



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **F-20678**

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

with type designation(s)
AEROFLEX FIRO

Issued to
AEROFLEX Europe GmbH
Ulm, Germany

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

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.

This certificate is recognized by Transport Canada.

This Certificate is valid until **2017-12-31**.

Issued at **Høvik** on **2014-01-21**

DNV local station: **Essen Business Support**

Approval Engineer: **Ragnar Tonjer**

for **Det Norske Veritas AS**



Digitally Signed By: Hoff, Øyvind
Location: DNV Høvik, Norway
Signing Date: 21.01.2014 , on behalf of

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

“AEROFLEX FIRO”

Insulating material in foamed plastic based synthetic rubber, sticked with “AEROSEAL FIRO”.
Total thickness 6mm - 25mm.

Application/Limitation

AEROFLEX FIRO 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".)

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 report no. 2009-1986-2 and 2009-1832-2, dated both dated 2010-01-08 from Exova Brandhaus, Germany.

Tests carried out

Tested according to IMO 2010 FTP Code 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 and type designation.

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled “*Approval Procedures for, Life Saving Equipment and Structural Fire Protection Products (TP 14612)*”, Det Norske Veritas confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.

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.