



Marine & Offshore
Division

Certificate number: 38879/A0 BV

File number: AP4521

Product code: 2658H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

DEIF A/S
Skive - DENMARK

for the type of product

GENERATOR CONTROL AND PROTECTION UNITS

DVC310
Digital voltage regulator

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 18 Jul 2019

For BUREAU VERITAS,
At BV BORDEAUX, on 18 Jul 2014,
Raphael Garnier



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine & Offshore Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 May 2009

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

DVC310 is an automatic voltage regulator for Marine and Offshore application.

1.1 - Product's datas:

Name	Minimum value	Maximum value
Battery power supply	11 V	30 V
Alternator frequency	10 Hz	100 Hz
Mains frequency	10 Hz	100 Hz
Single-phase mains voltage	50 V	530 V
Mains voltage ratio	1	100
Excitation current	0 A	6 A
Max. excitation current	0 A	15 A/10s
Single-phase alternator voltage	0 V	530 V
Three-phase alternator voltage	0 V	530 V
Alternator current input	1 A	5 A
Alternator I u	0 A	5000 A
Alternator I v	0 A	5000 A
Alternator I w	0 A	5000 A

1.2 - Firmware:

Firmware version
Firmware 2.2

2. DOCUMENTS AND DRAWINGS:

Software specification N°T430C092 rev.B, dated 13.05.2014.

FMEA ref. D500-regulateur digital, dated 03.2008.

3. TEST REPORTS:

Leroy Somer:

- Test report N°CR250414 10 Rev. A, dated 25.04.2014, witnessed by BV's Surveyor.
- Test report N°A5-RE-200-526, dated 24.04.2014, witnessed by BV's Surveyor.
- Test report N°CR140514 12 Rev.A, dated 14.05.2014, witnessed by BV's Surveyor.
- Test report N°CR130114 03 Rev.A, dated 21.02.2013, witnessed by BV's Surveyor.
- Test report N°CR130114 04 Rev. A, dated 19.03.2013, witnessed by BV's Surveyor.
- Test report N°CR071013 01 Rev. A, dated 28.09.2013, witnessed by BV's Surveyor.
- Test report N°T28 BP R470 Rev. 0, dated 14.05.2014, witnessed by BV's Surveyor.
- Test report N°A5-RE-200-485, dated 17.06.2014, witnessed by BV's Surveyor.
- Test report N°T431T030 rev.B, dated 10.02.2009, reviewed by BV's Surveyor.

EMITECH:

- Test report N°R09-100244, dated 10.02.2009.
- Tests report N°R053-14-100737-1-A (00) dated 12.02.2014.
- Tests report N°R053-13-100242-1-A (01) dated 08.01.2013.

4. APPLICATION / LIMITATION:

4.1 - BUREAU VERITAS Rules and Regulations for the Classification of Steel Ships.

4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**

4.3 - BUREAU VERITAS Environmental Category, **EC Code: 31**

4.4 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zones.

4.5 - The equipment, once installed on board ship, is to be tested in accordance with the above referred Regulations under the supervision of a Society's Surveyor.

4.6 - Only Hardware and Firmware / Software successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer are covered by this certificate.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The **DVC310** are to be supplied by **DEIF A/S** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320.

5.3 - **DEIF A/S** has declared to Bureau Veritas that the type of product described in this certificate is manufactured at the following production site:

**Moteurs Leroy Somer
Usine des Agriers D.E.I
16015 ANGOULEME
FRANCE**

5.4 - Production sites are to be recognized by Bureau Veritas as per NR320 for HBV products. To this end **DEIF A/S**, has to make the necessary arrangements for a Society's Surveyor to perform visits and product audits at the production sites.

6. MARKING OF PRODUCT:

6.1 - Trade name.

6.2 - Date of manufacture and serial number: Year-Week, Number: xxx/xx/xxxxxx

6.3 - Equipment type or model identification under which it was type-tested

7. OTHERS:

This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time and that **DEIF A/S**, will accept full responsibility for informing shipbuilders, shipowners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

***** END OF CERTIFICATE *****