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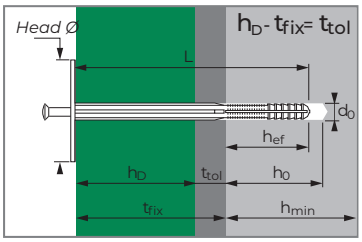
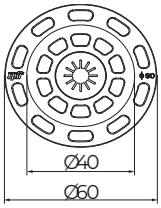
# Expanding insulation anchors for fixing all rigid or flexible insulation




## APPLICATION

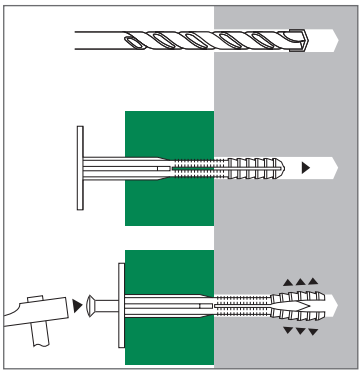
Fixing of rigid insulation onto solid materials. Internal and external insulation boards.

## MATERIAL

Anchor body: polypropylene(1)
Expansion nail:glass-fibre reinforced polyamid 6* (2)
Temperature range in use: -30°C to +80°C

(1) Caution: the anchor must be protected from UV rays by a screen (rendering, panelling, etc.)

## INSTALLATION



## Spacing data

### IN CONCRETE

Minimum distance between anchors and from edges & minimum thickness of concrete (mm)

| $S_{min}$ | $C_{min}$ | $h_{min}$ |
|---|---|---|
| 100 | 100 | 100 |

## Technical data

| Anchor size | Anchor depth | Insulation thickness | Drilling depth | Drilling diameter | Total anchor lenght (mm) |
|---|---|---|---|---|---|
| | (mm) | (mm) | (mm) | (mm) | (mm) |
| | **$h_{ef}$** | **$t_{fix}$** | **$h_0$** | **$d_0$** | **L** |
| U10x100 | 40 | 60 | 50 | 10 | 100 |
| U10x120 | | 80 | | 10 | 120 |
| U10x140 | | 100 | | 10 | 140 |
| U10x160 | | 120 | | 10 | 160 |

## Characteristic resistance ($N_{Rk}$) in kN

### TENSILE

| Base material \ Anchor size | 10X60/10-30 | 10X95/45-65→ 10X235/195-205 |
|---|---|---|
| Concrete (C15/20) | | |
| $N_{Rk}$ | 0,2 | 0,6 |
| Concrete (C20/25 to C50/60) | | |
| $N_{Rk}$ | 0,3 | 0,75 |
| Clay bricks (fc = 55 Mpa, bending test: 4,7 55 N/mm²) | | |
| $N_{Rk}$ | 0,3 | 0,75 |
| Hollow concrete blocks not rendered (fc = 12,5 N/mm²) | | |
| $N_{Rk}$ | 0,15 | 0,3 |
| Hollow clay bricks type Eco-30 not rendered (fc = 5,9 N/mm²) | | |
| $N_{Rk}$ | 0,1 | 0,4 |

## Design loads ($N_{Rd}$) and recommended loads ($N_{rec}$) for one anchor without edge or spacing influence in kN

$$N_{Rd} = \frac{N_{Rk}^{(1)}}{\gamma_M}$$

(1) Issue from ETA

$$N_{rec} = \frac{N_{Rk}^{(1)}}{\gamma_M \cdot \gamma_F}$$

### TENSILE

| Base material \ Anchor size | 10X60/10-30 | 10X95/45-65 →10X235/195-205 |
|---|---|---|
| Concrete (C15/20) | | |
| $N_{Rd}$ | 0,10 | 0,30 |
| $N_{rec}$ | 0,07 | 0,21 |
| Concrete(C20/25 to C50/60) | | |
| $N_{Rd}$ | 0,15 | 0,375 |
| $N_{rec}$ | 0,11 | 0,27 |
| Clay bricks (fc = 55 Mpa, bending test: 4,7 N/mm²) | | |
| $N_{Rd}$ | 0,15 | 0,375 |
| $N_{rec}$ | 0,11 | 0,27 |
| Hollow concrete blocks not rendered (fc = 12,5 N/mm²) | | |
| $N_{Rd}$ | 0,075 | 0,15 |
| $N_{rec}$ | 0,05 | 0,10 |
| Hollow clay bricks type Eco-30 not rendered (fc = 5,9 N/mm²) | | |
| $N_{Rd}$ | 0,05 | 0,20 |
| $N_{rec}$ | 0,035 | 0,14 |

$\gamma_M = 2$ ; $\gamma_F = 1,4$

## Characteristic resistance according to the technical reports TR025 and TR026

### Thermal transmittance

| Insulation thickness ($h_D$) mm | Thermal transmittance (X) (W/K) |
|---|---|
| <120 | 0,001 |
| 120 | 0,000 |

### Plate stiffness

| Head Ø | Plate Resistance (kN) | Plate stiffness (kN/mm) |
|---|---|---|
| 60 | 1,00 | 0,5 |