

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Pipe Fitting**

with type designation(s)

Coiled Tubing Swivel 15K CWP Flange x 3 Inch Fig 1502 M x 3 Inch Fig 1502 M Ball Dropper

Issued to

**Fluid Control Service AS
SOLA, Norway**

is found to comply with

DNVGL-OS-E101 – Drilling facilities, Edition January 2018**Application :****See next page**Issued at **Høvik** on **2020-07-24**This Certificate is valid until **2025-07-23**.DNV GL local station: **Norway CMC, West**for **DNV GL**Approval Engineer: **Alf Henry Aker**

**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.

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.



Reference Standards

- API Recommended Practice 16ST, "Coiled Tubing Well Control Equipment Systems", 1st Edition, March 2009, Reaffirmed December 2014.
- API Specification 6A, "Wellhead and Christmas Tree Equipment", 21st Edition, November 2018.
- API Specification 16C, "Choke and Kill Equipment", 2nd Edition, March 2015.

Product description

Coiled Tubing Swivel 15K CWP Flange x 3 Inch Fig 1502 M x 3 Inch Fig 1502 M Ball Dropper

Application/Limitation

Design parameter:	Value:	Equivalent:
End connections	3" Fig 1502	-
Nominal bore diameter (Main shaft)	63,4 mm	
Max. operating pressure	1034 bar	15000 psi
Max. operating temperature	+110°C	+230°F
Min. operating temperature (MDT)	-20°C	-4°F
Max. end load (axial)	400 N	89.9 lbs
Max. end bending moment	359 Nm	3177.4 lb*in
Corrosion allowance	6.25 mm	
Design life – Metal	6 – 8 years (Corrosion and temperature related)	
Design life – Non-Metal	3 - 5 years (Corrosion and temperature related)	
Material class (API Spec 6A)	AA	-
Environment	Marine	
Service	Standard	

Type Approval documentation

Testing to be performed on each final product

- Non-destructive examination methods, extend and acceptance criteria, shall be carried out in accordance with DNVGL-OS-E101, Ch. 2, Sec. 8, 3.1.
- Each complete swivel assembly shall be pressure tested to 1.5 times the rated working pressure in accordance with DNVGL-OS-E101, Ch. 2, Sec. 8, 3.3.
- Functional testing, including rotation of swivel, shall be performed according to the manufacturers written specification and witnessed by a DNVGL surveyor.

Marking of product

For information and traceability, the following marking is to be carried out on each product:

- Manufacturers Name or Mark
- Part No.
- Serial No.
- Nominal bore size
- API Rated Working Pressure
- API Temperature Rating
- VL TAD00001AC

Periodical assessment

For retention of the Type Approval, DNV GL's representative shall carry out biennial Product Audits in accordance with DNVGL Type Approval Scheme, DNVGL-CP-0338.

Other conditions and comments

- Non-metallic materials shall be suitable for the intended service and shall be capable of sustaining the design pressures and temperatures in accordance with DNVGL-OS-E101, Ch. 2, Sec. 2, 2.7.
- Prototypes shall be subjected to the required functional, load, temperature- and pressure cycling scheme of the relevant API spec/standard. This will be API Spec 16C, Annex B, for swivels intended for choke & kill line jumpers. The API qualification test procedures shall be approved by a DNVGL surveyor and the qualification test shall be witnessed by a DNVGL surveyor.
- Non-metallic seals exposed to drilling fluid to be qualified in accordance with API Spec 6A, Annex F or API spec 16C, Annex B, for swivels intended for Choke and Kill lines and API RP 16ST.
- Each product is 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 Facilities, Ch.3, Sec.3, 1.1.4 and 2.1.2, followed by issuance of a Product Certificate.



Job Id: **262.1-033681-1**
Certificate No: **TAD00001AC**

- Fabrication and manufacturing records are to be maintained in accordance with DNVGL-OS-E101 Ch.3, Sec.3, 2.1.1.

END OF CERTIFICATE