



Confirmation of Product Type Approval

Company Name: HILTI AKTIENGESELLSCHAFT

Address: FELDKIRCHERSTR. 100, 9494 SCHAAN, Liechtenstein

Product: Fastening System

Model(s): Carbon steel powder-actuated Hilti X-E fasteners

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	21-2146146-PDA	02-AUG-2021	01-AUG-2026
Manufacturing Assessment (MA)	21-4879051	29-JUL-2021	30-AUG-2026
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3 - Type Approved, unit certification not required

Intended Service

For fastening of fastened materials to base materials of carbon steel in the marine and offshore environment.

Description

General Purpose Fastener: EDS, X-U

Profiled Sheeting Fastener: X-ENP 2K, X-ENP-19

Diaphragm Decking Fasteners: X-HSN 24

Threaded Studs: X-EM, X-EW, X-EF

Zinc coated threaded studs, and nails whereby fastenings are made by using powder actuated tools to drive the fasteners into their final positions, by displacing base material in the process.

Ratings

For Rating Matrix and Product Test Reports refer to Hilti Direct Fastening Technology Manual for each product.

Service Restrictions

Unit Certification is not required for this product. If the manufacturer or purchaser's request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

List of Recommended Areas and Applications:

1. The Hilti DX Fastenings are to be used for fastened and base material of carbon steel in the marine, offshore, and industrial environments, as applicable (Ref to: Product Matrix).
2. To ensure that proper anchoring/fastening mechanisms take place, i.e. clamping, keying, fusing, and brazing/soldering, besides the use of proper fastening tools and power source, the following base material strengths are to comply with; Carbon Steel : Ultimate Tensile Strength $f_u = 370 \text{ N/mm}^2$ (53.53 ksi).
3. User of the DX fasteners is to observe the Hilti Direct Fastening Technology Manual for application limitations and conditions.
4. In general, type approved X-E fasteners are not to be used in corrosive environment and in structural members that are sensitive to stress patterns/variations and for areas that notch toughness is of paramount importance.
5. In general, Hilti fasteners may be used to fasten materials in areas where welding or drilling for bolting is permissible. It is recommended that the fasteners be installed no closer than 15 mm from the edge of a flange or cutout and no closer than 15 mm between fasteners.

The following additional guidance is provided for applications on ships and offshore structures:

Recommended Applications and Locations:

- a) The securing of grating panels
- b) The securing of checker plate
- c) The securing of electrical cable trays
- d) The securing of electrical cable clips
- e) The securing of joiner bulkhead tracks to decks in the deck-house
- f) The securing of furniture to lower decks and decks in the deck-house
- g) The securing of members for draft stops in the deck-house
- h) The securing of light duty fixtures and light hangers
- i) On platform decks
- j) On non-tight bulkheads
- k) On lower decks
- l) On transverse side frames
- m) In superstructures and deck-house bulkheads
- n) Securing of items (a) thru (h) above and similar items in A-Class boundaries

Applications and Locations where Special Care May be Appropriate* :

- a) In members whose operating temperature is normally below 1°C
- b) In members with significant thermal stresses
- c) In highly stressed portions of members
- d) In members subject to high, cyclic loads
- e) Hangers for pipe systems with high thermal stresses
- f) Hangers for sprinkler systems

g) In locations particularly susceptible to corrosion.

[*Hilti fasteners often may be used for the listed applications by following the Manufacturer's recommendations and guidance. The attending Surveyor and Owner are to be consulted and agree with the use of the fasteners]

6. Hilti fasteners may also be used for additional applications than those listed above. Some applications may require an engineering review in advance.

Comments

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

2. ABS approvals are general based on the product test reports furnished by recognized institutions and laboratories which may reflect specific local conditions. If any application is in a jurisdiction where the fasteners are subject to the approval process or specific guidelines are to be followed, the approved technical data or design guidelines take precedence over technical data presented herein.

Notes, Drawings and Documentation

Drawing No. 211102, Drive pin EDS, Rev. 5, Pages: 1

Drawing No. 381182, Universal nail X-U, Rev. 13, Pages: 1

Drawing No. 380698, Nagel ENP2K, Rev. B, Pages: 1

Drawing No. 211351, Drive pin ENP2K 20, Rev. 14, Pages: 1

Drawing No. 322696, Drive pin X-ENP L15, Rev. G, Pages: 1

Drawing No. 322577, Drive pin X-ENP 19, Rev. 15, Pages: 1

Drawing No. 439058, Drive pin X-HSN 24 TH12M, Rev. 4, Pages: 1

Drawing No. 5079132, Drive pin X-HSN 24, Rev. 4, Pages: 1

Drawing No. 380965, Threaded stud X-EM6H, Rev. 5, Pages: 1

Drawing No. 380980, Threaded stud X-EM8H, Rev. 9, Pages: 1

Drawing No. 380982, Threaded stud X-EM10H-24-12, Rev. 7, Pages: 1

Drawing No. 380970, Threaded stud X-EW6H, Rev. 6, Pages: 1

Drawing No. 380984, Threaded stud X-EW10H-30-14, Rev. 4, Pages: 1

Drawing No. 380973, Threaded stud X-EF7H-7-9, Rev. 7, Pages: 1

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 01/Aug/2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules

2021 ABS Rules for Conditions of Classification, 1-1-4/7.7, 1-1-A3, 1-1-A4

2021 ABS Rules for Conditions of Classification – Offshore Units and Structures: 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following

2021 ABS Rules for Building and Classing Mobile Offshore Units: 3-2-2/9, 4-3-3/5.9

International Standards

2010 (2012 Edition) IMO Fire Test Procedures Code / Annex 2

EU-MED Standards

NA

National Standards

NA

Government Standards

NA

Other Standards

Manufacturer's Standards



A handwritten signature in blue ink, appearing to read 'James W. ...'.

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 06-Sep-2021 7:27

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.