ROCKWOOL®

Ductslab and Ductwrap

For the thermal insulation of ductwork and water storage tanks

ROCKWOOL Ductslab and Ductwrap provide thermal insulation for air conditioning, warm air and extract ducts used in the internal and external environment generally within plant rooms and boiler houses.

A1 CE London Underground Limited (LUL) Approved

Ductslab and Ductwrap

ROCKWOOL Ductslab is also used for the thermal insulation of cold water storage, feed and expansion tanks.

The products are recommended for service temperatures of up to 230°C.

Advantages

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

Standards and approvals

ROCKWOOL Ductslab and Ductwrap products are CE marked in accordance with BS EN 14303. For more information please visit www.rockwool.co.uk/DOP.

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

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

Description

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

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

Dimensions

- Ductslab - length 1000 mm width 600 mm thickness 40, 50 and 60 mm*
- Ductwrap rolls - 1000 mm 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	6000	1	6

• Other thicknesees may be available upon request

Density

The nominal density of ROCKWOOL Ductwrap and Ductslab is 45 kg/m^3.

Performance

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.

Water vapour resistance

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

Thermal conductivity

	T (°C)	10	50	100	150	200
Dustslab	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

T= Mean Temperature

Service temperature and limiting surface temperature

ROCKWOOL Ductslab and Ductwrap 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 pipes, especially those in which gases, fluids or particle solids are transported at high velocities. The use of Ductslab or Ductwrap 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.

pH Neutrality

ROCKWOOL insulation is chemically compatible with all types of pipes, 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).

Ductslab and Ductwrap

Durability
ROCKWOOL has been proven in service for over 50 years in all types of typical internal applications.

Ductslab and Ductwrap will give effective protection for the lifetime of the ducts that they insulate.

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

Applications

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

The following tables are for general guidance only.

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

Table 12 - Ductslab

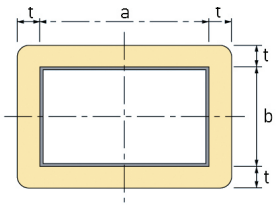
Minimum temperature inside duct (°C)	External surface emissivity Minimum thickness of ROCKWOOL Ductslab (mm)					
	0.05 (eg. bright aluminium foil)		0.44 (eg. dusty galvanised steel)		0.90 (eg. black paint)	
	CALCULATED THICKNESS (mm)	ADVISED THICKNESS (mm)	CALCULATED THICKNESS (mm)	ADVISED THICKNESS (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

Table 12 - Ductwrap

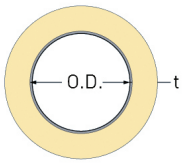
Minimum temperature inside duct (°C)	External surface emissivity Minimum thickness of ROCKWOOL Ductwrap (mm)					
	0.05 (eg. bright aluminium foil)		0.44 (eg. dusty galvanised steel)		0.90 (eg. black paint)	
	CALCULATED THICKNESS (mm)	ADVISED THICKNESS (mm)	CALCULATED THICKNESS (mm)	ADVISED THICKNESS (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

ROCKWOOL Ductwrap

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:



Rectangular Ducts: L = 2a + 2b + 8t



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

Indicative thickness of insulation for ductwork carrying warm air to control heat loss (taken from BS5422:2009 Table 13)

Table 13 - Ductslab

Maximum Heat Loss (W/m²)	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

Table 13 - Ductwrap

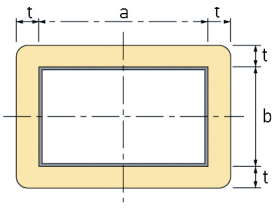
Maximum Heat Loss (W/m²)	External surface emissivity Minimum thickness of ROCKWOOL Ductwrap (mm)					
	0.05 (eg. bright aluminium foil)		0.44 (eg. dusty galvanised steel)		0.90 (eg. black paint)	
	CALCULATED THICKNESS (mm)	ADVISED THICKNESS (mm)	CALCULATED THICKNESS (mm)	ADVISED THICKNESS (mm)	CALCULATED THICKNESS (mm)	ADVISED THICKNESS (mm)
16.34	31	40	37	40	39	40

Ductslab and Ductwrap

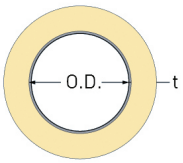
ROCKWOOL Ductwrap

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:



Rectangular Ducts: L = 2a + 2b + 8t



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

Indicative thickness of insulation for ductwork carrying warm air to control heat loss (taken from BS5422:2009 Table 13)

Table 13 - Ductslab

Maximum Heat Loss (W/m^2)	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

Table 13 - Ductwrap

Maximum Heat Loss (W/m^2)	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

Ductslab and Ductwrap

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) Horizontal ducts – concealed from view

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

The whole to be further supported by means of:-

- 19 - 22 swg x 50 mm 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 50 mm from the circumferential joint of the ROCKWOOL Ductslab and Ductwrap. 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.

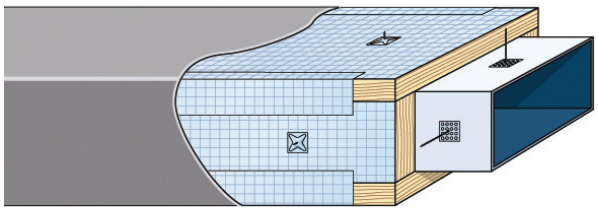
Provision should be made at all exposed edges to ensure continuation of the aluminium foil to the duct surface. Aluminium foil to be secured with 75 mm wide aluminium self-adhesive tape (i.e. Idenden T303 or similar and approved).

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

2) External applications (weather protected)

The duct insulation is to be ROCKWOOL 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 75 mm 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

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.

0.4 mm thick flat sheet
Fixed and installed in accordance with manufacturer's recommendations.

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.

0.4 mm thick ribbed sheet
Fixed and installed in accordance with manufacturer's recommendations.

Ductslab and Ductwrap

c) Aluminium sheeting protection:

Apply flat (embossed) or profiled aluminium cladding directly to insulating material.

0.56 mm thick on pipework
0.71 mm thick on ductwork
Fixed and installed in accordance with manufacturer's recommendations.

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 manufacturer's recommendations.

e) Self adhesive weather resistant zero perm multi-layer laminate:

Apply multi-layer laminate directly over ducts and pipework, ensuring 75 mm overlap for a complete vapour barrier.

Fixed and installed in accordance with manufacturer's recommendations.

f) Polyisobutylene:

Polyisobutylene, minimum thickness 0.8 mm.

Fixed and installed in accordance with manufacturer's recommendations.

g) Roofing felt protection:

Secure in position with galvanized wire netting, of 1 mm x 25 mm mesh. Finish with two coats of black bituminous paint.

Fixed and installed in accordance with manufacturer's recommendations.

*__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).

Ductslab and Ductwrap

ROCKWOOL properties

As an environmentally conscious company, ROCKWOOL promotes the sustainable production and use of insulation and is committed to a continuous process of environmental improvement.

All ROCKWOOL products provide outstanding thermal protection as well as four added benefits:

- **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 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 occuring 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 details visit our website at www.rockwool.co.uk or phone ROCKWOOL Technical Support on 01656 862621 .

ROCKWOOL Limited
Pencoed
Bridgend
CF35 6NY

info@rockwool.co.uk
www.rockwool.co.uk

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 data sheet 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 data sheet.

The above applications do not necessarily represent an exhaustive list of applications for ROCKWOOL Ductslab and Ductwrap. ROCKWOOL Limited does not accept responsibility for the consequences of using ROCKWOOL Ductslab and Ductwrap in applications different from those described within this data sheet. Expert advice should be sought where such different applications are contemplated, or where the extent of any listed application is in doubt.