



Certificate No:
TAS00003EZ

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Cranes, gen.

with type designation(s)
2T Offshore knuckle boom crane

Issued to

Red Rock Marine AS
Kristiansand, Norway

is found to comply with

DNV standard DNV-ST-0378 – Offshore and platform lifting appliances

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2022-06-03**

This Certificate is valid until **2027-06-02**.

DNV local station: **West Norway CMC**

for **DNV**

Approval Engineer: **Khurram Saeed Khaliq**

.....
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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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.



Form code: TA 251

Revision: 2021-03

www.dnv.com

Page 1 of 4

Product description

2T Red Rock Marine offshore crane, knuckle boom. Ref. dwg. No. ORCKT80-2-12G001, rev.1

Reference standards

The drawings and documents are evaluated according to:

- DNV-ST-0378, Offshore and platform lifting appliances, ed. July 2019, amended Oct. 2021
 - EN 13852-1:2013, Cranes – Offshore cranes – Part 1: General-purpose offshore cranes
- ,and relevant part of:
- DNV Rules for Classification of Ships/High Speed, Light Craft and Naval Surface Craft.
 - Pt.4 Ch.8 Electrical Installations.
 - Pt.4 Ch.9 Control and Monitoring Systems.

Application/Limitation

Crane type: Offshore crane

Area classification: Safe zone

General information:

Max Safe Working Load (SWL): 2 tonne

Working radius: 2 – 12m

- Offshore lift (Hsig 0.3m): 2 tonne for all radii, design dynamic factor: 1.3
- Offshore lift (Hsig 1.5m): 1 tonne for all radii, design dynamic factor: 1.6

Design temperature: -20°C

Heel/trim: 5°/2°

Crane is not intended for personnel lifting

General comments

1. The various components transferring load (loose gear) such as hook, wire rope, sockets shackles etc. shall be manufactured according to recognized standards or codes and shall be delivered with relevant ILO form certificates.
2. For cranes to be covered by class (Notation CRANE or Crane Vessel) additional load charts and calculation for the dynamic coefficient shall be submitted, ref. DNVGL-ST-0378 Ed. July 2019, Sec.2 [2.1.3.3]
3. Pad eyes/lifting lugs/service cranes used for maintenance and installations are not covered by this approval.
4. The following components are to be separately approved by DNV, and delivered with certificates as below:
 - Slewing bearing: DNV Product Certificate
 - Winch: DNV Product Certificate
 - Winch gears and brakes: Works Product Certificate
 - Hydraulic cylinders: DNV Product certificate
 - Sheaves: DNV Product certificates for welded sheaves, Work Product certificate for unwelded sheaves
5. Fastening to vessel deck structure is not covered by this approval. It is part of the hull and shall be approved separately.
6. Primary and secondary structures to be delivered with material certificate type 3.1, except for slewing ring and slewing ring fasteners, which is to be delivered with material certificate type 3.2. Material certificate for slewing ring is to be signed by DNV representative.

Type Approval documentation

Drw No	Rev	Title
C1100S012	01	Cylinder Rod End Steel Assembly

C1100S013	02	Jib Cyl. Bolt, Detail
C1132A005	01	Knuckle Jib Assembly
12G002	01	Foundation Arrangement
T-C1100-SD009	01	FAT Procedure
-12-SD035	01	Forces on deck (1)
C1100S015	01	Bolt Detail
C1100S014	02	Jib Cyl. Bolt, Detail
C1100S033	01	Tel. Cyl. Bolt Detail
C1100S018	02	Short Link Arm Left Steel Assembly
C1100S017	02	Main Jib Bolt Detail
C1100S016	02	Bolt Detail
C1100S030	01	Winch Drum Steel Assembly
C1100S019	2	Long Link Arm Left, Steel Assembly
C1100S041	01	Wire Sheave Bolt Detail
T-C1100-SD053	02	HAT Procedure
C1100S052	02	Jib Cyl. Bolt, Detail
C1100S034	01	Tel Cyl. Bolt Detail
C1100S006	02	Telescope Jib 1, Steel Assembly
C1100S042	01	Link Arm Bracket, Steel Assembly
C1100A011	01	Short Link Arm Right Assembly
C1132A002	01	Pedestal Assembly
-12-SD057	01	T-ORCKT80-2 - Load Chart
C1100A010	01	Cylinder Rod End, Assembly
C1100S009	02	Short Link Arm Right, Steel Assembly
C1132A007	01	Telescope Jib 2, Assembly
C1100S010	01	Bolt Detail
T-C1122-SD001	01	Technical specification
12G001	01	ORCKT80-2-12, General Arrangement
C1100S011	01	Knuckle Jib Bolt Detail
C1100A004	03	Main Jib Assembly
C1100S007	02	Telescopic Jib 2. Steel Assembly
C1132A003	01	King Assembly
C1132S003	01	King Steel Assembly
C1100S002	02	Foundation Steel Assembly
T-C1100-SD002-Ch		User Manual
	01	T-ORCKT80-2 - Calculation report
C1100S004	01	Main Jib Steel Assembly
C1100S005	06	Knuckle Jib Steel Assembly
12A001	01	Main Assembly
C1100A006	02	Telescopic Jib 1, Assembly
T-C1122-SD045	01	Functional Description
C1100S008	02	LONG LINK ARM RIGHT, Steel Assembly
ORCKT80-2-12-ET02	1	Jib Interface Wiring Diagram
ORCKT80-2-12-EL01	2	IB01 - Starter Cabinet Layout Diagram
ORCKT80-2-12-ET01	2	Yard Interface Wiring Diagram
ORCKT80-2-12-EU01	2	Main Power Starter Cabinet IB01-Loop
ORCKT80-2-12-EU02	1	230V Distribution Control Cabinet IB02 - Loop
ORCKT80-2-12-H01	1	Hydraulic Flow Diagram
ORCKT80-2-12-EL02	1	IB02-Control Cabinet Layout Diagram
T-ORCKT80-2-12 Appendix-1	01	Calculation Report Appendix-1

Tests carried out



Job Id: **262.1-037642-1**
Certificate No: **TAS00003EZ**

No specific type test is found necessary to require in connection with the Type Approval, but each unit subject to DNV certification shall be tested according to DNV-ST-0378 Ed. July 2019, Sec.14.

Marking of product

The crane shall be marked according to DNV-ST-0378 Ed. July 2019, Sec.14.

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.