

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Battery (Accumulator)

with type designation(s)
MARINE & LEISURE, Equipment GEL (ES) series

Issued to
EXIDE TECHNOLOGIES SAS
Gennevilliers CEDEX, Hauts de Seine, France

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Issued at **Høvik** on **2019-07-02**

for **DNV GL**

This Certificate is valid until **2024-06-30**.

DNV GL local station: **Madrid**

Approval Engineer: **Nicolay Horn**

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Trond Sjøvåg
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.



Job Id: **262.1-008822-4**
Certificate No: **TAE00000EH**
Revision No: **1**

Product description

Valve Regulated Lead-Acid batteries for equipment supply. Gel technology.

Product code	20h Capacity (Ah)	Voltage (V)
ES450	40	12
ES650	56	12
ES900	80	12
ES950	85	12
ES1000-6	190	6
ES1100-6	200	6
ES1200	110	12
ES1300	120	12
ES1350	120	12
ES1600	140	12
ES2400	210	12

Manufactured by

EXIDE TECHNOLOGIES Operations GmbH & Co. KG
Im Thiergarten
D-63654 Büdingen
Germany

Application/Limitation

Batteries for use in ships and offshore Units. To be installed as described for valve regulated batteries in the DNV GL rules.

Type Approval documentation

Datasheet: ES450 (06/09/2005), ES650 (11/12/2007), ES900 (12/09/2005), ES950 (11/12/2007), ES1000-6 (06/09/2005), ES1100-6 (30/09/2008), ES1200 (15/09/2005), ES1300 (11/12/2007), ES1350 (11/12/2007), ES1600 (11/12/2007), ES2400 (11/12/2007)

Test reports: Meßprotokoll, Prüfauftrag FE 261 PG 005 ES290, ES900, ES2400 (EM290, EM900, EM2400) (dated 09.09.2010)

Tests carried out

Capacity (IEC 60896-21), Short Circuit (IEC 60896-21), Recharge Behaviour (IEC 60896-21), High Current Tolerance (IEC 60896-21) and Vibration Resistance (EN 50342, V3).

Marking of product

EXIDE MARINE & LEISURE - Product Code - Capacity (Ah)

Periodical assessment

The scope of the periodical 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)
- 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 at 2 and 3.5 year and at renewal.

END OF CERTIFICATE