

## NAME OF PRODUCT

**AXTON TRIO**

## MANUFACTURER

**ACTIS SA**  
**Avenue de Catalogne**  
**11300 Limoux**  
**France**



## PRODUCT DESCRIPTION

AXTON TRIO is a vapour control multifoil product which also acts as insulation material due to its thermal resistance value and high reflective properties.

AXTON TRIO is manufactured from two coated metal reinforced polyolefin films, eight coated metal polyolefin films, six polyolefin foam layers and four layers of polyester fibre wadding. The internal components are fastened together by ultrasonic welding and the external foils are glued each side of the product.

The width of AXTON TRIO is 1.5 m and the thickness is 45 mm. The product is delivered in rolls containing 10 m<sup>2</sup>.

AXTON TRIO is intended for use as a vapour control product and thermal insulation for roofs and walls. The product can be installed either from inside or from outside in tiled or slated pitched roofs. To ensure maximum thermal efficiency, AXTON TRIO must be accompanied by two air gaps of minimum 20 mm.

## CERTIFICATION PROCEDURE

This certificate has been issued by VTT Expert Services Ltd, which is a certification body (S017) accredited by FINAS.

This certificate is based on an initial type assessment of the product, and initial inspection of the factory and the factory production control according to section 3. The general certification procedures are based on the certification system of VTT Expert Services Ltd.

This certificate is valid until August 19, 2019. The conditions of validity are described in section 16.

To check the validity of this certificate, contact the service centre of VTT Expert Services Ltd, Tel. +358 20 722 111, [www.vttextpertservices.fi](http://www.vttextpertservices.fi).

The use of the name of VTT Expert Services Ltd or the name Technical Research Centre of Finland (VTT) in any other form in advertising or distribution in part of this certificate is only permissible with written authorisation from VTT Expert Services Ltd.

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## REGULATIONS, STANDARDS AND INSTRUCTIONS

### 1. Regulations and product requirement standards

In the opinion of VTT Expert Services Ltd, AXTON TRIO, if used in accordance with the provisions of this certificate, will contribute to meet the relevant requirements of the Finnish building regulations as stated in the following:

C2	Moisture, Regulations and Guidelines 1998, in accordance with clause 8 of this certificate
C3	Thermal insulation in a building, Regulations 2010 in accordance with clause 9 of this certificate
C4	Thermal insulation, Guidelines 2003, in accordance with clause 9 of this certificate
E1	Structural fire safety in buildings, Regulations and Guidelines 2011, in accordance with clause 10 of this certificate
EN 13984	Flexible sheets for waterproofing. Plastic and rubber vapour control layers. Definitions and characteristics
EN 16012	Thermal insulation for buildings. Reflective insulation product. Determination of the declared thermal performance

## PRODUCT INFORMATION

### 2. Product description, marking and quality control

**2.1** AXTON TRIO is a reflective water vapour barrier and thermal insulation and consists of total 20 separate elements: two coated metal reinforced polyolefin films, eight coated metal polyolefin films, six polyolefin foams and four layers of polyester fibre wadding. The low emissivity of the two outer faces contributes to the thermal performance of the product when accompanied by two airtight air gaps (see section 9.1 for more details concerning the thermal performance of the product).

**2.2** The product is CE-marked according to EN 13984 as type A vapour control layer.

**2.3** The dimensions and weight of the product are:

Property	Unit	AXTON TRIO
Nominal thickness	mm	45
Nominal weight	g/m <sup>2</sup>	950
Roll length	m	6.66
Width	mm	1500

**2.4** Internal quality control consists of process control and visual inspection of the product, thickness, weight per square meter, strength controls of the product and its raw materials, thermal resistance, emissivity and water tightness.

**2.5** External quality controls are carried out by VTT Expert Services Ltd according to a separate quality control agreement.

### **3. Delivery and storage on site**

**3.1** The product is delivered to the site in free rolls of 10 m<sup>2</sup>. Each roll is labelled with the product name, the name of the manufacturer, the name of the certificate holder if different, the dimensions of the product and information of date of manufacturing.

**3.2** The rolls should be stored in clean, dry conditions not exposed to sunlight in such a way that dirt and dust cannot adhere to the product surfaces. The product must be protected from being dropped or crushed by objects. It must not be exposed to open flame or other ignition sources and must be stored away from flammable material such as solvents.

## **DESIGN INFORMATION**

### **4. General**

The design information given in this certificate is based on the assumption that the construction solutions, fastening methods and other initial data are accordant to this certificate and the given requirements, instructions and standards are followed.

### **5. Installation**

**5.1** AXTON TRIO can be installed on both sides of rafters and/or timber studs (see more detail in appendix A). Installation can be performed in ordinary temperature conditions for building works.

**5.2** AXTON TRIO shall be installed and fixed vertically or horizontally. All joints shall have an overlap of at least 50 mm when installed vertically and 100 mm when installed horizontally and should be sealed with tape recommended for the product in order to avoid water and air infiltration.

**5.3** Sealing of the joints around openings such as roof windows and ventilation pipes shall also be conducted with the adhesive tape. The joint between vertical walls and the floor should be made with a sealing mastic.

**5.4** AXTON TRIO must not be in contact with a chimney, fire or any source of ignition. According to national regulations, a safe distance from chimney must be created by a material resistant to fire.

**5.5** In the case of horizontal installation, cross battens or noggins between rafters are necessary. The product overlapping is implemented by placing the upper layer over the lower layer. After that, the product is stapled every 50 mm on to the cross battens. After stapling the overlaps must be covered with approved adhesive tape in such a way to cover the staples ensuring a hermetic seal.

**5.6** All finished edges should be folded under by 50 mm minimum, stapled every 50 mm and secured with a final batten.

## 6. Structural performance

AXTON TRIO is a non load bearing product. It will resist normal loads associated with installation and use. The product does not resist walking.

## 7. Sound insulation / Acoustical performance

Influence of AXTON TRIO on the sound insulation properties of the constructions has not been evaluated.

## 8. Performance in relation to moisture

**8.1** AXTON TRIO is water vapour tight. Consequently it also acts as a vapour barrier. The water vapour permeability value is presented in the Manufacturer's declaration of performance No DP-AXTON TRIO Version 001 – SP attached as appendix B to this certificate.

**8.2** AXTON TRIO is watertight. Consequently it will resist accidental contact with small amounts of water. Exposure to extreme amounts of water for more than two days should be avoided.

## 9. Thermal insulation performance

**9.1** The thermal performance and outer surfaces emissivity of AXTON TRIO has been measured according to standard EN 16012. The results are given in table 1.

*Table 1. Thermal performance of AXTON TRIO.*

Characteristics		Unit	Value	Standard
Declared Emissivity		-	0.06	EN 16012
Declared R-value	R value of AXTON TRIO insulation system	m <sup>2</sup> K/W	3.2	EN 16012
	Core R value of AXTON TRIO product	m <sup>2</sup> K/W	1.9	

**9.2** The ultimate thermal performance of the product will depend on the construction of the roof or wall on which it is installed. It may be necessary to combine AXTON TRIO with other insulation products to achieve the design U-value required.

**9.3** Calculations of the thermal transmittance (U-value) of specific roof or wall constructions incorporating AXTON TRIO insulation should be carried out in accordance with EN ISO 6946 and using the values given in table 1.

## 10. Performance in case of fire

**10.1** National Building Code of Finland, E1, Structural fire safety in buildings, Regulations and guidelines 2011, give requirements for fire safety of buildings and building products.

**10.2** Reaction of fire class of AXTON TRIO has not been determined.

**10.3** The installation of AXTON TRIO must not be carried over junctions between roofs and compartment walls requiring minimum period of fire resistance. A safe distance from a chimney or flue must be created by a material resistant to fire.

## **11. Durability**

**11.1** AXTON TRIO is root-proof, does not tear easily and when installed as specified, will have a life equivalent to that of the structure in which it is incorporated.

**11.2** Considering the function of vapour barrier, ageing behaviour of AXTON TRIO was tested according to requirements of the standard EN 13984, "Flexible sheets for waterproofing. Plastic and rubber vapour control layers. Definitions and characteristics". The results are in given the Manufacturer's declaration of performance No DP-AXTON TRIO Version 001 – SP.

# **INSTRUCTIONS FOR INSTALLATION AND USE**

## **12. Manufacturer's instructions**

Installation is performed according to the instructions of the manufacturer. The instructions shall be carefully followed in order to achieve the intended functional performance of the construction.

# **TECHNICAL SURVEY**

## **13. Initial assessment**

VTT Expert Services Ltd has performed evaluation based on manufacturer's documentation, test results and calculations. Technical properties has mostly been tested by VTT Expert Services Ltd. Declared thermal performance has been determined by KTU and the declared emissivity by FIW. The results are presented in the text, in table 2 and in the Manufacturer's declaration of performance No DP-AXTON TRIO Version 001 - SP.

Table 2. Test results of AXTON TRIO

PROPERTY	TEST METHOD	UNIT	RESULT
<b>Dimensions</b>			
- length	EN 1848-2	m	6.66
- width		m	1.5
- weight / m <sup>2</sup>	EN 1849-2	g/m <sup>2</sup>	950
- thickness	EN 823	mm	45
<b>Thermal Performance</b>			
R value of AXTON TRIO + two air cavities	EN 16012	m <sup>2</sup> K/W	3.2
R value of material			1.9
Declared emissivity			0.06
<b>The performance of AXTON DUO in relation to the following characteristics is given in the Manufacturers declaration of performance</b>			
Watertightness	<b>see Manufacturer's declaration of performance No DP-AXTON TRIO Version 001 - SP in appendix B</b>		
Resistance to impact			
Durability			
Resistance to tearing (nail shank)			
Joint strength			
Water vapour resistance			
Tensile properties			
Reaction to fire			
<b>Air permeability</b>			
Air permeability	EN 12114		Airtight
<b>Product properties after ageing</b>			
<b>Resistance to tearing, nail shank:</b>			
- longitudinal direction	ageing: 70 °C for 48 h test: EN 12310-1	N	250
- transverse direction		N	200
<b>Joint strength</b>	ageing: 70 °C for 48 h test method EN 12317-2	N/50mm	80
<b>Water tightness</b>	ageing: UV 336 h without water + 70 °C for 90 d test: EN 1928 method A	-	Watertight, W1

## 14. Other materials

**14.1** To ensure effective overlap jointing of AXTON TRIO, corrosion protected staples or nails should be used. After stapling or nailing the joint must be covered with a reflective adhesive tape. A reflective adhesive tape should also be used when a joint is made between AXTON TRIO and another building element such as a wall or floor. Minor tears in the product should be repaired with reflective adhesive tape.

**14.2** A sharp blade or scissors is recommended for cutting AXTON TRIO to the desired dimensions.

**14.3** In the case of horizontal installation intermediate battens or noggins are recommended to support over lap joints.



## VALIDITY OF THE CERTIFICATE

### 15. Validity period of the certificate

This certificate is valid until August 19, 2019.

The validity of the certificate will expire, if European technical assessment, ETA, covering the intended use of the product as insulation material is issued to the product or if a harmonized standard (hEN) covering this type of insulation material is published in which case this certificate will expire the date the coexistence period of the harmonized standard ends.

### 16. Conditions of validity

The certificate is valid assuming that no fundamental changes are made to the product, and that the manufacturer has a valid contract on certification. Inquiries concerning the validity of the certificate may be addressed to VTT Expert Services Ltd, [www.vttexpertservices.fi](http://www.vttexpertservices.fi).

### 17. Other conditions

The references made in this certificate to standards and instructions are valid in the format used at the time the certificate was awarded.

The recommendations in this certificate concerning the safe use of this product are minimum requirements that shall be satisfied when using the product. The certificate does not override current or future requirements imposed by laws and statutes. In addition to the issues presented in this certificate, design, manufacturing and use shall follow appropriate construction methods.

The manufacturer is in charge of the product's quality and factory production control. In awarding this certificate, VTT Expert Services Ltd does not bind itself to indemnification liability concerning personal injury or other damage that may directly or indirectly result from using the product described in this certificate.

VTT Expert Services Ltd finds AXTON TRIO to be suitable for use in construction as described in this certificate. This certificate no. VTT-C-11216-14 has been awarded as described above to ACTIS SA.

On behalf of VTT Expert Services Ltd on August 19, 2014



Tiina Ala-Outinen  
Business Manager



Tiina Tirkkonen  
Senior Expert



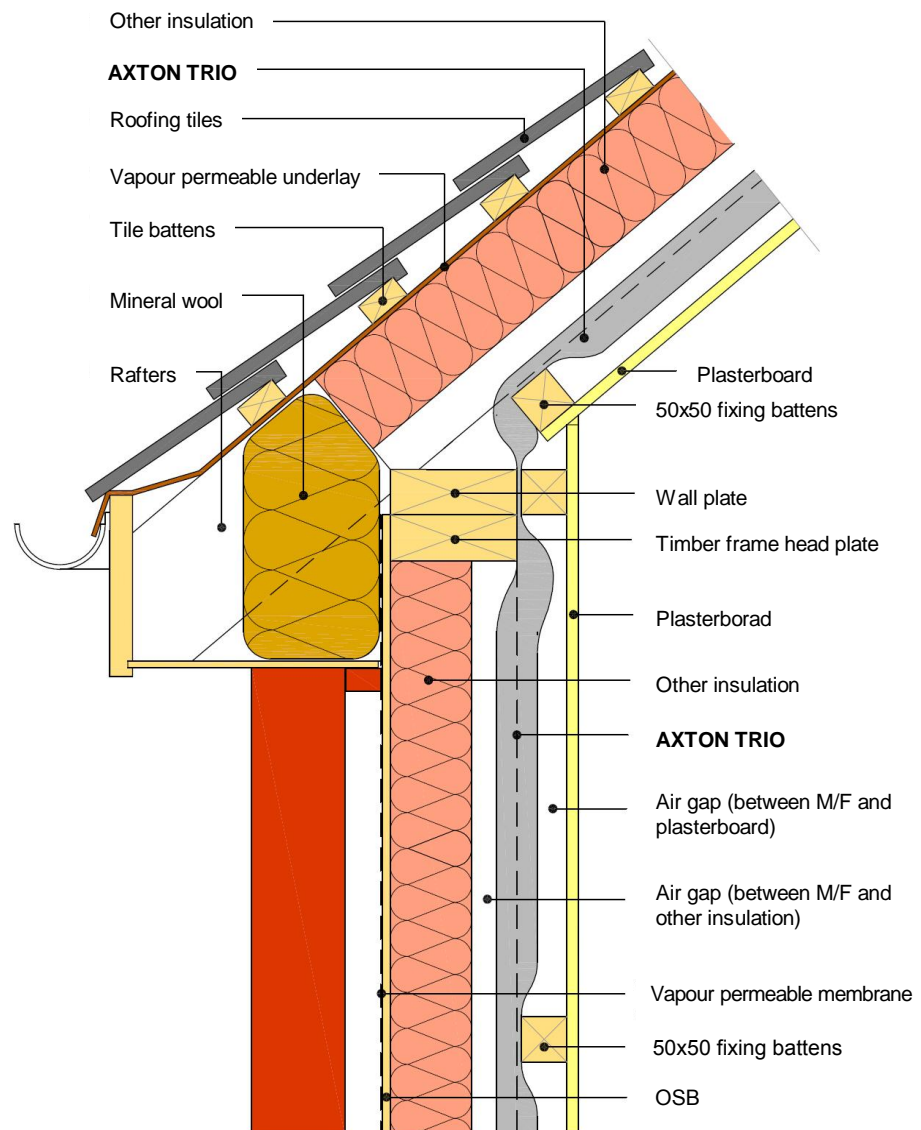
## APPENDIX A: INSULATION PROCEDURE

### I. INSTALLATION OF AXTON TRIO IN ROOF SYSTEMS

The product is for use over and / or under rafters.

#### a) Installation of AXTON TRIO under rafters

When installed under rafters, AXTON TRIO also performs as a vapour barrier in the roof system. The use of a vapour permeable roof tile underlay in conjunction with AXTON TRIO is then recommended to ensure a non ventilated air gap above the product. Typical examples of AXTON TRIO installation under rafters is given in Figures 1 and 2.



(a) eaves detail – under rafter and timber frame wall with additional insulation

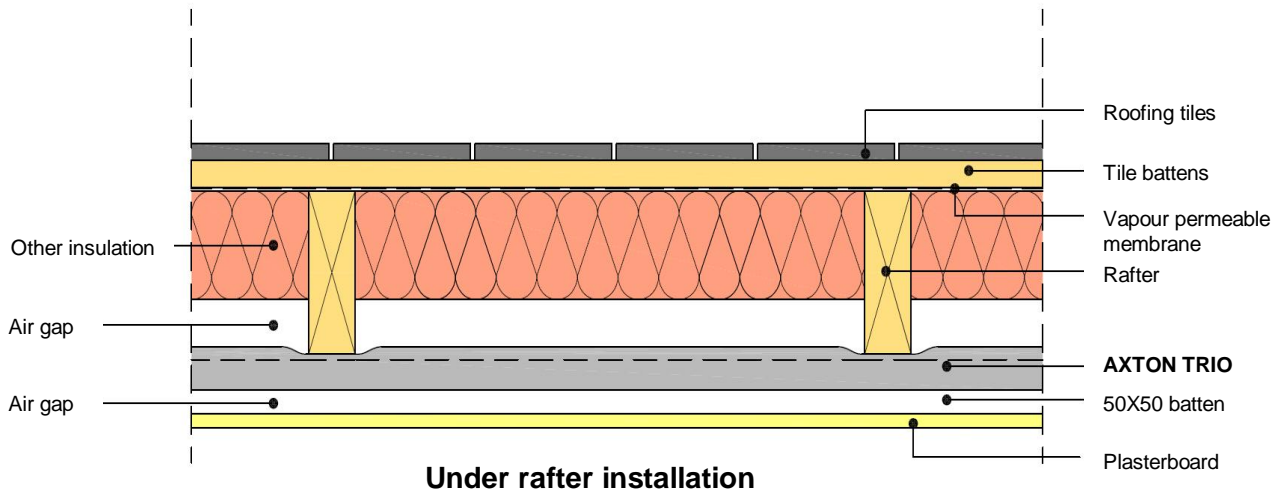


Figure 1. Installation procedure of AXTON TRIO under rafters

If required AXTON TRIO can be used in conjunction with another insulation product to achieve the design U-value. In case of using AXTON TRIO in conjunction with a fibrous insulation, if the fibrous insulation includes an integrated vapour barrier layer,

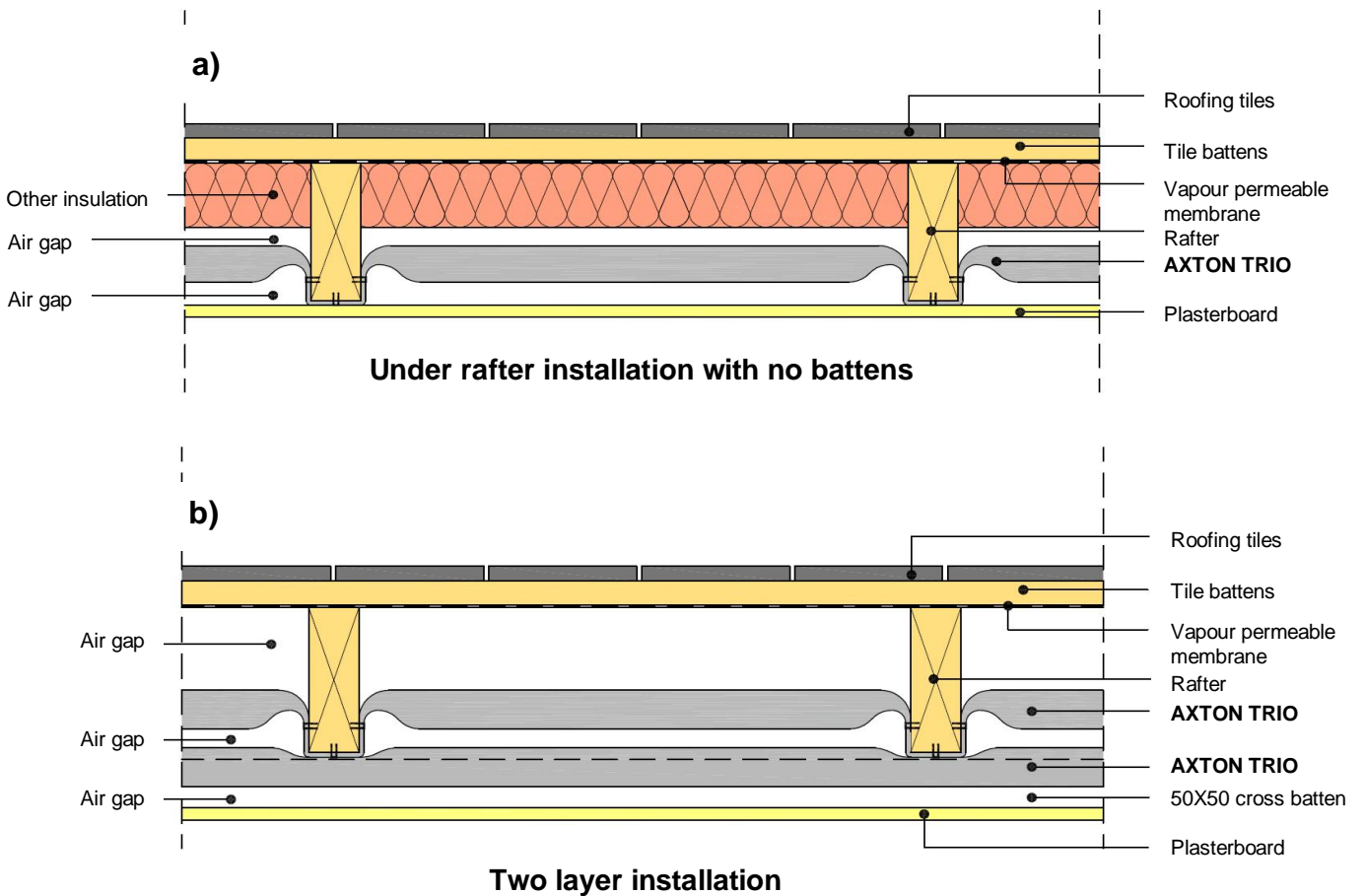
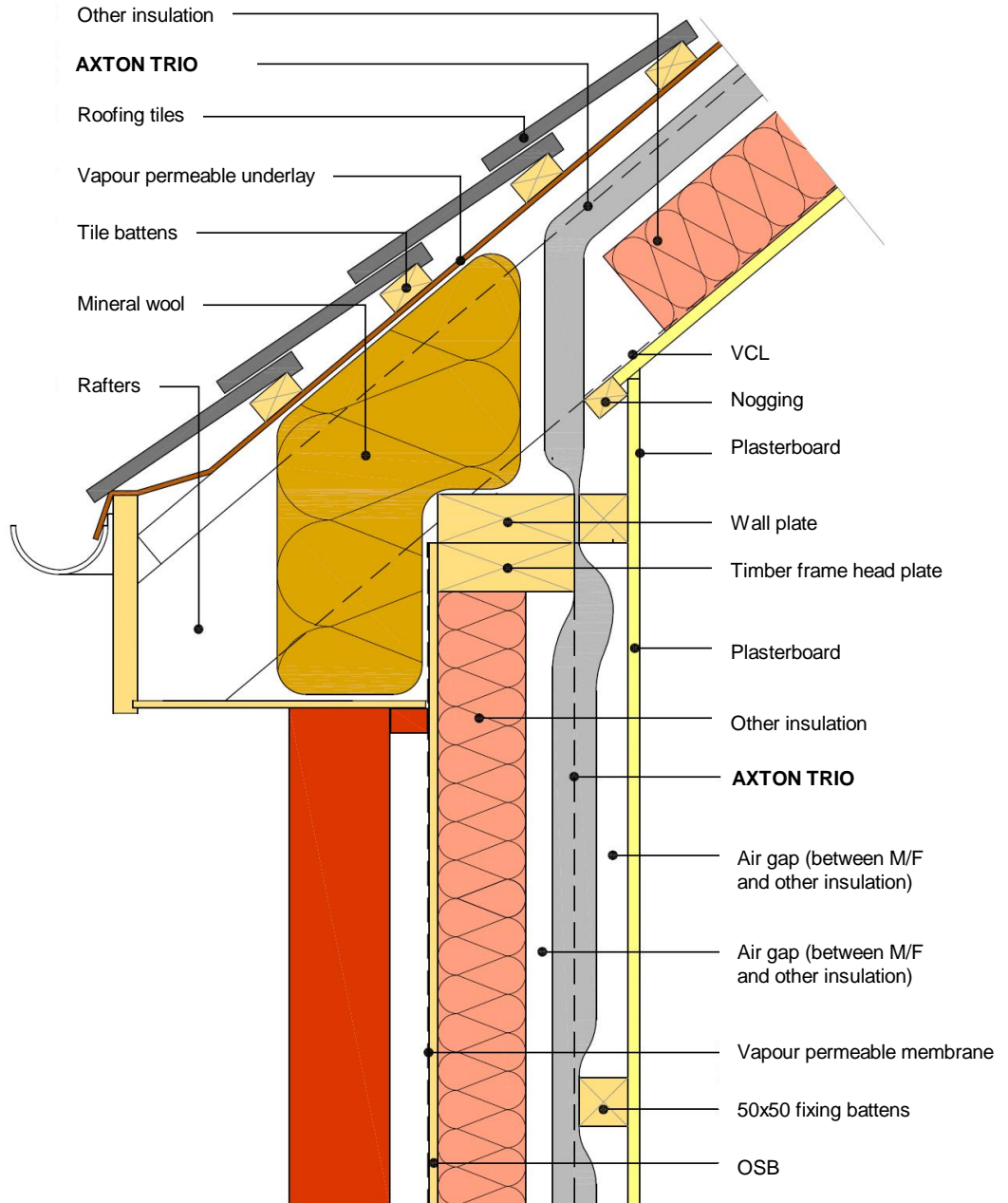


Figure 2. Installation of AXTON TRIO below rafters a) with no battens and b) in two layers

**b) Installation of AXTON TRIO over the rafters**

AXTON TRIO can also be installed over the rafters. The use of a vapour permeable roof tile underlay in conjunction with AXTON TRIO is then recommended to ensure a non ventilated air gap above the product.



**(b) eaves detail – over rafter and timber frame wall with additional insulation**

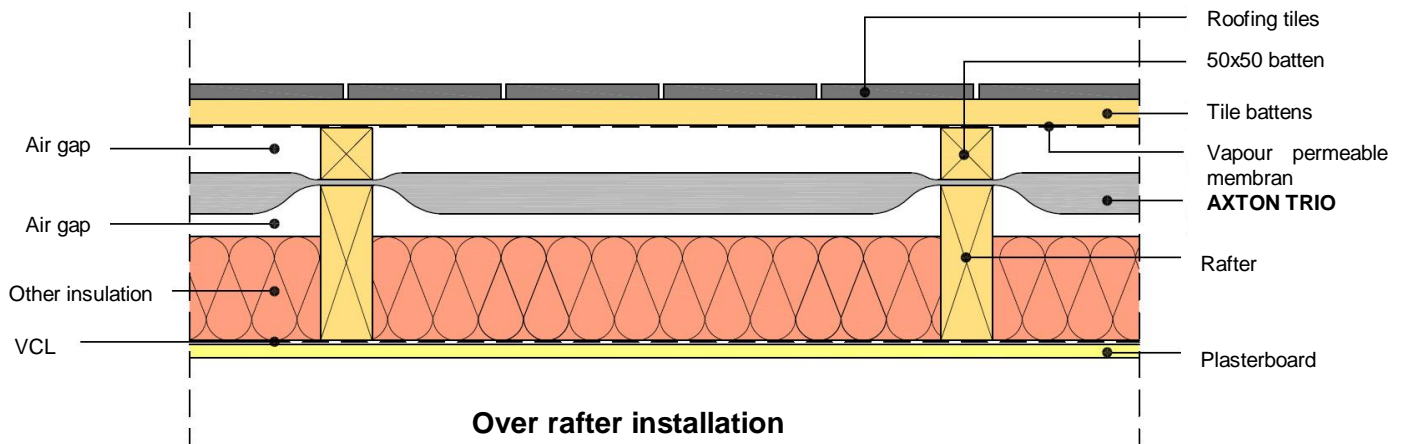


Figure 3. Installation of AXTON TRIO over the rafters

If required AXTON TRIO can be used in conjunction with another insulation product to achieve the design U-value.

**II. INSTALLATION OF AXTON TRIO IN WALL SYSTEMS**

The product can be installed on timber studs or battens either horizontally or vertically.

All joints must have an overlap of at least 50mm when installed vertically and 100mm when installed horizontally. The product is fastened with corrosion protected nails or staples and it must be sealed with the reflective tape recommended for the product. In the case of installation on metal frame, double sided tape should be used.

**a) Installation of AXTON TRIO on timber frame walls**

AXTON TRIO also performs as a vapour barrier in the wall system.

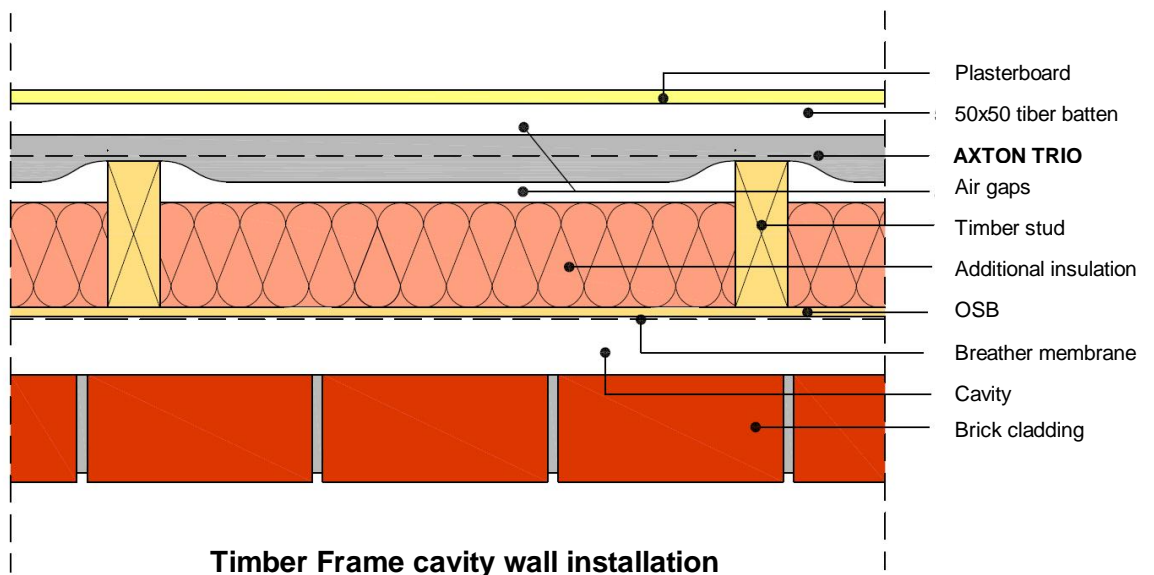
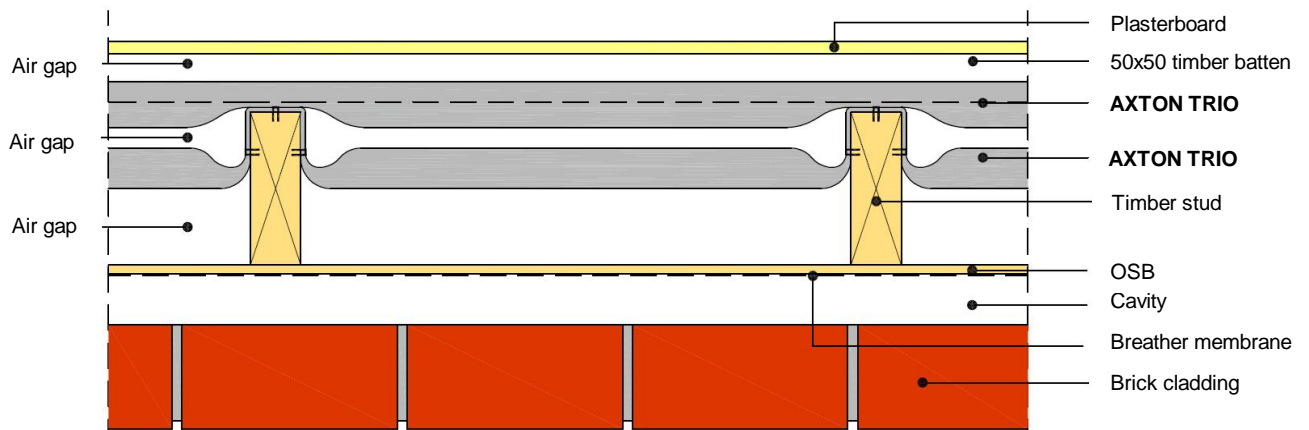


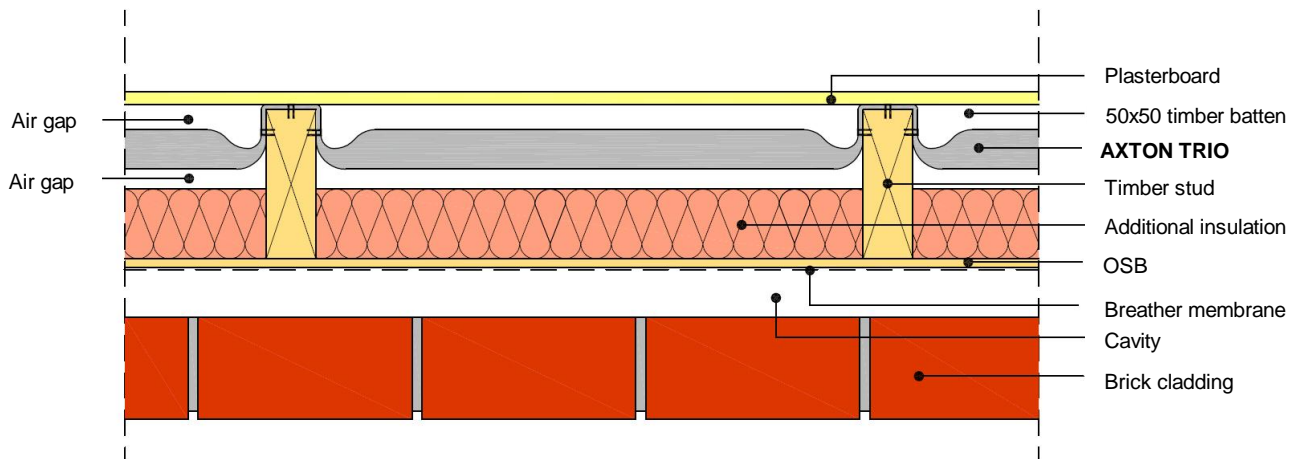
Figure 4. Installation of AXTON TRIO on timber frame wall

If the design U-value is not achieved, AXTON TRIO can be used in conjunction with another insulation product. In case of using AXTON TRIO in conjunction with a fibrous insulation, if the fibrous insulation integrates a vapour barrier layer, then that vapour barrier layer must be slashed or removed. AXTON TRIO must be always on the inner side of the wall.



**Timber Frame cavity wall installation with two layers**

Figure 5. Installation of two layers of AXTON TRIO on timber frame wall



**Timber Frame cavity wall installation with no battens**

Figure 6. Installation of AXTON TRIO with no battens on timber frame wall

**b) Installation of AXTON TRIO on masonry walls**

The installation of AXTON TRIO on masonry walls is preceded by the installation of support battens (see figure 7).

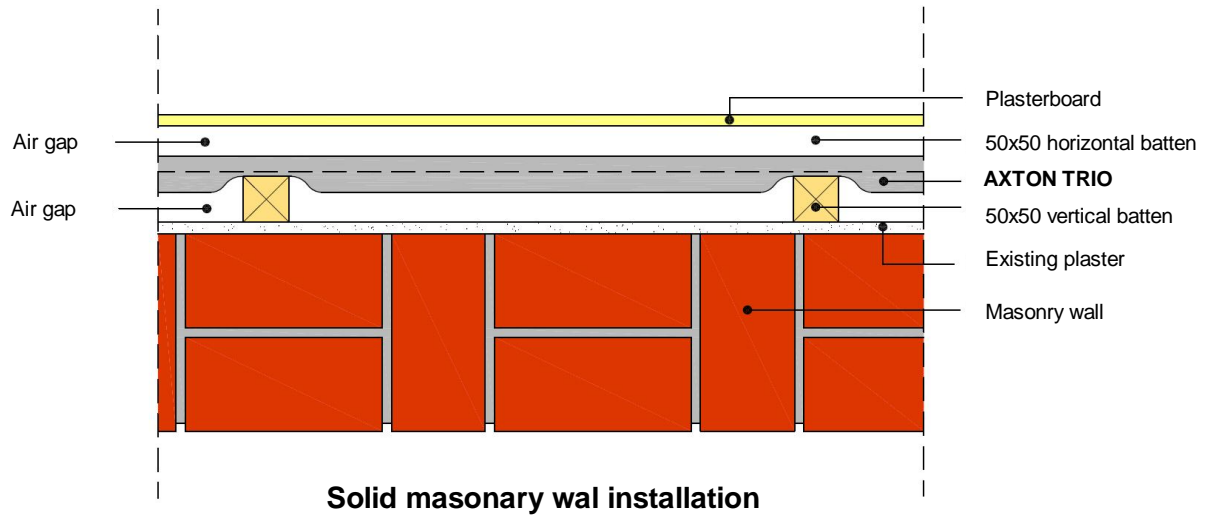


Figure 7. Installation of AXTON TRIO on masonry wall



## APPENDIX B:

# DECLARACIÓN DE PRESTACIONES

## N° DP-AXTON TRIO

Versión 001 - SP

1. Código de identificación único del producto tipo: **AXTON TRIO**
2. Número de tipo, de lote o de serie, o de cualquier otro elemento que permita la identificación del producto de construcción, como se establece en el artículo 11, apartado 4:  
**AXTON TRIO**
3. Uso o usos previstos del producto de construcción, conforme a la especificación técnica armonizada aplicable, tal como lo establece el fabricante:

**Lámina de plástico y elastómero utilizada para el control de vapor (Tipo A).**

4. Nombre, razón social o marca registrada y dirección de contacto del fabricante según lo dispuesto en el artículo 11, apartado 5:

**ACTIS S.A.**  
Avenue de Catalogne  
F-11300 Limoux  
Francia  
[www.actis-isolation.com](http://www.actis-isolation.com)

5. En su caso, nombre y dirección del contacto del representante autorizado cuyo mandato abarca las tareas especificadas en el artículo 12, apartado 2:  
No aplicable
6. Sistema o sistemas de evaluación y de verificación de la constancia de las prestaciones del producto de construcción tal como figura en el anexo V:  
**Sistema 3**
7. En caso de declaración de prestaciones relativa a un producto de construcción cubierto por una norma armonizada:

El laboratorio **VTT Technical Research Centre of Finland**, organismo notificado n° 0809, determinó el tipo de producto en base a los ensayos de tipo, según el **sistema 3**. El laboratorio ha emitido los correspondientes informes de ensayos.

8. En caso de declaración de prestaciones relativa a un producto de construcción para el que se ha emitido una evaluación técnica europea:  
**No aplicable**

# DECLARACIÓN DE PRESTACIONES

## N° DP-AXTON TRIO

Versión 001 - SP

## 9. Prestaciones declaradas:

Características esenciales		Prestaciones	Especificaciones técnicas armonizadas
		AXTON TRIO	
Reacción al fuego		F	EN 13984: 2012
Estanqueidad al agua		Estanco a 2 kPa	
Propiedades de transmisión del vapor de agua		Sd > 200 m	
Resistencia al choque		NPD	
Resistencia al cizallamiento de las juntas		> 50 N/50mm	
Resistencia en tracción	Fuerza de tracción máxima - sentido longitudinal - sentido transversal	> 300 N/50mm > 200 N/50mm	
	Alargamiento - sentido longitudinal - sentido transversal	> 20 % > 5 %	
Resistencia al desgarro con clavo - sentido longitudinal - sentido transversal		> 150 N > 150 N	
Durabilidad	Después del envejecimiento	Ensayo logrado	
	En un medio alcalino	NPD	
Sustancias peligrosas		(1)	
(1) Los productos no deben liberar ninguna sustancia peligrosa reglamentada cuyos valores de emisión sobrepasen los niveles máximos admisibles especificados en las reglamentaciones europeas o nacionales. Están en proceso de elaboración métodos de ensayo europeos.			

10. Las prestaciones del producto identificado en los puntos 1 y 2 son conformes con las prestaciones declaradas en el punto 9.

La presente declaración de prestaciones se emite bajo la sola responsabilidad del fabricante identificado en el punto 4.

Firmado por y en nombre del fabricante por:

Laurent THIERRY  
Presidente Director General

Hecho en Limoux, el 18/07/14

