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Leroy-Somer S.A.
Mr. Patrice Betge
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Your reference	Your letter of	Our reference	Extension	Date
Patrice Betge	2016-04-16	16-012222/JeDi	+49 40 36149-7594	2016-06-21

Type Approval Certificate No. 4533316 HH



GLAPP0023165611

Dear Mr. Patrice Betge,

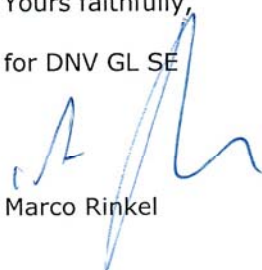
enclosed please find the above mentioned type approval certificate.

In case of changes to the product, changes to production place or quality system DNV GL needs to be informed.

The related invoice will be sent with separate correspondence.

Yours faithfully,

for DNV GL SE



Marco Rinkel



Jens Dietrich

TYPE APPROVAL CERTIFICATE

DNV·GL

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the DNV GL Type Approval System.

Certificate No. **45 333 - 16 HH**

Company **Leroy-Somer S.A.**

**Boulevard Marcellin Leroy
16000 Angouleme, France**

Product Description **Automatic Voltage Regulator (AVR)**

Type **D510C**

Environmental Category **C, EMC2**

Technical Data /
Range of Application **Digital generator voltage regulator
Power supply: 11 V...30 V DC
Alternator / Mains frequency: 10 Hz ...100 Hz
Alternator voltage: 0 V...530 VAC
Excitation current: 0... 6A
Max. excitation current: 15 A (10s)
Alternator current input 1...5 A
HMI Interface: USB (for service)
Analog Inputs: 4..20mA, 0-10V, +/-10V, 1kOhm by setting,
Digital Inputs,
Digital outputs: Open collector and dry contact rated 30V DC/250V AC@6A
Status-LEDs
Firmware 2.xx.
Degree of protection: Required protection according to DNV GL rules shall be provided upon installation onboard.
Remark: The suitability also with regard to excitation field supply to be checked for the respective generator application.**

Test Standard **GL Guidelines for the Performance of Type Approvals, Chapter 2- Test Requirements for Electrical / Electronic Equipment and Systems (VI-7-2), Edition 2012**

Documents **Test reports : Functional Test T28 BP R503, dated 2015-12-16. Environmental and EMC test reports: N/Réf CR090516 02 RDE RL rev A; A5-RE-200-526; 03_D510-DVC310-Défaillance Alimentation; 06-D510-DVC310_60068-2-30; T431T030, Rev.B; 11_D510C-DVC310_60068_2_1; CR071013RDERL, rev. A; EMITECH R053-13-100242-1-A(01); CR250414 10 RDE RL, rev. A; EMITECH R053-14-100737-1-A(00); CR071013 01 RDE RL rev. A; CR060514 11 RDE RL rev A. Installation and Maintenance Manual 4243en-2015.07/i.**

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

Valid until **2021-05-12**

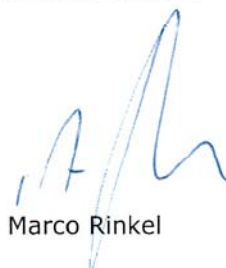
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File No. **I.H.04**

Hamburg, 2016-06-21

Type Approval Symbol




Marco Rinkel


Jens Dietrich

DNV GL