

## Type ES and EL thermal insulation boards

### Application

The Frinorm type ES and EL thermal insulation boards are suited for insertion in ceiling formwork in underground car parks, garages and basements in single and multi-family houses as well as in commercial, industrial, agricultural and public buildings.

### Properties

- Outstanding thermal insulation values of up to  $0.16 \text{ W/m}^2\text{K}$
- Element thicknesses of up to 185 mm can be produced
- Light-coloured fibre cement board as cover panel, water-resistant, impact-resistant and non-combustible
- Rot-resistant, resistant to vermin and mould
- Dimensionally stable and non-warping
- No thermal bridges, perfect board joins
- Washable, can be cleaned with a high-pressure cleaner
- Light-coloured, appealing bottom view
- Handy format, lightweight
- Uncomplicated and fast installation

### Product description

The Frinorm thermal insulation board type E, tried and tested since 1978, today called type ES and EL, has excellent thermal insulation properties. It is available in two different designs:

type ES is made of expanded rigid polystyrene foam (EPS),

$15 \text{ kg/m}^3$ , while type EL consists of expanded rigid polystyrene foam with graphite additive (EPS lambda),  $20 \text{ kg/m}^3$ . Both thermal insulation boards are covered with a light-coloured, 5 mm thick cement grey fibre cement board, which is not only water- and impact-resistant, but also non-combustible. The dovetail grooves in the surface of the thermal insulation ensure that the thermal insulation boards adhere to the concrete so that additional fastening material is not required. The appealing, light-coloured cement grey bottom surface can be left untreated or coated with dispersion paint.

### Materials of type ES

Cover panel: fibre cement board, 5 mm

Thermal insulation: expanded rigid polystyrene foam (EPS),  $15 \text{ kg/m}^3$ , 50–180 mm

Bonding: water-resistant D3 (EN 204-D3)

### Materials of type EL

Cover panel: fibre cement board, 5 mm

Thermal insulation: expanded rigid polystyrene foam with graphite additive (EPS lambda),  $20 \text{ kg/m}^3$ , 50–180 mm

Bonding: water-resistant D3 (EN 204-D3)

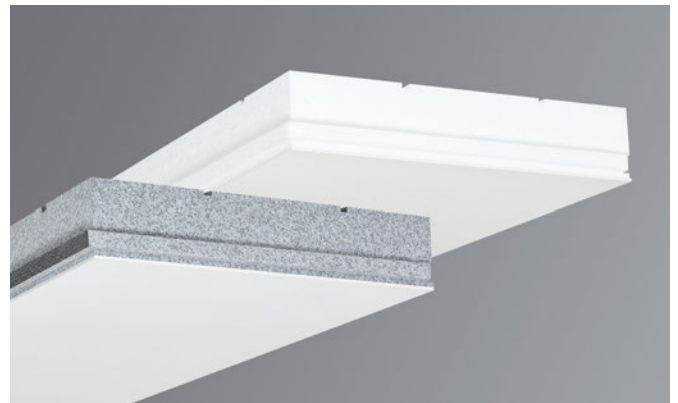
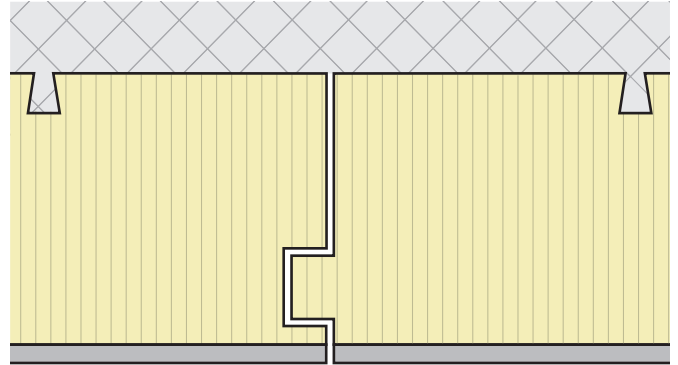
### Surface

The light-coloured, cement grey surface can be left untreated or coated with dispersion paint.

The surface is washable and can be cleaned with a high-pressure cleaner.

### Edge milling

- Dovetail grooves in the surface of the thermal insulation for anchoring in the concrete
- Circumferential groove and tongue joint in the thermal insulation



## Dimensions

Format: 1180 × 610 mm (0.719 m<sup>2</sup>)

Thicknesses: 55, 65, 75, 85, 95, 105, 115, 125, 135, 145, 155, 165, 175, 185 mm

### Thermal transmittance coefficients of type ES (U-values)

Element thickness	mm	55	65	75	85	95	105	115
U-value	W/m <sup>2</sup> K	0.667	0.567	0.494	0.437	0.392	0.355	0.325

Element thickness	mm	125	135	145	155	165	175	185
U-value	W/m <sup>2</sup> K	0.299	0.277	0.259	0.242	0.228	0.215	0.203

### Thermal transmittance coefficients of type EL (U-values)

Element thickness	mm	55	65	75	85	95	105	115
U-value	W/m <sup>2</sup> K	0.540	0.458	0.397	0.351	0.314	0.284	0.260

Element thickness	mm	125	135	145	155	165	175	185
U-value	W/m <sup>2</sup> K	0.239	0.221	0.206	0.193	0.181	0.171	0.162

## Delivery

Delivery of exact quantity on single-use pallets wrapped with stretch film

## Consultation

For more information please refer to the technical data sheets.

Our technical consultants are at your service for all questions.

