Certificate No:
TAS000034U

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Gangway

with type designation(s)
TAB-L-30-11-12/2

Issued to
SMST Designers & Constructors B.V.
Drachten, Friesland, Netherlands

is found to comply with
DNV GL standard DNVGL-ST-0358 – Certification of offshore gangways for personnel transfer
DNV GL standard DNVGL-ST-0378 – Standard for 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 **2021-09-29**
This Certificate is valid until **2026-09-28**.
DNV local station: **Benelux VMC**

Approval Engineer: **Florian Teica**

for **DNV**

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 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

Product: 30m telescopic Offshore gangway with additional crane functionality
Designation: TAB-L-30-11-12/2 (TAB-L2)

Application/Limitation

Categorization: TYPE 2 Offshore gangway with motion compensating system

Operational			
Configuration		supported at both ends (bumper/constant push mode, see #1)	
Live Load (LL)		450 kg (3 persons) or 850kg cargo + 1 person (total 1000kg)	
Maximum operational length**		30.5 m	
Minimum operational length**		19.5 m	
Bumper/push force setting @ tip		between 400 - 1000kg	
Bumper/push force @ drives		up to 12.6kN per drive	
Main cylinder pretension (see #2):		between 153 and 300bar, ref. 2100720-C-07-00 rev A sec. 5.2.3, tables 7 and 8 and *Approval limitation #2*	
Wind speed (at gangway location)		25 m/s	
Gangway Operating angle (from horizontal)		+20° / -18° (unrestricted personnel transfers)	
Gangway max/min angles before disconnection (from horizontal)		+25° / -21.5°	
Vessel accelerations***	Vertical (in addition to gravity)	±3,0m/s^2	
	Longitudinal	3,0m/s^2	
	Transverse	3,0m/s^2	
Parked / Transit / Survival			
Configuration		Bridge supported by a support structure	
Live Load (LL)		-	
Maximum Length**		19.5 m	
Wind speed (at gangway location)		63 m/s	44 m/s
Gangway Operating angle		-	
Vessel accelerations***	Vertical (in addition to gravity)	±10 m/s^2	±10 m/s^2
	Longitudinal	5 m/s^2	10 m/s^2
	Transverse	8 m/s^2	10 m/s^2

Design temperature: -20°C

Self-weight of components: see “COG positions” 2100720-B-00-16 Rev A

Usage: ref 1700220C-05-04 rev H

*) manually controlled trolley, load including trolley self-weight and cargo. It is the end user's responsibility to assess and accept the trolley suitability for the intended application considering the operational safety aspects (e.g. ability of trolley operator to evacuate the gangway during an emergency case, hazards related to emergency procedures - e.g. emergency disconnection, etc.)
**) measured from the centre of the baseframe to outmost part of the gangway tip, including safety length = 1.2m.
***) relative to the vessel axis

Categorization: Offshore crane, not intended for personnel lifting.

Safe Working Load (SWL) is dependent on boom tip position and lifting modes as specified in 2100720-B-00-13 Rev A and 2100720-B-00-14 Rev A
Note: for Motion compensated offshore lifts, maximum residual (uncompensated) boom tip velocity (Vt):

- Vt = 0.25 m/s for the 1t lifting case (2100720-B-00-13 Rev A Load Curves A2, B2 and B4 and 2100720-B-00-14 Rev A Load Curve C2)
- Vt = 0.37 m/s for the 2t lifting case (2100720-B-00-13 Rev A Load Curve B4 and 2100720-B-00-14 Rev A Load Curve C2)

See also *Approval limitation 3*
Block self-weight: 135kg

Static heel/trim: 5°/2°

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.

It has been confirmed by the designer that the flow of people will be continuously monitored and regulated throughout the period in which the gangway is in operational / working condition, thus preventing the load on the gangway to exceed the above defined LL at any given time.

During all personnel transfer operations, the winch shall be in Parked position

The control and monitoring system is covered by Type approval certificate TAS00001UG.

The Type Approval is not covering any mechanical, electrical or hydraulic components which, for certification, shall be provided with certificates as per DNVGL-ST-0358 tables 2-2 and sec 5.14, 5.15 and 5.17 and DNVGL-ST-0378 table 2-3.

Approval limitations

1. The gangway structure has been evaluated for the static configuration (operational mode) where the gangway is in connected/push mode, as defined in the Functional description report, ref. doc no. 1700220-C-05-03 Rev C, under the following limitations:
   - the gangway shall always be supported in vertical (Z-axis) direction. It has been confirmed that the support condition will not be friction dependant
   - for unrestricted personnel transfer operations, the gangway shall always be supported in lateral (perpendicular to gangway longitudinal axis) direction to prevent any uncontrolled movement due to external loads (environmental or vessel accelerations).
     In absence of a lateral support, it is the end user's responsibility to ensure that the tip-support structure connection is adequate (e.g. with regards to contact surface conditions, environmental loads, vessel accelerations, connection angle, etc) for a safe personnel transfer operation
   - during transit/survival/parked position, the TAB-L will be supported by a Bridge support structure/cradle. The bridge support structure and its foundation (underdeck strength) are not part of the Type approval.
2. The structural evaluation of the gangway is based on a static model assuming that the gangway main hinge and main cylinders will support between 80% of the entire gangway mass (self-weight and reactions due to associated overturning moment) @ gangway maximum operational length and 0 deg luffing angle from horizontal, ref 2100720-C-07-00 rev A sec. 5.2.3.
   It is the end user's responsibility to ensure that the preload pressure in the main cylinders is adequate and within the values stated in the above Operational Limitations, to implementing the assumption into reality.
3. For the crane mode, the type approval is not covering the derating.
   Motion compensated load curves (ref 2100720-B-00-13 Rev A Load Curves A2, B2 and B4, 2100720-B-00-14 Rev A Load Curve C2 and 2100720-C-07-03 Rev A) are not associated with a specific significant wave height (Hs), but with a maximum residual boom tip velocity (Vt), i.e. the remaining boom tip velocity that is not compensated by the motion compensation system. Derating curves and Motion compensating system accuracy limiting curve shall be drawn for each mobilization/new onboard installation. See also *Testing.*

4. Fall arrestor
   - It has been confirmed by SMST that the fall arrestor will not be used during gangway normal operation
   - This Type approval covers only the bracket
   - The anchor point (item 2 on 2100720-B-13-60 Rev A) shall be provided with a Manufacturer PC.

   It is the end user's responsibility to ensure that the fall arrestor bracket is used as part of a personnel fall prevention system complying with the requirements of an internationally recognized standard, such as EN 363; the system shall be capable of limiting the maximum dynamic load exerted on the anchor point during the arresting of a fall to a maximum of 500kg.

Type Approval documentation

Tests to be carried out

Each gangway shall be tested in accordance with DNVGL-ST-0358 Section 7, DNVGL-ST-0378 sec 14, TAS00001UG and above approved test procedures in the presence of a DNVGL Surveyor.

The gangway enhanced slip resistant features/treads suitability @ min/max gangway operating angles shall be assessed, tested and approved by the attending DNVGL surveyor.

Fall arrestor:
- the bracket and anchor point shall be subject to a static load test; test load = 500kg

Motion compensating system performance:
- 1t lifting case (2100720-B-00-13 Rev A Load Curves A2, B2 and B4 and 2100720-B-00-14 Rev A Load Curve C2) – no less than 90% accuracy
- 2t lifting case (2100720-B-00-13 Rev A Load Curve B4 and 2100720-B-00-14 Rev A Load Curve C2) – no less than 86% accuracy

Marking of product
Each gangway shall be marked in accordance with DNVGL-ST-0358 Section 7.4.

Fall arrestor:
- Marking shall be as per DNVGL-ST-0378 Appendix E; SWL = 100kg

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