

Conlit® Ductwork Systems

Fire protection solution for fire rated ductwork

As part of the comprehensive FirePro® range of fire protection products, Conlit® Ductwork Systems provide fire protection, thermal and acoustic insulation for circular and rectangular steel ductwork.

Advantages

- Fully certified to BS 476: Part 24 (duct Types A and B)
- ½, 1, 1½ and 2 hour fire protection for stability, integrity and insulation
- Choice of fixing options
- Single layer, enabling verification of system installation
- Space efficient, non-brittle, strong and safe
- Multi-role insulation: fire protection, acoustic and thermal

Description

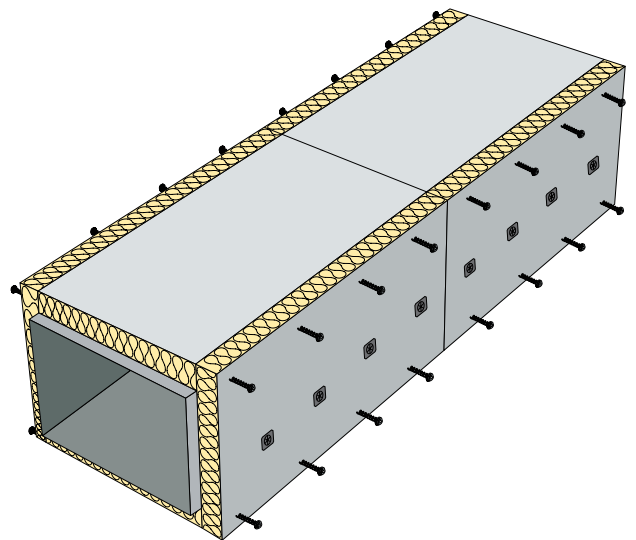
Manufactured from Rockwool mineral wool, Conlit® Ductwork Systems provide fire protection, thermal and acoustic insulation for circular and rectangular steel ductwork.

The simplicity and flexibility of fixing options ensure rapid and reliable installation to both vertical and horizontal duct systems.

Three products are available in the Conlit® Ductwork System range:-

1. Conlit® Ductwork Slab - for rectangular ducts
2. Conlit® Ductwork Section - for circular ducts between 17mm and 610mm diameter.
3. Conlit® Ductwork PSM - for circular ducts greater than 406mm diameter

All three Conlit® Ductwork products are supplied faced on one side with reinforced aluminium foil.



Conlit® Ductwork Slab

Size: 1200 × (up to) 2400mm
 Thicknesses: 25, 30, 40, 50, 70, 90mm
 Facing: reinforced aluminium foil
 Surface spread of flame: Class 0 to BS 476: Part 6 & 7
 Non-combustibility: Euro Class A1
 Thermal conductivity: 0.035 W/mK at 10°C

Conlit® Ductwork Section

Diameters: 17 to 610mm
 Thicknesses: 25 to 90mm*
 Facing: reinforced aluminium foil

Conlit® Ductwork PSM

Conlit® Ductwork PSM is made of Conlit® Ductwork Slab with factory machined grooves to suit specific duct diameters.

Diameters: 406mm and above
 Thicknesses: 40, 50, 70, 90mm*
 Facing: reinforced aluminium foil

**Some thicknesses of Conlit® Ductwork Section and Ductwork PSM are not available for certain diameters.*

Performance and Properties

Fire rating

Fire Resistance (hours)	Duct Type	Required Conlit® Thickness	Joint Options	Hanger Protection		Max. duct size for mitre-joint, glued system
				Conlit® Ductwork Slab	Conlit® Ductwork Section	
½	Vertical	25mm	C	30mm	17 x 30 mm	1000 x 1000 mm
	Horizontal	25mm	C	30mm	17 x 30 mm	1000 x 1000 mm
	Kitchen extract	40mm	B C	30mm	17 x 30 mm	1500 x 1500 mm
1	Vertical	30mm	C	40mm	17 x 40 mm	1000 x 1000 mm
	Horizontal	40mm	B C	40mm	17 x 40 mm	1500 x 1500 mm
	Kitchen extract	90mm	A B C	40mm	17 x 40 mm	1500 x 1500 mm
1½	Vertical	50mm	B C	50mm	17 x 50 mm	1500 x 1500 mm
	Horizontal	70mm	A B C	50mm	17 x 50 mm	1200 x 1200 mm
2	Vertical	70mm	A B C	60mm	17 x 60 mm	1500 x 1500 mm
	Horizontal	90mm	A B C	60mm	17 x 60 mm	1000 x 1000 mm

Standards and Approvals

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

BS 5588: Part 9, Clause 6.2.5.3 requires that, for fire-resisting ductwork:

'The fire resistance of the ductwork, when tested from either side, should not be less than the fire resistance required for the elements of construction in the area through which it passes'

BS 476: Part 24, Clause 9.1 states that:

'The fire resistance of test specimens shall be the duration in minutes of heating in accordance with 5.1.1 until failure occurs according to one or more of the performance criteria, ie, stability, insulation, integrity or until the test is terminated, whichever is the shortest time'

Conlit® Ductwork System test data

The Conlit® Ductwork System has been tested and assessed by BRE LPC in accordance with BS 476: Part 24, 'Fire tests on building materials and structures - Methods for determination of the fire resistance of ventilation ducts'.

The Conlit® Ductwork System can be used to provide fire protection to horizontal, vertical, rectangular, circular, ventilation and smoke extract steel ductwork fully in accordance with BS 476: Part 24, ducts 'Type A' and 'Type B', "Fire break out" and "Fire break in".

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

'Kitchen extract' ducts

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

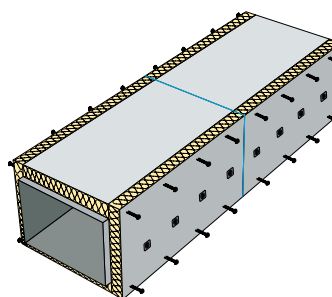
System Options - Rectangular Ducts

Welded pin fixing methods

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

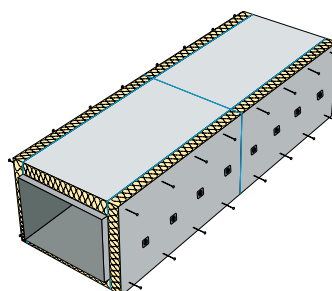
Welded pin method 1

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



Welded pin method 2

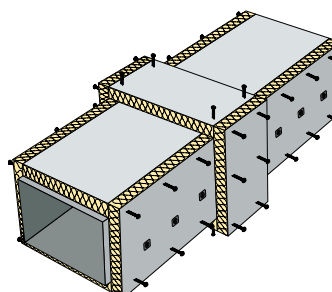
All joints bonded with Conlit® Glue. Slabs may overlap in either direction.



Welded pin method 3

Longitudinal corner joints fixed with pigtail screws at 250mm maximum centres (screw length to be 2 x slab thickness).

Side wall slabs must overlap top and bottom slabs as below. Cross joints protected with centrally positioned 100mm wide Conlit® cover strips. Strips fixed with pigtail screws at 250mm maximum centres along both long edges.



Conlit® Ductwork Section

Circular steel ducts of between 17mm and 610mm diameter may be protected using Conlit® Ductwork Section. Please contact our technical department for further details.

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

Installation

The Conlit® Ductwork System is approved to provide fire protection to steel ductwork, wholly constructed using steel fixings in accordance with current HVCA specification DW/144 and superseded specification DW/142.

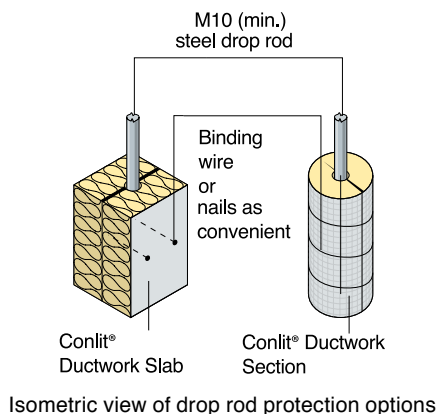
Where there are constructional options within DW/144 and DW/142, these are explained in our installation method statement. These details are primarily concerned with duct joint types and the suspension method.

DW/142 flanged cross joint types J3, J4, J5 and J6 are acceptable for use with the Conlit® Ductwork System, without modification. For joint types J1 and J2, please contact Wilhams Insulation Far East Sdn Bhd for advice.

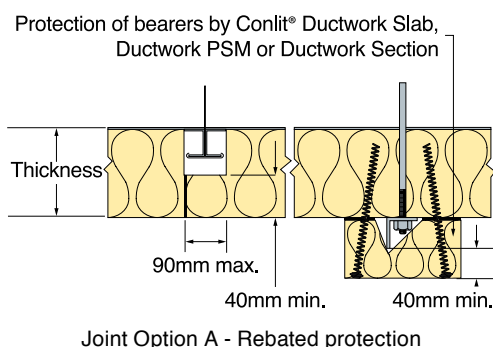
Conlit® Ductwork Slab, Ductwork Section or Ductwork PSM may be installed either outside or inside the hanger system.

Bearers will require additional protection only when positioned outside the Conlit® Ductwork layer.

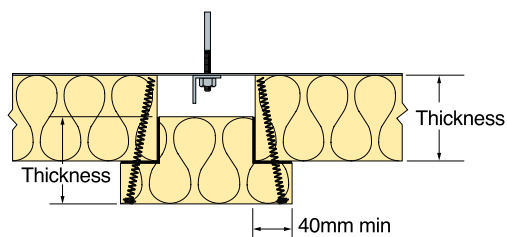
Drop rods will normally be protected with Conlit® Ductwork Section or with Conlit® Ductwork Slab blocks as shown below.



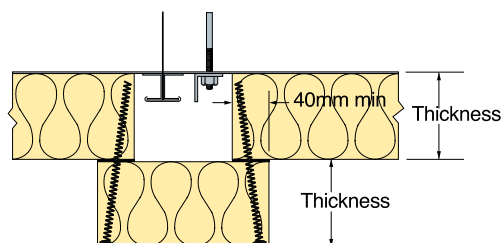
Alternatively, the support steelwork may be sized so that separate protection is not required. Design of this 'unprotected support' method is independent of the Conlit® Ductwork System, as explained in our installation method statement.



Joint Option A - Rebated protection



Joint Option B - Protection using 'T' section



Joint Option C - Protection using block cover strip

Dimensions

Item	Duct Size (mm)		
	Up to 1500 x 1500	Up to 2000 x 2000	Up to 3000 x 3000*
Maximum hanger centres (mm)	1500	1500	1500
Minimum drop rod size	M10	M10	BC
Minimum angle bearer (mm)	30 x 30 x 3	50 x 50 x 5	BC

* DW/144 and DW/142 do not specifically cover ducts larger than 3m wide. Please contact Wilhams Insulation Far East Sdn Bhd for details.

Protection of hangers outside Conlit® Ductwork System

Hangers outside the Conlit® Ductwork System are protected by cutting a rebate into a block of Conlit® Ductwork Slab, Ductwork PSM or Ductwork Section.

The rebate should be no larger than necessary to accommodate the bearer. The block should be glued and pinned in position or secured using pigtail screws.

Ancillaries

Welded steel pins

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

Conlit® Glue

Conlit® Glue has a pH value of 11. It is provided in 17kg drums and should always be stirred before use.

When required, 1 - 1.5mm of glue should be applied to each Conlit® joint. The glue is generally applied by spatula or trowel.

Where present, any foil facing must be removed from surfaces prior to the application of Conlit® Glue.

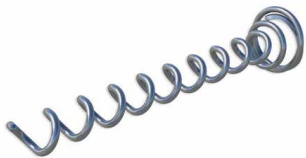
Ancillaries (cont'd)

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

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

Pigtail screws

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



Pigtail screws are to be positioned at 250mm maximum centres and the screw length is to be 2 x slab thickness. For horizontal ducts, pigtail screws must be inserted horizontally as shown above.

Optional edge protection

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

Vapour barrier

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

Typical Specification Clauses

Typical specification clauses for rectangular ducts to be read in conjunction with System options on pages 2-3.

Welded pin fixing method 1

1. All ductwork is to be insulated with.....*mm Conlit® Ductwork Slab, having a factory applied reinforced aluminium foil to one face and complying with Building Regulations Class 'O' requirements.
2. The Conlit® Ductwork Slab is to be affixed to the duct using 2.67mm diameter welded steel pins and spring steel washers in accordance with the Rockwool manual 'Conlit® Ductwork System'.
3. The foil facing is to be removed from any surfaces to which Conlit® is to be applied.
4. All corner joints are to be fixed with pigtail screws at 250mm maximum centres. Screw length is to be 2 x slab thickness.*

5. All cross joints are to be filled with Conlit® Glue and held tightly closed.
6. Drop rods and bearers are to be at 1500mm maximum centres and to be M10 steel rod and 30 x 30 x 3mm steel angle respectively. Ductwork is to be generally in accordance with HVCA Specification DW/144.
7. Drop rods and exposed bearers are to be insulated with.....*mm Conlit® Ductwork Slab or.....† x*mm Conlit® Ductwork Section, as appropriate. Rebates or cover pieces are to be used at duct flange and bearer locations according to site conditions and subject to Wilhams Insulation Far East Sdn Bhd's approval.
8. Where a vapour barrier is required, all exposed Conlit® edges and penetrations through the foil should be sealed using soft self-adhesive aluminium foil tape.

Welded pin fixing method 2

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

5. All joints are to be filled with Conlit® Glue and held tightly closed. If necessary, nails may be used at corner joints to aid this process.

Welded pin fixing method 3

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

5. All cross joints are to be covered with centrally positioned 100mm wide strips of Conlit® Ductwork Slab of the same thickness as the insulation. The cover strips are to be fixed along both edges using pigtail screws, as described above.

* Insert Conlit® Ductwork Slab insulation thickness required.

† Insert appropriate overall diameter.

Sitework

Handling

The Conlit® Ductwork range of products is light and easy to handle and fix. The products can be cut and shaped using knives, saws, etc.

Health and Safety

A Material Safety Data sheet is available from Wilhams Insulation Far East Sdn Bhd.

Current HSE 'CHIP' Regulations and EU Directive 97/69/EC confirm that Rockwool fibres are not classified as a possible carcinogen.

FirePro® is the registered trademark of Wilhams Insulation Far East Sdn Bhd

WILHAMS

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