

Bolts, Expansion Anchor, Carbon Steel, Standard Duty



1. Scope

This standard covers the requirements for carbon steel expansion anchor bolts. This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock No.	Size (in) (Diameter x Length)
014735	1/4 x 2-1/2
014736	1/4 x 3-1/4
780104	3/8 x 3
780105	3/8 x 3-3/4
014803	1/2 X 3
780111	1/2 x 3-3/4
780113	1/2 x 5-1/2
780024	5/8 x 4-3/4
780115	5/8 x 6
014737	5/8 x 7
780023	3/4 x 8

2. Application

Table 2. Expansion Anchor Bolt Applications, All Types

SCL Standard	Material	Application	Environment	Seismically qualified?
7800.95	Stainless steel bolts with Type 304 stainless steel nuts and washers	Permanent	Wet	Yes
	Stainless steel bolts with Type 316 stainless steel nuts and washers	Permanent	Wet, corrosive/saltwater conditions	Yes
7800.96 (this standard)	Carbon steel	Permanent, light duty, or temporary	Dry, in-building	Yes

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Expansion anchor bolt strength requirements depend on a variety of factors, including:

- Strength of concrete
- Bolt spacing
- Shear and tension
- Seismic

Please refer to the Hilti Kwik bolt TZ2, Carbon Steel, 304 and 316 Expansion Anchor technical data sheet for additional information and contact SCL Civil Engineering for application-specific strength requirements.

3. Industry Standards

Carbon steel expansion anchors shall meet the applicable requirements of the latest revision of the following industry standards:

ACI 355.2; Qualification of Post-Installed Mechanical Anchors in Concrete

ASTM A563, Standard Specification for Carbon and Alloy Steel Nuts

ASTM F844; Standard Specification for Washers, Steel, Plain (Flat), Unhardened for General Use

ASTM B633/A668M; Standard Specification for Steel Forgings, Carbon and Alloy for General Industrial Use

ICC-ES AC 01; Acceptance Criteria for Expansion Anchors in Masonry Elements

ICC-ES AC 193; Acceptance Criteria for Mechanical Anchors in Concrete Elements

4. Requirements

Expansion anchor bolt, nut, and washer shall be provided to SCL pre-assembled.

Expansion anchors shall meet the dimensional requirements cited in Section 8.

Carbon steel anchor components shall be plated in accordance with ASTM B633 to a minimum thickness of 5 μm .

Nuts shall conform to the requirements of ASTM A563, Grade A, Hex.

Washers shall meet the requirements of ASTM F844.

Expansion sleeves (wedges) shall be manufactured from carbon steel.

Seismic qualification shall be tested in accordance with ACI 318-14 Chapter 17, ACI 355.2, and ICC-ES AC193.

5. Marking

A red band near top of bolt differentiates this product from the light-duty Hilti Kwik Bolt 3.

Product and length identification shall be marked on all expansion anchor bolts.

A length identification mark shall be embossed into the impact section (dog point of the anchor). This mark shall be surrounded by a single embossed notch identifying the anchor as a Hilti Kwik Bolt TZ2.

6. Packaging

Each standard package shall be legibly marked with the following information:

- Manufacturer identification
- Product description
- Seattle City Light stock number
- Quantity contained

Quantity per box shall be as described in Section 8.

Each shipping container shall be legibly marked with the following information:

- Manufacturer identification
 - Country of origin
 - Product description
 - Seattle City Light purchase order number
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7. Issuance

Stock Unit: EA

8. Approved Manufacturer

Name: Hilti, Inc. (US)

Product Description: Kwik Bolt TZ2

Stock No.	Size (in) (Diameter x Length)	Item No.	Box Quantity
014735	1/4 x 2-1/2	2210174	100
014736	1/4 x 3-1/4	2210175	100
780104	3/8 x 3	2210236	50
780105	3/8 x 3-3/4	2210238	50
014803	1/2 X 3	2210253	20
780111	1/2 x 3-3/4	2210254	20
780113	1/2 x 5-1/2	2210256	20
780024	5/8 x 4-3/4	2210271	15
780115	5/8 x 6	2210273	15
014737	5/8 x 7	2210274	15
780023	3/4 x 8	2210314	10

9. References

SCL Material Standard 7800.95; “Bolts, Expansion Anchor, Stainless Steel”

10. Sources

Ng, Sharon; SCL Senior Civil Engineer and subject matter expert for 7800.96

SCL Material Standard 7800.9 (canceled); “Anchor Bolts Light-Duty Stud Bolts”

Tilley, Kathy; SCL Electrical Engineering Support Specialist and originator of 7800.96

www.hilti.com; Kwik Bolt TZ2 (KB-TZ2) Ultimate Expansion Anchor KB-TZ2 Concrete and Masonry Technical Supplement