

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Wood Products

with type designation(s)
dehoflex support blocks, material grade dehonit B740-1®, compressed laminated wood and flexible layers

Issued to

Deutsche Holzveredelung Schmeing GmbH & Co. KG
Kirchhundem, Nordrhein-Westfalen, Germany

is found to comply with

DNV GL rules for classification – Ships

DNV GL class programme DNVGL-CP-0099 – Type approval – Hardwood for tank supports

Application :

Design Assessment of dehoflex block

The dehoflex block design is suitable for supporting independent tanks at cryogenic temperatures for storage of liquefied gas as cargo or for use as fuel, with minimum temperature of the liquified gas at -196°C.

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

Issued at **Høvik** on **2021-03-25**

This Certificate is valid until **2022-05-11**.

for **DNV**

DNV local station: **Gas Carrier Excellence Center**

Approval Engineer: **Matthias Malinowski**

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Monika Johannessen
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

dehoflex support blocks are made from laminated compressed wood, grade B740-1 and thin flexible layers.

Application/Limitation

The dehoflex block is used as supporting material between independent tanks at cryogenic temperatures in the hull structure.

The dehoflex-system will eliminate cracks in the supporting block lines caused by thermal shrinkage of the system. Thermal shrinkage occurs during tank cool down and during operation. High thermal stress endured in the support blocks at these times can result in cracks in the materials.

These high thermal stresses will cause the traditional supporting system to develop cracks that can be eliminated using the new dehoflex system. This is a combination of dehonit B740-1, already used in the cryogenic market as supporting material, (see DNV GL type approval TAK00000UW rev.2), and a flexible layer.

Each single support block is built up with two laminated compressed wood blocks, each with a thickness >70mm and a flexible layer, with thickness app. 4 mm.

In accordance with the manufacture's recommendation, the operating temperature range is -196°C to +100°C.

For further information regarding properties, application and limitations please refer to Technical Data Sheets and instructions as issued by Deutsche Holzveredelung Schmeing GmbH & Co., KG.

A Certificate will be provided with all deliveries of compressed wood.

The validity of this type approval design certificate (TADC) is linked to the validity period of the type approval certificate TAK00000UW rev.2 for its main material: laminated compressed wood, grade B740-1.

Type Approval documentation

Tests carried out

Tests has been carried out in accordance with the **Type Approval documentation**.

Marking of product

The Product/package shall be marked with:

Manufacturer's name: **Deutsche Holzveredelung Schmeing GmbH & Co. KG**

Type designation: **dehoflex block B740-1.**

The marking is to be visible, legible and indelible and must enable traceability of the product to the DNV GL Type Approval Certificate.

END OF CERTIFICATE