

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Crane Pedestal

with type designation(s)
Flatrack

Issued to

SMST Designers & Constructors B.V.
Drachten, Netherlands

is found to comply with

DNV GL standard DNVGL-ST-0358 – Certification of offshore gangways for personnel transfer

Application :

Support structure for offshore gangway/crane

Issued at **Høvik** on **2020-04-03**

This Certificate is valid until **2025-04-02**.

DNV GL local station: **Netherlands CMC**

for **DNV GL**

Approval Engineer: **Florian Teica**

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Aldo Matteucci
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.



Product description

Product: Pedestal / support structure for SMST offshore gangways/cranes.
Product Name: Flatrack

Application/Limitation

Self-weight: 6.0 tonnes (flatrack and boom rest)

Working parameters (at slewing bearing flange)	Operational	Transit/parked
Axial force* (based on a mass = 19.0 tonnes above the slewing bearing flange)	19.0 tonnes	**
Radial force* (excl. wind)	123 kN	**
Overturning moment*	2000 kN x m	**
Torsion* (excl. wind)	525 kN x m	N/A
Torsion* (incl. wind)	700 kN x m	N/A
Boom rest forces		
Vertical force	N/A	300 kN
Horizontal force (along Y-axis direction relative to flatrack axis)	N/A	300 kN
Vessel accelerations		
Vertical (in addition to gravity)	$\pm 3.5\text{m/s}^2$	$\pm 10\text{m/s}^2$
Horizontal	$3.5/3.5\text{m/s}^2$	$5/5 - 10/0 - 0/10\text{m/s}^2$
Wind speed (at gangway location)	25m/s	63m/s

*) When a dual-purpose equipment is used (i.e. capable of performing both gangway and offshore crane functions) or if an offshore crane is installed, the above defined values, except the axial force, already include the offshore safety factor $SF1 = 1.3$; consequently, the equipment's nominal working parameters, except the axial load, shall be decreased accordingly.

**) The loads at the top of the slewing bearing flange during transit/parked condition are the resultant loads due to a mass = 19.0 tonnes above the slewing bearing flange and a Centre of Gravity with coordinates (3.6m, 0m, 1.6m) measured from the top of the slewing bearing flange.

Minimum design temperature: -20°C

The operational limitations defined above have been provided by SMST, data and procedures adopted for estimating which have not formed part of this review. It is the end user's responsibility to ensure that these are never exceeded during service.

Approval limitations

1. The type approval covers the steelwork between the offshore gangway/crane's slewing bearing and base frame, down to the interface with the supporting structure, ref drg no 1600224-B-23-10.
2. The approval has not covered the following:
 - Adequacy of the deck and supporting structure (foundation) of the vessel.
 - In-air lifting of the flatrack
 - The offshore gangway/crane and base frame.
 - The connections to the TAB-L base frame
3. During transit, it is assumed that the gangway bridge will be adequately seafastened to the boom rest. Gangway bridge seafastenings are not part of the approval.

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Certificate No: **TAS00002GG**

4. The deck foundation below the flatrack connection points/feet shall provide a stiff support according to the design assumptions, ref. doc no. 1600224-C-07-12 Rev A Figure 9. Any other arrangement/stiffness of the vertical support structure (foundation) is not covered by the approval.

Type Approval documentation

Tests to be carried out

For issuance of a DNVGL Product certificate, each flatrack shall be load tested in the presence of a DNVGL Surveyor. Test loads in accordance with DNVGL-ST-0358 Section 7.

Marking of product

Each flatrack shall be marked in accordance with DNVGL-ST-0358 Section 7.5.

Periodical assessment

For retention of the Type Approval, a DNVGL 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 DNVGL-CP-0338.

End of certificate