

# TYPE APPROVAL CERTIFICATE

**This is to certify:**

**That the Lifting Gear**

with type designation(s)  
**TubeLock® TTRS**

Issued to

**Global Gravity ApS**  
**Esbjerg N, Syddanmark, Denmark**

is found to comply with

**Application :**

**NORSOK R-002, 2017 "Lifting equipmnet" Annex C – Group R5 – Spreader and special design for offshore lifting**

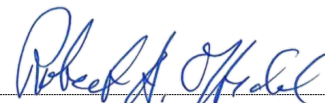
Issued at **Bergen** on **2019-11-13**

This Certificate is valid until **2024-11-12**.

DNV GL local station: **Bergen & Stavanger - Cranes & Lifting Verification**

Approval Engineer: **Valentyn Skudra**

for **DNV GL**



**Robert Anfinn Oftedal**  
**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.



## Product description

The tubeLock system is reviewed with the following main design parameters:

- Categorization: Annex C – Group R5 – “Spreader and special design”  
for offshore lifting (Annex F, group F5 “Lifted object” is used in design)
- WLL: 6 tonne
- DAF: 2.27
- DF (Structure): 1.48
- DF (Lifting points): 1.68
- Upper sling angle: 60 deg
- Lower sling angle: 60 deg
- Design temperature: - 20 deg C

The system can be configured in the ways shown on the document TL-TU-Combinations-0001 Rev 3 (sheet 1 and sheet 2).

## Application/Limitation

1. The design of lifting set (hook, slings, shackle) is not covered.
2. The structural integrity of the tubular payload is not covered.
3. Each pipe size can be delivered with different wall thickness, hence weight of elementary pipe cannot be exactly defined. WLL of 6 tonne is used as a design parameter. The operator is responsible to control that the total weight of the system in assembly will not be higher than WLL. This may require limiting the amount of pipes.
4. Position of COG is considered to be right below the lifting point. The operator is to ensure that no transverse COG repositioning occurs due to payload positioning within the system.
5. Review is based on existing Type approval certificate no. TAS000011T, rev. 2.
6. The system is valid for tube size between 2 2/8" and 14"

## Type Approval documentation

Documents listed in approval letter no. O-NM-CLOB/VALSK/346.1-J-5090 are used for this type approval

## Tests carried out

Following test reports are used as the basis for the type approval:

102422-03/Test nr. I, stamped and witnessed by DNVGL Esbjerg

102422-03/Test nr. II, stamped and witnessed by DNVGL Esbjerg

102422-03/Test nr. III, stamped and witnessed by DNVGL Esbjerg

## Certification by Enterprise of Competence


This certificate covers only design of the equipment.

If equipment is to be used in NORSOK R-003 regulated object – a certificate by DNV GL enterprise of competence is to be issued.

In order to obtain the certificate initial control/testing by enterprise of competence is to be undertaken.

## Marking of product

Product is to be marked as per NORSOK R-002:2017, p. 5.26.



Job Id: **262.1-032709-1**  
Certificate No: **BGN19-9379**

## **Periodical assessment**

For retention of the Type Approval, a DNV GL surveyor shall perform periodical assessment after two years (+/-90days) and after 3.5 years (+/-90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.