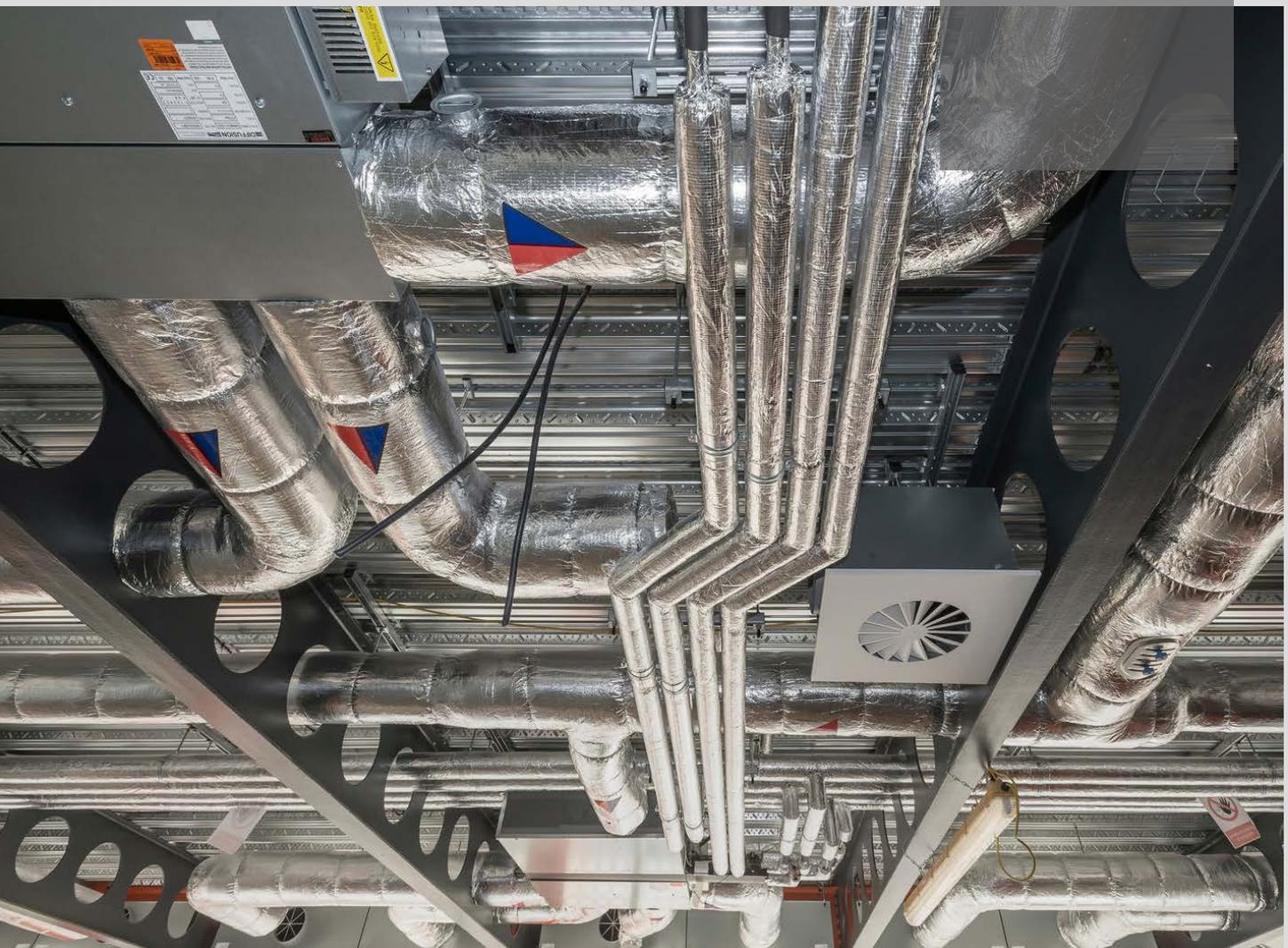


# ROCKWOOL®

# HVAC Systems Guide

A comprehensive guide to our  
full range of HVAC solutions





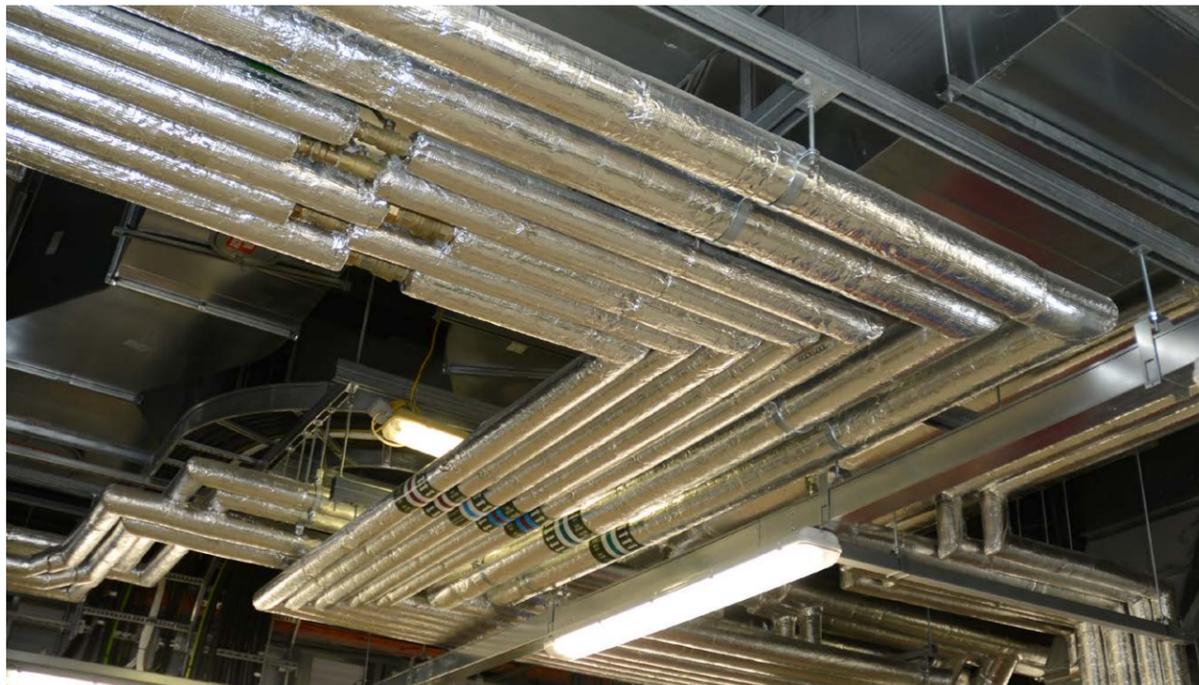
# Contents

	Page No.
Introducing the HVAC Systems Guide	4
Insulation for every HVAC application	6
Understanding reaction to fire	8
Understanding fire resistance	10
Understanding sustainability	12
ROCKWOOL - the complete solution	14
Technical tools and regulations	16
Continuing professional development	18
<b>Thermal applications</b>	<b>20</b>
Core products	21
<b>Section 1 - Pipework</b>	
▪ RockLap H&V Pipe Sections	22
▪ RockLap Pipe Supports	30
▪ Pipe Section Mat (PSM)	32
<b>Section 2 - Ductwork</b>	
▪ Ductwrap and Ductslab	34
▪ Duoduct	42
<b>Fire resistant applications</b>	<b>46</b>
Core products	47
<b>Section 1 - Fire duct systems</b>	
▪ FIREPRO® Fire Duct Systems	48
▪ DuctRock® Slab	60
▪ FIREPRO® Glue	72
<b>Section 2 - Pipe penetrations</b>	
▪ ROCKLAP H&V Pipe Sections	74
▪ FIREPRO® Insulated Fire Sleeves	78
▪ FIREPRO® Ablative Coated Batt	84
▪ FIREPRO® Acoustic Intumescent Sealant	88
<b>Acoustic applications</b>	<b>92</b>
Core products	93
<b>Section 1 - Solutions for pipework and ductwork</b>	
▪ Techwrap2 and Techtube	94
Other information	98
Legal disclaimer	99

# Introducing the HVAC Systems Guide

Heating Ventilation and Air Conditioning (HVAC) systems form an integral part of modern environments, both commercial and domestic - particularly where high rise and large scale developments are concerned.

Although these systems effectively provide thermal comfort and better air quality, by their very nature they can also produce unwanted noise and generate high levels of heat. When selecting an insulation product for these systems, users should therefore look beyond thermal requirements and consider the ways in which this can be installed not only to reduce heat loss, but to provide comfort and safety to the buildings occupants through increased resistance to fire and improved acoustic absorption.

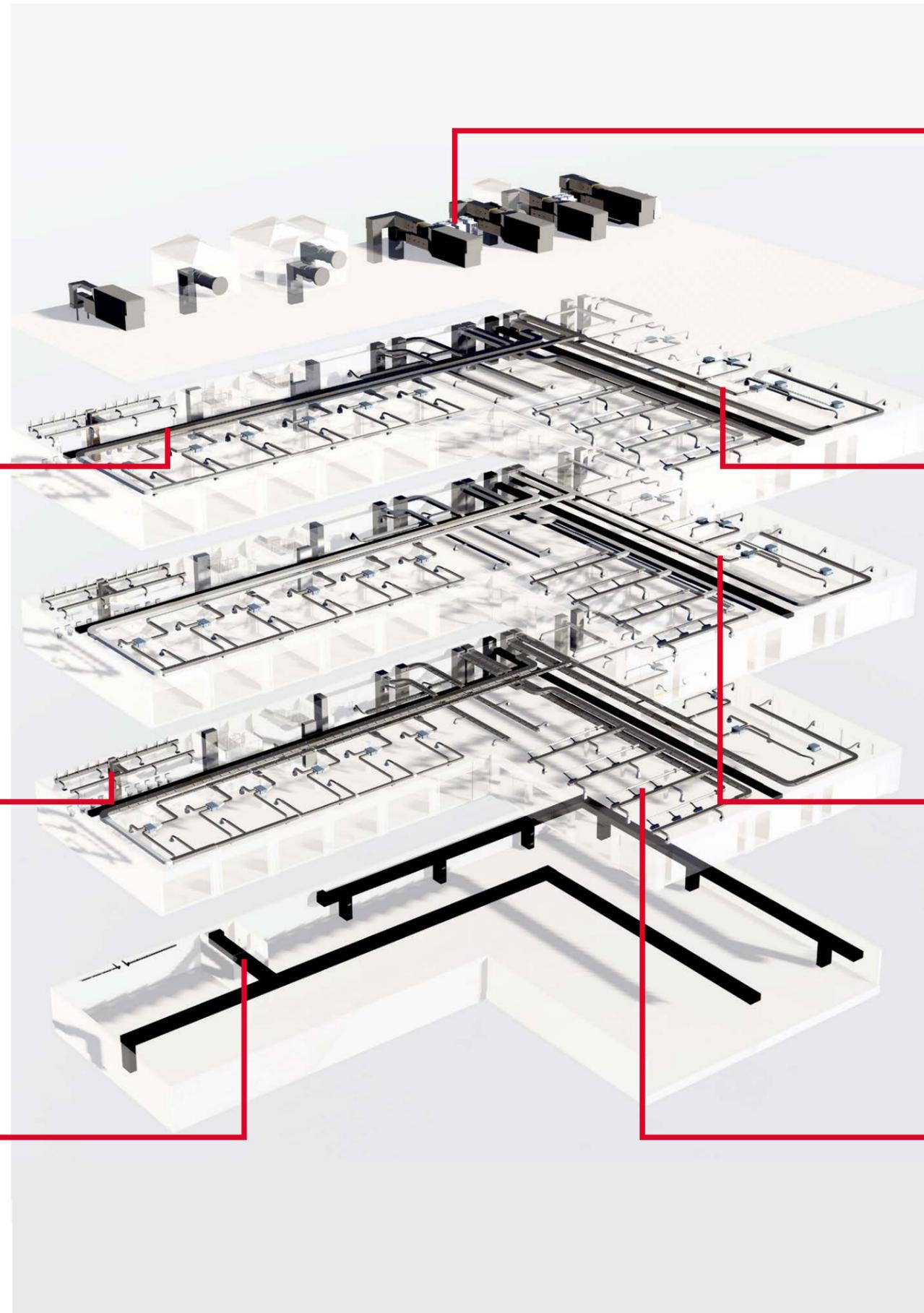


ROCKWOOL HVAC stone wool products offer high performance against a range of criteria; controlling heat gain, minimising heat loss, reducing noise and delivering excellent fire resistance into, and out of the HVAC system, creating safe and healthy working and living environments.

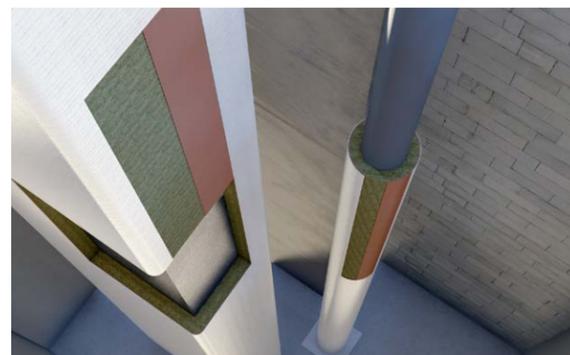


# Insulation for every HVAC application

ROCKWOOL stone wool insulation delivers thermal, fire and acoustic performance across a wide range of building services applications.



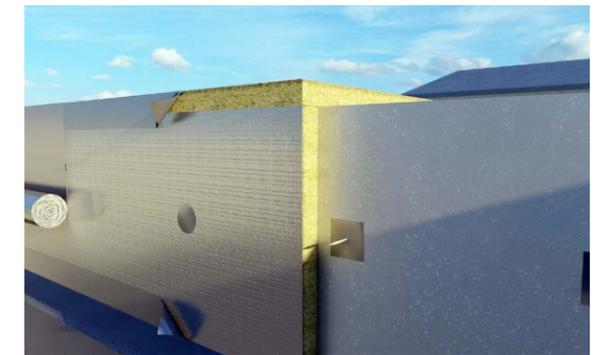
Rectangular / square ductwork



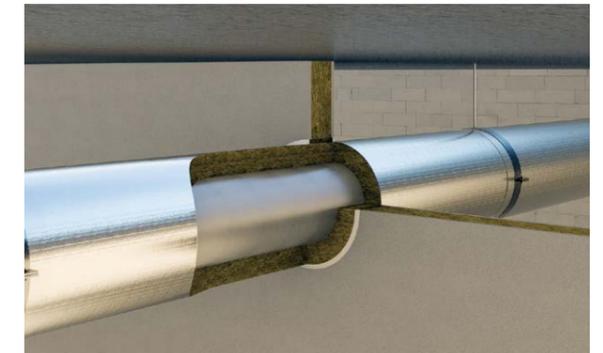
Acoustic pipework & ductwork



Fire rated ductwork



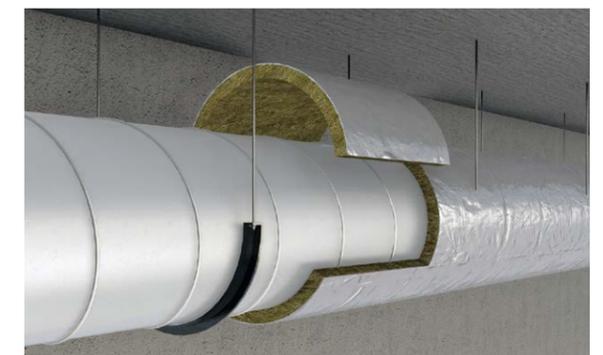
External ductwork



Pipe penetration seals



Pipework



Circular ductwork

# Understanding reaction to fire

This evaluates the contribution a material can make to fire growth and development which is particularly important in the early stages of a fire. The reaction to fire classification of building insulation is determined through a series of tests which measure performance against several key characteristics.



### Character changes

Does the product melt, drip, or char?



### Smoke emission

The level of smoke produced when burning



### Heat release

Heat energy released during combustion



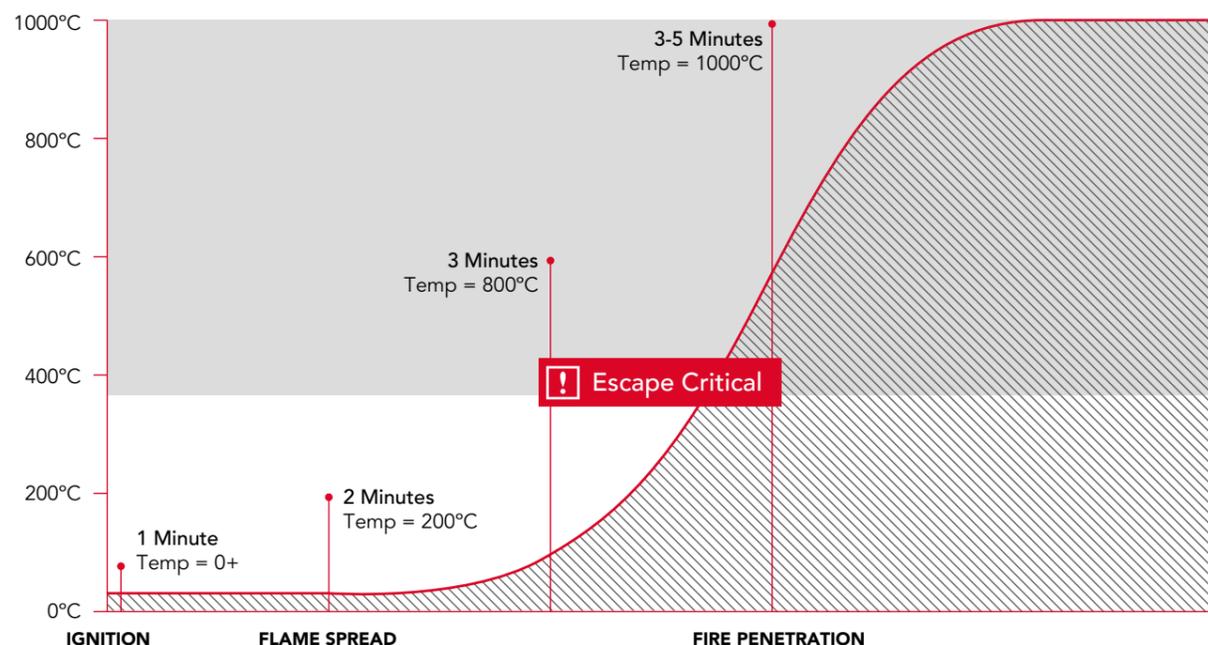
### Flame spread

The rate fire spreads across a surface



### Ignitability

Does the product catch fire?



## The Euroclass System

The Euroclass Reaction to Fire system classifies building products in accordance with BS EN 13501-1. Using a product's Euroclass rating as guidance is the only way to determine a product's full Reaction to Fire performance. Products classified A1 or A2-s1, d0 are considered non-combustible and those classified B – F are considered combustible.

Euroclass	Combustibility
<b>A1</b> <b>A2-s1, d0</b>	Non-combustible
<b>B</b>	Combustible
<b>C</b>	
<b>D</b>	
<b>E</b>	
<b>F</b>	

**ROCKWOOL** stone wool insulation is **NON-COMBUSTIBLE**, meaning it does not burn, does not contribute to fire growth and presents no smoke hazard.

### Important points to remember...

- To be sure of a product's Euroclass rating, simply check its Declaration of Performance (DOP)
- All ROCKWOOL DoP's are available online at [rockwool.com/dop](http://rockwool.com/dop)

DECLARATION OF PERFORMANCE No: UK-WER-0009-02_english		CE	
CAVITY BATT		<a href="http://dop.rockwool.com">http://dop.rockwool.com</a>	
1. Unique identification code of the product-type	UK-WER-0009-02_english		
2. Intended use of the construction product as foreseen by the manufacturer, in accordance with the applicable harmonised technical specification	Thermal insulation for buildings		
3. Name, registered trade name or registered trade mark and contact address of the manufacturer, as required pursuant to Article 11(5) of regulation (EU) No 305/2011	ROCKWOOL® Limited Pencroed, Bridgend, CF35 6NY		
4. Applicable System or Systems of Assessment and Verification of Constancy of Performance (AVCP)	SYSTEM 1 for uses subject to regulations on reaction to fire SYSTEM 3 for all other intended uses		
5. Harmonised Standard reference number and date of issue	EN13162:2012+A1:2015 issued on 28 February 2013		
6. Notified Body identification number	0086		
7. Declared Performances	Please refer to the table below (NPD – No Performance Determined)		
Essential Characteristics	Requirement clauses in this European Standard	Level and/or classes	Declared value
Reaction to fire Euroclass characteristics	4.2.6 Reaction to fire	Euroclasses	A1
Release of dangerous substances to the indoor environment	4.3.13 Release of dangerous substances	–	NPD
Acoustic absorption index	4.3.11 Sound absorption	Declared $\alpha_w$ and $\alpha_{w,f}$	NPD
Impact noise transmission index (for floors)	4.3.9 Dynamic stiffness	Declared $d_n$	NPD
	4.3.10.2 Thickness, $d_n$	Declared $d_n$ and T Class	NPD
	4.3.10.4 Compressibility $c$	Declared $c$ and CP Level	NPD
	4.3.12 Air flow resistivity	Declared $A_F$	NPD
Direct airborne sound insulation index	4.3.12 Air flow resistivity	Declared $A_F$	NPD
Continuous growing combustion	4.3.15 Continuous growing combustion	–	NPD
Thermal resistance	4.2.1 Thermal resistance and thermal conductivity	Declared $R_{total}$ and/or $\lambda_{total}$	$\lambda_{90/90} = 0.037$ W/mK
	4.2.2 Length and width	Declared $l$ and $b$	55mm and 460mm
	4.2.3 Thickness	Declared $d$ or tolerance class T	T2
	4.2.4 Squariness	Declared $S_0$	±2.5 per 500mm
	4.2.5 Flatness	Declared $S_{max}$	±6mm
Water permeability	4.3.7.1 Short term water absorption	Declared W(P)	WS
	4.3.7.2 Long term water absorption	Declared W(L)(P)	WL(P)
Water vapour permeability	4.3.9 Water vapour transmission	Declared $\mu$ or Z	MU1
Dimensional stability	4.3.2 Dimensional stability	Declared DS	
Compressive strength	4.3.3 Compressive stress or compressive strength	Declared CS Level	NPD
	4.3.5 Point load	Declared $F_p$	NPD
Durability of reaction to fire against heat, weathering, ageing/degradation	4.2.7 Durability characteristics <sup>*)</sup>	–	NPD
Durability of thermal resistance against heat, weathering, ageing/degradation	4.2.1 Thermal resistance and thermal conductivity	Declared $R_{total}$ and/or $\lambda_{total}$ <sup>*)</sup>	NPD
	4.2.7 Durability characteristics	–	NPD
Tensile/Flexural strength	4.3.4 Tensile strength perpendicular to faces <sup>**)</sup>	Declared TR Level	NPD
Durability of compressive strength against ageing/degradation	4.3.6 Compressive creep	Declared $X_c$ and $X_t$	NPD

Essential Characteristics	Requirement clauses in this European Standard	Level and/or classes	Declared value
Reaction to fire Euroclass characteristics	4.2.6 Reaction to fire	Euroclasses	A1



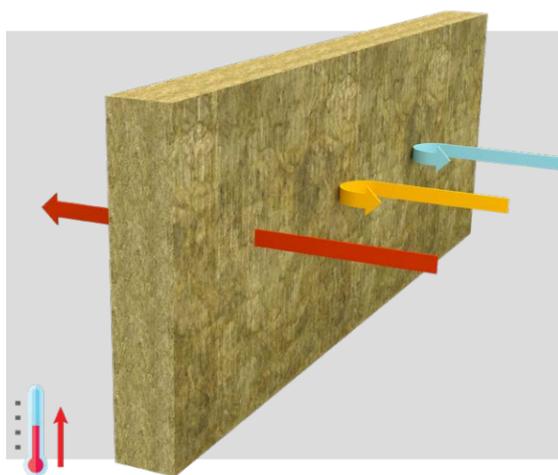
# Understanding fire resistance

This measures the ability of a building structure or compartment to resist and prevent the passage of fire from one distinct area to another for a given time period.

In order to determine the level of fire resistance achieved by a product or system it must be tested for the application it is intended for and proven to perform for the fire resistance period required.

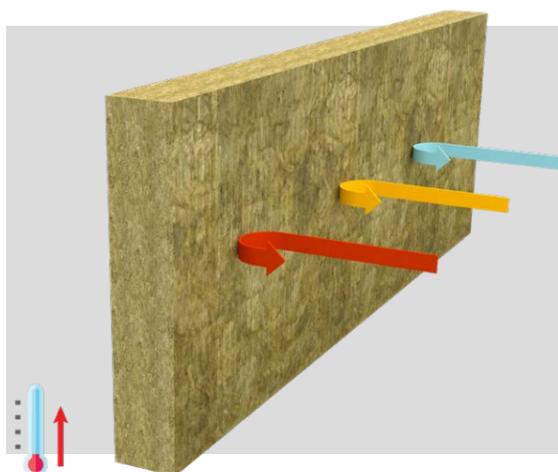
A typical fire resistance test will evaluate 3 key areas of performance:

In addition to measuring integrity and insulation ratings, a fire resistance test can also be used to determine the stability (R) of load bearing building elements.



## Integrity (E)

The ability of a separating element of building construction; when exposed to fire on one side, to prevent the passage of flames and hot gasses passing through, and creating the occurrence of flames on the unexposed side.



## Insulation (I)

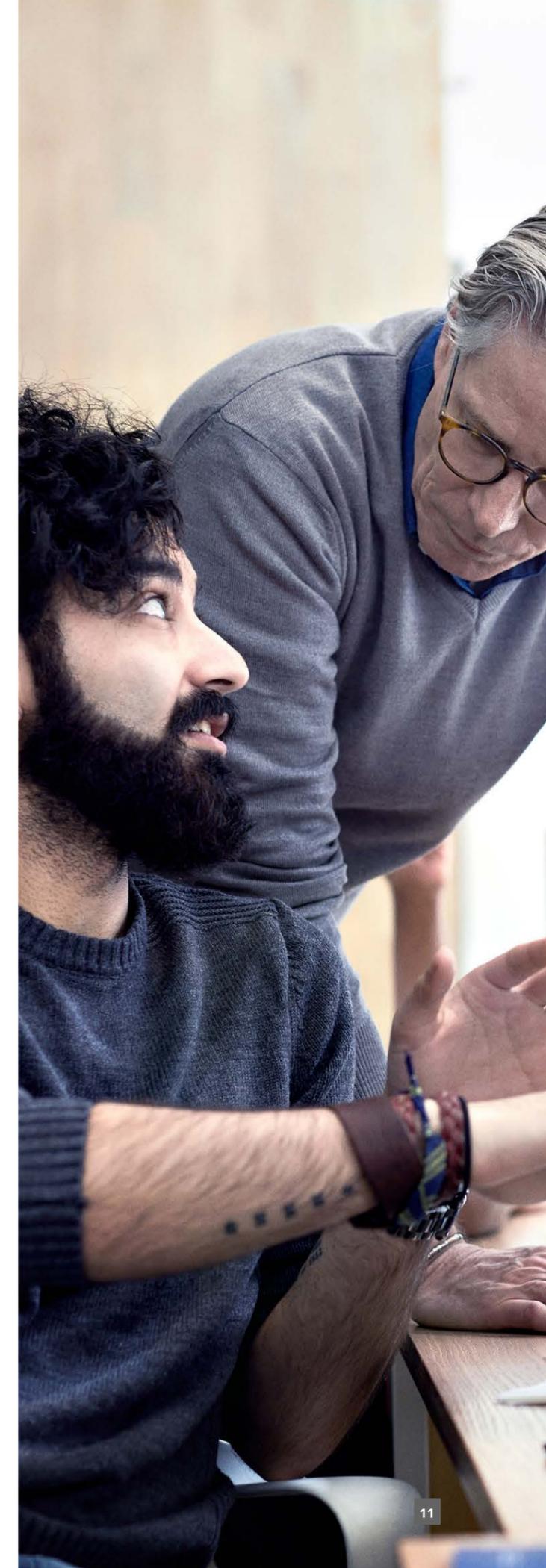
The ability to maintain integrity without developing temperatures on its external surface, outside the compartment in which the fire is present, which exceed:

140°C as an average value above ambient and/or 180°C as a maximum value above ambient at any given point.

## A combined approach to minimise risk

An approach to building design that increases the use of non-combustible building materials and ensures the use of appropriately tested passive fire protection measures is undoubtedly an effective method of slowing fire spread. Fully developed fires can occur within 5 minutes of ignition therefore it is vital that occupants are allowed enough time to escape safely, and fire fighters are given enough time to manage the incident.

From section 3,3 of Hackitt review:  
Buildings are considered as a system, which in order to be safe requires every aspect of design, construction, refurbishment and maintenance to prioritise safety.



# Understanding sustainability

Significant global changes are needed to combat climate change. The Climate Change Act in 2008 made the UK the first country to adopt long-term, legally binding targets for emissions reductions of 80%<sup>1</sup>. In June 2019, the UK raised the level of ambition to net-zero and committed the UK to this target in law. Energy efficiency plays a significant role in our ability to meet this challenge, with the built environment contributing around 40% of the UK's total carbon footprint.

But specifying ROCKWOOL makes a significant contribution to sustainable targets in construction that extend far beyond energy savings in the built environment:

### Naturally sustainable

ROCKWOOL products are created from volcanic rock. By far the most abundant natural resource on Earth, it is both durable and recyclable.

### Infinitely recyclable

ROCKWOOL is recyclable and can be recycled again and again without any degradation of quality. This means waste material can be transformed into new ROCKWOOL products, and the dedicated recycling facility at the Bridgend plant allows contractors and builders to recycle unused ROCKWOOL insulation.

### Circularity in construction

ROCKWOOL UK applies lifecycle thinking and a circular economy approach to help reduce the environmental impacts of growth. We use an abundant material and engineer it to perform consistently for decades, whilst our solutions enhance the sustainability of the societies that use them.

Our production processes are guided by ambitious goals to minimise our negative impacts. We also have a goal to grow the recycling services that take back our products. Similarly, we recycle other industries' waste by using it as a substitute for virgin raw material. We believe that it's possible to expand our business and communities without harming the environment – and we're working to ensure we help society to grow sustainably.

### Carbon positive

ROCKWOOL building insulation will, in its lifetime, save around 100 times more carbon dioxide than is emitted during its production. This means that ROCKWOOL insulation becomes 'net carbon positive' within a few months - meaning the carbon emitted during manufacturing is offset by the avoided emissions of the insulation's use in buildings in less than a year.

### Environmental Product Declarations (EPDs)

ROCKWOOL advocates for the use of Environmental Product Declarations (EPDs), which are based on the principle of life-cycle-assessment. EPDs cover the manufacturing process as well as upstream impacts including the extraction and transport of the raw materials, and the downstream impacts such as product transport, maintenance, and disposal options at end-of-life.

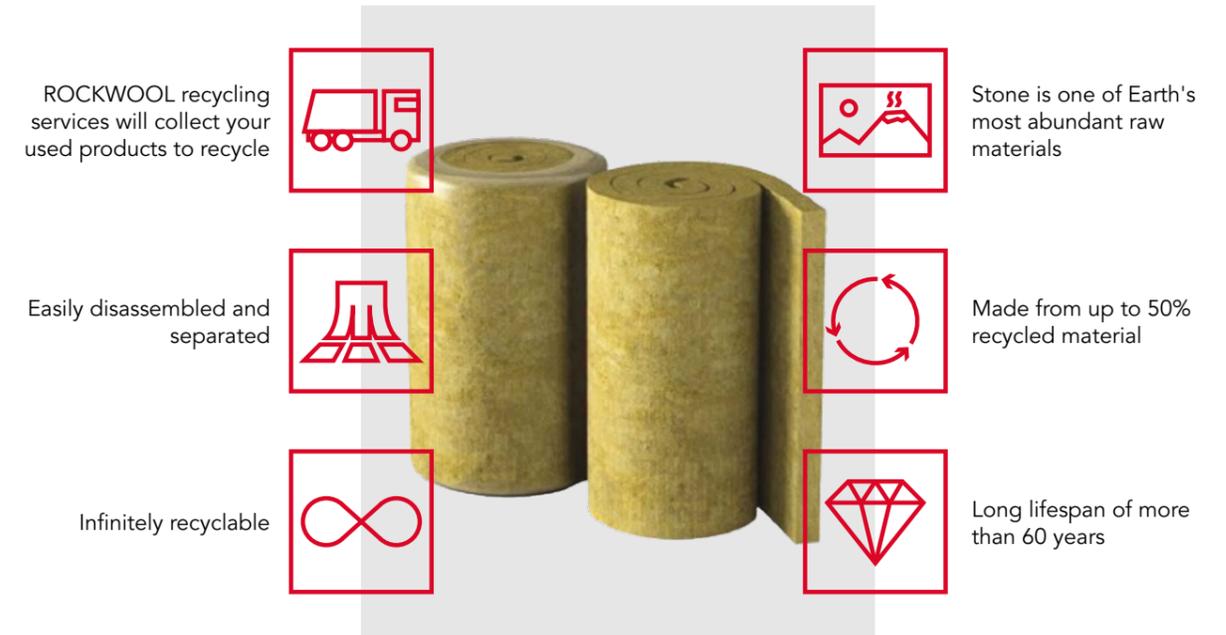
An EPD provides a range of indicators such as global warming potential or resource depletion, which can be used as inputs to design tools to achieve a required sustainability performance for a building. To support sustainable choices, we provide EPDs for all of the stone wool insulation products manufactured in the UK.

As sustainability goals move into procurement requirements, circularity is becoming increasingly important in construction decisions. From the materials that are used to build developments to the on-site approach to waste.

<sup>1</sup> Global Alliance for Buildings and Construction, 'Global Status Report 2018'.

## Reaching sustainable targets – circularity with ROCKWOOL:

- Avoids landfill and increases recycling rates - may help to improve BREEAM scores.
- Demonstrates a commitment to the objectives of the widely used ISO 14001 Environmental Management Systems standard.
- Contributes to UN Sustainable Development Goal 12 - responsible consumption and production.

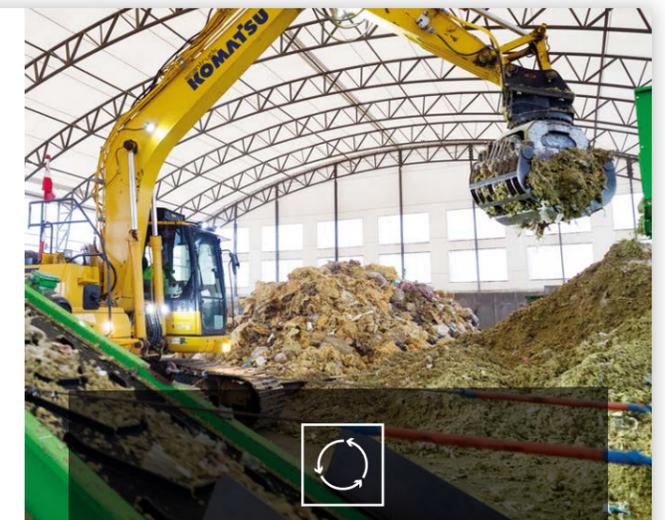


## Leveraging stone wool's circularity

We help homeowners and building professionals become more circular by offering take-back services for previously used stone wool.

In 2019 alone, we reduced waste to landfill through internal recycling in our production.

By recycling stone wool we reduce carbon emissions by close to 10 percent.



Learn more about our wider commitment to sustainability in the ROCKWOOL Sustainability Report 2019.

# ROCKWOOL - the complete solution

The complexities of navigating a route to Building Regulation compliance are greatly simplified by specifying ROCKWOOL as an all-encompassing insulation solution – best defined by the strengths of stone.



## Fire-resilience

ROCKWOOL insulation is extremely resilient to fire and can withstand temperatures of up to 1000°C. It works to contain fire and prevent its spread.

At the same time, it does not contribute to the emission of significant quantities of toxic smoke.



## Thermal properties

ROCKWOOL products derive their thermal properties from tiny pockets of air trapped within the physical structure of the stone wool. These air pockets allow the insulation to keep hot air out in hot climates and to retain warm air in cold climates. This can dramatically reduce heating, cooling, and ventilation costs, and reduce a building's carbon footprint.



## Durability

ROCKWOOL insulation has a built-in robustness that is totally unique. It keeps its shape and toughness in all conditions; this means that compression, impacts and changes in temperature or humidity do not affect it. Its dimensional stability means its performance is unchanged, decade after decade, ensuring maintenance savings throughout a building's lifetime.



## Acoustic capabilities

ROCKWOOL products are high-density, which makes them extremely resistant to airflow and excellent at noise reduction and sound absorption, meaning that even the noisiest infrastructure sounds quieter.



## Circularity

ROCKWOOL products can be easily removed when a building is renovated, or demolished and recycled back into new products. In fact, stone wool can be recycled again and again into new stone wool.

## ROCKWOOL – your insulation solution partner

The single solution benefits of ROCKWOOL extend far beyond the inherent performance credentials of the non-combustible stone wool material.

- Local sourcing – manufactured in the UK for over 40 years, ROCKWOOL supports local sourcing strategies.
- Reducing carbon footprint – nationwide distribution network and a load calculator tool that helps to minimise the number of deliveries to a single site.
- Increasing confidence – single source specification provides increased confidence that a range of insulation products will perform together as a solution.
- Reducing complexity – a single point of technical, specification and installation guidance removes the challenges traditionally associated with the interfacing of insulation from different manufacturer sources.
- Recycling waste – ROCKWOOL products are recyclable and a dedicated recycling facility at the Bridgend plant helps to reduce the construction industry's dependence on landfill.

# Technical tools and regulations

To assist you in the best possible way, we offer a range of free tools ranging from online software for calculating energy and heat loss to a materials calculator and much more.

Whether you are still at the beginning of your project or need technical support throughout, we are here to help along the way.

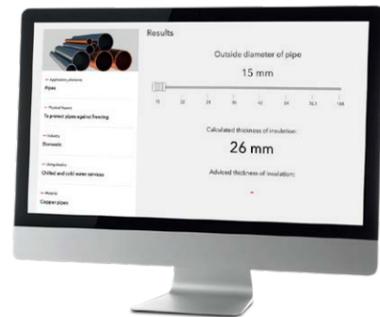
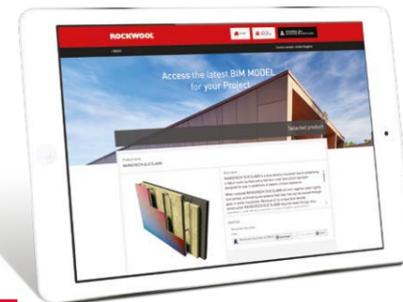


## Fire Stopping Standard Details Guide

The ROCKWOOL Fire Stopping Standard Details Guide provides in-depth guidance on the performance parameters of our passive fire stopping product solutions according to tested installations and applications.

## BIM Solution Finder

ROCKWOOL is proud to provide the BIM Solution Finder that will allow you to have the confidence in downloading the most recent BIM objects and the most up to date data for your projects.



## HVAC Calculator

Specifying the insulation for your HVAC systems is now easier thanks to the ROCKWOOL HVAC Calculation Tool.

## Load Calculator

Use the ROCKWOOL Load Calculator to ensure HVAC order loads will fit on one vehicle. The pipe calculator also indicates the number of pipes on a pallet which allows customers to buy in pallet quantities, assisting with stock control.



Visit [www.rockwool.co.uk/technical-resources/tools](http://www.rockwool.co.uk/technical-resources/tools) for more information

## Scotland

- Thermal
  - Technical Handbook: Domestic – Section 6
  - Technical Handbook: Non-Domestic – Section 6
- Fire
  - Technical Handbook: Domestic – Section 2
  - Technical Handbook: Non-Domestic – Section 2
- Acoustic
  - Technical Handbook: Domestic – Section 5
  - Technical Handbook: Non-Domestic – Section 5

## Northern Ireland

- Thermal
  - Technical Booklet F1 (Dwellings)
  - Technical Booklet F2 (Buildings other than dwellings)
- Fire
  - Technical Booklet E
- Acoustic
  - Technical Booklet G

## Republic of Ireland (ROI)

- Thermal
  - Technical Guidance Document L
- Fire
  - Technical Guidance Document B
- Acoustic
  - Technical Guidance Document E

## Wales

- Thermal
  - Approved Document L1A (New Dwellings)
  - Approved Document L1B (Existing Dwellings)
  - Approved Document L2A (New buildings other than dwellings)
  - Approved Document L2B (Existing buildings other than dwellings)
- Fire
  - Approved Document B Volume 1 (Dwellings)
  - Approved Document B Volume 2 (Buildings other than dwellings)
- Acoustic
  - Approved Document E

## England

- Thermal
  - Approved Document L1A (New Dwellings)
  - Approved Document L1B (Existing Dwellings)
  - Approved Document L2A (New buildings other than dwellings)
  - Approved Document L2B (Existing buildings other than dwellings)
- Fire
  - Approved Document B Volume 1 (Dwellings)
  - Approved Document B Volume 2 (Buildings other than dwellings)
- Acoustic
  - Approved Document E



# Continuing professional development

We've used our knowledge and technical expertise to create informative and enjoyable CPDs.

Each CPD has been designed to explain the unique benefits of stone wool insulation, its suitability for the built environments and the design freedom that can be achieved.

## CPD: A Guide to HVAC Standards & Applications

Heating, Ventilation & Air Conditioning - the technology of indoor environmental comfort.

Since the 1980s, manufacturers of HVAC equipment have been striving to make the systems they manufacture more efficient.

Originally driven by rising energy costs, and more recently driven by increased awareness of environmental issues, the need to reduce our energy consumption and reliance on fossil fuels is driving the need to improve efficiency whilst maintaining safe and healthy building conditions.

This CPD focusses on providing an understanding of the standards and guidance relating to the HVAC industry in addition to total insulation solution applications to provide the comfort, health and safety to the buildings we work, rest and play in.



### Learning aims

- Gain an understanding of the harmonized standards and guidance documents which govern the performance of insulation products
- Determine how these standards are applied to HVAC products
- Ease of access to supporting information for specification
- Understand the thermal benefits of stone wool HVAC insulation
- Realise the importance of fire safety in HVAC applications
- Contribution of stone wool insulation systems to improve acoustic comfort and living standards of building occupants
- Awareness of building requirements and guidance which govern the specification and performance of these applications
- Total application solutions to enhance performance with multiple benefits

## CPD: EN Tested Fire Duct Systems

Testing of ductwork was first introduced in 1985 and over the years these test standards have been reviewed with on-going improvements made to fire test procedures.

The current Harmonised European Standard is a more challenging test and requires ductwork to be tested as built leading to accurate results under realistic conditions, resulting in maximum safety in use.

This CPD has been developed to assist those involved in the specification, installation, inspection and verification of fire resisting ductwork.



### Learning aims

- Gain an understanding of the official guidance documents which govern the performance requirements of ductwork
- Determine how these standards and alternative approaches are applied
- Consideration of the factors which may affect the specification of ductwork
- Understanding the application variations for ductwork
- Gain an insight of EN Standard requirements for ventilation and smoke extract ductwork
- Review key differences between BS and EN standards
- Introduction to the ROCKWOOL FIREPRO® Ductrock System

For more information and to register your interest please visit:

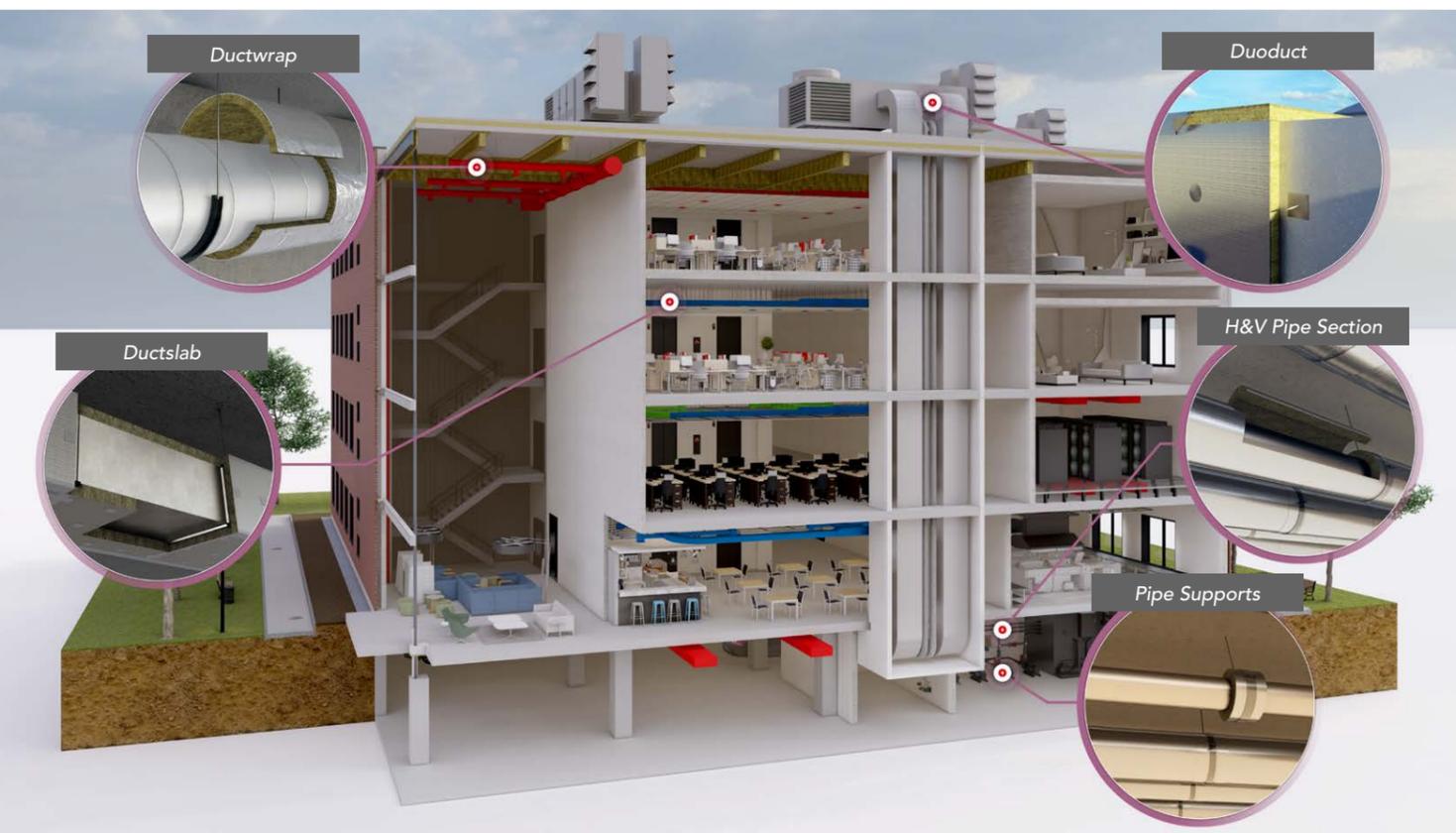
[www.rockwool.co.uk/learning/cpds/cpd-en-tested-fire-duct-systems/](http://www.rockwool.co.uk/learning/cpds/cpd-en-tested-fire-duct-systems/)

# Thermal applications

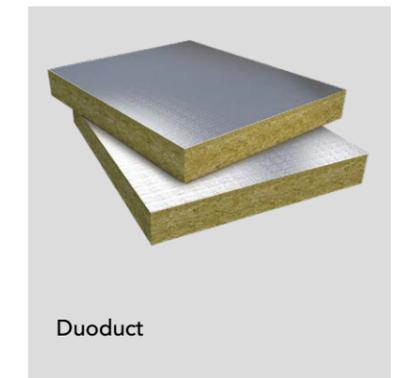
Any loss of heat from HVAC installations directly results in wasted energy, higher energy costs and increased carbon emissions which negatively impacts the building occupants, building owners and the environment.

Avoiding any unwanted changes in system temperature is best achieved by adequately insulating HVAC pipework and ductwork, this will help to ensure that the operating temperature will be maintained, and the overall energy efficiency of the system optimized.

The ROCKWOOL HVAC insulation range includes products to suit pipework as well as circular and rectangular ducts of varying size, which assist in keeping temperatures comfortable and stable and provide thermal performance for the lifetime of the building.



## Core products



Useful documents and standards
Approved Document L1A - Conservation of fuel and power in new dwellings
Approved Document L1B - Conservation of fuel and power in existing dwellings
Approved Document L2A - Conservation of fuel and power in new buildings other than dwellings
Approved Document L2B - Conservation of fuel and power in existing buildings other than dwellings
Domestic Building Services Compliance Guide
Non-domestic Building Services Compliance Guide
BS5422:2009 - Method for specifying thermal insulating materials for pipes, tanks, vessels and ductwork
ROCKWOOL guidance - Introduction to Part L
ROCKWOOL guidance - The thickness of Rockwool Insulation in accordance with BS5422
ROCKWOOL guidance - HVAC specification detail guide



# RockLap H&V Pipe Sections



## Description

RockLap H&V Sections are pre-formed sections of stone wool insulation. Manufactured pre-slit and provided with a factory applied foil facing complete with integral self-adhesive lap.

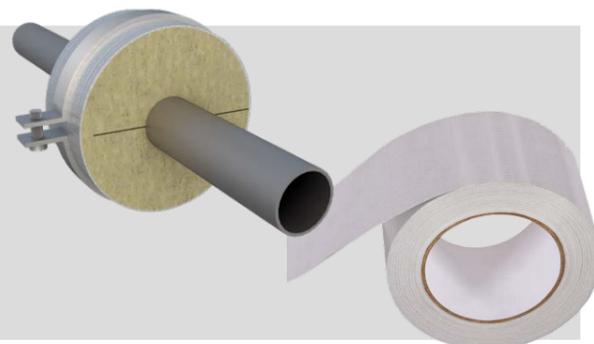
Sizes available:  
Please see the table on page 12.

## Advantages

- Resilient, high performance barrier provided by one-piece, reinforced foil with integral lap
- Fast and simple installation reduces costs and time on site
- Tape requirement reduced
- European Reaction to Fire Classification of A2L, s1-d0

## RockLap Ancillaries (Thermal)

- RockLap Pipe Supports are suitable for use with RockLap H&V pipe sections and are available from all ROCKWOOL stockists
- Suitable aluminium foil tape is available from specialist HVAC stockists



## Applications

RockLap H&V Pipe Sections are strong lengths of pre-formed insulation with a one piece, factory applied foil facing with integral self-adhesive lap. The integral lap ensures fast and easy installation: just snap the sections onto the pipe, peel off the backing tape and smooth down for a completely sealed joint.

## Performance

### Standards and approvals

ROCKWOOL H&V Pipe Sections are CE marked in accordance with BS EN 14303. For more information please visit [www.rockwool.co.uk/DOP](http://www.rockwool.co.uk/DOP)

RockLap H&V Pipe Sections conform to BS 3958-4, 'Bonded preformed stone wool pipe sections' and can be used to satisfy BS 5422: 'Method for specifying thermal insulating materials.....'.

The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with this data sheet – please refer to the LUL Approved Product Register website [www.LU-apr.co.uk](http://www.LU-apr.co.uk) for specific details.

### Fire

RockLap H&V Pipe Sections are rated Euroclass A2L\*-s1,d0.

\*Classifications for linear pipe thermal insulation products are followed by the sub-index 'L' (for example, A2L).

### Thermal

The specific heat of ROCKWOOL stone wool is 0.84 kJ/kgK (nom.) at 20°C.

### Thermal conductivity and thermal loss

Temperature °C	*Curve 1 (W/mK)	*Curve 2 (W/mK)
10	0.033	0.034
50	0.037	0.039
100	0.044	0.048
150	0.052	0.056

\*The thermal conductivity curve used depends upon the size of the pipe section. For further information please refer to the DOP.

**Note: Due to the low emissivity of aluminium, heat losses, which depend upon the diameter, thickness and temperature of the pipe to be insulated, are reduced by approx. 9% by using aluminium faced sections compared with painted or PVC faced sections.**

Consider a 169 mm O.D. hot water pipe running at 75°C with an ambient temperature of 15°C insulated with 50 mm thick RockLap H&V Pipe Section:

Cladding type	Emissivity (ε)	Outer surface temp (°C)	Heat loss (W/m)
Aluminium	0.05	24.4	27
Cloth	0.90	19.5	29



## Product information

Table 8 (BS5422:2009)

Minimum thickness of ROCKWOOL RockLap H&V to prevent condensation.  
Taken from BS 5422 Table 8, ambient air temperature 25°C, 80% rh, ε=0.05

Outside diameter of steel pipe on which insulation has been based (mm)	Temperature of contents (°C)					
	Temperature of contents +10°C		Temperature of contents +5°C		Temperature of contents 0°C	
	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)
17	16	20	22	25	28	30
21	17	20	24	25	30	30
27	19	20	26	30	32	35
33	20	20	27	30	34	35
42	21	25	29	30	37	40
48	22	25	31	35	39	40
60	24	25	33	35	41	45
76	26	30	36	40	46	50
89	28	30	38	40	48	50
102	29	30	40	40	50	50
114	30	30	41	45	52	60
140	31	35	43	45	55	60
169	33	35	46	50	58	60
219	35	35	49	50	62	70
245	36	40	51	60	64	70
273	37	40	52	60	66	70
324	39	40	55	60	70	70
356	40	40	56	60	71	80
406	41	45	58	60	74	80
456	43	45	60	60	76	80
508	44	45	61	70	78	80
558	45	45	63	70	80	80
610	46	50	64	70	82	90

Table 15 (BS5422:2009)

Indicative thickness of insulation for non-domestic heating services to control heat loss – low emissivity outer surfaces (ε=0.05).

Outside diameter of steel pipe on which insulation has been based (mm)	Hot face temperature (°C)								
	Thickness of ROCKWOOL RockLab H&V Pipe Section (mm)								
	75			100			125		
	Calculated thickness (mm)	Advised thickness (mm)	Heat loss (W/m)	Calculated thickness (mm)	Advised thickness (mm)	Heat loss (W/m)	Calculated thickness (mm)	Advised thickness (mm)	Heat loss (W/m)
17.2	24	25	8.90	24	25	13.34	24	25	17.92
21.3	28	30	9.28	30	30	13.56	30	30	18.32
26.9	31	35	10.06	37	40	13.83	37	40	18.70
33.7	33	35	11.07	44	45	14.39	46	50	19.20
42.4	35	35	12.30	48	50	15.66	64	70	19.25
48.3	37	40	12.94	49	50	16.67	67	70	20.17
60.3	39	40	14.45	57	60	18.25	71	80	21.96
76.1	44	45	16.35	60	60	20.42	76	80	24.21
88.9	45	45	17.91	62	70	22.09	79	80	25.99
114.3	47	50	20.77	65	70	25.31	85	90	29.32
139.7	48	50	23.71	68	70	28.23	89	90	32.47
168.3	49	50	26.89	70	70	31.61	92	100	36.04
219.1	50	50	32.54	72	80	37.66	96	100	42.16
273.0	50	50	38.83	74	80	43.72	99	100	48.48

Note 1: Insulation thicknesses in this table have been calculated according to BS EN ISO 12241:2008 using standardised assumptions: horizontal pipe in still air at 15°C, emissivity of outer surface of insulated system as specified.

Note 2: Heat loss relates to the specified thickness and temperature.

Note 3: The thicknesses in this table are applicable to pipes serving commercial solar hot water panels.



Table 17 (BS5422:2009)

Indicative thickness of insulation for non-domestic hot water service areas to control heat loss – Low emissivity outer surface (ε=0.05).

Outside diameter of steel pipe on which insulation has been based (mm)	Thickness of ROCKWOOL RockLap H&V Pipe Section (mm)		Heat loss / Wm <sup>-1</sup>
	Calculated thickness (mm)	Advised thickness (mm)	
17.2	23	25	6.60
21.3	25	25	7.13
26.9	27	30	7.83
33.7	29	30	8.62
42.4	30	30	9.72
48.3	32	35	10.21
60.3	33	35	11.57
76.1	35	35	13.09
88.9	35	35	14.58
114.3	38	40	17.20
139.7	39	40	19.65
168.3	40	40	22.31
219.1	40	40	27.52
273.0	41	45	32.40

Note 1: Insulation thicknesses in this table have been calculated according to BS EN ISO 12241:2008 using standardised assumptions: horizontal pipe at 60°C in still air at 15°C, emissivity of outer surface of insulated system as specified.

Note 2: Heat loss relates to the specified thickness and temperature.

### Density

The nominal density is not less than 120kg/m<sup>3</sup>.

### Other product properties

#### Water resistance

RockLap H&V Pipe Sections are water repellent. However, when used or stored in the open, the insulation should be protected with a waterproof covering. When used to insulate cold pipes, the joints should be sealed with foil tape to prevent condensation.

#### Service temperature

RockLap H&V Pipe Sections are used to insulate pipes operating at temperatures in the range 0 to 250°C. The sections are used to insulate against frost damage. For hot pipes, the limiting temperature of the outer foil face is 80°C to maintain facing bond strength.

#### pH neutrality

ROCKWOOL insulation is chemically compatible with all types of pipes, equipment and fittings. (Guidance is given in BS 5970 regarding the treatment of austenitic stainless-steel pipework and fittings). Stone wool insulation is chemically inert. A typical aqueous extract of ROCKWOOL insulation is neutral or slightly alkaline (pH 7 to 9.5).

#### Durability

ROCKWOOL stone wool insulation products have been proven in service for over 60 years, in a wide range of climates and degrees of exposure. ROCKWOOL insulation will generally perform effectively for the lifetime of the building, plant or structure.

#### Biological

ROCKWOOL stone wool is a naturally inert and rot-proof material that does not encourage or support the growth of fungi, moulds or bacteria, or offer sustenance to insects or vermin.

## Installation

RockLap H&V Pipe Sections are supplied with an integral self-adhesive overlap. Place the section around the pipe and seal accordingly (Figure 1).

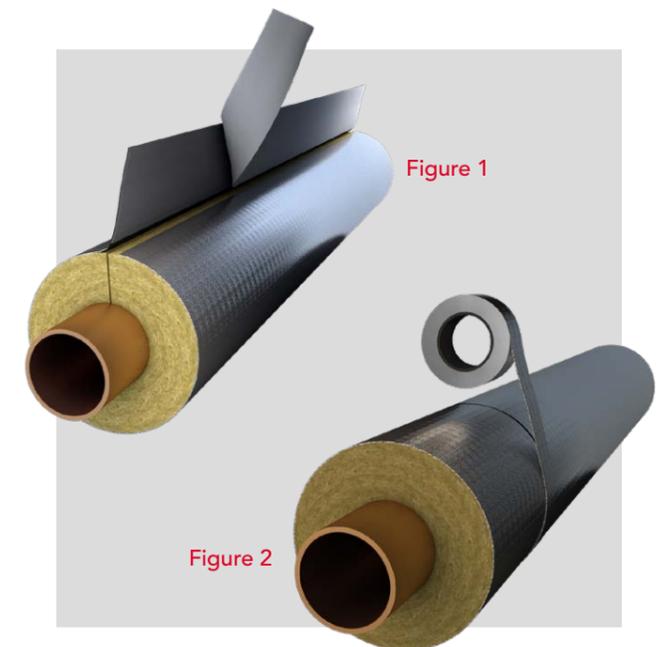
All joints between RockLap sections must be sealed with aluminum foil tape (Figure 2).

### Handling

RockLap H&V Pipe Sections are easy to cut to any shape with a sharp knife. When stored outside, avoid contact with the ground and cover with a securely anchored waterproof sheet.

### Maintenance

Once installed RockLap H&V Pipe Sections shouldn't require any maintenance.



## Specification clauses

### Typical specification

Pipes to be insulated with ..... \*mm thick ROCKWOOL Rocklap H&V Pipe Sections, having a nominal density not less than 120kg/m<sup>3</sup>, with a factory applied facing which is a laminate of close mesh reinforcement between two layers of foil including integral lap for fixing. The whole to comply with BS 5422:2009 and BS 5970 water vapour permeance and Building Regulation requirements in relation to thermal and fire. Fixing to be in accordance with manufacturer's instructions, by peeling protective tape from self-adhesive lap and pressing lap smoothly over joint. Where adjacent Sections abut, approved 75 mm wide aluminium tape to be used to maintain integrity of the vapour barrier.

For external applications please see HVAC Specification Detail Guide for external finishes.

\*insert required thickness



Other guidance

Available standard dimensions and packaging matrix.

To Suit Pipe O.D. / mm	Insulation Thickness / mm										
	20	25	30	35	40	45	50	60	70	80	100
17	42 (1)	30 (1)	25 (1)	20 (1)	16 (1)						
21	36 (1)	30 (1)	20 (1)	13 (1)	13 (1)	9 (1)	9 (1)				
27	30 (1)	25 (1)	20 (1)	12 (1)	12 (1)	9 (1)	9 (1)	6 (2)	4 (2)		
34	25 (1)	20 (1)	16 (1)	12 (1)	9 (1)	8 (1)	8 (1)	5 (2)	4 (2)		
42	20 (1)	16 (1)	12 (1)	9 (1)	9 (1)	6 (1)	6 (1)	4 (2)	4 (2)	■ (2)	■ (2)
48	16 (1)	16 (1)	12 (1)	9 (1)	9 (1)	6 (1)	6 (1)	4 (2)	■ (2)	■ (2)	■ (2)
54	16 (1)	12 (1)	10 (1)	8 (1)	8 (1)	5 (1)	5 (1)	4 (2)	■ (2)	■ (2)	
60	12 (1)	12 (1)	9 (1)	7 (1)	7 (1)	5 (1)	5 (1)	4 (2)	■ (2)	■ (2)	■ (2)
67		9 (2)	9 (2)	6 (2)	6 (2)	4 (2)	4 (2)	■ (2)	■ (2)	■ (2)	■ (2)
76		9 (2)	7 (2)	5 (2)	5 (2)	4 (2)	4 (2)	■ (2)	■ (2)	■ (2)	■ (2)
80		9 (2)	6 (2)	5 (2)	5 (2)	4 (2)	4 (2)	■ (2)	■ (2)	■ (2)	■ (2)
89		6 (2)	6 (2)	4 (2)	4 (2)	4 (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
102		5 (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
108		5 (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
114		4 (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
127		4 (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	
133		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
140		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
150		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)			
154		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	
159		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
169		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
178		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)			
191		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)			
194		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
205		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
219		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
230					■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
245		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
253		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
273		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
279		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
305		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
318		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
324		● (2)	● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
356			● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)
406			● (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)	■ (2)

(1 or 2) Applicable DOP Lambda Curve

42 Number indicates the Linear Metres per carton

■ Size is available to order

■ These sections come "split" and are packed as single lengths which are shrink wrapped in polyethylene

■ Size currently not available

● These sections come "unsplit" and are packed as single lengths which are shrink wrapped in polyethylene

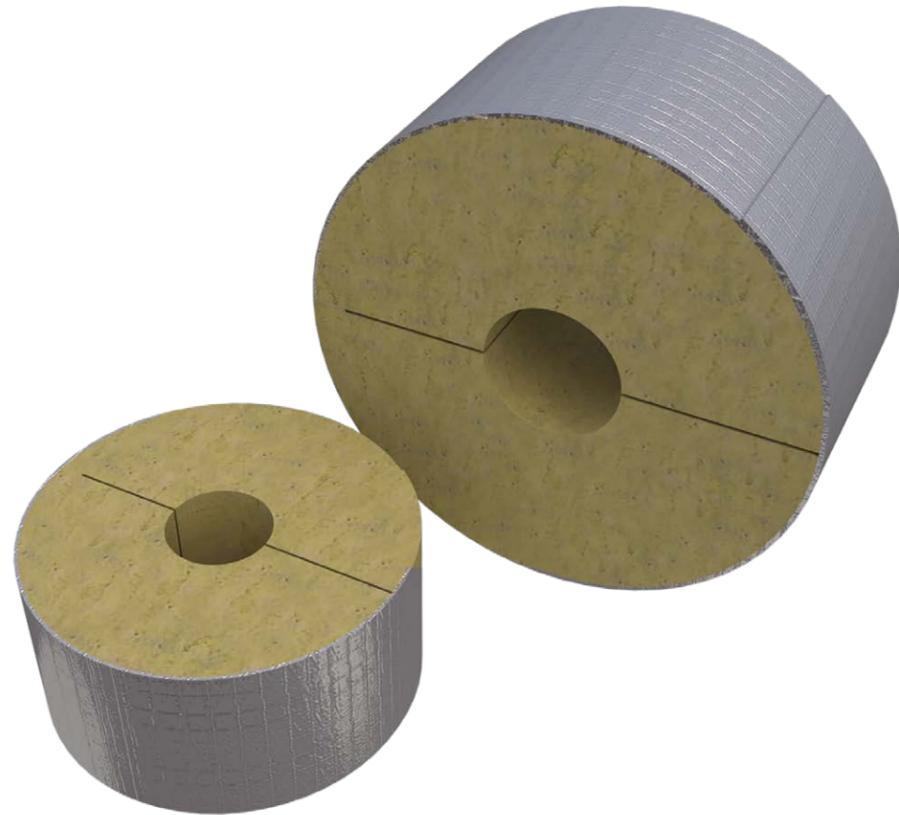
Alternative sizes may be available. For further details please contact ROCKWOOL Customer Support

Distribution losses from a heating or cooling system can account for as much as 20% of the total energy used in a building.





# ROCKLAP Pipe Supports



## Description

ROCKLAP Pipe Supports are pre-formed sections which are manufactured from high-density ROCKWOOL stone wool. The ROCKLAP Pipe Supports are pre-cut and finished with a foil facing.

## Advantages

- Non-combustible stone wool
- Minimises thermal bridging
- Foil faced for vapour control
- High point load resistance and effective load bearing capability

## ROCKLAP Pipe Support Ancillaries

- Suitable aluminium foil tape is available from specialist HVAC stockists



## Applications

ROCKLAP Pipe Supports are suitable for use with both cold/hot steel and copper pipes operating at a temperature range of 0°C to 250°C. The ROCKLAP Pipe Supports are designed for use in pipe supports, hanger brackets and clamps, providing effective load bearing capability and point load resistance.

## Product information

Property	Description
Outside diameter range	*17-210mm
Wall thickness	20-100mm
Length	**80-100mm
Service temperature	Stone wool: 0-250°C Aluminium foil: ≤ 80°C
Specific heat	0.84 KJ/kgK
Water vapour diffusion resistance (μ)	> 10,000

\*Other sizes may be available please contact Rockwool Technical Support for further information

\*\*Product length varies to accommodate larger hanger support clips:

Pipe support length	OD range (mm)	Thickness range (mm)
80mm	17-135	20-80
	140-160	25-60
100mm	89-135	100
	140-160	70-100
	169-210	25-100

## Installation

ROCKLAP Pipe Supports are simple to install and are available to suit a wide range of pipe diameters.

ROCKLAP Pipe Supports are supplied pre-cut. Simply place the support around the pipe and move into the location of the pipe support clip, ensuring the support is positioned centrally. (See Figure 1)

Once positioned, seal the ROCKLAP Pipe Support with the self-adhesive overlap and ensure that the joints between the pipe support and pipe insulation are securely taped with a suitable self-adhesive aluminium foil tape to maintain a continuous vapour barrier.

## Maintenance

Once installed, ROCKLAP H&V Pipe Supports shouldn't require any further maintenance.

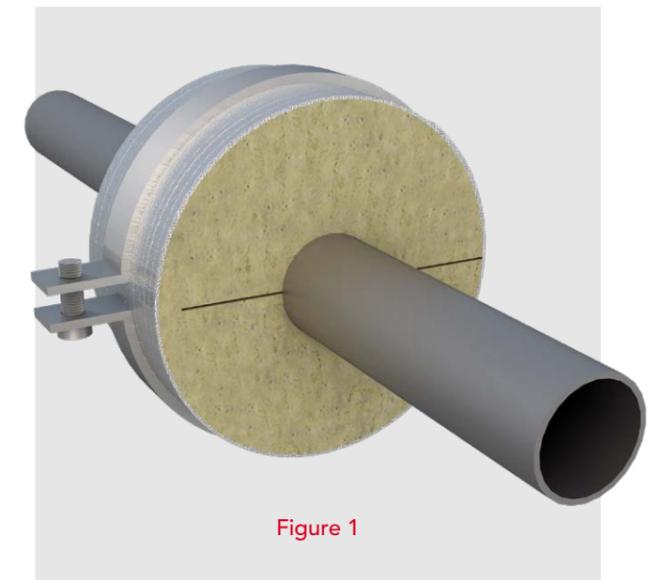


Figure 1



# Pipe Section Mat (PSM)



## Description

Pipe Section Mat (PSM) consists of a rigid foil faced slab with factory machined grooves on the inside face to specifically suit large pipe diameters. The distance between the grooves is calculated to ensure that Pipe Section Mat (PSM) closely fits the pipe with all grooves tightly butted together.

## Advantages

- Excellent thermal and acoustic insulation for large diameter pipes and vessels
- Easy to handle and install due to flat-pack supply
- High temperature use
- High compressive strength
- Ideal for use where storage space is limited

## Pipe Section Mat Ancillaries

- Suitable aluminium foil tape is available from specialist HVAC stockists



## Applications

Pipe Section Mat (PSM) is designed for HVAC applications for pipework above 406mm diameter. Below this size we recommend you use RockLap H&V Pipe Section.

The product is recommended for service temperatures of up to 700°C.

## Performance

### Durability

ROCKWOOL stone wool insulation products have been proven in service for over 60 years, in a wide range of climates and degrees of exposure. ROCKWOOL insulation will generally perform effectively for the lifetime of the building. Precise lifetime performance will of course depend on the specific installation and conditions to which it is exposed.

### Biological

ROCKWOOL stone wool fibres are inert and rot-proof that does not encourage the growth of fungi, mould or bacteria. ROCKWOOL insulation does not offer sustenance to vermin.

### Standards and approvals

Pipe Section Mat (PSM) conforms to BS EN 14303:2009: "Thermal insulation products for building equipment and industrial installations".

Pipe Section Mat (PSM) also satisfies the requirements as set by BS 5422: Method for specifying thermal insulating materials for pipes, tanks, vessels, ductwork and equipment operating within the temperature range -40°C to +700°C.

### Product properties in accordance with EN 14303

	T <sub>m</sub> (°C)	Performance							Norms
		50	100	150	200	250	300	350	
Thermal conductivity λ (W/mK)		0.041	0.046	0.054	0.064	0.075	0.088	0.106	EN ISO 8497
Max service temperature		700°C							EN ISO 14706
Reaction to fire		Euroclass A1							EN 13501-1
Nominal Density		140kg/m <sup>3</sup>							EN 1602
Water absorption		< 1kg/m <sup>2</sup> / < 20kg/m <sup>3</sup>							EN 1609 / BP 172
Water vapour diffusion resistance		sd > 200m							EN 12086
Air flow resistivity (*)		< 60 kPa.s/m <sup>2</sup>							EN 29053
Designation code (*)		MW EN 14303-T4-ST(+)-700-WS1-MV2							EN 14303

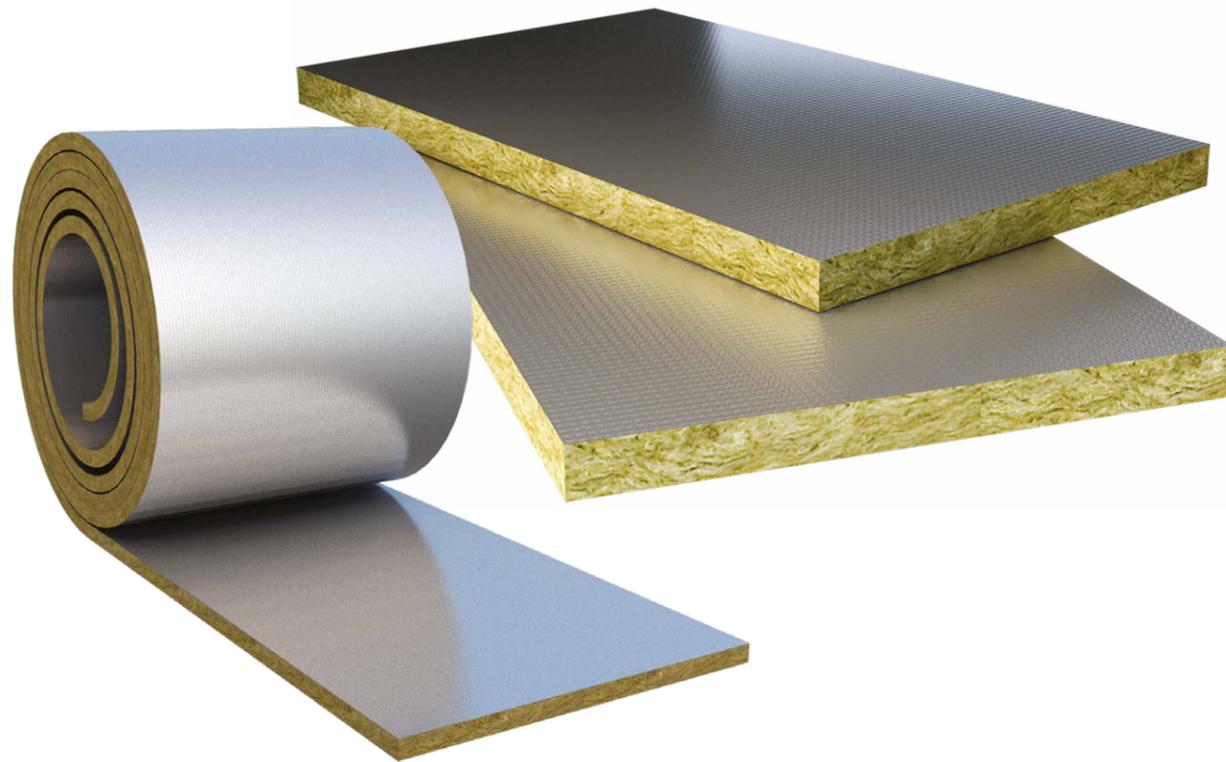
(\*): performances declared on the basis of test results from slabs in equal density

## Installation

The method of fixing depends on the type of application and whether single or multiple layers of Pipe Section Mat (PSM) are required. Usually the fixing of each layer is achieved with metal tie wires or bands. Typically, an exterior cladding is then installed. Pipe Section Mat (PSM) is compatible with all typical exterior finishes.



# Ductwrap and Ductslab



## Description

ROCKWOOL Ductwrap and Ductslab are used for the thermal insulation of cold water storage, feed and expansion tanks. The products are recommended for ductwork for service temperatures of up to 230°C.

Ductwrap is a lightweight, flexible insulation roll, faced with reinforced aluminium foil.

Ductslab is a semi-rigid insulation slab, faced with reinforced aluminium foil.

## Advantages

- Acoustically absorbent
- Non-combustible
- Water repellent
- Chemically inert
- Easy to handle and install

## Ductwrap and Ductslab Ancillaries

- Suitable aluminium foil tape is available from specialist HVAC stockists



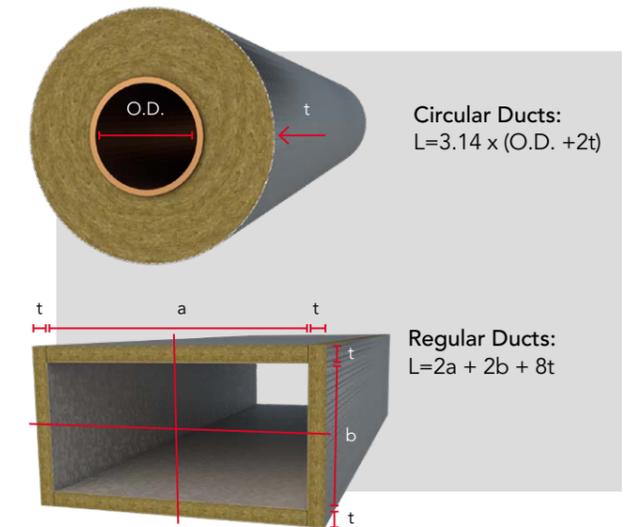
## Applications

### Calculation of length

The calculation to determine the length of Ductwrap required to insulate the pipe or duct is made using the formula shown below.

The required thickness of Ductwrap and Ductslab insulation will depend on such factors as duct air temperatures, ambient air temperatures and the designed heat losses.

The tables included are for general guidance only.



Thickness of ROCKWOOL insulation for chilled air ducts (taken from BS 5422:2009 Table 12)

Table 12 - Ductwrap

Minimum insulation thickness for condensation control on ductwork carrying chilled air in ambient conditions: indoor still air temperature +25°C, rh 80%, dewpoint 21.3°C

Minimum temperature inside duct (°C)	External surface emissivity - Minimum thickness of ROCKWOOL Ductwrap (mm)					
	0.05 (eg. Bright aluminium foil)		0.44 (eg. Dusty galvanised steel)		0.90 (eg. Black paint)	
	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)
15	26	30	13	25	9	25
10	45	50	23	25	15	25
5	64	70	33	40	21	25
0	83	90	42	50	27	30

Table 12 - Ductslab

Minimum temperature inside duct (°C)	External surface emissivity - Minimum thickness of ROCKWOOL Ductslab (mm)					
	0.05 (eg. Bright aluminium foil)		0.44 (eg. Dusty galvanised steel)		0.90 (eg. Black paint)	
	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)
15	26	30	14	25	9	25
10	47	50	24	25	15	25
5	67	70	34	40	22	25
0	86	90	44	50	28	30



**Indicative thickness of insulation for ductwork carrying warm air to control heat loss**

(taken from BS5422:2009 Table 13) Horizontal duct @ 35°C, still air @ 15°C

**Table 13 - Ductwrap**

Maximum heat loss (W/m <sup>2</sup> )	External surface emissivity Minimum thickness of ROCKWOOL Ductwrap (mm)					
	0.05 (eg. Bright aluminium foil)		0.44 (eg. Dusty galvanised steel)		0.90 (eg. Black paint)	
	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)
16.34	31	40	37	40	39	40

**Table 13 - Ductslab**

Maximum heat loss (W/m <sup>2</sup> )	External surface emissivity Minimum thickness of ROCKWOOL Ductslab (mm)					
	0.05 (eg. Bright aluminium foil)		0.44 (eg. Dusty galvanised steel)		0.90 (eg. Black paint)	
	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)
16.34	32	40	38	40	41	50

**Indicative thickness of insulation for chilled and dual-purpose ducting to control heat transfer**

(taken from BS5422:2009 Table 14) Horizontal duct @ 13°C, still air @ 25°C

**Table 14 - Ductwrap**

Maximum heat loss (W/m <sup>2</sup> )	External surface emissivity Minimum thickness of ROCKWOOL Ductwrap (mm)					
	0.05 (eg. Bright aluminium foil)		0.44 (eg. Dusty galvanised steel)		0.90 (eg. Black paint)	
	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)
6.45	50	50	58	60	61	70

**Table 14 - Ductslab**

Maximum heat loss (W/m <sup>2</sup> )	External surface emissivity Minimum thickness of ROCKWOOL Ductwrap (mm)					
	0.05 (eg. Bright aluminium foil)		0.44 (eg. Dusty galvanised steel)		0.90 (eg. Black paint)	
	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)
6.45	52	60	59	60	63	70

## Performance

### Standards and approvals

Ductwrap and Ductslab products are CE marked in accordance with BS EN 14303.

For more information please visit [www.rockwool.co.uk/DOP](http://www.rockwool.co.uk/DOP)

Ductslab satisfies the requirements of BS 3958-5, 'Specification for bonded man-made mineral fibre slabs'.

Ductwrap and Ductslab can be used to satisfy the requirements of BS 5422 'Method for specifying thermal insulating materials'.

The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with this data sheet – please refer to the LUL Approved Product Register website [www.LU-apr.co.uk](http://www.LU-apr.co.uk) for specific details.

### Fire

The products are classified A1 in accordance with BS EN 13501-1 and fully comply with the definitions of non-combustible in all UK and Ireland Building Regulations.

### Thermal

Temperature	10°C	50°C	100°C	150°C	200°C
Ductslab λ (W/mK)	0.034	0.042	0.054	0.060	0.086
Ductwrap λ (W/mK)	0.034	0.040	0.050	0.063	0.079

Consider a horizontal duct at 35°C in still air at 15°C insulated with 50mm Ductslab or Ductwrap:

Cladding type	Emissivity (ε)	Other surface temp (°C)	Heat loss (W/m)
Aluminium	0.05	19.0	13
Cloth	0.90	16.9	14

### Service temperature and limiting surface temperature

ROCKWOOL Ductwrap and Ductslab can be used for service temperatures of up to 230°C. The limiting outer foil face temperature is 80°C to maintain facing bond strength.

### Acoustics

It is sometimes desirable to improve the acoustic insulation on ducts, especially those in which gases, fluids or particle solids are transported at high velocities. The use of Ductwrap and Ductslab can considerably improve the level of environmental sound. For higher standards of acoustic attenuation, ROCKWOOL Techwrap can be used to provide both thermal and acoustic insulation.



## Product information

### Dimensions

Ductwrap rolls - 1000mm wide

Thickness of roll (mm)	Length of roll (mm)	Rolls per pack	Area per pack (m <sup>2</sup> )
25	5000	2	10
40	4000	2	8
50	6000	1	6

Ductslab - length 1000mm width 600mm thickness 40, 50 and 60mm\*

\*Other thicknesses may be available upon request

### Density

The nominal density of Ductwrap and Ductslab is 45kg/m<sup>3</sup>.

### pH neutrality

ROCKWOOL insulation is chemically compatible with all types of pipes, ducts, equipment and fittings. (Guidance is given in BS5970 regarding the treatment of austenitic stainless steel pipework and fittings). Stonewool insulation is chemically inert. A typical aqueous extract of ROCKWOOL insulation is neutral or slightly alkaline (pH 7 to 9.5).

### Durability

ROCKWOOL stone wool insulation products have been proven in service for over 60 years, in a wide range of climates and degrees of exposure. ROCKWOOL insulation will generally perform effectively for the lifetime of the building, plant or structure.

### Biological

ROCKWOOL stone wool is a naturally inert and rot- proof material that does not encourage or support the growth of fungi, moulds or bacteria, or offer sustenance to insects or vermin.

### Water vapour resistance

When suitably taped, the aluminium foil gives Ductwrap and Ductslab a water vapour resistance of approx 1000MNs/g.

## Specification clauses

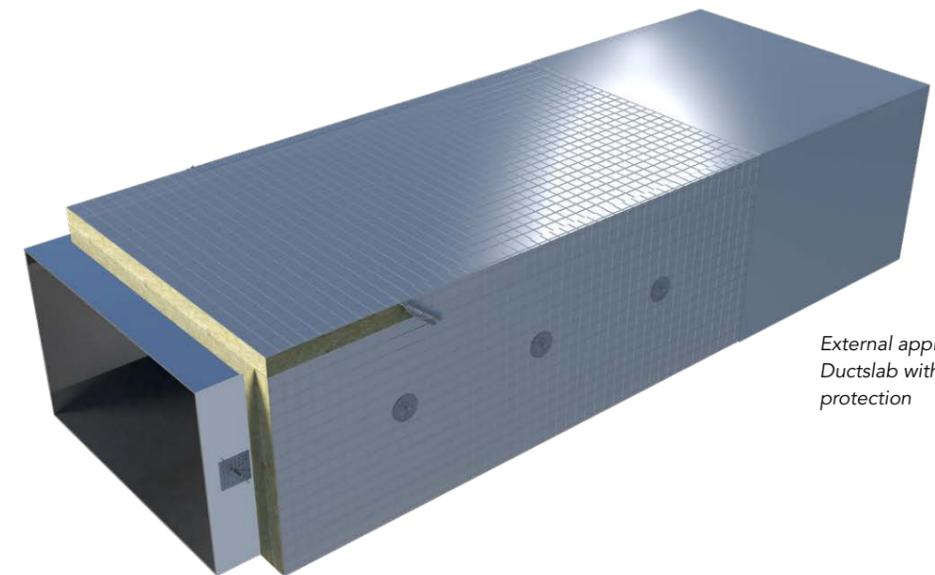
### Typical specification clauses for ductwork

The following specifications are for guidance purposes only and should be read in conjunction with recommendations given in BS 5970.

#### 1. External applications (weather protected)

The duct insulation is to be Ductslab manufactured by ROCKWOOL Limited, Pencoed, Bridgend, CF35 6NY, secured to the ducting by means of a suitable adhesive and/or self-adhesive stick pins\*, applied in accordance with the manufacturer's recommendations.

All joints are to be securely taped with 75mm wide plain soft aluminium foil self-adhesive tape (Idenden type T303, or similar and approved) to maintain a continuous vapour barrier. The final surface treatment is to be:



External application of Ductslab with weather protection

**Note:** The pins and washers are necessary to avoid sagging of the insulation, particularly on larger size ducts and on the undersides of ducts. Fixing centres will depend on the size of the duct and the weight of the insulating material. The excess projection of the pins above the washers should be cut off and the washer sealed using the soft aluminium self-adhesive tape to maintain the integrity of the vapour barrier. The maximum surface temperature of the ductwork should not exceed the recommended maximum service temperature of the self-adhesive stick pins.

(Guidance should be sought from the manufacturer of the stick pins).



a) Flat aluminium zinc coated steel protection	Mild steel sheet continuously hot dipped with 185g/m <sup>2</sup> aluminium-zinc coating to BS EN 10326 and BS EN 10327, applied directly to insulating material.  0.4mm thick flat sheet Fixed and installed in accordance with BS5970.
b) Ribbed aluminium-zinc coated steel protection	Mild steel sheet continuously hot dipped with 185g/m <sup>2</sup> aluminium-zinc coating to BS EN 10326 and BS EN 10327, applied directly to insulating material.  0.4mm thick ribbed sheet Fixed and installed in accordance with BS5970.
c) Aluminium sheeting protection	Apply flat (embossed) or profiled aluminium cladding directly to insulating material.  0.56mm thick on pipework 0.71mm thick on ductwork Fixed and installed in accordance with BS5970.
d) Mild steel sheet	Mild steel sheet continuously hot dipped with aluminium-zinc coating to BS EN 10326 and BS EN 10327, applied directly to insulating material.  Fixed and installed in accordance with BS5970.
e) Self adhesive weather resistant zero perm multi-layer laminate	Apply multi-layer laminate directly over ducts and pipework, ensuring 75mm overlap for a complete vapour barrier.  Fixed and installed in accordance with BS5970.
f) Polyisobutylene	Polyisobutylene, minimum thickness 0.8mm. Fixed and installed in accordance with BS5970.
g) Roofing felt protection	Secure in position with galvanized wire netting, of 1mm x 25mm mesh. Finish with two coats of black bituminous paint.  Fixed and installed in accordance with BS5970.

**NBS clauses'**

ROCKWOOL Ductslab and Ductwrap are associated with the following NBS Clauses:

**T90 Heating systems - domestic**

- 390 Feed and expansion cisterns

**U90 General ventilation - domestic**

- 490 Site applied insulation to ductwork

**Y30 Mechanical Thermal Insulation**

- 340 Mineral fibre insulation slabs

**2. Horizontal ducts concealed from view**

To be insulated with ROCKWOOL Ductwrap/ Ductslab, nominal density 45kg/m<sup>3</sup>, having a factory applied reinforced aluminium foil facing. Joints to be securely taped with 75mm minimum wide soft aluminium self adhesive tape. The insulation on the underside of the ducting to be additionally secured by suitable insulation hangers at 300mm centres.

The whole to be further supported by means of:-

- 19 - 22 SWG x 50mm mesh galvanised wire netting. Where a vapour barrier is required, care to be taken when applying wire mesh support to avoid damaging the aluminium foil.

or

- Aluminium Bands, circumferential at nominal 300mm centres. Bands located over the outer surface typically 50mm from the circumferential joint of the Ductwrap and Ductslab. Do not over tighten the aluminium bands, as this will locally reduce the thickness of the insulation and reduce the thermal efficiency.

N.B. Additional measures may be necessary to prevent sagging.

or

- Subject to the client's approval, alternative fixings can be used in place, or alongside the above.

For operating temperatures below ambient a vapour barrier is required.

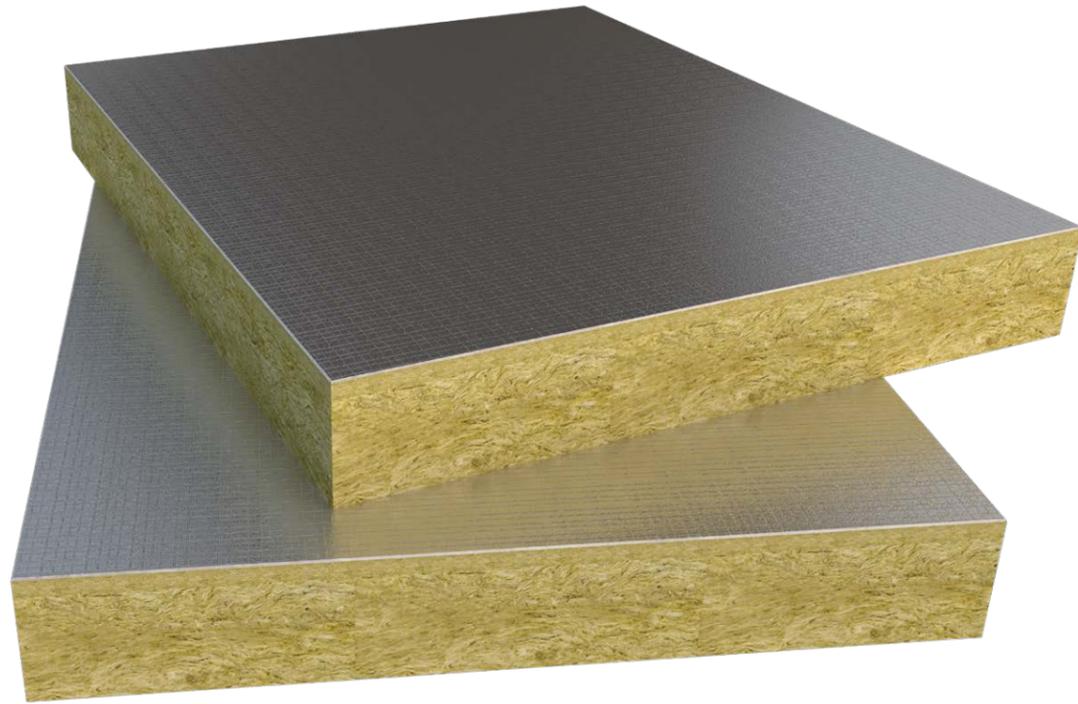
Provision should be made at all exposed edges to ensure continuation of the aluminium foil to the duct surface. Aluminium foil to be secured with 75mm wide aluminium self-adhesive tape (i.e. Idenden T303 or similar and approved).

Where support pins/hangers puncture the foil, they should be sealed using aluminium foil tape to maintain the vapour barrier.





# DuoDuct



## Description

DuoDuct is a non-combustible, Dual-Density stone wool slab with an aluminium foil facing bonded to the outer surface. The robust outer layer provides a suitable surface for the application of insulation cladding systems.

## Advantages

- Euroclass A1 non-combustible
- Sound absorbent
- Suitable for use with self-adhered external duct membranes
- Dual Density technology provides impact resistance
- Easy to cut and quick to install

## DuoDuct Ancillaries

- Suitable aluminium foil tape is available from specialist HVAC stockists



## Applications

DuoDuct has been designed for use with rectangular and square external duct work carrying warm air, chilled air or dual purpose duct systems. DuoDuct is recommended for ductwork with service temperatures up to 230°C.

DuoDuct is also suitable for use within plant rooms, low level plant work applications and areas where there is an increased risk of impact damage.

### Circular ductwork

In addition to DuoDuct Slab for rectangular or square external ductwork, ROCKWOOL offer a range of products that are suitable for use on circular external ductwork and this includes:

- RockLap H&V Pipe Sections which are suitable for outside diameters ranging from 17-406mm
- Pipe Section Mat which is suitable for larger circular ductwork  $\geq 406$ mm

For further information on suitable external finishes for both RockLap and Pipe Section Mat please refer to the HVAC Specification Guide and the relevant datasheets which are available at [www.rockwool.co.uk](http://www.rockwool.co.uk).

## Performance

### Standards and approvals

DuoDuct has been CE marked in accordance with BS EN 14303. To download a copy of the Declaration of Performance please visit [www.rockwool.com/DOP](http://www.rockwool.com/DOP).

DuoDuct can be used to satisfy the requirements of BS 5422 'Method for specifying thermal insulating materials'.

### Fire

ROCKWOOL DuoDuct achieves a Reaction to Fire classification of A1 as defined in BS EN 13501: 1

### Thermal

The thermal conductivity at 10°C is 0.036 W/mK in accordance with EN 12667: 2001  
The maximum service temperature is 230°C in accordance with EN 14706: 2012

### Acoustics

It is sometimes desirable to improve the acoustic insulation on duct systems, especially those in which gases, fluids or particle solids are transported at high velocities. The use of ROCKWOOL DuoDuct can considerably improve the level of environmental sound.



## Product information

Property	Description
Length	2000mm
Width	1200mm
Thickness	50mm
Reaction to fire	Euroclass A1

### pH neutrality

ROCKWOOL insulation is chemically compatible with all types of pipes, ducts, equipment and fittings. Stone wool insulation is chemically inert. A typical aqueous extract of ROCKWOOL insulation is neutral or slightly alkaline (pH 7 to 9.5).

### Durability

ROCKWOOL stone wool insulation products have been proven in service for over 60 years, in a wide range of climates and degrees of exposure. ROCKWOOL insulation will generally perform effectively for the lifetime of the building, plant or structure.

### Biological

ROCKWOOL stone wool is a naturally inert and rot-proof material that does not encourage or support the growth of fungi, moulds or bacteria and offers no sustenance to insects or vermin.

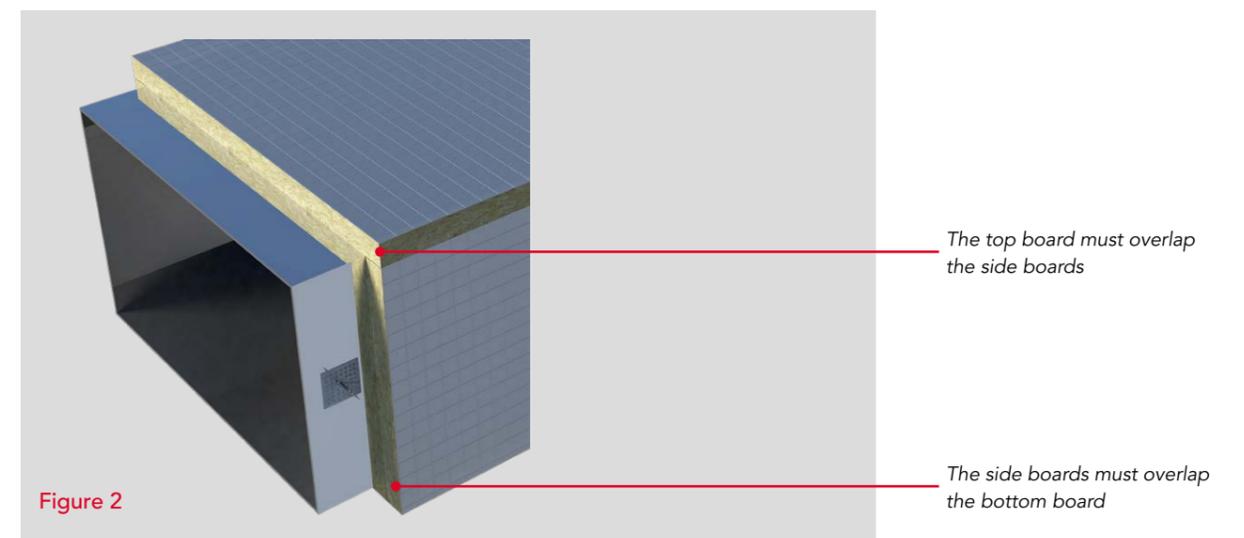
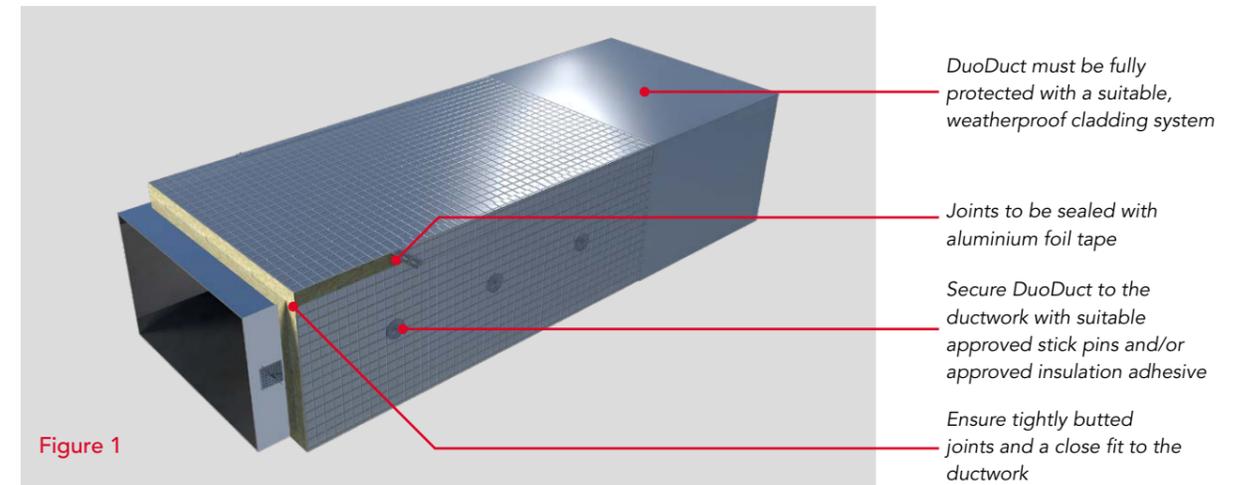
### Water vapour resistance

When suitably taped, the aluminium foil gives DuoDuct a water vapour resistance of approximately 1000 MNs/g.

## Installation

The following installation guidance notes should be read in conjunction with the recommendations given in BS 5970.

- The insulation should be handled with care to prevent physical damage to the DuoDuct boards.
- DuoDuct is easily cut using an insulation knife or hand saw. Ensure that all board cuts are accurate and square to achieve close butting of the joints when applying to the ductwork.
- Duct surfaces must be clean, dry and free from grease, dust, dirt, rust and other foreign matter.
- DuoDuct must be securely fixed to the ductwork using a suitably approved adhesive or using self-adhesive stick pins or a combination of both fixing methods. The maximum surface temperature of the ductwork should not exceed the maximum service temperature of the selected fixing method; guidance should be sought from the manufacturers.
- DuoDuct should be installed with closely butted insulation joints, also ensuring a close fit to the actual ductwork.
- When installing onto horizontal ductwork the side boards must overlap the base (bottom) board and the top board must overlap the side boards (Figure 2).
- All board joints must be securely taped with suitable aluminium foil self-adhesive (Idenden type T303 or similar approved) to maintain a continuous vapour barrier.
- For the purposes of inspection and maintenance a suitably sized and sealed section of DuoDuct can be applied at access door locations if the door is not already pre-insulated.



### Weather protection

ROCKWOOL DuoDuct must be fully protected with a suitable weatherproof cladding system. Suitable finishes include:

- Flat aluminium zinc coated steel protection
- Ribbed aluminium zinc coated steel protection
- Aluminium sheeting protection
- Mild sheet steel protection
- Self-adhesive weather resistant zero perm multi-layer laminate
- Polyisobutylene
- Roofing felt protection

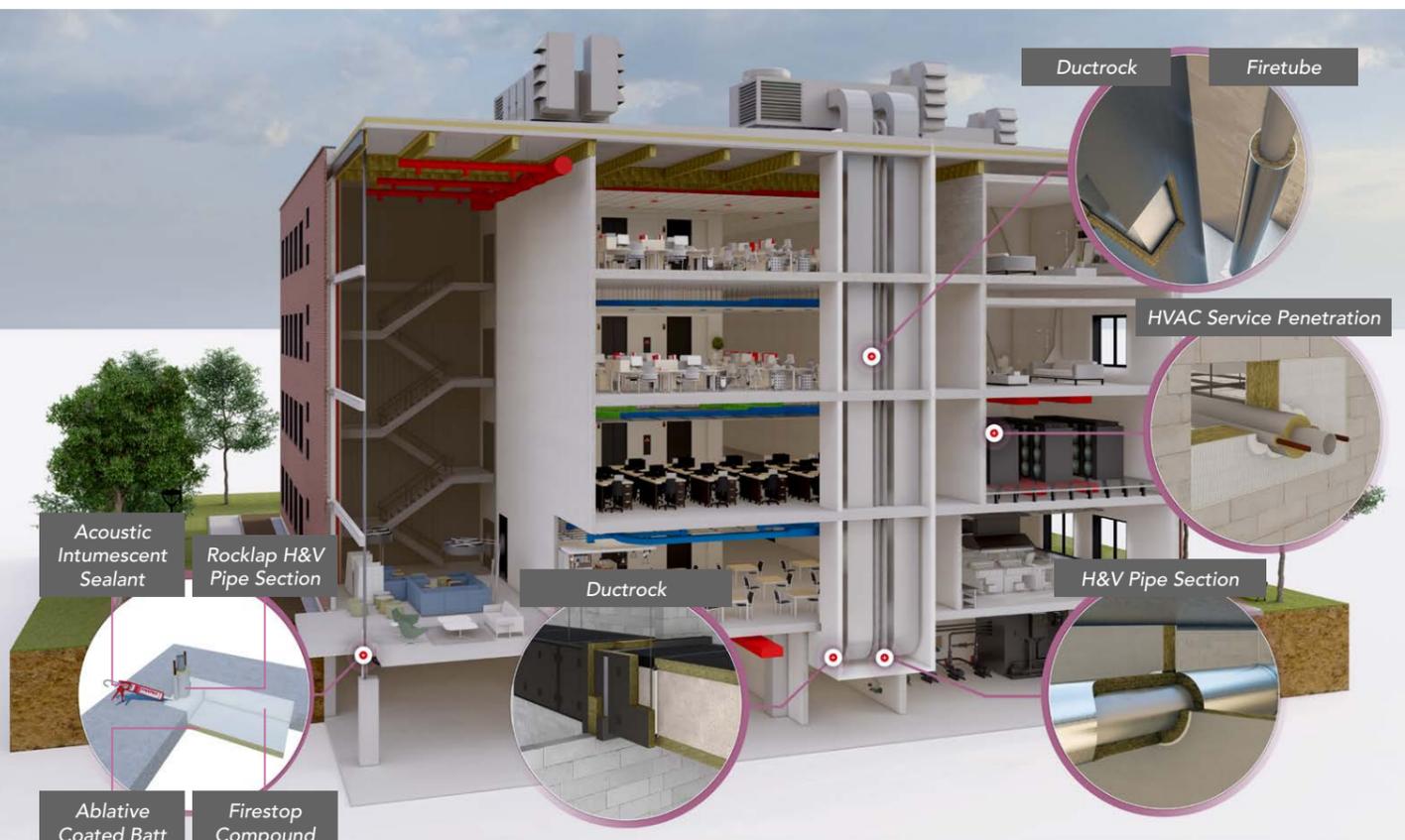
The weatherproof cladding system chosen must always be installed in accordance with the manufacturers recommendations. For further information on suitable external finishes please refer to the HVAC Specification Guide available at [www.rockwool.co.uk](http://www.rockwool.co.uk).

# Fire resistant applications

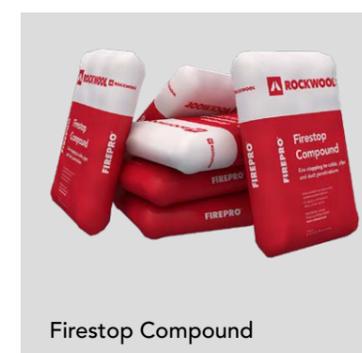
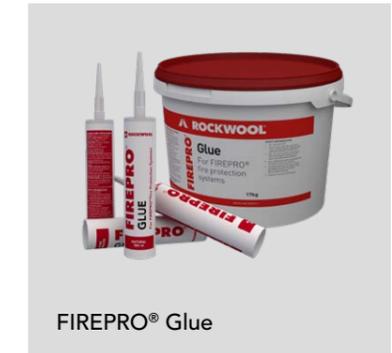
Preventing the passage of fire is an essential element of building design and construction, and where HVAC systems are in situ, the risk of fire spreading is heightened.

The pipes and ducts that serve HVAC systems act as heat conductors which can lead to fire spreading through to other compartments which might otherwise be adequately protected – a dangerous risk given HVAC is commonly installed in high rise and densely occupied buildings.

When considering insulation therefore, using non-combustible ROCKWOOL stone wool ensures the highest level of fire protection, maintaining the fire resistance of individual building compartments and protecting the lives of the building's occupants. With a suite of solutions which accommodate pipes as well as round and rectangular ducts, ROCKWOOL HVAC stone wool insulation can provide up to two hours fire resistance through compartment elements.



## Core products



- Useful documents and standards
- ASFP Technical Guidance Document – TGD 18: Code of practice for the installation & inspection of fire resisting duct systems
  - ASFP Blue Book: Fire Resisting Ductwork
  - ASFP Grey Book: Fire and smoke resisting dampers
  - ASFP: Ensuring best practice for passive fire protection in buildings
  - BS 476-24: Fire test on building materials and structures. Method for determination of the fire resistance of ventilation ducts
  - BS EN 1366-1: Fire resistance test for service installations. Ventilation ducts
  - BS EN 1366-8: Fire resistance test for service installations. Smoke extraction ducts
  - BS EN 1363-1: Fire resistance tests. General requirements
  - BS EN 13501-3: Fire classification using test data from resistance to fire tests on products and elements used in building service installations. Fire ducts and dampers
  - BS EN 13501-4: Fire classification using test data from resistance to fire tests on components of smoke control systems



# FIREPRO® Fire Duct Systems



## Description

Three products are available in the Fire Duct Systems range:

- Fire Duct Slab – for rectangular ducts
- Fire Duct Section – for circular ducts between 60mm and 356mm diameter
- Fire Duct PSM – for circular ducts greater than 406mm diameter

All three Fire Duct products are supplied faced on one side with reinforced aluminium foil.

Fire Duct Slab is a high density insulation slab faced with reinforced aluminium foil.

Fire Duct Section is a high density pre-formed pipe section faced with reinforced aluminium foil.

Fire Duct PSM is a high density slab with factory machined grooves to facilitate installation around a circular duct, faced with reinforced aluminium foil.

## Advantages

- Quick and easy to install
- Fully certified to BS 476-24 (duct types A and B)
- ½, 1, 1½ and 2hour fire protection for stability, integrity and insulation
- Choice of fixing options
- Single layer, enabling verification of system installation
- Space efficient, non-brittle, strong and safe
- Multi-role insulation: fire protection, acoustic and thermal
- Can be installed on standard DW144/42 ductwork

## FIREPRO® Fire Duct Systems Ancillaries

- FIREPRO® Glue is available from ROCKWOOL stockists
- Stud welded pins, pigtail screws and nails are available through CEVaC Limited, Tel: +44 (0) 1403 786503
- Suitable aluminium foil tape is available from specialist HVAC stockists



## Applications

### System options – Rectangular ducts

#### Welded pin fixing method

Attachment by welded pins allows extremely rapid installation with slab joints simply butted together.

Welded pins are generally spaced at 350mm maximum centres along the length of the duct and at 500mm maximum centres across the width and depth of the duct. Pins are required on all four sides of vertical ducts, but may be omitted from the top face of horizontal ducts, see Figures 5 and 6 on page 10.

Longitudinal corner joints fixed with pigtail screws at 250mm maximum centres (screw length to be 2 x slab thickness). Side wall slabs must overlap top and bottom slabs (as shown). Cross joints bonded with FIREPRO® Glue.

#### Alternative joint methods

Instead of pigtail screws, longitudinal joints can be fixed with FIREPRO® Glue and nails, at 500mm max. centres.

Instead of glue, cross joints can be protected with centrally positioned, 100mm wide Fire Duct strips fixed along both edges with pigtail screws at 250mm max. centres.

#### Mitre-joint fixing methods

The use of mitre-joints at slab corners allows installation in situations where welding may not be practical.

#### Mitre-joint method

All joints bonded with ROCKWOOL FIREPRO® Glue. Longitudinal corner joints secured with nails while ROCKWOOL FIREPRO® Glue cures.

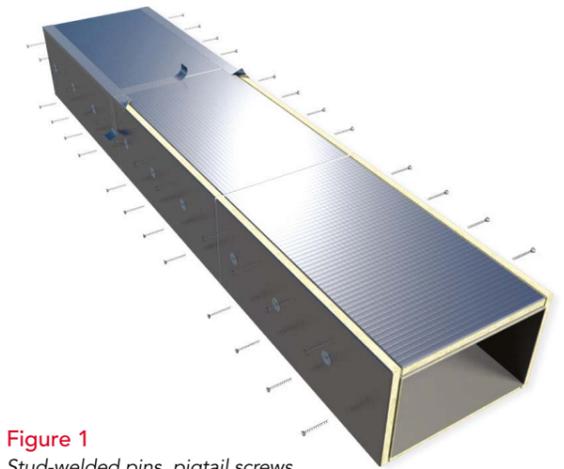


Figure 1  
Stud-welded pins, pigtail screws

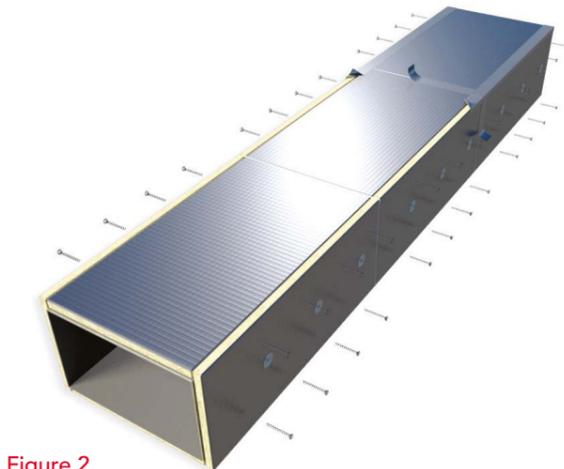


Figure 2  
Stud-welded pins, nail and glue

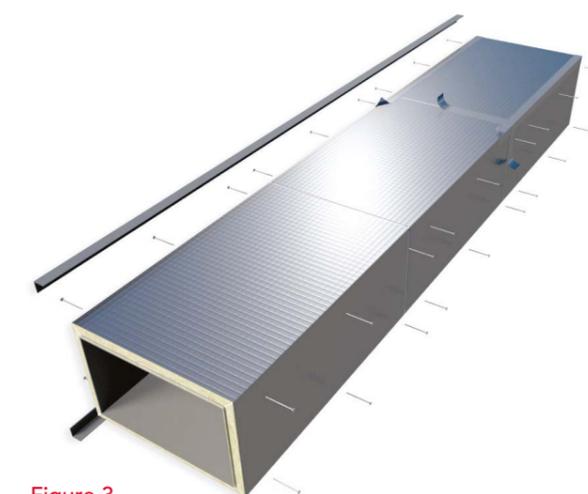


Figure 3  
Mitre joint, nails and glue



### System options – Circular ducts

#### FireDuct Section

Circular steel ducts of between 60mm and 356mm diameter may be protected using Fire Duct Section. Fire Duct Section must be glued with ROCKWOOL FIREPRO® Glue at the joints and in the grooves. Steel bands or wires must be fitted circumferentially to the system at 300mm nominal centres to hold all joints and grooves tightly closed while the glue cures.

Where required, cover strips and bearer protection pieces are to be cut from Fire Duct Section (or Fire Duct PSM) of the appropriate diameter. The foil covering is to be removed from the area of Fire Duct Section immediately beneath the cover strips prior to gluing into position and securing with steel nails or pins.

All joints are to be securely taped with 75mm wide plain soft aluminium foil self-adhesive tape (Idenden type T303, or similar and approved) to maintain a continuous vapour barrier.

The hanger system is as described on page 66 of our FIREPRO® Brochure and as shown in Figures 1 and 2, with the angle bearer formed into a circular shape to suit the diameter of the duct or the Fire Duct Section (depending on whether the hanger is located inside or outside the protection).

Fire Duct Section is used to protect the drop rods as described on page 8 of this brochure. General installation principles are as otherwise described in this Product Data Sheet for Fire Duct Slab.

#### Fire Duct PSM

Circular steel ducts of 406mm and greater diameter may also be protected using Fire Duct PSM.

Fire Duct PSM must be glued at the joints and in the grooves with ROCKWOOL FIREPRO® Glue. Steel bands or wires must be fitted circumferentially to the system at 300mm nominal centres to hold all joints and grooves tightly closed while the glue cures.

General duct, hanger and installation details are as described for Fire Duct Section.

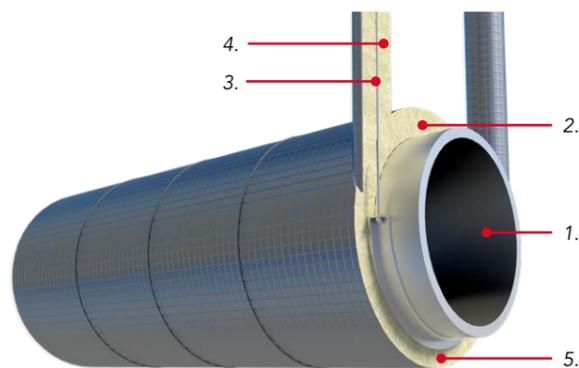


Figure 1  
Fire Duct Section applied to circular duct

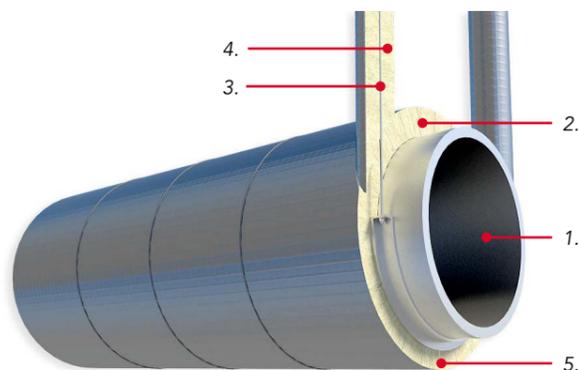


Figure 2  
Fire Duct PSM applied to circular duct

#### Key to Figures 1 and 2

1. Circular steel duct to DW/144
2. Fire Duct Section/Fire Duct PSM
3. M10 steel drop rods at 1500mm maximum centres
4. Fire Duct Slab/Section – protection to hanger system
5. 30 x 30 x 3mm minimum steel angle bearer

## Performance

### Fire

#### Fire Duct Slab & Fire Duct PSM

Non-combustibility: Class A1 to BS EN 13501-1

#### Fire Duct Section

Non-combustibility: Class A2 to BS EN 13501-1

#### Fire resistance

Performance summary – Fire Duct Slab, Section and PSM.

Three performance criteria; stability, integrity and insulation, are required in equal measure for all ducts which pass through fire-rated walls or floors.

#### Fire Duct System test data

The Fire Duct products have been tested and assessed by the Loss Prevention Certification Board (LPCB) of the BRE in accordance with BS 476 – 24, 'Fire tests on building materials and structures – Methods for determination of the fire resistance of ventilation ducts'. Fire Duct products can be used to provide fire protection to horizontal, vertical, rectangular, circular, ventilation and smoke extract steel ductwork fully in accordance with BS 476 – 24, ducts 'Type A' and 'Type B', "Fire outside duct" and "Fire inside duct".

The ½, 1, 1½, and 2 hour periods of fire resistance stated in this manual are for stability, integrity and insulation in equal measure. For example, the 60 minutes duct constructions shown are certified for 60 minutes stability, 60 minutes integrity and 60 minutes insulation.

#### pH Neutrality

ROCKWOOL insulation is chemically compatible with all types of pipes, ducts, equipment and fittings. (Guidance is given in BS 5970 regarding the treatment of austenitic stainless steel pipework and fittings). Stone wool insulation is chemically inert. A typical aqueous extract of ROCKWOOL insulation is neutral or slightly alkaline (pH 7 to 9.5).

#### Standards & approval

The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with this data sheet – please refer to the LUL Approved Product Register website [www.LU-apr.co.uk](http://www.LU-apr.co.uk) for specific details.

Fire Duct Systems are third party approved by the Loss Prevention Council Certification board (LPCB) for performance and quality and are listed in the "Red Book" - certificate no. 022f. Certificates can be accessed online at [www.rockwool.co.uk](http://www.rockwool.co.uk) or [www.redbooklive.com](http://www.redbooklive.com).

#### 'Kitchen extract' ducts

These are subject to separate BS 476–24 requirements and are additionally covered for ½ and 1 hour protection periods.

Fire resistance (hours)	Duct type	Required Fire Duct thickness (mm)	Joint options	Hanger protection Fire Duct Slab (mm)	Hanger protection Hanger Section (mm)	Max. duct size for mitre-joint, glued system (mm)
½	HVAC & smoke extract	40	BC	40	17 x 30	1500 x 1500
½	Kitchen extract	40	BC	40	17 x 30	1500 x 1500
1	HVAC & smoke extract	40	BC	40	17 x 40	1000 x 1000
1	Kitchen extract	90	ABC	40	17 x 40	1500 x 1500
1½	HVAC & smoke extract	70	ABC	50	17 x 50	1200 x 1200
2	HVAC & smoke extract	90	ABC	60	17 x 70	1000 x 1000



## Product information

### Dimensions

#### Fire Duct Slab

- Size: 1200 x 2000mm
- Thicknesses: 40, 50, 70 and 90mm\*
- Facing: reinforced aluminium foil

#### Fire Duct Section

- Diameters: 60 to 356mm
- Thicknesses: 30, 40 and 90mm\*
- Facing: reinforced aluminium foil

#### Fire Duct PSM

(Made of Fire Duct Slab with factory machined grooves to suit specific duct diameters)

- Diameters: 406mm and above\*
- Thicknesses: 40 and 90mm\*
- Facing: reinforced aluminium foil

#### Fire Duct Section for use on hangers

- Nominal OD from 17mm
- Thicknesses: from 30mm\*
- Facing: reinforced aluminium foil

### Durability

ROCKWOOL stone wool insulation products have been proven in service for over 60 years, in a wide range of climates and degrees of exposure. ROCKWOOL insulation will generally perform effectively for the lifetime of the building, plant or structure.

### Biological

ROCKWOOL stone wool is a naturally inert and rot-proof material that does not encourage or support the growth of fungi, moulds or bacteria, or offer sustenance to insects or vermin.

\*Some thicknesses may be subject to minimum order quantities. Some combinations of diameter and thickness may not be available or may be subject to a minimum order quantity.

## Installation instructions

### Hangers, bearers and flanges

Fire Duct products are approved to provide fire protection to steel ductwork, wholly constructed using steel fixings in accordance with current B&ES specification DW/144 and superseded specification DW/142.

Where there are constructional options within DW/144 and DW/142, these are expanded upon below. These details are primarily concerned with duct joint types and the suspension method.

DW/142 flanged cross joint types J3, J4, J5 and J6 are acceptable for use with the Fire Duct System, without modification.

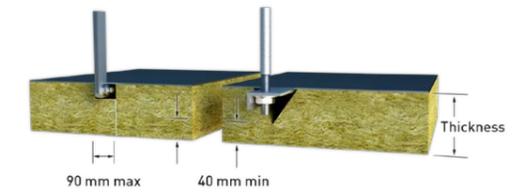
Fire Duct Slab, Fire Duct Section or Fire Duct PSM may be installed either outside or inside the hanger system.

Bearers will require additional protection only when positioned outside the Fire Duct layer.

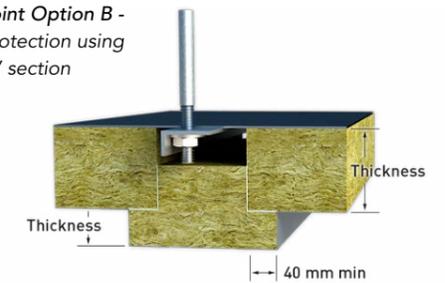
Drop rods will normally be protected with Fire Duct Section or with Fire Duct Slab blocks (see Figure 4).

Alternatively, the support steelwork may be sized so that separate protection is not required. Design of this 'unprotected support' method is independent of the Fire Duct System.

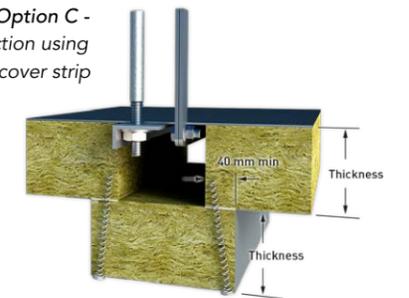
Figure 3  
Joint Option A - Rebated protection



Joint Option B - Protection using 'T' section



Joint Option C - Protection using block cover strip



Item	Duct size (mm)		
	Up to 1500 x 1500	Up to 2000 x 2000	Up to 3000 x 3000
Max hanger centres (mm)	1500	1500	1500
Min drop rod size	M10	M10	M12
Min angle bearer (mm)	30 x 30 x 3	50 x 50 x 5	50 x 50 x 6

\* DW/144 and DW/142 do not specifically cover ducts larger than 3m wide. Please contact ROCKWOOL for details (contact details on back cover).

### Protection of hangers outside Fire Duct System

Hangers outside the Fire Duct System are protected by cutting a rebate into a block of Fire Duct Slab, Fire Duct PSM or Fire Duct Section.

The rebate should be no larger than necessary to accommodate the bearer. The block should be glued and pinned in position (see Figure 3, Option A) or secured using pigtail screws.

### Other J Joints

If type J1 or J2 cross joints are fitted, then the joints must be upgraded to at least the J3 specification. This can be done by adding steel fixing bolts and fastenings in line with the J3 joint type. Also a minimum S3 stiffener should be fitted to the duct adjacent to the cross joint. This will upgrade the cross-sectional stiffness of the duct.

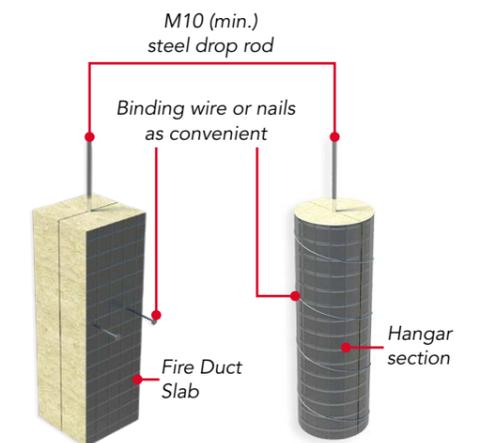


Figure 4  
Isometric view of drop rod protection options



### ROCKWOOL FIREPRO® Glue

ROCKWOOL FIREPRO® Glue has a pH value of 11. It is available in 300ml cartridges or 17kg tubs. Always stir the tubs before use.

Where required, 1–1.5mm of glue should be applied to each Fire Duct joint. The glue is generally applied by spatula or trowel.

Where present, any foil facing must be removed from surfaces prior to the application of FIREPRO® Glue. Take care to remove any FIREPRO® Glue from all aluminum foil surfaces with a damp cloth

### Nails (for use only with mitre-joint 'glued' systems)

The nail length is to be 2 x board thickness (see Figure 7 for positions)

### Pigtail Screws

Pigtail screws are to be used at all corner joints where FIREPRO® Glue is not used, and to secure cross joint cover strips.

Pigtail screws are to be positioned at 250mm maximum centres, and the screw length is to be 2 x slab thickness.

For horizontal ducts, pigtail screws must be inserted horizontally.

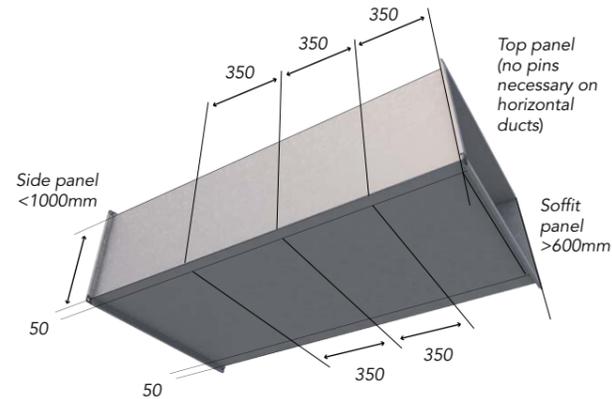


### Optional edge protection

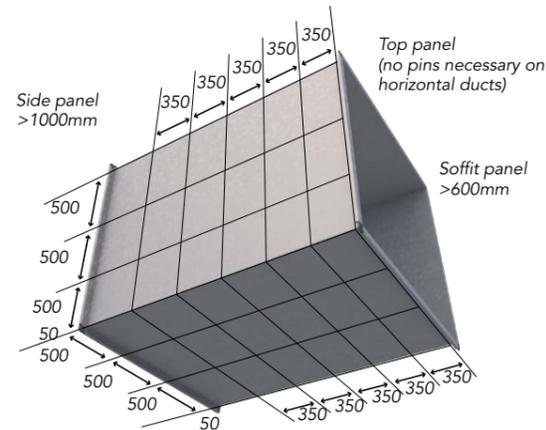
Light gauge metal angles may be glued in position to provide optional edge protection. The metal angles must be de-greased. Small pins may be required to hold the angle to the underside of the duct.

### Vapour barrier

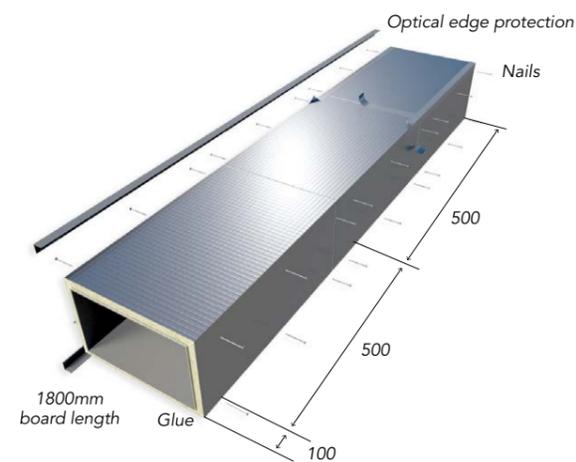
Where a vapour barrier is required, all exposed Fire Duct edges and penetrations through the foil must be sealed using aluminium foil tape.



**Figure 5**  
Steel pin arrangement where side panel does not exceed 1000mm and soffit panel does not exceed 600mm



**Figure 6**  
Steel pin arrangement where side panel is greater than 1000mm or soffit panel is greater than 600mm



**Figure 7**  
Rectangular ducts – 45° mitre joint system, showing installation sequence

### Wall penetrations, elbows, 2 and 3-sided applications and access hatches

#### Wall and floor penetrations

Support to duct sides is required at all penetrations for stability purposes. This support can be provided by:

- A 30 x 30 x 2mm mild steel angle frame fixed to the duct at the penetration mid-point. Steel rivets should be used at 300mm maximum centres (Figure 8),
- Locating the duct joint at the penetration mid-point.

In all cases, low density ROCKWOOL stone wool, typically RWA45, is packed tightly into the void between the Fire Duct product and the wall opening.

120mm wide blocks of Fire Duct are glued (or secured with pigtail screws) to the duct insulation and to the wall on both sides of the penetration.

All Fire Duct to wall joints are glued. Aluminium foil is located in Fire Duct joints at wall penetrations (as shown).

#### Proprietary penetration seals

Where proprietary penetration seals are used, compatibility with the separating element, duct construction and Fire Duct System must be demonstrated by independent test or assessment.

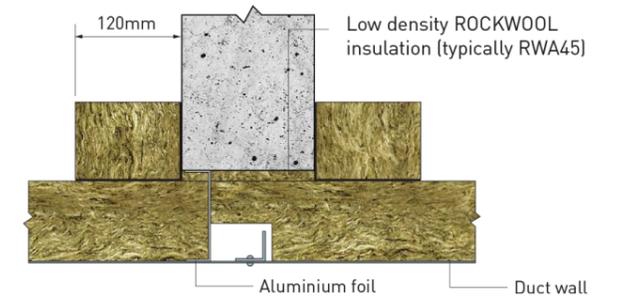
#### Elbows (rectangular ducts)

Small elbows may simply be boxed or 'squared off'. Larger elbows may need to be protected by cutting fan shaped pieces, generally in accordance with the illustration (Figure 9).

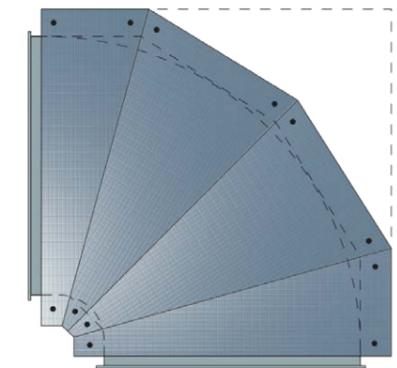
#### 2 and 3-sided applications (rectangular ducts)

The use of Fire Duct products incorporating welded pins is recommended for 2 and 3-sided applications.

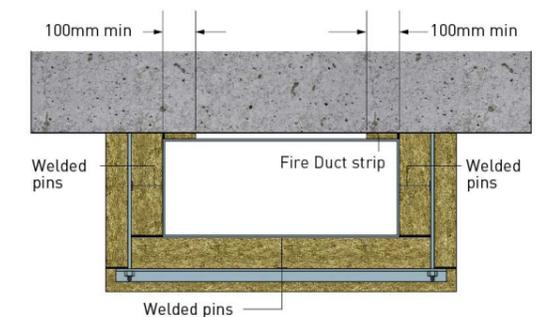
The method illustrated (Figure 10) for three-sided applications, may also be used for two-sided applications where the duct is securely braced in the corner of a room.



**Figure 8**  
Steel angle frame support to duct at penetration mid point



**Figure 9**  
Typical elbow detail for rectangular ducts



**Figure 10**  
Three sided protection for rectangular ducts, using welded pin fixing method



### Access hatches (rectangular ducts)

Steel access hatches which are constructed and fitted in accordance with DW/144 may be protected with Fire Duct Slab (Figure 11).

The Fire Duct cover may be fitted in any face of the duct. However, if the sliding cover is not in the horizontal plane the guides must be positioned so as to prevent movement of the cover due to weight, vibration etc.

The sliding cover must be a tight fit in the guides. No part of the arrangement may be within 50mm of edges or joints within the main duct protection layer of Fire Duct Slab.

All Fire Duct Slab joints (excluding sliding joints) are to be glued and pinned as previously detailed.

### Access hatches (circular ducts)

Details of access hatches for circular ducts are available on request.

### Handling

The Fire Duct range of products is light, easy to handle and simple to fix. The products can be cut and shaped using knives, saws, etc.

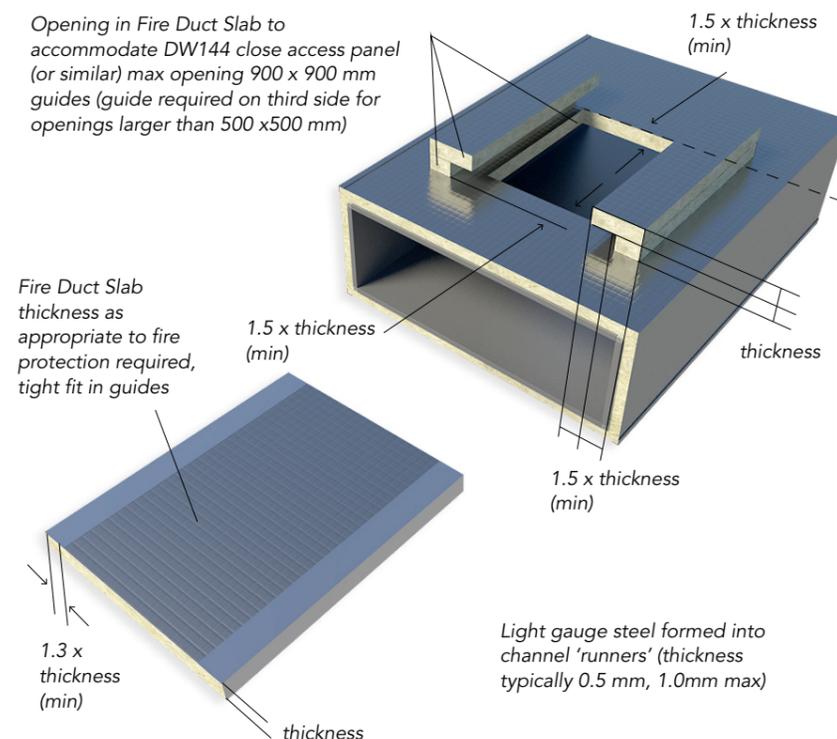
### Ancillaries

#### Welded steel pins

Welded pins are generally spaced at 350mm maximum centres along the length of the duct and at 500mm maximum centres across the width and depth of the duct. Pins are required on all four sides of vertical ducts, but may be omitted from the top face of horizontal ducts (see Figures 5 and 6).

Details of alternative mechanically fixed pins are available from ROCKWOOL on request.

**Figure 11**  
Removable cover panel for steel access hatch



### Criteria for preparation of ductwork prior to insulation

Fire Duct products are certified to provide fire protection to ductwork conforming to Construction Details 1 to 12 in the table below and to the requirements of B&ES Specification DW/144. The table may be used as a check list for on-site verification of ductwork construction.

Construction detail	Requirement	Details of modification where needed
1. Duct sheeting	Rigid steel (zinc-coated, alu-zinc coated, black or stainless)	
2. Sheet thickness	0.8mm or greater. See DW/144 for ducts larger than 1500mm	
3a. Welded pin fixing methods	Up to 1500 x 1500 mm: no additional system modifications	
	Up to 2000 x 2000mm: increase angle bearer size to 50 x 50 x 5mm min	
	Up to 3000 x 3000mm: increase angle bearer size to 50 x 50 x 6mm min	
	Increase drop rod diameter to M12 min	
	Up to 4000 x 4000mm: 50 x 50 x 6mm min. bearer. M12 min. drop rod	
	Incorporate additional drop rod mid-width through duct and bearer*	
	Weld (or fasten with with nuts and large washers) M15 min. strengthening rod. at mid-width of each flanged joint and penetration point to maintain cross section	
	Seal all holes with mastic	
	Above 4000 x 4000mm: 50 x 50 x 6mm bearer. M12 min. drop rod	
	Incorporate additional drop rods through duct and bearer to ensure 1500mm max. spacing along bearer*. Weld (or fasten with nuts and large washers) M15 min. strengthening rod at each flanged joint and penetration point to ensure 1500mm max. spacing along joint. Seal all holes with mastic.	
	*Additional drop rods to pass through duct and bearer. Rods to support bearer. 'Top' of duct to be held in position with steel nuts and large steel washers	
3b. Mitre-joint fixing methods		If duct dimensions exceed those shown, use welded steel pins as per Fire Duct system manual (see item 3a)
½ hr HVAC & smoke extract	1500mm x 1500mm	
½ hr kitchen extract	1500mm x 1500mm	
1 hr HVAC & smoke extract	1500mm x 1500mm	
1 hr kitchen extract	1500mm x 1500mm	
1½ hr HVAC & smoke extract	1200mm x 1200mm	
2 hr HVAC & smoke extract	1000mm x 1000mm	
4. Flanged cross joint	Type J3, J4, J5 or J6 to HVAC specification DW/142 and DW/144	Strengthen joints (contact ROCKWOOL)
5. Joint seal	May be included or omitted	
6. Constructional fixings	Steel	
7. Bearers	30 x 30 x 3mm (min.) steel angle. See item 3a for ducts larger than 1500mm	



Construction detail	Requirement	Details of modification where needed
8. Drop rods		
9. Drop rod anchors		
Fixed through steel suspension frame	Steel frame to be independently fire rated	Fire protect steelwork
Fixed into concrete	Anchors to have confirmed fire rating. M10 (min.) mild steel. See item 3a for ducts larger than 2000mm	If fire rating is un-confirmed and anchor is all-steel, ie without plastic or chemical components; affix 300mm x 300mm collar of unfaced Fire Duct Slab to soffit with FIREPRO® Glue, keeping anchor central. Collar thickness to equal duct encasement layer. Optional self-tapping screws may be used to support collar. Glue adjacent Fire Duct drop rod protection to collar.
10. Spacing of suspension system		
10a. Horizontal ducts	1500mm max. centres	
10b. Vertical ducts: 2 or 3 sided protection	1500mm max. centres	Install additional supports
10c. Vertical ducts: 4 sided protection	Support at every floor (4 m max. centres)	
11. Stiffening of duct at penetration detail	Duct flange or 30 x 30 x 3mm steel angle frame fixed with steel fixings at 300mm max. centres. To be positioned within the width of the penetration. See item 3a for ducts larger than 3000mm.	Install steel angle frame
12. Compartment wall	Fire rated masonry, concrete, brick, block, plasterboard or other fire rated construction	

## Specification clauses

Typical specification clauses for rectangular ducts to be read in conjunction with system options on pages 4 and 5

### Welded pin fixing method

- All ductwork is to be insulated with .....\*mm ROCKWOOL Fire Duct Slab, having a factory applied reinforced aluminium foil to one face and complying with Building Regulations Class 'O' requirements.
- The Fire Duct Slab is to be fixed to the duct using 2.5mm diameter welded steel pins and 38mm spring steel washers in accordance with the ROCKWOOL Product Data Sheet 'Fire Duct systems'.
- The foil facing is to be removed from any surfaces to which FIREPRO® Glue is to be applied.
- All corner joints are to be fixed with pigtail screws at 250mm maximum centres. Screw length is to be 2 x slab thickness.
- All cross joints are to be filled with FIREPRO® Glue and held tightly closed.
- Drop rods and bearers are to be at 1500mm maximum centres and to be M10 steel rod and 30 x 30 x 3mm steel angle respectively. Ductwork is to be generally in accordance with B&ES Specification DW/144.
- Drop rods and exposed bearers are to be insulated with .....\*mm Fire Duct Slab or .....† x .....\*mm Fire Duct Section, as appropriate. Rebates or cover pieces are to be used at duct flange and bearer locations according to site conditions and subject to ROCKWOOL approval.
- Where a vapour barrier is required, all exposed Fire Duct edges and penetrations through the foil should be sealed using soft self-adhesive aluminium foil tape (Idenden type T303, or similar and approved).

### Alternative longitudinal joints

Delete clauses 3 and 5 in Method 1 above, and insert new clause 5:

- All joints are to be filled with ROCKWOOL FIREPRO® Glue and held tightly closed. Use nails at 500mm centres at corner joints to aid this process.

### Alternative cross joints

Delete clauses 3 and 5 in Method 1 above, and insert new clause 5:

- All cross joints are to be covered with centrally positioned 100mm wide strips of Fire Duct Slab of the same thickness as the insulation. The cover strips are to be fixed along both edges using pigtail screws at 250mm max. centres.

\* Insert Fire Duct Slab insulation thickness required. † Insert appropriate overall diameter.

### Mitre-joint fixing method

- All ductwork is to be insulated with .....\*mm Fire Duct Slab, having a factory applied reinforced aluminium foil to one face and complying with Building Regulations Class 'O' requirements.
- The Fire Duct joints at ductwork corners are to be 45° mitred. Square butt joints to be used elsewhere.
- The foil facing is to be removed from any surfaces to which FIREPRO® Glue is to be applied.
- All joints are to be filled with FIREPRO® Glue and held tightly closed.
- All mitred joints are to be held tightly closed with nails (length = approx. 2 x Fire Duct Slab thickness) until the glue has fully cured. 2 nails juxtaposed at 90° are to be located at 3 points per 1200mm length of mitred joint and at 5 points per 2000mm length.
- Drop rods and bearers are to be at 1500mm maximum centres and to be M10 steel rod and 30 x 30 x 3mm steel angle respectively. Ductwork is to be generally in accordance with B&ES Specification DW/144.
- All drop rods and exposed bearers are to be insulated with .....\*mm Fire Duct Slab or .....† x .....\*mm Fire Duct Section, as appropriate. Rebates or cover pieces are to be used at duct flange and bearer locations according to site conditions and subject to ROCKWOOL approval.
- Where a vapour barrier is required, all exposed Fire Duct edges and penetrations through the foil should be sealed using soft self-adhesive aluminium foil tape.

### NBS specifications

ROCKWOOL Fire Duct Systems are associated with the following NBS clauses:

#### U90 General ventilation - domestic

- 490 Site applied insulation to ductwork

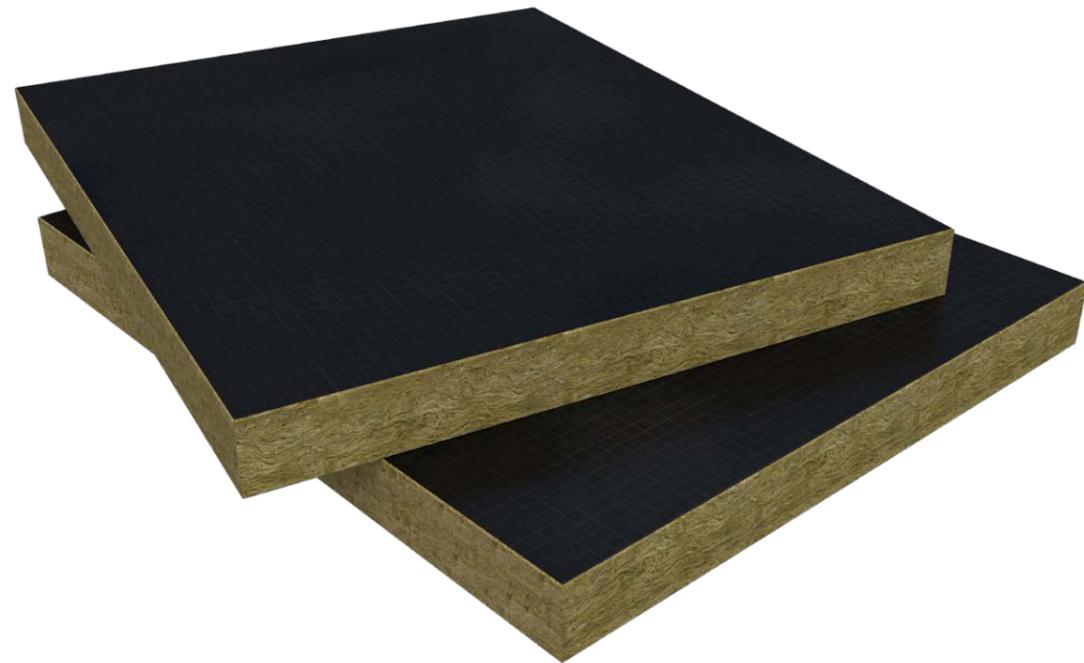
#### Y30 Mechanical thermal insulation

- 340 Mineral fibre slabs insulation





# DuctRock® Slab



## Description

FIREPRO® DuctRock® Slab is manufactured with high density, non-combustible stone wool insulation and finished with a high emissivity black foil facing. Available in three thicknesses DuctRock® Slab is easy to handle, simple to install and capable of achieving fire resistance of up to EI 120.

FIREPRO® Glue and a high performance Black Aluminium Foil Tape are also readily available from ROCKWOOL for sealing all board joints.

## Advantages

- EI 120 on Ventilation & Smoke Extract Ducts
- Tested on both vertical and horizontal ducts
- Wide ranging scope for many duct types
- High quality black foil finish
- Patented horizontal penetration detail

## DuctRock® Slab Ancillaries

- FIREPRO® Glue and ROCKWOOL Black Foil Tape is available from ROCKWOOL Stockists
- Stud welded pins and self-tapping screws are available through CEVaC Limited, Tel: +44 (0) 1403 786503



## Applications

DuctRock® Slab has been designed for use with rectangular and square steel ductwork systems and has been fire tested in conjunction with the following duct types shown in table 1.

Table 1

Ventilation Duct: Type A		Ventilation Duct: Type B		Smoke Extract Duct: Type C
Horizontal	Vertical	Horizontal	Vertical	
✓	✓	✓	✓	✓

## Performance

### Fire performance

FIREPRO® DuctRock® Slab can achieve fire resistance ratings; Integrity (E) and Insulation (I) of EI 30 to EI 120 with only 3 thicknesses. Table 2 provides a summary of fire performance.

Table 2

FIREPRO® DuctRock® Slab (mm)	Ventilation Duct: Type A		Ventilation Duct: Type B		Smoke Extract Duct: Type C	Ducts with a Combustible Lining
	Horizontal	Vertical	Horizontal	Vertical		
*60	EI 60	EI 60	EI 60	EI 60	EI 60	N/A
80	EI 90	EI 90	EI 90	EI 90	EI 90	N/A
90	EI 120	EI 120	EI 120	EI 120	EI 120	**EI 60

\*Use 60mm FIREPRO® DuctRock® Slab for EI 30 fire ratings

\*\*DuctRock slab has been tested in accordance with the criteria set out in section 11.2.2 of BS EN 1366-1:2014 (Ducts with combustible lining) where additional thermocouples were positioned within the duct to record the average and maximum temperature rise. Insulation failure was defined in accordance with EN 1363-1.

## Technical information

Length	Width	Thickness	Facing	Fire resistance
1200mm	1000mm	60, 80 & 90mm	Black aluminium foil	Up to EI 120

## Standards and approvals

DuctRock® Slab has been tested in accordance with BS EN 1366: Part 1 for ventilation ducts and also BS EN 1366: Part 8 for smoke extraction ducts achieving up to EI 120 minutes.

DuctRock® Slab has been classified in accordance with EN 13501-3:2005 +A1: 2009.

Fire Resistance Classification: up to EI 120 (ve, ho, i ↔ o) S

DuctRock® has been classified in accordance with EN 13501-4:2016.

Fire Resistance Classification: up to EI 120 multi (ho/ve) S 500

## pH Neutrality

ROCKWOOL insulation is chemically compatible with all types of pipes, ducts, equipment and fittings. (Guidance is given in BS 5970 regarding the treatment of austenitic stainless-steel pipework and fittings). Stone wool insulation is chemically inert. A typical aqueous extract of ROCKWOOL insulation is neutral or slightly alkaline (pH 7 to 9.5).

## Durability

ROCKWOOL stone wool insulation products have been proven in service for over 60 years, in a wide range of climates and degrees of exposure. ROCKWOOL insulation will generally perform effectively for the lifetime of the building, plant or structure.

## Biological

ROCKWOOL stone wool is a naturally inert and rot-proof material that does not encourage or support the growth of fungi, moulds or bacteria, or offer sustenance to insects or vermin.



## Installation

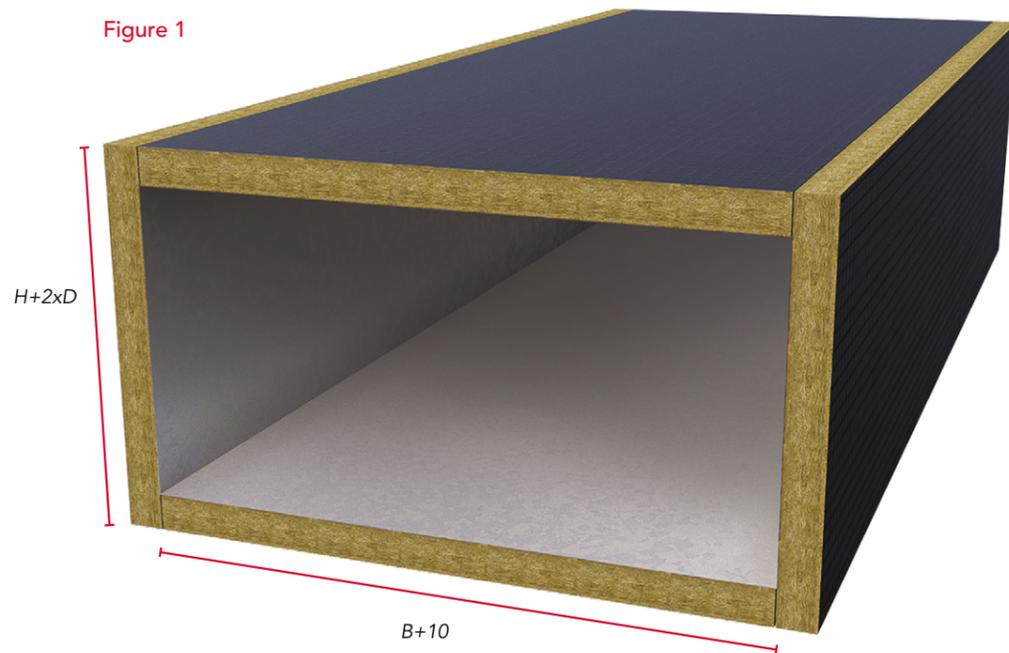
### Fire performance

FIREPRO® DuctRock® Slab can be rapidly installed onto rectangular and square steel ductwork using a combination of Ø2.7 - Ø3.0mm stud welded pins, Ø30mm steel washers and ROCKWOOL FIREPRO® Glue. All board abutments and cross joints must be covered with ROCKWOOL black aluminium foil tape.

DuctRock Slab thickness (mm)	Stud welded pin length (mm)
60	62mm
80	82mm
90	92mm

FIREPRO® DuctRock® is easily cut with a hand saw or alternatively a circular/table saw. The top and bottom slabs should be cut 10mm wider than the width of the duct to ensure a tight cross joint with the side slabs. The side slabs should be cut to the height of the duct (H) + 2 x the insulation thickness as shown in Figure 1.

Figure 1



### Top slab

When installed within horizontal applications the top boards do not require any stud welded pins and is simply positioned onto the duct with all board joints bonded with FIREPRO® Glue. Board joints must be covered using ROCKWOOL black foil tape.

### Side wall slabs

The side wall slabs are installed using stud welded pins with 350mm maximum centres along the length of the duct and 400mm centres across the depth as shown in Figure 2.

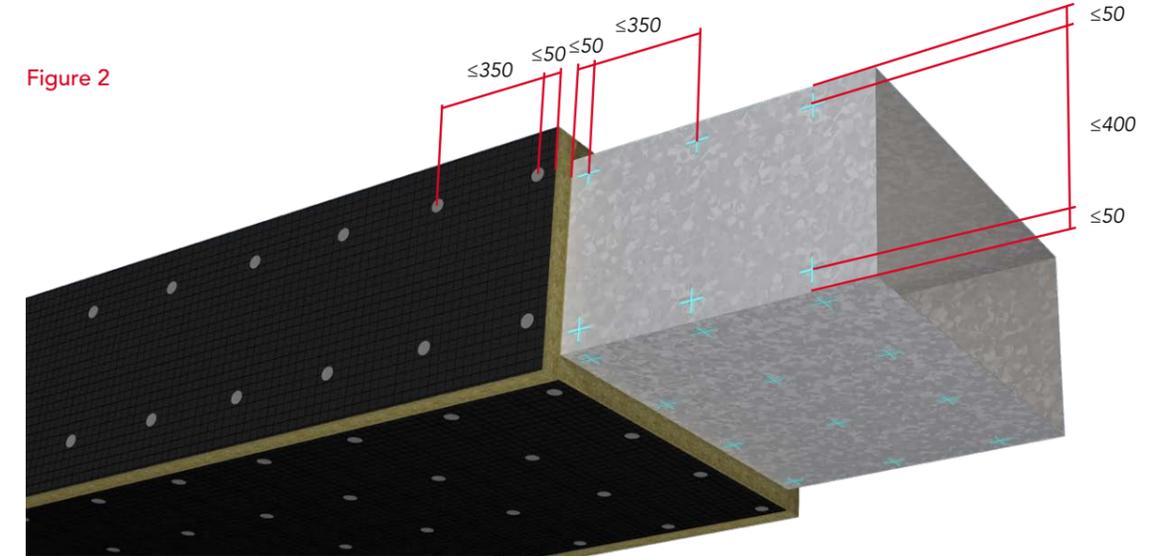


Figure 2

Side wall slabs must overlap the top and bottom boards as shown in Figures 3 & 4. All cross joints must be bonded with ROCKWOOL FIREPRO® Glue.

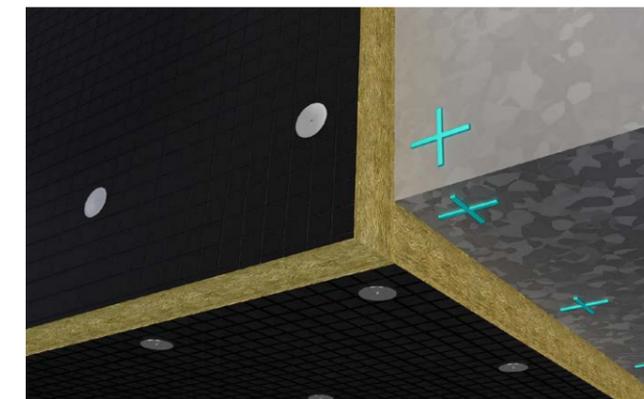


Figure 3  
Cross joint horizontal duct

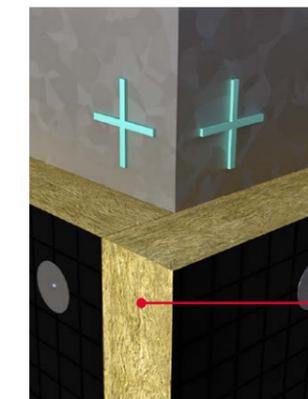


Figure 4  
Cross joint vertical duct

Board edges must be covered with ROCKWOOL Black Foil Tape

**Note:** To ensure that there is a strong bond between the welded pin and the duct, always ensure that the welded pin is sufficiently isolated from the foil surface of the insulation during welding.



Base slab

Install the base slabs with stud welded pins at a maximum of 350mm centres along the length of the duct and 300mm centres across the width of horizontal ducts and 450mm across the width of vertical ducts as shown as shown in Figures 5 and 6.

Figure 5  
Horizontal duct

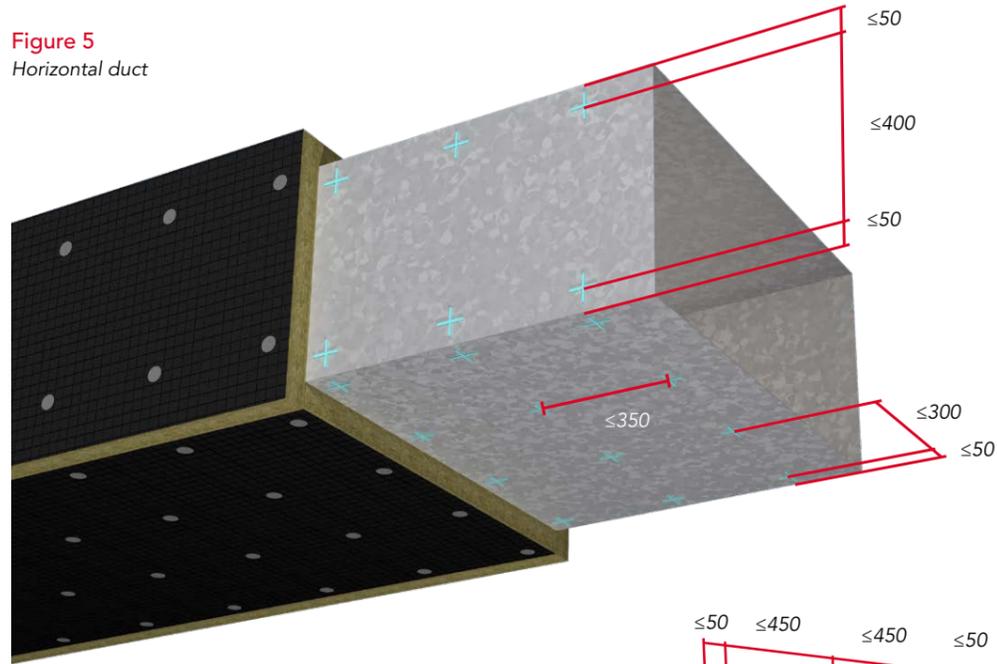
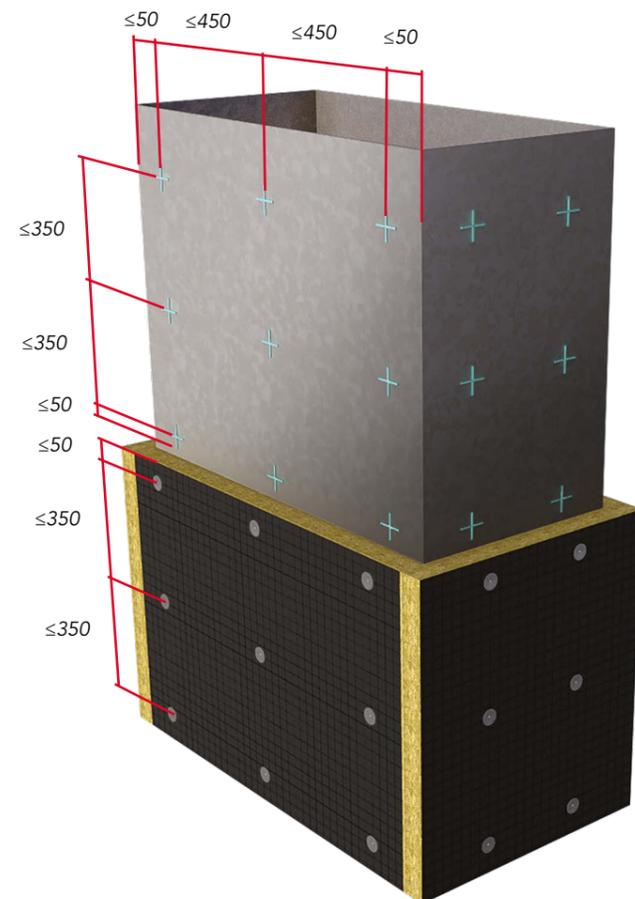


Figure 6  
Vertical duct



Detailing around flanges and drop rod hangers

Where the DuctRock® Slab bypasses a flange, drop rod hanger or both, cut a notch into the insulation as shown in Figure 7a-c. The insulation can easily be cut with a sharp knife or hand saw.

All board joints must be bonded with FIREPRO® Glue.

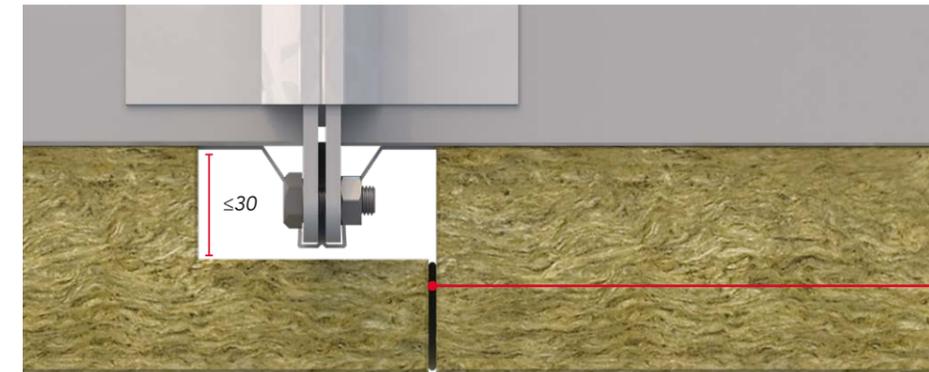


Figure 7a

Glue the joints with FIREPRO® Glue

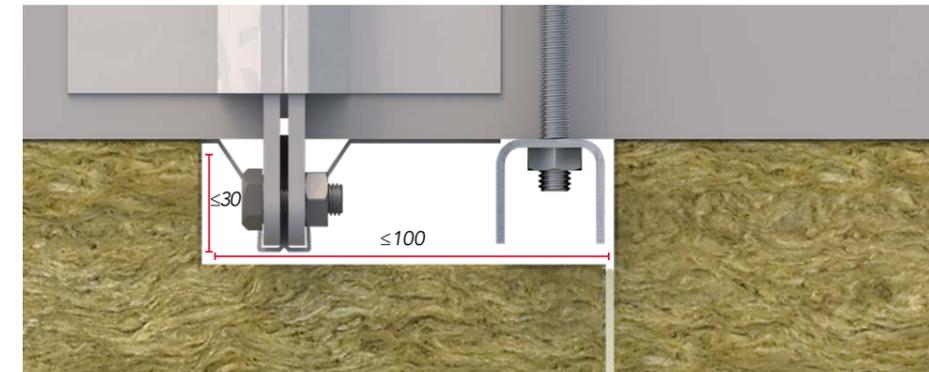


Figure 7b



Figure 7c



### Dry wall penetration

In order to maintain fire performance, provide stability and minimise noise transfer, ROCKWOOL have developed a patented solution for installing DuctRock® Slab at the point where the duct penetrates a dry wall system.

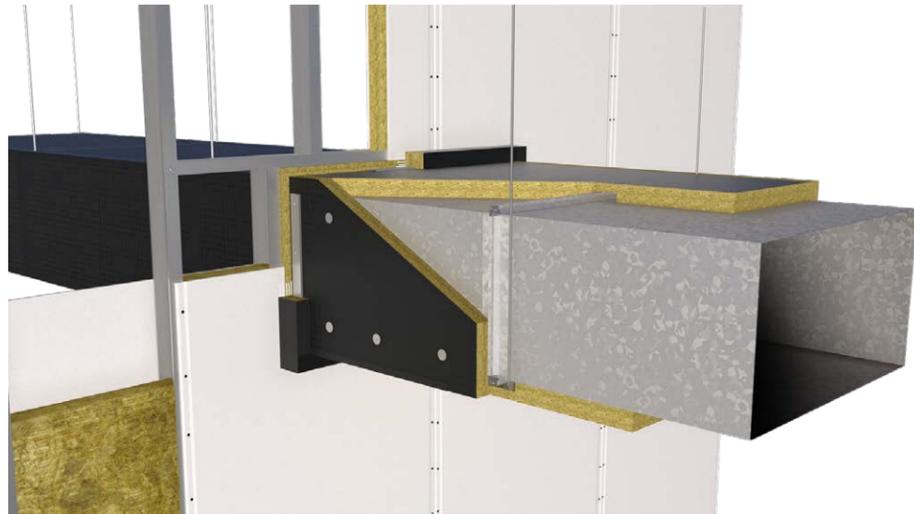


Figure 8  
ROCKWOOL Patented  
Dry Wall Penetration  
Detail

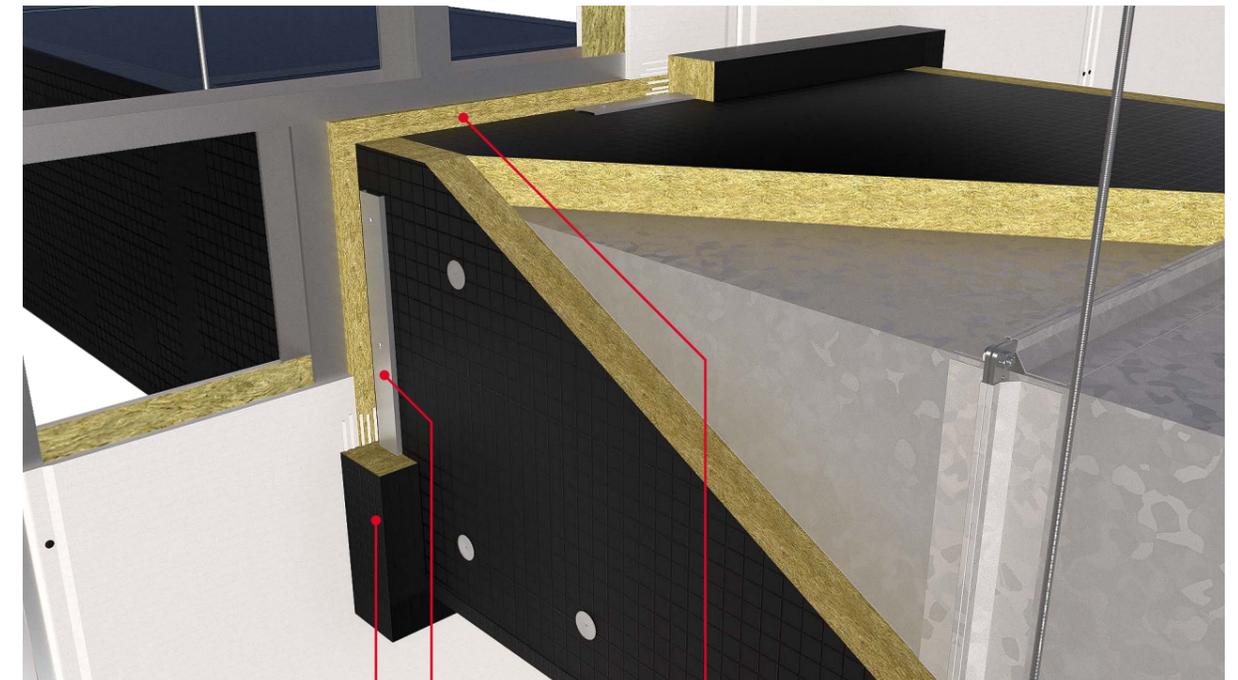
#### Installation Procedure: Dry wall Penetration

1. A joint in the DuctRock® Slab must be accommodated at the centre point of the aperture, as shown in Figure 10.
2. Fill the remaining annular space between the DuctRock® Slab and supporting structure of the dry wall system with ROCKWOOL RWA45 as shown in Figure 9.
3. To stiffen the duct around the penetration a 1.5mm thick steel u-profile (60 x 25 mm) must be fitted approx. 20mm from the wall, to both the vertical and horizontal sides of the duct (both sides of the aperture) the length of the profile can be determined using the following formula:  $\text{Duct Width/Height} + (2 \times \text{Insulation Thickness}) - 50\text{mm}$ . Examples shown in table below:

Duct size	Insulation thickness	U-Profile Length (mm)	
		Horizontal	Vertical
1500 (L) x 1000 (W) x 500 (H)	90	1130	630
1500 (L) x 1000 (W) x 250 (H)	90	1130	380

4. Before applying the u-profile to the DuctRock® Slab slits must be cut into the insulation to allow the profile sides to penetrate the insulation (Figure 10). The u-profile can be attached to the ductwork using 100mm self-tapping screws. 4No to the top and bottom slabs and 2No to the vertical slabs.
5. Once the u-profiles have been applied an insulated collar must be installed around the perimeter of the aperture. The collar can be simply cut from the DuctRock® Slab. Fix the collars in place with FIREPRO® Glue as shown in Figure 9. Use nails to temporarily hold the collars in place whilst the glue cures.
6. ROCKWOOL Black foil tape can be used to cover any exposed edges of the collars.

Figure 9

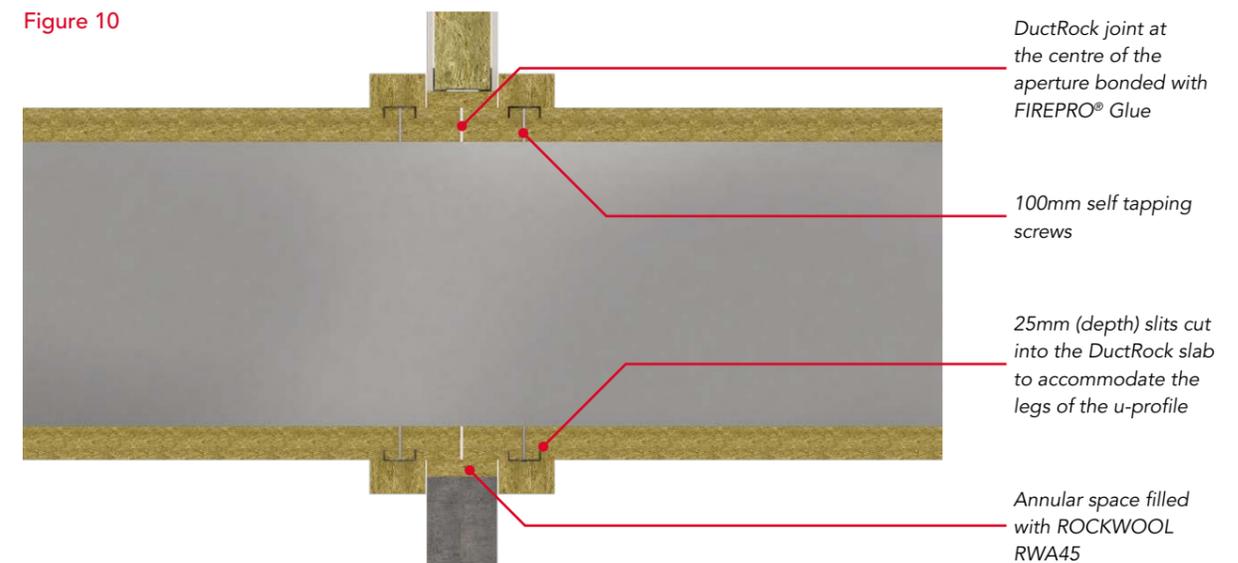


60mm x 100mm DuctRock collars bonded to the substrate with FIREPRO® Glue

Steel u-profile fixed 20mm from the wall

Annular space filled with ROCKWOOL RWA45

Figure 10



DuctRock joint at the centre of the aperture bonded with FIREPRO® Glue

100mm self tapping screws

25mm (depth) slits cut into the DuctRock slab to accommodate the legs of the u-profile

Annular space filled with ROCKWOOL RWA45



### Floor penetration

1. Maintain a 30mm gap between the ductwork and floor structure. Fill the gap between the duct and the floor structure with a ROCKWOOL Slab e.g. ROCKWOOL RWA45 as shown in Figure 11a. The flexible slab can be sealed within the void using FIREPRO® Glue.
2. Secure the duct to the floor structure using 4 no. 50 x 50 x 45 x 2.5mm galvanised steel angles to both sides of the aperture. The angles can be fixed using 2No 3.2 x 25mm self-tapping screws. Alternatively, the duct can be secured with a 40 x 40 x 3mm L profile as shown in Figure 11b. The length of the L profile should be equal to the width of the duct and installed to both sides (duct width).
3. Apply a DuctRock® collar to the perimeter of the aperture and on both sides as shown in Figure 11a. The collars can be fixed using FIREPRO® Glue and temporarily held in place with nails until the glue cures.

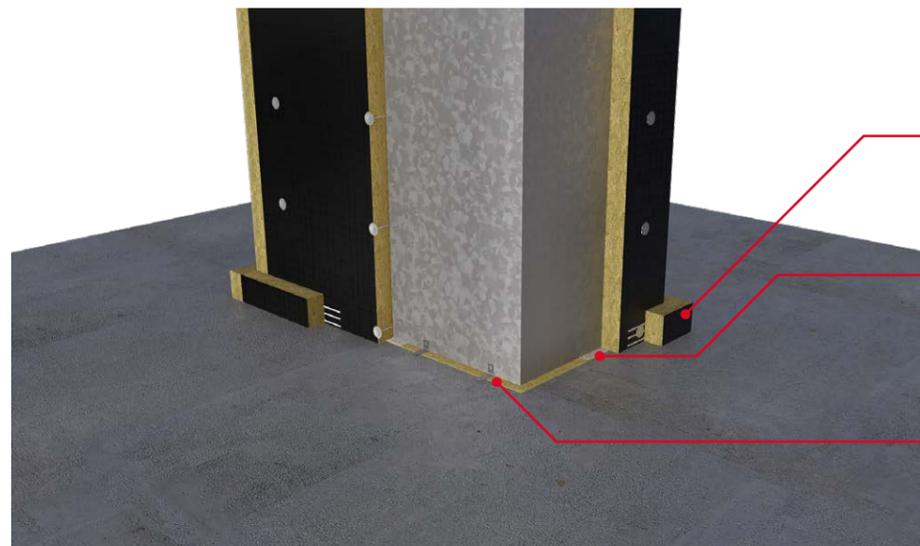


Figure 11a

60mm x 100mm DuctRock collars bonded with FIREPRO® Glue

Seal the ROCKWOOL Slab within the aperture space with FIREPRO® Glue

Secure the duct to the substrate using 4 no. 50 x 50 x 45 x 2.5mm galvanised steel angles fixed with 3.2 x 25mm self tapping screws

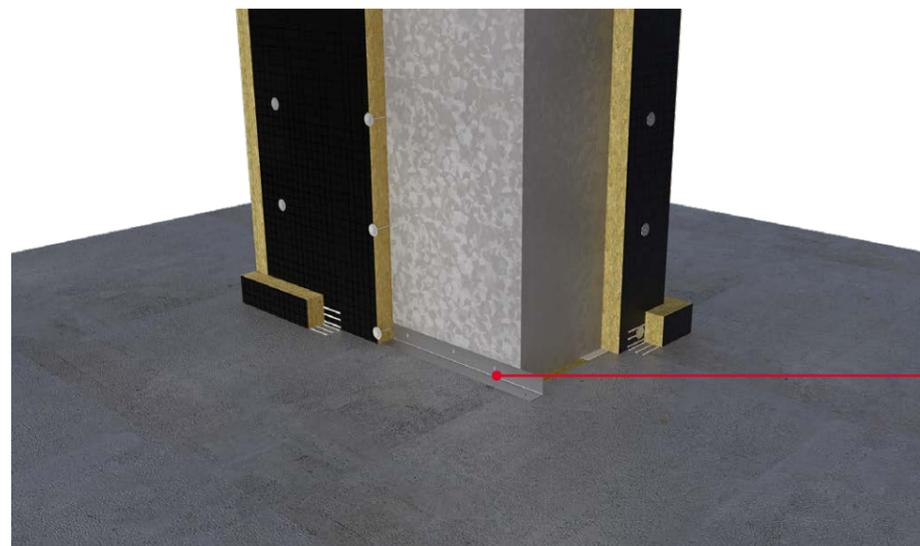


Figure 11b

40 x 40 x 3mm galvanised steel L-profile fixed with 3.2 x 15mm self tapping screws to the duct and 7.5 x 62mm screws to the floor.

### Elbows

Elbows can be protected by cutting the DuctRock® Slab into fan shaped segments as shown in Figure 12a. Alternatively v-shaped slits can be cut into the back of the DuctRock Slab allowing it to wrap around the elbow as shown in Figure 12b. Fill the v-shaped channels with FIREPRO® Glue before applying to the duct and use nails to temporarily hold the insulation in place whilst the glue cures.

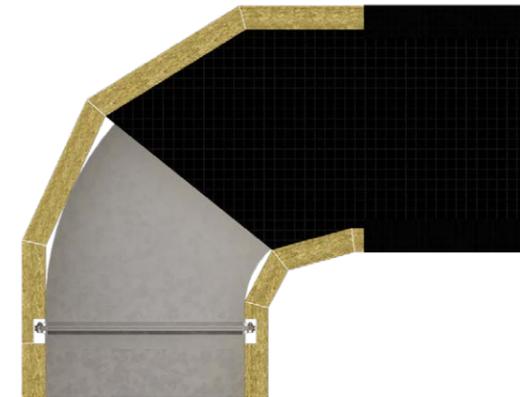


Figure 12a

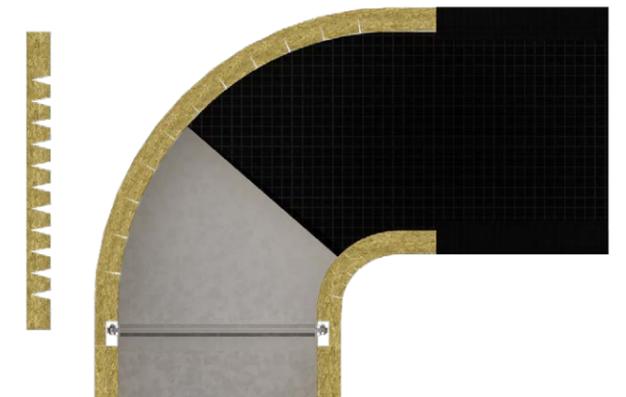
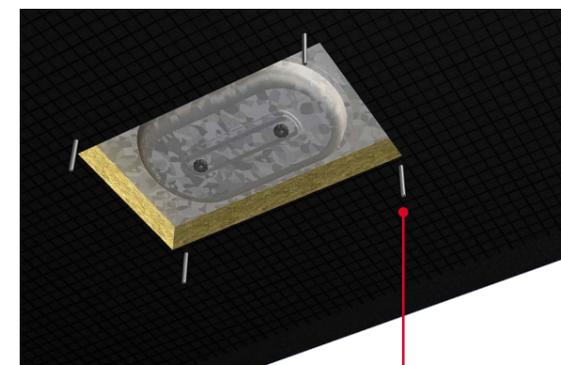


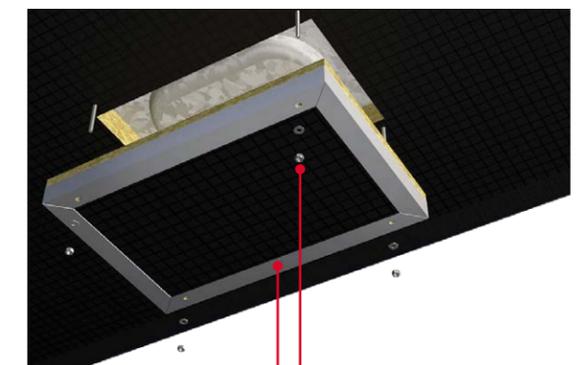
Figure 12b

### Access hatches

DuctRock® Slab can be cut and positioned within a steel frame to form a removable cover in the location of the steel access hatch. The insulated cover can be attached to the duct using 4N° M8 threaded rods (Figure 13a) ensuring the rods are secured on both sides of the duct. The cover is then fixed to the rods using steel M8 nuts and washers. The thickness of insulation should be appropriate to the fire resistance required.



4 x M8 threaded rods secured to both sides of the duct.



Steel frame for housing the removable insulated cover. Removable cover secured to the threaded rods with M8 nuts and washers.



## Specification clauses

Typical specification clauses for rectangular and square ducts to be read in conjunction with the installation guidelines provided within this datasheet.

All ductwork is to be insulated with.....\* mm ROCKWOOL FIREPRO® DuctRock® Slab, having a factory applied reinforced black aluminium foil to one face and tested in accordance with BS EN 1366: Part 1 and/or BS EN 1366:Part 8.

DuctRock® Slab is to be fixed to the duct using 2.7 - 3.0 mm diameter welded steel pins and 30 mm spring steel washers in accordance with the ROCKWOOL Product Data Sheet 'FIREPRO® DuctRock®'.

All joints are to be filled with FIREPRO® Glue and held tightly closed.

Installed to steel ductwork which complies with the following specification criteria:

- Steel duct dimensions up to 1000x1250 (height x width) and 1500mm in length
- With leakage class B in accordance with EN 1507. Further information on leakage classes can also be found in DW/144: Specification for Sheet Metal Ductwork low, medium and high pressure/velocity air systems.
- With an under-pressure or over-pressure up to 500Pa
- Steel flanges to be spot welded to the duct:
  - Ventilation Duct - 20mm flange
  - Smoke Extract Duct - 30mm flange

Flanges to be held together with either a 20mm flange joint profile (duct types A & B) or 30mm flange joint profile (duct type C). All flange joints to be sealed with sealing grease.

With stiffeners as follows:

- EI 120 – Ventilation Duct: 1 x Ø 15mm steel pipe in each duct segment
- EI 120 – Smoke Extract Duct: 2 x Ø 15mm steel pipe in each duct segment

Sealed with and appropriate duct sealant and 5 x 15mm EPDM tape

The duct suspension system complies with the following specification criteria:

Horizontal ducts:

Fire resistance	Max tensile stress of suspension device	Max shearing stress of screws	Max distance from suspension device to duct joint
EI 30	9 N/mm <sup>2</sup>	15 N/mm <sup>2</sup>	150mm
EI 60	9 N/mm <sup>2</sup>	15 N/mm <sup>2</sup>	150mm
EI 90	6 N/mm <sup>2</sup>	10 N/mm <sup>2</sup>	150mm
EI 120	6 N/mm <sup>2</sup>	10 N/mm <sup>2</sup>	150mm
EI 120 (Smoke Extract)	6 N/mm <sup>2</sup>	10 N/mm <sup>2</sup>	150mm

- With distance between suspension devices not exceeding 1500mm
- The lateral distance between the outer vertical surface of the steel duct and the centre line of the suspension rod shall not exceed 50mm

Vertical Ducts:

- With distance between supporting structures not exceeding 5m

Any duct penetrations comply with the following specification criteria:

Horizontal:

- Penetrating in rigid wall constructions or flexible walls with a minimum thickness of:
  - EI30 – 70mm
  - EI 60 – 95mm
  - EI 90 – 95mm
  - EI 120 – 130mm
- **And with a fire resistance equal to or greater than the tested DuctRock® slab thickness.**
- For horizontal penetrations, the gap between the DuctRock® Slab and supporting structure will not exceed 20mm.
- For horizontal penetrations U-profiles 1.5mm thick, with dimensions 60 x 25mm must be installed approximately 20mm from the wall and on both sides of the wall. The legs of the u-profiles are lowered into slits cut into DuctRock®Slab and fixed to the duct by means of
  - Ø 4.8mm x 100mm for EI 30 & EI 120 self-tapping screws; 4 on the top and bottom profiles and 2 on the vertical profiles.

Vertical

- Penetrating rigid floor constructions with a minimum thickness of:
  - EI 30 – 100mm
  - EI 60 – 100mm
  - EI 90 – 150mm
  - EI 120 – 150mm
- **And with a fire resistance equal to or greater than the tested DuctRock® slab thickness.**
- For vertical penetrations the duct is to be stabilised using 4 no. 'L' galvanised steel angles of 50 x 50 x 45 x 2.5mm or a 40 x 40 x 3mm L profile which are fixed to the vertical steel duct and the supporting structure on both sides of the floor.

### NBS specification clauses

FIREPRO® DuctRock® Slab is associated with the following NBS specification clauses:

#### U90 General ventilation - domestic

- 490 Site applied insulation to ductwork

#### Y30 Mechanical thermal insulation

- 340 Mineral fibre slabs insulation





# FIREPRO® Glue



## Description

ROCKWOOL FIREPRO® Glue is a water based, fire resistant adhesive which is supplied in 17kg tubs and 300ml cartridges.

## Advantages

- LUL Approved
- Easy to apply
- Sets in as little as 4 hours
- Can be used from -10°C upward

## Applications

FIREPRO® Glue is suitable for use with FIREPRO® BEAMCLAD and ROCKWOOL Fire Duct Systems where glued joints or noggins are required. FIREPRO® Glue can also be used in conjunction with other ROCKWOOL Stone Wool products where there is a requirement for a fire resistant adhesive.

Frost exposure does not remove curing ability.

The use of FIREPRO® Glue is not limited to particular temperatures and has been tested when applied to surfaces with temperatures of -10°C and upwards, but the curing rate in-situ can be affected by:

- Temperature (see Table 1)
- Air humidity
- Thickness of glue layer in a joint
- Air access to glued joint (i.e. not sealed off)

Note: The temperature of FIREPRO® glue must be 5°C or more when applied to surfaces at lower temperatures.

## Performance

FIREPRO® Glue has been widely used in fire tests conducted on ROCKWOOL FIREPRO® Fire Protection Systems where fire ratings of up to 4 hours have been achieved. For further information tested applications please contact ROCKWOOL.

## Technical information

### Standards and approvals

This product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with this datasheet - please refer to the LUL Approved Product Register website [www.LU-apr.co.uk](http://www.LU-apr.co.uk) for specific details.

### Product information

	Tub	Cartridge
Pack size	17kg Tub	300ml cartridge
Application temperature	Surface temperature of $\geq -10^{\circ}\text{C}$ (Glue must be $\geq 5^{\circ}\text{C}$ )	Surface temperature of $\geq -10^{\circ}\text{C}$ (Glue must be $\geq 5^{\circ}\text{C}$ )
pH	11	11
Shelf Life	12 months	18 months
Fire Rating	Up to 4 hours (When tested with ROCKWOOL Fire Protection Systems)	Up to 4 hours (When tested with ROCKWOOL Fire Protection Systems)

### Ambient conditions & curing times

For all year round working, noggins should be cut to provide approximately 0.5mm interference fit into steelwork. Some friction in the fitting is required to satisfy all conditions and to provide a sensible limit to glue thickness.

In typical dry summer conditions of 20°C, curing of the basic glue will occur in approximately 4 hours before cover boards should be added onto the noggins.

The setting times of glue in moist air conditions is approximately 6-8 hours if the temperature is above freezing point, or in approximately 1 hour at 20°C.

Conditions	Setting time
Approx 20°C dry conditions	Approx 4 hours
Approx 3°C+ with moist air conditions	Greater than 24 hours expected
-10°C to 0°C	Adequate bond forms within 1 hour but full cure may be delayed over 24 hours when temperatures 0 - 6°C

### Storage

Generally storage should be made in frost free conditions. Should frost exposure occur, the glue should be thawed out and thoroughly stirred.



# ROCKLAP H&V Pipe Sections

## Description

ROCKLAP H&V Pipe Sections offer fire resistance and thermal performance within a single solution.

Modern buildings house a vast network of pipework services which when installed, frequently pass through fire resistant compartment elements. It is also important to consider that buildings are subject to change with the potential for additional pipework to be added throughout the building's lifetime.

Preventing the passage of fire and smoke through compartment elements is essential. Openings constructed to run pipework services creates a heightened risk of fire spread and it is critical that any openings made are appropriately sealed to re-establish the required fire resistance of the compartment element.

ROCKLAP H&V Pipe Sections have been tested for fire resistance to EN 1366-3, the harmonised European standard for the fire resistance of penetration seals.

## Applications

ROCKWOOL H&V Pipe Sections have been successfully tested for providing fire stopping to steel & copper pipe penetrations where they penetrate fire resistant walls and floors.

The H&V pipe sections are suitable for use within fire rated flexible/rigid walls and concrete floors either as sleeving (\*Locally sustained – L/S) where they penetrate the division or with continuous insulation (\*Continually sustained – C/S) along the length of the pipework.

This allows for H&V pipe sections used for thermal insulation to pipework to be continued through fire resistant constructions without the need to be locally removed or replaced thus saving time and reducing labour costs.

With a greater focus on standard of workmanship, insulating with H&V pipe sections reduces the need for additional fire stopping works where they penetrate compartment lines and results in less disruption to already installed services.

## Performance

Testing to the latest European fire resistance standards has proven the capability of H&V section to provide up to 120 minutes fire resistance integrity and insulation ratings dependent upon the service dimensions and method of insulation installation.

Insulation ratings can be particularly important in buildings in order to reduce the risk of fire spread. Insulation ratings are measured as the temperature rise on the non-fire side reaching an average of 140°C above ambient or 180°C above ambient at any given point. The danger should these temperatures be reached is that combustibles on the non-fire side would become involved in the fire, there-by allowing the fire to leave the room of origin. Insulating with ROCKWOOL ROCKLAP H&V sections minimises this risk given their built-in/inherent thermal and fire properties.

In addition, various combinations of service layouts have been tested to take into account common occurrences encountered on site such as service and substrate spacings, proximity to other services and annular gaps.

ROCKWOOL strives to enhance the scope of application of tested products to provide simple solutions to meet changing building needs. The data noted is under a process of continual improvement and additional application solutions can be found in the standard details pack or contact the Technical Solutions team to discuss particular requirements.

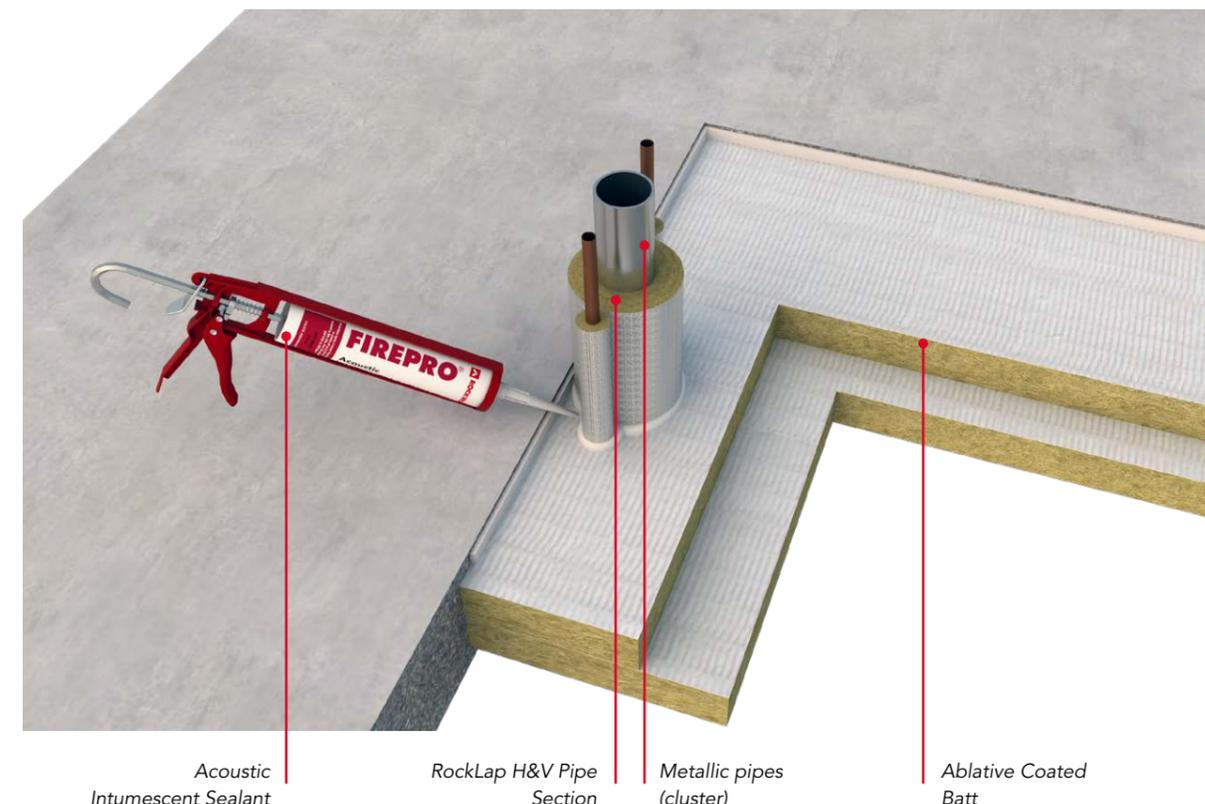


Table 1

Performance of Insulated Steel & Copper Pipework in 150mm Aerated Concrete Floors

Insulation thickness (mm)	Pipe dia range (mm)	Formation	Substrate	Service separation (mm)	Substrate separation (mm)	Fire resistance (min)			
						Locally sustained (L/S)		Continuously sustained (C/S)	
						Integrity (E)	Insulation (I)	Integrity (E)	Insulation (I)
25mm H&V	42 - 169*	Cluster*	2 x 50mm Ablative Coated Batt	0	0	240	120	240	120
25mm H&V	42 - 219	Single	2 x 50mm Ablative Coated Batt	100	0	240	90	240	90
40mm H&V	42 - 169*	Cluster*	2 x 50mm Ablative Coated Batt	0	0	180	60	180	120
40mm H&V	42 - 219	Single	2 x 50mm Ablative Coated Batt	100	0	180	120	180	120

\*Std Cluster 40mm - 108mm Copper & 169mm Steel

## ROCKLAP H&V Pipe Sections Ancillaries

- FIREPRO® Acoustic Intumescent Sealant, Ablative Coated Batt & Firestop Compound are available from ROCKWOOL stockists
- RockLap Pipe Supports are suitable for use with RockLap H&V pipe sections and are available from all ROCKWOOL stockists
- Suitable aluminium foil tape is available from specialist HVAC stockists





## Fire resistant applications: Section 2 - Pipe penetrations

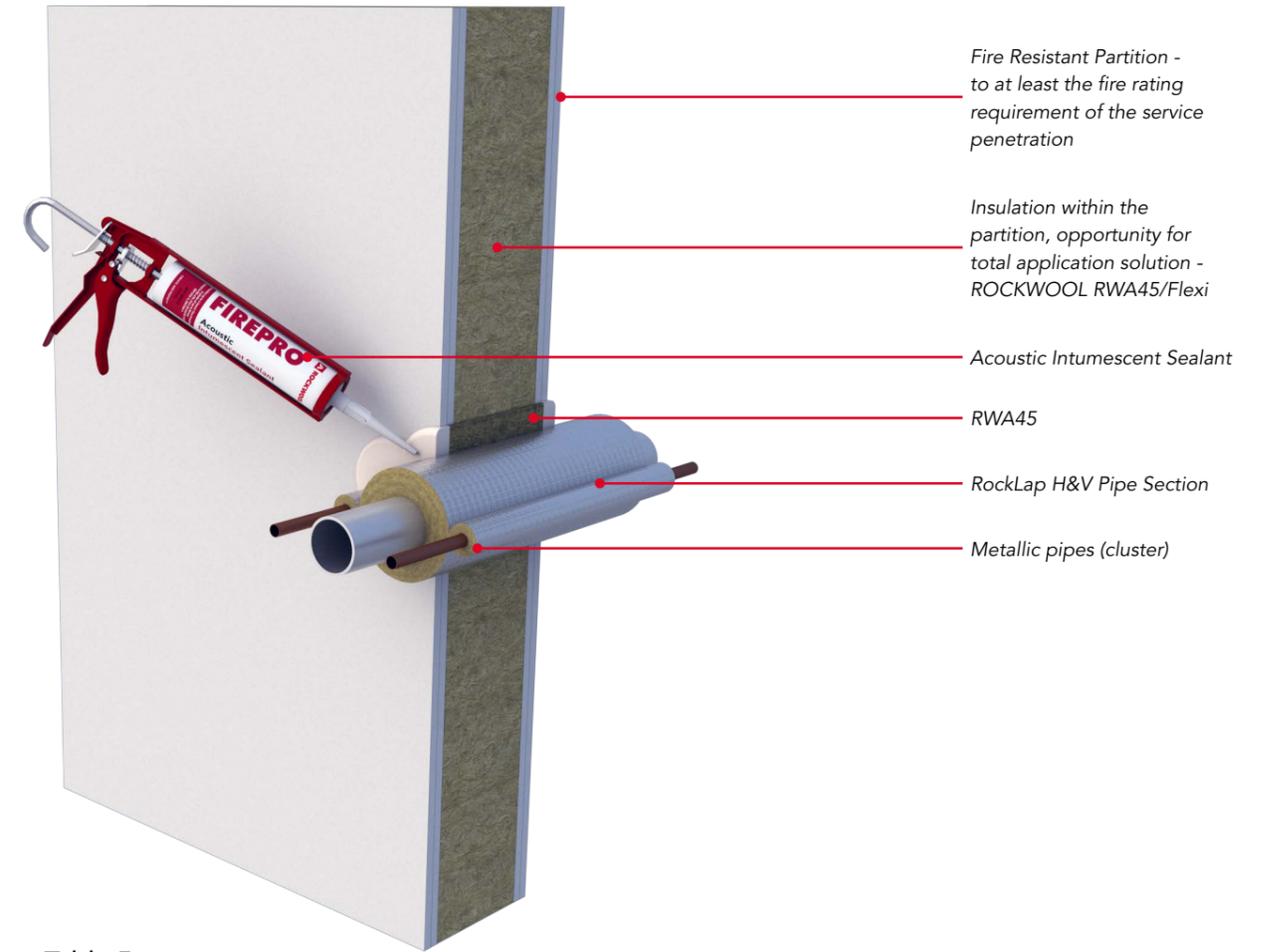
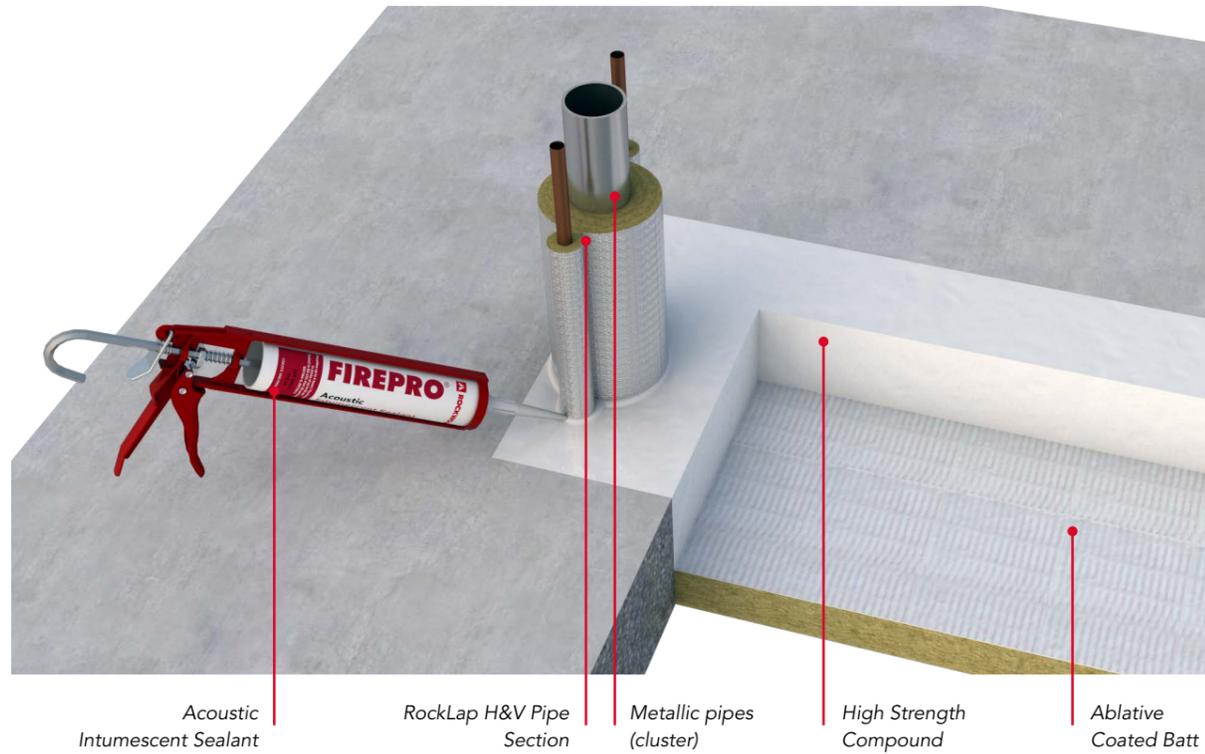


Table 2

Insulation thickness (mm)	Pipe dia range (mm)	Formation	Substrate	Service separation (mm)	Substrate separation (mm)	Fire resistance (min)			
						Locally sustained (L/S)		Continuously sustained (C/S)	
						Integrity (E)	Insulation (I)	Integrity (E)	Insulation (I)
25mm H&V	42 - 169	Cluster*	100mm HS Compound & 50mm ACB Shuttering	0	0	180	90	180	120
40mm H&V	42 - 169	Cluster*	100mm HS Compound & 50mm ACB Shuttering	0	0	240	60	240	180

\*Std Cluster 40mm - 108mm Copper & 169mm Steel

Table 3

Performance of Steel & Copper Pipework in Flexible Wall (minimum 75mm) - Ablative Coated Batt (ACB)

Insulation thickness (mm)	Pipe dia range (mm)	Formation	Aperture	Service type	Service / substrate separation (mm)	Supporting construction	Classification E/I
> 25mm H&V	40 - 168*	Cluster	1 x 50mm ACB	Steel/Copper	0	75mm flexible wall	60/60

Table 4

Performance of Steel Pipework in Solid Wall (minimum 100mm) - Ablative Coated Batt (ACB)

Insulation thickness (mm)	Pipe dia range (mm)	Formation	Aperture	Service type	Service / substrate separation (mm)	Supporting construction	Application	Classification E/I
> 40mm H&V	< 610mm	Single	2 x 50mm ACB	Steel	100/0	100mm aerated block	Locally sustained (L/S)	120/90
> 40mm H&V	< 610mm	Single	2 x 50mm ACB	Steel	100/0	100mm aerated block	Continuously Sustained (C/S)	120/120

Table 5

Performance of Steel & Copper Pipework in Flexible and Solid Wall - Directly through fire rated wall construction

Insulation thickness (mm)	Pipe dia range (mm)	Formation	Aperture	Service type	Annular gap	Service/substrate separation (mm)	Classification					
							Locally sustained (L/S)			Continuously sustained (C/S)		
							Integrity (E)	Insulation (I)	E/I	Integrity (E)	Insulation (I)	E/I
> 20mm H&V	15	Single	Direct	Copper	<10mm*	0	120	120	120/120	120/120	120	120/120
> 20mm H&V	60	Single	Direct	Steel	<10mm*	0	120	120	120/120	120/120	120	120/120
> 20mm H&V	15	Single	Direct	Copper	<10mm*	0	120	120	120/120	120/120	120	120/120
> 25mm H&V	15	Single	Direct	Copper	11-50mm**	0	120	120	120/120	120	120	120/120
> 25mm H&V	16-108	Single	Direct	Copper	<10mm*	0	120	60	120/120	120	120	120/120
> 25mm H&V	16-108	Single	Direct	Copper	11-50mm**	0	120	90	120/120	120	120	120/120
> 25mm H&V	16-108	Cluster	Direct	Copper	< 50mm**	0	120	60	120/120	120	120	120/120
> 25mm H&V	114	Single	Direct	Steel	<10mm*	0	120	90	120/120	120	120	120/120
> 25mm H&V	114	Single	Direct	Steel	11-50mm**	0	120	90	120/90	120	120	120/120
> 25mm H&V	114-219	Single	Direct	Steel	<10mm*	0	90	90	90/90	90	120	120/120
> 25mm H&V	114-219	Single	Direct	Steel	11-50mm**	0	120	60	120/60	120	120	120/120
> 25mm H&V	15-114	Cluster	Direct	Steel	< 50mm**	0	120	120	120/120	120	120	120/120

\* < 10mm = annular space sealed with AIS through full wall thickness  
 \*\* 11-50mm Annular space filled with RWA45 and finished with 12.5mm AIS



# FIREPRO® Insulated Fire Sleeves



## Description

Insulated Fire Sleeves provide both fire stopping and thermal insulation in a single product.

A unique combination of ROCKWOOL stone wool and graphite intumescent and supplied with a factory applied reinforced aluminium foil facing, Insulated Fire Sleeves are intended for use on copper, steel and most types of plastic pipes, trunking and conduits to provide up to 2 hours fire resistance.

Insulated Fire Sleeves can be used on numerous division types and under fire attack, expand both inwards to choke the plastic service penetration and also outwards to seal gaps between the sleeve and the surrounding construction.

## Advantages

- Quick, simple and accurate installation
- Maintains pipe insulation at penetration points
- Supplied with integral vapour barrier
- No mastic or ancillaries required
- Excellent thermal and acoustic insulation

## FIREPRO® Insulated Fire Sleeves Ancillaries

- FIREPRO® Acoustic Intumescent Sealant & Ablative Coated Batt are available from ROCKWOOL stockists
- Suitable aluminium foil tape is available from specialist HVAC stockists



## Applications

Insulated Fire Sleeves should be installed to the same thickness as the pipe insulation (min 25mm thick). For uninsulated pipes, a thickness of 25mm is required to maintain the fire resistance of the wall or floor.

## Performance

### Standards and approvals

This product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with this datasheet - please refer to the LUL Approved Product Register website [www.LU-apr.co.uk](http://www.LU-apr.co.uk) for specific details.

### Fire

Service Temperature and Limiting Service Temperature - Insulated Fire Sleeves are used to fire stop pipework operating at temperatures between 0°C and 180°C. At low temperatures, care should be taken to maintain the vapour barrier.

Table 1

Fire resistance (FR) performance - ducting, trunking and conduits

Service type	Material	Max size W/D (mm)	Wall thickness range (mm)	Supporting construction		FR integrity (minutes)	FR insulation (minutes)		Report
				Wall	Floor		Wall & floor	Wall	
Rectangular vent ducts	PVC	Other sizes available - see ROCKWOOL Oval Insulated Firesleeve Data Sheet	1.6 to 3	M/PB	Concrete	120	90	120	1
Square trunking	PVC		3	M/PB	Concrete	120	90	120	1
Cable conduit	PVC	Up to 55 diameter	3	M/PB	Concrete	120	90	120	1

Table 2

Fire resistance (FR) performance - metal and plastic pipes in masonry, plasterboard or concrete supporting construction

Service type	Material	Min dia (mm)	Wall thickness (mm)	Max dia (mm)	Wall thickness (mm)	Supporting construction		FR integrity (mins)	FR insulation (mins)		Report
						Wall	Floor		Wall & floor	Wall	
Metal pipes (uninsulated)	Copper Mild steel Stainless steel	22	2.5	165	14.2	M/PB	Concrete	120	0	0	1
Pipes (plastic)	PVC/UPVC	55	3.0	160	4.2	M/PB/CB	Concrete	120	120	120	1
	PVC/UPVC	160	3.0	110	4.2	M/PB	Concrete	120	90	90	
	Polybutylene	12	2.0	28	3.5	M/PB/CB	Concrete	120	120	120	

A minimum thickness of 25mm is required for uninsulated pipes. 25 to 100mm available to match insulation on other pipes.

Manufactured to fit pipe diameters of 15 to 169mm

1 = Chilt/A12265 - 2 = Chilt/A08152 Rev D - M = Masonry - PB = Plasterboard - CB = Ablative Coated Batt



Table 3

Fire resistance (FR) performance - ducting, trunking and conduits

Service type	Material	Pipe outer diameter (mm)	Wall thickness (mm)	FR integrity (minutes)		FR insulation (minutes)	
				50mm Coated Batt	2 x 50mm Coated Batt	50mm Coated Batt	2 x 50mm Coated Batt
Pipes (plastic)	Polybutylene	15-28	2.5	60	120	60	120
	HDPE	40	3	60	120	60	120
	PVCu	43	1.8	60	120	60	120
	PVC	55	2	60	120	60	120
	HDPE	56	2.3	60	120	60	120
	ABS	57	4	60	120	60	120
	PVC, PVCu	82	3.2-4.0	60	120	60	120
	HDPE	90	3.5	60	120	60	120
	PVC, PVCu	110	4.3	60	120	60	120
	HDPE	110	5	60	120	60	120
	ABS	110	5	60	120	60	120
	PVC, PVCu	160	3.2-4.5	60	120	60	120
	HDPE	160	6.2	60	120	60	120
	ABS	160	6.7	60	120	60	120

Acoustics

The use of Insulated Fire Sleeves can considerably reduce the noise emission from noisy pipework. ROCKWOOL Insulated Fire Sleeves have been tested to provide up to Rw 49 dB.

For higher standards of acoustic insulation, it is recommended that an increased length of the pipework either side of the compartment wall or floor is insulated with ROCKWOOL Techwrap 2 or Techtube.

Product information

Dimensions

Insulated Fire Sleeves are supplied 300mm long. They are manufactured to fit a range of standard pipe sizes, from 17mm to 169mm O.D. and in a standard thickness of 25mm. Other pipe sizes and thicknesses may be available to special order.

Installation

Installation instructions

Insulated Fire Sleeves are supplied 300mm long and are simply cut to the desired length and as a minimum, be cut flush with both faces of the wall/floor. When used in conjunction with PVC services or ROCKWOOL Ablative Coated Batts, they are required to extend beyond the face of the wall/floor. For details of how far they need to extend please refer to specification clause 2.

Maintenance

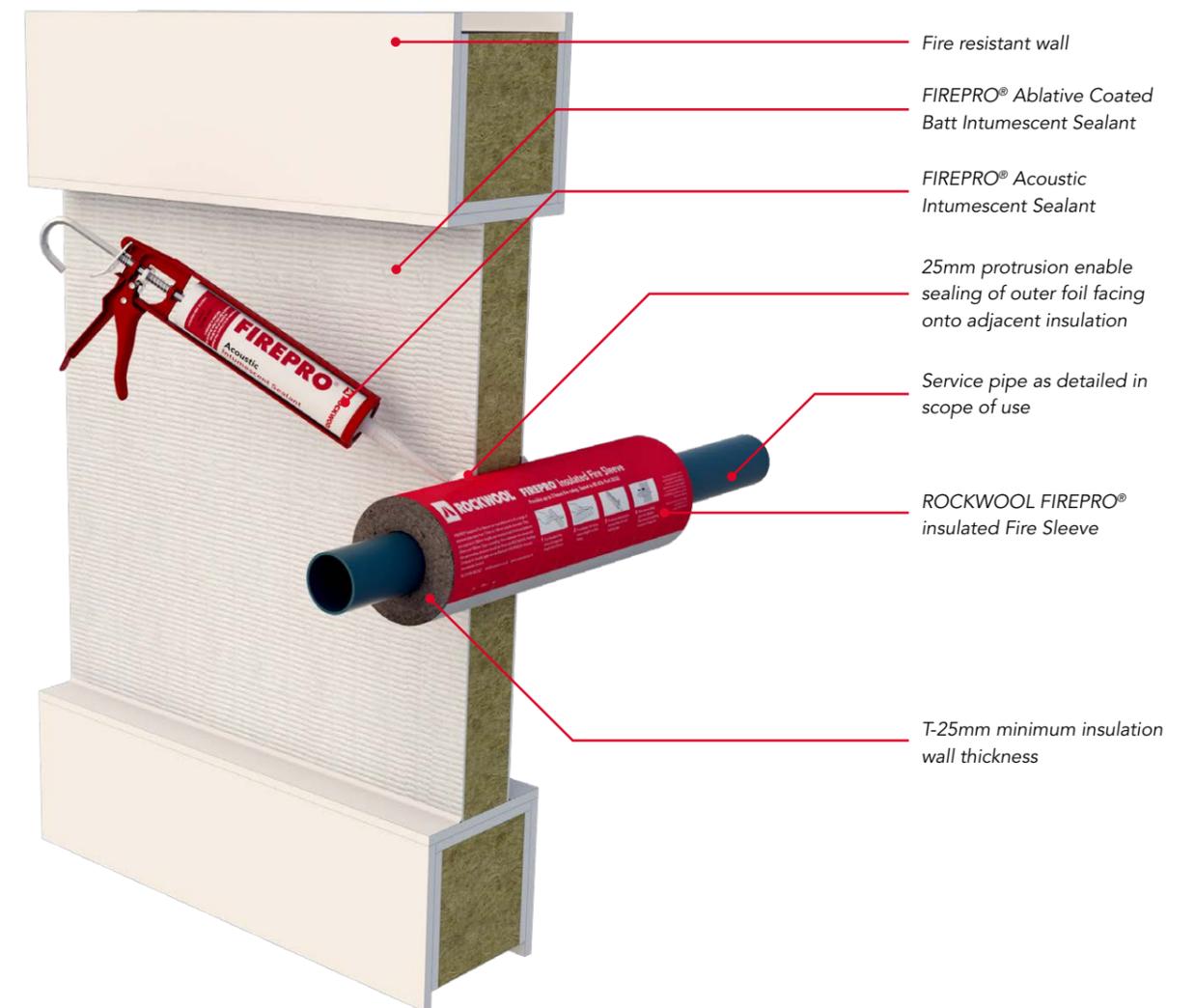
To maintain thermal efficiency, the Insulated Fire Sleeves should tightly abut any existing pipe insulation and where this is foil faced, all joints must be sealed with self-adhesive class O foil tape.

Other install info e.g. ancillaries

No specialist tools or ancillary materials are required for the fitting of Insulated Fire Sleeves. Insulated Fire Sleeves can accommodate irregularities in the division opening and the pipe O.D. of up to 15mm.

Multiple pipe penetrations can be accommodated in conjunction with Ablative Coated Batts.

A minimum thickness of 25mm is required for uninsulated pipes. Thicknesses of 25 to 100mm available to match insulation already installed on pipework. Manufactured to fit pipe diameters of 15 to 169mm.





## Specification clauses

1. Supporting construction designation:- Floors: Cast concrete between 1100 and 2400kg/m<sup>3</sup> density.  
M=Masonry between 600 and 1500kg/m<sup>3</sup> density.  
PB= Plasterboard clad steel or timber stud partitions with fire resistance at least the same as the Fire Sleeve performance.  
CB= ROCKWOOL 50 or 60mm thick Ablative Coated Batt.
2. Insulated Fire Sleeves should extend at least 25mm from each face of the supporting wall or floor construction to allow for effective sealing against any thermal insulation, except when used with ROCKWOOL Ablative Coated batts where a minimum of 50mm protrusion is required from both faces.
3. If gaps exceed 15mm around the aperture and the sleeve, the gap should be filled with ROCKWOOL Acoustic Intumescent or FIREPRO® Firestop Compound. If gaps exceed 8mm between the service and the sleeve, these can be infilled, locally where the service penetrates the aperture, with the Acoustic Intumescent Sealant.
4. The installed length of any Insulated Fire Sleeve shall be at least 60mm.

## NBS specification clauses

FIREPRO® Insulated Fire Sleeves are associated with the following NBS clauses:

### P12 Fire stopping systems

- 375 Pipe collar: Insulated Wrap

Today's modern buildings contain a vast network of pipework and ductwork services that will travel throughout the whole building passing through compartment walls & floors.

Where services penetrate compartment lines it is critical that they are sealed effectively to maintain the performance of the fire rated construction.





# FIREPRO® Ablative Coated Batt



## Description

The ROCKWOOL Ablative Coated Batt comprises a high density stone wool core, pre-coated on both sides with our high-performance ablatively coating.

Ablative Coated Batt has been comprehensively tested as part of the ROCKWOOL FIREPRO® range of fire protection products, specifically for use in service penetrations, head of wall and other void seals.

## Advantages

- Excellent fire resistance from a single thickness batt
- Comprehensively tested as part of the FIREPRO® suite of solutions
- Suitable for sealing wall and floor voids containing most commonly used services and substrates
- Can be used as a blank seal and a head of wall seal
- Lightweight and simple to install
- Tested for air tightness, providing an additional smoke and acoustic seal

## FIREPRO® Ablative Coated Batt Ancillaries

- FIREPRO® Acoustic Intumescent Sealant & Ablative Coating are available from ROCKWOOL stockists



## Applications

- Multiple substrates including: solid walls and floors; flexible walls
- Multi-service penetrations
- Head of wall
- Blank seals
- Face-fixed applications
- Large-framed service voids

For a fully comprehensive list of applications, please refer to the appropriate ROCKWOOL standard details available at [www.rockwool.co.uk](http://www.rockwool.co.uk) or contact the ROCKWOOL Technical Solutions Team.

## Performance

### Fire performance

Tests have proved the capability of a single 50mm Batt to provide up to 2 hours fire resistance Integrity and Insulation ratings are dependent upon the service penetrations and void size. Where 4 hours integrity and insulation are required we recommend the use of our 60mm Ablative Coated Batt.

### Acoustic performance

Tested for head of wall:

- Rw= up to 48db (2 x Coated batts)
- Rw= up to 37db (1 x Coated batts)

The correct use of Coated batt within concealed cavities and voids will reduce the level of transmitted sound:

- Rw= up to 52 db (2 x Coated batts) - incorporating 48mm O/D PVC /15mm copper pipe penetrations.
- Rw= up to 34 db (1x Coated batts) - incorporating 48mm O/D PVC /15mm copper pipe penetrations.

For specific acoustic requirements please contact ROCKWOOL Technical Solutions.

## Product information

Length	Width	Thickness	Fire resistance	Density	Air leakage
1200mm	600mm	50mm, 60mm	Up to 4 hours	160kg/m <sup>3</sup> - 180kg/m <sup>3</sup>	0.8 m <sup>3</sup> /h/m <sup>2</sup>

## Standards and approvals

BS EN 1366-3: 2009 and the dedicated fire resistance standard for linear joint seals, BS EN 1366-4:2006. Ablative Coated Batt has been classified in accordance with BS EN 13501-2.

Third party accreditation through IFC and Certifire.

CE marked to ETAG 026-2.

For further information on the full scope of fire performance please refer to the appropriate standard details available [www.rockwool.co.uk](http://www.rockwool.co.uk) or contact ROCKWOOL Technical Solutions.

**Note: All Ablative Coated Batt fire resistance tests were conducted using ROCKWOOL FIREPRO® ancillary products as appropriate.**

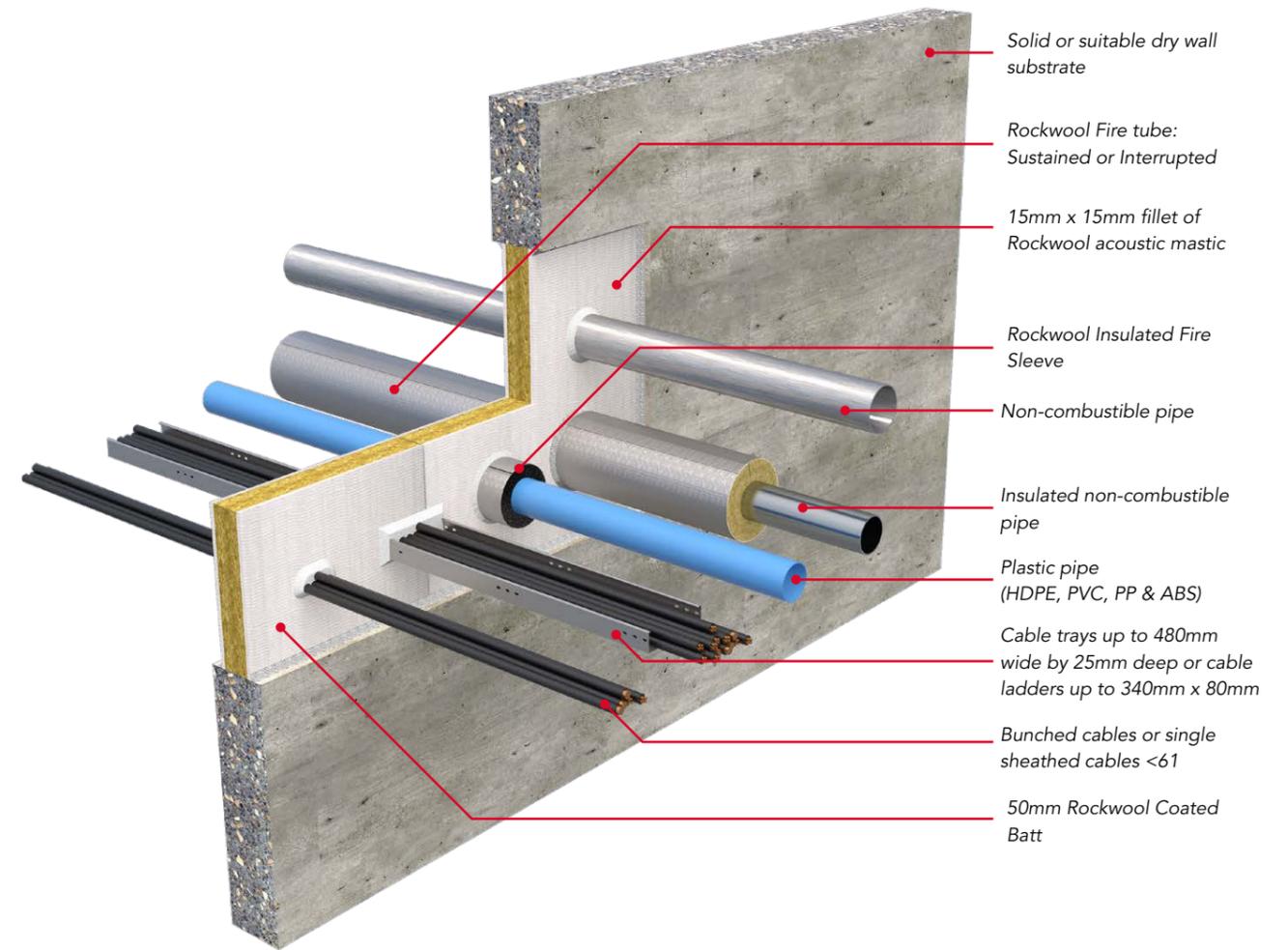


## Installation

1. Make sure that the area within the aperture is clean of any debris and remove any dust from the edges.
2. Cut ROCKWOOL Ablative Coated Batt to the size and shape required to fit the aperture ensuring that the batt will make a tight fit with all edges of the aperture.
3. Cut rectangular holes from the coated batt to accommodate cable trays or ladders containing cables.
4. Cut the Coated Batt across its width at the mid-point of each rectangular hole to enable the Batt to be fitted into the aperture.
5. Apply ROCKWOOL Acoustic Intumescent Sealant to all edges of the Batt ensuring that an even cover is achieved over the entire thickness of the Batt. This should include the outer edges of the Batt and the edges of the cuts made across the Batt to allow fitting into the aperture.
6. Insert the Batt into the aperture.
7. Apply a bead of ROCKWOOL Acoustic Intumescent Sealant approximately 15mm wide around the perimeter of the Batt ensuring that all gaps between the Batt and surrounding edges are fully filled.
8. Apply a bead of ROCKWOOL Acoustic Intumescent Sealant approximately 15mm wide where cables pass through the Batt. Ensure that the sealant fully encloses each cable within the tray or ladder and that all gaps are fully filled.
9. Repeat step 7 and 8 on the other side of the Batt.

### Other installation information

FIREPRO® Ablative Coated Batts are not intended for use as load-bearing seals. Where a load-bearing seal is required, ROCKWOOL Firestop Compound should be considered.



### NBS specification clauses

50mm & 60mm Ablative Coated Batt is associated with the following NBS clauses:

#### P12 Fire stopping systems

- 325 Boards – Mineral Bound Lightweight
- 360 Mineral Wool Rigid Batts
- 365 Mineral Wool Rigid Batts – Ablative Coated

For a comprehensive range of ROCKWOOL solutions for penetrating services passing through the Ablative Coated Batt, please refer to the applicable ROCKWOOL standard details available at [www.rockwool.co.uk](http://www.rockwool.co.uk) or contact ROCKWOOL Technical Solutions.



# FIREPRO® Acoustic Intumescent Sealant



## Description

Acoustic Intumescent Sealant is a high specification, one part water based acrylic sealant. Acoustic Intumescent Sealant is designed for use in the installation of ROCKWOOL Ablative Coated Batt, sealing linear joints and some individual service penetrations passing through various substrates.

## Advantages

- Up to 4 hours fire protection
- Acoustically tested
- Air leakage tested
- Suitable for linear joints up to 50mm wide
- Suitable with multiple substrates and services
- Increased movement capability
- Available as a trowel grade option

## Applications

Acoustic Intumescent Sealant is comprehensively tested for a wide range of applications which include:

- Sealing service penetrations
- Linear joint seals
- Installation of Ablative Coated Batt

## Performance

### Standard and approvals

Acoustic Intumescent Sealant has been tested to BS EN 1366-3: 2009 and BS EN 1366-4: 2006 +A1:2010 and classified to EN 13501-2, providing up to 4 hours fire protection in joints up to 60mm.

Acoustic Intumescent Sealant has been CE marked against ETAG 026-2.

Acoustic Intumescent Sealant is third party accredited through IFC and Certifire.

Acoustic Intumescent Sealant is third party approved with LPCB – certificate no. 022b(4)

### Fire performance

AIS Tables – Fire protection

BS & EN Data for aerated concrete walls and floors with substrates						
Approval	Application	Gap width	Substrate combination	Integrity	Installation	Certifier document place
BS 476-20	Floor	up to 50mm	Variable	up to 120 mins	Single sided	CF5577 - PG 4
EN 1366-3	Floor	up to 50mm	Variable	up to 240 mins	Upper face	CF5577 - PG 7
EN 1366-4	Wall	up to 50mm	Variable	up to 120 mins	single sided	CF5577 - PG 5 & 6

Substrates include AAC, Softwood and Steel – please refer to CF5577 for combinations and individual ratings

CERTIFICATE No CF 5577 - EN1366-4 +A1 Approval Matrix

ROCKWOOL® FIREPRO® Acoustic Intumescent Sealant							
Configuration	Max. joint width (mm)	Min. seal depth (mm)	Backing material	Integrity (mins)	Insulation (mins)	Movement %	
Wall constructions (min 150mm thick)	Autoclaved aerated concrete	60*	20 (both faces)	Polyethylene 20mm & 50mm diameter	240	120	24 Shear 8.3 Lateral
		60*	5 (either face)	75mm deep, compressed 15%, stonewool 60kg/m <sup>3</sup>	240	60	25 Shear 12.5 Lateral

\* Pre movement

**Application technique:** For good adhesion the surfaces of the building element shall be free of any dust or grease and may need to be primed. On good clean, virgin concrete & masonry, no priming required.



## Fire resistant applications: Section 2 - Pipe penetrations

CERTIFICATE No CF 5577 - EN1366-4 +A1 Approval Matrix

ROCKWOOL® FIREPRO® Acoustic Intumescent Sealant							
Configuration	Max. joint width (mm)	Min. seal depth (mm)	Backing material	Integrity (mins)	Insulation (mins)	Movement %	
Floor constructions (min 150mm thick)	Autoclaved aerated concrete	60*	20 (both faces)	Polyethylene 20mm & 50mm diameter	180	60	16.6 Lateral
		60*	5 (either face)	100mm deep, compressed 15%, stonewool 60kg/m <sup>3</sup>	240	240	25 Lateral

\* Pre movement **Application technique:** For good adhesion the surfaces of the building element shall be free of any dust or grease and may need to be primed. On good clean, virgin concrete & masonry, no priming required.

EN 1366-3:2009 – Rigid and flexible wall min 120mm thick

Service type	Pipe O/D	Pipe wall thickness	Annular gap	Depth of sealant	Classification
Copper and steel pipes	15 mm ≥ 159 mm	0.8 mm ≥ 14.2 mm	10 mm	25mm (both faces)	E120*

\* for insulation ratings please contact Rockwool Technical solutions

CERTIFICATE No CF 5577 - EN1366-3 Approval Matrix

Wall installations: Double sided seals - ROCKWOOL® FIREPRO® Acoustic Intumescent Sealant						
Cable and cable tray size	Cut out (mm)	Min. seal depth (mm)	Backing material	Integrity (mins)	Insulation (mins)	
Flexible or rigid wall constructions (min 150mm thick)	Cables ≥ to 21mm	490mm long x 100mm high	25 (both faces)	75mm x 80kg/m <sup>3</sup> stone wool	120	90
	Perforated cable tray 450 x 50mm	490mm long x 100mm high	25 (both faces)	70mm x 80kg/m <sup>3</sup> stone wool	120	90
	Cables ≥ 21-60mm	200mm long x 100mm high	25 (both faces)	N/A	90	60

**Application technique:** For good adhesion the surfaces of the building element shall be free of any dust or grease and may need to be primed. On good clean, virgin concrete & masonry, no priming required.

**Rigid walls:** The wall must have a minimum thickness of 150mm and comprise concrete, aerated concrete or masonry with a minimum density of 450kg/m<sup>3</sup>.

**Flexible walls:** The walls must have a minimum thickness of 120mm and comprise timber or steel studs lined on both faces with a minimum of 2 layers of 12.5mm thick "Type F" Gypsum board according to EN 520. In timber stud walls no part of the penetration shall be closer than 100mm to a stud, the cavity must be closed between the penetration seal and the stud and a minimum of 100mm of insulation of Class A1 or A2 according to EN 13501-1 must be provided within the cavity between the penetration and the stud.

For further information, please refer to the ROCKWOOL standard details'

CERTIFICATE No CF 5577 - Air Permeability

ROCKWOOL® FIREPRO® Acoustic Intumescent Sealant- Approval Matrix					
Air Permeability: EN1026	Pressure (PA)	Positive pressure (m <sup>3</sup> /h/m <sup>2</sup> )	Negative pressure (m <sup>3</sup> /h/m <sup>2</sup> )	Weather capability	Not evaluated by this approval
	50	0	0		
	100	0	0		
Acoustic Rating: BS EN ISO 10140-3:1995	R <sub>w</sub> (C;C <sub>v</sub> ):38(-2;-7) dB			Movement capability	Movement parameters provided in the scope above
Smoke Toxicity BS 6853: 1999 Annex B.1 Incorporating Amendment No.1	R value of 0.19			Smoke Density BS 6853 D.3: 1999 Incorporating Amendment No.1	Ao (max) value 0.004

### Acoustic performance

Weighted Sound Reduction Index (R<sub>w</sub>) of up to 57dB dependant on:

- Type of construction
- Type of seal backing
- Size of joint

For specific information on acoustic performance please contact ROCKWOOL Technical Solutions on 01656 868490 or [technical.solutions@rockwool.co.uk](mailto:technical.solutions@rockwool.co.uk).

### Product information

Application temperature	Yield	Weighted sound reduction index	Fire resistance	Shelf life
>5°C	up to 5.9lm	up to 57dB	Up to 4 hours	12 months

### Installation

All surfaces must be thoroughly clean and free of bond breaking contaminants prior to application of the sealant. No priming is required for most commercial substrates; however, it is recommended that before installation the sealant is applied to a small area of the substrate to assess adhesion.

The sealant should not be applied if the ambient temperature is below 5°C as adhesion may be impaired.

The sealant is fast curing, approximately 15-minute tack free time. When fully cured, the sealant can be overpainted.

Each cartridge/sausage is intended to provide the following application rates:

Joint size (mm)	Depth of sealant (mm)	Yield per cartridge (m)	Yield per sausage (m)
10	10	3.10	5.90
20	15	1.03	1.95
30	20	0.51	0.95

### NBS specification clauses

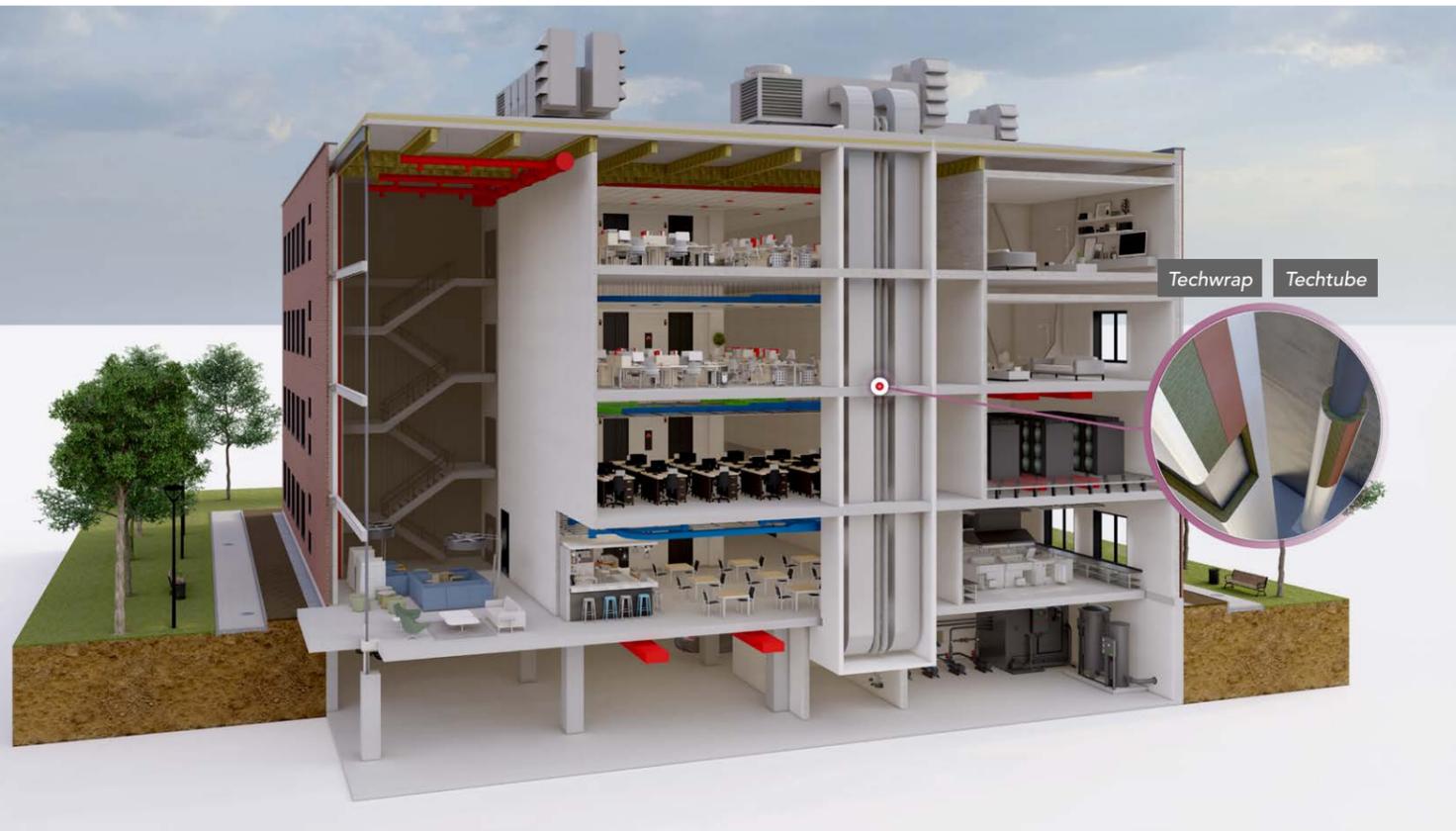
FIREPRO® Acoustic Intumescent Sealant is associated with the following NBS clauses:

E40: Designed joints in in-situ concrete – 530 Sealant
F30: Accessories/sundry items for brick/block/stone walling - 610 Movement joints with sealants
L10: Windows/rooflights/screens/louvres – 790 Fire resisting frames
L20: Doors/shutters/hatches – 820 Sealant joints
P12: Fire stopping systems – 395 Sealant-One part fire resistance acrylic

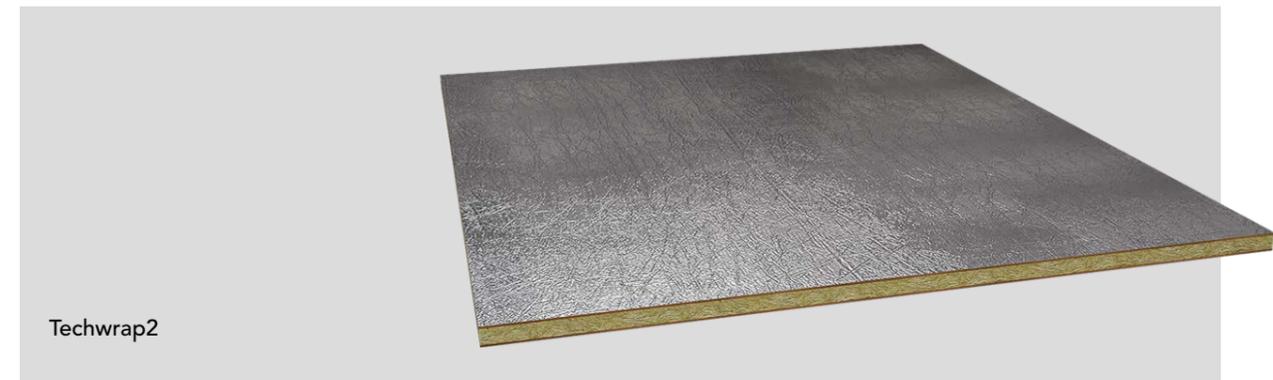
# Acoustic applications

The role of HVAC systems in both commercial and residential building environments is to create comfortable living spaces for the building's occupants, but the mechanical nature of these systems naturally generates high levels of noise which can potentially cause a disturbance.

Installing ROCKWOOL stone wool insulation around HVAC services can effectively reduce operational noise emission, and further prevent unwanted noise flanking between the building's compartments. ROCKWOOL stone wool insulation for HVAC systems is available in a range of sizes for pipes as well as round and rectangular ducts, which significantly reduce the level of environmental sound, protecting the building's occupants from nuisance noise, meaning that even the noisiest infrastructure sounds quieter.



## Core products



### Useful documents and standards

Approved Document E: Resistance to the passage of sound

Building Building 93- Acoustic Design in Schools: performance standards

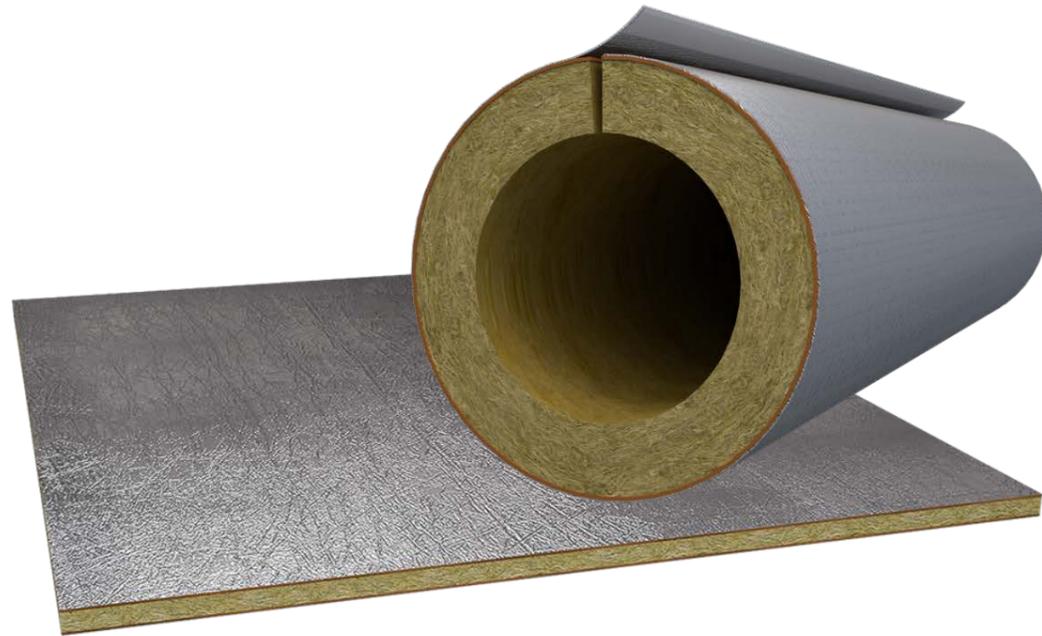
Health Technical Memorandum (HTM) 08:01- Acoustics

ISO 15665: 2003- Acoustics: Acoustic insulation for pipes, valves and flanges

Acoustics of schools: A design guide, calculating noise from equipment



# Techwrap2 and Techtube



## Description

Techwrap2 is constructed from strips (lamella) of ROCKWOOL bonded on edge to ROCKWOOL Acoustic Membrane to provide high resistance to compression:

- Reinforced aluminium foil (inner)
- ROCKWOOL lamella acoustic insulation
- ROCKWOOL Acoustic Membrane
- Reinforced aluminium foil (outer)

Techtube is a strong pre-formed ROCKWOOL pipe section precovered with ROCKWOOL Acoustic Membrane:

- ROCKWOOL pipe section
- ROCKWOOL Acoustic Membrane
- Reinforced aluminium foil (outer)

## Advantages

- Thickness maintained at corners, bends and fixing locations to maintain superior acoustic performance
- Single application of materials
- Easy to handle and install
- Excellent thermal insulation properties

## Techwrap2 and Techtube Ancillaries

- Suitable aluminium foil tape is available from specialist HVAC stockists



## Dimensions

Techwrap2	
Length	1200mm
Width	1000mm
ROCKWOOL Thickness	25mm, 40mm, 50mm
Mass layer	5kg/m <sup>2</sup>

Techtube	
Length	1000mm
Width	67mm
ROCKWOOL Thickness	20 - 100mm*
Mass layer	5kg/m <sup>2</sup>

\*Some combinations of OD and thickness may not be available.

Other forms of insulation, sizes, thicknesses, mass layer types and surface weights may be available to special order.

## Performance

### Thermal conductivity

Typical lambda values for these products would be:

- Techwrap2: 0.039 W/mK (at 10°C mean product temperature)
- Techtube: 0.033 W/mK (at 10°C mean product temperature)

### Service temperature and limiting service temperature

Techwrap2 and Techtube can be used to provide thermal and acoustic insulation to pipes and equipment operating at temperatures in the range 0°C to 230°C. The outer facing temperatures should not exceed 80°C. At temperatures below ambient, the foil facing must be continued onto the pipe surface in order to maintain the vapour barrier.

### Test programme and results

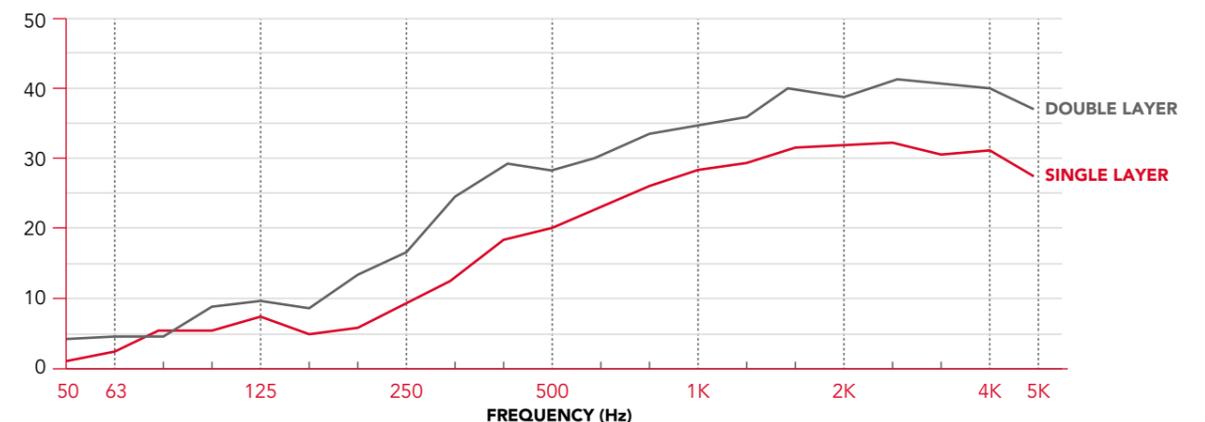
ROCKWOOL Techwrap2 has been independently tested at the Acoustical Investigation & Research Organisation (AIRO) laboratory.

### Techwrap 25mm dB improvements

dB improvements through 0.8mm steel duct for single and double layers of ROCKWOOL Techwrap.

The test programme conducted at AIRO was designed to indicate as closely as possible the true-to-life acoustic performance of Techwrap2 when applied to ductwork. Techwrap was installed in-situ on a 6 metre length of 60mm x 1000mm duct. As expected, sound leakage was noted at inaccessible duct bearer locations during the test. As with other likely on-site irregularities, this leakage may not have been adequately represented by a more simple flat panel test. To show the actual improvements provided by Techwrap, the noise reduction provided by the original 'untreated' duct is excluded from the above graph. The weighted sound reduction for a single layer of Techwrap2 is 30dB; double layer 36dB.

### dB sound reduction





### pH neutrality

ROCKWOOL insulation is chemically compatible with all types of pipes, ducts, equipment and fittings (guidance is given in BS5970 regarding the treatment of austenitic stainless steel pipework and fittings). Stone wool insulation is chemically inert. A typical aqueous extract of ROCKWOOL insulation is neutral or slightly alkaline (pH 7 to 9.5).

### Durability

ROCKWOOL stone wool insulation products have been proven in service for over 60 years, in a wide range of climates and degrees of exposure. ROCKWOOL insulation will generally perform effectively for the lifetime of the building, plant or structure.

### Biological

ROCKWOOL stone wool is a naturally inert and rot-proof material that does not encourage or support the growth of fungi, moulds or bacteria, or offer sustenance to insects or vermin.

### Handling

Techwrap2 and Techtube are easily cut to shape with a sharp knife.

## Installation

### General

ROCKWOOL Acoustic Membrane should be positioned outermost from the sound source and overlapped at all joints.

### Techwrap2

Techwrap2 should be cut 25mm oversize and a 25mm strip of ROCKWOOL removed to create an overlap. All cutting operations can be completed using a sharp knife.

75mm wide plain aluminium foil self-adhesive tape should be used to seal the joints (Idenden type T303, or similar and approved).

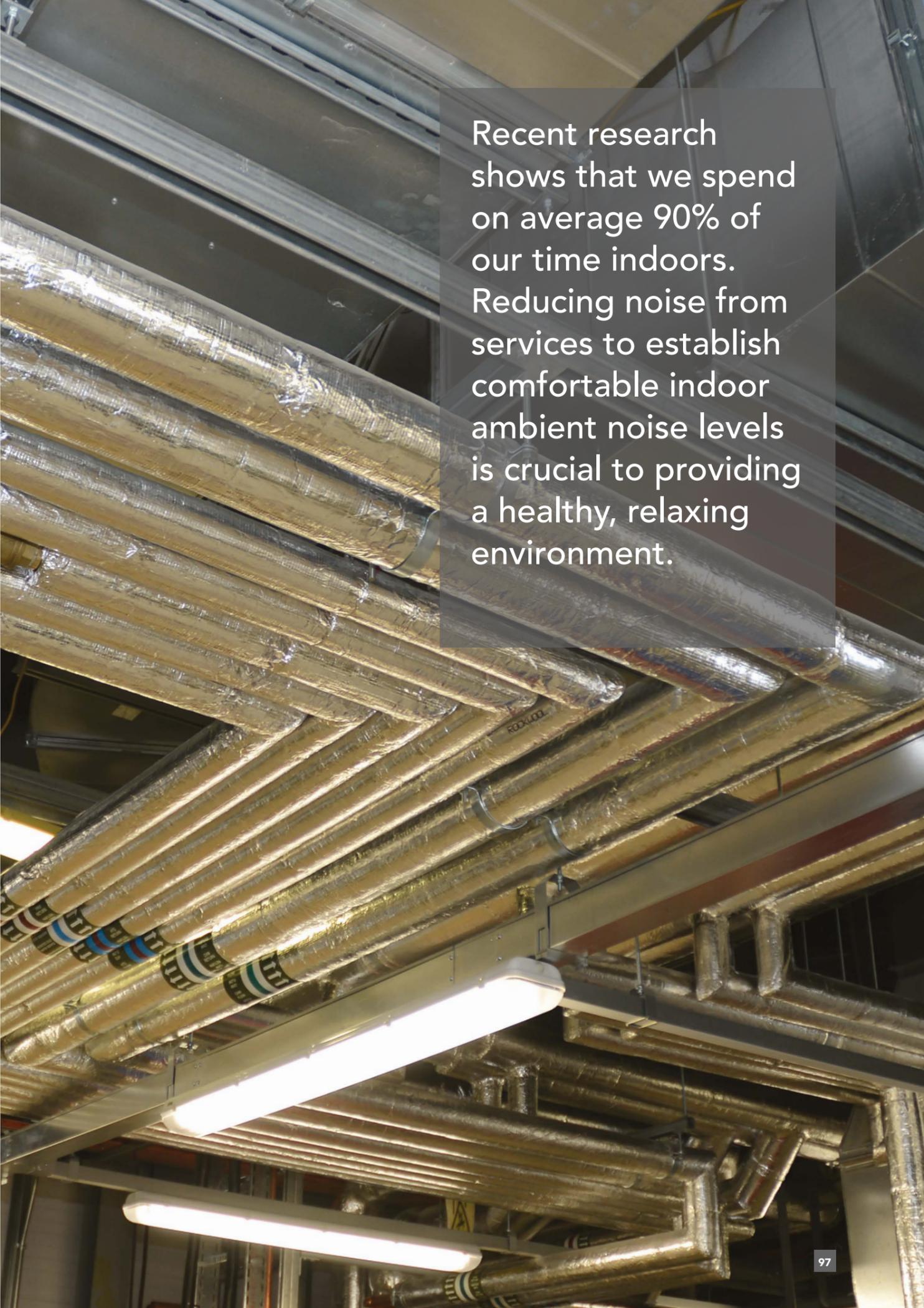
### Fixings

Welded steel pins should be used to fix Techwrap2 to the duct. However, subject to the manufacturer's approval, adhesive applied insulation hangers may be used in place of welded pins (check with manufacturer regarding self-adhesive pins). Particular attention should be paid to support of the Techwrap2 at joint locations and where sagging may occur, e.g. in 'soffit' areas. The number of pins required will depend upon size and orientation of the duct. However, where pins are employed at Techwrap2 edges, 4 no. are recommended at 1000mm edges and 5 no. at 1200mm edges. Additional 'lines' of pins should be at nominal 300mm spacings. Where a vapor barrier is required, support pins and hangers, which penetrate the foil, should be sealed using aluminium tape.

For soil-vent and rainwater pipes, ductwork etc. where they pass within a building and a high level of acoustic insulation is required use ROCKWOOL Techtube.

### Techtube

All joints should be taped with self-adhesive aluminium foil tape. Techtube is generally secured with aluminium bands at approximately 200mm maximum centres.



Recent research shows that we spend on average 90% of our time indoors. Reducing noise from services to establish comfortable indoor ambient noise levels is crucial to providing a healthy, relaxing environment.

## Sustainability

When it comes to our approach to sustainability, it is, simply put, a matter of living our purpose to address the challenges of modern living in a sustainable manner.

This means using natural materials to make products that have a positive impact on society.



Fire resistance



Acoustic comfort



Sustainable materials



Durability



## Health and safety

The safety of ROCKWOOL stone wool is confirmed by current UK and Republic of Ireland health & safety regulations and EU directive 97/69/EC: ROCKWOOL fibres are not classified as a possible human carcinogen.

A Material Safety Data Sheet is available and can be downloaded from [www.rockwool.co.uk](http://www.rockwool.co.uk) to assist in the preparation of risk assessments, as required by the Control of Substances Hazardous to Health Regulations (COSHH).

## Environment

Made from a renewable and plentiful naturally occurring resource, ROCKWOOL insulation saves fuel costs and energy in use and relies on trapped air for its thermal properties.

ROCKWOOL insulation does not contain (and has never contained) gases that have ozone depletion potential (ODP) or global warming potential (GWP).

ROCKWOOL is approximately 97% recyclable. For waste ROCKWOOL material that may be generated during installation or at end of life, we are happy to discuss the individual requirements of contractors and users considering returning these materials to our factory for recycling.



## Interested?

For further information, contact the Technical Solutions Team on 01656 868490 or email [technical.solutions@rockwool.co.uk](mailto:technical.solutions@rockwool.co.uk)

Visit [www.rockwool.co.uk](http://www.rockwool.co.uk) to view our complete range of products and services.

© ROCKWOOL October 2020

## Legal disclaimer

### The ROCKWOOL Trademark

ROCKWOOL® - our trademark

The ROCKWOOL trademark was initially registered in Denmark as a logo mark back in 1936. In 1937, it was accompanied with a word mark registration; a registration which is now extended to more than 60 countries around the world.

The ROCKWOOL trademark is one of the largest assets in the ROCKWOOL Group, and thus well protected and defended by us throughout the world.

If you require permission to use the ROCKWOOL logo for your business, advertising or promotion. You must apply for a Trade Mark Usage Agreement.

To apply, write to: [marketcom@rockwool.com](mailto:marketcom@rockwool.com).

### Trademarks

The following are registered trademarks of the ROCKWOOL Group: ROCKWOOL®, ROCKCLOSE®, RAINSCREEN DUO SLAB®, HARDROCK®, ROCKFLOOR®, FLEXI®, BEAMCLAD®, FIREPRO®

### Disclaimer

ROCKWOOL Limited reserves the right to alter or amend the specification of products without notice as our policy is one of constant improvement. The information contained in this brochure is believed to be correct at the date of publication. Whilst ROCKWOOL will endeavour to keep its publications up to date, readers will appreciate that between publications there may be pertinent changes in the law, or other developments affecting the accuracy of the information contained in this brochure. The applications referred to within the brochure do not necessarily represent an exhaustive list of applications. ROCKWOOL Limited does not accept responsibility for the consequences of using ROCKWOOL in applications different from those described within this brochure. Expert advice should be sought where such different applications are contemplated, or where the extent of any listed application is in doubt.

© ROCKWOOL 2020. All rights reserved.

### Photography and illustrations

The product illustrations are the property of ROCKWOOL Ltd and have been created for indicative purposes only.

Unless indicated below, the photography and illustrations used in this guide are the property of ROCKWOOL Limited. We reserve all rights to the usage of these images.

If you require permission to use ROCKWOOL images, you must apply for a Usage Agreement.

To apply, write to: [marketcom@rockwool.com](mailto:marketcom@rockwool.com).

September 2023

**ROCKWOOL Limited**

Pencoed  
Bridgend  
CF35 6NY

Tel: 01656 862 621

[info@rockwool.co.uk](mailto:info@rockwool.co.uk)

[rockwool.co.uk](http://rockwool.co.uk)



Version 1.01 September 2023

© ROCKWOOL 2023. All rights reserved.