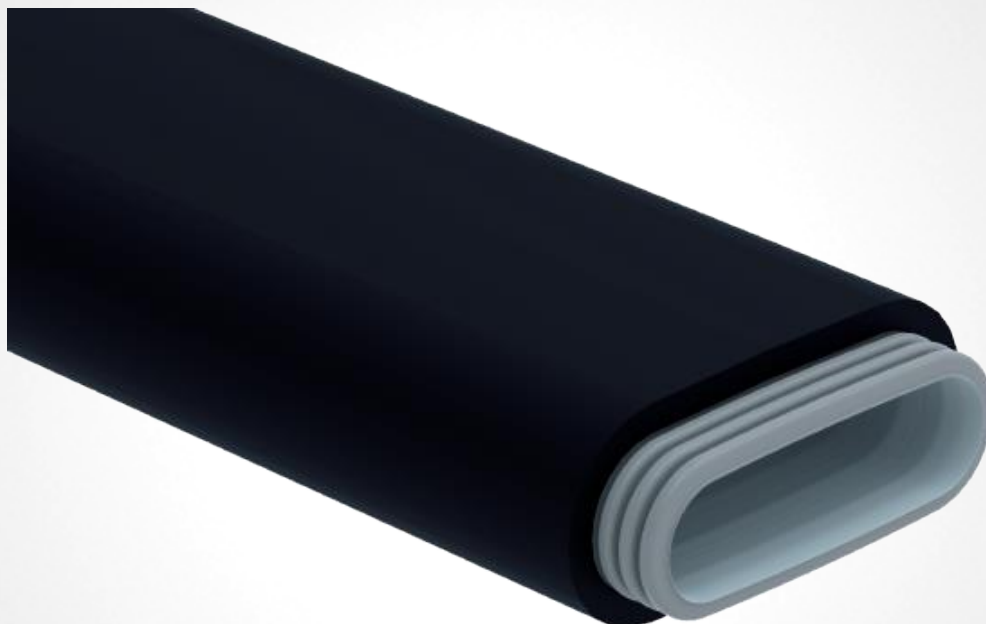**zehnder**

always the
best climate

# ComfoTube Therm Flat 51

## Insulated semi-rigid ductwork

# ComfoTube Therm Flat 51

The Zehnder ComfoTube Therm Flat 51 is a high performance insulated oval shaped semi-rigid ductwork ideal for residential applications.  The low profile and thermal properties make it the ideal ductwork for use with the Zehnder range of climate conditioning devices such as ComfoClime and ComfoPost in small ceiling voids.  The clinside smooth internal lining help to reduce build up of dust and enable the ductwork to be cleaned, this has helped the ductwork achieve a hygiene certificate from the Hygiene Institute.  The ductwork was also one of the first to be fully accredited and listed on the PCDB.

The ductwork can be installed much faster than conventional ductwork with a reduced number of connections helping to reduce any potential air leakage within the system.  The oval O-rings and locking slides also help to prevent the ductwork being disconnected during first fix and maintain an airtight seal.  End caps are also provided to prevent dust ingress during first fix to maintain a hygienic system.

A variety of manifolds, insulated EPP connections, ancillaries and terminations can be used with the ductwork in addition to a wide range of decorative grilles.



## Key Features

- Low temperature loss and prevention of condensation when transporting tempered air
- The non-glued insulation offers flexibility during insulation and cutting
- No thermal bridges thanks to the insulation being optimally sized to fit against the connectors
- Wide range of EPP insulated connectors
- Easy and quick to install
- Airtight
- Extremely low profile, ideal for small voids
- Sound-optimised inner skin to ensure extremely quiet air flow
- High-quality food-grade plastic (PE)
- Fully accredited and listed on the PCDB
- Low pressure losses
- Easy to clean
- Corrosion resistant
- Lightweight and easy to handle
- No sealant or tape required
- Wide range of manifolds and grille termination options

## Article Numbers

| Description | Product Code |
|---|---|
| **Ductwork** | |
| Zehnder ComfoTube Therm insulated Flat 51, 138 x 51mm, 10m roll | 990 328 032 |
| **EPP ancillaries** | |
| Zehnder ComfoFit Therm insulated Flat 51, vertical 90° bend | 990 430 850 |
| Zehnder ComfoFit Therm insulated Flat 51, horizontal 90° bend | 990 430 851 |
| Zehnder ComfoFit Therm insulated Flat 51, Y-piece | 990 430 853 |
| Zehnder ComfoFit Therm insulated Flat 51, pipe connector | 990 430 854 |
| Zehnder ComfoFit Therm insulated Flat 51 to Zehnder ComfoTube Therm insulated ø 90mm convertor | 990 430 857 |
| Zehnder ComfoFit Therm insulated Flat 51 to Zehnder ComfoTube Therm insulated ø 90mm convertor with 90° bend | 990 430 852 |

## Article Numbers

| Description | Product Code |
|---|---|
| **Grille housing** | |
| Grille housing CLF rectangular grille housing with 90° bend, connects 1 x 350x130 mm grille to 1 x Zehnder ComfoTube Flat 51, L123 mm | 990 322 000 |
| Grille housing CLRF circular grille housing with 90° bend, connects 1 x ø 125 mm valve to 1 x Zehnder ComfoTube Flat 51, L290 mm | 990 322 060 |
| Grille housing CLRF circular grille housing with 90° bend, connects 1 x ø 125 mm valve to 2 x Zehnder ComfoTube Flat 51, L290 mm | 990 322 063 |
| Grille housing CLRF circular grille housing, connects 1 x ø 125 mm valve to 1 x Zehnder ComfoTube Flat 51, L195 m | 990 322 061 |
| Grille housing Renoventil circular grille housing, connects 1 x ø 80 mm valve to 1 x Zehnder ComfoTube Flat 51, L400 mm | 990 322 062 |
| **Ancillaries** | |
| Zehnder ComfoTube Flat 51 manifold cover with ø 160 mm pipe adaptor, for 6 port manifold | 990 322 037 |
| Zehnder ComfoTube Flat 51, cross bracing floor insert for CLF grille housing | 990 322 095 |
| Zehnder ComfoTube Flat 51, end caps, 10 pieces | 990 328 252 |
| Zehnder ComfoTube Flat 51, oval O-ring seal, 10 pieces | 990 328 352 |
| Zehnder ComfoTube Flat 51, locking slides, 20 pieces | 990 326 022 |
| Zehnder ComfoTube Flat 51, adjustable airflow regulator | 990 322 015 |
| Filter for ø 125 mm extract air valve, ISO Coarse >45% (G3), 10 Pieces | 990 320 032 |
| Filter for CLF housing, ISO Coarse >45% (G3), 10 Pieces | 990 322 100 |

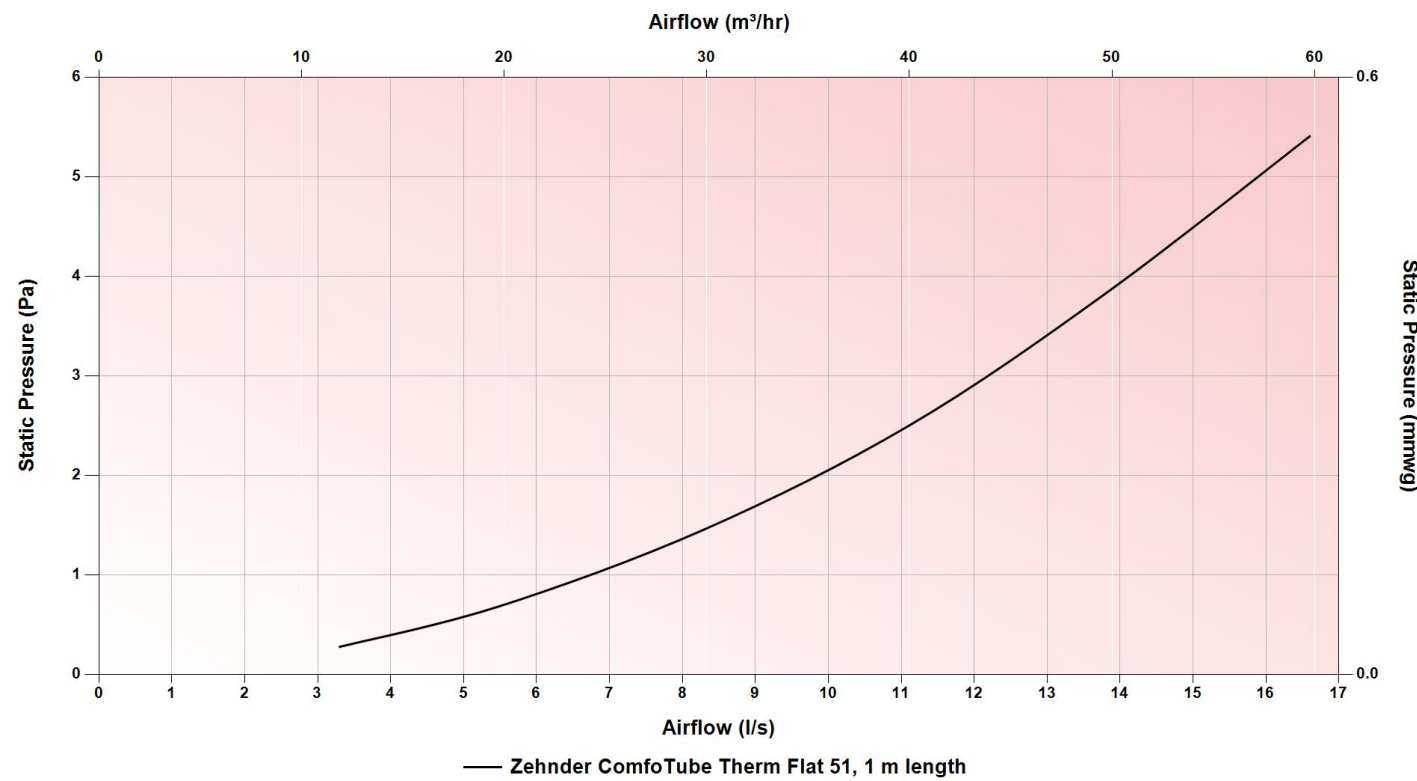**Zehnder ComfoTube Therm insulated Flat 51, 138 x 51mm, 10m roll**

Article number: 990 328 032

## Technical Specification

| | |
|---|---|
| Material - Ductwork | High-quality food-grade polyethylene (PE) |
| Material - Insulation | Cellular rubber |
| Operating temperature range | -25 to +60°C |
| Thermal conductivity at 0°C | 0.033 W/mK |
| Thermal conductivity at 20°C | 0.035 W/mK |
| 10 m Temperature loss @ 40 m³hr (40/20°C) | 7.1 K |
| 10 m Temperature loss @ 40 m³hr (16/25°C) | -5.3 K |
| Maximum recommended air volume per tube | 13 l/s (47 m³/h) |
| Minimum bending radius | 207 mm and 468 mm |
| Buoyancy in concrete | 150 N/m |
| Outside diameter (W/H) | 156 mm x 69 mm |
| Inside diameter (W/H) | 125 mm x 38 mm |
| Insulation thickness | 9 mm |
| Weight per m | 0.595 kg |
| Fire rating in accordance with EN 13501-1 - Ductwork | E |
| Fire rating in accordance with EN 13501-1 - Insulation | BL s2, d0 |
| Fire rating in accordance with EN 13501-1 - EPP ancillaries | E |
| Coil diameter (10 m roll) | 1100 mm |
| Coil height (10 m roll) | 160 mm |

## Pressure Curve



Airflow (m³/hr)

Static Pressure (Pa) / Static Pressure (mmwg) / Airflow (l/s)

—— Zehnder ComfoTube Therm Flat 51, 1 m length

■ For use with Zehnder ComfoTube Flat 51 Manifolds and Grille housings

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**Zehnder ComfoFit Therm insulated Flat 51, vertical 90° bend**
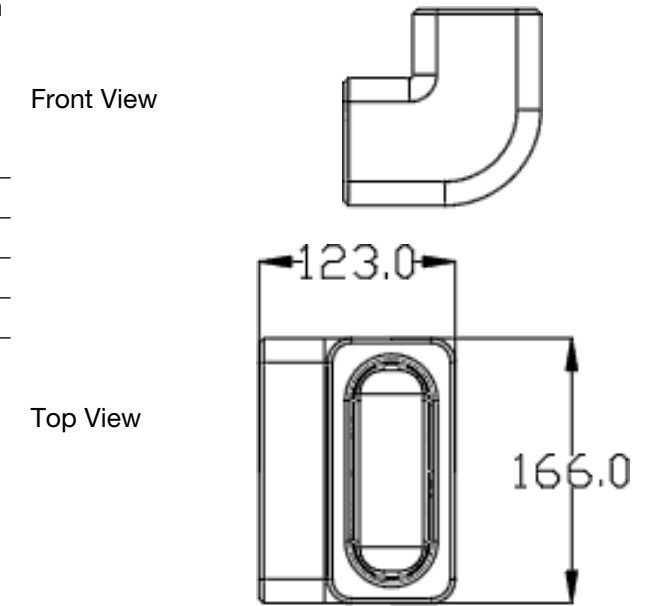
Article number: 990 430 850

### Description

**Rigid 90° bend:**

Zehnder ComfoTube Therm Flat 51, insulated vertical 90° bend.  The rigid bend can be placed between two lengths of Zehnder ComfoTube Therm Flat 51 to create an airtight and robust seal using the supplied O-rings. The insulation must be cut straight to ensure no thermal bridging once push fit into the connector.
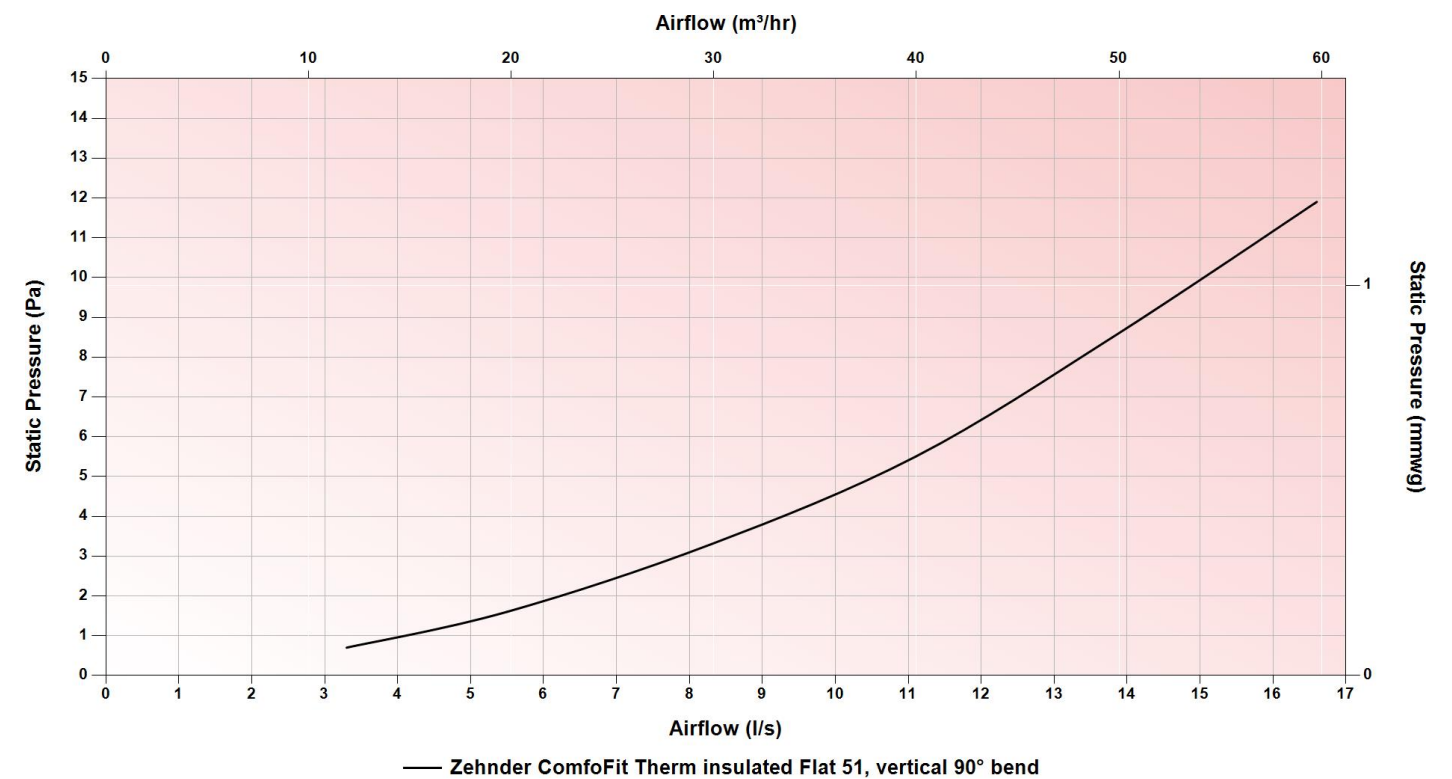
### Technical Specification

| | |
|---|---|
| Height | 123 mm |
| Width | 166 mm |
| Depth | 123 mm |
| Weight | 0.065 kg |
| Material | Expanded polypropylene (EPP) |

## Dimensions

Front View

Top View



123.0

166.0

## Pressure Curve



Airflow (m³/hr)

Static Pressure (Pa) / Static Pressure (mmwg) / Airflow (l/s)

—— Zehnder ComfoFit Therm insulated Flat 51, vertical 90° bend

## Zehnder ComfoFit Therm insulated Flat 51, horizontal 90° bend

Article number: 990 430 851

### Description

**Rigid 90° bend:**

Zehnder ComfoTube Therm Flat 51, insulated horizontal 90° bend.  The rigid bend can be placed between two lengths of Zehnder ComfoTube Therm Flat 51 to create an airtight and robust seal using the supplied O-rings. The insulation must be cut straight to ensure no thermal bridging once push fit into the connector.

### Technical Specification

| | |
|---|---|
| Height | 80 mm |
| Width | 209 mm |
| Depth | 209 mm |
| Weight | 0.106 kg |
| Material | Expanded polypropylene (EPP) |

### Dimensions

Front View

Side View

Top View



### Pressure Curve



Zehnder ComfoFit Therm insulated Flat 51, horizontal 90° bend
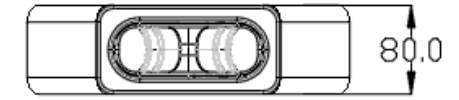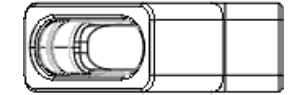
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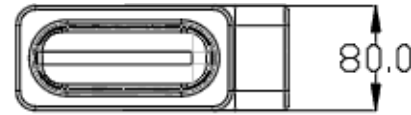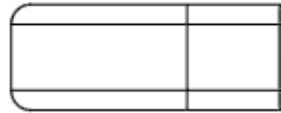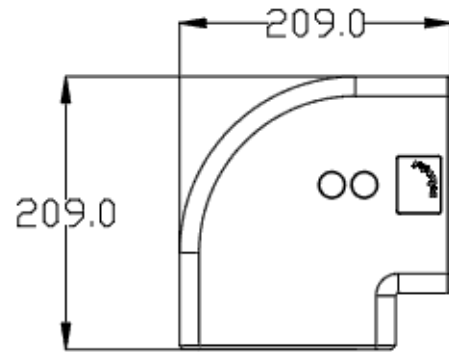
## Zehnder ComfoFit Therm insulated Flat 51, Y-piece

Article number: 990 430 853

### Description

**Y-piece:**

Zehnder ComfoTube Therm Flat 51, insulated Y-piece. The insulated Y-piece can placed between three lengths of Zehnder ComfoTube Therm Flat 51 to branch from a single run into two separate runs to create an airtight and robust seal using the supplied O-rings. The insulation must be cut straight to ensure no thermal bridging once push fit into the connector.

### Technical Specification

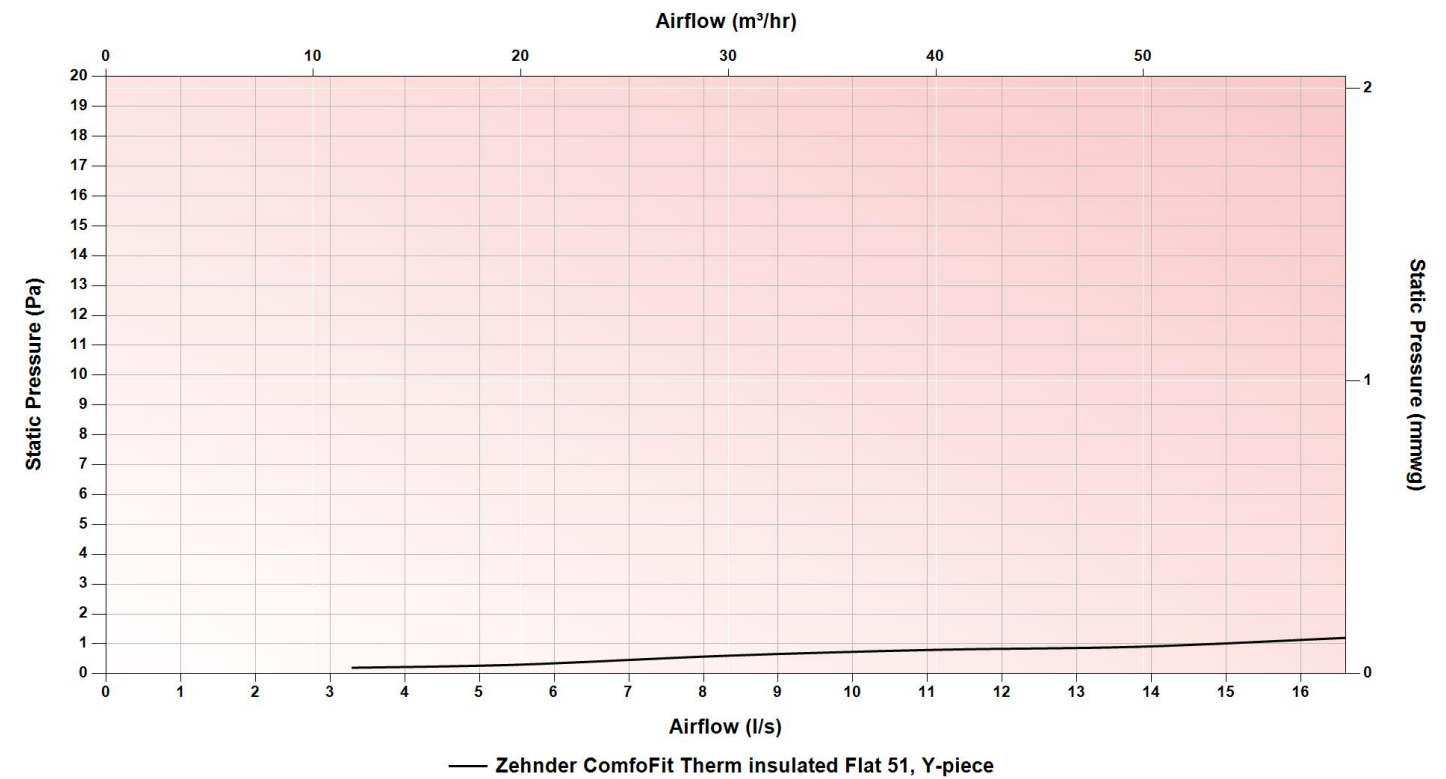| | |
|---|---|
| Height | 80 mm |
| Width | 293 mm |
| Depth | 233 mm |
| Weight | 0.111 kg |
| Material | Expanded polypropylene (EPP) |

### Dimensions

Front View

Side View

Top View



### Pressure Curve
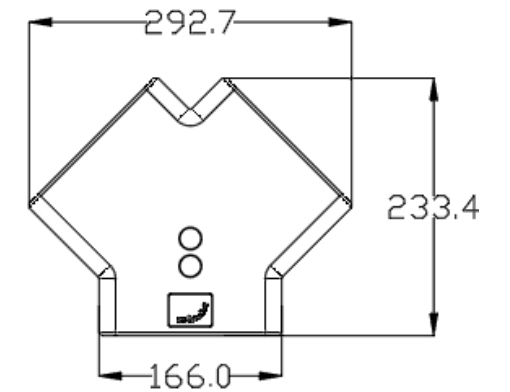


Zehnder ComfoFit Therm insulated Flat 51, Y-piece
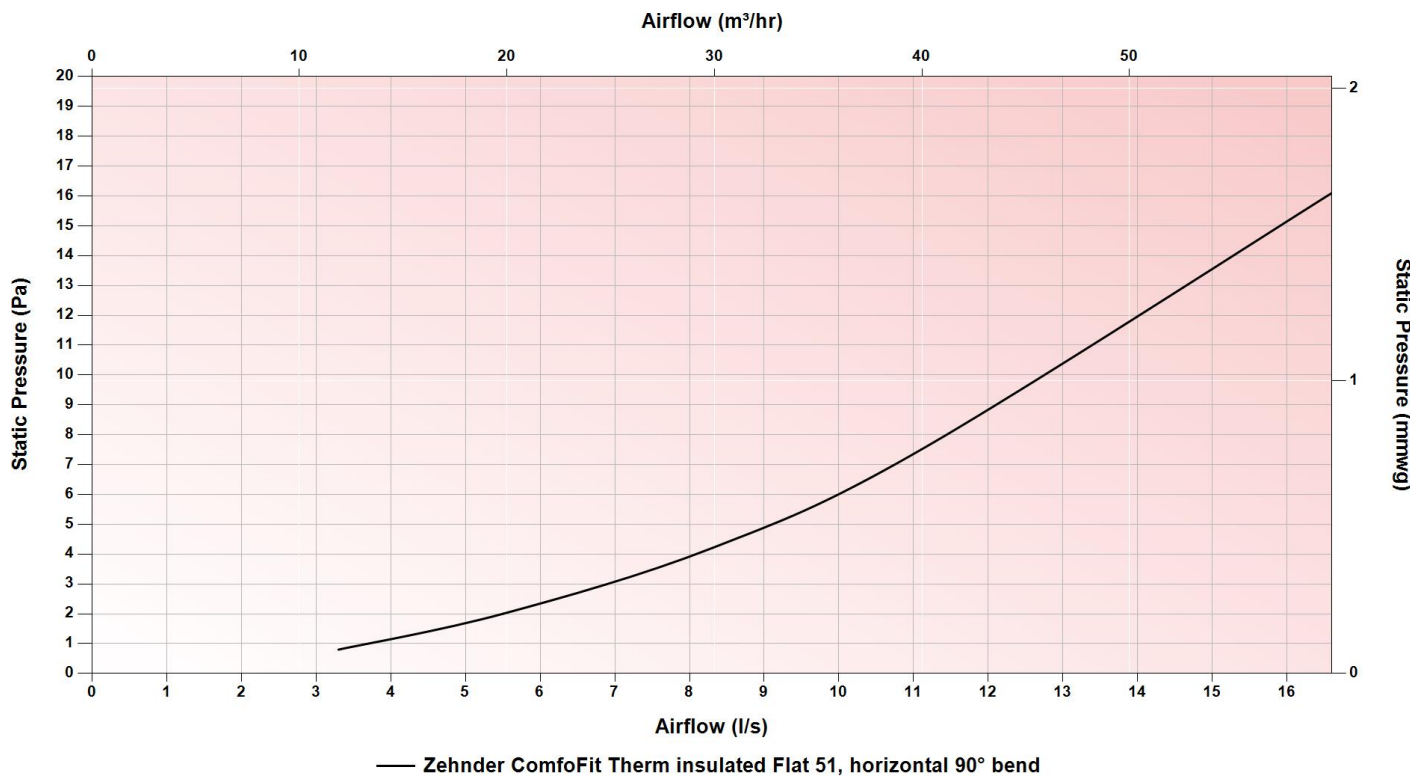
**Zehnder ComfoFit Therm insulated Flat 51, pipe connector**

Article number: 990 430 854

### Description

**Pipe connector:**

Zehnder ComfoTube Therm Flat 51, insulated pipe connector.  The connector is used to join two lengths of Zehnder ComfoTube Therm Flat 51 together to create an airtight and robust seal using the supplied O-rings.  The insulation must be cut straight to ensure no thermal bridging once push fit into the connector.

### Technical Specification

| | |
|---|---|
| Length | 120 mm |
| Outside diameter (W/H) | 166 mm / 80 mm |
| Inside diameter (W/H) | 138 mm / 51 mm |
| Weight | 0.049 kg |
| Material | Expanded polypropylene (EPP) |
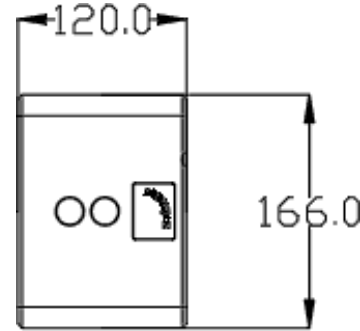
### Dimensions

Front View

Side View

Top View

### Pressure Curve



Zehnder ComfoFit Therm insulated Flat 51, pipe connector

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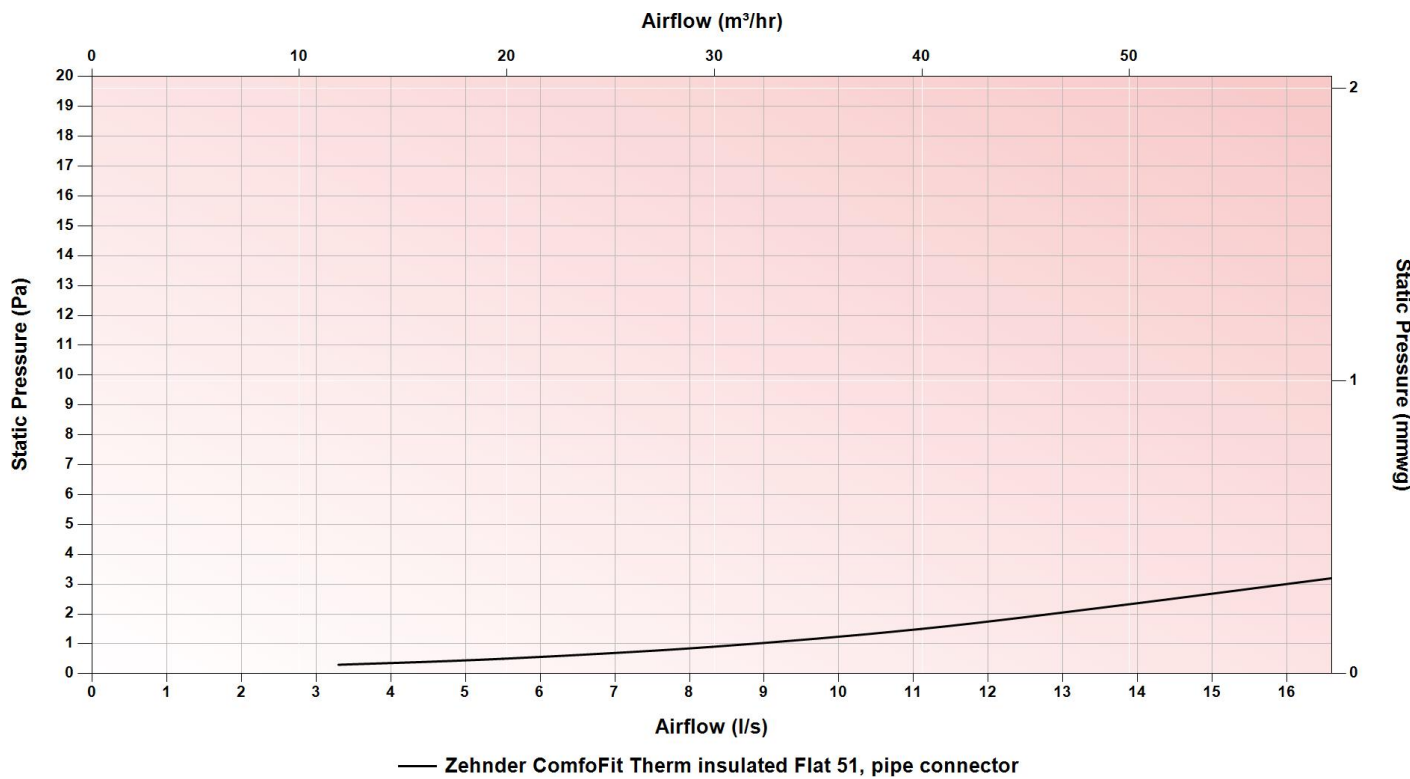
**Zehnder ComfoFit Therm insulated Flat 51 to Zehnder ComfoTube Therm insulated ø 90mm convertor**

Article number: 990 430 857

### Description

**Converter:**

Zehnder ComfoTube Therm Flat 51 to Zehnder ComfoTube Therm ø 90 mm convertor.  The rigid connector can be used to convert Zehnder ComfoTube Therm Flat 51 to Zehnder ComfoTube Therm ø 90 mm to create an airtight and robust seal using the supplied O-rings. The insulation must be cut straight to ensure no thermal bridging once push fit into the connector.

### Technical Specification

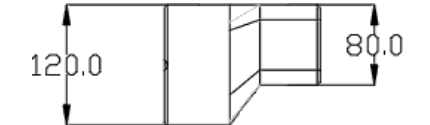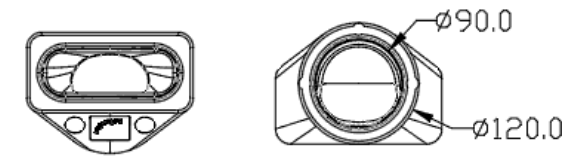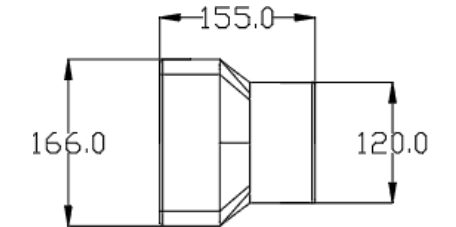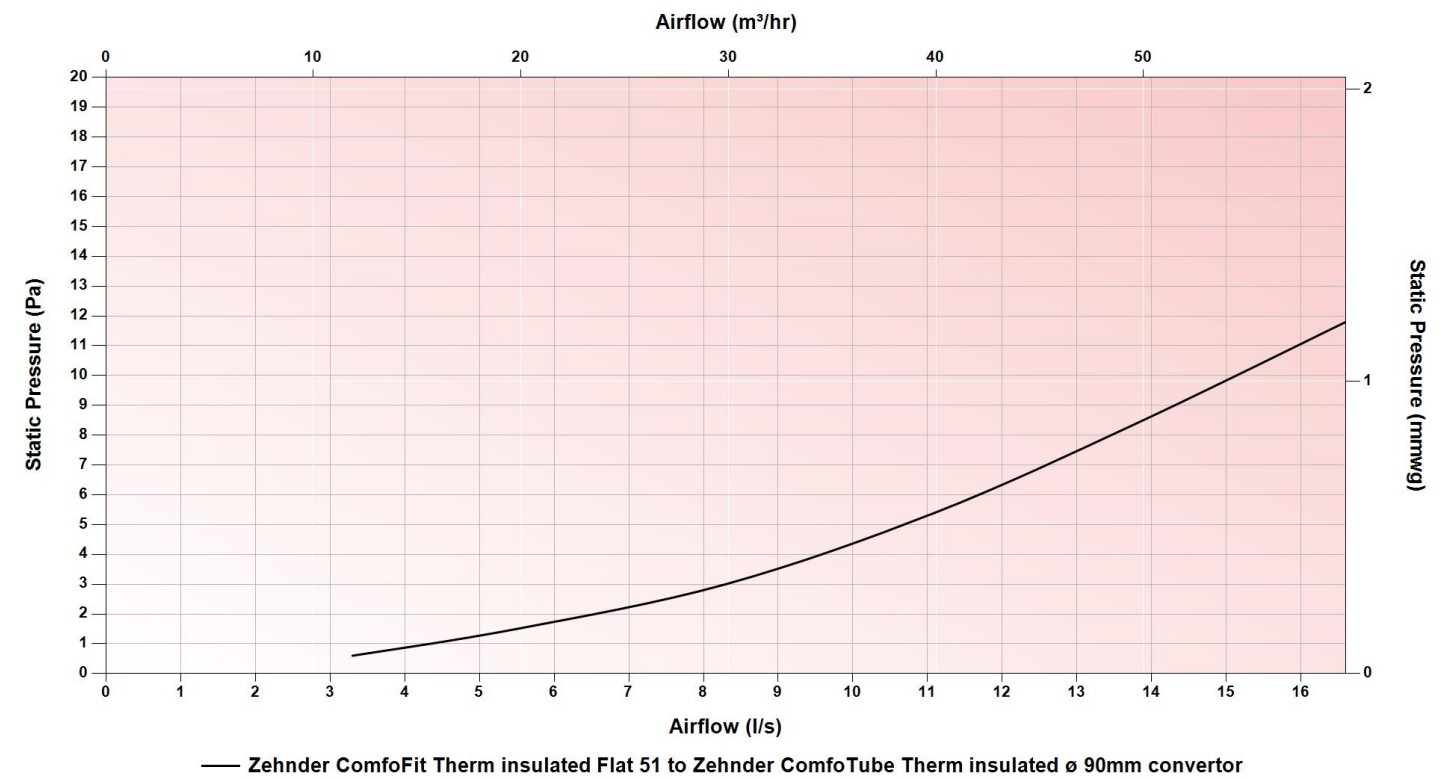| | |
|---|---|
| Height | 120 mm |
| Width | 166 mm |
| Depth | 155 mm |
| Weight | 0.06 kg |
| Material | Expanded polypropylene (EPP) |

### Dimensions

Front View

Side View

Top View

### Pressure Curve



Zehnder ComfoFit Therm insulated Flat 51 to Zehnder ComfoTube Therm insulated ø 90mm convertor

**Zehnder ComfoFit Therm insulated Flat 51 to Zehnder ComfoTube Therm insulated ø 90mm convertor with 90° bend**

Article number: 990 430 852
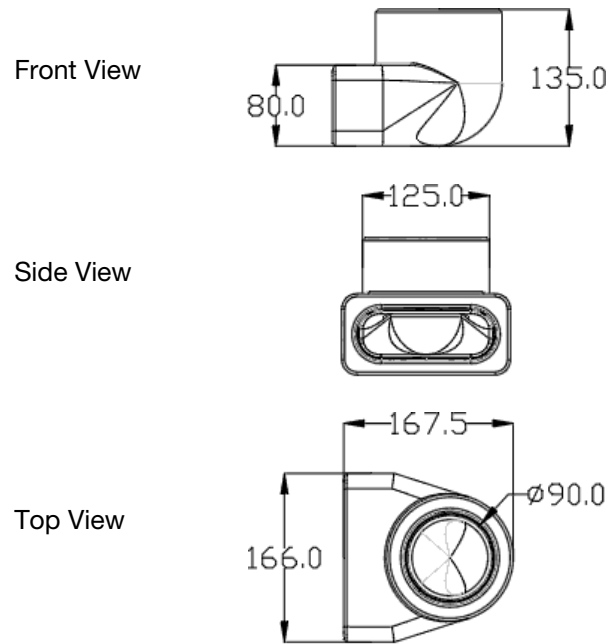
### Description
**Converter:**

Zehnder ComfoTube Therm Flat 51 to Zehnder ComfoTube Therm ø 90 mm, 90° convertor.  The rigid bend can be used to convert Zehnder ComfoTube Therm Flat 51 to Zehnder ComfoTube Therm ø 90 mm to create an airtight and robust seal using the supplied O-rings.  The insulation must be cut straight to ensure no thermal bridging once push fit into the connector.
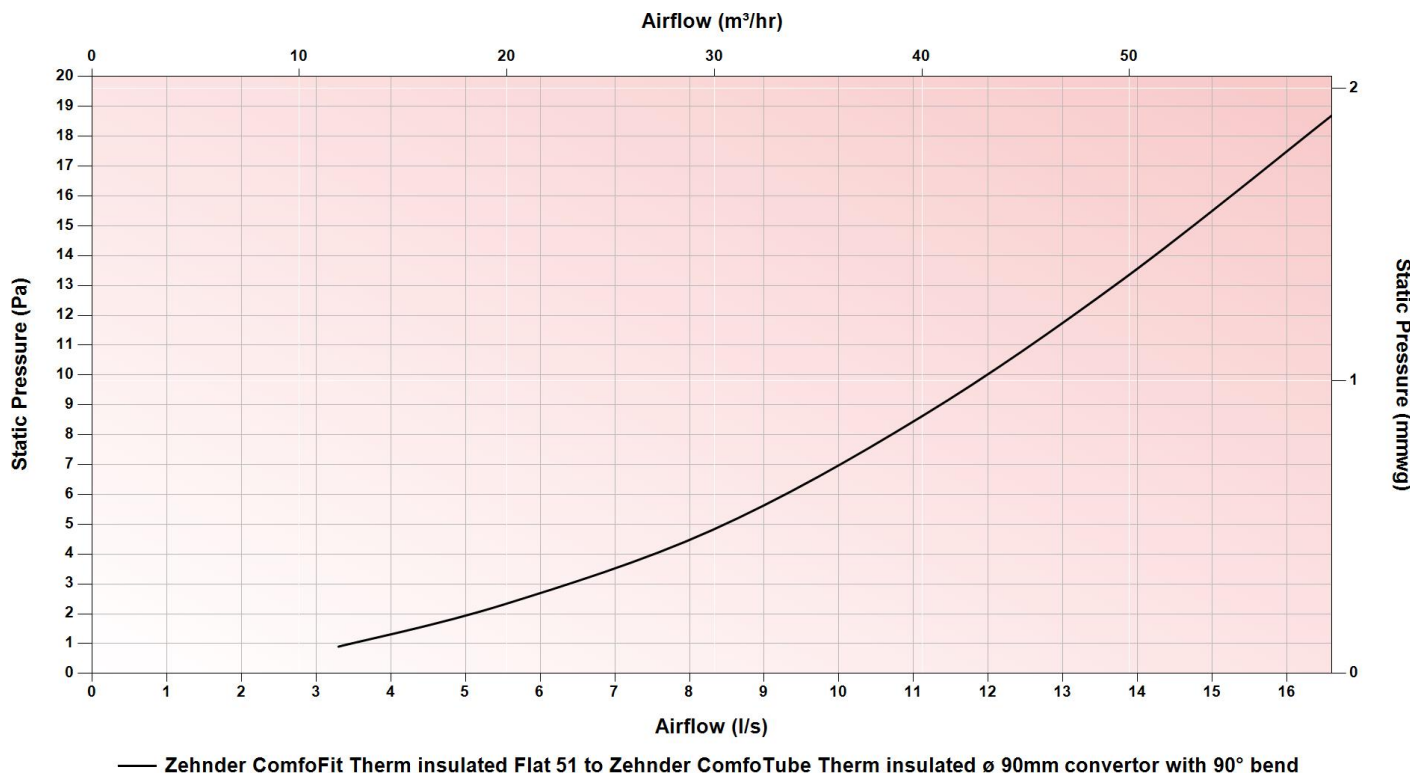
### Technical Specification

| | |
|---|---|
| Height | 135 mm |
| Width | 166 mm |
| Depth | 167.5 mm |
| Weight | 0.079 kg |
| Material | Expanded polypropylene (EPP) |

## Dimensions

Front View

Side View

Top View

135.0
80.0
125.0
167.5
166.0
Ø90.0

## Pressure Curve

**Airflow (m³/hr)**

Static Pressure (Pa)

Static Pressure (mmwg)

**Airflow (l/s)**

—— Zehnder ComfoFit Therm insulated Flat 51 to Zehnder ComfoTube Therm insulated ø 90mm convertor with 90° bend

**Grille housing CLF rectangular grille housing with 90° bend, connects 1 x 350x130 mm grille to 1 x Zehnder ComfoTube Flat 51, L123 mm**

Article number: 990 322 000
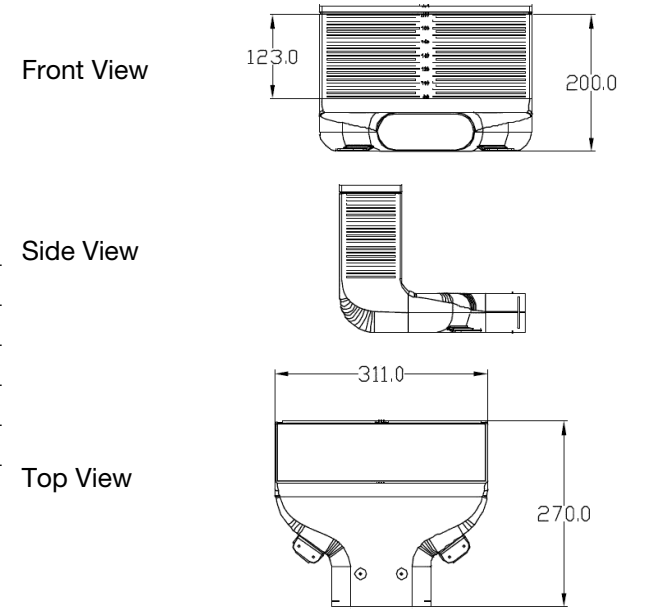
### Description
**CLF Grille housing:**

Rectangular grille housing with  90° bend.  The cleanable rectangular CLF grille housing is suitable for installation in multiple types of wall/floor/ceiling applications and comes complete with locking slide and oval O-ring seal.  The rectangular decorative grilles (350 mm x 130 mm) can be surface or flush-mounted dependent on preference.  A Zehnder ComfoFresh filter can be used to remove particulates.

### Technical Specification

| | |
|---|---|
| Height | 200 mm |
| Spigot length | 123 mm |
| Width | 311 mm |
| Depth | 270 mm |
| Weight | 0.79 kg |
| Material | High-density polyethylene (HDPE) |

## Dimensions

Front View

Side View

Top View

123.0
200.0
311.0
270.0

■ For use with Rectangular decorative grilles 350 x 130 mm

**Grille housing CLRF circular grille housing with 90° bend, connects 1 x ø 125 mm valve to 1 x Zehnder ComfoTube Flat 51, L290 mm**

Article number: 990 322 060

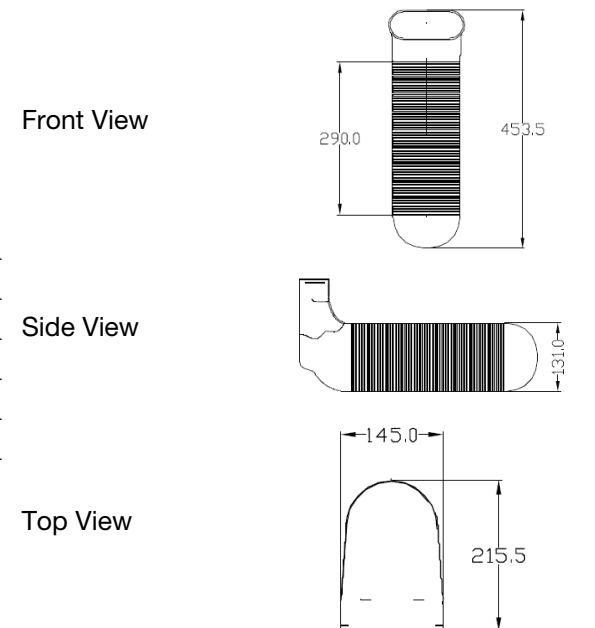### Description
**CLRF Grille housing:**

Circular grille housing with  90° bend.  The cleanable circular CLRF grille housing is suitable for installation in multiple types of wall and ceiling applications and comes complete with locking slide and oval O-ring seal.  The square (160 x 160 mm) and circular decorative grilles can be used in addition to any standard ø 125 mm valve.  A Zehnder ComfoFresh filter can be used to remove particulates.

### Technical Specification

| | |
|---|---|
| Height | 453.5 mm |
| Spigot length | 290 mm |
| Width | 145 mm |
| Depth | 215.5 mm |
| Weight | 0.52 kg |
| Material | High-density polyethylene (HDPE) |

## Dimensions

Front View

Side View

Top View

290.0
453.5
131.0
145.0
215.5

■ For use with Square or circular decorative grilles, ø 125 mm supply/extract grilles and ComfoValve Luna

**Grille housing CLRF circular grille housing with 90° bend, connects 1 x ø 125 mm valve to 2 x Zehnder ComfoTube Flat 51, L290 mm**

Article number: 990 322 063

### Description
**CLRF Grille housing:**
Circular grille housing with 90° bend. The cleanable circular CLRF grille housing is suitable for installation in multiple types of wall and ceiling applications and comes complete with locking slide and oval O-ring seal. The square (160 x 160 mm) and circular decorative grilles can be used in addition to any standard ø 125 mm valve. A Zehnder ComfoFresh filter can be used to remove particulates.
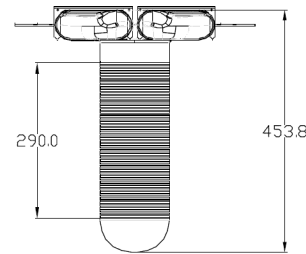
### Technical Specification

| | |
|---|---|
| Height | 453.5 mm |
| Spigot length | 290 mm |
| Width | 302 mm |
| Depth | 200.5 mm |
| Weight | 0.52 kg |
| Material | High-density polyethylene (HDPE) |

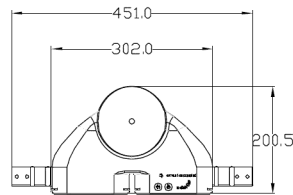**Dimensions**

Front View

290.0   453.8

Side View

131.0

Top View

451.0
302.0
200.5

■ For use with Square or circular decorative grilles, ø 125 mm supply/extract grilles and ComfoValve Luna

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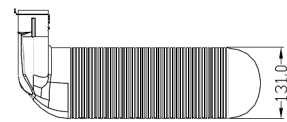
**Grille housing CLRF circular grille housing, connects 1 x ø 125 mm valve to 1 x Zehnder ComfoTube Flat 51, L195 m**

Article number: 990 322 061

### Description
**CLRF Grille housing:**
Circular grille housing with straight connection. The cleanable circular CLRF grille housing is suitable for installation in multiple types of wall and ceiling applications and comes complete with locking slide and oval O-ring seal. The square (160 x 160 mm) and circular decorative grilles can be used in addition to any standard ø 125 mm valve. A Zehnder ComfoFresh filter can be used to remove particulates.
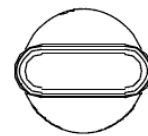
### Technical Specification

| | |
|---|---|
| Height | 130.6 mm |
| Spigot length | 195 mm |
| Width | 145 mm |
| Depth | 358.5 mm |
| Weight | 0.4 kg |
| Material | High-density polyethylene (HDPE) |
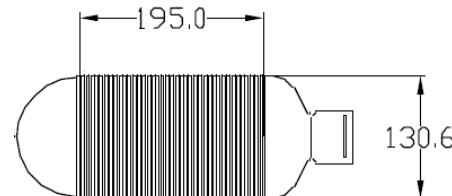
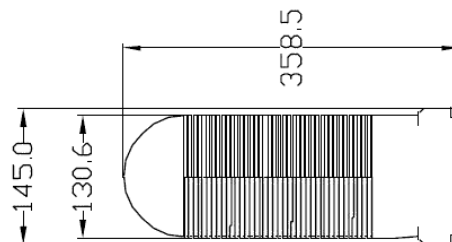**Dimensions**

Front View

Side View

195.0   130.6

Top View

358.5
145.0   130.6

■ For use with Square or circular decorative grilles, ø 125 mm supply/extract grilles and ComfoValve Luna

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**Grille housing Renoventil circular grille housing, connects 1 x ø 80 mm valve to 1 x Zehnder ComfoTube Flat 51, L400 mm**

Article number: 990 322 062

### Description
Renoventil Grille housing Circular grille housing with straight connection. The Renoventil housing is perfect for refurbishments since the Renoventil supply and extract grilles can be located close to the ceiling. The Renoventil grille housing comes complete with locking slide and oval O-ring seal.
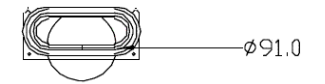
### Technical Specification

| | |
|---|---|
| Height | 91.7 mm |
| Spigot length | 400 mm |
| Width | 148.5 mm |
| Depth | 489 mm |
| Weight | 0.28 kg |
| Material | High-density polyethylene (HDPE) |

**Dimensions**

Front View

ø91.0

Side View

489.0
400.0
90.0   91.7

Top View

148.5   90.0
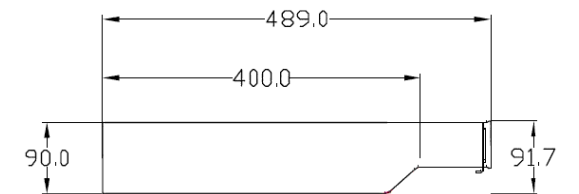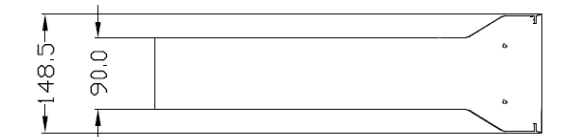
■ For use with Renoventil supply/extract grilles

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**Zehnder ComfoTube Flat 51 manifold cover with ø 160 mm pipe adaptor, for 6 port manifold**

Article number: 990 322 037

### Description
**Pipe adaptor:**
Zehnder ComfoTube Flat 51 manifold cover with ø 160 mm pipe adaptor. The rigid gasket seal connector can be used to connect ø 160 rigid round duct to the Zehnder ComfoTube Flat 51 manifold.

### Technical Specification

| | |
|---|---|
| Height | 38 mm |
| Width | 261 mm |
| Depth | 261 mm |
| Weight | 0.5 kg |
| Material | High-density polyethylene (HDPE) |

**Dimensions**

Top View

261.0
ø154.5   261.0

■ For use with #REF!

**Zehnder ComfoTube Flat 51, cross bracing floor insert for CLF grille housing**
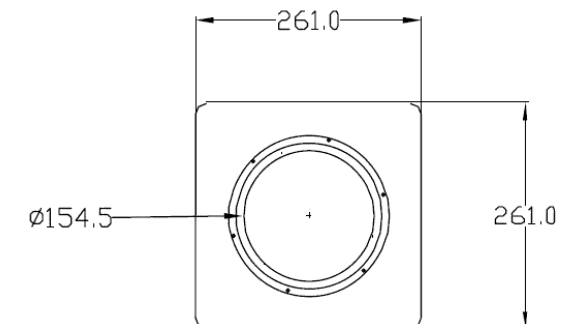
Article number: 990 322 095

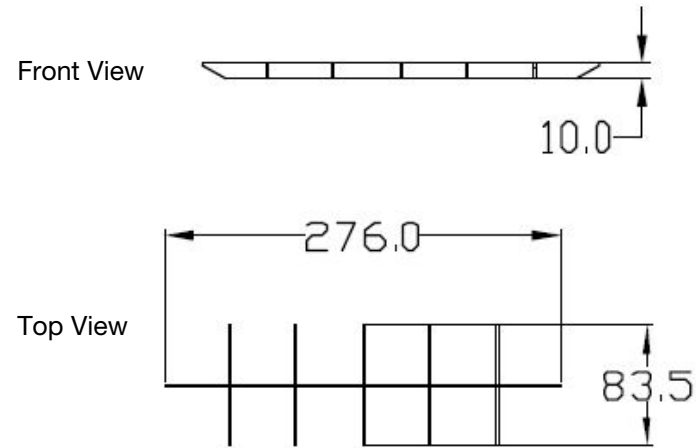### Description
**Cross brace:**
Zehnder ComfoTube Flat 51, cross bracing floor insert for CLF grille housing.  The support is installed behind the 350 x 130 mm rectangular decorative grilles when installed in the floor to ensure strength and rigidity.

### Technical Specification

| | |
|---|---|
| Height | 10 mm |
| Width | 276 mm |
| Depth | 83.5 mm |
| Weight | 1 kg |
| Material | Steel |

**Dimensions**

Front View

10.0

Top View

276.0

83.5

■ For use with Grille housing CLF rectangular grille housing with 90° bend, connects 1 x 350x130 mm grille to 1 x Zehnder ComfoTube Flat 51, L123 mm

**Zehnder ComfoTube Flat 51, end caps, 10 pieces**
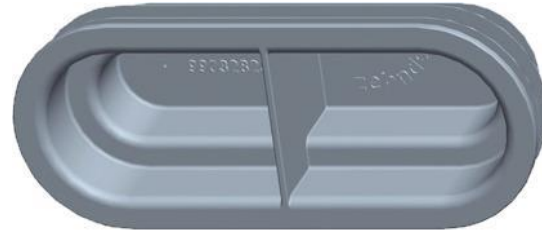
Article number: 990 328 252

### Description
**End caps:**
Zehnder ComfoTube Flat 51 end caps.  The Flat 51 end caps can be placed within their corresponding Zehnder ComfoTube Flat 51 ductwork during the construction phase to prevent dust ingress.  The end caps can  also be placed directly into Flat 51 manifold to seal off any unwanted ports.

### Technical Specification

| | |
|---|---|
| Height | 60 mm |
| Width | 148 mm |
| Depth | 42 mm |
| Weight | 0.037 kg (each) |
| Material | Low-density polypropylene |

**Zehnder ComfoTube Flat 51, O-ring seal, 10 pieces**

Article number: 990 328 352

### Description
**O-ring:**
Zehnder ComfoTube Flat 51 oval O-ring seal.  The oval O-ring is used to ensure an airtight connection is made with pipe connectors, grille housings, manifolds and connecting elements.

### Technical Specification

| | |
|---|---|
| Height | 60 mm |
| Width | 143.4 mm |
| Depth | 4.45 mm |
| Weight | 0.007 kg (each) |
| Material | EPDM (Ethylene Propylene Diene Monomer) |

**Zehnder ComfoTube Flat 51, locking slides, 20 pieces**

Article number: 990 326 022

### Description
**Locking slide:**
Zehnder ComfoTube Flat 51, locking slide.  The locking slide is used to secure the Zehnder ComfoTube Flat 51 ductwork without the need for messy sealants.

### Technical Specification

| | |
|---|---|
| Weight | 0.036 kg (each) |
| Material | Galvanised steel |

**Zehnder ComfoTube Flat 51, adjustable airflow regulator**

Article number: 990 322 015
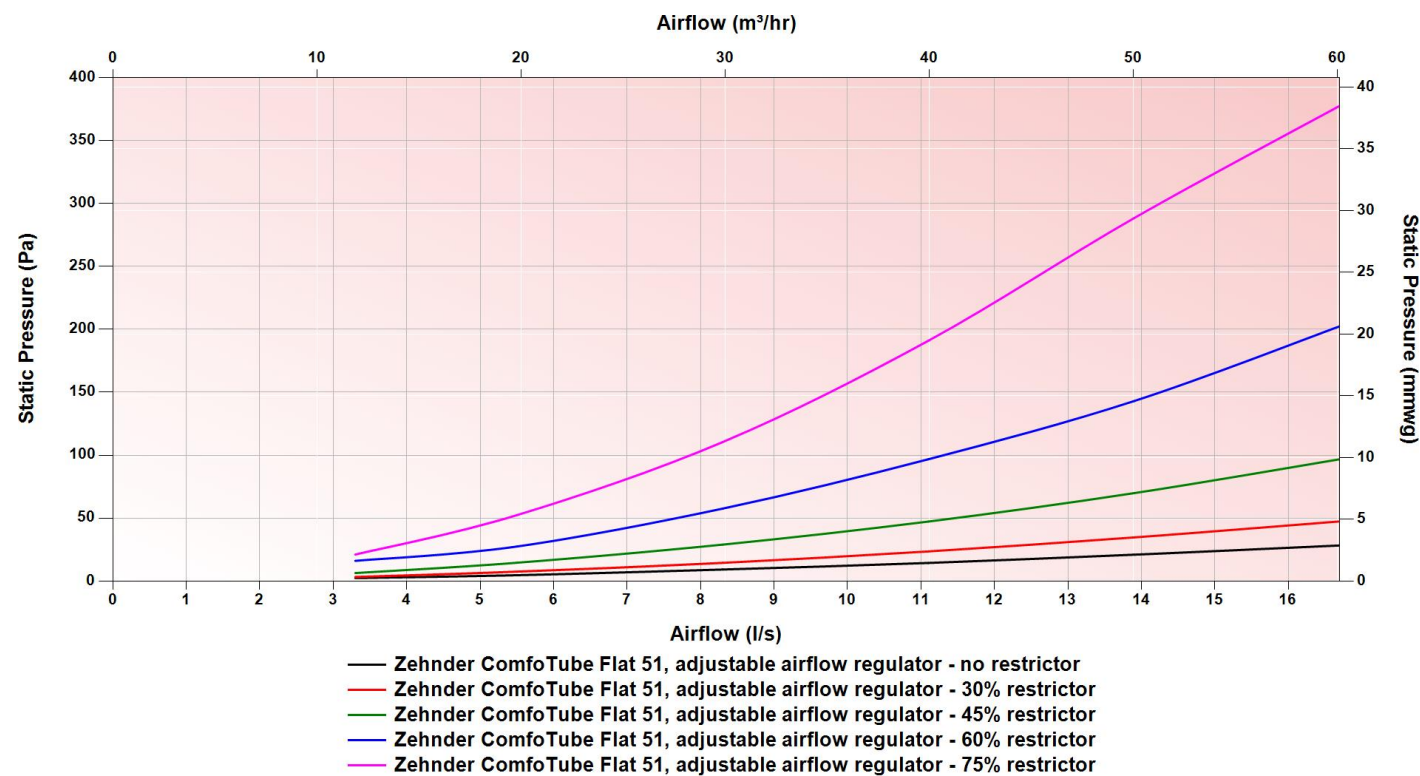
## Description

**Airflow regulator:**

Zehnder ComfoTube Flat 51 adjustable airflow regulator. The airflow regulator has 5 different restriction settings to reduce the air volume silently. The airflow regulator can be used at the manifold or at the grille housing by inserting it into the Flat 51 ductwork.

## Technical Specification

| | |
|---|---|
| Height | 41 mm |
| Width | 129 mm |
| Depth | 75 mm |
| Weight | 0.06 kg |
| Material | Polypropylene |

## Pressure Curve



Zehnder ComfoTube Flat 51, adjustable airflow regulator - no restrictor
Zehnder ComfoTube Flat 51, adjustable airflow regulator - 30% restrictor
Zehnder ComfoTube Flat 51, adjustable airflow regulator - 45% restrictor
Zehnder ComfoTube Flat 51, adjustable airflow regulator - 60% restrictor
Zehnder ComfoTube Flat 51, adjustable airflow regulator - 75% restrictor

**Filter for ø 125 mm extract air valve, ISO Coarse >45% (G3), 10 Pieces**

Article number: 990 320 032

## Description

**Grille housing filter:**

Zehnder filter for ø 125 mm CLRF grille housing. The filter is perfect to remove particles before they enter the ductwork and is quick and easy to install without interfering with the installed parts.

## Technical Specification

| | |
|---|---|
| Length | 165 mm |
| Diameter | 125 mm |
| Height | 15 mm |
| Filter grade | ISO Coarse <45% (G3) |
| Weight | <0.032 kg each |
| Material | Polyester |

■ For use with Square or circular decorative grilles, ø 125 mm supply/extract grilles and ComfoValve Luna valves

**Filter for CLF housing, ISO Coarse >45% (G3), 10 Pieces**

Article number: 990 322 100

## Description

**Grille housing filter:**

Zehnder filter for CLF grille housing. The filter is perfect to remove particles before they enter the ductwork and is quick and easy to install without interfering with the installed parts.

## Technical Specification

| | |
|---|---|
| Height | 15 mm |
| Width | 294.5 mm |
| Depth | 74.5 mm |
| Filter grade | ISO Coarse <45% (G3) |
| Weight | <0.032 kg each |
| Material | Polyester |

■ For use with Rectangular decorative grilles 350 x 130 mm

## Thermal Shield

With ThermalShield by Zehnder you establish a fast reacting system providing freshness in the summer and warmth in the winter.
Our new air distribution components with ThermalShield help reduce temperature loss when transporting tempered air and enables
By using ThermalShield you support the climate system solution in your home to create a comfortable and healthy indoor climate



## For use with

The Zehnder ComfoTube Therm flat 51 insulated ventilation tube impresses with optimum sound and heat insulation properties for the perfect feel-good climate at home. This makes the ComfoTube Therm the ideal solution for the condensation-free transport of warm and cold air. Thanks to high-quality insulation, the temperature-controlled air is passed through the ventilation tube with almost no temperature loss, so that living spaces can be supplied tempered or supplementary heated as required in an energy-efficient manner.  The ideal devices to provide the tempered or heated supply air are the ComfoPost and ComfoClime units from Zehnder.



**TO VIEW OUR COMFOPOST DATASHEET**

**CLICK HERE**

## BIM/CAD Components

If you would like to download the BIM / CAD files for this or any other of our products then please visit our BIM library.

**TO VISIT OUR BIM/CAD LIBRARY**

**CLICK HERE**

## Installation Instructions

If you would like to download the installation files for this or any other of our products then please visit our download page by clicking the link below.

**TO VISIT OUR DOWNLOAD PAGE**

**CLICK HERE**

## Consultant Specification

**Specification**

The insulated semi-rigid ductwork shall be duel wall constructed of high-quality food-grade plastic HDPE/LDPE with cellular rubber insulation to provide a thermal conductivity of at least 0.035 W/mK. It shall have a fire rating in accordance with EN 13501-1 of E. It shall have an operating temperature range of -25 to +60 °C and not be designed to exceed flowrates of 13 l/s.

The ductwork shall have a hygiene certificate and be accredited for use in SAP Appendix Q.

The ductwork shall be manufactured by Zehnder.

ComfoTubeTherm_Flat51_Technical_Specification_2022_V1

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