

# Zehnder ComfoTube

Technical specification for ventilation tube (round tube)



## General

Zehnder ComfoTube meets all the requirements for quick and easy installation. The stable tube (ring stiffness as per DIN EN ISO 9969) is easy to handle, very lightweight and extremely corrosion-resistant. The 100% pure material features a smooth inner surface and optimum tightness, and is also easy to clean. The excellent, tried-and-tested product quality is also indicated by the SKZ seal.



Bend junction 90 to Flat 51



Junction 2x75 to Flat 51



ComfoTube



Click connector



O-rings



End cap



Connecting element



Tube holder



Bend



Junction 90/75 to Flat 51

## Benefits

- The ribbed outer skin makes Zehnder ComfoTube exceptionally flexible and enables safe handling with maximum flexibility.
- The inner skin with its hygienically smooth surface rests perfectly against the outer skin and is designed to be ideal for all technical requirements and conditions.
- Enhanced feel-good climate for the end customer due to the sound-optimised inner skin, which ensures extremely quiet air flow and refrains from generating more noise even when air volumes are larger.

## Technical specifications

Zehnder ComfoTube	Ø 75 mm	Ø 90 mm
Outside diameter	75 mm	90 mm
Inside diameter	63 mm	74 mm
Weight per metre in length	0.33 kg/m	0.46 kg/m
Metres per roll	50 m	50 m
Weight per roll	17 kg	23 kg
Roll height	0.32 m	0.39 m
Roll diameter	1.32	1.42

## Specifications

Data	Description
Material	Polyethylene
Inner skin	PE-LD
Outer skin	PE-HD
Minimum bend radius	1 x D
Permissible operating temperature	-25 °C to +60 °C
Processing temperature range	-5 °C to +60 °C
Ring stiffness in acc. with DIN EN ISO 9969	ComfoTube 75: 9.3 kN/m <sup>2</sup> ComfoTube 90: 7.9 kN/m <sup>2</sup>
<b>Fire behaviour:</b>	
In acc. with DIN 4102-1	Class B2
In acc. with DIN EN 13501-1	Class E

## Article numbers

Zehnder ComfoTube	Ø 75 mm	Ø 90 mm
ComfoTube, 20 m roll	990 328 001	990 328 010
ComfoTube, 50 m roll	990 328 007	990 328 009
ComfoTube, 2 m	990 328 081	990 328 082
ComfoTube, 0.7 m	990 328 071	990 328 072
Click connector	990 328 107	990 328 109
End cap (10-piece)	990 328 262	990 328 263
O-ring seal (10-piece)	990 328 362	990 328 363
Elbow 90 degrees	990 322 152	990 322 153
Tube holder (10-piece)	990 327 200	990 327 201
Cross-piece 75/90	990 322 155	990 322 155

## Description

### Zehnder ComfoTube

Flexible, externally corrugated, internally smooth tube.

Zehnder ComfoTube can be concreted in place or laid in riser shafts and false ceilings.

Do not keep the tube outdoors without using protective film and protect it from direct sunlight.

### Click connectors:

Click connectors for easy connection of Zehnder ComfoTube. The seal is created using two O-rings without any additional adhesive.

### O-rings:

O-ring seals suitable for click connectors, grille housings, connection and joining plates.

### Dust caps:

Dust caps for dust-tight sealing of Zehnder ComfoTube during the entire construction phase.

### Connector:

Two-piece connecting plates to easily lead the ComfoTube ventilation tube through formwork, connected on both sides by means of locking slides, 5-piece with individual detachable elements.

### Tube holder 75 / 90:

Tube holder for simple fastening of Zehnder ComfoTube ventilation tubes. With the integrated stacking function, the tube holder can be used even for multi-layer installation scenarios.

### Cable ties:

7.5 x 360 mm, 100 pieces per packaging unit.

The ComfoTube are attached to the lower reinforcement every 50 cm using cable ties.

### Bend:

Bend for tight bending of ComfoTube ventilation tubes. The bend can be shortened, and can therefore be used both in the pipeline and directly with the mounting plate. Delivery includes locking slides and O-rings.

### Junctions:

Junctions for combining Zehnder ComfoTube 75 or 90 round cross sections with the Zehnder ComfoTube flat 51 ventilation tube. Delivery includes locking slides and O-rings.

### Cross-piece 75 / 90:

Cross-piece for easy intersection of ComfoTube 75 and ComfoTube 90 ventilation tubes without the need for additional space in terms of installation height. The cross-piece is suitable for use in concrete. Delivery includes locking slides and O-rings.

## Volume flow

Zehnder ComfoTube	Ø 75 mm	Ø 90 mm
Inside diameter	63 mm	74 mm
Air velocity: 0.5 m/s	5.6 m <sup>3</sup> /h	7.7 m <sup>3</sup> /h
Air velocity: 1.0 m/s	11.2 m <sup>3</sup> /h	15.5 m <sup>3</sup> /h
Air velocity: 1.5 m/s	16.8 m <sup>3</sup> /h	23.2 m <sup>3</sup> /h
Air velocity: 2.0 m/s	22.4 m <sup>3</sup> /h	31.0 m <sup>3</sup> /h
<b>Air velocity: 2.5 m/s*</b>	<b>28.1 m<sup>3</sup>/h</b>	<b>38.7 m<sup>3</sup>/h</b>
Air velocity: 3.0 m/s	33.7 m <sup>3</sup> /h	46.4 m <sup>3</sup> /h
Air velocity: 4.0 m/s	44.9 m <sup>3</sup> /h	61.9 m <sup>3</sup> /h
Air velocity: 5.0 m/s	56.1 m <sup>3</sup> /h	77.4 m <sup>3</sup> /h

\* Recommended maximum volume flow at nominal ventilation

## Heat and temperature loss

(Zehnder ComfoTube 75 to 90 in concrete)

### Assumptions:

- Mean temperature below the cellar ceiling or in the ground: 10 °C
- Thermal conductivity of the insulating hose: 0.05 W/mK

The temperature loss per metre of tube is twice as high at half the air flow.

ComfoTube nominal size	Ø 75 mm	Ø 90 mm
Nominal air volume (m <sup>3</sup> /h)	30	50
Air speed (m/s)	2.7	3.2

Tube wrapped in foil	Ø 75 mm	Ø 90 mm
Heat loss from 1 m tube (Δt 12 K) (W)	13.5	14
Temperature loss of 1 m of tube at nominal air volume (Δt 12 K) (°K)	1.3	0.8

Tube wrapped in 12 mm thick insulating hose	Ø 75 mm	Ø 90 mm
Heat loss from 1 m tube (Δt 12 K) (W)	6.5	7
Temperature loss of 1 m of tube at nominal air volume (Δt 12 K) (°K)	0.65	0.43

Caution: If installed in cold areas or outside the thermal building fabric, the tubes must be insulated according to the requirements of DIN 1946-6. Installation inside the thermal building fabric is preferable to installation in cold areas.

## Sound insulation of ComfoTube

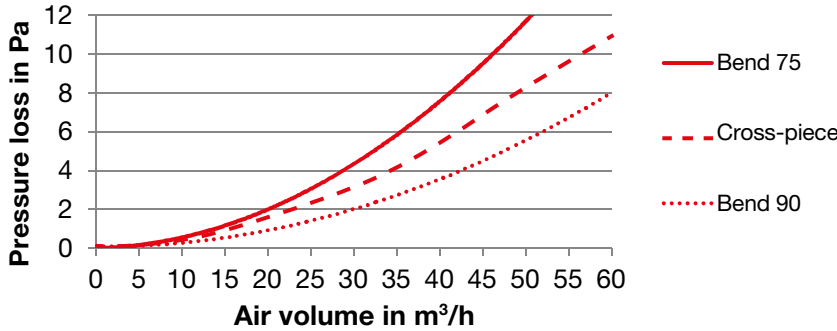
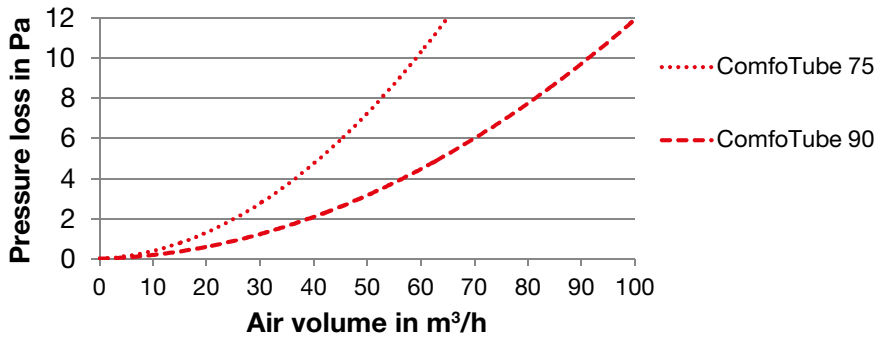
Octave range (Hz)	125	250	500	1 000	2 000	4 000
Attenuation of 1 m of ComfoTube 75 (dB)	0.4	0.6	0.4	0.2	0.3	1.0
Attenuation of 1 m of ComfoTube 90 (dB)	0.4	0.5	0.3	0.3	0.4	0.7

## Buoyancy of ComfoTube in concrete

If the tubes are installed with an insulating hose, the buoyancy is increased due to the extra volume.

ComfoTube nominal size	75	90
Buoyancy in concrete (N/m)	80	130
Buoyancy in concrete with 12 mm insulating hose (N/m)	150	200

### Pressure loss graphs



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