



TYPE APPROVAL

Certificate No.:
TA-DNV-CP-0082-07315-0

Issued:
2022-12-28

Valid until:
2027-12-27

Issued for:

Glass Fibre Rovings

with type designation(s)

E7DR-380 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 WP1430054HH.

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

E7DR-380 series is a direct glass fibre roving for weaving and filament winding to be used in FRP components of wind turbine rotor blades or other applications such as pre-pregs, high pressure pipes and vessels.

Approved variants

E7DR16-200-380, E7DR13-300-380, E7DR17-600-380, E7DR17-1200-380 and E7DR17-2400-380

Type Approval documentation

Technical data sheet(s)	E7-380 Direct Roving TDS
Test report(s)	Test Report Glass Fiber Roving (E7DR16-200-380), BG180531101, issued 2018-05-31 Test Report Glass Fiber Roving (E7DR13-300-380), BG180531102, issued 2018-05-31 Test Report Glass Fiber Roving (E7DR17-600-380), BG180531103, issued 2018-05-31 Test Report Glass Fiber Roving (E7DR17-1200-380), BG180531104, issued 2018-05-31 Test Report Glass Fiber Roving (E7DR17-2400-380), BG180531105, issued 2018-05-31 Test Report Glass Fiber Roving (E7DR16-200-380), BG190709101, issued 2019-07-09 Test Report Glass Fiber Roving (E7DR13-300-380), BG190709102, issued 2019-07-09 Test Report Glass Fiber Roving (E7DR17-600-380), BG190709103, issued 2019-07-09 Test Report Glass Fiber Roving (E7DR17-1200-380), BG190709104, issued 2019-07-09 Test Report Glass Fiber Roving (E7DR17-2400-380), BG190709105, issued 2019-07-09
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 (E7DR16-200-380)	Variant 2 (E7DR13-300-380)	Variant 3 (E7DR17-600-380)	Variant 4 (E7DR17-1200-380)	Variant 5 (E7DR17-2400-380)	Unit
Type of glass	H-glass	H-glass	H-glass	H-glass	H-glass	[-]
Type of sizing	Silane 380	Silane 380	Silane 380	Silane 380	Silane 380	[-]
Matrix compatibility	Epoxy	Epoxy	Epoxy	Epoxy	Epoxy	[-]
With or without twist	Without	Without	Without	Without	Without	[-]
Filament diameter	16	13	17	17	17	µm
Linear density ⁽¹⁾	200	300	600	1200	2400	tex

⁽¹⁾ 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.