

# TYPE APPROVAL CERTIFICATE

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## This is to certify:

**That the Cargo Securing Devices**

with type designation(s)  
**Fully Automatic Twistlock TL-FA/GL**

Issued to

**SEC Ship's Equipment Centre Bremen GmbH & Co. KG**  
**Bremen, Germany**

is found to comply with  
**DNV rules for classification – Ships**

## Application :

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**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.**

**SWL, tension (kN) 250**  
**SWL, shear (kN) 210**  
**SWL, compr. (kN) 1200**

Issued at **Hamburg** on **2020-07-28**

This Certificate is valid until **2025-07-27**.

DNV local station: **Hamburg – CMC North/East**

Approval Engineer: **Aadil Wafdi**

for **DNV**

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**Andree Orth**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.  
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



## Product description

Fully Automatic Twistlock

## Application/Limitation

| Load          | Tension [kN] | Shear [kN] | Compression [kN] |
|---------------|--------------|------------|------------------|
| Test Load     | 313          | 263        | 1500             |
| Breaking Load | 500          | 420        |                  |

Tests to be carried out:

- Production testing: At least 2% of the items delivered are to be selected and subjected to the test load.
- Material tests are to be included energy testing at -20°C, with the impact energy requirements acc. to DNV-CP-0068. The material shall be according to the approved drawings. Material certificates shall be issued by the society.

## Type Approval documentation

| Drawing No.   | Rev. | Title                        |
|---------------|------|------------------------------|
| P – TL 9245 A | A    | Fully Automatic Twistlock    |
| P – TL 9111 B | B    | Spring                       |
| P – TL 9246 B | B    | Body for TL-FA/GL (pg.1 – 4) |
| P – TL 9247 A | A    | Locking Device               |

Drawing approval: Ref.No. 262.1-033734-2, dated 2022-10-05 (modified submitted Revision)

Test Report of SEC dated 2020-05-19 in Zarrenthin and Test report of SEC, dated 2020-07-15 in Shanghai

## Tests carried out

The prototype test was carried out in Shanghai, P.R. China, dated 2020-07-15 in accordance with the DNVGL-CP-0068. The operational test was carried out in Zarrenthin, Germany, dated 2020-05-19 in accordance with the DNVGL-CP-0068.

Additional to requirements of the DNV GL-CP-0068 the operational test was extended by a pull test with a pull-out force of 500 kN. Under this pull-out force the tested twistlocks remained in their positions. After the test no recipient cracks nor permanent deformations could be found at the tested specimen.

The topplate of the container corner, which was subjected to pull-out force by the twistlock's latch was largely deformed due to the pull-out force. In the operational test a twistlock opening of 13 mm under a pull-out force of 275 kN was measured \*.

The prototype test was carried out with a tensile force of 1000 kN, instead of a required force of 500 kN acc. to DNV GL-CP-0068. The lock did not break under the tensile load.

## Marking of product

Each item shall be marked by manufacturer for traceability.

## Periodical Assessment

For retention of the Type Approval, a DNV surveyor shall perform a survey after 2 and 3.5 years, to verify that the Type Approval is complied with.