

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Sandwich Core Materials

with type designation(s)
Corecell M - Series

Issued to

Gurit Americas Inc.
Magog, QC, Canada

is found to comply with
DNV GL class programme DNVGL-CP-0084 – Type approval – Sandwich core materials

Application :

Manufacturing of sandwich-structured composite.

Issued at **Hamburg** on **2018-05-01**

for **DNV GL**

This Certificate is valid until **2023-04-30**.

DNV GL local station: **Hamburg Materials & Welding**

Approval Engineer: **Guido Michalek**

Thorsten Lohmann
Head of Section

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.



Product description

A cross-linked, closed-cell SAN (styrene-acrylonitrile)-foam core material for sandwich construction.

Approved variants

- Gurit® Corecell M60
- Gurit® Corecell M80
- Gurit® Corecell M100
- Gurit® Corecell M130
- Gurit® Corecell M200

Material Properties

Variant	Nominal Density (1)	Density Range (1)	Compr. Strength (2)	Compr. Modulus (2)	Shear Strength (3)	Shear Modulus (3)	Shear Elongation (4)	Tensile Strength (4)	Tensile Modulus (4)	HRT (5)
M60	65	61 - 69	0.55 (0.33)	45 (35)	0.68 (0.55)	20 (17)	53	0.81 (0.35)	44 (23)	--
M80	85	81 - 89	1.02 (0.80)	71 (57)	1.09 (0.96)	29 (25)	58	1.62 (1.35)	72 (37)	--
M100	107,5	100 - 115	1.55 (1.24)	107 (83)	1.45 (1.26)	41 (34)	52	2.11 (1.72)	109 (53)	--
M130	140	130 - 150	2.31 (1.95)	170 (130)	1.98 (1.75)	59 (49)	43	2.85 (2.30)	176 (84)	45
M200	200	185 - 215	4.40 (3.66)	317 (239)	2.95 (2.64)	98 (81)	20	4.29 (3.44)	334 (155)	--

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

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

(3) Shear properties according to ISO 1922 in MPa.

(4) Shear elongation at break according to ISO 1922 in %.

(4) Tensile properties according to ASTM D 1623 in MPa.

(5) Heat resistance temperature (HRT) in °C where the shear strength is > 80% of the shear at RT.

All values are average values and verified by testing. The values within brackets are minimum values.

Slamming Properties

The core materials M60, M80, M100 and M130 are approved for use in areas exposed to slamming and slamming fatigue.

Slamming grade testing, shear strength according to ASTM C393:

- Corecell M60: 0.76 MPa
- Corecell M130: 2.30 MPa

Limitation

The foam complies with the applicable requirements of DNV GL and is compatible to the laminating resin and/or adhesive. Any significant changes in design and / or quality of the material will render the approval invalid.

Type Approval documentation

- Technical Data Sheet
- Test Report No.11428, issued by the DNV GL accepted testing laboratory (Approval No. GL-LZ 2312 HH) of Gurit Americas, dated 2014-02-27
- Workshop Inspection Report issued by DNV GL, dated 2014-03-10.
- Quality documentation

Assessed production site

Job Id: **262.1-028801-1**
Certificate No: **TAK000017N**

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Periodical assessment

A production site with a valid Approval of Manufacturer (AoM) certificate for material in question is exempted from the obligation concerning retention and renewal assessments.
For manufacturer without a valid AoM a periodical assessment after 2.5 years and at renewal after 5 years is required.

Remarks

ASTM D 1621-73 procedure B and ISO 844:2014 procedure B work on the same technical principle and provide comparable test results.

ASTM C 273 and ISO 1922 work on the same technical principle and provide comparable test results.

This certificate supersedes the Type Approval WP 1410008 HH.

END OF CERTIFICATE