

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Sandwich Core Materials**with type designation(s)  
**Corecell A-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 composites.**Issued at **Hamburg** on **2019-04-18**for **DNV GL**This Certificate is valid until **2023-04-30**.DNV GL local station: **Montreal**Approval Engineer: **Joachim Rehbein****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.



Job Id: **262.1-028801-2**  
Certificate No: **TAK000017S**  
Revision No: **1**

## Product description

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

## Approved variants

- Gurit® Corecell A400
- Gurit® Corecell A500
- Gurit® Corecell A550
- Gurit® Corecell A600
- Gurit® Corecell A800
- Gurit® Corecell A900
- Gurit® Corecell A1200

## 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 (5)	Tensile Modulus (5)	HRT (6)
A400	69	64 - 74	0.62 (0.51)	37 (27)	0.83 (0.70)	22 (18)	71	1.18 (0.95)	56 (41)	--
A500	92	87 - 97	1.01 (0.86)	61 (46)	1.14 (0.98)	32 (27)	67	1.58 (1.30)	84 (63)	--
A550	103	98 - 108	1.23 (1.06)	74 (57)	1.29 (1.11)	37 (31)	66	1.77 (1.47)	98 (74)	--
A600	117	109 - 124	1.52 (1.27)	91 (68)	1.48 (1.25)	43 (36)	64	2.01 (1.64)	117 (86)	--
A800	150	140 - 160	2.36 (1.97)	141 (105)	1.95 (1.64)	60 (50)	58	2.60 (2.11)	166 (122)	--
A900	171	161 - 181	2.95 (2.50)	175 (134)	2.25 (1.92)	71 (60)	55	2.96 (2.44)	198 (148)	--
A1200	210	200 - 220	4.23 (3.65)	251 (195)	2.82 (2.43)	93 (80)	49	3.67 (3.05)	265 (200)	63

(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 properties according to ISO 1922 in MPa.

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

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

(6) 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 are approved for use in areas exposed to slamming and slamming fatigue with the given shear strength:

- Corecell A400: 0.42 MPa
- Corecell A1200: 2.07 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.11425, issued by the DNV GL accepted testing laboratory (Approval No. GL-LZ 2312 HH) of Gurit Americas, dated 2018-04-18.
- Workshop Inspection Report issued by DNV GL, dated 2014-03-10.
- Quality documentation

## Assessed production site

Job Id: **262.1-028801-2**  
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TEDA, Tianjin  
P.R. China

### **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 1410003 HH.

END OF CERTIFICATE