

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Battery Charger**with type designation(s)
MASS-1 24/25

Issued to

Mastervolt B.V.
Amsterdam, Netherlands

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Product approved by this certificate is accepted for installation on all vessels classed by DNV GL.**

Voltage output	24 V DC
Power	600 W
Temperature class	A
Vibration class	A
Humidity class	A
Degree of protection	A

Issued at **Høvik** on **2017-12-21**for **DNV GL**This Certificate is valid until **2022-12-31**.DNV GL local station: **Rotterdam**Approval Engineer: **Nicolay Horn**

Andreas Kristoffersen
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

Battery charger. Charging of 24 V open and closed (AGM & Gell) lead acid batteries, lihuim batteries and power simultaneously loads. Equiped with temperature compensated charging.

Type	Input Voltage	Input Current	Output (at 45°C)	Enclosure
MASS-1 24/25	1 ph 190 - 250 V AC, 50/60 Hz, ± 5 %	3,6 A at 230 V AC	24 V DC / 25 A	IP 23

Application/Limitation

The output current will be decreased if operating at 45 °C for longer periode or with restricted ventilation.

Derating with 2.5 % / °C > 40 °C.

Type Approval documentation

Datasheet:

Manual Mass Charger 24/24 V1 dated November 2010.

Drawings:

Schematics Mass 1 Charger V5 dated April 2017

Test reports:

"Testreport concerning the compliance of a battery charger, brand Mastervolt with parts of certification notes "environmental test specification for instrumentation and automation equipment""by TNO, dated 01-06-27, "Measurements conserning environmental testing of battery charger, model Mass-1 LDR 24/25", by KEMA dated 01-07-07.

Nedap report "Testen Mass 1 24/25" issued 99-10-07, partly repeated 01-10-09.

See also approval letter 262.1-009163-J-13.

Tests carried out

Low temperature, Dry heat, Vibration, Humidity/ Damp heat in according to IEC 60068-2, EMC in accordance with Sfc. 2.4 Class B.

Marking of product

Mastervolt – charger model no. Mass-1 24/25 – charger input – charger output.

Periodical assessment

The scope of the periodical/renewal assessment is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests(RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Assessment to be performed 2 and 3.5 year and at renewal.

END OF CERTIFICATE