notes
Staking	no	yes	yes	yes	$$$	1
Asphalt Anchors	yes	yes	no	no	$$	2
Weights	no	no	No	no	$$	3
Concrete Patch	yes	yes	yes	yes	$$$$	4
Earth Auger	yes	yes	yes	yes	SSSS	5

1. drill 1" hole and drive 36" stake. Remove for winter, reinstall in spring
2. drill and fill 1" hole with adhesive, push anchor in
3. use large containers and fill with sand or water. Water must be emptied for winter
4. excavate patch 24" deep, pour concrete, wait 2 days to cure, then drill and install anchors
5. Break a section of asphalt, install auger and cover with gravel

Why Asphalt is Tricky

Unlike cured concrete that stays hard and predictable, cured asphalt can "flow" under stress. "Flow" means that it can yield to external forces that are applied for a length of time measured in **hours**. To clarify, asphalt is good in resisting forces applied for **minutes**, but poor in resisting forces that are applied for hours or **days** at a time.

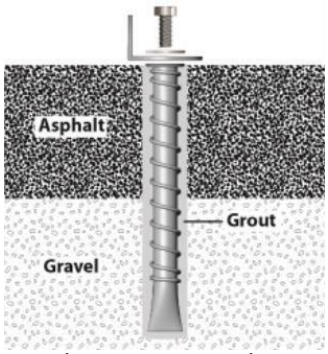
Friction Anchors Are Useless

Anchors that depend on friction will loosen quickly when used in asphalt. Friction is directly related to the force between the asphalt and the anchor; if there is no force applied to the asphalt, there is no friction between the surfaces. If the force applied to the asphalt causes the asphalt to recede even a fraction of an inch, the friction will disappear. At this point the anchors will be loose in the hole and quite useless.

The common friction anchors, (also known as Wedge anchors, Strike anchors, Sleeve anchors, Expansion anchors, Lag anchors or Drop-in anchors) are not suitable for use on asphalt. If we can convince you not to use such anchors in

asphalt, we will feel rewarded. In the 15 years since we started using, making and marketing anchors for asphalt, we regularly see end-customers go through the pain of installing friction anchors, then having to remove the installation and find alternate methods just days later.

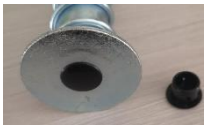
Good Asphalt Anchors are stress-free



The key to long-lasting reliable anchoring to asphalt is to eliminate continuous stress forces on the asphalt. Instead of relying on friction from forces applied from the anchor to the asphalt, the solution is to BOND the anchor to the asphalt using an adhesive grout. An oversized hole is drilled in the asphalt with plenty of clearance between the anchor and the asphalt. The space between them is filled with a special cement or epoxy that we refer to as grout (not to be confused with the material used to seal ceramic tiles). Once cured, the anchors are securely held in the asphalt (and in the gravel layer below it) to provide years of trouble free anchoring.

Good anchors disappear

An important consideration when anchoring seasonal structures such as canopies is how easy it is to remove the structure, and to reinstall it the next season. Another consideration is what is left on the asphalt surface when the structure is removed. Nothing should be allowed to stick above the surface else there is risk of tripping pedestrians or damaging car tires.



The BoltHold anchors have an internal thread and are completely flush with the asphalt. Once the structure was removed (by unscrewing the bolts that hold the structure to the anchors), a plastic cap is used to plug the thread opening, providing a flat and smooth surface to walk and drive over – even for snowplows.

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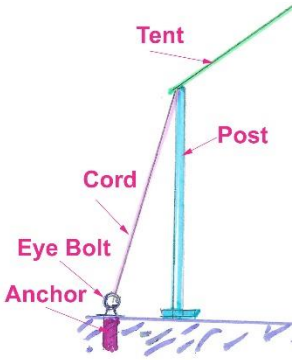
Tent Anchoring

There are two basic means of using anchors to hold down tents. One is by directly fixing the frame or the posts to the surface. This is achieved by the use of post plates as shown on the right. The plate is bolted to the anchors through holes provided in the plate.

The second means is by using guy wires or straps to hold down the posts or the frame. A combination of the two methods is also commonly used. Note that the use of guy wires has its downside, mostly due to tripping danger. It also limits the available space around the posts as the cables prevent tables from being used in their vicinity.



Anchor Selection

When considering securing a tent using anchors, review how stable the frame is without the effects of wind, ice or snow. If the structure stands solidly on its own, you may count on the anchors to resist temporary loads up to 80% of their pull rating. If the tent will apply a static pull force on the anchors just as it stands, limit the load on the anchors to 20% of the pull rating.

The table below provides an overview of the rating of the BoltHold anchors.

	SP10	SP12	SP18	SP58
Rated Pull, lbs.	1,500	2,000	2,500	5,000
Bolt Torque lb-in	200	200	280	720
Drill Depth	6”	12”	12”	10”
Drill diameter	7/8”	7/8”	1”	1.5”
Drill Part Number	83-1002	83-1002	83-1003	n/a
Anchors per EPX2 bag	3.4	1.7	1.3	0.7
Anchors per EPX2 tub	45	22	17	9.3
Anchors per EPX3 tube	4	2	2	1
Grout required, mL (cc)	60	120	150	290

CALCULATORS

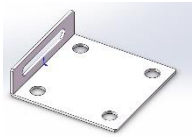
Our website offers several useful calculators that will save you time and recommend the least-cost anchors for your application. You can find the calculators at asphaltanchors.com/Calculators. The calculators accept inputs such as the dimensions of the object, the wind expected (worst case) and the thickness of the asphalt, and provide an output in the form of the recommended number and type of anchors per plate.

- The *Grout calculator* computes the required grout for the selected number of anchors of any one anchor model.

- The *Group calculator* provides the rated pull resistance of a group of anchors installed close to each other, in asphalt of specified thickness.
- The *Fence calculator* suggests the number and model of anchors to secure surface-mounted fence posts to asphalt.
- The *Sign calculator* suggests the number and model of anchors to secure a surface-mounted signpost to asphalt.
- The *Carport calculator* suggests the number and model of anchors to secure surface-mounted carport posts to asphalt.

Eyebolts

When using straps or guy wires to secure a tent, a convenient method is to screw a suitable eyebolt into the asphalt anchor. The strap is then tied around the loop of the eyebolt. If the pull force expected exceeds that of any one of the BoltHold anchors, use a 4-bolt eyebolt plate as shown on the right. An alternate solution is a custom strap plate as shown on the right.



Please consult our eyebolt datasheet in order to select and position the eyebolts properly (did you know that eyebolts must be applied in a particular direction?).

Flexible Cords

Flexible cords, such as bungee cords, are a good solution for controlling the pull forces applied to eyebolts. The commonly use ratchet-type straps can apply large forces when used carelessly, and that may compromise the long term stability of the asphalt anchors in high temperatures. Using a bungee cord for at least part of the length of the strap guarantees that there is a limit on the force applied, regardless of who installs the strap.

Full Instructions

Please refer to the Anchor Installation Guide for detailed instructions and tips on the installation of the BoltHold anchors. And always, feel free to call us 1.973.669.8214

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