

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Hoisting, Rotation and Pipehandling Equipment**with type designation(s)
Link Connector-500

Issued to

Forum B + V Oil Tools GmbH
Hamburg Hamburg, Germany

is found to comply with

DNVGL-OS-E101 – Drilling plant, Edition July 2015**DNVGL-SI-0166 – Verification for compliance with Norwegian shelf regulations, Edition July 2015****Application :****See next page.**Issued at **Høvik** on **2017-06-16**This Certificate is valid until **2022-05-18**.DNV GL local station: **Hamburg Verification**for **DNV GL**Approval Engineer: **Axel Janson**

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.



Job Id: **262.1-025074-1**
Certificate No: **TAD00000RE**

Reference Standards

- [1] API Spec. 8C, Drilling and Production Hoisting Equipment (PSL1/PSL2), 5th Ed., April 2012
[2] FEM 1.001 "Rules for the Design of Hoisting Appliances", October 1998.

Product Description

Link Connector used to connect two links sets together.
Part Number: 554150

Application/Limitation

<u>Design Parameter</u>	<u>Value</u>	<u>(Equivalent)</u>
Load Rating (per set):	500 sT	551 mT
Min. Design Temperature:	-4 °F	-20 °C
Design Safety Factor Applied:	2.25	

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Type Approval Documentation

Material Specifications

<u>Component</u>	<u>Material</u>	<u>Min. Yield</u>	<u>Charpy Spec.</u>
S-frame	S690QL	670 MPa	In accordance with DNVGL-
Link Block	34CrNiMo6v	900 MPa	OS-E101 Ch.2 Sec.2 (2015)
Link Block Pin	Spec Bolzen 850	900 MPa	

Tests Carried Out

Alternative Design Verification Test

Destructive testing according to API Spec. 8C §5.5 was performed 04.04.2016 and is documented in report ADVT14032016.

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Fabrication and Testing Procedures

- Proof load testing of each link connector 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

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