Certificate no.:
TAS00004B7

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Structural Connecting Elements

with type designation(s)
Remote Operated Hydraulic Twist Lock-250kN

issued to
SH Group A/S
Svendborg, **Denmark**

is found to comply with
DNV class programme DNV-CP-0068 – General – Certification of container securing devices
DNV standard DNV-ST-0194 – Hydraulic cylinders

Application:

Product approved by this certificate is accepted for installation on naval vessels classed by DNV.

Issued at **Hamburg** on **2024-05-29**
This Certificate is valid until **2029-05-28**.
DNV local unit: **Denmark CMC**

for **DNV**

Approval Engineer: **Ansgar Gorissen**

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

Remote operated hydraulic twist lock connecting element for various applications.

Application/Limitation

Max working hydraulic pressure Port A: 200 bar (test pressure 300 bar)
Port B: 65 bar (test pressure 170 bar)

Remote operated hydraulic twist lock can be used as anchoring device of containers and containers like structures. Permissible safe working loads on twist lock as below:

SWL, Shear	210kN
SWL, Tension	250kN
SWL, Compression*	100kN

*The remote operated Hydraulic Twist Lock is only subject to compression when acting as a jack lifting a module. Compression reaction forces when acting as an anchoring device is supported by deck structure.

Remote operated hydraulic twist lock can be used as anchoring device for accommodation modules, hospitals and similar modules. A securing arrangement plan must be approved case by case if two or more layers are to be installed. A supplement class approval of twist lock control hydraulic and control system is required.

Permissible safe working loads on twist lock as below:

SWL, Shear	105kN
SWL, Tension	125kN
SWL, Compression*	100kN

* The remote operated Hydraulic Twist Lock is only subject to compression when acting as a jack lifting a module. Compression reaction forces when acting as an anchoring device is supported by deck structure.

Remote operated hydraulic twist lock can be used as anchoring device of lifting appliance such as cranes, launch and recovery systems for unmanned vehicles and packages and for man handling operations such as davit systems. A supplement class approval for the respective launching or lifting module is required.
A supplement class approval of the hydraulic and control system is required.

Type Approval documentation

Drwg: Remote Operated Hydraulic Twist Lock-250kN drwg. No. 10061555
Test report: Hydraulic Twistlock Ser. No. SHG-006829

Tests carried out

Hydraulic pressure, function, proof load and break load tests according to test report:

Hydraulic twist lock Ser. No. SHG-006829

Break load	Shear	420 kN
	Tension	700 kN
	Compression	365 kN
Proof load	Shear	263 kN
	Tension	375 kN
	Compression	260 kN

Marking of product

The hydraulic twist locks are to be marked with manufacturer’s name or trademark, type designations and serial number.

Periodical assessment

For retention of the Type Approval, DNV’s surveyor shall perform periodical assessment after 2 years (+/- 90 days) and

after 3.5 years (+/- 90 days) in accordance with DNV's Class Program DNV-CP-338, Section 4.

Other Conditions

Materials for the pressure containing parts are to meet Charpy V-notch energy values of minimum 27J at minimum design temperature.

Each twistlock is to be hydraulically pressure tested and be delivered with a DNV product certificate. The test pressure is to be applied on both sides of the piston in sequence. Testings are to be in accordance with to DNV class guideline CG-0194 - Hydraulic Cylinders in presence of DNV surveyor.
Materials for cylinder tube, piston rod, and end covers shall be delivered with 3.1 material certificates (according to EN 10204 or equivalent).