DNV·GL

Certificate No:
TAD0000108

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Hoisting, Rotation and Pipehandling Equipment

with type designation(s)
- 150 ST Elevator Links 1-3/4"
- 250 ST Elevator Links 2-1/4"
- 350 ST Elevator Links 2-3/4"
- 500 ST Elevator Links 3-1/2"
- 500 ST Elevator Links 3-1/2" (Straight Eyes)
- 661 ST Elevator Links 3-1/2" (High-strength steel)
- 661 ST Elevator Links 3-1/2" (Straight Eyes, High-strength Steel)
- 750 ST Elevator Links 4-3/4"
- 1000 ST Elevator Links 5-1/2"
- 1250 ST Elevator Links 5-1/2"
- 1380 ST Elevator Links 6-1/2"

Issued to
Forum B + V Oil Tools GmbH
Hamburg, Germany

is found to comply with
DNVGL-OS-E101 – Drilling facilities, Edition January 2018
DNVGL-SI-0166 – Verification for compliance with Norwegian shelf regulations, Edition July 2017

Application :

See next page.

Issued at **Høvik** on **2018-09-21**
This Certificate is valid until **2023-09-20**.
DNV GL local station: **Hamburg Verification**

Approval Engineer: **Axel Janson**

for **DNV GL**

Per Esvall
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.

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Reference Standards

API Spec. 8C, Drilling and Production Hoisting Equipment (PSL1/PSL2), 5th Ed., April 2012

Product Description

Part Number	Rev.	Description
134000	06	150 ST Elevator Links 1-3/4"
214001	06	250 ST Elevator Links 2-1/4"
234000	15	350 ST Elevator Links 2-3/4"
312000	05	500 ST Elevator Links 3-1/2"
312000-Y-U	00	500 ST Elevator Links 3-1/2" (straight eyes both ends)
312000-Z-661	00	661 ST Elevator Links 3-1/2" (high-strength steel)
312000-Z-U-661	00	661 ST Elevator Links 3-1/2" (straight eyes both ends, high-strength steel)
434000	14	750 ST Elevator Links 4-3/4"
512000	09	1000 ST Elevator Links 5-1/2"
512XXX-Z-1250	01	1250 ST Elevator Links 5-1/2" (XXX = elevator length in inches)
612003-Y	05	1380 ST Elevator Links 6-1/2"

Application/Limitation

Design Parameter	Part Number	Value	Equivalent
Load Rating (per set):	134000	150 ST	136 MT
Load Rating (per set):	214001	250 ST	227 MT
Load Rating (per set):	234000	350 ST	318 MT
Load Rating (per set):	312000	500 ST	454 MT
Load Rating (per set):	312000-Y-U	500 ST	454 MT
Load Rating (per set):	312000-Z-661	661 ST	600 MT
Load Rating (per set):	312000-Z-U-661	661 ST	600 MT
Load Rating (per set):	434000	750 ST	680 MT
Load Rating (per set):	512000	1000 ST	907 MT
Load Rating (per set):	512XXX-Z-1250	1250 ST	1133 MT
Load Rating (per set):	612003-Y	1380 ST	1252 MT
Max. Length (all models):		900”	22,9 m
Min. Design Temperature:		-40 °F	-40 °C

Type Approval Documentation

Tests Carried Out

150 ST Elevator Links 1-3/4”
Destructive testing according to API Spec. 8C Clause 5.5 is documented in test report from DMT-Gesellschaft fur Forschung und Prufung mbH, dated 22.09.1992.

250 ST Elevator Links 2-1/4”
Destructive testing according to API Spec. 8C Clause 5.5 is documented by DMT- Gesellschaft fur Forschung und Prufung mbH project. no. 591049, dated 07.05.2009.

350 ST Elevator Links 2-3/4”
Destructive testing according to API Spec. 8C Clause 5.5 is documented in test report from DMT-Gesellschaft fur Forschung und Prufung mbH, dated 19.08.1992.

500 ST Elevator Links 3-1/2"
Destructive testing according to API Spec. 8C Clause 5.5 is documented in test report from DMT-Gesellschaft fur Forschung und Prufung mbH, dated 08.04.1993.

750 ST Elevator Links 4-3/4”
Destructive testing according to API Spec. 8C Clause 5.5 is documented in test report from DMT-Gesellschaft fur Forschung und Prufung mbH, dated 29.09.2000.

1000 ST Elevator Links 5-1/2”
Destructive testing according to API Spec. 8C Clause 5.5 is documented in test report from DMT-Gesellschaft fur Forschung und Prufung mbH, dated 29.08.2002.

1250 ST Elevator Links 5-1/2”
Destructive testing according to API Spec. 8C Clause 5.5 is documented in test report “Data Book, Elevator Link 5-1/2” x 96” – 1250 tons, Design Verification Test witnessed by ABS and DNV Rev. 0”, dated 2013.08.27.

1380 ST Elevator Links 6-1/2”
Destructive testing according to API Spec. 8C Clause 5.5 is documented in DNV technical report no. BGN-R2303016, dated 13.01.2003.

Fabrication and Testing Procedures

- Proof load testing of each elevator link set shall be performed according to API Spec. 8C §8.6.

- Procedures related to NDT etc. are to be reviewed/approved by the DNV GL local surveyor. Comprehensive material requirements are to be reviewed/approved by the DNV GL local surveyor.

Marking of Product

For traceability, the products shall be marked according to API Spec. 8C §10.

Other Conditions and Comments

- This Type Approval Certificate replaces the previously issued certificate TAD00000C9.

- Materials shall be delivered with 3.1 certificates according to EN10204.

- The 1380 ST 6-1/2” elevator links comply with API Spec. 8C with regards to destructive test procedure. There are currently no dimensional requirements in API Spec. 8C Table 6 for ratings above 1250 ST.

- The material yield strength requirement for elevator link model 312000-Z-U-661 is min. 920 MPa.

- PSL2 units shall meet the stricter demands for material, welding and quality control (NDE) as described in Ch. 6, 7 and 8 in API Specification 8C.

- Each product are to be surveyed during fabrication in accordance with the requirements for equipment of Category I as defined in DNV GL's Offshore Standard DNVGL-OS-E101 Drilling Plant and in accordance with API Spec. 8C, followed by issuance of Product Certificate Form No. 20.92a.

Certificate Retention Survey

For retention of this Type Approval Certificate, DNV GL AS’s representative shall carry out surveys every second year in accordance with DNV GL Type Approval Scheme DNVGL-CP-0338.

END OF CERTIFICATE