

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

Wire Sheaves intended for:

- **Drill String Compensator (DSC)**
- **Crown Mounted Compensator (CMC)**
- **Travelling Block**
- **Fixed Crown Block**

Issued to

MHWirth AS
KRISTIANSAND S, Norway

is found to comply with

DNVGL-OS-E101 – Drilling facilities, Edition January 2018**Application :**

Sheave Size (In)	Wire Diameter (mm)	Max. Wire Pull (mT)
78	56	94
78	54	94
78	50 (2")	92
72	56	87.5
72	54	87.5
72	50 (2")	87.5
72	44.5 (1-3/4")	87.5
60	44.5 (1-3/4")	65
60	41.3 (1-5/8")	65
60	38.1 (1-1/2")	65
60	34.9 (1-3/8")	65

Issued at **Høvik** on **2018-05-14**This Certificate is valid until **2021-06-13**.DNV GL local station: **Oslo Drilling Systems**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.



Reference Standards

- [1] API Specification 8C, Drilling and Production Hoisting Equipment (PSL 1), April 2012
[2] F.E.M. 1.001 Rules for the Design of Hoisting Appliances, 3rd Edition, Oct. 1998

Product Description

Wire sheaves for Drill String Compensator (DSC), Crown Mounted Compensator (CMC), Travelling Block and Fixed Crown Block.

Application/Limitation

<u>Parameter</u>	<u>Value</u>
Max. Wrap Angle (Ordinary Sheave):	180 degrees
Max. Wrap Angle (Superlight Sheave):	25 degrees
Max. Fleet Angle:	2 degrees
API 8C Safety Factor Applied:	2.25

Type Approval Documentation

Testing

Test Procedures:

NDE Procedures:

1. NDE/NDT shall be performed in accordance with Ch.2, Sec.8 of DNVGL-OS-E101 Ch.2, Sec.3, §3 Tests.

Welding Procedures:

2. Qualification of welding procedures and qualification of welders shall be in accordance with DNVGL-OS-E101 Ch.2, Sec.3, §3 Tests.

Job Id: **262.1-028721-1**
Certificate No: **TAD00000Y3**

Marking of Product

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

- Part. No.
- Serial No.
- Rated Load Capacity
- Manufacturer's Name or Trade Mark

Other Conditions & Comments

Each product is to be surveyed during fabrication in accordance with the requirements for equipment of Category I as defined in the DNV GL Offshore Standard DNV GL OS-E101 'DrillingPlant', followed by issuance of the Product Certificate, Form No.20.92a

Fabrication records are to be maintained in accordance with DNVGL-OS-E101, Ch.3, Sec.3 §2.

Periodical Assessment

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

END OF CERTIFICATE