

# PRODUCT CERTIFICATE

## NAME OF PRODUCT

Knauf Insulation Fire Insulation System for ventilation ducts

## MANUFACTURER

Knauf Insulation d.o.o.  
Varaždinska 140  
Novi Marof  
42220 Croatia



## PRODUCT DESCRIPTION

Knauf Insulation Fire Insulation System consists of Fire-teK WM 908 GGA (silver coat), Fire-teK WM 908 GGB (black coat) and Fire-teK BD 908 ALU and Fire-teK BD 912 ALU, Fire-teK WM 910 GGB, Fire-teK BD 907 ALB insulations and specified fastenings and sealants.

Fire-teK WM 908 GGA and Fire-teK WM 908 GGB, Fire-teK WM 910 GGB is used for fire insulation of circular ventilation ducts and Fire-teK BD 908 ALU and Fire-teK BD 912 ALU, Fire-teK BD 907 ALB is used for insulation of rectangular ducts.

Fire-teK WM 908 GGA and Fire-teK WM 908 GGB insulations with ECOSE® technology are wired mineral wool mats with glass fibre reinforced aluminium coating. Fire-teK BD 908 ALU and Fire-teK BD 912 ALU are glass fibre reinforced aluminium coated slabs. In this certificate the installation principles and fire resistance capability of the assembled system for four insulation thicknesses, 40mm, 60 mm, 80 mm and 100 mm, is presented. The suitable product thickness for each application is selected based on the required fire resistance class of the ventilation duct.

CE-marking according to EN 14303 does not cover the intended use of technical insulations as fire insulations.

## CERTIFICATION PROCEDURE

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

This certificate is based on certification criteria no. SERT R045/15 including an initial type assessment of the product application and quality assurance according to section 3. The general certification procedures are based on the certification system of Eurofins Expert Services Oy.

The conditions of validity of this certificate are described in section 11.

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## REGULATIONS, STANDARDS AND INSTRUCTIONS

### 1 Regulations and product requirement standards

In the opinion of Eurofins Expert Services Oy, Knauf Insulation Fire Insulation System for ventilation ducts, if used in accordance with the provisions of this certificate, will contribute to meet the relevant requirements of the Finnish building legislation as stated in the following:

- 848/2017 Decree of the Ministry of the Environment on the Fire safety of Buildings
- 927/2020 Change of the Decree of the Ministry of the Environment on the Fire safety of Buildings

### 2 Other standards and instructions

The following European standards also have relevance for the use of insulation system (any nationally determined parameters shall separately be considered):

- SFS 3978 Insulation of pipes, vessels and equipment. Application of thermal insulation, paragraph 4.
- EN 14303 Thermal insulation for building equipment and industrial installations – Factory made mineral wool (MW) products - Specification
- SERT R045/15 Eurofins Expert Services Oy certification principles based on tests according to EN 1366-1 and partly applying EXAP EN 15882-1:2011.

Ilmanvaihtolaitosten paloturvallisuus -opas, updated 2.10.2020

## PRODUCT INFORMATION

### 3 Product description, marking and quality control

In the ventilation duct fire insulation system covered by this certificate, the following products are used:

Mineral wool insulation	Fire-teK WM 908 GGA, product thickness 60 mm, 80 mm and 100 mm
Mineral wool insulation	Fire-teK WM 908 GGB, product thickness 60 mm, 80 mm and 100 mm
Mineral wool insulation	Fire-teK BD 908 ALU, product thickness 60 mm
Mineral wool insulation	Fire-teK BD 912 ALU, product thickness 60 mm
Mineral wool insulation	Fire-teK WM 910 GGB, product thickness 40 mm
Mineral wool insulation	Fire-teK BD 907 ALB, product thickness 60 mm and Fire-teK BD 918, product thickness 30 mm
Opening insulation	Stone wool, nominal density 80 kg/m <sup>3</sup>
Opening sealing	Silicate glue FireSTOP Fix
Fixing accessories	As specified in manufacturer's installation instructions

The Fire-teK WM 908 GGA, Fire-teK WM 908 GGB, Fire-teK BD 908 ALU and Fire-teK BD 912 ALU, Fire-teK WM 910 GGB, Fire-teK BD 907 ALB and Fire-teK BD 918 insulations are CE-marked according to EN 14303 and the essential characteristics are declared in the manufacturer's declaration of performance.

Products are identified through the markings on the package, which include product name, dimensions, manufacture's name and other country specific information connected to product and approvals.

The manufacturer performs internal quality control for insulation materials according to EN 14303. Manufacturer has an ISO 9001 quality system and an ISO 14001 environmental management system certified by Bureau Veritas Certification.

Quality control of the Knauf Insulation Fire Insulation System consists of following components:

- The manufacturer ensures that the installation instruction manual and this certificate are made readily available.
- No changes to the fire insulation systems or products are made without Eurofins Expert Services Oy's approval.
- Insulation materials used in the fire insulation system are clearly marked with product label.
- The manufacturer ensures that the installation companies have been instructed to document the installation using the installation report according to Annex 1.
- The manufacturer ensures that the installation companies have been instructed to deliver a copy of the installation report together with the copy of this certificate for filing in the construction documentation.
- The installed fire insulations are identifiable.
- The assessment of conformity of the installed insulation system is not covered by this certificate.

#### **4 Delivery and storage on site**

The insulations are packed into plastic and are delivered and stored on site according to the manufacturer's instructions.

## **DESIGN INFORMATION**

### **5 General**

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

### **6 Installation**

The fire insulation system is installed according to the manufacturer's installation guide. Figures concerning the installation principles are given in Annex A2. A template of the installation report that the installation company shall prepare, is presented in Annex A1.

### **7 Performance in case of fire**

The requirements for the fire safety of buildings and of products used in them are given in the National Building Code of Finland, 848/2017 Decree of the Ministry of the Environment on Fire safety of buildings and in 927/2020, Change of the Decree of the Ministry of the Environment on the Fire safety of Buildings.

The reaction to fire class of the insulation materials, shown in table 1, is declared by the manufacturer in the declaration of performance.

Fire resistance classes of steel or steel sheet ducts insulated with Knauf Insulation Fire Insulation System are presented in Table 2. The tests have been carried out with internal and external fire exposure in horizontal and vertical duct orientation and system is classified according to EN 13501-3. The test results are valid provided, that the ducts meet the requirements given in the National Building Code of Finland, the requirements given in this regulation are fulfilled, and the fire insulation of the ducts has been performed according to the manufacturer's instructions and as described in Annex A2.

Table 1. Reaction to fire class of insulation type.

Insulation	Reaction to fire class EN 13501-1	Nominal density	Facing
Fire-teK WM 908 GGA	A1	80 kg/m <sup>3</sup>	Glass fibre reinforced aluminium foil and galvanized wire mesh
Fire-teK WM 908 GGB	A1	80 kg/m <sup>3</sup>	Glass fibre reinforced black aluminium foil and galvanized wire mesh
Fire-teK BD 908 ALU	A1	80 kg/m <sup>3</sup>	Glass fibre reinforced aluminium foil
Fire-teK BD 912 ALU	A1	120 kg/m <sup>3</sup>	Glass fibre reinforced aluminium foil
Fire-teK WM 910 GGB	A1	100 kg/m <sup>3</sup>	Glass fibre reinforced black aluminium foil and galvanized wire mesh
Fire-teK BD 907 ALB	A1	70 kg/m <sup>3</sup>	Glass fibre reinforced black aluminium foil
Fire-teK BD 918	A1	180 kg/m <sup>3</sup>	Unfaced

Table 2. Fire resistance classes against internal and external fire of ventilation ducts insulated with Knauf Insulation Fire Insulation System.

Insulation	Thickness	Nominal density	Fire resistance class	Duct
Fire-teK WM 910 GGB	40 mm	100 kg/m <sup>3</sup>	EI 30 (ve ho o ↔ i)	Circular duct
Fire-teK WM 908 GGA and Fire-teK WM 908 GGB	60 mm	80 kg/m <sup>3</sup>	EI 30 (ve ho o ↔ i)	Circular duct
	80 mm	80 kg/m <sup>3</sup>	EI 60 (ve ho o ↔ i)	
	100 mm	80 kg/m <sup>3</sup>	EI 60 (ve ho o ↔ i)	
Fire-teK WM 908 GGB	100 mm	80 kg/m <sup>3</sup>	EI 90 (ve ho o ↔ i)	Circular duct
Fire-teK WM 908 GGB	100 mm	80 kg/m <sup>3</sup>	EI 120 (ve ho o ↔ i)	Circular duct
Fire-teK BD 907 ALB and Fire-teK BD 918	60 mm	70 kg/m <sup>3</sup>	EI 30 (ve ho o ↔ i)	Rectangular duct
Fire-teK BD 908 ALU	60 mm	80 kg/m <sup>3</sup>	EI 30 (ve ho o ↔ i)	Rectangular duct

Fire-teK BD 912 ALU	60 mm	120 kg/m <sup>3</sup>	EI 60 (ve ho o ↔ i)	Rectangular duct
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Test results in Tables 1 and 2 are valid for ventilation ducts with dimensions and steel thickness according to Table 3 provided, that the duct system have air tightness of at least class D and strength as of the tested duct system or better.

For penetration of Fire-teK BD 907 ALB insulated rectangular ducts in class EI 30, additional insulation slab Fire-teK BD 918 is mounted under the Fire-teK BD 907 ALB insulation slab as presented in Annex 1 drawings.

*Table 3. Minimum steel thickness of the ventilation duct in relation to steel duct dimensions*

<b>Circular duct, thickness of the sheet</b>
Ø 63 - 315 mm, min. 0,5 mm
Ø 400 - 1000 mm, min. 0,7 mm
Ø > 1000 mm and up to 1250 mm, min. 0,9 mm

<b>Rectangular duct, thickness of the sheet</b>
longer side edge ≤ 300 mm, min. 0,5 mm
longer side edge 300 - 800 mm, min. 0,7 mm
longer side edge > 1000 and up to 1250 mm, min. 0,9 mm.

The fire resistance of the separating structure shall be equal to or higher than the fire resistance of the insulated duct (EI 30 / EI 60 / EI 90 / EI 120 or higher). The minimum thickness of the flexible or rigid fire compartment wall shall be 95 mm in fire resistance class equal to EI 30 or higher. The minimum thickness of the rigid fire compartment slab shall be 100 mm in fire resistance class equal to EI 30 or higher and minimum 150 mm thick in fire resistance class EI 120. The minimum density of rigid separating structures shall be 600 kg/m<sup>3</sup>.

Penetration of the duct shall be sealed according to Figures in Annex A2.

Maximum gap between the duct and the supporting construction is 30 mm.

In vertical direction, the distance between duct supporting constructions shall not exceed 5 m.

The ratio between the length of the duct exposed in the compartment to the smallest lateral dimension across the outside face of the duct (or outer diameter) shall not exceed 8:1 (distances between lateral supports: shortest duct dimension (length, width or diameter)), unless additional lateral supports are provided.

In cases where additional supports are provided, the ratio of the distance between the additional supports, or the distance between the supports and the supporting construction to the smallest lateral dimension across the outside face of the duct (or outer diameter) shall not exceed 8:1.

The largest distance between suspension devices shall not exceed 1500 mm.

The distance between the suspension device and the closest innermost duct joint shall be 315 mm and shall not be exceeded with a tolerance of 100 mm.

For circular ducts the maximum distance from the suspension devices to the closest duct joint must not exceed 80 mm with the tolerance of 100 mm.

For circular ducts the maximum distance from the suspension devices to the closest insulation joint must not exceed 75 mm with the tolerance of 100 mm.

The distance between the suspension device and the closest joint of the insulation material on the underside is 650 mm for circular and 625 mm for rectangular ducts and shall not be exceeded with a tolerance of 100 mm.

Fire insulation can only be installed when the ducts are as rigid as tested spiral folded ventilation ducts. Rectangular duct sections are reinforced by one steel stiffener passing the central axis of the duct.

Test results cover the forms of T-pieces, branches and direction-changing pieces using the same jointing technique as tested and installed according to manufacturer's installation instructions.

Maximum tensile stresses in suspension for vertical suspension devices for horizontal ducts shall be maximum 6 N/mm<sup>2</sup> and shearing stress in screws of property class 4.6 according to EN ISO 898-1 in maximum 10 N/mm<sup>2</sup>.

## INSTRUCTIONS FOR INSTALLATION AND USE

### **8 Manufacturer's instructions**

Installation of the fire insulation system shall be made according to the manufacturer's instructions. Installation company prepares an installation report according to the Annex A1.

Safety data sheet of the insulations is available from the manufacturer.

## VALIDITY OF THE CERTIFICATE

### 9 Validity period of the certificate

This certificate is valid until 30.8.2026

The validity of the certificate may be confirmed at Eurofins Expert Services Oy web pages.

### 10 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 quality control / certification.

### 11 Other conditions

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

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, Eurofins Expert Services Oy 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.

This updated certificate EUFI29-21001238-C (issued first on July 14, 2016) has been granted as described above to Knauf Insulation d.o.o..

On behalf of Eurofins Expert Services Oy on July 7, 2022

Tiina Ala-Outinen  
Account Manager

Heli Välimäki  
Senior Expert

*This document has been signed electronically*



## ANNEX 1: INSTALLATION REPORT

CERTIFICATE EUFI29-21001238-C

Products installed:	Circular duct	Rectangular duct	Fire resistance class	Insulation thickness
Fire-teK WM 910 GGB <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EI ____	
Fire-teK BD 907 ALB <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EI ____	
Fire-teK WM 908 GGA <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EI ____	
Fire-teK WM 908 GGB <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EI ____	
Fire-teK BD 908 ALU <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EI ____	
Fire-teK BD 912 ALU <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EI ____	
Opening insulation material				
Sealing products:				

Installation site:

Site identification	
Address	
Installation site specifications (building part, floor, rooms)	
Installation time	
Additional information	

Installation company:

Name	
Address	
Name of the installer	
Contact information (phone and e-mail)	

Products have been installed according to the manufacturer's installation instructions

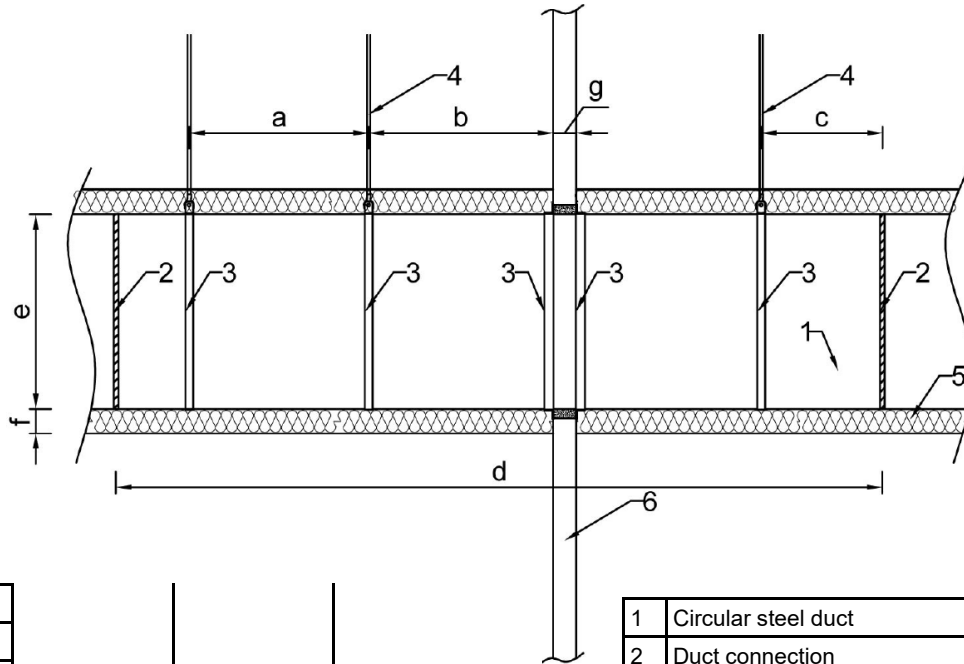
Place and date: \_\_\_\_\_, \_\_\_\_\_.20\_\_\_\_

Signature: \_\_\_\_\_

Clarification of signature: \_\_\_\_\_

## ANNEX 2: FIRE INSULATION DETAILS

### Horizontal mounting

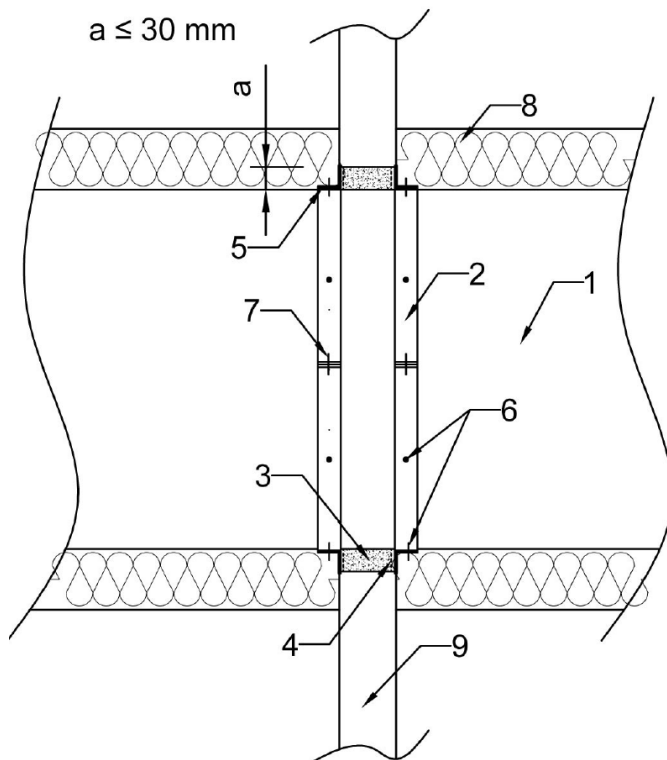


a	≤ 1500 mm			
b	≤ 600 mm			
c	≤ 315 mm			
d	≤ 3000 mm			
e	≤ 1000 mm			
	EI 30	EI 60	EI 90	EI 120
f	40 mm or 60 mm	80 mm or 100 mm	100 mm	100 mm
g	≥ 95 mm			

1	Circular steel duct
2	Duct connection
3	Suspension ring (Lindab UV or UVH)
4	Threaded rod. Maximum tensile stress in the suspension device shall be ≤ 9 N/mm <sup>2</sup> .
5	Fire-teK WM 908 GGA or Fire-teK WM 908 GGB or Fire-teK WM 910 GGB (40 mm at EI30)
6	Rigid wall or flexible wall. The fire resistance of the separating structure shall be equal to or higher than the fire resistance of the insulated duct (EI 30 / EI 60 / EI 90 / EI 120 or higher)

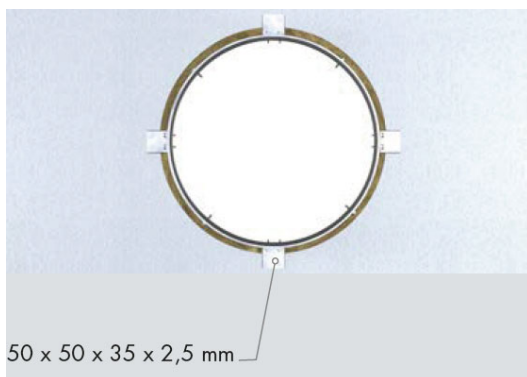
Wired mat joints are stitched with galvanized steel wire, diameter 0,9 mm

Wall/ceiling penetration

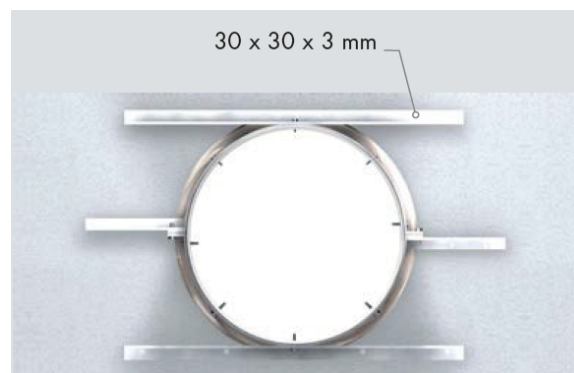


1	Circular steel duct
2	Suspension ring (Lindab UVH)
3	Loose mineral wool, density 80 kg/m <sup>3</sup>
4	Silicate glue Fire-teK STICK, thickness 5 mm
5	Steel L-profile 30x30x3 mm
6	Self -drilling screw Ø 4.2x19 mm
7	Bolt + Nut M8
8	Fire-teK WM 908 GGA or Fire-teK WM 908 GGB or Fire-teK WM 910 GGB
9	Rigid or flexible wall or rigid floor/ceiling. The fire resistance of the separating structure shall be equal to or higher than the fire resistance of the insulated duct (EI 30 / EI 60 / EI 90 / EI 120 or higher)

- Duct is positioned in the opening of the separating structure. In case of flexible wall, the opening shall be reinforced with a steel L-profile (30x30x3 mm) installed on all four sides.
- In penetration the gap (gap width  $d \leq 30$  mm) between the circular duct and the separating structure shall be insulated using stone wool, nominal density  $\geq 80$  kg/m<sup>3</sup>.
- The joint between the separating structure and the duct is sealed with Fire-teK STICK silicate glue with layer thickness of approx. 5 mm. The joint shall be sealed from both sides of the structure.
- The duct is fixed by screwing the suspension ring (Lindab UVH) to the duct on each side of the wall/ceiling. The upper and lower L-profiles (30x30x3 mm) are fixed to the duct by using self-tapping screws (Ø 4,2x13 mm) and to the separating structure by fire rated screws/anchors. Side L-profiles (30x30x3 mm) are fixed to the ring by using nuts and bolts (M8). Steel L-profiles shall be fixed on both sides of the structure.

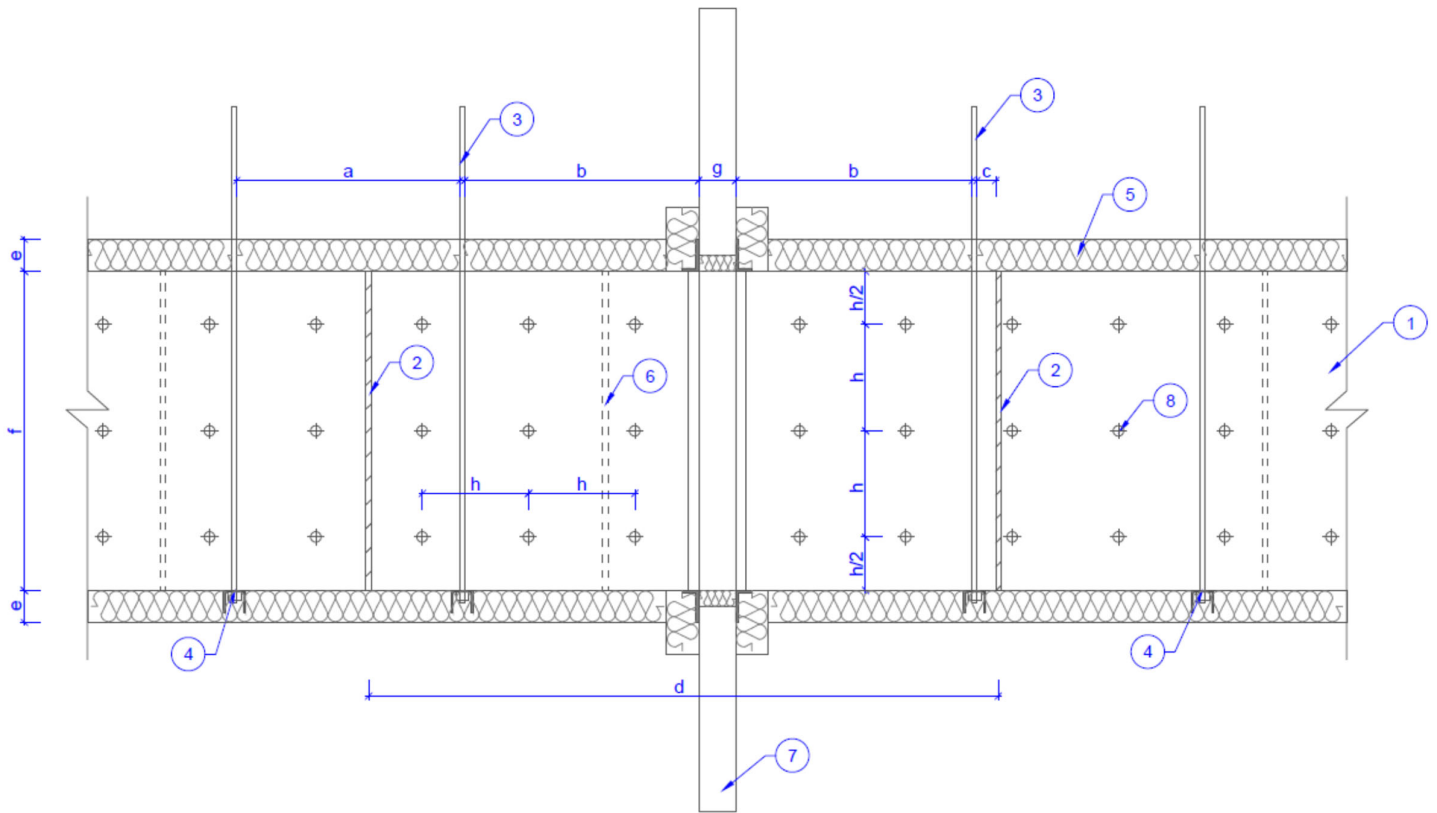


EI 30 class for Fire-teK WM 910 GGB (40 mm)



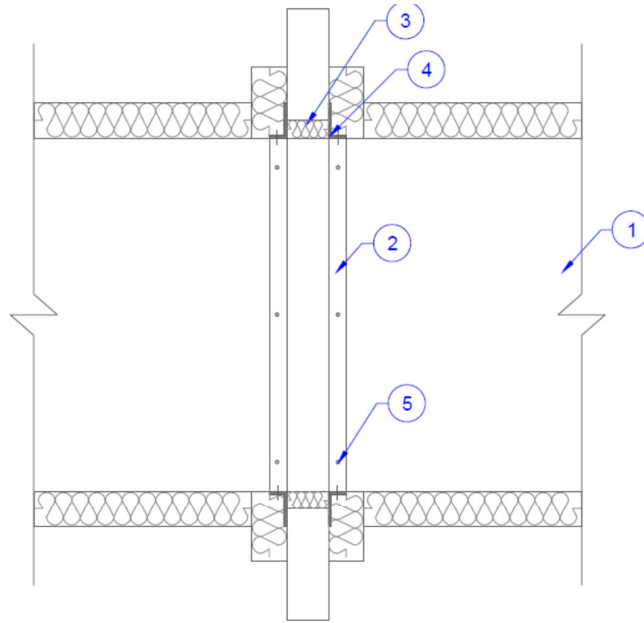
EI 30, EI 60, EI 90 and EI 120 classes for Fire-teK WM 908 GGB

Wall/ceiling penetration for rectangular ducts



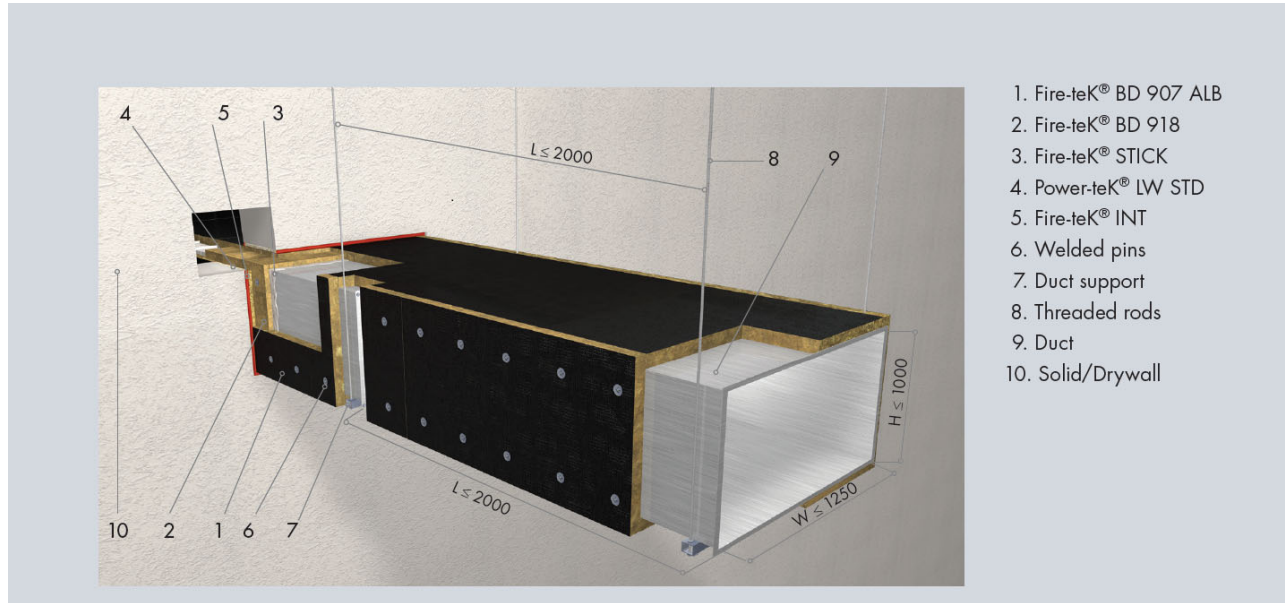
1	GALVANIZED STEEL SHEET Z275 (THICKNESS 0,9 mm)
2	DUCT CONNECTION
3	THREADED ROD
4	MOUNTING BRACKET (41 X 41 X 3 mm)
5	EI30: FIRE - TEK BD 908 ALU EI60: FIRE - TEK BD 912 ALU
6	STIFFENER MADE OF THREADED BAR Ø10 mm INSIDE STEEL PIPE Ø 1,2 (IN EVERY SEGMENT)
7	RIGID OR FLEXIBLE WALL
8	WELDING PIN

a	≤ 1500 mm
b	≤ 550 mm
c	≤ 50 mm
d	≤ 1200 mm
e	≤ 1000 mm
f	= 60 mm
g	EI30: 75 mm EI60: 100 mm
h	= 200 mm



1	GALVANIZED STEEL SHEET Z275 (THICKNESS 0,9 mm)
2	L - PROFILE 60 x 30 x 3 mm AROUND THE DUCT
3	KI MINERAL WOOL-DENSITY 80 kg/m <sup>3</sup> (GAP 30 mm)
4	FIRESTOP FIX THICKNESS 5 mm
5	SCREW    Ø 6 X 60 mm TO THE WALL Ø 4,2 X 19 mm TO THE DUCT SPACING BOTH 250 mm

Wall/ceiling penetration for rectangular ducts in class EI30 with combination insulation Fire-teK BD 907 ALB and Fire-teK BD 918



**Components for wall penetration:**

- Fire-teK® BD 907 ALB Fire Protection Board
- Fire-teK® BD 918 Enforcement Board
- Fire-teK® STICK Ceramic Glue
- Fire-teK® INT Intumescent
- Power-teK LW STD Loose Wool

