



DET NORSKE VERITAS TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. K-2859

This Certificate consists of 4 pages

This is to certify that the

Sandwich Core Materials

332.40

with type designation(s)

**BALTEK® SB.50, SB.100 & SB.150; LamPrep &
AL-600/10 Surface Qualities;**

**RIGID AND CONTOURKORE® CONTOURABLE
CORES**

Manufactured by

Alcan Baltek Corporation

NORTHVALE, NJ 07647, United States

is found to comply with

Det Norske Veritas' Tentative Rules for Certification and Classification of Boats
1997, Grade 1

Det Norske Veritas' Rules for Classification of High Speed and Light Craft
Nordic Boat Standard 1990, Grade 1

Application

For use in marine vessels according to stated Rules/Standard, with due concern to the specific properties of balsa. Area of application will be evaluated during approval of classified objects.

Place and date
Høvik, 2006-04-05
for Det Norske Veritas
AS

This Certificate is valid until
2009-12-31

John Olav Nøkleby
Head of Section

Local Office
DNV New York

Gisle Hersvik
Surveyor

Product description

BALTEK® SB.50 LamPrep, SB.100 LamPrep & SB.150 LamPrep: micro-sanded end grain balsa.

BALTEK® SB.50 AL-600/10, BALTEK® SB.100 AL-600/10, and BALTEK® SB.150 AL-600/10: resin-coated end grain balsa.

Application/Limitation

The following manufacturer's specified values are confirmed by Type Testing:

Properties	Test Method	SB.50	SB.100	SB.150		
		AL-600/10 & LamPrep, CK & RGD	AL-600/10 & LamPrep, CK & RGD	AL-600/10 & LamPrep, CK & RGD		
Tensile strength, (ortho polyester) ¹⁾	ASTM C 297	2.4	3.5	3.7	MPa	msmv
Tensile strength, (epoxy) ²⁾	ASTM C 297	5.6	8.4	15.6	MPa	msmv
Tensile modulus	ASTM C 297	1 853	3 603	5 357	MPa	msv
Compressive strength, 23°C	ISO 844	4.7	7.1	19.6	MPa	msmv
Compressive modulus, 23°C	ISO 844	1 689	2 900	4 321	MPa	msv

Shear strength	ISO 1922	1.1	1.6	2.5	MPa	msmv
Design shear strength 3)	ISO 1922	0.3	0.5	0.8	MPa	msmv
Shear modulus	ISO 1922	97	159	289	MPa	msv
Shear elongation	ISO 1922	1.2	1.0	0.9	%	msmv
Shear elongation, at design shear strength ³⁾	ISO 1922	0.3	0.3	0.3	%	msv
Water resistance, compression	DIN 50905	53	57	66	%	msv
Water resistance, tensile	DIN 50905	82	89	100	%	msv
Water resistance, shear	DIN 50905	80	88	100	%	msv
Water absorption	ISO 2896	1.4	1.3	1.1	kg/m ²	msmv
Density	ISO 845	101	159	279	kg/m ³	msv
Density	ISO 845	77	102	216	kg/m ³	msmv

1) Tensile strength when laminated to ortho polyester resin.

2) Tensile strength when laminated to epoxy resin.

3) Design shear strength is taken as 0.3*msmv shear strength, and the corresponding shear elongation is determined.

msmv = manufacturer's specified minimum value

msv = manufacturer's specified value (average)

The core shear properties should be derated according to below table when core thickness of more than 12.7 mm is used. The table is based on a good interface between the core and skin laminate.

Core thickness, (mm):	Multiply specified core shear strength by the following factor:
12.7	1.05
19.0	1.00
25.4	0.95
38.1	0.86
50.8	0.77

It is not recommended to extrapolate the reduction factors beyond 50 mm thickness.

Type Approval documentation

Tests carried out

Type Testing carried out according to **Type Approval documentation**.

Marking of product

Product shall be marked with *manufacturer's name*; **Alcan Baltek Corporation, New Jersey, USA** and *type designation*.

Certificate Retention/Renewal Survey

The scope of the Retention/Renewal Survey 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.

Survey to be performed after two (2) years (Certificate Retention Survey) and at renewal after four (4) years (Certificate Renewal Survey).

The main elements of the survey are:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV Type Approval Certificate.

END OF CERTIFICATE

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

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