



# TYPE APPROVAL

Certificate No.:  
TA-DNV-CP-0084-08149-1

Issued:  
2023-11-24

Valid until:  
2027-03-15

Issued for:

## Sandwich core material

with type designation(s)

## Corecell™ I - Series

As specified in Annex 1

Issued to:

## Gurit Americas Inc.

555 Boul. Poirier, Magog, Quebec J1X 7L1, Canada

According to:

## DNV-SE-0436:2022-09 Shop approval in renewable energy

and

## DNV-CP-0084:2021-09 Type approval – Sandwich core materials

Applying:

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

Based on the documents listed in Annex 1.

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

Hellerup, 2023-11-24  
For DNV Renewables Certification

**Bente Vestergaard**  
Service Line Leader



By DAkKS according to DIN EN IEC/ISO 17065 accredited Certification Body for products. The accreditation is valid for the fields of certification listed in the certificate.

Hamburg, 2023-11-24  
For DNV Renewables Certification

**Nikunj Kumar Pokiya**  
Project Manager

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## Product description and application

A cross-linked, closed-cell foam core material for sandwich construction for applications in wind turbines and maritime applications.

## Approved variants

- Corecell™ I-40
- Corecell™ I-60
- Corecell™ I-80
- Corecell™ I-100

## Type Approval documentation

Technical data sheet(s)	I -09-1023, Gurit Corecell I, Gurit
Safety data sheet(s)	Rev 1.3, Corecell I-Foam Product Safety Information Sheet, Gurit, dated 2021-08-06
Test report(s)	TR12330, rev.05, DNV Type Approval Certification of Gurit Corecell I, Gurit, dated 2022-03-15 TR 23102023, rev.02, DNV Type Approval Certification of Gurit Corecell I40, Gurit, dated 2023-11-02
Shop approval	SA-DNV-SE-0436-10037-0, Shop approval, DNV, dated 2023-07-21
Quality control documentation	58949-1-03, ISO 9001:2015 Certificate, Bureau de normalisation du Québec (BNQ), dated 2023-03-26 113936-2012-AQ-RGC-RvA, ISO 9001:2015 Certificate, DNV, dated 2023-04-07 Several Certificates of analysis

Variant	Test Method	Corecell™ I-40	Corecell™ I-60	Corecell™ I-80	Corecell™ I-100	Unit
Nominal Density	(1)	45	65	85	105	kg/m <sup>3</sup>
Density Range	(1)	35-54	55 - 75	75 – 95	95 - 115	MPa
Compr. Strength	(2)	0.36 (0.30)**	0.95 (0.73)	1.45 (1.23)	1.90 (1.65)	MPa
Compr. Modulus	(2)	24 (17)	63* (53)	92 (76)	116 (103)	MPa
Shear Strength	(3)	0.46 (0.40)**	0.78 (0.66)	1.10 (0.96)	1.43 (1.18)	MPa
Shear Modulus	(4)	14** (11)	28* (20)	37 (32)	46 (39)	MPa
Shear Elongation	(5)	40 (-)	34 (-)	30 (-)	28 (-)	%
Tensile Strength	(6)	0.75 (0.68)	1.16 (1.08)	1.60 (1.50)	2.00 (1.90)	MPa
Tensile Modulus	(6)	34 (25)	74 (67)	105 (90)	130 (112)	MPa
Heat Resistance	(7)	-	-	-	47	°C

(1) Density according to ISO 845 in kg/m<sup>3</sup>.

(2) Compressive properties according to ISO 844:2014, procedure B in MPa.

(3) Shear strength parallel (0°) to welding lines according to ASTM C273 in MPa.

(4) Shear modulus parallel (0°) to welding lines according to ASTM C273 in MPa.

(5) Shear elongation parallel (0°) to welding lines according to ASTM C273 in %

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(6) Flatwise tensile test according to ASTM D1623 with specimen made of pure foam in MPa.

(7) Heat resistance according to DNV-CP-0084 in °C with a retention of shear strength > 80%

\*The ratio Compr. Modulus / Shear Modulus is less than 2.50, which is not in compliance with requirements from DNV-CP-0084, but is accepted in favour of high shear modulus performance.

\*\* The ratio of minimum values of Compr. strength / Shear strength is less than 1.0, which is not in compliance with requirements from DNV-CP-0084, but is accepted in favour of high shear strength performance.

## Approved production site

Gurit Americas Inc  
555, Boulevard Poirier,  
Magog, Quebec J1X7L1,  
Canada

Gurit Tianjin Composite Material Co., Ltd.  
No.1 Hengtong Road YSP,  
TEDA, Tianjin,  
P.R. China, 301726

## Periodic assessment

In the case of major changes of the approved production processes and methods during the validity time of the Type Approval, the changes shall be reported to DNV. A periodical assessment needs to be carried out 2.5 years after the issue date of the Type Approval, an intermediate inspection of the production workshop(s) might be needed based on the implemented changes. A workshop holding a valid Shop Approval for manufacturing of composite materials is exempted from a periodical assessment.