



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAK00000V2**  
Revision No:  
**2**

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## This is to certify:

**That the Sandwich Core Materials**

with type designation(s)  
**Divinycell PN-Series**

Issued to  
**DIAB International AB**  
**Laholm, Sweden**

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

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## Application :

**Manufacturing of sandwich-structured composite.**

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

Issued at **Hamburg** on **2021-09-28**

This Certificate is valid until **2024-11-15**.

DNV local station: **Venice**

Approval Engineer: **Gabi Dau**

for **DNV**

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**Thorsten Lohmann**  
**Head of Section**

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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

PET Foam

## Approved variants

PN 65, PN 80, PN 115, PN 200 and PN 250

## Material Properties

Variant	Density (1)	Compr. Strength (2)	Compr. Modulus (2)	Shear Strength (3)	Shear Modulus (3)	Shear Strength (4)	Shear Modulus (4)
PN 65	65 (60)	0.70 (0.55)	65 (42)	0.45 (0.35)	12.0 (10,0)	-	-
PN 80	80 (75)	1.00 (0.80)	80 (65)	0.60 (0.50)	20 (15)	-	-
PN 115	115 (110)	1.70 (1.35)	115 (85)	0.95 (0.80)	31 (23)	-	-
PN 200	215 (195)	3.8 (3.2)	205 (175)	1.7 (1.4)	60 (53)	1.7 (1.4)	55 (49)
PN 250	265 (235)	4.8 (4.3)	237 (200)	2.3 (1.7)	78 (68)	2.3 (1.7)	68 (65)

(1) Nominal Density according to ISO 845 in kg/m<sup>3</sup>

(2) Compressive properties in accordance with ISO 844:2014, procedure B in MPa.

(3) Shear properties (parallel to welding lines) in accordance with ISO 1922 in MPa.

(4) Shear properties (perpendicular to welding lines) in accordance with ISO 1922 in MPa

The values are nominal values (minimum values within brackets).

## 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.

## Type Approval documentation

### Assessed production site

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

### Periodical assessment

Periodical assessments for type approvals with a validity period of five years will be required after 2 years and after 3.5 years.

If an approval of manufacturer certificate which is still valid for at least one year is available, an exemption from the obligation concerning retention and renewal surveys listed in the class programme will apply.

END OF CERTIFICATE