

# Crown Duct Roll



H&V

## Thermal and Acoustic Insulation of all types of Ductwork

### Description

Crown Duct Roll is a strong, flexible roll of shot-free, non-combustible glass mineral wool with a bright class 'O' aluminium foil facing on one side.

### Standards

Crown Duct Roll is non-combustible inorganic glass wool, defined as mineral wool in BS 3533 and is manufactured in accordance with BSI Quality Assurance Standard BS EN ISO 9001: 12001.

### Thermal Conductivity

The thermal conductivity of the insulation varies with temperature, as shown in the table.

### Fire Performance

Crown Duct Roll base glass mineral wool is non-combustible to BS 476: Part 4: 1970 (1984) and Class 1 surface spread of flame to BS 476: Part 7: 1997. The glass mineral wool and the foil facing comply with the Class 'O' requirements of the Building Regulations when tested to BS 476: Part 6: 1989 and Part 7: 1997.

### Permanence

The mineral wool of Crown Duct Roll is odourless, rot proof, non-hygroscopic, does not sustain vermin and will not encourage the growth of fungi, mould or bacteria.

### Operating Temperatures

Crown Duct Roll can be used up to continuous operating temperatures of 230°C and down to cryogenic temperatures provided that a 100% vapour barrier is maintained. The surface temperature of the facing should not exceed 80°C.

### Form and Dimensions

The Product Data table shows form and dimensions for Crown Duct Roll.

### Handling and Storage

Crown Duct Roll is supplied in polythene packs.

The Product Data table shows storage information for each thickness.



### Application

Crown Duct Roll is used for the thermal and acoustic insulation of all shapes of ductwork in heating, ventilating and air-conditioning systems including:

- Round, oval and flatoval ductwork
- Square and rectangular ductwork.

See detailed drawings on following page.

### Thermal conductivity

Mean temperature °C	Thermal conductivity (W/mK)
10	0.033
25	0.035
50	0.039
75	0.046
100	0.052
125	0.059

Note: Tested in accordance with BS 874: 1973 (1980).

### Product Data – Crown Duct Roll

Thickness (mm)	Length (m)	Width (mm)	Area per roll (m <sup>2</sup> )	Density (kg/m <sup>3</sup> )	Thermal conductivity (W/mK)	Thermal resistance (m <sup>2</sup> K/W)
50	9.00	1200	10.80	32	0.033	1.52
40	12.00	1200	14.40	32	0.033	1.21
25	18.00	1200	21.60	32	0.033	0.76

All dimensions are nominal

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### Installation

Cut the Crown Duct Roll into lengths, taking into account the thickness of the insulation, which should be added to the duct dimensions in accordance with the following formulae:

#### Circular ducts

$$\text{Length} = 3.14 \times (\text{od} + 2t)$$

Where **od** is the outside diameter of the duct and **t** is the insulation thickness

#### Rectangular ducts

$$\text{Length} = 2a + 2b + 8t \text{ where:}$$

**a** is the external width of the duct

**b** is the external height of the duct and

**t** is the insulation thickness.

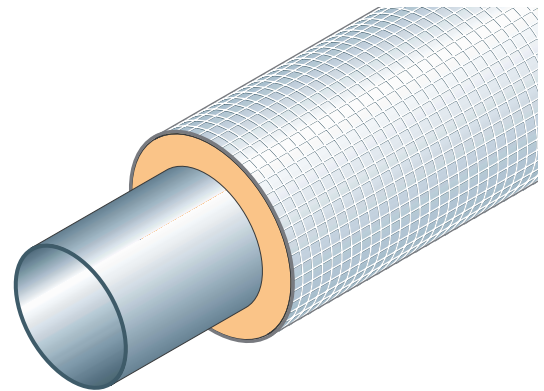
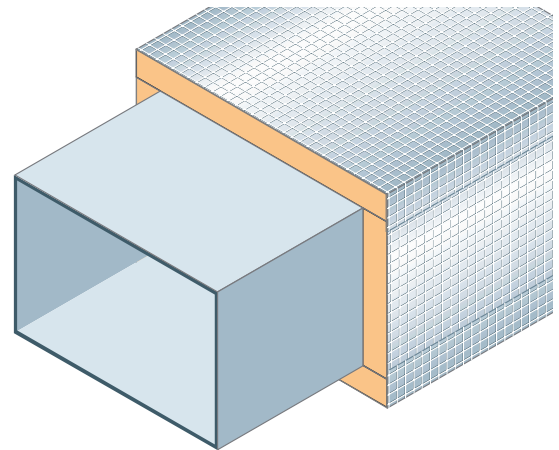
Bond the insulation to the ductwork using a suitable adhesive applied in accordance with the manufacturer's instructions. Adhesive may be applied as a continuous film over the entire surface of the ductwork or discontinuously as bands at approximately 400mm centres.

Seal all insulation joints with a matching soft aluminium self adhesive tape at least 100mm wide.

The insulation may be further secured with galvanised hexagonal wire mesh netting wrapped around the outside. The netting should be laced together with suitable wire. Care must be taken when applying the wire netting to avoid puncturing the bright Class 'O' facing.

Use piercing fasteners at 300mm maximum centres on the underside of rectangular ductwork to provide additional support. Where the piercing fasteners puncture the bright Class 'O' facing, they should be sealed with aluminium tape to maintain the vapour control layer.

### Insulation of air conditioning ducts



### Recommended thickness of insulation

Application	Air temperature inside duct (°C)	Minimum insulation thickness (mm)
Condensation control <sup>(1,2)</sup>	15	24
	10	42
	5	60
	0	79
Ductwork carrying warm air <sup>(1,3)</sup>	10°C above ambient	33
	25°C above ambient	44
	50°C above ambient	56

Notes:

(1) Thicknesses calculated in accordance with BS EN ISO 12241, based on 0.6m vertical flat surface of rectangular duct, but are also adequate for horizontal surfaces.

(2) Thicknesses are calculated for an ambient indoor still air temperature of +25°C, relative humidity of 80% and dew point temperature of 21.3°C. These thicknesses may not satisfy other design requirements.

(3) Assumes an ambient still air temperature of 10°C and is extrapolated from Table 11 in BS 5422: 2001.

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