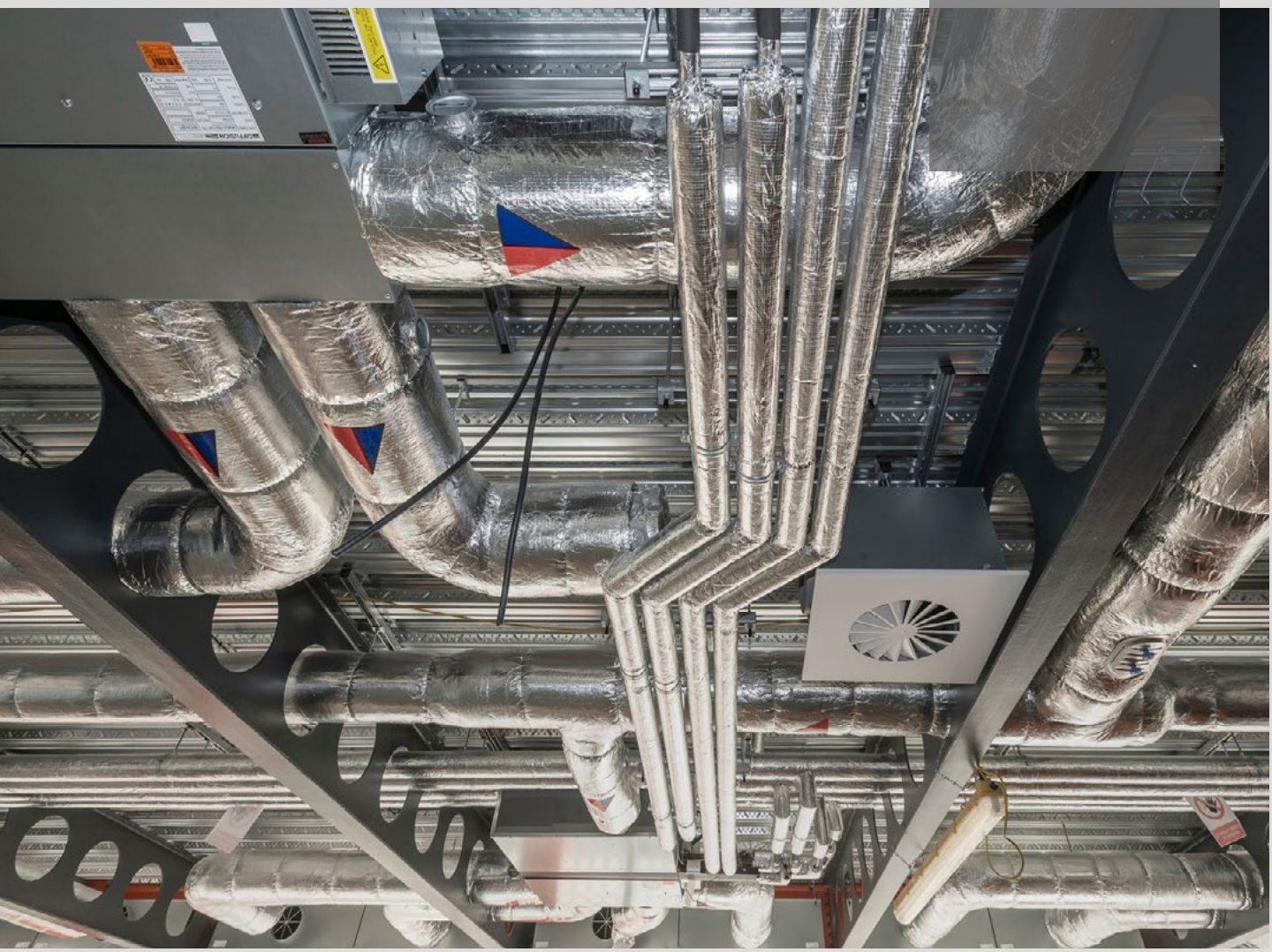
ROCKWOOL® Building Services & HVAC Guide

A comprehensive guide to our full range of building services and HVAC insulation



ROCKWOOL®

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Introducing the Building Services & HVAC 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.

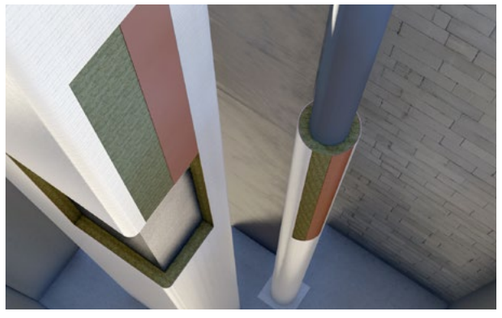
Although these systems effectively provide thermal comfort and improved air quality, by their very nature they can also produce unwanted noise and generate high levels of heat. When selecting an insulation product for these systems, designers should look beyond thermal requirements and also consider aspects of noise control and the fire safety strategy.

ROCKWOOL HVAC stone wool products offer performance against a range of criteria – controlling heat gain, minimising heat loss, reducing noise, and delivering tested fire resistance into and out of the ductwork systems, helping to create safe and healthy working and living environments.

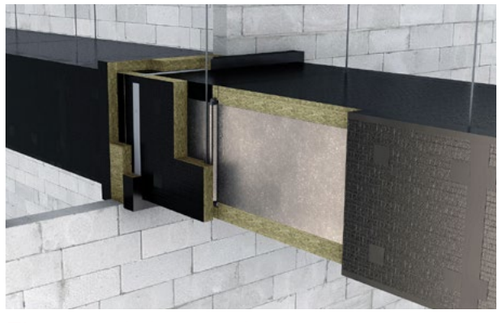
Insulation for every Building Services & HVAC application

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

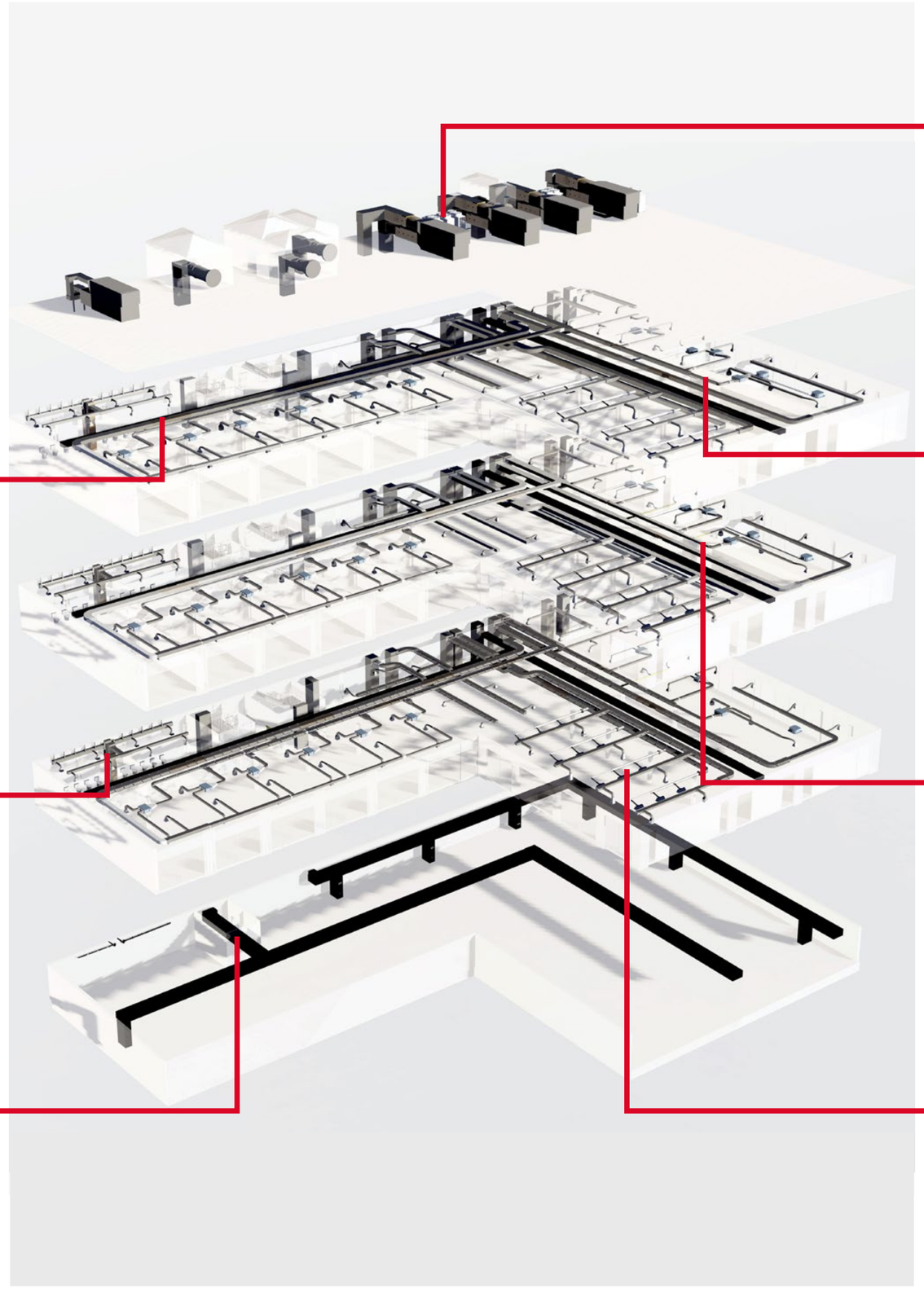
Rectangular/square ductwork

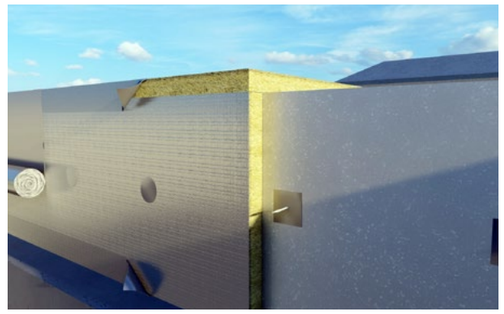


Acoustic pipework and ductwork

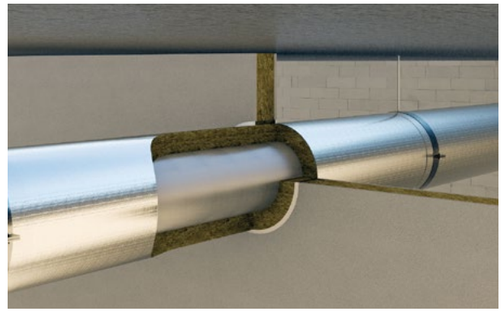


Fire rated ductwork

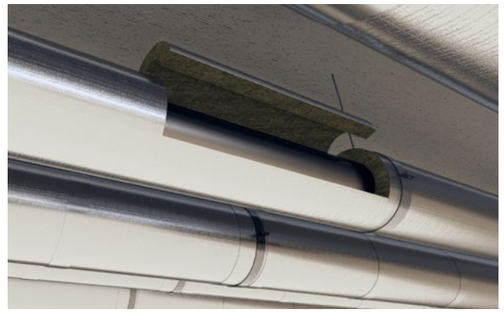




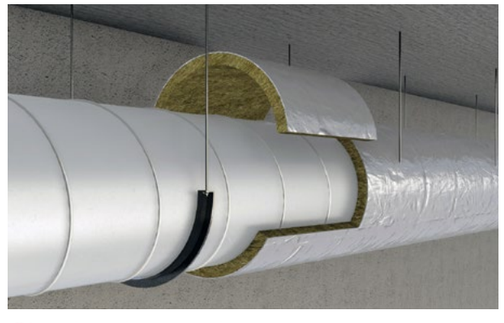
External ductwork



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.

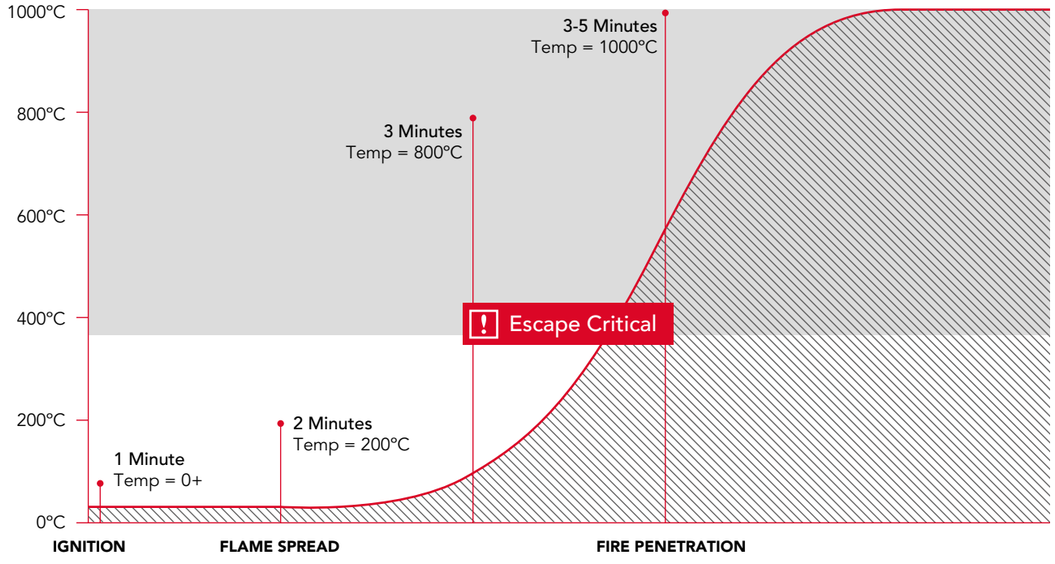
Heat release
Heat energy released during combustion

Character changes
Does the product melt, drip, or char?

Flame spread
The rate at which fire spreads across a surface

Smoke emission
The level of smoke produced when burning

Ignitability
Does the product catch fire?



The Euroclass System

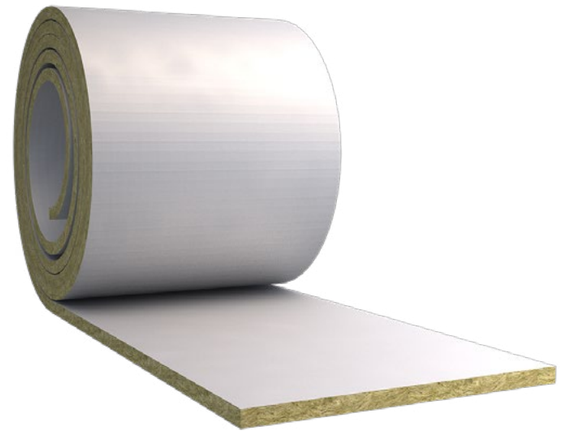
The Euroclass Reaction to Fire system classifies building products in accordance with BS EN 13501-1. Using a product's Euroclass rating as guidance is the only way to determine a product's full reaction-to-fire performance. Products classified A1 or A2-s1, d0 are considered non-combustible and those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

Euroclass	Combustibility
A1 **A2-s1, d0**	Non-combustible
B **C** **D** **E** **F**	Combustible

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 DoPs are available online at rockwool.com/uk/dop



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

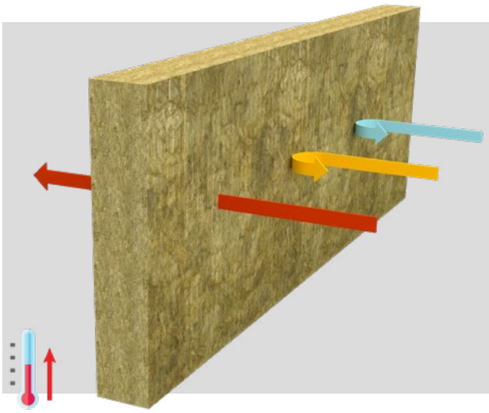
Understanding fire resistance

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 to the appropriate standard and proven to perform for the fire resistance period required.

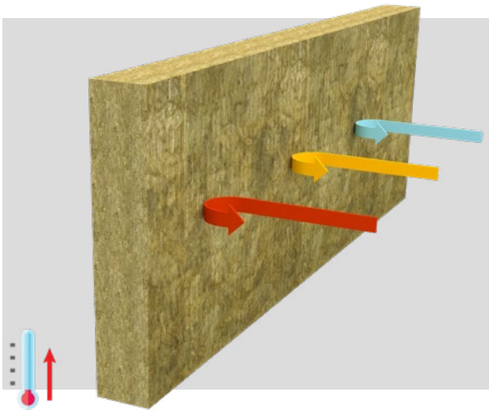
A typical fire resistance test will evaluate three key areas of performance:

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 through it of flames and hot gases, or 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 five minutes of ignition. Therefore it is vital that occupants are allowed enough time to escape safely, and firefighters 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%[1]. 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.

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

Naturally sustainable

ROCKWOOL stone wool is made primarily from volcanic stone, one of the world's most abundant raw materials. Although this stone is plentiful, it's still important to minimise the use of natural resources.

Infinitely recyclable

Stone wool is endlessly recyclable, meaning that it can be recycled again and again without any degradation. By recycling our own waste and waste from other industries, we reduce the overall waste going to landfill as well as our dependence on virgin raw materials.

Circularity in construction

Circularity is at the core of our sustainability strategy because of stone wool's remarkable traits. Two of the most important traits are its recyclability and durability.

ROCKWOOL has incorporated circularity principles in its business model with products that are durable, easily disassembled, recyclable, and which contain recycled material.

In 2023, ROCKWOOL introduced a circularity dashboard that supports our efforts towards greater circularity and especially maximising the use of non-virgin materials wherever possible. The dashboard provides transparency around inflows, outflows, and end-of-life options for our products.

Carbon positive

In 2023, ROCKWOOL made a commitment to reach net zero greenhouse gas emissions by 2050. This builds on the medium-term decarbonisation goals we set in 2020 to reduce absolute Scope 1 and 2 GHG emissions by 38 percent and absolute Scope 3 emissions by 20 percent, both by 2034 with a baseline of 2019.

We are continuously working to decarbonise our production process and address climate hazards – through greater energy efficiency measures, using less materials, and using less carbon-intensive melting processes where feasible.

Environmental Product Declarations (EPDs)

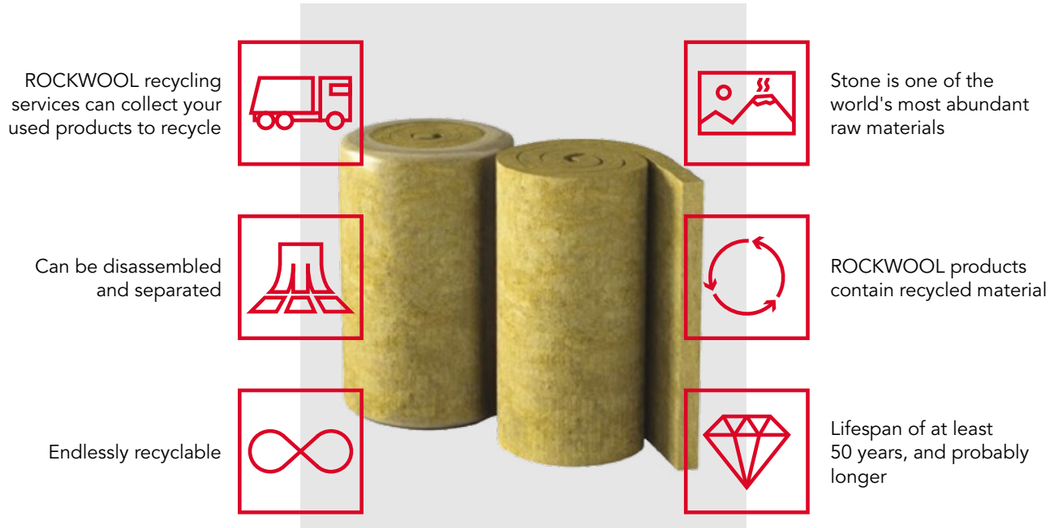
ROCKWOOL advocates for the use of Environmental Product Declarations (EPDs), which are based on the principle of life cycle assessment. EPDs cover the manufacturing process as well as upstream impacts including the extraction and transport of the raw materials, and the downstream impacts such as product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

[1] 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.

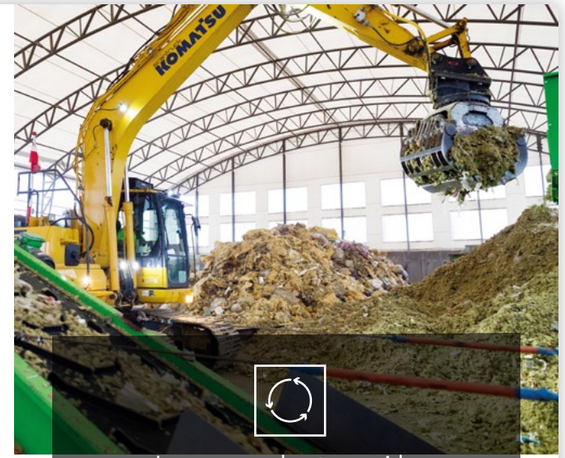


Leveraging stone wool's circularity

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

The ability to recycle stone wool can lead to a reduction in carbon emissions of close to 10 percent, depending on the suitability of recovered material and factory processes used. We are investigating how we can increase this benefit.

ROCKWOOL®



Learn more about our wider commitment to sustainability in the ROCKWOOL Sustainability Report 2024.

Your choice of building materials matters

To find out why, scan the QR code:

rockwool.com/uk

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 – 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 resources

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.

Flat Roof Zoning Tool

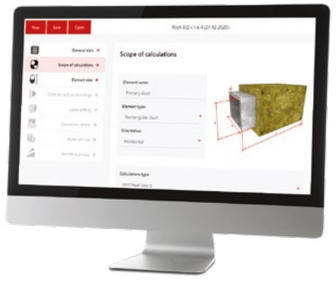
The ROCKWOOL Zoning Tool has been developed to ensure the efficient use of insulation products across a flat roof. Simply draw the roof borders, then zone the roof into different areas depending on the application.

U-Value calculator

Our U-value calculation tool allows you to quickly and easily calculate the thermal performance of walls, floors and roofs, with around 2,500 predetermined calculations all completed under the BBA/TIMSA U-value competency scheme. It also helps you to specify the correct product and thickness to meet your customers' requirements.

Rock-EQ calculator

Specifying the insulation for your HVAC systems is now easier thanks to the ROCKWOOL HVAC calculation tool.



Visit **rockwool.com/uk/technical-resources/tools/** for more information

Scotland

The standards and guidance in the fire safety section of the Technical Handbook (domestic) and Technical Handbook (non-domestic) are designed to work together to provide a balanced approach to fire safety. The purpose of the guidance in Section 2 is to achieve the following objectives in the case of an outbreak of fire within the building:

- To protect life
- To assist the fire and rescue services
- To further the achievement of sustainable development.

Areas covered include compartmentation, structural protection, cavities, internal linings and more.

Northern Ireland

Technical Booklet E (Fire Safety) is one of a series that has been prepared by the Department of Finance and Personnel for the purpose of providing practical guidance with respect to the technical requirements of the Building Regulations (Northern Ireland) 2012 and covers the following:

- Means of escape
- Internal fire spread (linings)
- Internal fire spread (structure)
- External fire spread
- Facilities and access for the fire and rescue service

Republic of Ireland (ROI)

The provisions set out in Sections B1 to B5 of the Technical Guidance Document B, deal with different aspects of fire safety. The five sections are:

- Means of escape in case of fire
- Internal fire spread (linings)
- Internal fire spread (structure)
- External fire spread
- Access and facilities for the fire service

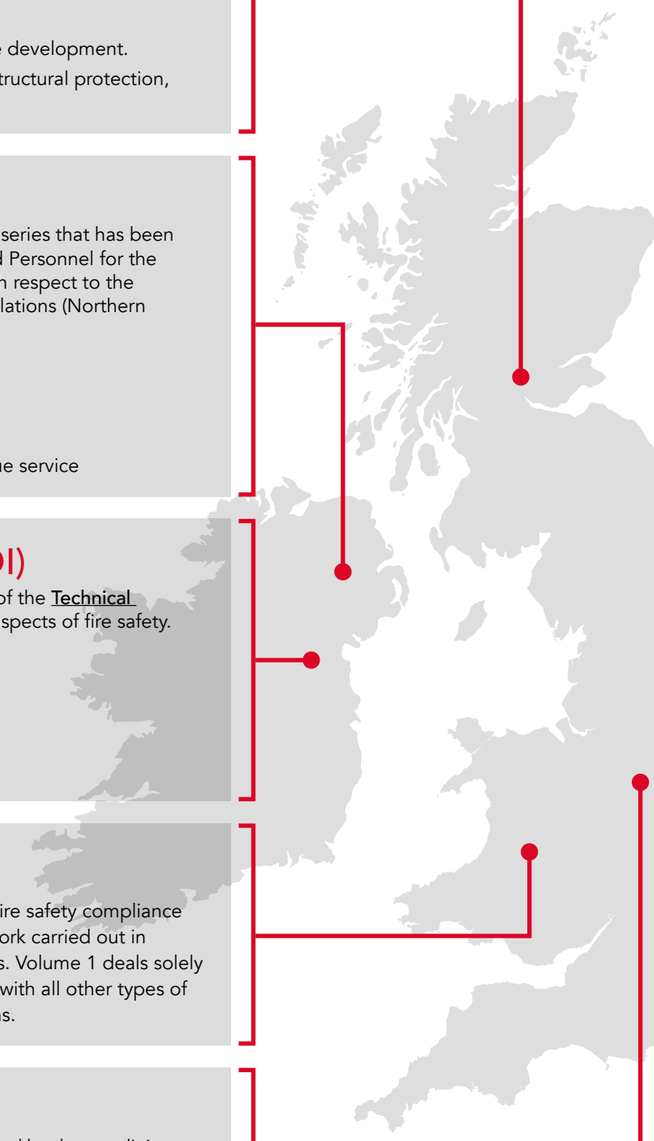
Wales

Approved Document B gives guidance for fire safety compliance with the Building Regulations for building work carried out in Wales. It has been published in two volumes. Volume 1 deals solely with dwelling houses, while Volume 2 deals with all other types of building covered by the Building Regulations.

England

Approved Document B addresses fire safety and has been split into two volumes. Volume 1 deals with dwelling houses and Volume 2 deals with buildings other than dwelling houses. It covers the following:

- Means of warning and escape
- Internal fire spread (linings)
- Internal fire spread (structure)
- External fire spread
- Access and facilities for the fire service



Continuing professional development

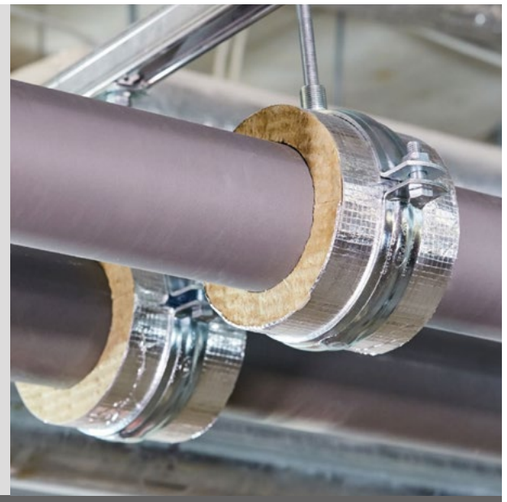
We've used our knowledge and technical expertise to create informative and enjoyable CPDs.

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

CPD: BS 5422:2023

BS 5422 is the standard providing specification guidance for the thermal insulation of pipework, ductwork and equipment.

A means of compliance with Building Regulations across the UK and Ireland, it is an essential document for professionals involved with building services and HVAC applications.



Learning aims

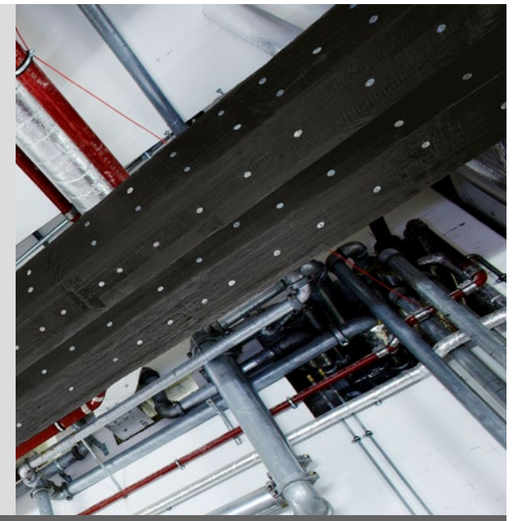
- Understand the purpose and scope of BS 5422:2023
- Recognise the changes from the previous edition
- Understand key insulation specification guidance
- Identify suitable ROCKWOOL products for building services and HVAC applications
- Access available tools and guidance from ROCKWOOL

CPD: Fire Protection for Ductwork

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

The current Harmonised European Standard is a more challenging test. It 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:

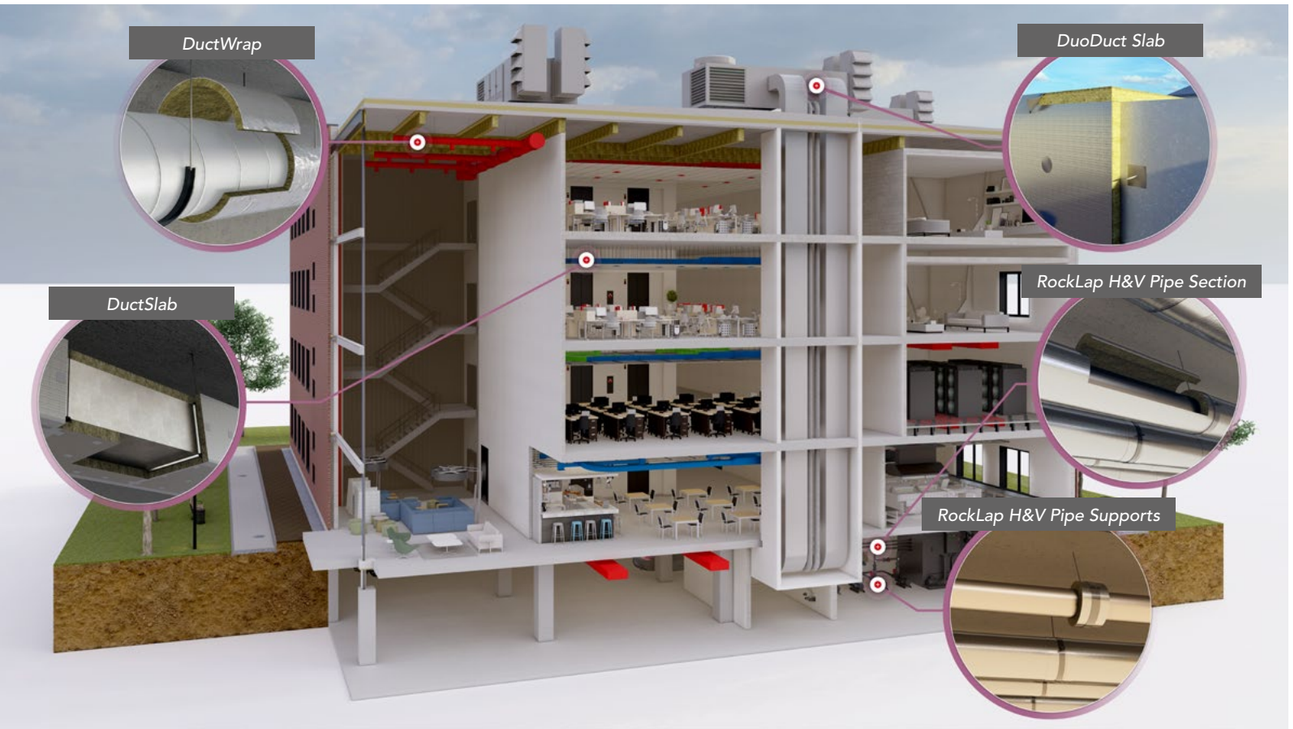
rockwool.com/uk/advice-and-inspiration/learning/cpds/

Thermal applications

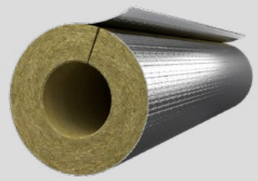
Any loss of heat from HVAC installations directly results in wasted energy, higher energy costs, and increased carbon emissions. This negatively impacts the building occupants, building owners and the environment.

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 optimised.

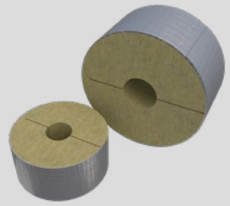
The ROCKWOOL HVAC insulation range includes products to suit pipework as well as circular and rectangular ducts of varying size, which assist in keeping temperatures comfortable and stable and provide thermal performance for the lifetime of the building.



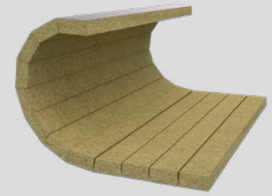
Core products



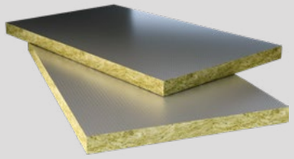
RockLap H&V Pipe Sections



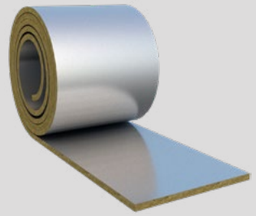
RockLap H&V Pipe Supports



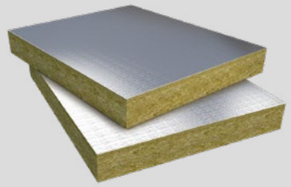
Pipe Section Mat (PSM)



DuctSlab



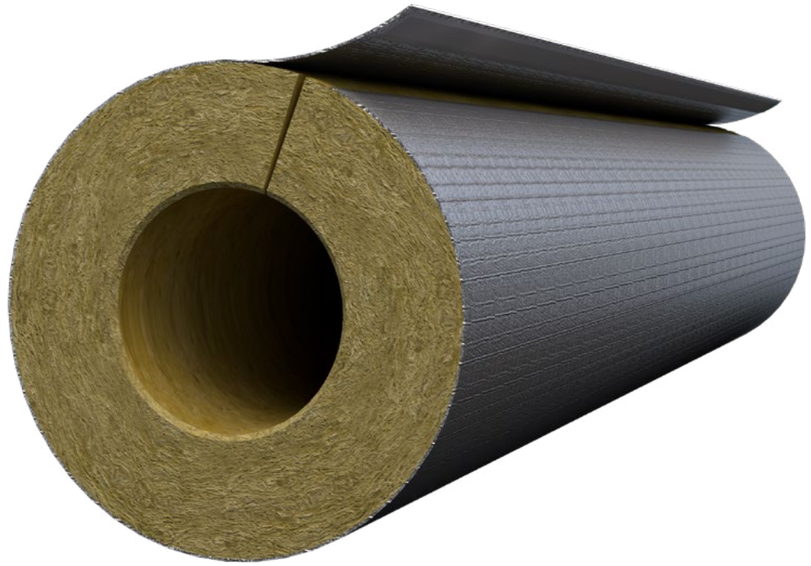
DuctWrap



DuoDuct Slab

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
BS5422:2023 – Method for specifying thermal insulating materials for pipes, tanks, vessels and ductwork
ROCKWOOL guidance – Guide to BS 5422:2023

RockLap H&V Pipe Sections



Description

RockLap H&V Pipe Sections are cylindrical sections of stone wool insulation, manufactured pre-slit and with a foil facing complete with integral self-adhesive lap.

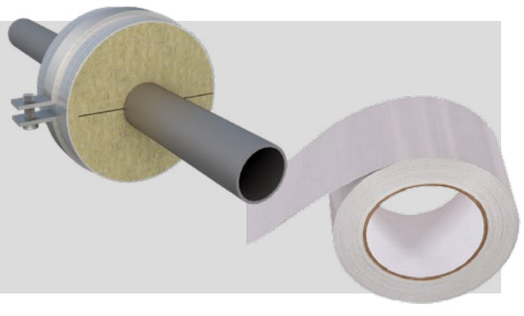
Sizes available:
Please see the table on page 28.

Advantages

- Reinforced aluminium foil facing provides vapour-resistant barrier
- Self-adhesive foil lap enables efficient installation and reduces need for additional aluminium tape
- European Reaction to Fire Classification of A2L, s1-d0

RockLap ancillaries (thermal)

- RockLap H&V 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

Suitable for use on pipework operating between 0°C and 250°C.

RockLap H&V Pipe Sections are tested to provide fire-stopping where steel and copper pipes penetrate fire-resistant walls and floors. The testing allows the product to run continuously through the separating element, saving time and labour costs which would otherwise be incurred should the pipe insulation have to be locally removed or replaced.

Performance

Standards and approvals

RockLap H&V Pipe Sections are CE marked in accordance with BS EN 14303. For more information please visit **rockwool.com/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'.

Fire

Euroclass $A2_L$-s1,d0.

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.

Product information

Table 8 (BS 5422:2023)

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 pipe on which insulation thickness has been based (mm)	RockLap H&V Pipe Section (mm)		
	t = 10°C	*t* = 5°C	*t* = 0°C
≤17.2	20	25	30
≤21.3	20	25	30
≤26.9	20	30	35
≤33.7	20	30	35
≤42.4	20	30	40
≤48.3	25	35	40
≤60.3	25	35	50
≤76.1	25	40	50
≤88.9	30	40	50
≤101.6	30	40	50
≤114.3	30	50	60
≤139.7	35	50	60
≤168.3	35	50	60
≤219.1	35	50	70
≤244.5	40	60	70
≤273.0	40	60	70
≤323.8	40	60	70
≤355.6	40	60	80
≤406.4	50	60	80
≤457.0	50	60	80
≤508.0	50	70	80
≤559.0	50	70	80
≤610.0	50	-	-

Table 15 (BS 5422:2023)

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

Outside diameter of pipe on which insulation thickness has been based (mm)	Low emissivity outer surface (ε = 0.05) Low temperature heating services (≤ 95°C) *t* = 75°C RockLap H&V Pipe Section (mm)	
	Base level thickness	Enhanced level thickness
≤17.2	25	35
≤21.3	30	35
≤26.9	35	40
≤33.7	35	50
≤42.4	35	50
≤48.3	40	50
≤60.3	40	50
≤76.1	50	60
≤88.9	50	60
≤114.3	50	70
≤139.7	50	70
≤168.3	50	70
≤219.1	50	70
≤273.0	50	70
≥273.0	50	70

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 (BS 5422:2009)

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

Outside diameter of pipe on which insulation thickness has been based (mm)	Low emissivity outer surface (ε = 0.05) t = 75°C RockLap H&V Pipe Section (mm)	
	Base level thickness	Enhanced level thickness
≤17.2	25	30
≤21.3	25	35
≤26.9	30	35
≤33.7	30	40
≤42.4	30	40
≤48.3	35	40
≤60.3	35	50
≤76.1	40	50
≤88.9	40	50
≤114.3	40	60
≤139.7	40	60
≤168.3	40	60
≤219.1	40	60
≤273.0	50	60
≥273.0	50	60

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.

For further information on the performance requirements of BS 5422:2023, please refer to the ROCKWOOL Guide to BS 5422:2023.

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. In order to maintain foil facing bond strength, the thickness of insulation should result in an outer surface temperature no greater than 80°C.

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
Stone wool is highly durable and long-lasting. Tests of ROCKWOOL stone wool recovered from old buildings have shown that our stone wool retains its performance characteristics – thermal, mechanical, fire resistance – for at least 50 years, and probably longer. A test of a 65-year-old stone wool sample found in 2023 during a renovation of Copenhagen airport showed that these characteristics had not diminished after 65 years*.

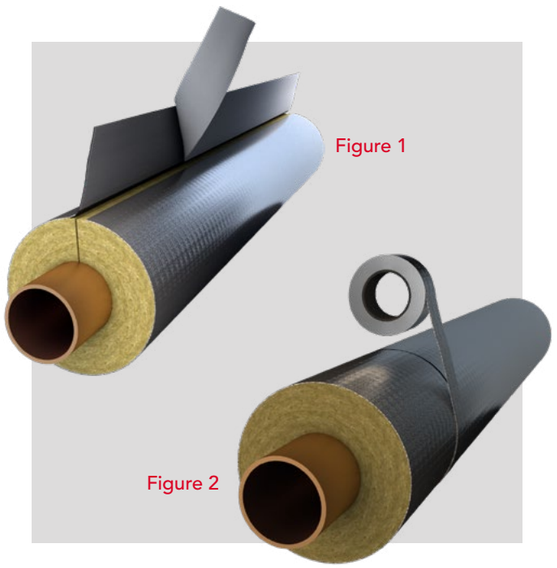
*Testing done at Danish Technical Institute (DTI) in 2023, "Testing ROCKWOOL insulation from CPH airport hangar 4".

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 aluminium 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 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 5422:2023 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 75mm 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)	List price/linear metre by thickness																					
	20mm		25mm		30mm		40mm		50mm		60mm		70mm		80mm		90mm		100mm	
	Product code		Product code		Product code		Product code		Product code		Product code		Product code		Product code		Product code		Product code	
17	225617	42	225619	30	225620	25	217593	16												
21	225621	36	225622	30	225625	20	295306	13	362031	9										
27	225626	30	225628	25	225629	20	295307	12	361452	9										
34	292265	25	292266	20	292267	16	292268	9	292269	8										
42	252816	20	253323	16	253324	12	295310	9	295312	6	362111	4								
48	253613	16	253614	16	253616	12	295297	9	295305	6	362112	4	362114	■						
54	253618	16	253619	12	253622	10	295298	8	295303	5	362113	4	362115	■						
60	253624	12	253625	12	253627	9	295299	7	295301	5	361187	4	362116	■	362142	■				
67			362314	9		9	362196	6	362197	4	362198	■	362199	■						
76			361190	9		7	361193	5	361194	4	361268	■	361397	■	361398	■			362118	■
89			361195	6		6	361197	4	361400	■	361401	■		■	361402	■	362195	■	361403	■
102							361647	■												
108			361201	5	361202	■	361649	■	361650	■			362160	■						
114			361203	4	361198	■	361404	■	361405	■	361408	■	362164	■	361409	■	362166	■	361410	■
127			361200	4	362038	■	362010	■	362011	■										
133					361524	■			361526	■										
140			362167	■	361411	■	361431	■	361413	■	361790	■	362168	■	361791	■	362170	■	361792	■
154									362372	■										
159			362193	■	361782	■	361786	■	361787	■	361789	■								
169			362355	■	361517	■	361516	■	361414	■	361651	■	362356	■	361643	■	362354	■	361645	■
194									362172	■										
205							362176	■	362177	■	362178	■								
219			362179	■	362180	■	362049	■	361415	■	361451	■	362181	■	362035	■	362182	■	362050	■
253							362357	■	362358	■	362360	■								
273			362361	■	362362	■	362024	■	362025	■	362027	■	362364	■	362028	■			362029	■
305							362365	■												
324					362366	■	362368	■	362369	■	361449	■								
356					362370	■	362371	■												

4 Number indicates the Linear Metres per carton

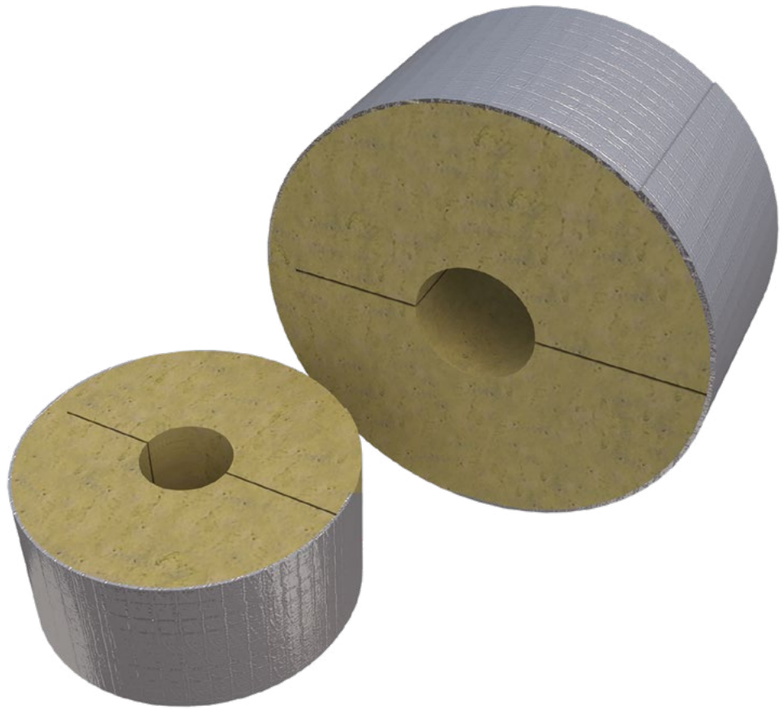
■ Unsplit sections packed as single lengths and shrink wrapped in polyethylene

■ Split sections packed as single lengths and 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 H&V Pipe Supports



Description

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

Advantages

- Non-combustible stone wool
- Minimises thermal bridging
- Foil faced for vapour control
- CE marked in accordance with BS EN 14303:2009

RockLap Pipe Support ancillaries

- Suitable aluminium foil tape is available from specialist HVAC stockists

Applications

RockLap H&V Pipe Supports are suitable for use with both cold/hot steel and copper pipes operating at a temperature range of 0°C to 200°C. The RockLap H&V 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					
Reaction to fire	$A2_L$-s1, d0					
Service temperature	Stone wool: 0-200°C Aluminium foil: ≤ 80°C					
Specific heat	0.84 KJ/KgK					
Water vapour diffusion resistance (μ)	> 10,000					
Thermal conductivity	T (°C)	10	50	100	150	200
	ƛ (W/mK)	0.056	0.063	0.072	0.081	0.091

*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 H&V Pipe Supports are simple to install and are available to suit a wide range of pipe diameters.

RockLap H&V 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 H&V 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.

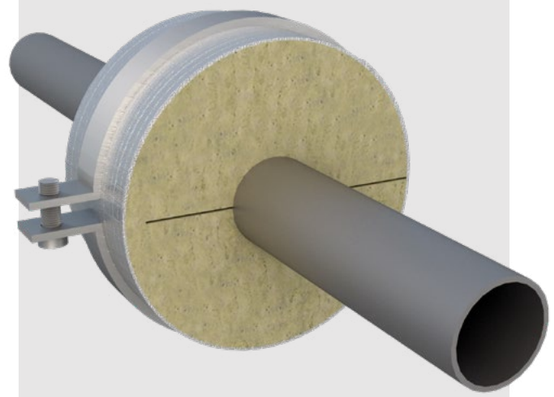
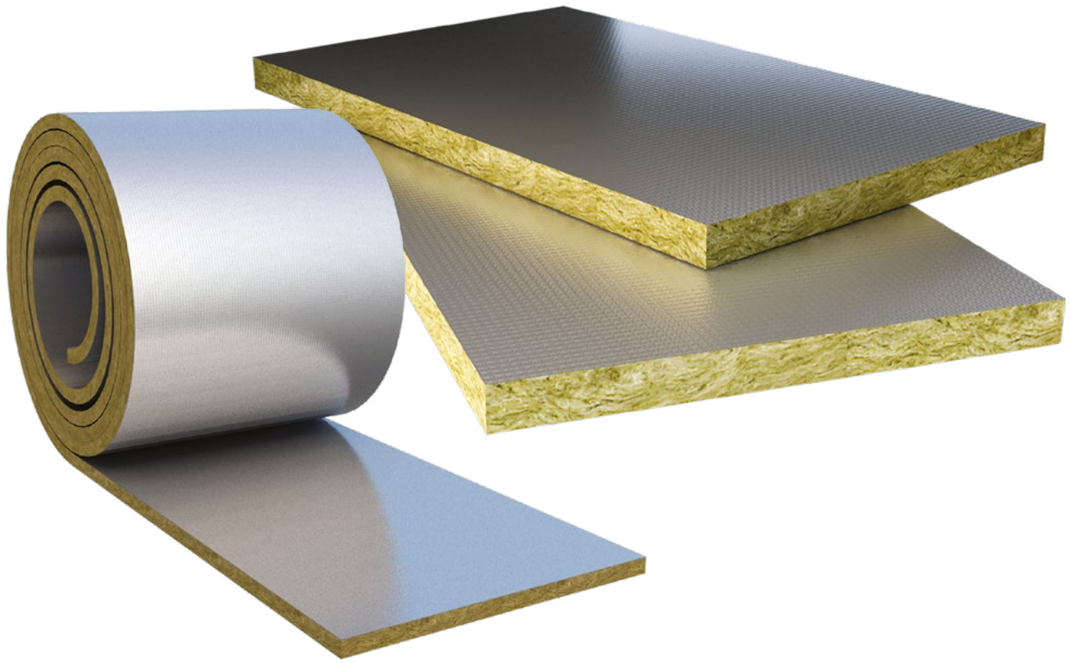


Figure 1

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

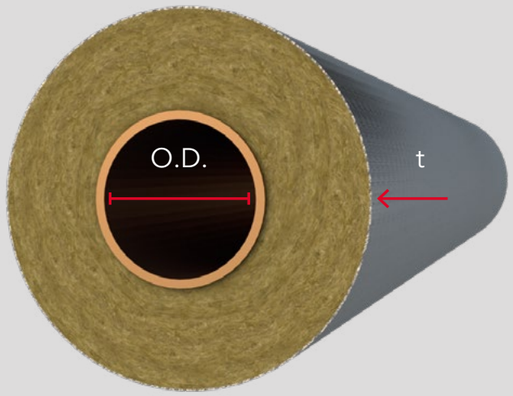
Applications

Calculation of length

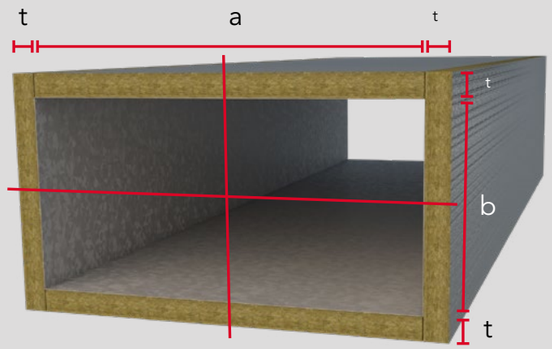
The calculation to determine the length of DuctWrap required to insulate the pipe or duct is made using the formula shown below.

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.



Circular ducts:
L=3.14 x (O.D. +2t)



Regular ducts:
L=2a + 2b + 8t

Thickness of ROCKWOOL insulation for chilled air ducts (taken from BS 5422:2023 Table 12)

Table 12

Minimum insulation thickness for condensation control on ductwork carrying chilled air in ambient conditions: indoor still air temperature +25°C, relative humidity 80%, dew point temperature 21.3°C.

Minimum air temperature inside duct (°C)	Minimum thickness (mm)					
	DuctSlab			DuctWrap		
	ε = 0.05	ε = 0.44	ε = 0.90	ε = 0.05	ε = 0.44	ε = 0.90
15	25	40	40	25	25	25
10	50	40	40	50	25	25
5	70	40	40	70	40	25
0	90 (50+40)	50	40	90 (50+40)	50	40

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

(taken from BS 5422:2023 Table 13) Horizontal duct @ 35°C, still air @ 15°C

Table 13

Minimum thickness (mm)					
DuctSlab			DuctWrap		
ε = 0.05	ε = 0.44	ε = 0.90	ε = 0.05	ε = 0.44	ε = 0.90
40	40	40	30	40	40

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

(taken from BS 5422:2023 Table 14) Horizontal duct @ 13°C, still air @ 25°C

Table 14

Minimum thickness (mm)					
DuctSlab			DuctWrap		
ε = 0.05	ε = 0.44	ε = 0.90	ε = 0.05	ε = 0.44	ε = 0.90
50	60	60	50	60	60

Performance

Standards and approvals

DuctWrap and DuctSlab products are CE marked in accordance with BS EN 14303.
For more information please visit **rockwool.com/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'.

Fire

The products are classified A1 in accordance with BS EN 13501-1.

Thermal

Temperature	10°C	50°C	100°C	150°C	200°C
DuctSlab λ (W/mK)	0.035	0.042	0.054	0.069	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 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^2)
25	5000	2	10
40	4000	2	8
50	5000	1	5

DuctSlab – length 1000mm, width 600mm, thickness 40mm, 50mm and 60mm*

*Other thicknesses may be available upon request

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

Stone wool is highly durable and long-lasting. Tests of ROCKWOOL stone wool recovered from old buildings have shown that our stone wool retains its performance characteristics – thermal, mechanical, fire resistance – for at least 50 years, and probably longer. A test of a 65-year-old stone wool sample found in 2023 during a renovation of Copenhagen airport showed that these characteristics had not diminished after 65 years*.

*Testing done at Danish Technical Institute (DTI) in 2023, "Testing ROCKWOOL insulation from CPH airport hangar 4".

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

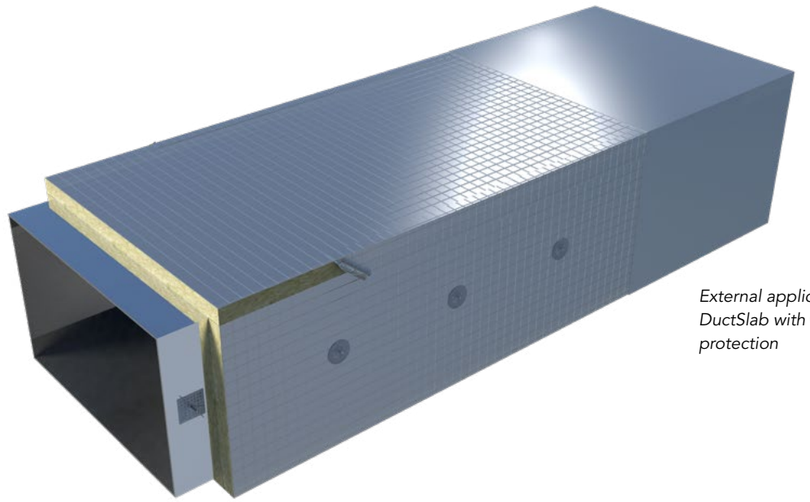
Typical specification clauses for ductwork

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^2 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 BS 5970.
b) Ribbed aluminium-zinc coated steel protection	Mild steel sheet continuously hot dipped with 185g/m^2 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 BS 5970.
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 BS 5970.
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 BS 5970.
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 BS 5970.
f) Polyisobutylene	Polyisobutylene, minimum thickness 0.8mm. Fixed and installed in accordance with BS 5970.
g) Roofing felt protection	Secure in position with galvanised wire netting, of 1mm x 25mm mesh. Finish with two coats of black bituminous paint. Fixed and installed in accordance with BS 5970.

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^3, having a factory applied reinforced aluminium foil facing. Joints to be securely taped with minimum 75mm 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

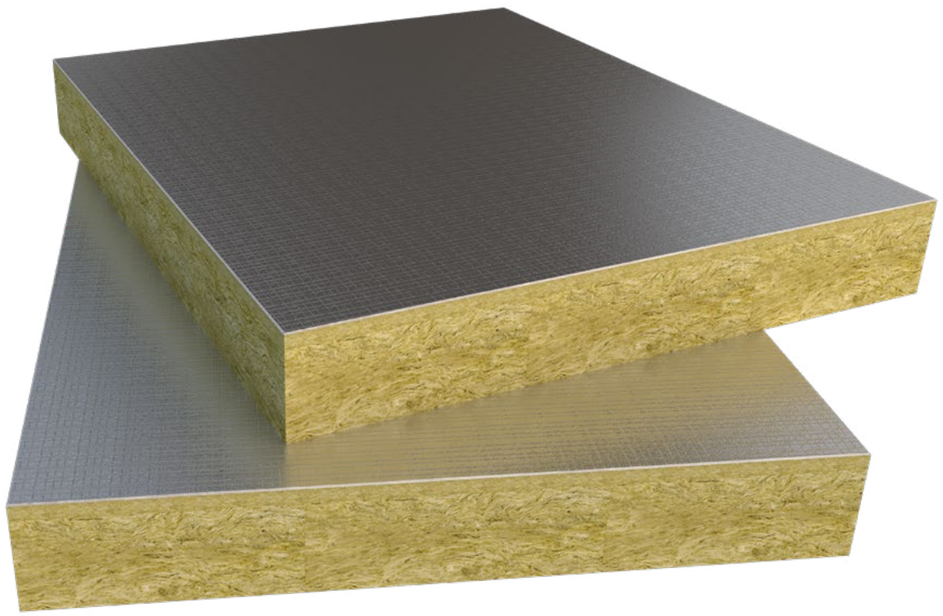
- Subject to the client's approval, alternative fixings can be used in place, or alongside the above.

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 (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 Slab



Description

DuoDuct Slab 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 Slab ancillaries

- Suitable aluminium foil tape is available from specialist HVAC stockists

Applications

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

DuoDuct Slab 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 offers a range of products that are suitable for use on circular external ductwork. 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 ≥ 406mm

For further information on suitable external finishes for both RockLap H&V Pipe Sections and Pipe Section Mat, please refer to the HVAC Specification Guide and the relevant datasheets which are available at **rockwool.com/uk**.

Performance

Standards and approvals

DuoDuct Slab has been CE marked in accordance with BS EN 14303. To download a copy of the Declaration of Performance, please visit **rockwool.com/uk/dop**.

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

Fire

ROCKWOOL DuoDuct Slab 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 Slab 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

Stone wool is highly durable and long-lasting. Tests of ROCKWOOL stone wool recovered from old buildings have shown that our stone wool retains its performance characteristics – thermal, mechanical, fire resistance – for at least 50 years, and probably longer. A test of a 65-year-old stone wool sample found in 2023 during a renovation of Copenhagen airport showed that these characteristics had not diminished after 65 years*.

*Testing done at Danish Technical Institute (DTI) in 2023, "Testing ROCKWOOL insulation from CPH airport hangar 4".

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 Slab 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 Slab boards.
- DuoDuct Slab 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 Slab 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 Slab 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 Slab can be applied at access door locations if the door is not already pre-insulated.

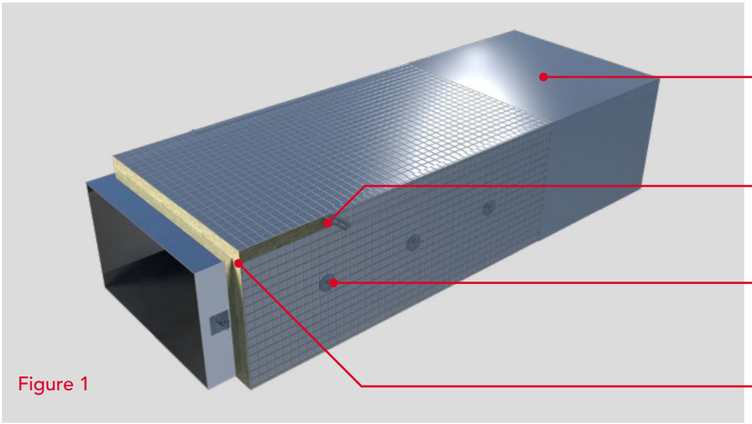


Figure 1

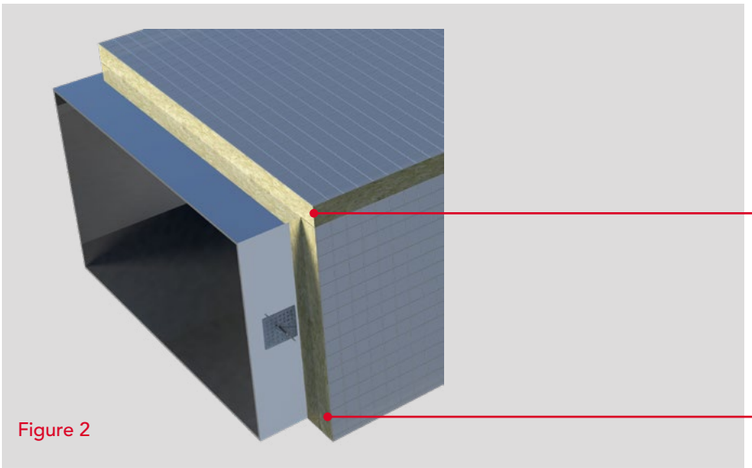


Figure 2

Weather protection

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

a. Flat aluminium zinc coated steel protection

b. Ribbed aluminium zinc coated steel protection

c. Aluminium sheeting protection

d. Mild sheet steel protection

e. Self-adhesive weather resistant zero perm multi-layer laminate

f. Polyisobutylene

g. Roofing felt protection

The weatherproof cladding system chosen must always be installed in accordance with the manufacturer's recommendations. For further information on suitable external finishes, please refer to the HVAC Specification Guide available at **rockwool.com/uk**.

Fire resistant applications

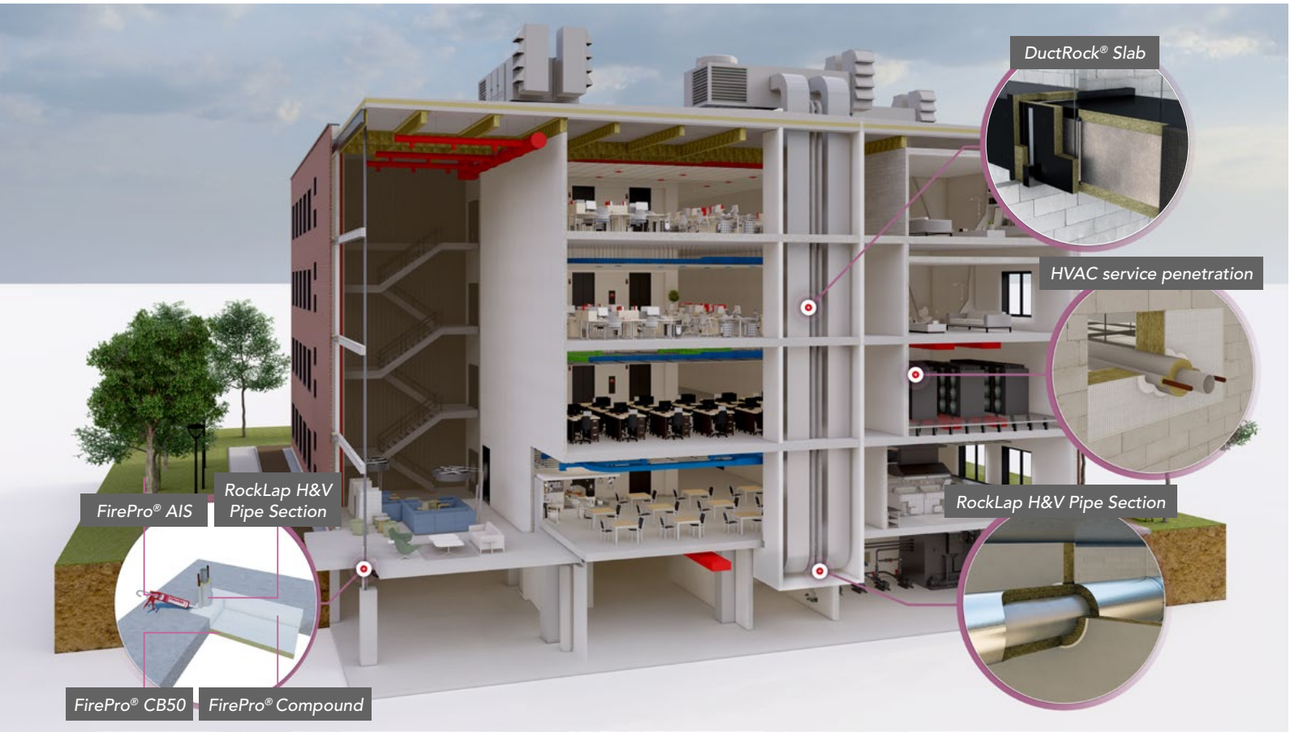
Preventing the passage of fire is an essential element of building design and construction, and where HVAC systems are in situ, the risk of fire spreading is heightened.

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

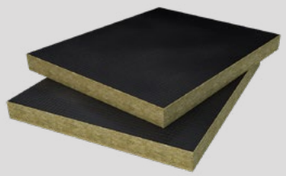
It must be ensured that the fire resistance of compartment walls and floors is not compromised when penetrated by building services and HVAC systems.

Insulation systems on pipework or ductwork traversing a fire-resisting division should maintain the level of fire resistance of the wall, floor, or cavity barrier through which they pass.

ROCKWOOL offers a comprehensive range of passive fire protection products, tested to maintain the fire rating where services pass through both walls and floors. For more information, please visit **rockwool.com/uk/firestopping**.



Core products



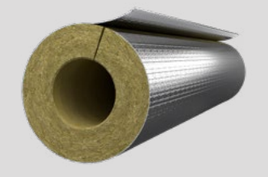
DuctRock® Slab

FirePro® Glue

FirePro® Insulated Fire Sleeves

FirePro® CB50

FirePro® AIS

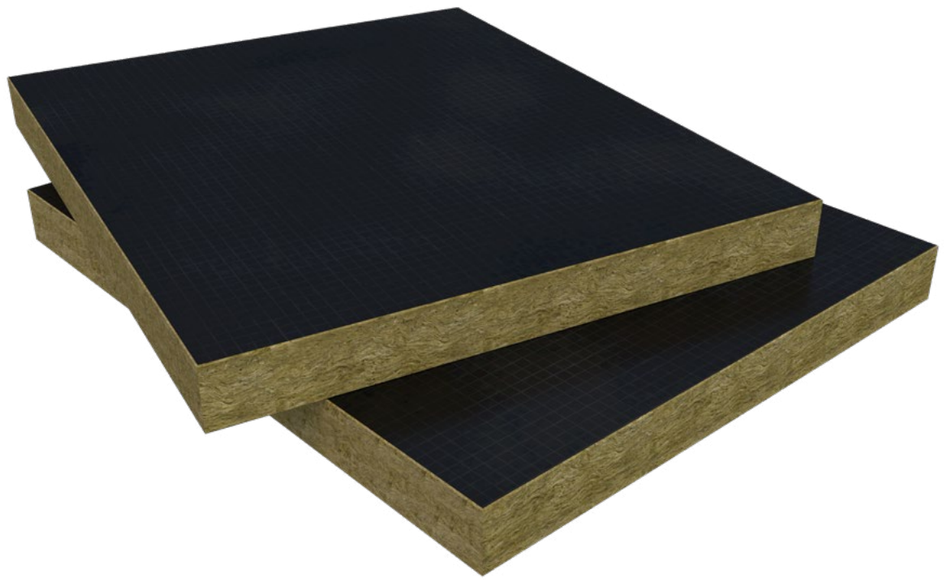


RockLap H&V Pipe Sections

FirePro® Compound

Useful documents and standards
ASFP Technical Guidance Document – TGD 18: Code of practice for the installation and 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

DuctRock® Slab



Description

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 ALU 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
- Black foil finish
- Patented horizontal penetration detail

DuctRock® Slab ancillaries

- FirePro® Glue and Black ALU 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

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

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 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

Stone wool is highly durable and long-lasting. Tests of ROCKWOOL stone wool recovered from old buildings have shown that our stone wool retains its performance characteristics – thermal, mechanical, fire resistance – for at least 50 years, and probably longer. A test of a 65-year-old stone wool sample found in 2023 during a renovation of Copenhagen airport showed that these characteristics had not diminished after 65 years*.

*Testing done at Danish Technical Institute (DTI) in 2023, "Testing ROCKWOOL insulation from CPH airport hangar 4".

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

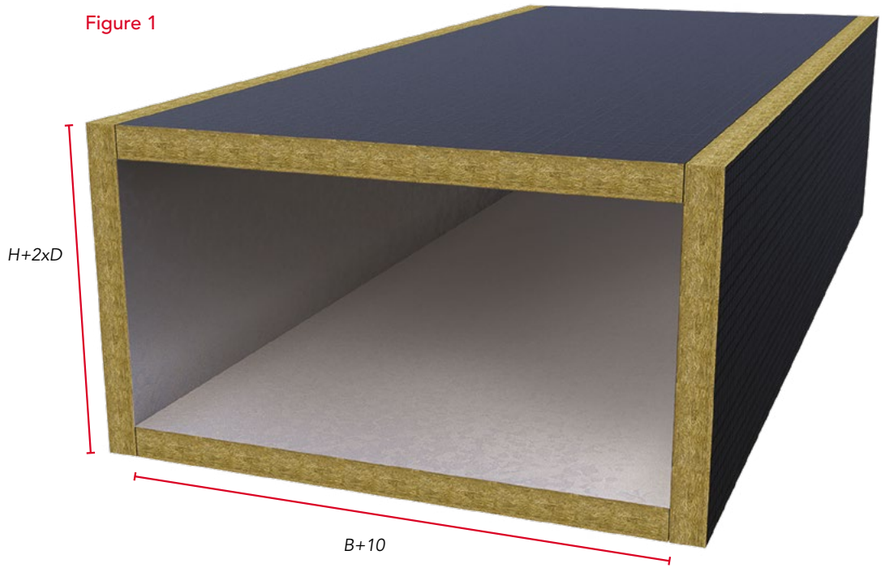
Fire performance

DuctRock® Slab can be installed onto rectangular and square steel ductwork using a combination of 2.7mm - 3.0mm diameter stud welded pins, 30mm diameter steel washers and ROCKWOOL FirePro® Glue. All board abutments and cross joints must be covered with ROCKWOOL Black ALU Foil Tape.

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

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



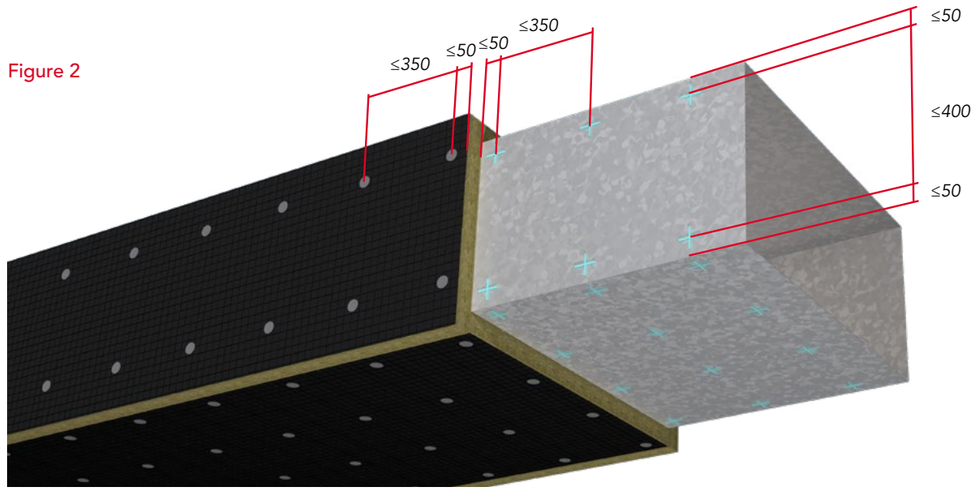
Top slab

When installed within horizontal applications, the top boards do not require any stud welded pins and are simply positioned onto the duct with all board joints bonded with FirePro® Glue. Board joints must be covered using ROCKWOOL Black ALU 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 400m 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 and 4. All cross joints must be bonded with FirePro® Glue.

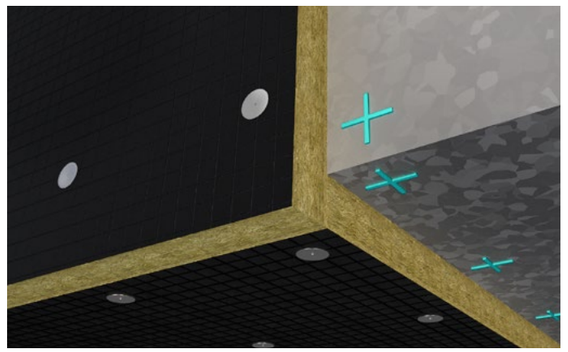


Figure 3
Cross joint horizontal duct

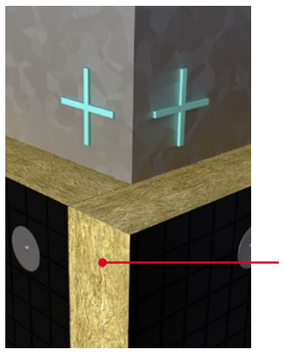


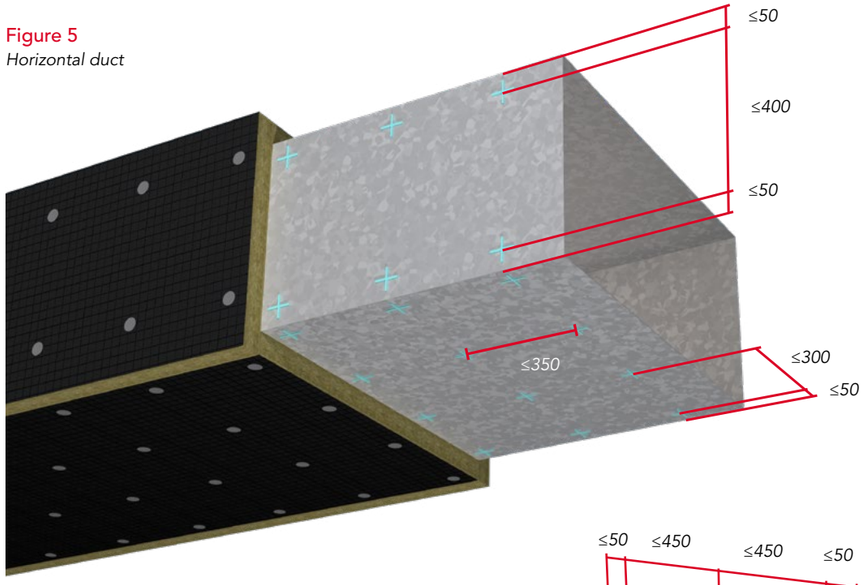
Figure 4
Cross joint vertical duct

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



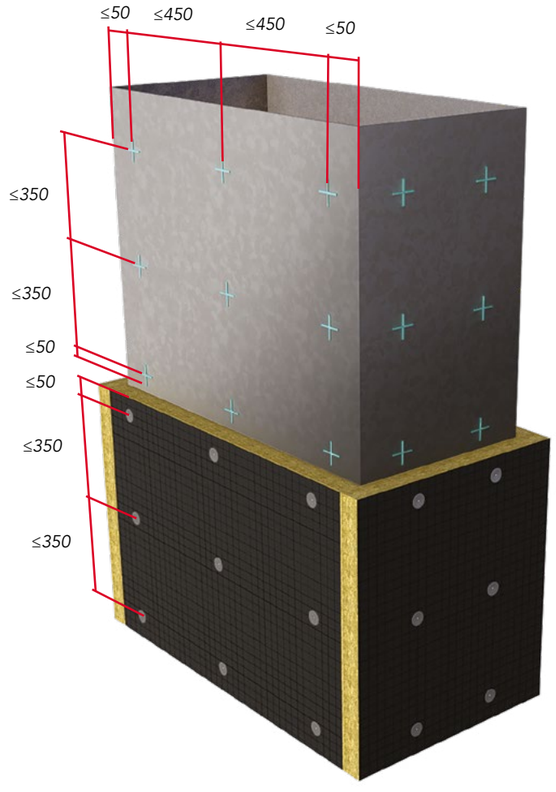


Figure 6
Vertical duct

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.

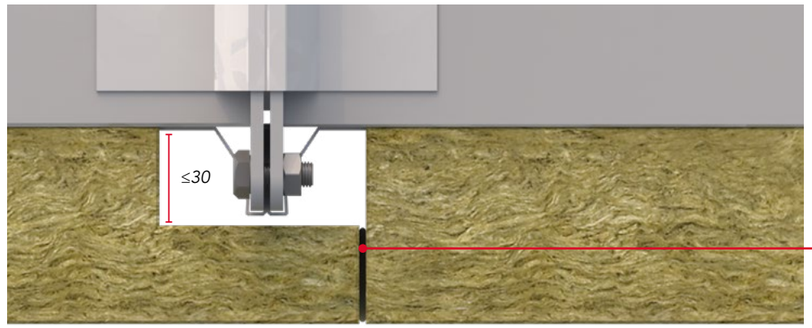


Figure 7a

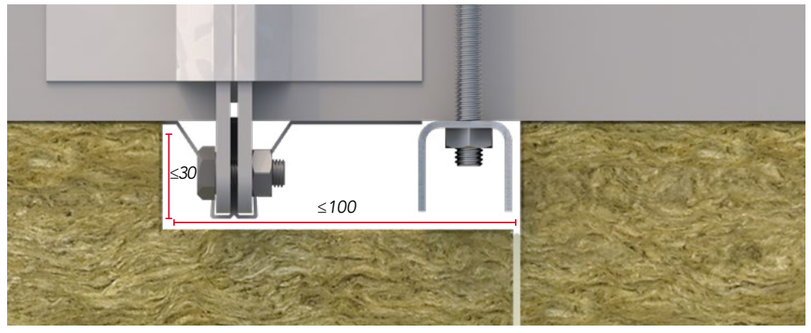


Figure 7b

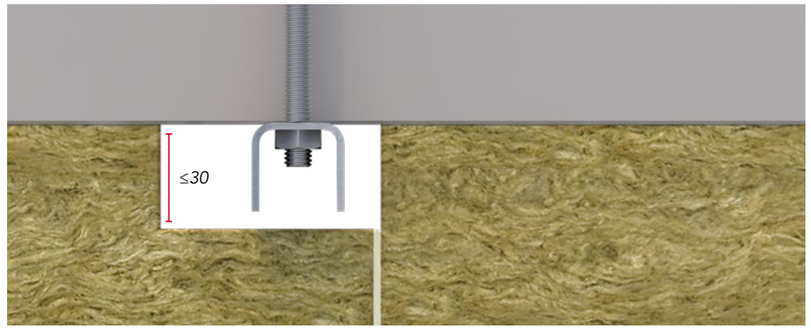


Figure 7c

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.

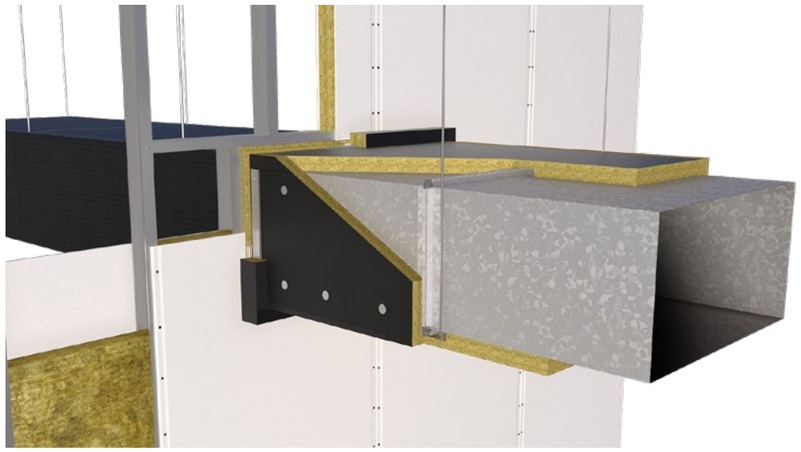


Figure 8
ROCKWOOL patented dry wall penetration detail

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 (60mm x 25mm) 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: **Duct Width/Height + (2 x Insulation Thickness) – 50mm.** Examples shown in table below:

Duct size (mm)	Insulation thickness (mm)	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 ALU Foil Tape can be used to cover any exposed edges of the collars.

Figure 9

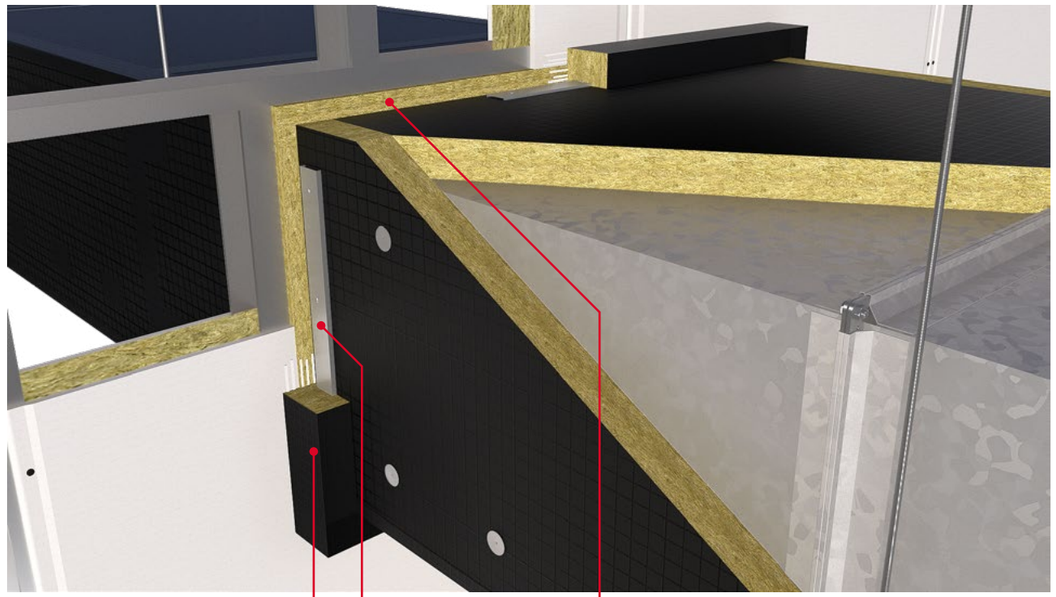
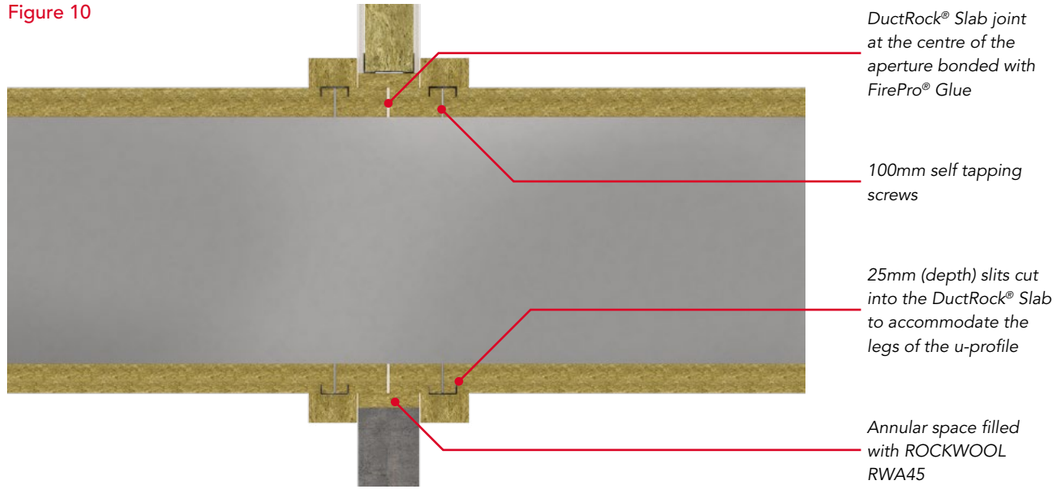


Figure 10



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. 50mm x 50mm x 45mm x 2.5mm galvanised steel angles to both sides of the aperture. The angles can be fixed using 2 no. 3.2mm x 25mm self-tapping screws. Alternatively, the duct can be secured with a 40mm x 40mm 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.

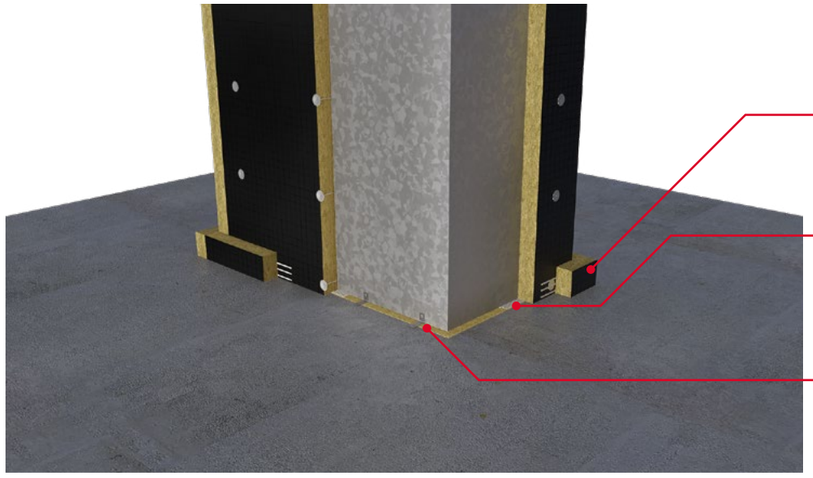


Figure 11a

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

Seal the ROCKWOOL DuctRock® Slab within the aperture space with FirePro® Glue

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

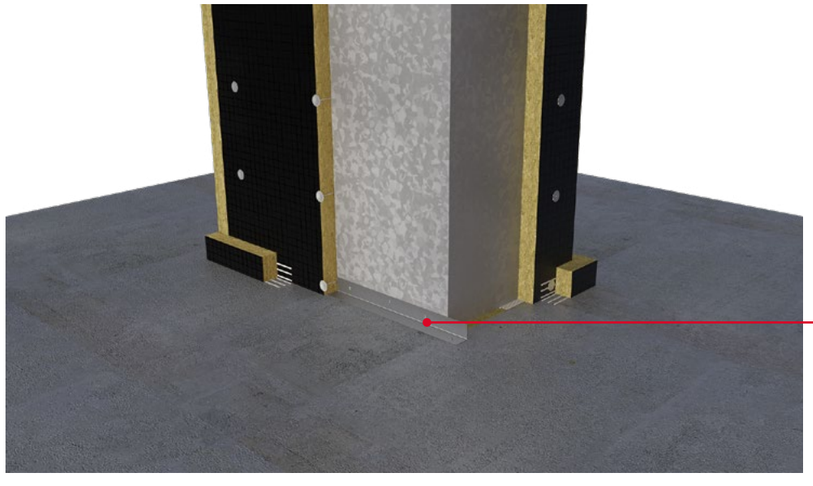


Figure 11b

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

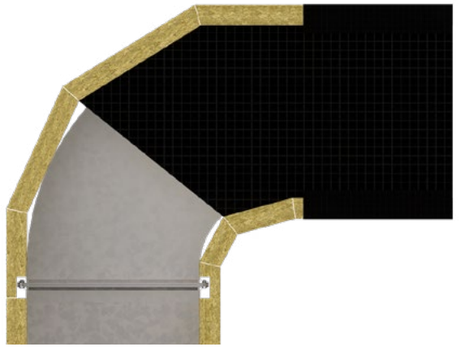


Figure 12a

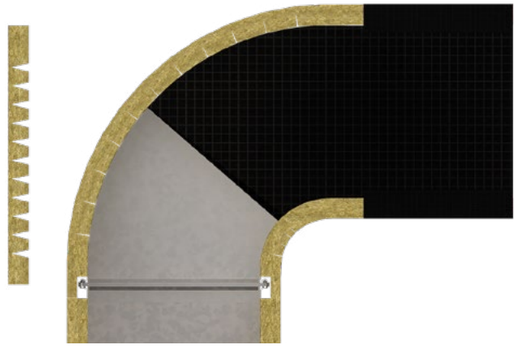
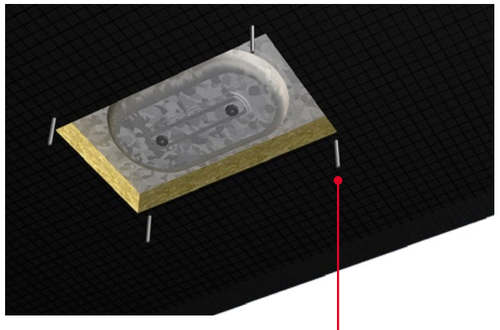


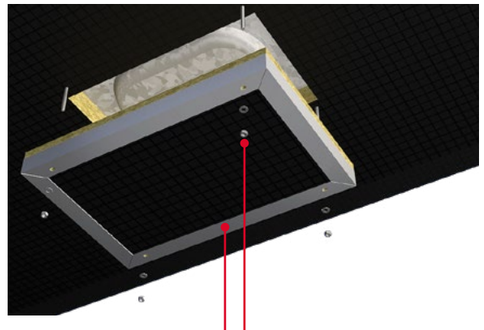
Figure 12b

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 four 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 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 2.7mm - 3.0mm diameter welded steel pins and 30mm spring steel washers in accordance with the ROCKWOOL product datasheet 'DuctRock® Slab'.

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 1000mm x 1250mm (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 15mm diameter steel pipe in each duct segment.
- EI 120 – Smoke extract duct: 2 x 15mm diameter 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/mm²	15 N/mm²	150mm
EI 60	9 N/mm²	15 N/mm²	150mm
EI 90	6 N/mm²	10 N/mm²	150mm
EI 120	6 N/mm²	10 N/mm²	150mm
EI 120 (Smoke extract)	6 N/mm²	10 N/mm²	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:
  - EI 30 – 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 60mm 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 50mm x 50mm x 45mm x 2.5mm or a 40mm x 40mm 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

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

- 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 BeamClad® and DuctRock® Slab 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** for specific details.

Product information

	Tub	Cartridge
Pack size	17kg tub	300ml cartridge
Application temperature	Surface temperature of ≥ -10°C (Glue must be ≥ 5°C)	Surface temperature of ≥ -10°C (Glue must be ≥ 5°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 and 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°C - 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.

ROCKWOOL®

New and improved Fire-stopping Standard Details Guide

When it comes to fire safety, there's no room for compromise.

Our new guide makes it easier for you to select and install ROCKWOOL fire-stopping solutions that have been tested and classified to the latest EN fire resistance standards and backed up by third-party certification. Now featuring:

- New standard details covering the latest products and applications
- A streamlined, user-friendly layout for quicker access to key information
- Interactive navigation with intuitive buttons and links to UL-EU classification reports
- Rich text and a searchable index to help you find what you need faster

Design, specify, and install, with confidence.

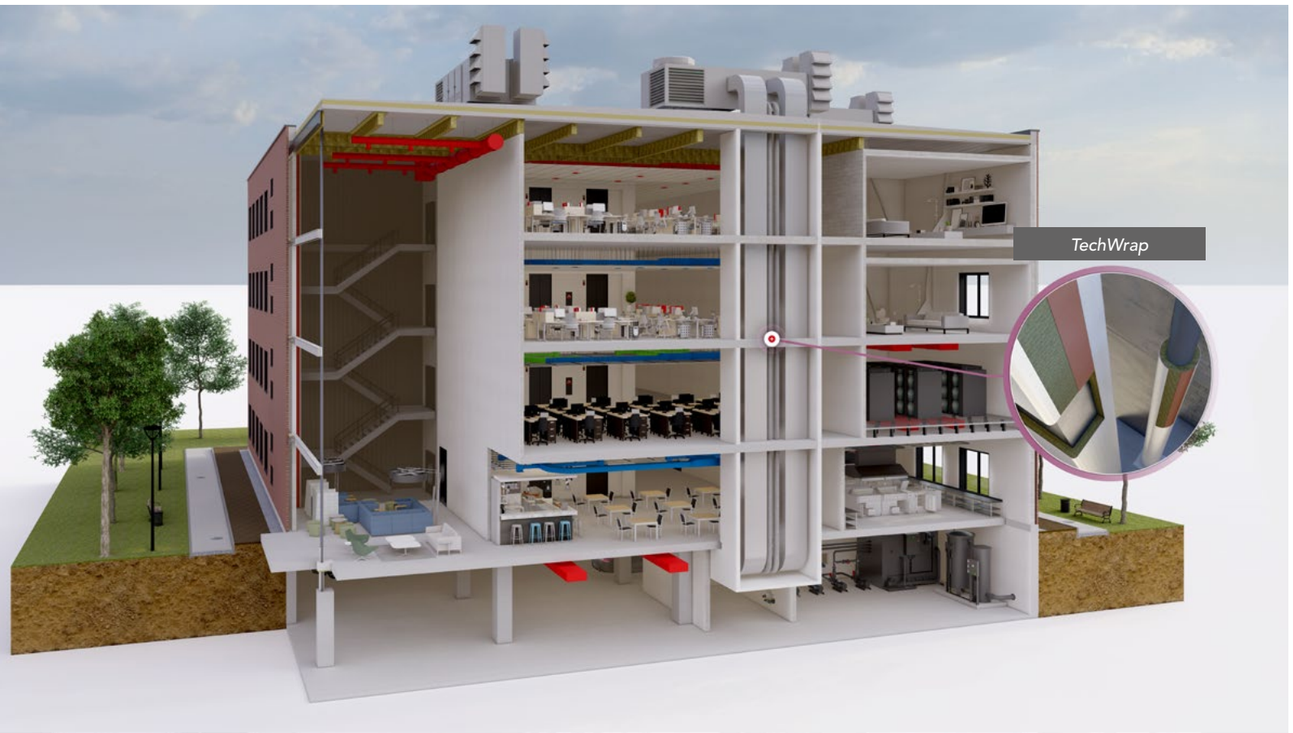
Download the guide

rockwool.com/uk

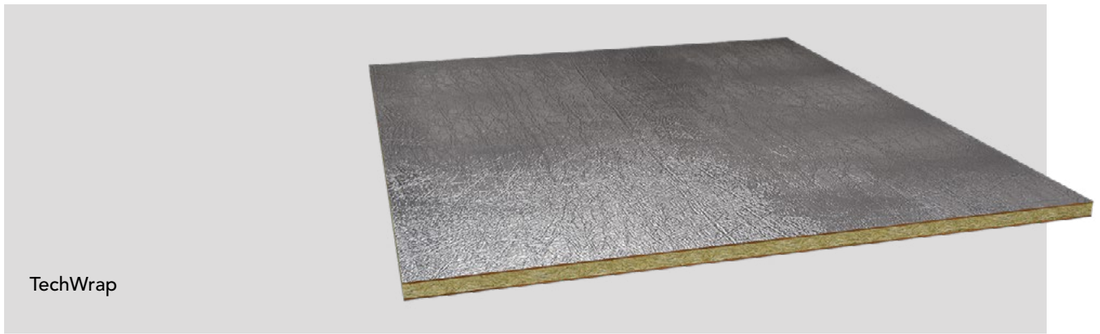
Acoustic applications

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.



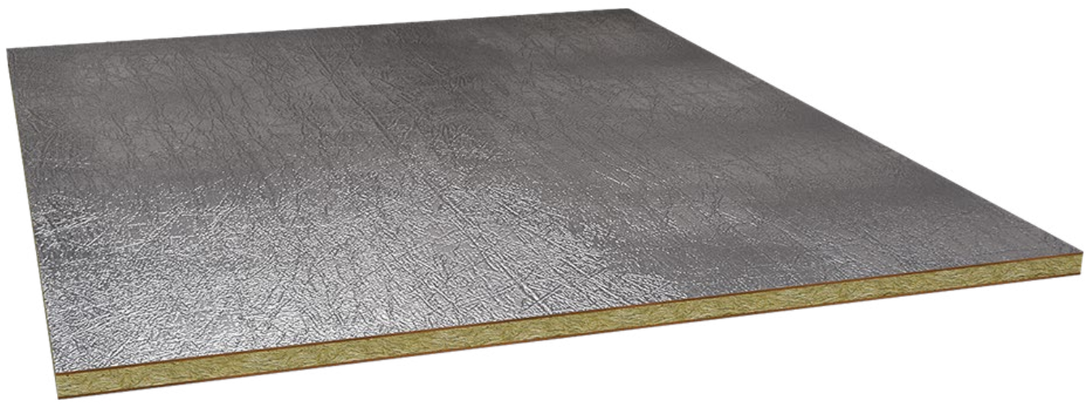
Core products



TechWrap

Useful documents and standards
Approved Document E: Resistance to the passage of sound
Building Bulletin 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

TechWrap



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

Advantages

- Single application of materials
- Easy to handle and install
- Excellent thermal insulation properties

Dimensions

TechWrap	
Length	1200mm
Width	1000mm
ROCKWOOL thickness	25mm, 40mm, 50mm
Mass layer	5kg/m^2

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

Performance

Thermal conductivity

- TechWrap: 0.039 W/mK (at 10°C mean product temperature)

Service temperature and limiting service temperature

TechWrap can be used to provide thermal and acoustic insulation to equipment operating at temperatures in the range 0°C to 230°C. The outer facing temperatures should not exceed 80°C.

Test programme and results

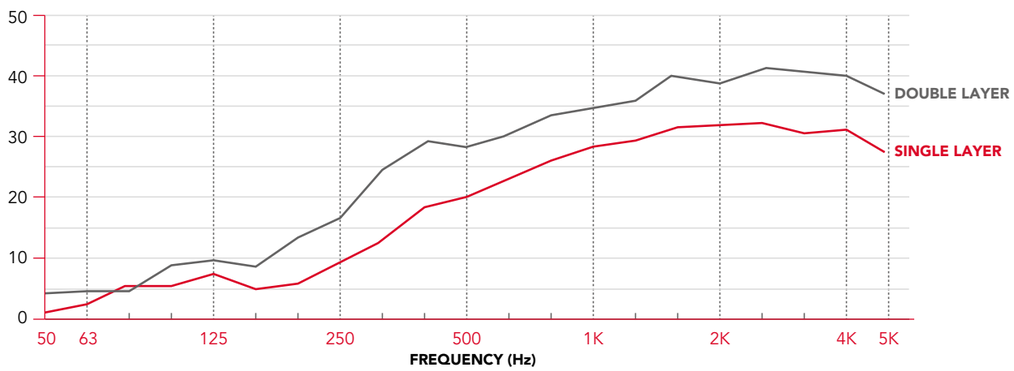
ROCKWOOL TechWrap has been independently tested at the Acoustical Investigation & Research Organisation (AIRO) laboratory.

TechWrap 25mm dB improvements

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

The test programme conducted at AIRO was designed to indicate as closely as possible the true-to-life acoustic performance of TechWrap 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 TechWrap 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 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

Stone wool is highly durable and long-lasting. Tests of ROCKWOOL stone wool recovered from old buildings have shown that our stone wool retains its performance characteristics – thermal, mechanical, fire resistance – for at least 50 years, and probably longer. A test of a 65-year-old stone wool sample found in 2023 during a renovation of Copenhagen airport showed that these characteristics had not diminished after 65 years*.

*Testing done at Danish Technical Institute (DTI) in 2023, "Testing ROCKWOOL insulation from CPH airport hangar 4".

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

TechWrap is easily cut to shape with a sharp knife.

Installation

TechWrap

TechWrap 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 TechWrap 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 TechWrap 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 TechWrap 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 vapour barrier is required, support pins and hangers which penetrate the foil should be sealed using aluminium tape.

LEGAL NOTICES

General safety requirements – Building Safety Act 2022

ROCKWOOL Limited is committed to supporting specifiers, resellers and users of ROCKWOOL products for the full life cycle of the product to comply with the obligations and responsibilities set out in the Building Safety Act 2022. With regard to the general safety requirements of the Act, ROCKWOOL Limited cannot control or foresee every situation where its products might be used. We therefore strongly advise that specifiers, resellers and users contact us where use of ROCKWOOL products is contemplated in applications different from those explicitly described in the latest, relevant ROCKWOOL product datasheets; especially in applications that can be reasonably foreseen as critical to safety.

ROCKWOOL Limited reserves the right to amend the specification of its products without notice. Changes to the ROCKWOOL manufacturing process, or to pertinent regulations, may be reflected in changes to tested and certified product performance. Whilst ROCKWOOL Limited endeavours 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 our publications.

ROCKWOOL Limited does not accept responsibility for the consequences of using (including testing or certifying) its products in applications different from those explicitly described in the relevant ROCKWOOL product datasheets. Expert advice should be sought, and ROCKWOOL Limited should be contacted, where such different use is contemplated, or where the extent of any use described by ROCKWOOL Limited is in doubt.

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 most important assets of the ROCKWOOL Group, and is therefore well-protected and defended by ROCKWOOL 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

Trademarks

Registered trademarks of the ROCKWOOL Group include but are not limited to:

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Additional information:	

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October 2025

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