

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Glass Fibre Products

with type designation(s)
Direct Roving; E6-CR 380-Series

Issued to
Jushi Egypt for Fiberglass Industry S.A.E.
Ain Sokhna, Egypt

is found to comply with
DNV GL class programme DNVGL-CP-0082 – Type approval – Glass fibre rovings

Application :

For use in marine vessels according to stated Rules/Standards.

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

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This Certificate is valid until **2021-08-24**.

Issued at **Høvik** on **2016-08-25**

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DNV GL local station: **Alexandria**

for **DNV GL**

Approval Engineer : **Gisle Hersvik**

Martin Strande
Head of Section

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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.

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Product description

Direct Roving; **E6-CR 380 Series**, for Filament Winding and Weaving.

Glass type: E6-CR
Size Type: Silane
Size Code: 380

Linea density, tex	300	600	1200	2400
Filament diameter, μm	13	17	17	17

Variants:

E6-CR13-300-380
E6-CR17-600-380
E6-CR17-1200-380
E6-CR17-2400-380

Application/Limitation

The approval is valid for the above listed linea densities.

Designed for use with (both amine and anhydride cured) epoxy resins.

Intended for use in uni- and multi-axial multi-ply fabrics, wind energy blade etc.

Type Approval documentation

1. Test Report No. BG160618102 for "E6CR17-2400-380" from Testing Centre of Jushi Group Co., Ltd. of 2016-06-18.
2. CNAS Accreditation Certificate CNAS L1990 of 2013-04-25.
3. GL Statement No. GL-LZ 1108 HH-2 of 2011-05-19.
4. Type Approval Assessment Report from DNV GL Alexandria of 2016-05-16.
5. Technical Data Sheet, E6-CRr380.
6. FLOW CHART-Description of quality control arrangement.
7. JSEG-G015-14 Organization Chart (2015-11-15).
8. JSEG-G054-01; Quality Control and Non-Conforming products Procedure (2014-07-14).
9. J125-01; SAFE USE INSTRUCTIONS For Continuous Glass Fiber Products

Job Id: **262.1-023613-1**
Certificate No: **TAK00000FE**

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.

Periodical Assessment to be performed after 2 years (Certificate Retention) and at renewal after 5 years (Certificate Renewal).

The main elements of the Periodical Assessment are to:

Ensure that **Type Approval documentation** is available.

Review design, materials, production process and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.

Ensure traceability between manufacturer's product making and the DNV GL Type Approval Certificate.

END OF CERTIFICATE