

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Hoisting, Rotation and Pipehandling Equipment**

with type designation(s)

- 1250 sT Solid Body Elevator (691250-Z-BC)**- 1250 sT Solid Body Elevator (691250-Z-VES)**

Issued to

Forum B + V Oil Tools GmbH
Hamburg, Germany

is found to comply with

DNVGL-OS-E101 – Drilling facilities, Edition January 2018

Application :**See next page.**Issued at **Høvik** on **2018-09-06**This Certificate is valid until **2023-09-05**.for **DNV GL**DNV GL local station: **Hamburg Verification**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.



Design codes/standards used as reference

- API Spec. 8C, Drilling and Production Hoisting Equipment (PSL 2), 5th Edition, October 2012

Product Description

1250 short tons manually operated solid body elevators.

- 691250-Z-BC: Machined for one specific pipe size range (see specification below).
- 691250-Z-VES: Machined for interchangeable bushings covering different pipe size ranges (see specification below).

Application/Limitation

Common Data:

<u>Design Parameter</u>	<u>Value</u>	<u>(Equivalent)</u>
Load Rating	1133 mT	1250 sT
Min. Design Temperature	-20.0 °C	-4.0 °F
Elevator Weight	1553 kg	3423 lbs

691250-Z-BC:

<u>Design Parameter</u>	<u>Value</u>	<u>(Equivalent)</u>
Pipe Size Range	Customer Specific (127 – 324 mm)	Customer Specific (5 – 12-3/4")

691250-Z-VES:

<u>Design Parameter</u>	<u>Value</u>	<u>(Equivalent)</u>	<u>Corresponding Bushing P/N</u>
Pipe Size Range, 691250-Z-VES-1	127 – 219 mm	5 – 8-5/8"	691253-1-BC
Pipe Size Range, 691250-Z-VES-2	222 – 244 mm	8-3/4 – 9-5/8"	691253-2-BC
Pipe Size Range, 691250-Z-VES-3	251 – 324 mm	9-7/8 – 12-3/4"	691253-3-BC

Type Approval Documentation

Tests Carried Out

- API 8C Design Verification Test Report, "Prüfbericht Nr. K 790-2012" dated 04.12.2012.
- API 8C Inspection Report, "541772 Abnahmeprüfprotokoll" dated 15.11.2012.

Fabrication and Testing Procedures

Test Procedures:

1. Proof load testing of each elevator assembly shall be performed according to API Spec. 8C §8.6.
2. Pressure testing of hydraulic system shall be performed in accordance with DNVGL-OS-E101 Ch.2 Sec.8.
3. Function testing shall be carried out in accordance with DNVGL-OS-E101 Ch.2 Sec.8.
4. Charpy testing shall be performed in accordance with DNVGL-OS-E101 Ch.2 Sec.2.

NDE Procedures:

5. NDE/NDT shall be performed in accordance with DNVGL-OS-E101 Ch.2 Sec.8.

Welding Procedures:

6. Qualification of welding procedures and qualification of welders shall be in accordance with DNVGL-OS-E101 Ch.2 Sec.8.

Marking of Product

Each Solid Body Elevator shall have the following marking:

- Manufacture's Name or Mark
- Elevator Type
- Reference Standard & PSL number
- Pipe Size Range
- Load Rating
- Part Number
- Serial Number

Other Conditions/Comments

- This Type Approval Certificate replaces previously issued Type Approval Certificate D-5061.
- Materials for main load bearing components shall be delivered with 3.1 certificates according to EN10204.
- Minimum design temperature for elevators shall not be lower than Charpy test temperature of the corresponding material certificates.
- The control system is not part of this Type Approval.
- 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 a DNV GL Product Certificate.
- Fabrication records are to be maintained in accordance with DNVGL-OS-E101 Ch.3 Sec.3 §2.

Job Id: **262.1-014870-4**
Certificate No: **TAD00000ZF**

- Elevator bushings are classified as category II equipment under DNVGL-OS-E101, and hence not within the scope of this Type Approval Certificate. Bushings shall be delivered with appropriate works certificate.

Periodical Assessment

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