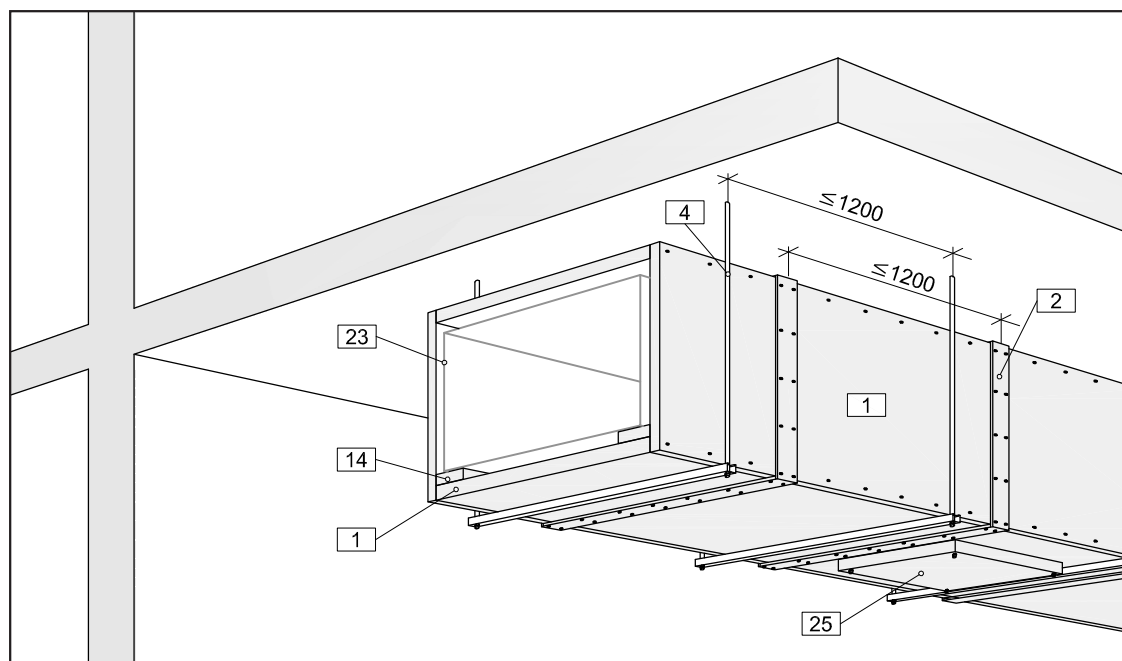


VENTILATION DUCT with internal sheet steel duct EI 90-S

Fire Protection



DESIGN DESCRIPTION

Single layer, 4-sided ventilation duct as fire protection lining of ventilation ducts made of sheet steel with a fire resistance of 90 min.

Made of fire protection boards **THERMAX SL**, 45 mm, butt jointed and glued. Connections are screwed or stapled.

The board joints of the duct segments should be covered with **THERMAX A** cover strips, glued and screwed or stapled.

Horizontal ventilation ducts are supported on traverses, which are suspended by threaded rods (tensile stress $\leq 6 \text{ N/mm}^2$ and shearing stress $\leq 10 \text{ N/mm}^2$). The attachment to solid floors are done with approved dowels with fire protection technical suitability certificate.

Threaded rods with a length over 1,50 m have to be protected using **THERMAX SL**.

The internal sheet steel duct in the ventilation duct is supported above the traverse on **THER-MAX SL** inlay strips, $t \geq 45 \text{ mm}$, $l \geq 150 \text{ mm}$, $w \geq 50 \text{ mm}$. The distance between the inlay strip and the sheet steel flansch of $\geq 100 \text{ mm}$ must be maintained.

Vertical ventilation ducts are settled at each storey max. every 5 m on solid floors.

At the penetration of solid building constructions with at least the same fire resistance as the ventilation duct, the remaining opening of $10 \leq E \leq 40$ mm has to be sealed with mineral wool (non combustible, melting point $\geq 1000^{\circ}\text{C}$) and covered on both sides with an L-shaped angle made of two composite **THERMAX SL** board strips, $t \geq 45$ mm, $w \geq 150$ mm.

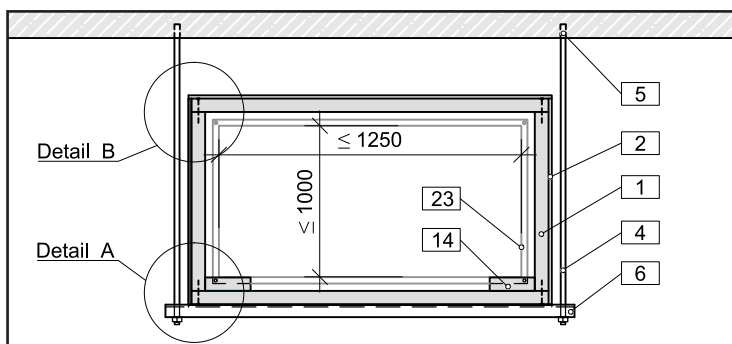
MATERIAL:

- **Fire protection boards THERMAX SL**
th = 45 mm
- **Cover strip THERMAX A**
th ≥ 10 mm, w ≥ 100 mm
- **Fire protection glue THERMAX Brand-schutzkleber**

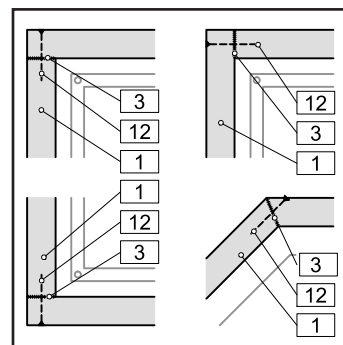
GENERAL INFORMATION:

- Classification: EI 90 (ve ho i ↔ o) -S
- 4-sided lining of sheet steel ventilation ducts made of **THERMAX SL**
- max. internal duct section:
 $\leq 1250 \times 1000$ (W x H) of the sheet steel duct
- Operating pressure: ± 500 Pa (sheet steel duct without tightness requirement)
- Access opening $\leq 500 \times 400$ mm in the board lining

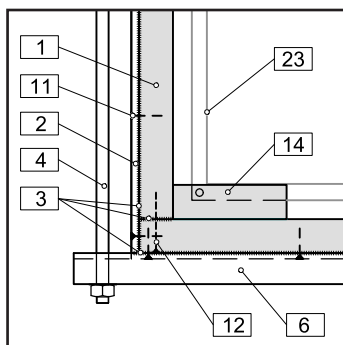
DESIGN DETAILS



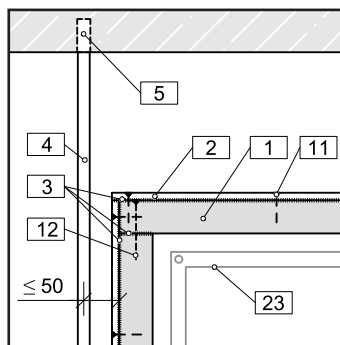
[1] Cross-section horizontal ventilation duct



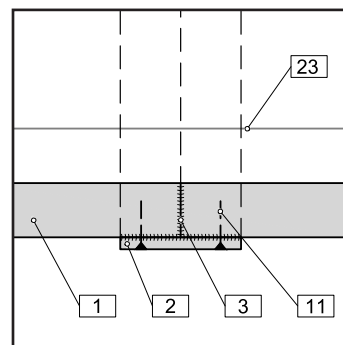
[2] Corner connection



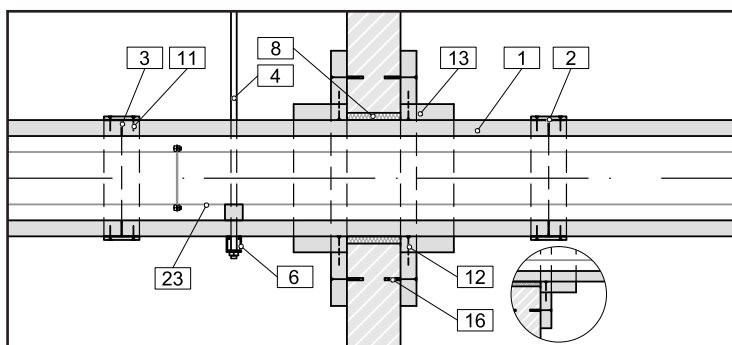
[3] Detail A: Corner design bottom



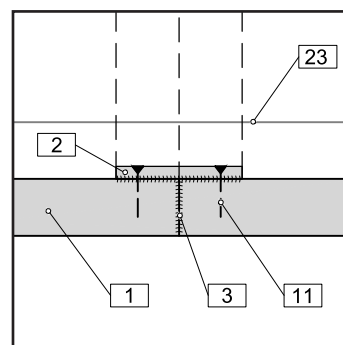
[4] Detail B: Corner design above



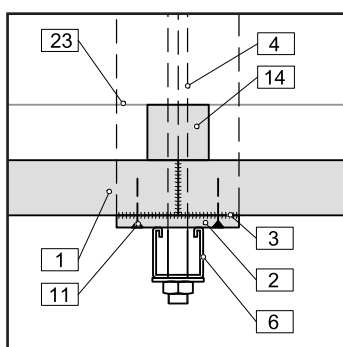
[5] Detail C: Cover strip horizontal outside



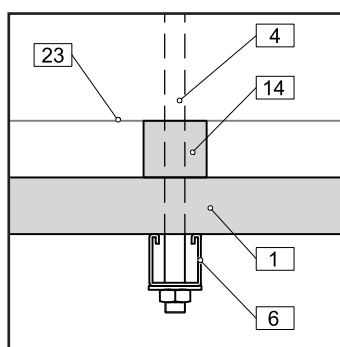
[6] Wall penetration



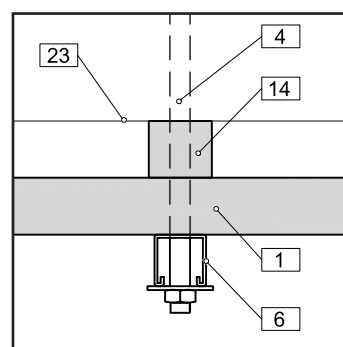
[7] Detail C: Cover strip horizontal inside



[8] Suspension at butt joint



[9] Suspension Var. 1



[10] Suspension Var. 2

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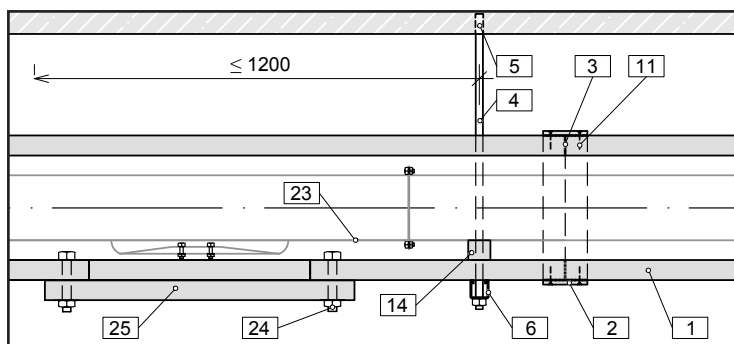
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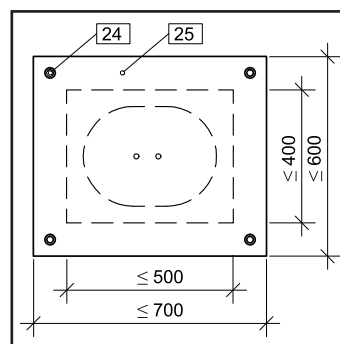
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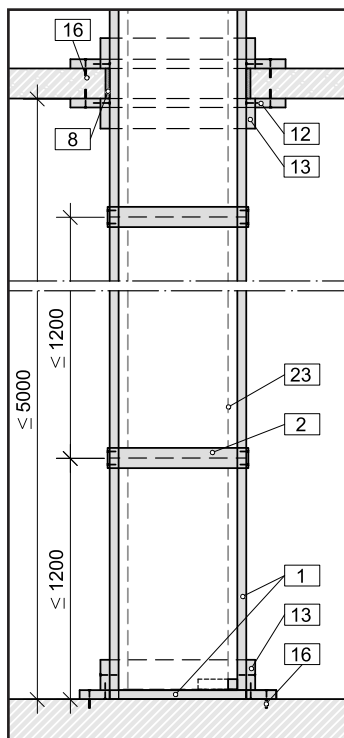
DESIGN DETAILS



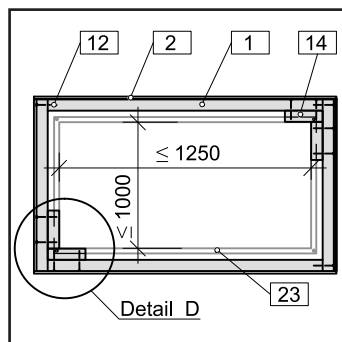
[11] Horizontal ventilation duct with access opening



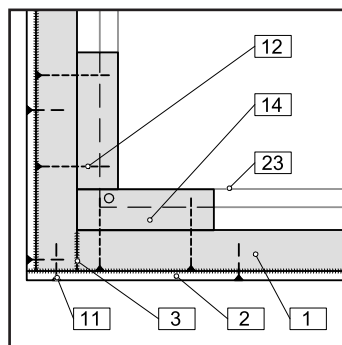
[12] Access opening



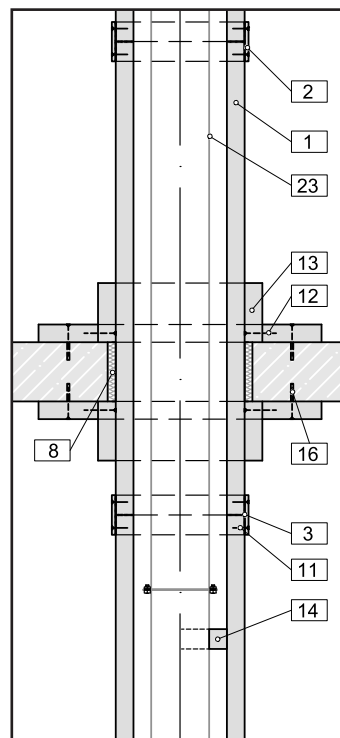
[13] Vertical ventilation duct



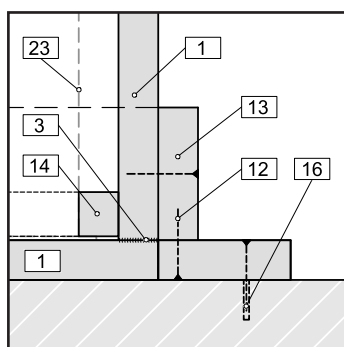
[14] Cross-section vertical ventilation duct



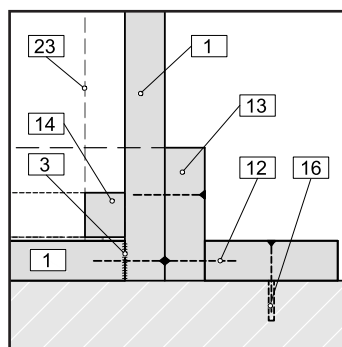
[15] Detail D: Corner design vertical



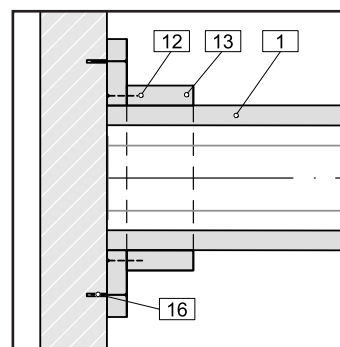
[16] Ceiling penetration



[17] Floor connection



[18] Floor connection, Var. 1



[19] Wall connection

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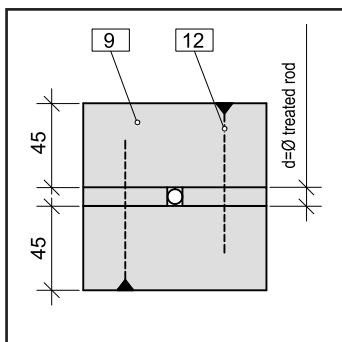
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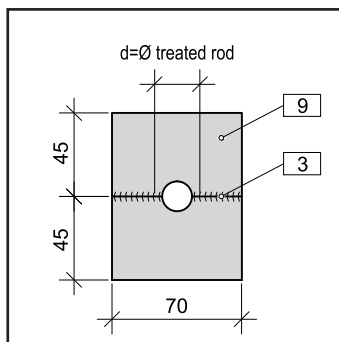
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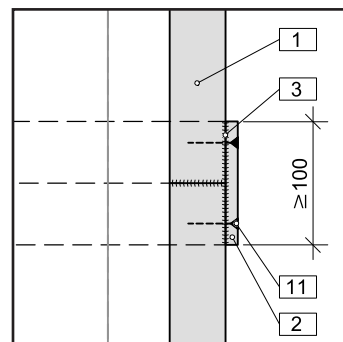
DESIGN DETAILS



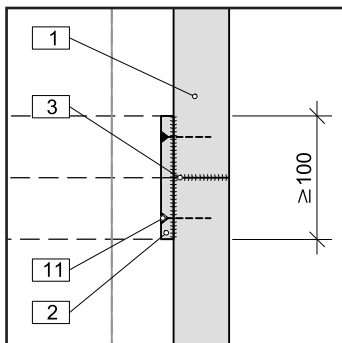
[20] Threaded rod protection



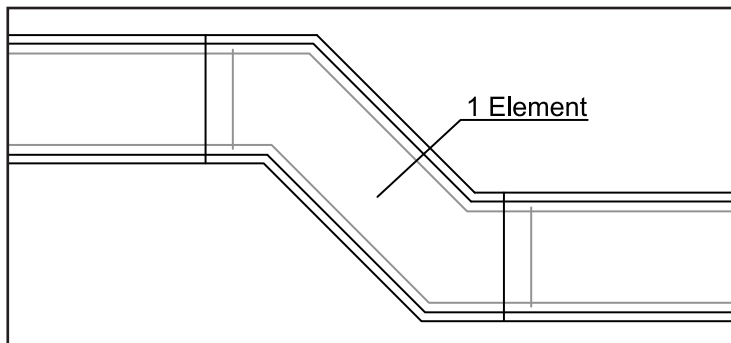
[21] Threaded rod protection, Var. 1



[22] Cover strip vertical outside



[23] Cover strip vertical inside



[24] Principal design

MATERIAL LIST

- | | | |
|---|--|--|
| <p>1 THERMAX SL
fire protection board th = 45 mm</p> <p>2 Cover strip
THERMAX A
th ≥ 10 mm, w ≥ 100 mm
glued and screwed or stapled</p> <p>3 THERMAX Brandschutzkleber
fire protection glue</p> <p>4 Threaded rod ≥ M8 with
nut and washer tensile
stress ≤ 6 N/mm² and
shearing stress ≤ 10 N/mm²
acc. to static calculation</p> <p>5 Metal dowel/steel expansion
dowel ≥ 8 mm (with fire protection
technical suitability approval)
acc. to static calculation</p> <p>6 Mounting rails/traverse as
suspension device,
distance ≤ 1200 mm, e.g.
Würth Varifix-mounting rail
≥ 41/41/2,5 mm or
statically equivalent</p> <p>8 Mineral wool A1,
melting point ≥ 1000°C,
density ≥ 50 kg/m³,
gap 10 mm ≤ E ≤ 40 mm</p> | <p>9 THERMAX SL
threaded rod protection at height
of hangers > 1500 mm</p> <p>11 Steel wire staples or
drywall-/chipboardscrews for
cover strips 38/10/1 mm,
distance ≤ 100 mm
or 4 x 40 mm,
distance ≤ 200 mm</p> <p>12 Steel wire staples or
drywall-/chipboardscrews
80/11,2/1,2 mm,
distance ≤ 100 mm
or 5 x 80 mm,
distance ≤ 200 mm</p> <p>13 THERMAX SL
board strips th = 45 mm,
w ≥ 150 mm</p> <p>14 THERMAX SL
board strips th = 45 mm, w ≥ 50
mm, l ≥ 150 mm (Inlay-/ backing strip for
support of the sheet steel duct)</p> <p>16 Steel expansion dowel ≥ M6,
distance ≤ 250 mm
(with fire protection technical suitability
approval)</p> <p>23 Sheet steel duct th ≥ 0,9 mm
(acc. to EN 1507 or EN 12237)</p> | <p>24 Threaded rod/stud ≥ M8 with
nut and washer (for closing the access
opening)</p> <p>25 Access opening
400 x 300 mm (in the sheet steel duct)
500 x 400 mm (in the board lining)</p> |
|---|--|--|

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