Certificate No:
TAS0000402

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Cranes, gen.

with type designation(s)
Components for crane type SL900

Issued to
Conbit B.V.
Eindhoven, Noord-Brabant, Netherlands

is found to comply with
DNV standard DNV-ST-0378 – Offshore and platform lifting appliances

Application :

Components for crane type SL900 for offshore

Issued at **Høvik** on **2024-04-17**
This Certificate is valid until **2029-04-16**.
DNV local unit: **Netherlands CMC**

Approval Engineer: **Lap Van Duong**

for **DNV**

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.

Product description

Components for crane type LS900
- Truss main members
- Boom top: top hinge, tilt head, tilt head dead end and main pin.
- Strut top: top hinge, inner pendant connector, outer pendant connector, triangular pendant spreader plate and pin, main pin.
- Bottom hinge: double base hinge, forked base plate and pin.

Application/Limitation

Crane type: offshore crane
Area classification: non-hazardous areas
Min. design temperature: -20 deg C
Maximum design loads are specified for the components to include all load effects and including:
- DAF: 1.3
- Safety factor against yield: 1.5 (i.e., load factor 1.3 and material factor 1.15)

If the DAF is higher, then mentioned above design loads are to be reduced.

The following components are covered in this type of approval. Each crane configuration will be covered by separate approval as case-by-case.

Local (component) axis system: the local axis system is set in the centre lower/lowest face.
X-direction: positive along the length of the object towards the top
Y-direction: positive according to the right-hand-rule in the horizontal plane
Z-direction: positive according to the right-hand-rule in vertical plane

DESIGN LOADS

Design load: all loads are according to design of basis document no.10241ZB01 and 10242ZB02, with summary as follows.

TRUSS - MAIN MEMBER

Single capacities truss

Item	Nt [kN]	Nc [kN]	Mx [kNm]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]
Built-up member	9136	8513	471	3831	3831	524	524
Connection	4878	14410	1831	2195	2195	5756	5756

Single chord capacities

Item	Nt [kN]	Nc [kN]	Vy [kN]	Vz [kN]
Built-up member	2284	2128	131	131
Connection	1220	3602	1439	1439

TOP HINGE

Top hinge single capacities

Nt [kN]	Nc [kN]	Mx [kNm]	Mz [kNm]	Vy [kN]
4878	6573	140	2195	147

Chord capacities

Nt [kN]	Nc [kN]	V [kN]
1220	1643	55

TILT HEAD
Design load: all loads are according to design of basis documents 10241ZB01 and 10242ZB02 and applied as sheave loads.

MAIN PIN: TILT HEAD and PENTDANT CONNECTORS
Design load: loads as specified in design report 33KR390199XX and basis of design documents 10241ZB01 and 10242ZB02

DOUBLE BASE HINGE

Double base hinge single capacities

Nt [kN]	Nc [kN]	Mx [kNm]	Mz [kNm]	Vy [kN]
4905	6573	140	2207	147

Chord capacities

Nt [kN]	Nc [kN]	V [kN]
1226	1643	55

INNER PENDANT CONNECTOR

Inner hinge plate capacities

Nt [kN]	Nc [kN]	Mx [kNm]	Mz [kNm]	Vy [kN]
5880	0	0	231	256

Shackle connection capacities

Nt [kN]	Nc [kN]	V [kN]
2943	0	0

OUTER PENDANT CONNECTOR

Outer hinge plate capacities

Nt [kN]	Nc [kN]	Mx [kNm]	Mz [kNm]	Vy [kN]
5886	0	0	334	257

Pin connection capacities

Nt [kN]	Nc [kN]	V [kN]
5886	0	0

FORKED BASE PLATE

Forked base plate capacities

Nt [kN]	Nc [kN]	Mx [kNm]	Mz [kNm]	Vy [kN]
2452	3285	0	0	147

Pin connection capacities

Nt [kN]	Nc [kN]	V [kN]
0	3334	0

TRIANGULAR SPREADER PLATE

Triangular spreader plate capacities

Nt [kN]	Nc [kN]	Mx [kNm]	Vy [kN]
5886	0	0	0

Shackle connection capacities

Nt [kN]	Nc [kN]	V [kN]
2943	0	0

Fatigue is not considered due to the limited number of load cycles.

General comments

1. The various components transferring load (loose gear) such as hook, wire rope, sockets shackles etc. shall be manufactured according to recoginzed standards or codes and shall be delivered with relevant ILO form certificates.
2. Materials as stated on the drawings shall be delivered with material certificates, minimum complying with EN 10204/3.1.
3. All welding shall be carried out by qualified welders, and according to approved welding procedures acceptable to the surveyor
4. Extent of non-destructive testing of welds is to comply with DNV-ST-0378 Sec.3 and shall be carried out to the attending surveyor's entire satisfaction.
5. Joint between receiver and tube is considered full penetration butt joint, shall use qualified WPS with preheating and post-heating.

Type Approval documentation

Tests carried out

No specific type test is found necessary in connection with the Type Approval. Each crane is subject to DNV certification shall be tested according to DNV-ST-0378 Sec. 14.

Marking of product

The crane shall be marked according to DNV-ST-0378 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.