

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Adhesive

with type designation(s)
BÜFA-Bonding Paste 0139

Issued to

BÜFA Composite Systems GmbH & Co. KG
RASTEDE, Germany

is found to comply with

DNV GL class programme DNVGL-CP-0086 – Type approval – Adhesive systems
DNV GL rules for classification – Ships

Application :

Fixing Adhesive based on Fiber Reinforced Unsaturated Polyester

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

Issued at **Hamburg** on **2020-11-16**

This Certificate is valid until **2025-11-15**.

for **DNV GL**

DNV GL local station: **Hamburg – CMC North/East**

Approval Engineer: **Gabi Dau**

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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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.



Job Id: **262.1-033594-1**
Certificate No: **TAK0000123**

Product description

BÜFA-Bonding Paste 0139: Duromeric Adhesive

The following properties have been established by type testing of cured resin.

Property	Test Method	Value *	
Lap shear strength	DIN EN 1465	8.3	MPa
Lap shear modulus	DIN EN 1465	952	MPa
Elongation at break	DIN EN 1465	1.9	%
Storage modulus	DIN EN ISO 6721-1	1815	MPa
Temperature at max. Loss modulus	DIN EN ISO 6721-1	17.4	°C
Temperature at max. $\tan \delta$	DIN EN ISO 6721-1	43.4	°C
* mean values			
Note: Lap shear test results is less than values stated in CP-0086			

Approved Variants BÜFA Bonding Paste 0139 and BÜFA Bonding Paste 0141 white
with 1-2% MEKP curing agent

Limitation

Approved for non-structural applications in the maritime industry.

The resin complies with the applicable requirements of DNV GL and is compatible to the fibres, adhesives and core materials. Any significant changes in design and / or quality of the material will render the approval invalid.

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* and *type designation*.

Assessed production site(s)

BÜFA Composite Systems GmbH & Co. KG
Hohe Loohe 2-8
26180 Rastede
Germany

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