

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Penetrations through "A" class divisions: pipe, duct, trunk, etc penetrations

with type designation(s)
System Armaflex Protect

Issued to
Armacell GmbH
Münster Nordrhein-Westfalen, Germany

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2017/306**,
Annex A.1, item No. A.1/3.26 and Annex B, Module B in the Directive; SOLAS 74 as amended,
Regulation II-2/9, IMO MSC/Circ.1276 and IMO 2010 FTP Code

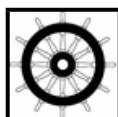
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2022-12-21**.

Issued at **Hamburg** on **2017-12-22**

DNV GL local station:
Essen

Approval Engineer:
Hagen Markus



Notified Body
No.: **0098**

for **DNV GL SE**

Sven Dudzus
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment", signed February 27th, 2004.

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU. This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL SE of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled. Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.



Product description

Pipe penetration system for single pipes fitted with a layer of continuous pipe insulation type "AF/Armaflex AF-4". "AF/Armaflex AF-4", density 45-65 kg/m³, is made of closed-cell elastomeric foam based on synthetic rubber.

Where A-60 class decks or bulkheads are penetrated, the continuous pipe insulation is replaced with local insulation of type "Armaflex Protect" over a length of 1000 mm, equally distributed on each side of the bulkhead. "Armaflex Protect" is made of closed-cell elastomeric foam based on synthetic rubber with intumescent additives, density 134-240 kg/m³.

A circular steel sleeve, minimum length 100 (refer to installation drawings), is welded to the deck or bulkhead opening. Sealant of type "Sika Firesil Marine N" is fitted between the steel sleeve and the "Armaflex Protect" pipe insulation.

The steel sleeve is to be insulated along its entire length on the unexposed (upper) side of the deck. The insulation material shall be of approved type with density 66 kg/m³ or higher and minimum thickness 30 mm.

Application/Limitation

Penetrations for pipes through A class divisions.

Approved pipe size range and pipe material

System Armaflex Protect - A-60 class decks

Pipe material	Pipe outer diameter [mm]	Armaflex Protect	AF/Armaflex AF-4	Sika Firesil Marine N	Steel sleeve
		Average thickness [mm]	Average thickness [mm]	Average thickness [mm]	Wall thickness [mm]
Steel	≥ 15 - ≤ 89	19 - 25	17,0 - 22,5	8,6 - 11	2,9 - 4,0
Copper	≥ 15 - ≤ 54	19 - 25	17,0 - 21,0	8,6 - 11	2,9 - 3,6
Aluminum reinforced polyethylene (PE-Xc/Al/PE-Xc)	≥ 16 - ≤ 20	20	17,5 - 18,0	7,6 - 10	3,6

System Armaflex Protect - A-60 class bulkheads

Pipe material	Pipe outer diameter [mm]	Armaflex Protect	AF/Armaflex AF-4	Sika Firesil Marine N	Steel sleeve
		Average thickness [mm]	Average thickness [mm]	Average thickness [mm]	Wall thickness [mm]
Steel	≥ 15 - ≤ 89	19 - 25	17,0 - 22,5	8,6 - 9,5	2,9 - 4,0
Copper	≥ 12 - ≤ 54	19 - 25	17,0 - 21,0	8,6 - 10,9	2,9 - 4,0
Aluminum reinforced polyethylene (PE-Xc/Al/PE-Xc)	≥ 16 - ≤ 32	20 - 25	17,5 - 19,5	7,6 - 9,7	3,6

Application/Limitation (Continuation)

Job Id: **344.1-007225-1**
Certificate No: **MEDB0000308**

Approved piping systems and installation areas

The pipe insulation material is classified as combustible material.

The application of the insulation material is limited with respect to piping systems and installation areas as follows (ref. SOLAS II-2/Reg. 5.3.1.1):

- cold service systems¹, no limitation.
- other piping systems, limited to cargo areas, mail rooms, baggage rooms and refrigerated compartments of service spaces, and exterior locations

Note

¹ Piping for hot or cold sanitary water is not considered "cold service system".

Type Examination documentation

Tests carried out

Tested according to IMO 2010 FTP Code part 3.

Marking of product

For traceability to this certificate each individual product, that is in conformity with the type described in this EC Type Examination Certificate, is to be marked at least with:

- Manufacturer's name or trade mark
- Type designation
- Mark of Conformity according to Article 10 of the Council Directive (MED)

End of certificate