



Certificate No:  
**BGN21-9488 Rev.2**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

### That the Lifting Gear

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

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**

Issued at **Stavanger** on **2024-12-17**

This Certificate is valid until **2026-03-26**.

DNV local station: **Esbjerg Verification**

Approval Engineer: **Aleksandar Jovanov**

for **DNV**

**Robert Anfinn Oftedal**

**Team Leader**

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

The lifting components/accessories of the TubeLock system as is reviewed with the following main design parameters:

- Categorization: Annex C – Group R5 – “Spreader and special design” (Annex F, group F5 “Lifted object” is used in design)
- WLL lifting system: 9 tonnes
- DAF: 2.056
- DF (Structure): 1.48
- DF (Lifting points): 1.68
- Longitudinal sling angle: 66 deg
- Transverse sling angle: 60 deg
- Design temperature: - 20 degrees

The system can be configured from the following lifting components/accessories:

<i>Product description</i>			<i>Operational limitations</i>	
<i>Accessory<sup>1</sup></i>	<i>Description</i>	<i>Reference document</i>	<i>WLL<sup>2,3,4</sup></i>	<i>Max. DAF</i>
Lifting poles	Length range 570 – 1270mm	DS-LP-H-Product program	2.25t	2.056
Lifting beams TL-Profiles 900 - H profiles	fit for pipes diameter range 273,1- 355,6mm	Product Program: TL-Profile 0900	4.5t	2.056
Lifting beams TL-Profiles 1000 - H profiles	fit for pipes diameter range 88.9- 406.4mm	Product Program: TL-Profile 1000	4.5t	2.056
Lifting beams TL-Profiles 1200 - H profiles	fit for pipes diameter range 60.3- 508,0mm	Product Program: TL-Profile 1200	4.5t	2.056

1) The above listed lifting accessories are approved as individual items. For identification of all TubeLock assemblies' configurations (combinations between the lifting poles and the lifting beams) covered by this Type approval see TL-TU-Combination-0001 Rev. 6. The accessories shall be used in according to latest version of the TubeLock user manual (TubeLock user manual Rev. 8.1). Combined lifting accessories shall be within the measurement's tolerances stipulated on drawing T-0001-000-GG-X-0004 Rev. A

2) SWL = Safe Working Load

3) see Lifting arrangement drawing no. T-0001-0000-GG-X-0003 Rev. B for description of the lifting configurations covered by this Type approval.

- No. of slings per lifting assembly: 4
- Max sling angle to vertical (in plane with the padeyes): 24 deg

4) The lifting system SWL = 9 t (for the TubeLock assembly as shown in the Lifting arrangement drawing no. T-0001-0000-GG-X-0003 Rev. B taking in consideration max. sling angle to vertical).

## Application/Limitation

1. It is the responsibility of the holder of the certificate to ensure that both design and production are in compliance with Rules, Standards and/or Regulations listed on page 1 of this Type Approval Certificate.
2. It is the end user's responsibility to ensure that the systems are assembled and used as per manufacturer's user instructions in the TubeLock - User manual Rev. 08.01 and Lifting arrangement drawing no. T-0001-0000-GG-X-0003 Rev. B.
3. This type approval is based on the assumption that the lateral load (which attempts to close the distance between the tubular frames) is resisted by the friction developed between the frames and the tubular payload. This approval is based on a min coefficient of friction 0.3 (this has been provided by the manufacturer and has not been assessed by DNV).
4. The structural integrity of the tubular payload has not formed part of this review.
5. The design of lifting set (hook, slings, shackle) is not covered by this Type Approval.

6. Each pipe size can be delivered with different wall thickness; hence weight of elementary pipe cannot be exactly defined. 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 number of pipes.
7. Position of COG shall be right below the lifting point. 2.It is the operator is to ensure that no transverse COG repositioning occurs due to payload positioning within the system.
8. Review is based on existing Type Approval Certificate no. BGN21-9488 and TAS00002TR Rev.2
9. The system is valid for tube size covered by existing Type Approval Certificate no. BGN21-9488 and TAS00002TR Rev.2. Design not covered by these 2 Type Approval Certificates shall be subject of new type approval as specified in DNV-CP-0338.
10. Any components attached to lifting accessories which may be subjected to vibrations or impacts from contact with other objects during operation, shall be analyzed with respect to the hazard of falling objects. If such hazard is unacceptable, the components shall be secured with a double physical barrier against detachment as required by NOSROK R-002, 5.4.8. Pins which can be easily detached shall not be used (for example Safety Pin Ø4mm, 7.2 Assembly Frame component overview - TubeLock® User manual, Rev. 08.01).

### Type Approval documentation

Document number	No. Rev.	Title	Status
BGN21-9488	/	Type Approval Certificate for LG	Reviewed
TAS00002TR	2	Type Approval Certificate for LG	For info
T-0001-0000-GG-X-0001	A	H-Profile	For info
T-0001-0000-GG-X-0002	A	Lifting Pole	For info
T-0001-0000-GG-X-0003	B	Sling And Profile Placement	Reviewed
T-0001-0000-GG-X-0004	A	Package Dimensions	For info
T-0001-0000-GG-X-0005	B	Packages with empty spaces	For info
T-0001-0000-GG-X-0006	B	Transportation of short pipes	For info
T-0001-0000-GG-X-0007	B	Bolt Placement	For info
T-0001-0000-GG-X-0008	B	Info Drawing - NDT Drawing	Reviewed
T-0001-0000-GG-X-0009	A	Load test Procedure - H-Profile	For info
T-0001-0000-GG-X-0010	A	Load test Procedure – Lifting Pole	For info
AD-0658-1200-GG-P-0001	2	Model 1200 - 6 5/8" - H-profile Assembly	For info
TL-0658-1200-GG-P-0001	A	Product - 0658TU-1200	For info
TL-TU-Combinations-0001	6	TubeLock combinations	For info
Global Gravity – User manual	08.01	User manual UK	Reviewed
GG-01-RA-00006	A	Calculation documentation - NORSOK	Reviewed

### Testing of the product

The testing of the TubeLock accessory and assembly shall be performed in accordance with NORSOK R-002:2017 Annex C, group R5 - Table C.1, Table C.3, Table C.4 and the requirements in C.7

### Documentation and Marking of the product

The documentation that issued for the product shall be in accordance with NORSOK R-002:2017, NORSOK R-003 N:2017 Annex E and Machinery Directive (if applicable). Each TubeLock accessory and assembly shall be marked according to NORSOK R-002:2017 5.26, Annex C.4 and NORSOK R-003 N:2017 Annex E.

### Further certification and verification

This certificate covers only design of the equipment.

Further certification depends on the area and location of use. For ILO and NORSOK certification shall be followed the applicable standards, requirements, and local regulations.

If the lifting gear shall be used in accordance with NORSOK R-003 N:2017, NORSOK R-005 and in areas/locations that follows these standards, additional certification by DNV Enterprise of Competence in accordance with NORSOK R-003 N:2017 Annex H shall be performed.

### Periodical assessment

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