

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Battery (Accumulator)**

with type designation(s)

Valve Regulated Lead Acid accumulators (VRLA), system "Sonnenschein dryfit A 400" with Gel-electrolyte, Series from 5.5 Ah to 180 Ah (C10), 6/12 Volt

Issued to

**Exide Technologies GmbH
Büdingen, Hessen, Germany**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Hamburg** on **2019-12-17**This Certificate is valid until **2024-12-16**.for **DNV GL**DNV GL local station: **Augsburg**Approval Engineer: **Maik Gagern**

**Arne Schaarmann
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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.



Job Id: **262.1-023603-1**
Certificate No: **TAE00003Y6**

Product description

Valve Regulated Lead Acid accumulators (VRLA), system "Sonnenschein dryfit A 400" with Gel-electrolyte, Series from 5.5 Ah to 180 Ah (C10), 6/12 Volt

Sealed, maintenance-free block batteries with grid plates.
The block batteries may be combined to battery-sets with the desired voltage.

Type A406/165A up to A412/180F10
A406/165A; A406/165F10; A412/5,5SR; A412/8,5SR; A412/12SR;
A412/20G5; A412/32G6; A412/32F10; A412/50A; A412/50F10; A412/50G6;
A412/65F10; A412/65G6; A412/85F10; A412/90A; A412/90F10; A412/100A;
A412/100F10; A412/120A; A412/120F10; A412/180A; A412/180F10.

Application/Limitation

Application : General power supply on board of ships, particularly suitable for long discharging periods, occasionally suitable for electrical starting of combustion engines.

For charging conditions manufacturer's instruction shall be observed.

Type Approval documentation

Tests carried out

Tests performed acc. to IEC 60896-21, 2004

Marking of product

Maker – Product Code – Capacity

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are 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.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE