

**Overview** Asphalt Anchors Corp. has developed the **BoltHold** family of ground anchors suitable for mounting structures to asphalt surfaces. The SP12-M10 anchor is 300 mm long and 20 mm in diameter, with a M10x1.50 mm female thread. (See separate datasheet for the SP12-38 with Imperial 3/8" thread.) The anchor is bonded to the asphalt using a special grout EPX2.

The SP12-M10 is recommended for applications where moderate shear forces are expected (675 Kg or less per anchor).

**Description** The SP12-M10 is constructed from zinc plated steel. A 15 mm tube is the backbone of the anchor. The bottom is flared and sealed to act as a wedge when pushing the anchor into the ground. A welded spiral along the length of the anchor provides for a strong bond with the grout. The top of the anchor incorporates a large head with internal female thread.

The head prevents the anchor from dropping below the surface, and guards the thread from the grout spilling into it. The head prevents *static* pull forces on the anchor when the structure is attached to the anchor. Such forces are likely if the head of the anchor is smaller than the hole in the base of the structure being attached; in the latter case, as the bolt is tightened, the anchor would be pulled up through the hole into the base.

**About Asphalt:** Asphalt is a relatively weak surface, and care must be taken when installing structures to that surface. This is particularly so when the asphalt is less than 120 mm thick, as is the case in most parking lots and driveways. The asphalt will flow under pressure over time, and will not work with expansion-type anchors that are so effective in concrete.

The length of the anchor contributes to shear force resistance even though part of the anchor may be surrounded by gravel *below* the asphalt. The compacted gravel resists sideways forces (shear). Bonding the anchor to the gravel, in ad-



dition to the bond to the asphalt, using grout also adds pull resistance. For applications that require a higher shear resistance (such as speed bumps and structures that are subject to high wind forces), it is recommended to use the SP18-M12 or the SP58.

**Force Rating** The resistance of the installed anchors to extraction depends on the nature of the asphalt and the gravel below it. The SP12-M10 is **pull-rated at 900Kg** when installed using a 22 mm hole and the recommended grout. At ground level, the anchor can resist **675Kg of shear force** (see note 1 next page).

The anchor is rated for rotary torque; this torque is exerted when tightening the attaching bolt. This torque generates an internal pull stress on the thread, as well as a rotating force on the anchor against the asphalt. The SP12-M10 is rated for **230 Kg-cm (23 NM) torque**.

To find out if the anchors are suitable for your application, the safe way is to make a test installation. You will be able to leave the anchors in place after the test without the need to remove them as they are flush with the roadway surface.

**Grout Selection** The term "grout" is used here in a broad meaning; the actual materials can be special anchor cements or 2-part hard epoxies.

In general, the grout must be self-leveling (meaning that it flows easily, to fill in all the crevices and voids). It must expand as it cures, and it needs to cure to a hard material and must be immune to extended exposure to water and temperature fluctuations.

The most cost effective anchoring results are achieved using our EPX2 or AGe2 expanding cement mix. You will need about 120 cc of mixture per anchor. The AGe2 comes in 5 Kg plastic tub, good for





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22 SP12 anchors.

Cartridge-type epoxies are available in the market which work well but are 3-5 times more expensive.

**Installation** The installation requires drilling a 22 mm 300 mm deep hole into the asphalt and the gravel below it. The hole is filled with grout and the anchor is dropped in. The anchor is ready for use in 15 minutes (depending on the grout and ground temperature).

When installing in cold weather, consult AN36.

Always consult the latest installation instructions before installing these anchors. A comprehensive installation manual is available on our web site. The online documents are updated regularly to reflect new installation techniques and user feedback.

### Finishes

The anchor and the associated hardware are available Zinc coated or 304 Stainless Steel.

### Packing

The **BoltHold SP12-M10** anchors are packaged 6 anchors to a "Set" carton. 9 Sets are packaged in a Master carton which holds 54 SP12-M10. Each anchor is supplied with a M10 x 25mm grade 5 zinc plated bolt and a 25mm diameter washer.

### Tariffs

The SP12-M10 are shipped under schedule 50. HTS code (export) 7318.19

Anchor Metrics	
Anchor Length	300 mm
Anchor body diameter	20 mm
Anchor washer diameter	37 mm
Washer thickness	2 mm
Anchor weight	0.25 Kg
Internal Thread	M10 x 1.50mm
Maximum bolt length	250 mm
Typical pull resistance	9KN (900 Kg)
Typical Shear Resistance	680 Kg
Grout volume required	120 cc
Anchors per AGe2 package	16
<b>Part Number 6-pack zinc</b>	<b>01-6315.M1K</b>
<b>6-pack 304 Stainless</b>	<b>01-6315.1SK</b>

Kit Packing Information	
Anchors per Set	6
Bolts and washers per set	6
Set Carton dimensions, mm	106 x 346 x 53
Set Carton weight	1.4 Kg
Set Carton Volume	0.003 CBM
Number of anchors per Master	54
Master Carton dimensions, mm	365 x 340 x 197
Master Carton Gross Weight	12.7 Kg
Master carton Volume	0.024 CBM

**Note 1:** When installing anchors close together, de-rate the pull strength of the additional anchors by 6% for every 25mm less than 300mm. Thus an arrange-

ment of 4 SP12-M10 anchors at 100mm apart will resist a total pull force of 2,304 Kg (900 + (3 x (52% x 900))).



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