

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Sandwich Core Materials**with type designation(s)
DIVINYCELL® P-Series

Issued to

DIAB S.P.A.
Longarone BL, Italy

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 **2017-11-02**This Certificate is valid until **2022-11-01**.DNV GL local station: **Venice**Approval Engineer: **Guido Michalek**for **DNV GL**

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 thermoplastic and closed-cell core material (based on PET) for sandwich construction.

Approved variants

- Divinycell® P60
- Divinycell® P100
- Divinycell® P150

Material properties

Variant	Density (1)	Compr. strength (2)	Compr. Modulus (2)	Shear strength (3)	Shear modulus (3)	Shear elongation (3)	Tensile strength (4)	Tensile modulus (4)
Divinycell® P60*)	65 (54)	- (0.45)	65 (29)	- (0.32)	13 (9.50)	- (8)	- (0.80)	- (36)
Divinycell® P100**)	110 (100)	- (1.10)	100 (60)	- (0.69)	28 (22)	- (3)	- (1.35)	- (65)
Divinycell® P150	150 (135)	- (2.00)	152 (115)	- (0.95)	40 (36)	- (3)	- (1.85)	- (110)

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

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

(3) Shear properties in accordance with ISO 1922 in MPa.

(4) Tensile properties according to ASTM D 1623

All values are average values based on nominal density $\pm 5\%$ and verified by testing. The values within brackets are minimum values on the basis of average - 2 stdv.

*) Variant does not meet the requirements for shear strength and therefore approved only for non-structural applications without further permission of DNV GL.

***) Heat resistance of 60°C with a retention of $\geq 80\%$ compressive strength according ISO 844.

Limitation

The core material 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 Type Approval invalid.

Type Approval documentation

- Renewal of Type Approval Certificate No. K-5751.
- Survey Report dated on 2013-09-02 issued by DNV GL Venice.
- Information from DIAB SPA of 2009-04-24, incl. test results for Water Absorption and Heat Resistance.
- Test results from DIAB SPA of 2009-03-18, incl. Data Sheet Minimum Values.
- Technical Data Sheet
- Type Test witnessed results on P120
- P120 data sheet minimum values from DIAB SPA of 2008-09-18

Assessed production site

DIAB S.P.A.
Via Alemagna 29
Longarone, BL 32013
Italy

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.

Job Id: **262.1-007490-3**
Certificate No: **TAK00000ZK**

Remarks

- ISO 844:2014, procedure B and ASTM D 1621-B-73 work on the same technical principle and provide comparable test results.
- ISO 1922 and ASTM C 273 work on the same technical principle and provide comparable test results.

END OF CERTIFICATE