



November 11, 2020

RE: Hilti KB1 to replace Hilti KB-TZ carbon steel

To Whom It May Concern:

For over 10 years, Hilti has been providing the Kwik Bolt TZ (KB-TZ) carbon and stainless-steel anchors in cracked and uncracked concrete for the most demanding anchoring applications in the construction industry.

In 2021, we are happy to announce Hilti is introducing the Kwik Bolt 1 (KB1) as a replacement to the KB-TZ carbon steel anchors. Similar to the KB-TZ, the KB1 anchor is a torque-controlled, mechanical expansion anchor consisting of a stud, wedge, washer and nut.

The KB1 can be used in the following base materials:

- Cracked and uncracked normal-weight concrete to lightweight concrete (specified compressive strength, f'_c , of 2,500 psi to 8,500 psi)
- Lightweight concrete over metal deck (3,000 psi minimum specified compressive strength)
- Uncracked, fully grouted concrete masonry unit (CMU) construction

As with the KB-TZ, Hilti has thoroughly tested the KB1 in accordance with the following:

- ICC-ES Acceptance Criteria for Mechanical Anchors in Concrete Elements (AC193) which incorporates requirements in ACI 355.2-11
- ICC-ES Acceptance Criteria for Expansion Anchors in Masonry Elements (AC01)
- FM 1951 and UL 203 for use with fire sprinkler pipes

Based on this testing, IAPMO recently released the Evaluation Report ER-678 (Concrete) and Evaluation Report ER-677 (Masonry). KB1 is a premium performance anchor and in most cases has better performance than industry competitors. KB1 is equal to or better than KB-TZ carbon steel anchors, with the following limited exceptions:

- Pullout Strength in uncracked concrete, $N_{p,uncr}$, for 5/8" Carbon Steel at 4" h_{ef}
- Pullout Strength in cracked concrete, $N_{p,cr}$, for 3/4" Carbon Steel at 4 3/4" h_{ef}
- Steel strength in shear, V_{sa} :
 - 3/8" carbon steel at 2" h_{ef}
 - 1/2" carbon steel at 3 1/4" h_{ef}
 - 3/4" carbon steel at 3 1/4" h_{ef} and 4 3/4" h_{ef}
- Steel strength in seismic shear, $V_{sa,eq}$:
 - 1/2" carbon steel at 3 1/4" h_{ef}
 - 3/4" carbon steel at 3 1/4" h_{ef} and 4 3/4" h_{ef}
- Minimum edge distance, C_{min} , and minimum spacing, s_{min} , are different in a few instances

The full IAPMO Evaluation Reports for KB1 are available for download at www.hilti.com or www.iapmo.org. In any case, it is highly recommended to use PROFIS Engineering to redesign your existing projects with the new KB1.

Please feel free to contact our Engineering Technical Services department for more information or any questions.

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