



TYPE APPROVAL CERTIFICATE

Certificate No:
TAK00000ZH
Revision No:
1

This is to certify:

That the Sandwich Core Materials

with type designation(s)
Divinycell® MC

Issued to

DIAB International AB
Laholm, Sweden

is found to comply with

DNV class programme DNV-CP-0084 – Type approval – Sandwich core materials

Application :

Manufacturing of sandwich-structured composites.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Hamburg** on **2023-04-27**

for **DNV**

This Certificate is valid until **2028-04-26**.

DNV local unit: **Sweden Fleet In Service**

Approval Engineer: **Gabi Dau**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Divinycell® MC60 and MC80

Closed cell and highly cross-linked PVC foam modified with polyamide-urea and a ductile linear vinyl polymer.

The following manufacturer's specified values are confirmed by type testing:

Variant	Density Range (1)	Compr. Strength (2)	Compr. Modulus (2)	Shear Strength (3)	Shear Modulus (3)	Tensile Strength (4)	Heat Resistance (5)
MC60	48 - 64	1.15 (0.9)	87 (65)	0.79 (0.63)	21 (17)	> 1.8	≤60
MC80	65 - 84	1.7 (1.4)	125 (95)	1.15 (0.95)	29 (24)	> 2.3	≤50

(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) Flatwise tensile strength according to ASTM C297 with sandwich specimen covered with a polyester/glass respectively an epoxy/glass laminate (nominal value in MPa).

(5) Heat resistance temperature according to DNV-CP-0084; Section 2 – 4.7 in °C.

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

Responsibility

The Company (stated on the front page of this Certificate) takes the responsibility that both design and production are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

Application/Limitation

The foam complies with the applicable requirements of DNV 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.

Assessed production site

DIAB AB
 Norra Sofieroleden 8
 312 32 Laholm
 Sweden

Type Approval documentation

[Technical data sheet](#)

[Test Report issued by DIAB Laholm, based on tests witnessed by a DNV GL surveyor, dated 2017-09-04](#)

[Quality assurance documentation](#)

[Workshop Inspection Report, issued by DNV GL Gothenburg, Sweden](#)

Rev.1:

[Type approval assessment report TA401, dated 2022-02-02](#)

[Test report TR23-02, dated 2023-01-18](#)

[Technical data sheet Divinycell MC, Rev.4 2023-01](#)

[Safety data sheet, Rev.5 2021-05-25](#)

Tests carried out

Type Testing carried out in accordance with Type Approval documentation.

Marking of product

Product shall be marked with *manufacturer's name* and *type designation, dimensions, batch no. and storage instructions*.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV Type Approval Certificate.

Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.



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Periodical assessments for type approvals with a validity period of five years shall be performed according to DNV-CP-0338. 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.

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnvgl.com>

END OF CERTIFICATE