Certificate No:
TAS000041J

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Goods Passenger Lift

with type designation(s)
MacGregor Horizon V4 lift - Alimak ME2000 / Direct drive lift / Machine room / Variable landing level

Issued to
MacGregor Norway AS
Kristiansand, **Norway**

is found to comply with
DNV standard DNV-ST-0495 – Certification of lifts in ships, mobile offshore units and offshore installations, October 2022

Application :

Goods Passenger Lift for gangway tower.
See page 2 for limitations.

Issued at **Høvik** on **2023-10-20**
This Certificate is valid until **2028-10-19** .
DNV local unit: **Oslo Drilling Systems & Lifting Appliances**

Approval Engineer: **Peder Andreas Vasset**

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

MacGregor/Alimak direct drive lift for use in gangway towers to transport goods and passengers. The car upper stopping position, which reaches the gangway, is movable to adjust to gangway position. The lift installation has a machine room above lift well.

Application/Limitation

The documentation has been evaluated for compliance to DNV-ST-0495 and normative standards EN 81-20 (2020), EN 81-50 (2020) and ISO 8383 (1991), as per DNV-ST-0495 [2.2].

Design parameter	Value
Lift Id:	Horizon V4 lift / Alimak ME2000
Type:	Goods Passenger Lift (positive drive lift)
Location:	Gangway (marine environment - safe area)
Rated load:	2000 kg
Max number of passengers:	26
Rated speed:	0.6 m/s
Car safety gear tripping speed:	0.7 m/s
Suspension rope:	20 mm / 2 ropes / 1:1
Suspension rope minimum braking load (MBL):	360 kN
Overspeed governor rope:	6.5 mm
Overspeed governor rope minimum braking load (MBL):	31.5 kN
Rail type:	T125/B or BE
Max travelling height:	40 000 mm
Max landings levels:	5 fixed / 1 movable (upper)
Max number of maintenance persons in well at same time:	1
Max accelerations: (Roll / Pitch / Heave)	Operational: 2.94 / 2.94 / 12.75 [m/s^2] Transit: 4.41 / 4.41 / 16.68 [m/s^2]
Design temperature:	+5 to +40 °C
Design lifetime:	20 years
Landing door fire rating:	A0

Type Approval documentation

Testing

Testing of the lift installation shall be performed according to DNV-ST-0495 [4.5.4].
A test procedure, covering all required tests, shall be provided to the DNV Surveyor well before testing.
This includes:
- Examinations and tests according to EN 81-20 [6.3] and [6.2] Table 18 (as required for categories visual inspection, performance check/test, measurement, and user information).
- Electrical safety devices shall be tested according to EN 81-20 Annex A, and shall result in lift movement being prevented or stopped.
- Emergency and inspection operation shall be tested, with following restoration of normal operation.
- Emergency power shall be verified for relevant consumers.
- Refuge spaces to be verified.
- All interfaces between lift and gangway control systems shall be failure and function tested.
- Verification of type approval/type examination certificates to installed components and lift characteristics:

Component	Certificate No.
Landing door locking device:	TÜV: ATV 295/7 (Wittur 3201)
Car door locking device:	TÜV Austria: TÜV-A-AT-1-05-0133-FKTV-3 (Witture, type: HYDRA 42/C)
Safety Gear:	TÜV: EU-SG 212 (ThyssenKrupp type 6071/2, machined surface)
Overspeed governor:	TÜV: EU-OG 069 (BODE Typ 8)
Buffers (pit):	TÜV: 44 208 12126209 (P+S type D5)
Buffers (car top):	TÜV: 44 208 12126206 (P+S type D2)
Safety circuits:	IMQ: MA21-0063539 (Pizzato Elettrica type CS AR - 9)

Landing door fire rating	RINA: MED231418CS (Wittur 3201-HYDRA A-60)

Component:	Test report No.
Suspension ropes	DNV: N142579Y* (CASAR GL 2 Turboplast 1960 N/mm²)
Overspeed governor ropes	CERTEX: 639999* (Drako 250 T 8x19 IWRC 1770 N/mm²)
Rope terminations	Shall be according to EN 13411-6

*Other test reports/certificates documenting compliance to EN 12385-4 and required MBL are acceptable.

Marking of product

- Products that comply with the Type Approval shall be marked for traceability to the Type Approval. The marking shall be affixed to the product or to its data plate to be visible, legible, and indelible throughout the anticipated useful life of the product.
- All labels, notices, markings, and operating instructions shall be permanently affixed, indelible, legible, and readily understandable (if necessary aided by signs or symbols). They shall be of durable material, placed in a visible position, and written in the accepted language(s) of the country where the lift is installed, ref. EN-81-20 [5.1.2].

Conditions and Comments

- This Type Approval Certificate is not valid for designs, components, equipment, systems, or products which are subject to classification by DNV.
- The Type Approval Certificate covers design only, i.e., it is not valid for the final product, but may be used as basis for obtaining a DNV Lift Certificate. Manufacturing survey requirements are provided in DNV-ST-0495 [4.4]. Installation survey requirements are provided in DNV-ST-0495 [4.5].
- Initial assessment for Type Approval is based on ISO 9001-, ISO 14001- and ISO 45001 certificates.
- Any deviations or modifications to the approved documentation and/or limitations stated shall be provided to DNV for review and acceptance prior to issuance of a DNV Lift Certificate.
- The gangway and gangway control are not scope for this approval.
- Requirements applicable for the lift installation from regulatory bodies, such as IMO, National authorities (flag/shelf) and Classification societies, have not been scope for this approval. Regulatory bodies provide requirements to fire integrity, escape, emergency lighting, ventilation and more, which might also be applicable to the lift installation. It is the responsibility of the owner to ensure lift installation complies with all relevant Rules and requirements. The well shall have an independent ventilation system and not be used to provide ventilation of rooms other than those belonging to the lift installation, ref. DNV-ST-0495 [2.2.12], EN 81-20 [5.2.1.3] and ISO 8383 [5.8].
- The structure of the well (incl. fixing of the guide rails) and machinery spaces, shall conform to applicable Rules and standards and be able to support at least the loads which may be applied, ref. EN 81-20 [5.2.1.8]. To protect spaces below the well, the base of the pit shall be designed for an imposed load of at least 5000 N/m2, ref. DNV-ST-0495 [2.2.9] and EN 81-20 [5.2.5.4].
- The electric installation is assumed to follow general requirements for electrical installations found in Rules for Classification of Ships Pt.4 Ch.8 (for ships) or DNV-OS-D201 (for MOU/offshore installations), in addition to EN 81-20 [5.10].
- The well shall not be used for purposes other than lifts. It shall not contain ducts, cables, or devices other than for the lift, as per EN 81-20 [5.2.1.2].
- Care shall be taken to ensure that rated load is not exceeded due to use of handling devices during loading/unloading of goods in car.
- Care shall be taken to protect well against ingress of water and spray, ref. ISO 8383 [5.10].
- Emergency trap is installed in the well for emergency escape. This is not complying with EN 81-20 [5.2.3.1] and [5.2.3.2] which requires doors (not traps) of minimum dimensions 1.8m x 0.5m. It is accepted based on compliance to ISO 8383 [5.6] and the condition that personnel using the lift is trained in escaping with given arrangement, which is operator responsibility.
- Machinery room access ladder does not form angle as required by EN 81-20 [5.2.2.5], access hatch size does not comply with [5.2.3.2] and working areas do not comply with [5.2.6.3.2.1]. It is accepted based on the condition that personnel accessing the machinery room is trained with given arrangement, which is operator responsibility.
- Area of the car does not comply with requirements in EN 81-20 [5.4.2.2.1]. This is accepted based on installed overload protection sensors (one for each wire). It is the responsibility of the operator to ensure overload protection is always functional and that the lift is never overloaded.
- Ratio between suspension rope and drum is 39, which is below minimum requirement of 40 as per EN 81-20 [5.5.2.1]. It is the responsibility of the operator to ensure wire is in acceptable condition during use and replaced when needed.
- There is no light switch in pit, as required by EN 81-20 [5.2.1.5.1], as the light is permanently on during gangway and lift operation.

- Correspondences are found in DNV Nauticus Production System project 262.1-039726.

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results. Periodical assessments will be required after two years (+/- 90 days) and after 3.5 years (+/- 90 days). To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com.