

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pedestal

with type designation(s)

Modular component for offshore gangway pedestal, Flatrack deck interface

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 :

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

Issued at **Høvik** on **2018-06-22**

This Certificate is valid until **2023-06-21**.

DNV GL local station: **Rotterdam, Offshore & Newbuilding**

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.



Product description

Equipment type: Pedestal module
Equipment use: Modular component for offshore gangway pedestal

Equipment type: Flatrack deck interface
Equipment use: Seafastening device allowing the gangway support structure (i.e. flatrack without elevating system) to be clamped/bolted to the vessel deck (either directly or via an intermediate structure, i.e. deck grillage/interface frame).

Application/Limitation

Pedestal module

Maximum pedestal/stack height : 15.7m (from pedestal deck interface to gangway slewing bearing)
(up to 5 pedestal modules may be stacked in order to form a pedestal for an offshore gangway)

Self-weight 1 stacking module: 5.35 tonnes
Self-weight of access platform: 5.6 tonnes (at the top of the pedestal/stack)
Self-weight Flatrack: 15 tonnes (at the top of the pedestal/stack)

Working parameters (at gangway slewing bearing)		Operational	Transit/parked
Axial force (based on a mass = 10tonnes above the slewing bearing)		180kN	*
Radial force	excl. wind	70kN	*
	incl. wind	80kN	*
Overturning moment		1100kN x m	*
Torsion	excl. wind	260kN x m	*
	incl. wind	330kN x m	*
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		25m/s	63m/s
Maximum forces at the interface with the supporting structure**		see Table 13	see Table 14

*) The loads at the top of the pedestal during transit/parked condition are the resultant loads due to a mass = 10tonnes above the slewing bearing and a Centre of Gravity with coordinates (3.5m, 0m, 1m) measured from the top of the slewing bearing (ref. 1600224-C-07-02A Table 3)

**) For maximum reaction forces at the interface between the pedestal/stack and supporting structure for a given pedestal/stack height see 1600224-C-07-02A Tables 13 and 14.

Flatrack deck interface

Maximum height: 1165mm (from flatrack deck interface to gangway slewing bearing)

Reaction forces at flatrack deck interface (per support)***		Operational	Transit/parked
Fx (compression)		-45kN	-100kN
Fy (compression)		-65kN	-110kN
Fz	uplift	150kN	150kN
	compression	-320kN	-400kN

***)) Maximum combination of forces that may occur in an operational/transit case

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Design forces at flatrack deck interface (per support)****		Operational	Transit/parked
Fx (compression)		-90kN	-200kN
Fy (compression)		-130kN	-220kN
Fz	uplift	150kN	150kN
	compression	-320kN	-400kN

****) The supports have been checked for each force acting individually.

Minimum design temperature: -20deg C

Approval assumptions

The approval is based on the following assumptions:

1. During transit, it is assumed that the gangway bridge will be adequately seafastened to the flatrack. Gangway bridge seafastenings are not part of the approval.
2. The deck foundation below the pedestal stack shall provide a stiff support according to the design assumptions, ref. doc no. 1600224-C-07-02A Figure 8). Any other arrangement/stiffness of the vertical support structure (foundation) is not covered by the approval.
3. The approval has not covered the adequacy of the deck and supporting structure (foundation) of the vessel.
4. The bolts and twistlocks connecting the pedestal modules, as well as the pedestal stack/flatrack to the supporting vessel/flatrack deck interface are inspected according to SMST maintenance schedule for integrity and tightness.
5. The flatrack and top pedestal module/flatrack deck interface will be assembled according to SMST procedures (ref. 1600224-B-21-10 and 1611570-B-21-510) by SMST authorized personnel, thus ensuring the adequate efficiency of the connection between the 2 equipment
6. It has been confirmed by SMST that the fabrication tolerances on the shear stopper plates (ref. 1600224-B-21-14 and 1611570-B-21-514) will be such that the play between the ISO block and shear stopper will be minimal. During assembly, it is assumed that the remaining gaps will be eliminated with the M24 bolts, thus ensuring that the shear force will be transmitted by means of contact.

Certification requirements

For certification, the ISO blocks shall be delivered with 3.2 Type certificates.

Type Approval documentation

Drawing number	Rev	Title
1600224-B-00-11	C	TAB-M stacking module setup general arrangement
1600224-B-20-10	D	Stacking module main steel assembly
1600224-B-20-11	D	Stacking module main steel welding-1
1600224-B-20-12	E	Stacking module main steel welding-2/machining
1600224-B-20-14	F	Stacking module main steel parts
1600224-B-20-15	A	Stacking module main steel parts-2
1600224-B-20-19	F	Stacking module main steel
1600224-B-20-20	A	Adjustable shear pin assembly/parts
1600224-B-20-29	B	Adjustable shear pin
1600224-B-21-10	D	Stacking mod. – flatrack connection assembly
1600224-B-21-14	A	Stacking mod. – flatrack connection parts-1
1600224-B-21-15	B	Stacking mod. – flatrack connection parts-2

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1600224-B-21-19	D	Stacking mod. – flatrack connection
1600224-C-03-10	A	System requirements design criteria
1600224-C-07-02	A	Stacking module design report
1611570-B-21-510	A	Flatrack to deck connection assembly/welding-1
1611570-B-21-511	A	Flatrack to deck connection welding-2
1611570-B-21-514	A	Flatrack to deck connection parts-1
1611570-B-21-515	A	Flatrack to deck connection parts-2
1611570-B-21-519	A	Flatrack to deck connection
1700209-C-07-01	A	Structural report flatrack deck interface

Testing

For issuance of a DNVGL Product certificate for a pedestal module, each module shall be load tested as part of a 5-module stack/pedestal in the presence of a DNVGL Surveyor. Test loads in accordance with DNVGL-ST-0358 Section 7.

For issuance of a DNVGL Product certificate for a pedestal/stack, each time a pedestal/stack is (re)assembled, the stack shall be load tested in the presence of a DNVGL Surveyor. Test loads in accordance with DNVGL-ST-0358 Section 7.

For issuance of a DNVGL Product certificate for a flatrack deck interface, each assembly (ref 1611570-B-21-510) 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 module or pedestal/stack shall be marked in accordance with DNVGL-ST-0358 Section 7.5.

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform a survey every second year and before expiry date of this certificate in order to verify that the conditions of the type approval are complied with.

End of certificate