DNV·GL

Certificate No:
TAS00002TR

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
DNV GL standard DNVGL-ST-0378 – Standard for offshore and platform lifting appliances

Application :

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

Issued at **Høvik** on **2021-01-05**
This Certificate is valid until **2025-12-20**.
DNV GL local station: **Esbjerg Verification**

Approval Engineer: **Sorina Thompson**

for **DNV GL**

Aldo Matteucci
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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.

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Product description

TubeLock accessories

- Categorization: Lifting accessories
- Design temperature: -20 °C

Product description			***Operational limitations***	
Accessory[1]	***Description***	***Reference document***	***SWL***[2,3,4]	***Max. DAF***[5]
Lifting poles	Length range 570 – 1270mm	DS-LP-Product program	2.25t	1.3
Lifting beams TL-Profiles 1000 - H profiles	fit for pipes diameter range 90,7- 278,5mm	DS-1000-H-Profile Product program	4.5t	1.3
Lifting beams TL-Profiles 1200 - H profiles	fit for pipes diameter range 61,5- 362,7mm	DS-1200-H-Profile Product program	4.5t	1.3

1) see TL-TU-Combination-0001-1 Rev. 4 and TL-TU-Combination-0001- Rev. 4 for the identification of all TubeLock assemblies' configurations (combinations between the lifting poles and the lifting beams) covered by this Type approval.
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): 30deg

4) The lifting system SWL = 9t (for the TubeLock asembly as shown in the Lifting arrangement drawing no. T-0001-0000-GG-X-0003 Rev. B).
5) DAF= Dynamic amplification factor

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 is assembled and used as per manufacturer's user instructions in the TubeLock - User manual Rev. 6 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 DNVGL).
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.

Type Approval documentation

Drawing No	***Rev***	***Title***
T-0001-0000-GG-X-0001	A	H-Profile
T-0001-0000-GG-X-0002	A	Lifting Pipe
T-0001-0000-GG-X-0004	A	Package Dimensions
T-0001-0000-GG-X-0003	A	Sling And Profile Placement
GG-01-RA-00005	B	Calculation Documentation
D-0658-1200-GG-P-0001	0	Model 1200 - 6 5/8"

Drawing No	***Rev***	***Title***
TubeLock - User manaual	06	TubeLock - User manaual
B-0001-0000-GG-P-0009	1	Padeye Part Drawings
WD-000F-0000GG-0013	2	Lifting pipe - Right - Type F Welding drawings
Test report 2012-03-12		
WD-0658-1200-GG-P-0001	0	Model 1200 6 5/8" H profile - welding drawing
DS-1000- H-Profile Product program	0	H-Profile Product program
DS-1200- H-Profile Product program	0	H-Profile Product program
TL-TU-Combination-0001-1	4	Product overview
TL-TU-Combination-0001-2	4	Product overview

Testing

Each TubeLock accessory shall be tested according to DNVGL-ST-0378, July 2019 "Standard for offshore and platform lifting appliances" Section 14.

Marking of product

Each Handling tubular accessory shall be marked according to DNVGL-ST-0378, July 2019 "Standard for offshore and platform lifting appliances" Section 14. Se 14.5.1.2 for specific requirements for lifting accessories.

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform periodical surveys on dates agreed with the manufacture and before expiry date of this certificate in order to verify that the conditions of the type approval are complied with.

END OF CERTIFICATE