



# FIRE PROTECTION

The complete solution for pipe penetrations.

 **armacell**<sup>®</sup>



# WHY FIRE PROTECTION IS SO IMPORTANT

On average, 11 people die in fires in the European Union every day. That means around 4,000 fire casualties annually among the 505 million inhabitants of the 28 EU countries. In industry too, fires can have fatal consequences: according to insurers, every third fire leads to damage to property amounting to more than 500,000 euros. All in all, fires cause 126 billion euros of property damage in Europe every year. In many cases, deaths, injuries and major damage to buildings could have been prevented if the fire protection requirements had been implemented correctly.

## Fire protection in buildings saves lives

Preventive fire protection in buildings involves designing, constructing, altering and maintaining building works in such a way that the outbreak of a fire and the spread of smoke and flames is prevented. Furthermore, if a fire occurs it must be possible to rescue people and animals and extinguish the fire effectively.

## Cutting off the path of the fire

In terms of fire protection, building service equipment, such as pipework and ductwork,

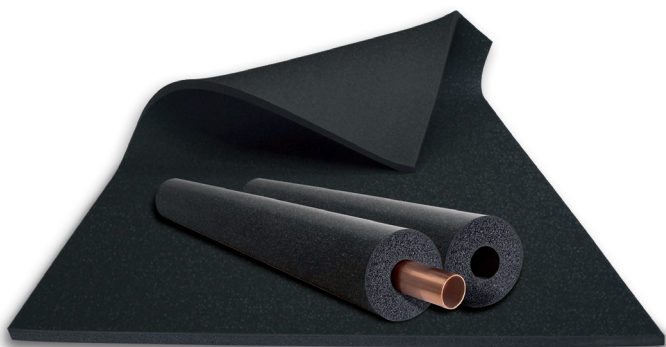
is a potential weak point, because it penetrates separating building elements (walls and ceilings), stairwells and corridors and thus forms a path via which flames and smoke can spread. So, in the event of a fire, pipework has a significant impact on safety in buildings. In a fire, building service equipment can pose a serious threat. Because they are easy to install in a wide range of applications, elastomeric insulation materials with intumescent properties ensure that wall and ceiling penetrations are sealed securely.



11 every day



126 billion €/year



This brochure presents all the Armacell fire protection solutions for wall and ceiling penetrations.

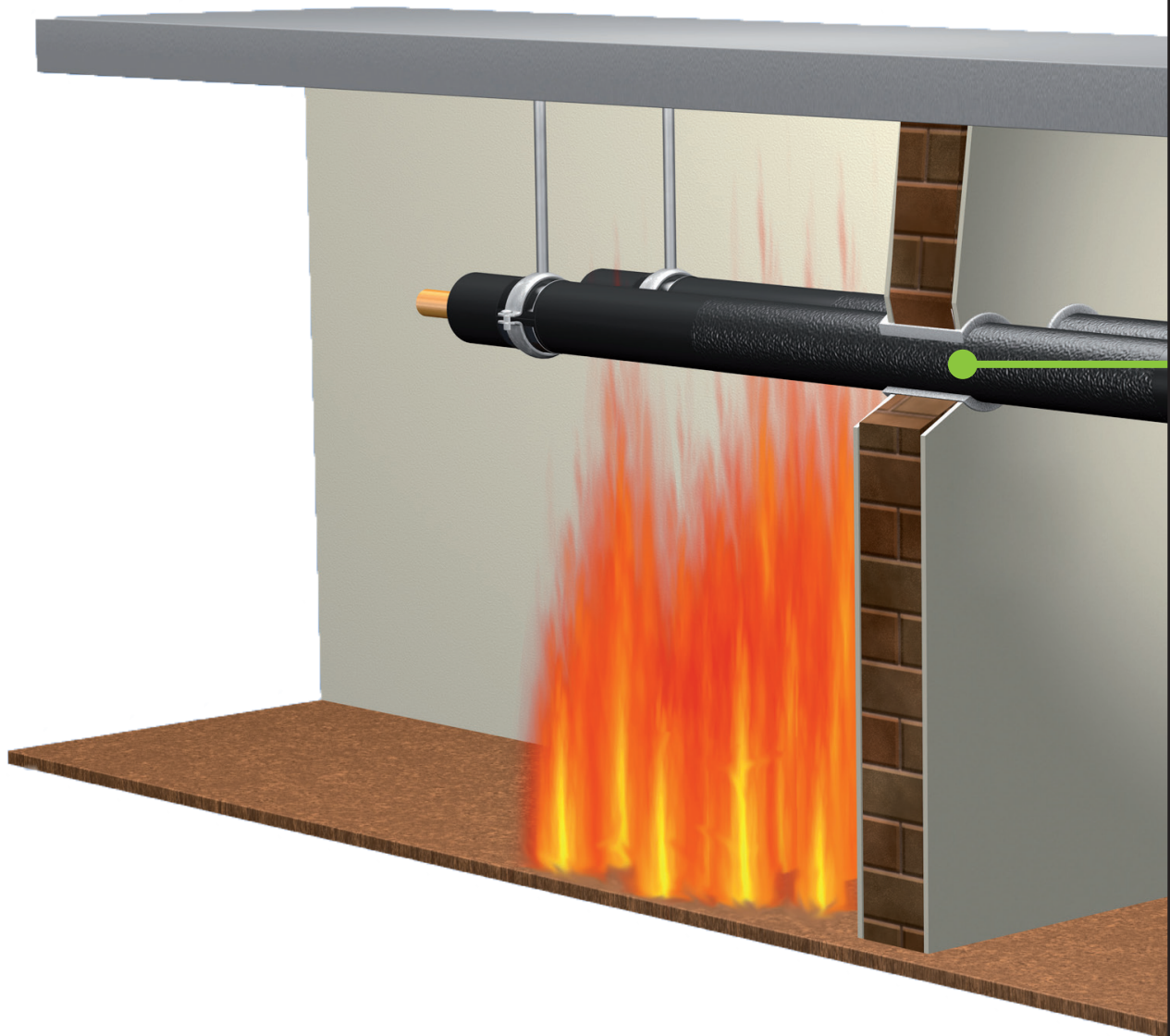
# ARMAFLEX PROTECT

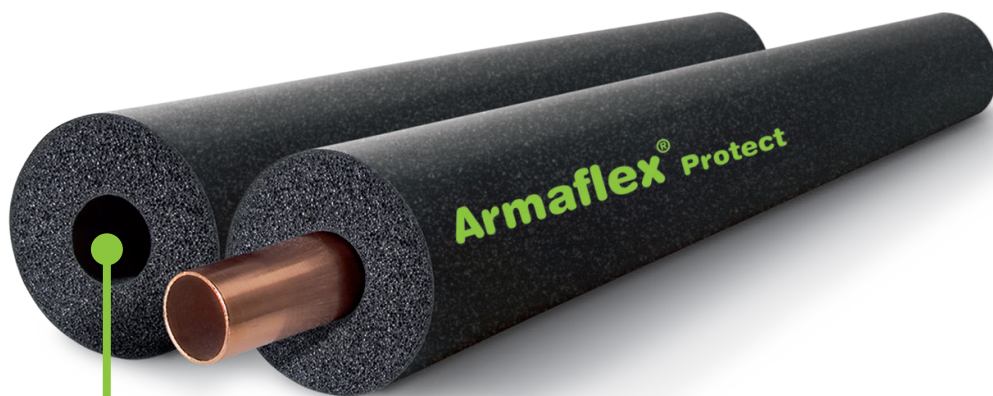
## INSULATION MATERIAL AND FIRE PROTECTION IN ONE

**By combining the proven properties of Armaflex with an intumescent, fireproof component, fire spread is ruled out. Armaflex Protect forms a reliable barrier.**

With Armaflex Protect penetrations for both non-combustible and combustible pipes can be sealed off more simply than ever before. Whether in ceilings, solid walls or

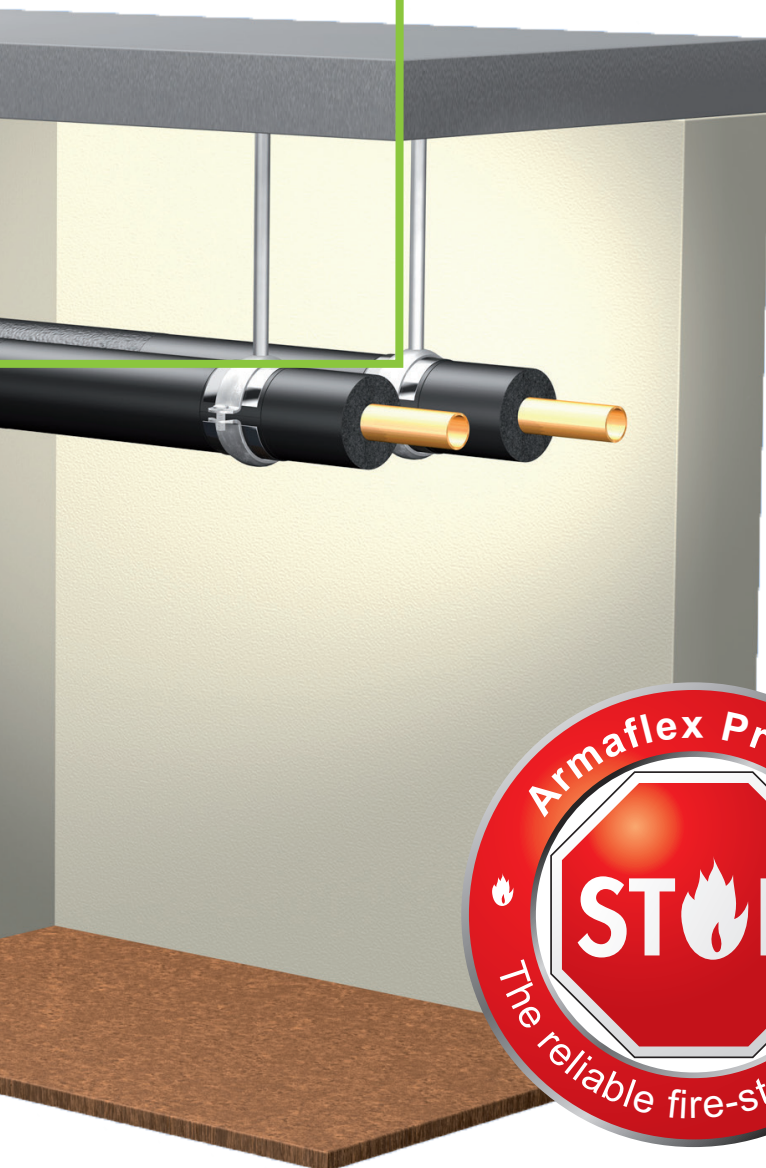
lightweight walls, Armaflex Protect guarantees reliable fire protection in all structural elements without any complicated additional measures. When Armaflex Protect is used, the gap around the pipework can be closed with conventional mortar/filler. At the same time the product ensures effective thermal insulation and reliable condensation control.





#### KEY BENEFITS

- insulation and fire protection in one
- quick and easy to install
- closed-cell structure
- for combustible and non-combustible pipes
- intumescent material, in a fire it expands to up to 1.9 times its initial volume
- perfect for use with adjoining Armaflex insulation products
- full range available - tubes, sheets, from 16 mm to 25 mm insulation thickness
- fire resistance up to EI 120



# ARMAPROTECT 1000

## SEALING THE ANNULAR GAP

**The ArmaproTECT 1000 firestop filler is a fire seal for many different areas of use. The revolutionary aspect of this product is the consistency of the ready-to-use material. It can be applied directly from the bucket using either fingers or a spatula. In this way the annular gap in wall and ceiling penetrations can be sealed quickly, neatly and reliably.**

The non-combustible compound with a melting point of  $>1000\text{ }^{\circ}\text{C}$  not only ensures reliable and effective fire protection, but also protects the pipes against heat losses and prevents noise being transmitted to adjoining structural elements. In applications in which Armaflex Protect is used\*, ArmaproTECT 1000 completes the system perfectly, but it can also be applied directly onto metal or plastic pipes or even electricity cables in wall and ceiling penetrations. The product complies with European standard EN 998-2 and bears the CE marking.

Mortar or casting compounds require time-consuming preparation and follow-up work. Moreover, these materials can only be used on pipes which have already been insulated. Fire protection putty and foam do not provide adequate thermal and acoustic insulation either. Apart from this, the application range of these products is often limited or not transparent due to complicated approval documents. In comparison to traditional product solutions, the ArmaproTECT 1000 firestop filler is unbeatable in its ease of use.

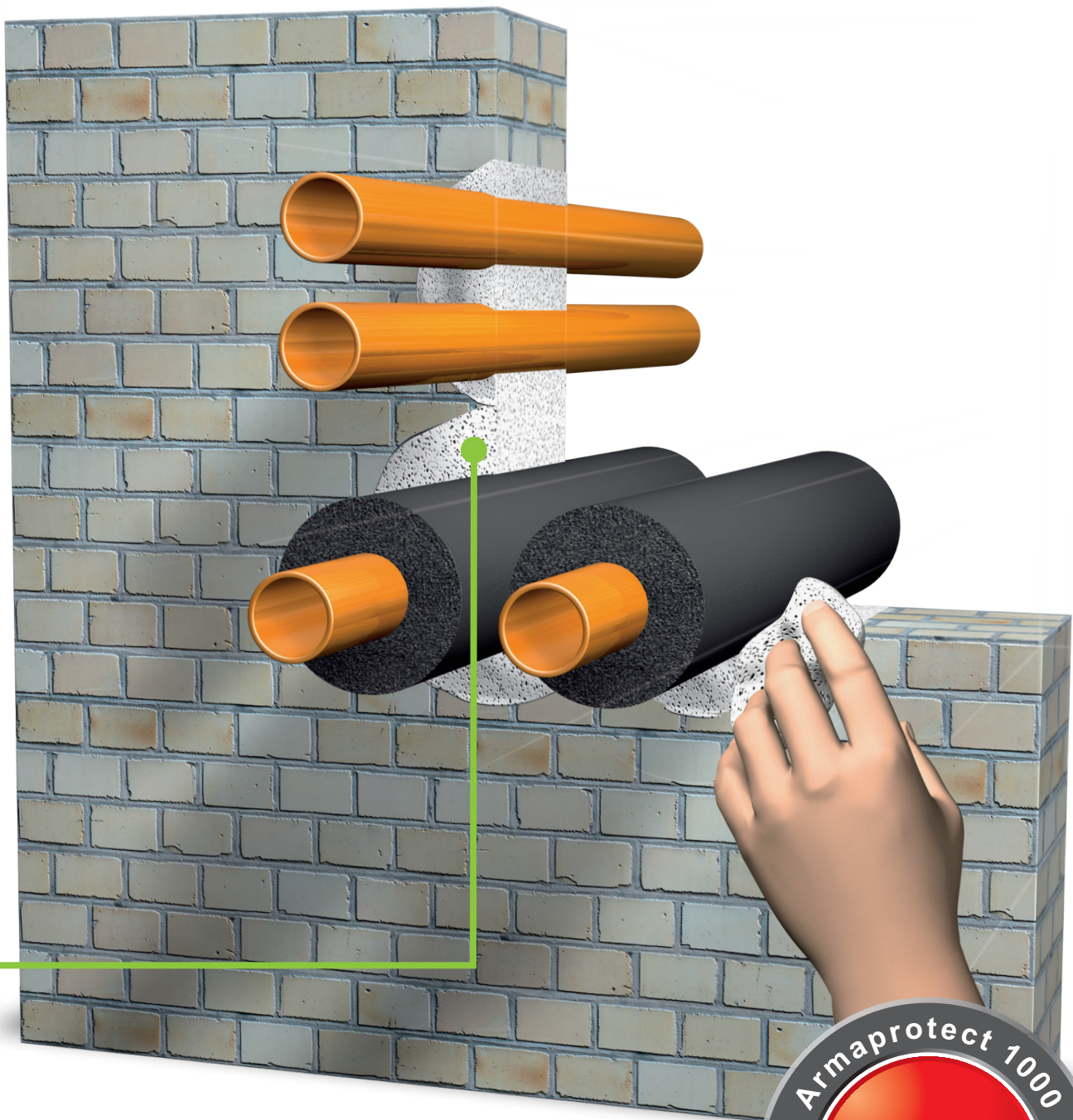
Because it is composed of hollow microspheres in combination with innovative inorganic binding agents, ArmaproTECT 1000 also ensures effective acoustic and thermal insulation. With a thermal conductivity of  $\lambda_{10\text{ }^{\circ}\text{C}} = 0.040\text{ W/(m}\cdot\text{K)}$  it reliably protects the pipes against energy losses. Furthermore, as the German Fraunhofer Institute for Building Physics confirms, this firestop filler reduces the transmission of structure-borne noise substantially.

### KEY BENEFITS

- product ready to use
- fire filler with very good thermal and acoustic properties
- non-combustible
- can be installed with or without insulation
- can be applied without any special tools
- full range available from 0.5l to 5l



\* Only in Germany, not in combination with the ETA



# ARMAPROTECT PP

## SOLUTION FOR PLASTIC PIPES

**Armaprotect PP pipe collars are the solution for fire penetration seals for plastic pipes with and without Armaflex insulation.**

The steel collars are lined with an intumescent material which expands in a fire, forming a lasting hermetic seal. Thanks to the practical latch fastening, Armaprotect collars are easy to install and require little space.

The pipe collar is the solution for sealing single or multiple combustible pipes and multi-use plastic beverage tubes (pythons). It is suitable for refrigeration, air-conditioning, hot and cold-water applications and can be used to seal all common B1 and B2 plastic pipes. The product is approved for com-

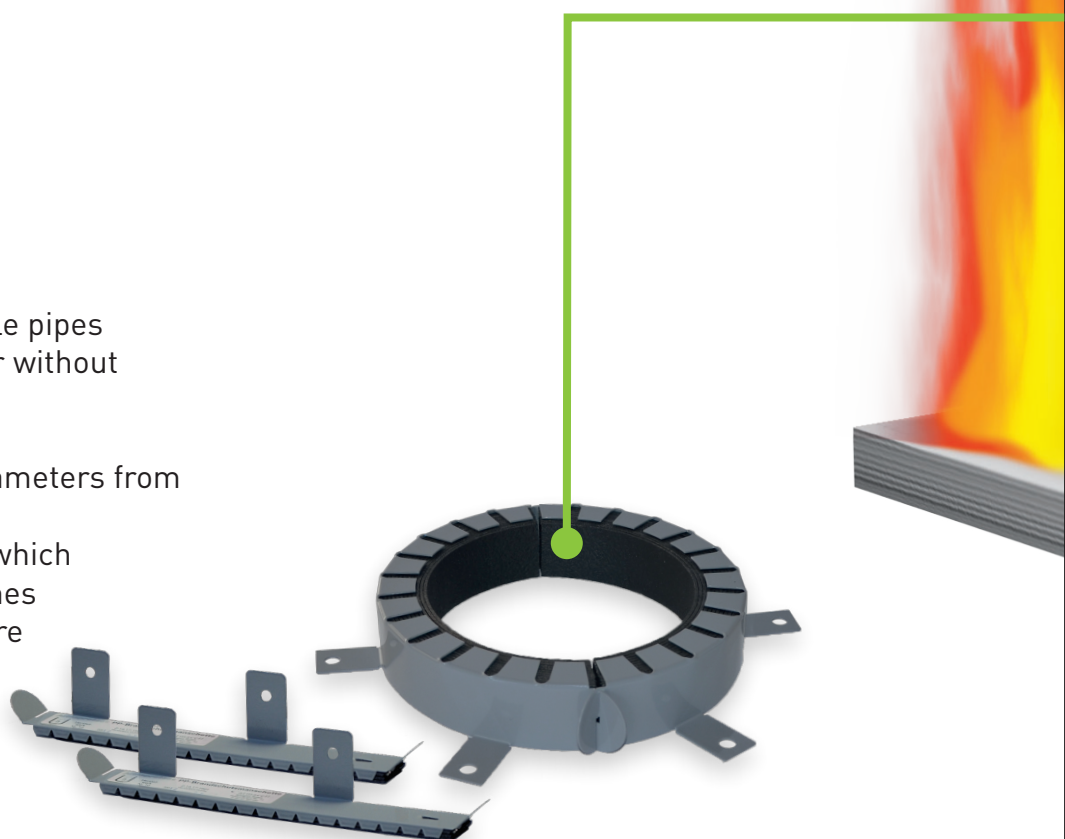
combustible pipes with outer diameters ranging from 32 to 200 mm and for combustible pipes with combustible insulation for pipe outer diameters up to 160 mm and insulation thicknesses of 13 to 43 mm. For further information see Z-19.17-1601.

### Installation

The collar is simply laid around the pipe which is to be sealed and fastened by hand. Then the mounting elements are screwed on or the fixing tabs are bent and mortared into place. Thanks to its compact dimensions, the fire protection collar requires little space and can be installed easily even in spots which are difficult to access. Installation on existing pipes also presents no problems.

### KEY BENEFITS

- easy to install
- solution for combustible pipes
- can be installed with or without insulation
- requires little space
- available with outer diameters from 32 to 200 mm
- intumescent material which expands to up to 18 times its initial volume in a fire



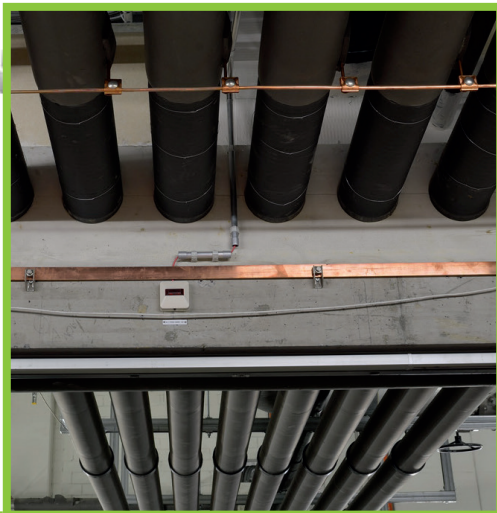


# A PROVEN TRACK RECORD OF FIRE PROTECTION EXCELLENCE



## **European Investment Bank, Luxembourg, Kirchberg.**

On the wall and ceiling penetrations Münzig & Kuhn used Armaflex Protect. 'We were really pleased to see how easy it is to install Armaflex Protect. Even installing sheets on larger pipe diameters is much faster than the time-consuming seals with cellular glass. The vapour-proof interface with the pipe insulation is created using the standard Armaflex installation procedure. This was our first application of Armaflex Protect, and I'm sure it was the first of many,' commented Uwe Kuhn.



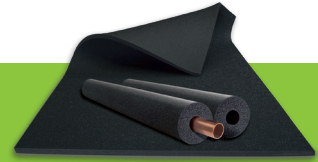
### **Linth-Limmern pumped-storage power plant, Switzerland**

One of the most spectacular projects of our times is currently underway in the Glarus Alps: the "Linthal 2015" project will increase the performance of the Linth-Limmern pumped-storage power plant many times over and allow flexible electricity generation. The flexible fire protection system Armaflex Protect was used for pipe penetrations.

All over the world major engineering companies have specified Armaflex insulation materials for their projects. Here are just a few of the successful projects realized with Armaflex Protect:

- Carl Zeiss GmbH, international group in the optics and optoelectronics sector, new semi-conductor plant and conversion of existing production facilities in Oberkochen and Aalen, Germany
- Cube, office building in the Harbour Münster, Germany
- Vodafone office building, leading telecommunication company in Ratingen, Germany
- Albert Schweitzer Hospital, Dordrecht, the Netherlands
- "Ter Reede", residential and care home for the elderly in Vlissingen, the Netherlands

## Armaflex Protect

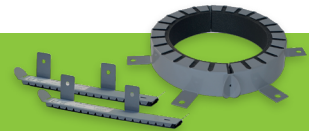


Length 1.0 m

Max. pipe outer-Ø [mm]	Insulation thickness [mm]	Code	m/carton
6	16	PRO-AX-16X006	34
8	16	PRO-AX-16X008	30
10	19	PRO-AX-19X010	18
12	19	PRO-AX-19X012	17
15	19	PRO-AX-19X015	16
16	20	PRO-AX-20X016	14
18	20	PRO-AX-20X018	13
20	20	PRO-AX-20X020	12
22	20	PRO-AX-20X022	12
25	20	PRO-AX-20X025	11
28	25	PRO-AX-25X028	9
32	25	PRO-AX-25X032	8
35	25	PRO-AX-25X035	8
40	25	PRO-AX-25X040	6
42	25	PRO-AX-25X042	6
48	25	PRO-AX-25X048	5
50	25	PRO-AX-25X050	5
54	25	PRO-AX-25X054	5
60	25	PRO-AX-25X060	4
64	25	PRO-AX-25X063	4
76	25	PRO-AX-25X076	4

Code	Roll length [m]	Width [m]	Insulation thickness [mm]	m <sup>2</sup> /carton	Rolls/carton
PRO-AX-13MM/E	6	0.5	13.0	2 x 3	2

## Armaprotect PP



For flameproof sealing of combustible supply / sewage pipes with or without insulation.

Height mm	Outer-Ø pipe or insulation [mm]	Code	Pieces/carton
26	32/34	PRO-PP-032	5
26	40/42	PRO-PP-040	5
26	50/52	PRO-PP-050	5
26	63/65	PRO-PP-063	1
26	75/77	PRO-PP-075	10
26.6	90/92	PRO-PP-090	10
26.6	110/112	PRO-PP-110	10
40	125	PRO-PP-125	2
40	140	PRO-PP-140	2
40	160	PRO-PP-160	2
40	200	PRO-PP-200	2

## Armaprotect 1000



Pro-1000-0,5B in easy-to-handle plastic bag with removable lid, ready to use in plastic buckets

Code	Packaging units	Pieces/carton
PRO-1000-0,5B	0.5 l	20
PRO-1000-1,0	1 l	27
PRO-1000-2,5	2.5 l	12
PRO-1000-5,0	5 l	8



Detailed information on the installation of Armaflex Protect and the relevant regulations can be found in the Armacell fire protection application guide

# TECHNICAL SOLUTION

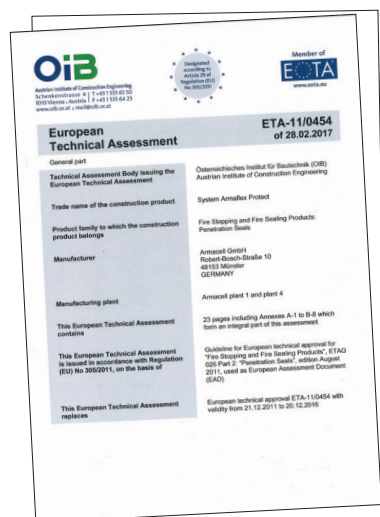
## ARMAFLEX PROTECT FOR PIPE PENETRATIONS

**European Technical Assessment 11/0454 allows the Armaflex Protect fire protection barrier to be sold and installed throughout Europe.**

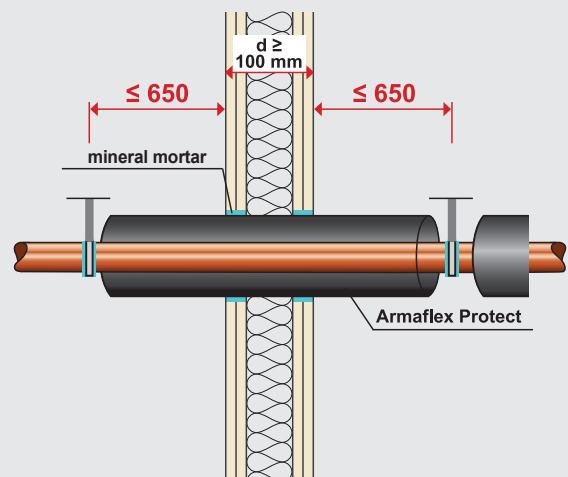
The European Technical Assessment (ETA) provides information about the performance of the product, to be declared in relation to its essential characteristics. This definition is given in the new Construction Products Regulation (EU) No 305/2011 which entered into force on 1 July 2013 in all 28 European member states and those of the European Economic Area, as well as in Switzerland and Turkey.

The ETA is the basis for a Declaration of Performance (DoP) to be drawn up by the

manufacturer. It contributes to establishing confidence in the performance of a construction product related to its essential characteristics, taking into account its intended use. The ETA supports the free movement of construction products and thus the Single European Market. Users of construction products are still responsible for checking the products available on the market and making an appropriate choice to ensure that the entire set of conditions and requirements for the construction works are met.

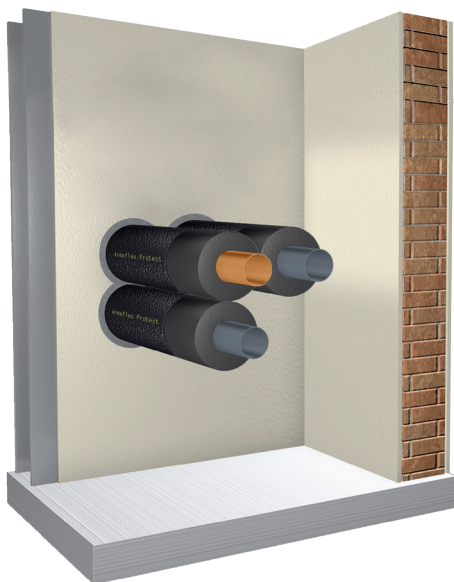


All details about the performance of Armaflex Protect can be found in the ETA approval.



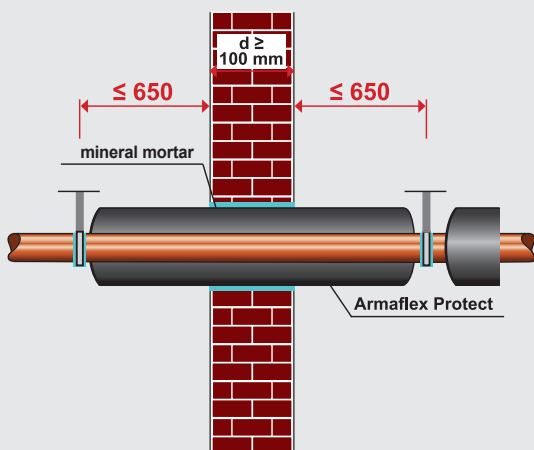
### LIGHTWEIGHT WALL

In fire-rated lightweight walls, Armaflex Protect is installed centrally. The annular gap is closed within the insulation level, conventional filler is used against the gypsum board. Additional strips or protective insulation are not required.



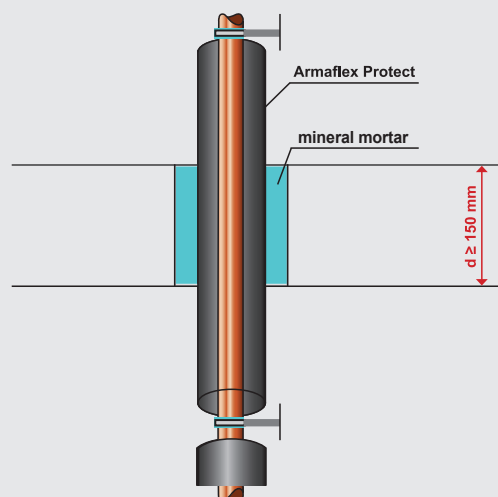
### ZERO CLEARANCE

The ETA allows the fire protection barrier to be installed with zero clearance. According to the ETA it is only necessary to observe a clearance of 100 mm in the case of pipe dimensions  $\geq 89$  mm. These clearance rules are a particular advantage when existing penetrations are sealed, because there is often a lack of space. For more information see the ETA.



### SOLID WALL

In fire-rated solid walls, Armaflex Protect is installed centrally. The gap is closed with ordinary mineral mortar. Additional strips are not required!



### CEILING PENETRATION

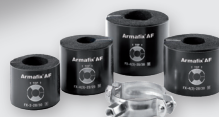
Armaflex Protect can also be installed centrally in ceiling penetrations. Mineral mortar is used to close the remaining gap in the penetration or core-drilled hole.

# COMPLETE SYSTEM

Would you like to know more about Armacell's complete solutions for all construction challenges? Information on all technical aspects can be found on **[www.armacell.eu](http://www.armacell.eu)**



Armaflex insulation



Armafix pipe supports



Armaflex adhesives

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