

## 1. Background

The BoltHold™ asphalt anchors provide a method to mount equipment and devices directly to asphalt surfaces. A key metric for evaluating the suitability of an anchor for a particular application is the anchor's ability to resist pull forces, thus keeping the load properly anchored to the surface.

This report provides a description of tests performed by a customer<sup>1</sup> to qualify an installation of airplane arresting grid in an airport in Japan. For another document describing pull test procedure, please see AN43.



## 2. Test Surface

A special patch of asphalt was prepared for the test. The asphalt was applied in 3 thicknesses — 50mm, 100mm and 150mm (2", 4" and 6").



After allowing the asphalt to cure for a few days, six SP10-M10 anchors were installed as shown in the picture above. The installation was done in November, with temperatures running between 10°C and 17°C (50°F to 62°F).

The test results are summarized in the table below.

Asphalt Thickness	Pull force KN	Pull Force lbs.
50mm (2")	6.2KN	1,500
100mm (4")	8.8KN	2,000
150mm (6")	9.7KN	2,180

## 4. Pull Tests

The pull tests were performed using a test instrument model AT-10D II, rated for a maximum load of 100KN (22,500 lbs). The instrument is manufactured by Sanko-techno of Japan (<http://www.sanko-techno.co.jp/en/company/pdf/technotester.pdf>). The instrument records the highest pull force before the anchor starts to move out of the ground.

*Note 1:* Courtesy of Mr. Yasushi Kimura, Gadelius Service & Engineering KK, Tokyo

## 4. Comments

The test results meet or exceed our specifications of 1,500 lbs. @ 2" asphalt thickness, and the customer was satisfied with the anchor performance. However, we usually see higher pull resistance than reported by the customer — we saw as much as 6,000 lbs. with 4" asphalt (3x the results here) in Midway tests (see AN34). We attribute the lower results here to the freshness of the asphalt, which has not fully settled and cured.