Certificate No:
TAS00003VT

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Crane Pedestal

with type designation(s)
Modular components for height adjustable offshore gangway pedestal

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

is found to comply with
DNV standard DNV-ST-0358 – Offshore gangways

Application :

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

Issued at **Høvik** on **2023-05-15**
This Certificate is valid until **2028-05-14**.
DNV local unit: **Netherlands VMC**

Approval Engineer: **Florian Teica**

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.

Product description

Equipment use: modular pedestal components enabling height adjustment of an offshore gangway

Height adjustment system components			**TAB-L height adjustment system**	**TAB-M height adjustment system**
Type	self-weight	reference drawing	1600224-B-00-18	1600224-B-00-19
Upper rail section	11.0 tonne	1600224-B-40-10	**X**	**X**
Lower rail section *	5.5 tonne	1600224-B-40-50	**X**	**X**
Trolley	5.0 tonne	1600224-B-41-10	**X**	**X**
Pedestal	3.15 tonne	1600224-B-41-50	**X**	
Boomrest Boomrest mirrored	1.25 tonne	1600224-B-41-60 1600224-B-41-90	**X**	
Top access	2.0 tonne	1600224-B-42-10	**X**	
Modifications for Stacking module 1**	5.6 tonne	1600224-B-43-11	**X**	**X**
Modifications for Stacking module 2***	7.3 tonne	1600224-B-43-21	**X**	**X**
Top access boomrest TAB-M	0.18 tonne	1600224-B-42-20		**X**
TAB-M adapter	3.6 tonne	1600224-B-44-10		**X**
Boomrest – TAB-M Boomrest – TAB-M mirrored	0.77 tonne	1600224-B-44-40 1600224-B-44-50		**X**

*) up to 2 x Lower rail sections for the 8 x pedestal module stack
**) the stacking module 1 (SM1) itself is covered by TAS00001HU
***) the stacking module 2 (SM2) itself and the adapter plate are covered by TAS00002T0

Application/Limitation

Height adjustment system for Offshore gangway type designation	**TAB-L**					**TAB-M**				
Stack configuration	1600224-B-00-18					1600224-B-00-19				
Working parameters (at gangway slewing bearing)	Operational	Transit/parked				Operational	Transit/parked			
Maximum number of modules/stack height	all stack configurations	up to 4 x module stack**			above 4 x module stack	all stack configurations	up to 4 x module stack**			above 4 x module stack
Axial force [kN] (based on a mass above the slewing bearing of)	18.0					10.0*				
Overturning moment [kN x m]****	1650	1650			as per 1600224-C-07-20 Rev A table 6 (SU)	1100*	700			
Torsion [kN x m]****	380	940				260*	370			
Vessel accelerations [m/s^2]										
Vertical (in addition to gravity)	±3.5	±10	±10	±10	±7.0 or 8.0***	±3.5	±10	±10	±10	±7.5 or 9.0***
Longitudinal (parallell with the length of the module) [m/s^2]	3,5	5,0	10,0	0	7/0 - 0/7 or 8/0 - 0/8***	3,5	5,0	10,0	0	7.5/0 - 0/7.5 or 9/0 - 0/9***
Transverse (parallell with the width of the module)	3,5	5,0	0	10,0		3,5	5,0	0	10,0	
Wind speed [m/s]	25	44				25	44			

*) When a dual-purpose equipment is used (i.e. capable of performing both gangway and offshore crane functions), 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
**) for a 4 x pedestal stack build-up from SM1 modules, the pedestal shall be supported on either an SIF1 (covered by TAS00002JC), an SM2 or another support structure providing equivalent stiffness.
***) depending on trolley height, ref 1600224-C-07-20 Rev A table 1 (TAB-L) and 1600224-C-07-22 Rev A table 3 (TAB-M)
****) for TAB-L, the working parameters depend on the trolley height, ref 1600224-C-07-20 Rev A table 5

Minimum design temperature: -20deg C

Approval conditions

The approval is based on the following:

1. During transit, it is assumed that the gangway will be adequately seafastened. Gangway seafastenings have not formed part of the review
2. The deck foundation below the stacking pedestal shall provide a stiff support according to the design assumptions, ref. doc no. 1600224-C-07-18 Rev A and 1600224-C-07-20 Rev A sections 9.6. 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 connections between the pedestal components, as well as connection to the vessel/other supporting structures are inspected according to SMST maintenance schedule for integrity and tightness, ref 1600224-F-04-01 Rev B.
5. Pedestal assembly shall be performed by SMST authorized personnel as per procedures listed in TAS00001HU, TAS00002T0, 1600224-B-40-10 Rev C, 1600224-B-40-50 Rev C, 1600224-B-41-10 Rev E, 1600224-B-42-10 Rev C ,1600224-B-42-20 Rev A, 1600224-B-44-10 Rev B, 1600224-B-44-40 Rev A, 1600224-B-44-50 Rev A ; where relevant, play between components shall be reduced to tolerances specified by SMST or eliminated.
6. It is expected that all the pedestal components, including welds, pins, bolts, etc., are subject to regular inspections (e.g. yearly) and prior to each mobilization. Maintenance to be performed according to SMST procedures.
7. Height adjustment shall be performed as per 1600224-C-05-03 A. The gangway shall be completely retracted during height adjustment operations. People are not allowed on the gangway or pedestal stack during the height adjust operations.

   It is the end user's responsibility to ensure that the height adjustment functionality is properly operated and that all safety checks/inspections are performed prior to using the equipment for walk-2-work/personnel transfer operations.

Type Approval documentation

Certification

This Type Approval covers design(s) only, i.e. the Type Approval is not valid for the final product, but may be used as basis for obtaining a product certificate.

If a DNV Product Certificate is required, the following shall apply:

- The Skidding cylinder shall be delivered with a DNV PC
- The manufacturing survey shall be followed-up by a DNV Surveyor
- Testing:
  1. Each stacking pedestal component (Upper rail section, Lower rail section, Trolley, Pedestal and TAB-M adapter) shall be load tested. Test loads in accordance with DNV-ST-0358 Section 7.
  2. For a pedestal module (modified SM1 and SM2), a minimum number of modules as per below table shall be load tested as part of a maximum height stack/pedestal in the presence of a DNV Surveyor. Test loads in accordance with DNV-ST-0358 Section 7.

Total number of modules produced	Minimum number of modules to be tested
1 – 5	1
6 – 10	2
11 – 20	3
21 – 40	4
≥ 40	1 per each 10 modules produced

  3. For a height adjustment system and pedestal/stack, each time a pedestal/stack is (re)assembled, the stack shall be load tested in the presence of a DNV Surveyor. Test loads in accordance with DNV-ST-0358 Section 7

Marking of product

Each module or pedestal/stack shall be marked in accordance with DNV-ST-0358 Section 7.5.

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

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com

End of certificate