



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **F-20680**

This is to certify that the
Thermal and sound insulation material with low flame-spread characteristics

with type designation(s)
Kaiflex ST, Kaiflex HF, Kaiflex KKplus

Issued to
Kaimann GmbH
HÖVELHOF, Germany

is found to comply with
Det Norske Veritas' Interpretation of SOLAS 1974 Convention as Amended
Det Norske Veritas' Offshore Standards
Det Norske Veritas' Rules for Classification of Ships

Application
Approved for use as insulation material of low flame spread characteristics, not generating excessive quantities of smoke nor toxic products in fire.
The materials are not defined as non-combustible

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2014-01-23**

DNV local station: **Essen**

Approval Engineer: **Piotr Orzechowski**

for **Det Norske Veritas AS**

Petter Langnes
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.

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.

Product description

“Kaiflex ST”

is a synthetic rubber based thermoplastic insulation material in the form of plates and tubes with wall thickness range 6 - 50 mm and nominal density of 60 – 110 kg/m³.

When the material is glued to the pipes, ducts, etc., the adhesive Kaiflex glue “Kaiflex Kleber 414” is to be used.

“Kaiflex HF”

composed of elastomeric foam based on a synthetic rubber, thermoplastics and additives. Density of insulation material is approx. 65 kg/m³.

Approved thickness for the insulation material is 6-32 mm.

“Kaiflex KKplus”

is a synthetic rubber based thermoplastic insulation material in the form of plates and tubes with wall thickness range 6 - 50 mm. When the material is glued to the pipes, ducts, etc., the adhesive Kaiflex glue “Kaiflex Spezial Kleber” is to be used.

Pipes insulated with “Kaiflex KKplus” may be supported using “Kaiflex RT” composed from two PU cubes cut into “Kaiflex KKplus”, covered with PVC foil.

Application/Limitation

The product may be used on cold service pipe work/fittings for refrigeration system everywhere onboard, and for pipe work, fittings, air ducts and tanks insulation in cargo areas, mail rooms, baggage rooms and refrigerated compartments of service spaces, and exterior locations (SOLAS II-2/5.3.1.1). (Piping for hot or cold sanitary water can not be considered “cold service pipework/fittings”.)

Any adhesive used, other than the one used during testing, has to be tested for low flame spread characteristics according to IMO 2010 FTP Code part 5.

Extent of application is to be considered and accepted for each case/project.

Each product is to be supplied with its manual for installation and use.

Type Approval documentation

Certification in accordance with Standard for Certification No. 1.2, Type Approval, January 2013.

Test reports Nos.:

- SN02/1856.1 dated 26 February 2002 and No. SN01/1466.2 dated 8 February 2002 from Brandversuchshaus Hamburg, TÜV Nord, Germany (Kaiflex ST)
- 2012-1195 dated 15 February 2012 from Exova Warringtonfire, Frankfurt, Germany (Kaiflex HF)
- SN99.62.1 and SN99.62.2 dated 27 August 1999, and No. SN99.82.1 dated 9 November 1999 from Brandversuchshaus Hamburg, TÜV Nord, Germany.
- SN01/1466.1 dated 18 October 2001 from Brandversuchshaus Hamburg.
- 16-902 058 000/1 dated 16 April 2002 and 16-902 058 000/3 dated 30 September 2002 from Otto Graf Institut, Universität Stuttgart, Germany (Kaiflex KK – new name “Kaiflex KKplus”).

Tests carried out

Tested according to IMO FTPC Part 5 and Annex 2, Item 2.2 and in compliance with IMO 2010 FTP Code Ch. 8.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation and fire-technical rating.

Periodical assessment

DNV’s surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Standard for certification No.

1.2 Type Approval Item 4.