



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **E-13253**

This is to certify that the
Constant Voltage Charger

with type designation(s)
MASS- 24/75C & 24/100C

Issued to
Mastervolt International
AMSTERDAM, Netherlands

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application

Voltage output	24 V DC
Power	up to 3500 VA
Temperature class	A
Vibration class	A
Humidity class	B
Enclosure class	A

This Certificate is valid until **2017-12-31**.

Issued at **Høvik** on **2014-03-03**

DNV local station: **Rotterdam**

Approval Engineer: **Sverre Eriksen**

for **Det Norske Veritas AS**

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Marit Laumann
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.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

Battery charger. Charging of 24 V open and closed lead acid (gel or wet) batteries and power simultaneously loads. Equipped with temperature compensated charging.

Type	Input Voltage	Input Current	Output (at 40 °C)	Enclosure
MASS-24/75C	1 ph 180 - 260 V AC, 50/60 Hz, ± 5 %	11,2 A at 230 V AC	24 V DC / 75 A	IP 23
MASS-24/100C	1 ph 180 - 260 V AC, 50/60 Hz, ± 5 %	14,4 A at 230 V AC	24 V DC / 100 A	IP 23

Application/Limitation

The output current will be decreased if operating at 45 °C for longer period or with restricted ventilation. Derating with 2.5 % / °C > 40 °C.

Applicable for bridge installation in accordance with Class requirements.

Type Approval documentation

Datasheet: Technical details – charger mass 24/100, dated 2003-03-05.

Drawings: MASTERVOLT Appendix A, B & C.

Test reports: KEMA Environmental Test report for Battery charger, model MASS 3-24/100 no. 2076565-QUA/EMC 04-4743 dated 2004-10-19 and EMC Test report for Battery charger, model MASS 3-24/100 no. 2076565-QUA/EMC 04-4883 dated 2004-11-05.

See also approval letter 262.1-008458-J-13

Tests carried out

Low temperature, Dry heat & Vibration in according to SfC No. 2.4 Class A, Humidity/ Damp heat and EMC in accordance with SfC No. 2.4 Class B.

Marking of product

Mastervolt – charger model no. 24/75 (24/100) – charger input – charger output.

Periodical assessment

The scope of the retention/renewal survey 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 survey 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 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.

Survey to be performed at least every second year.

END OF CERTIFICATE