

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

K-FLEX ST and K-FLEX STA

Issued to

**L'Isolante K-Flex S.p.A.
RONCELLO, Italy**

is found to comply with

DNV GL offshore standards**DNV GL rules for classification – 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 material is not defined as non-combustible.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**This Certificate is valid until **2020-12-31**.Issued at **Høvik** on **2016-03-11**DNV GL local station: **Milan**for **DNV GL**Approval Engineer: **Synnøve Bolstad Eri**

**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.

Job Id: **262.1-012247-3**
Certificate No: **TAF000007T**

Product description

"K-FLEX ST" and "K-FLEX STA"

composed of elastomeric foam (composed with acrylonitrile butadiene copolymer, alumine trihydrate and flame retardants) glued on one face of a steel surface with glue "K-Flex 414" for "K-FLEX ST" or acrylic adhesive for "K-FLEX STA".

Nominal density of 55±5 kg/m³.

Max. thickness: 50 mm

Application/Limitation

The products may be used on cold service pipework / fittings for refrigeration system everywhere onboard, and for pipework, 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 and cold sanitary water can not be considered "cold service pipe work/fittings".

Approved for use on a metallic substrate with thickness of at least 0.75 mm.

Approved colour: Black

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 application, use and maintenance.

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, October 2015.

Test report No. 0153\DC\REA\15 dated 27 November 2013 from CSI S.p.A, Italy (K-Flex STA).

Test report No. 0754\DC\REA\13 Rev. 1 dated 27 November 2013 from CSI S.p.A, Italy (K-Flex ST).

Declaration No. 001/2016-DM/nf dated 11 March 2016 from the manufacturer.

Tests carried out

Tested according to IMO 2010 FTP Code part 5 and Annex 2 item 2.2.

Marking of product

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

Periodical assessment

DNV GL'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 DNVGL-CP-0338 Section 4.