

### Overview

**BoltHold** is a family of anchors specifically designed for anchoring to asphalt surfaces. The anchors are a hollow sleeve that is bound to the asphalt using a special adhesive grout. An internal thread in the sleeve allows the use of threaded bolts and eyebolts to be securely attached.

### Description

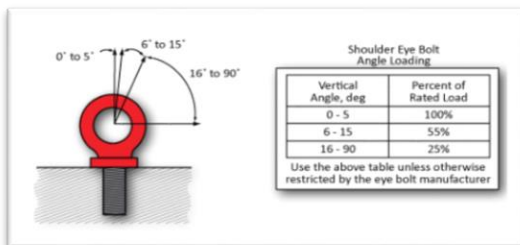
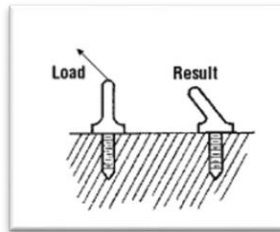
BoltHold offers 3 sizes of eyebolts, to match its line of anchors. These are defined by the thread size. Our threads are all imperial (inches, not metric) and are coarse thread (UNC): 3/8"-16, 7/16"-14, 5/8"-11. The number after the diameter (e.g. -16) denotes the thread pitch in threads per inch. The eyebolts are forged steel with galvanized coating.

The force rating of the eyebolts matches the handling capacity of the anchors, but that is for **short-duration** forces only. For continuous forces the anchors should not handle more than 25% of their force rating. See example at the end of this document.

### About Eyebolts

Eyebolts allow easy anchoring of cables and hooks. Their use is simple and safe, if these rules are observed:

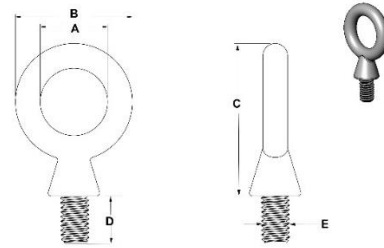
1. The pull forces on the eyebolt must be in the plane defined by the circle of the eyebolt.
2. If the pull force is more than 5 degrees from vertical, the allowed forces need to be derated from the max allowed, as



shown below (courtesy Crane Tech Blog).

3. Our eyebolts have full thread. That means that they can be threaded tight against the head of the anchor. This is absolutely essential for any application where the forces on the eyebolt are not perfectly vertical. The shoulder of the eyebolt must rest tightly against the head of the anchor.
4. The length of the thread "D" in the drawing next column should allow 7 turns of the eyebolt to engage the anchor thread. More engagement does not result in more strength,

### Eyebolt Selection



SKU	E	SP	A	B	C	D	force
49-8001	3/8-16	SP10 SP12	1	1.8	1.8	5/8"	1,300
49-8002	7/16-14	SP18	1.1	1.4	1.5	1"	2,200
49-8003	5/8-11	SP58	1.3	2.5	2.5	1"	5,000

Note: The dimensions above are approximate. Force is expressed in lbs. and applies to vertical pull. Column SP lists the compatible anchor models.

### Anchor Installation

Please follow the detailed anchor installation instructions on our website under "[Library](#)". The online manual is updated regularly to reflect the availability of grouts, new installation techniques and user feedback. In case of conflict between this document and the instructions online, the online documents take precedence.

### Eyebolt Installation

Thread the eyebolt into the anchor until it is tight against the anchor head. Do not exceed the allowed torque (per anchor specifications) else the anchor will break away from the asphalt.

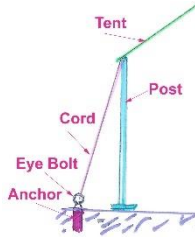
Note to align the eyebolt with the direction of the cable to prevent sideways stress on the thread.

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### Example

The tent manufacturer specified 500 lbs. pull on each cord. The angle between the cord and the vertical is 10 degrees. That means that we need to specify an eyebolt that can handle  $500/0.55=900$  lbs.

The anchor needs to resist 500 lbs. continuously. Anchors are rated for intermittent duty due to asphalt flow considerations; for continuous duty, it is recommended to de-rate the anchor to 25%. Thus the anchor needs a rating of  $4 \times 500 = 2,000$  lbs. The smallest anchor with this rating is our SP12 with a 3/8" thread which is compatible with the 49-8001 eyebolt.



### Grouping Anchors

If the forces required exceed the rating of any of our anchors, it is possible to group 3 or 4 anchors to support one eyebolt. A simple steel plate with a center hole for the eyebolt, and holes at the periphery for 3 (120 degrees apart) or 4 anchors (90 degrees apart) will distribute the forces over a larger asphalt area.



A Group [calculator](#) on our website allows you to select the smallest anchors that together will provide the required pull resistance.

Note that you will need to drill a clearance hole in the asphalt to accommodate the thread of the eyebolt that stocks out under the plate, including the nut and washer that attach the eyebolt to the plate.

### Use of Shock Cords

A concern when using steel or nylon cords to hold the tent or the structure is of exceeding the allowed forces. A safe solution is to use shock cords that have the required pull resistance. You can use bungee cords with metal hooks, or cords that are sold in rolls.



An advantage for use of shock cords is that strong wind gusts, or a person tripping on the cords, will be absorbed by the elastic cords and prevent damage. Once the length of the cords has been set, there is little need to adjust the cords length.