

DUCTWRAP AND DUCTSLAB

For the thermal insulation of ductwork
and water storage tanks

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.

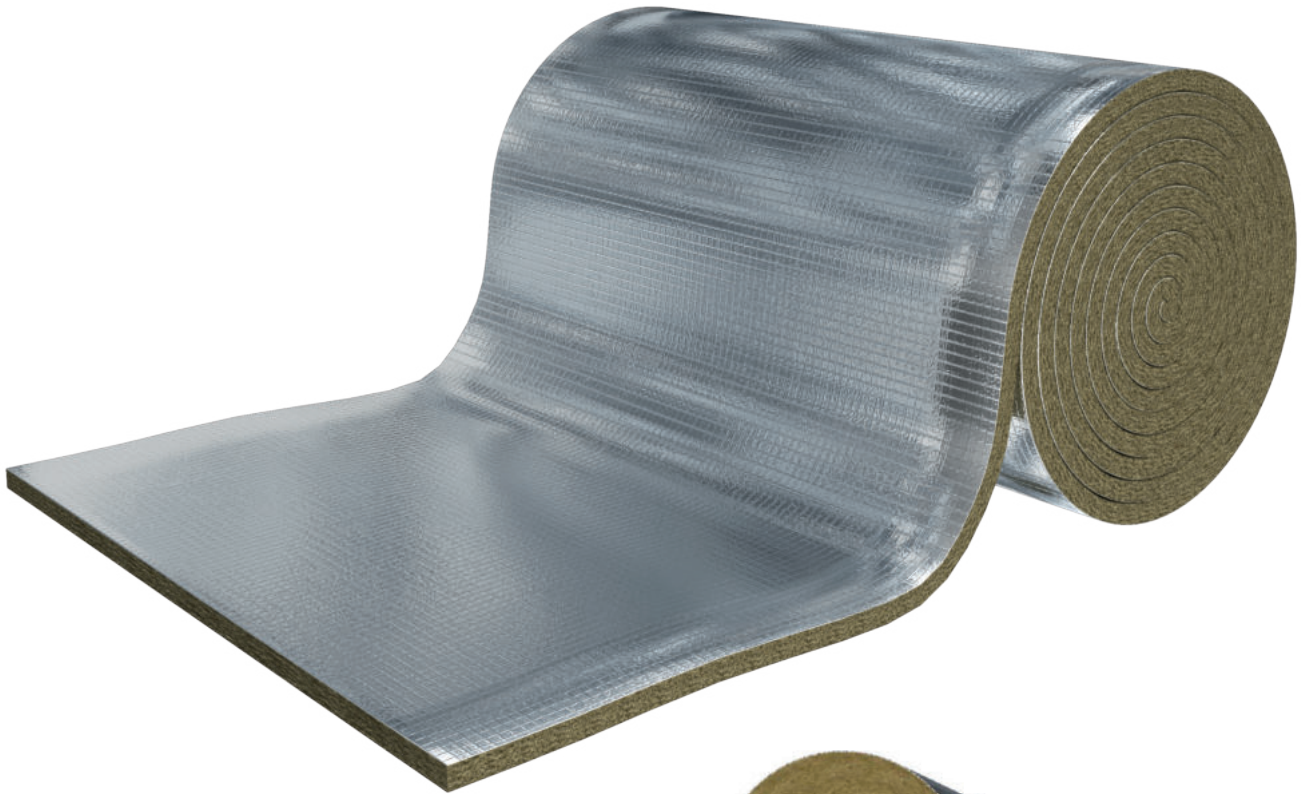
- Acoustically absorbent
- Non-combustible
- Water repellent
- Chemically inert
- Easy to handle and install



ROCKWOOL Ductwrap and Ductslab 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.

Offering a choice of a flexible roll or semi-rigid slab according to the application, Ductwrap and Ductslab deliver an acoustically absorbent and non-combustible insulation solution which is easy to handle and install.

Ductwrap and Ductslab



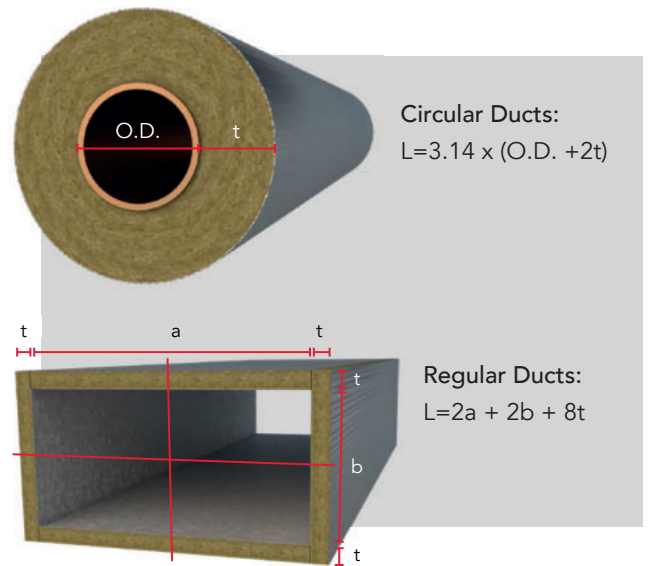
APPLICATIONS

Calculation of length

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

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

The tables included are for general guidance only.



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

Table 12 - Ductwrap

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

Minimum temperature inside duct (°C)	External surface emissivity - Minimum thickness of ROCKWOOL Ductwrap (mm)		
	0.05 (eg. Bright aluminium foil) Advised thickness (mm)	0.44 (eg. Dusty galvanised steel) Advised thickness (mm)	0.90 (eg. Black paint!) Advised thickness (mm)
15	25	25	25
10	50	25	25
5	70	40	25
0	90	50	30

Ductwrap and Ductslab

Table 12 - Ductslab

Minimum temperature inside duct (°C)	External surface emissivity - Minimum thickness of ROCKWOOL Ductslab (mm)		
	0.05 (eg. Bright aluminium foil) Advised thickness (mm)	0.44 (eg. Dusty galvanised steel) Advised thickness (mm)	0.90 (eg. Black paint!) Advised thickness (mm)
15	30	25	25
10	50	25	25
5	70	40	25
0	90	50	30

Indicative thickness of insulation for ductwork carrying warm air to control heat loss
(taken from BS5422:2009 Table 13) Horizontal duct @ 35°C, still air @ 15°C.

Table 13 - Ductwrap

Maximum heat loss (W/m ²)	External surface emissivity - Minimum thickness of ROCKWOOL Ductwrap (mm)		
	0.05 (eg. Bright aluminium foil) Advised thickness (mm)	0.44 (eg. Dusty galvanised steel) Advised thickness (mm)	0.90 (eg. Black paint!) Advised thickness (mm)
16.34	40	40	40

Table 13 - Ductslab

Maximum heat loss (W/m ²)	External surface emissivity - Minimum thickness of ROCKWOOL Ductslab (mm)		
	0.05 (eg. Bright aluminium foil) Advised thickness (mm)	0.44 (eg. Dusty galvanised steel) Advised thickness (mm)	0.90 (eg. Black paint!) Advised thickness (mm)
16.34	40	40	50

Indicative thickness of insulation for chilled and dual-purpose ducting to control heat transfer
(taken from BS5422:2009 Table 14) Horizontal duct @ 13°C, still air @ 25°C.

Table 14 - Ductwrap

Maximum heat loss (W/m ²)	External surface emissivity - Minimum thickness of ROCKWOOL Ductwrap (mm)		
	0.05 (eg. Bright aluminium foil) Advised thickness (mm)	0.44 (eg. Dusty galvanised steel) Advised thickness (mm)	0.90 (eg. Black paint!) Advised thickness (mm)
6.45	50	60	65

Table 14 - Ductslab

Maximum heat loss (W/m ²)	External surface emissivity - Minimum thickness of ROCKWOOL Ductslab (mm)		
	0.05 (eg. Bright aluminium foil) Advised thickness (mm)	0.44 (eg. Dusty galvanised steel) Advised thickness (mm)	0.90 (eg. Black paint!) Advised thickness (mm)
6.45	60	60	70

Ductwrap and Ductslab

PERFORMANCE

Fire performance

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

Thermal performance

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.

Acoustic performance

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

Ductwrap and Ductslab

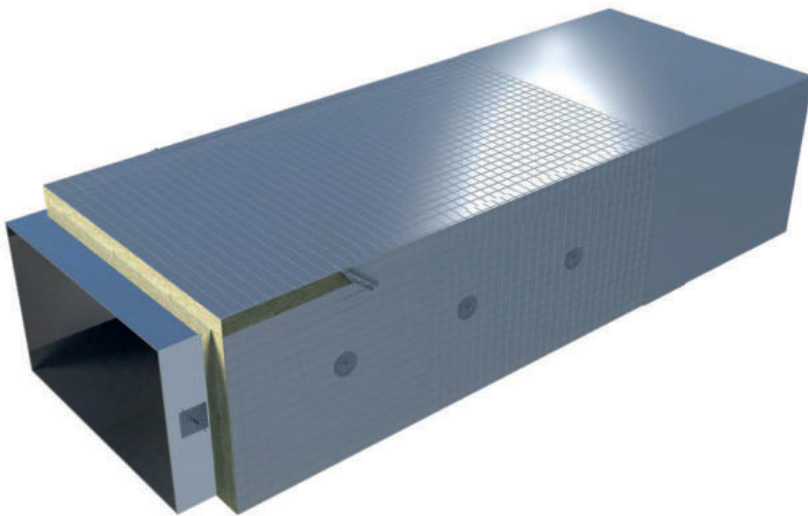
SPECIFICATION CLAUSES

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).

Ductwrap and Ductslab

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

NBS clauses

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

T90 Heating systems - domestic	390 Feed and expansion cisterns.
U90 General ventilation - domestic	490 Site applied insulation to ductwork.
Y30 Mechanical Thermal Insulation	340 Mineral fibre insulation slabs

Ductwrap and Ductslab

2. Horizontal ducts concealed from view

To be insulated with ROCKWOOL Ductwrap/ Ductslab, nominal density 45kg/m³, having a factory applied reinforced aluminium foil facing. Joints to be securely taped with 75mm minimum wide soft aluminium self adhesive tape. The insulation on the underside of the ducting to be additionally secured by suitable insulation hangers at 300mm centres.

The whole to be further supported by means of:-

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

or

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

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

or

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

For operating temperatures below ambient a vapour barrier is required.

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

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

Ductwrap and Ductslab

PRODUCT INFORMATION

Dimensions

Ductwrap rolls - 1000mm wide.

Thickness of roll (mm)	Length of roll (mm)	Rolls per pack	Area per pack (m2)
25	5000	2	10
40	4000	2	8
50/60		1	6

Ductslab - length 1000mm width 600mm thickness 40, 50 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 BS5970 regarding the treatment of austenitic stainless steel pipework and fittings). Stonewool insulation is chemically inert. A typical aqueous extract of ROCKWOOL insulation is neutral or slightly alkaline (pH 7 to 9.5).

Durability

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

Biological

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

Water vapour resistance

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

STANDARDS AND APPROVALS

Certificates

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'.

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



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DISCLAIMERS

ROCKWOOL Limited, its affiliates, its agents and employees and all persons acting on its or their behalf (collectively "ROCKWOOL"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

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Information contained in this data sheet is up-to-date as at the date of issue. As ROCKWOOL Limited cannot control or anticipate the conditions under which this product may be used, each user should review the information in specific context of the planned use. To the maximum extent permitted by law, ROCKWOOL Limited will not be responsible for damages of any nature resulting from the use or reliance upon the information contained in this data sheet. No express or implied warranties are given other than those implied by law.

SUSTAINABILITY

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
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HEALTH & SAFETY

There are no hazardous classifications associated with stone wool insulation manufactured by ROCKWOOL-UK according to EU REACH and UK REACH regulations on health and the environment.

A Safe Use Instruction Sheet for ROCKWOOL stone wool insulation products can be downloaded from www.rockwool.com/uk

ENVIRONMENT

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

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

ROCKWOOL insulation is recyclable and can be transformed into new ROCKWOOL products. For waste ROCKWOOL material that may be generated during installation, we are happy to discuss the individual requirements of contractors and users considering returning these materials to our factory for recycling.