TYPE APPROVAL

Certificate No.:	Issued:	Valid until:
TA-DNV-CP-0084-08149-0	2022-03-16	2027-03-15

Issued for:

Sandwich Core Material

with type designation(s)

Corecell I-Foam

As specified in Annex 1

Issued to:

Gurit Americas Inc.

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

According to:

DNV-SE-0436:2021-09 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, 2022-03-16

For DNV Renewables Certification

Bente Vestergaard
Service Line Leader

Hamburg, 2022-03-16

For DNV Renewables Certification

Bernhard Krüger
Project Manager

TYPE APPROVAL – ANNEX 1

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 I60 - Corecell I80 - Corecell I100

Type Approval documentation

Technical data sheet(s)	Gurit Corecell I with no. I-4-1021, received on 2021-12-15
Safety data sheet(s)	Corecell I-Foam Product Safety Information Sheet, Version 1.3, dated 2021-08-06
Test report(s)	DNV Type Approval Certification of Gurit Corecell I, TR12330, version 5, dated 2022-03-15
Inspection report(s)	Workshop Inspection Report with no. WIR-08149-000-Rev.0, dated 2022-02-04
Quality control documentation	ISO 9001:2015 with no. 58949-1-01, valid up to 2023-06-06 Several CoAs

Variant	Test Method	Corecell I60	Corecell I80	Corecell I100	Unit
Nominal Density	(1)	65	85	105	kg/m³
Density Range	(1)	55 - 75	75 – 95	95 - 115	MPa
Compr. Strength	(2)	0.95 (0.73)	1.45 (1.23)	1.90 (1.65)	MPa
Compr. Modulus	(2)	63* (53)	92 (76)	116 (103)	MPa
Shear Strength	(3)	0.78 (0.66)	1.10 (0.96)	1.43 (1.18)	MPa
Shear Modulus	(4)	28* (20)	37 (32)	46 (39)	MPa
Shear Elongation	(5)	34 (-)	30 (-)	28 (-)	%
Tensile Strength	(6)	1.16 (1.08)	1.60 (1.50)	2.00 (1.90)	MPa
Tensile Modulus	(6)	74 (67)	105 (90)	130 (112)	MPa
Heat Resistance	(7)	-	-	47	°C

(1) Density according to ISO 845 in kg/m³.

(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 %

(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 for Corecell I 60, which is not in compliance with requirements from DNV-CP-0084, but is accepted in favour of high shear modulus performance.

TYPE APPROVAL – ANNEX 1

Approved production site

Gurit Americas Inc
555 Boul. Poirier
Magog, Quebec J1X 7L1
Canada

Last workshop inspection: 2021-11-30

Periodic assessment

2.5 years after this type approval is issued, the client shall inform DNV about any modifications in production. An intermediate inspection might be needed based on the implemented changes.