

# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAK000002D**  
Revision No:  
**1**

## This is to certify:

**That the Sandwich Core Materials**

with type designation(s)  
**Divinycell® Matrix 10-8**

Issued to

**DIAB International AB**  
**Laholm, Sweden**

is found to comply with

**DNV rules for classification – Ships**  
**DNV rules for classification – High speed and light craft**  
**DNV class programme DNV-CP-0084 – Type approval – Sandwich core materials**

## Application :

**Core material for sandwich construction. Area of application will be evaluated during approval of classified objects.**

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

Issued at **Hamburg** on **2021-12-15**

for **DNV**

This Certificate is valid until **2026-12-14**.

DNV local station: **Gothenburg FIS**

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® Matrix 10-8

Core material for sandwich construction. A resilient, closed cell, foam sheet consisting of a polymeric alloy of a cross-linked aromatic polyurea and a linear vinyl polymer with dimensional stability at temperatures up to 85°C.

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

Properties	Test Method	Matrix 10-8		
Tensile strength <sup>1)</sup>	ASTM D1623	2,1	MPa	msv
Tensile strength <sup>1)</sup>	ASTM D1623	1,7	MPa	msmv
Tensile modulus <sup>1)</sup>	ASTM D1623	100	MPa	msv
Tensile modulus <sup>1)</sup>	ASTM D1623	75	MPa	msmv
Compressive strength <sup>1)</sup>	ASTM D1621	1,0	MPa	msv
Compressive strength <sup>1)</sup>	ASTM D1621	0,84	MPa	msmv
Compressive modulus <sup>1)</sup>	ASTM D1621-B-73	95	MPa	msv
Compressive modulus <sup>1)</sup>	ASTM D1621-B-73	72	MPa	msmv
Shear strength, 23°C	ASTM C273	0,84	MPa	msv
Shear strength, 23°C	ASTM C273	0,71	MPa	msmv
Shear modulus, 23°C	ASTM C273	22	MPa	msv
Shear modulus, 23°C	ASTM C273	19	MPa	msmv
Shear elongation, 23°C	ASTM C273	25	%	msv
Density	ISO 845	60	kg/m <sup>3</sup>	msv
Density	ISO 845	55	kg/m <sup>3</sup>	msmv

<sup>1)</sup> Perpendicular to the plane. All values measure at 23°C

*Remarks:* Standards used for Type Testing are others than required in the CP/Rules.

## 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.

## 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

DIAB S.p.A.  
 Via Alemagna, 29  
 32013 Faè di Longarone BL  
 Italy

DIAB New Materials (Zhanjiagang) Co., Ltd.  
 No. 56 Nanhai Road, Yangtze River industrial Park  
 215634 Zhangjiagang, Jiangsu Province  
 China

## Type Approval documentation

1. Previous Type Approval Certificate Nos. K-4896 & K-4627.
2. Assessment Report from DNV GL Gothenburg of 2015-01-27.
3. Assessment Report from DNV GL Venice of 2014-12-01.
4. Application for Type Approval of 2015-08-14.

5. Description of changes to certificate, dated 2014-03-17.
6. Various correspondences between DIAB AB and DNV GL during 2014 and 2015.
7. Technical Specification Divinycell Matrix, Rev. 3, March 2012.
8. DIAB Technical Report – TR 11-01 “DNV witness test of Divinycell Matrix” of 2011-03-24.
9. Letters from DIAB AB of 2011-03-09 and 2011-03-24.
10. Application for Type Approval of 2011-03-24.
11. Assessment reports TA401 dated 2019-09-24 Longarone, 2019-09-12 Laholm and 2020-06-03 Zhangjiagang
12. Technical report No. 21-113, dated 2021-11-04
13. TDS rev.14, dated 2018-10 and SDS rev.4, dated 2019-02-10

### Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**.

### Marking of product

Product shall be marked with *manufacturer's name, place of production and type designation*.

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

Periodical assessments will be required after 2 years and after 3.5 years (retention surveys) and for renewal after 5 years (renewal survey).

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