

Bolts, Expansion Anchor, Stainless Steel



1. Scope

This standard covers the requirements for two types of stainless steel expansion anchor bolts.

This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock No.	Type	Size (in) (Diameter x Length)
780032	304	1/2 x 3-3/4
013666	304	1/2 x 4-1/2
014731	304	1/2 x 5-1/2
780147	304	5/8 x 4-3/4
014732	304	5/8 x 6
014733	304	5/8 x 7
780033	304	3/4 x 8
780141	316	1/2 x 3-3/4
780143	316	1/2 x 5-1/2
780034	316	5/8 x 4-3/4
780145	316	5/8 x 6
014734	316	3/4 x 8

2. Application

Table 2. Expansion Anchor Bolt Applications, All Types

SCL Standard	Material	Application	Environment	Seismically qualified?
7800.95 (this standard)	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	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, Stainless 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

Expansion anchor bolts shall meet the applicable requirements of the latest revision of the following industry standards:

ACI 355.2-07; Qualification of Post-Installed Mechanical Anchors in Concrete

ANSI/ASME B18.2.1; Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series)

ANSI/ASME B18.21.1; Washers: Helical Spring-Lock, Tooth Lock, and Plain Washers (Inch Series)

ASTM F594; Standard Specification for Stainless Steel Nuts

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.

Stainless steel expansion anchor nuts and washers are to be made from Type 304 or Type 316 stainless steel respectively.

Nuts shall meet the dimensional requirements of ASTM F594.

Washers shall meet the dimensional requirements of ANSI/ASME B18.22.1, Type A, plain.

Expansion sleeves (wedges) shall be made from stainless steel.

Seismic qualification shall be tested in accordance with ACI 318-14 Chapter 17, ACI 355.2, and ICC-ES AC 193.

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 double embossed notches for 304 Stainless and triple embossed notches for 316 Stainless Steel, 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 Type	Item No.	Box Quantity
780032	1/2 x 3-3/4	TZ2-SS304	2210260	20
013666	1/2 x 4-1/2	TZ2-SS304	2210261	20
014731	1/2 x 5-1/2	TZ2-SS304	2210262	20
780147	5/8 x 4-3/4	TZ2-SS304	2210278	15
014732	5/8 x 6	TZ2-SS304	2210279	15
014733	5/8 x 7	TZ2-SS304	2210280	15
780033	3/4 x 8	TZ2-SS304	2210289	10
780141	1/2 x 3-3/4	TZ2-SS316	2210264	20
780143	1/2 x 5-1/2	TZ2-SS316	2210266	20
780034	5/8 x 4-3/4	TZ2-SS316	2210284	15
780145	5/8 x 6	TZ2-SS316	2210306	15
014734	3/4 x 8	TZ2-SS316	2210296	10

9. References

SCL Material Standard 7800.96; “Bolts, Expansion Anchor, Carbon Steel, Standard Duty”

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

10. Sources

Ng, Sharon; SCL Senior Civil Engineer and subject matter expert for 7800.95

Tilley, Kathy; SCL Electrical Engineering Support Specialist and originator of 7800.95