



# TYPE APPROVAL

Certificate No.:  
TA-DNV-CP-0082-07314-0

Issued:  
2022-12-28

Valid until:  
2027-12-27

Issued for:

## Glass Fibre Rovings

with type designation(s)

## EDR-320 Series

As specified in Annex 1

Issued to:

## Jushi Group Co., Ltd.

669 Wenhua Rd.(S.), Tongxiang Economic Development Zone, Zhejiang 314500, China

According to:

**DNV-SE-0436:2021-09 Shop approval in renewable energy**

and

**DNV-CP-0082:2021-09 Type approval – Glass fibre rovings**

Applying:

**DNV-SE-0441:2021-10 Type and component certification of wind turbines**

Based on the documents listed in Annex 1.

This Type Approval supersedes the Type Approval WP1430002HH.

Any significant changes in the design and/or quality of the material will render this Type Approval invalid.

Hellerup, 2022-12-28  
For DNV Renewables Certification

Hamburg, 2022-12-28  
For DNV Renewables Certification

**Bente Vestergaard**  
Service Line Leader

**Bernhard Krüger**  
Project Manager

# TYPE APPROVAL – ANNEX 1

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## Product description and application

EDR-320 Series is a direct glass fibre roving for weaving to be used in FRP components of wind turbine rotor blades or other applications such as pressure vessels, gratings, and boats.

## Approved variants

EDR17-600-320, EDR17-1200-320 and EDR17-2400-320

## Type Approval documentation

Technical data sheet(s)	E8-390 Direct Roving TDS
Test report(s)	Test Report Glass Fiber Roving (EDR17-600-320), BG200709101, issued 2020-07-09 Test Report Glass Fiber Roving (EDR17-1200-320), BG200709102, issued 2020-07-09 Test Report Glass Fiber Roving (EDR17-2400-320), BG200709103, issued 2020-07-09
Inspection report(s)	WIR-10325803-001-Rev00, DNV, dated 2021-04-23
Quality control documentation	ISO9001:2015 Certificate, 20319142/1-1, issued 2022-03-01, valid until 2025-02-28 Several CoAs

## Material Properties

Properties	Variant 1 (EDR17-600-320)	Variant 2 (EDR17-1200-320)	Variant 3 (EDR17-2400-320)	Unit
Type of glass	E-glass	E-glass	E-glass	[-]
Type of sizing	Silane 320	Silane 320	Silane 320	[-]
Matrix compatibility	Polyester, Vinyl Ester, Epoxy	Polyester, Vinyl Ester, Epoxy	Polyester, Vinyl Ester, Epoxy	[-]
With or without twist	Without	Without	Without	[-]
Filament diameter	17	17	17	µm
Linear density <sup>(1)</sup>	600	1200	2400	tex

<sup>(1)</sup> According to ISO 1889, ± 5%

## Approved production sites

Jushi Group Co. LTD  
669 Wenhua Rd. (S.), Tongxiang Economic Development Zone  
Zhejiang 314500, China

Last workshop inspection: 2021-04-23

## Periodic assessment

2.5 years after the last workshop inspection, the client shall inform DNV about any modifications in production. An intermediate inspection might be needed based on the implemented changes.