

**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 IN Clad**

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**  
**DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations****Application :****Approved for use as insulation material of low flame-spread characteristics.****The material is not defined as non-combustible.****This certificate is recognized by Transport Canada.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2018-08-29**for **DNV GL**This Certificate is valid until **2020-12-31**.DNV GL local station: **Milan**Approval Engineer: **Marius Mørner****Mårten Schei-Nilsson**  
**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: **262.1-012247-7**  
Certificate No: **TAF000007S**  
Revision No: **1**

## Product description

"K-FLEX IN Clad"

Composed of 1 mm thick "K-FLEX IN Clad Rubber foil" (polymeric based rubber with density of 1.6 kg/m<sup>3</sup>) glued to 25 mm K-FLEX ST insulation (elastomeric foam insulation nitrile rubber with density of 55±10 kg/m<sup>3</sup>) with 213A74D Scrim (Polyester Fibers, weave 4x1, density 4.4-4.7 g/m<sup>3</sup>)

Max. thickness: 26 mm

K-FLEX IN Clad Rubber foil (1 mm, density 1.8 kg/m<sup>3</sup>) can be used without K-FLEX ST.

The product is also manufactured at the following premises:

- K-Flex USA, LCC, 100 Nomaco Dr Youngsville, NC, USA

## Application/Limitation

Approved for use as insulation material of low flame-spread characteristics.

"K-FLEX IN Clad" 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 any non-combustible material.

Approved colour (K-FLEX IN Clad Rubber foil): Grey

Approved colour (K-FLEX ST): 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 2017.

Test Report No. 361780 dated 2 March 2016 from Exova Warringtonfire, UK. (K-FLEX IN Clad)

Test Report No. 0643/DC/REA/12\_1 dated 5 November 2012 from CSI S.p.A, Italy. (K-FLEX IN Clad Rubber foil, without K-FLEX ST)

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

## Tests carried out

Tested in accordance with IMO 2010 FTP Code part 5.

## 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.