Certificate no.:
TAS000043J

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Cargo Securing Devices

with type designation(s)
Twistlock Foundation SF-1/h(+Z)/U160/28/PM
Twistlock Foundation SF-1/h(+Z)/U160/PM/TH

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

is found to comply with
DNV rules for classification – Ships

Application:

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 **2023-11-22**
This Certificate is valid until **2028-11-21**.
DNV local unit: **Hamburg – CMC North/East**

for **DNV**

Approval Engineer: **Aadil Wafdi**

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
Twistlock Foundation

Application/Limitation

Load	Tension [kN]	Shear [kN]	Compression [kN]
Test Load	313	263	1500
Breaking Load	500	420	2400

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 3.1 acc. to ISO 10474:2013.

Type Approval documentation

Drawing No.	Rev.	Title
P-SF 1317		Twistlock Foundation
P-TP 1095 A		Topplate
P-TP 1144		Topplate
P-SF 1378		Twistlock Foundation
P-TP 1123		Topplate
P-TP 1128		Topplate

Drawing approval: Ref.No. 262.1-040589-1, dated 2023-11-15
Test report No.: CP-0068 dated 2023-10-30

Tests carried out

The prototype test was carried out in Shanghai, P.R. China, dated 2023-10-30 in accordance with the DNV-CP-0068.

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.