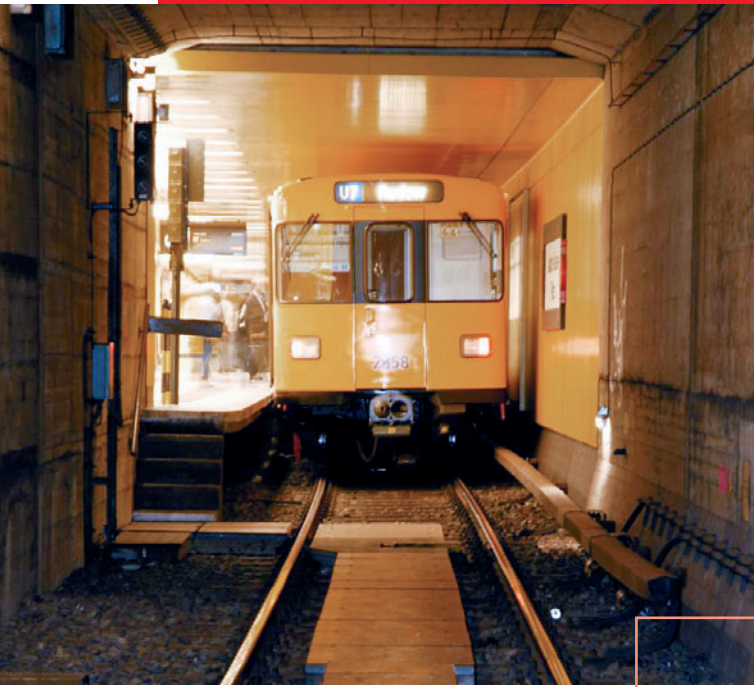


aestuver

Safe escape and rescue routes

in underground transport
systems



- AESTUVER D+2 fire-resistant element
- AESTUVER fire-resistant board
- AESTUVER fire-resistant cable ducts



In underground transport systems, fire safety is of vital importance. Fire-resistant boards and elements from AESTUVER meet the high standards required for preventive fire engineering concepts.

They are made from glass-fibre reinforced concrete. The special production method gives these boards excellent water and frost resistance, in addition other distinct advantages.

xella

For escape and rescue routes

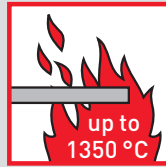
AESTUVER D+2 fire-resistant element

The walk-on AESTUVER D+2 fire-resistant element is designed for dynamic loads and is used as covering for concrete troughs or to replace walk-on timber sleepers between rails.

The following finishes are available upon request:

- anti-slip finish
- afterglow finish.

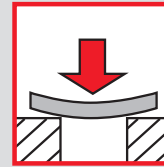
Convincing features



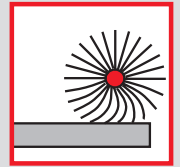
Non-combustible



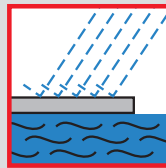
High compressive strength



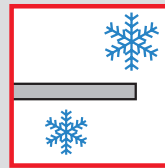
High tensile bending strength



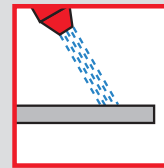
High abrasion resistance



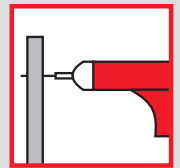
Water-resistant



Frost-resistant



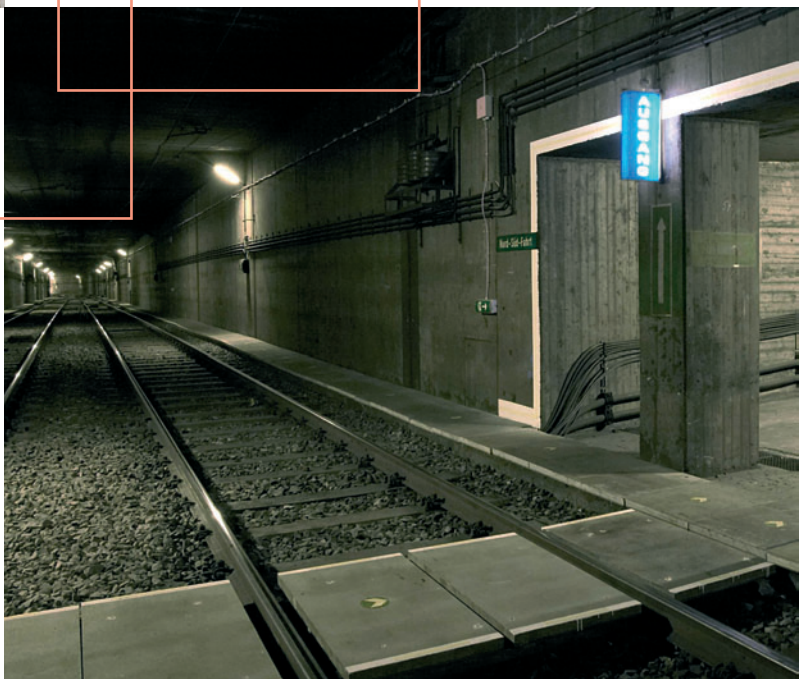
Easy to clean



Easy processing



Concrete trough covering;
Nuremberg underground



Escape route and track crossing;
Cologne underground

The glass-fibre light-weight concrete makes the element a light-weight solution, providing for easy and quick installation and inspection. It can easily be cut to size as required on site.



**Special solution:
concrete trough covering;
Munich underground**



**Service alley;
Fürth underground**



**Timber sleeper
covering, Berlin
underground**

As protection for safety installations

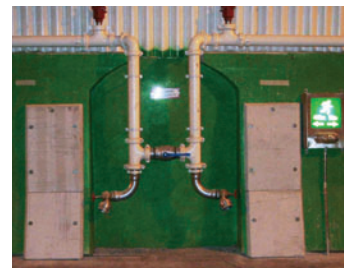
AESTUVER fire-resistant boards

AESTUVER fire-resistant boards protect vital safety installations in underground transport systems, e.g. distribution boxes, switchgear cubicles, emergency telephone niches. The boards may also come with stainless-steel protection. This provides for slender elements with F 90-A fire resistance.

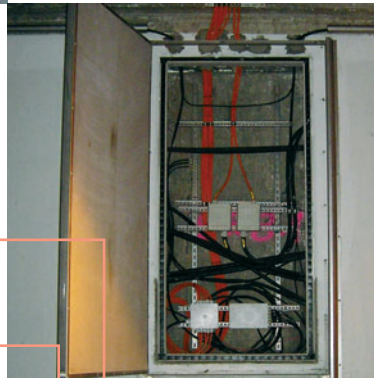
Smoke extraction ceiling



F 90-A shaft-wall system



Casing



Recess covers for distribution boxes

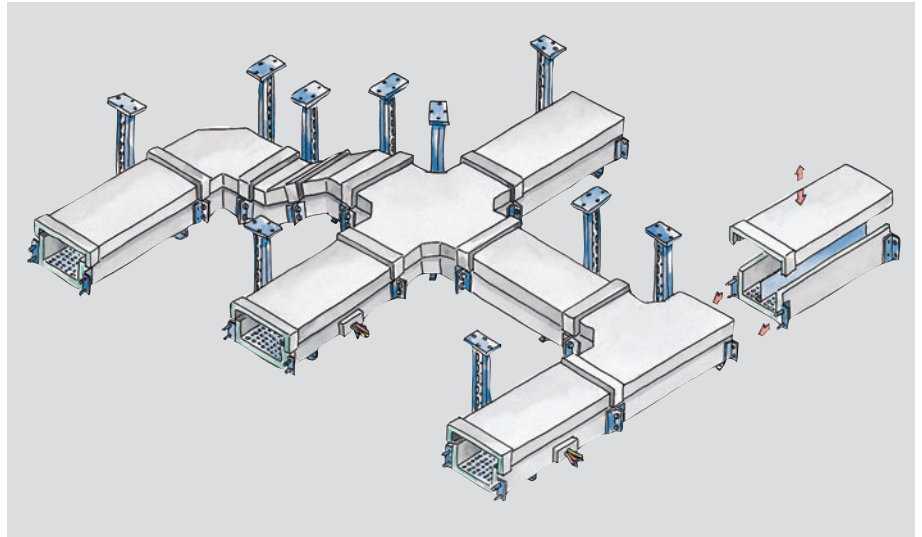
Additional applications and solutions:

- Smoke extraction ceiling
- Steel structures
- Casings
- Protection of structural concrete

For fire encapsulation and protection of electrical installations

AESTUVER fire-resistant cable ducts

The ready-to-install AESTUVER fire-resistant cable ducts protect electrical installations in a fire and thus help maintain their vital function for safe underground transport systems. The development of toxic gases or smoke can thus also be prevented.



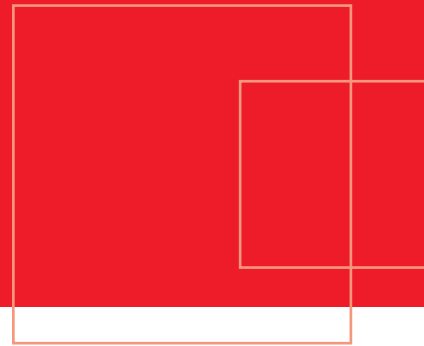
Ready-to-install duct elements, easy inspection, quick reinstallation of cables, because covers can be removed

The cable ducts come as fire-resistant class I 30 to I 120 and E 30 to E 120 versions



Walk-on fire-resistant E 90 cable ducts

Specifications AESTUVER D+2 fire- resistant element



Properties	
Material	Glass-fibre reinforced light-weight concrete, water- and frost-resistant
Building material class	Non-combustible in compliance with DIN EN 13501-1
Fire resistance class	Fire resistance classes I 90 and E 90 can be achieved; complete system to be checked on an individual basis. Coats up to 0.5 mm thick will not affect the fire-resistance time.
Board thickness	52,5 mm ± 2 mm
Equilibrium moisture (20 °C, 65 % RH)	approx. 7 wt %
Moisture absorption (20 °C, 65 % RH)	≤ 5 wt %
Length / width tolerance	± 1 mm
Alcalinity (pH value)	approx. 12
Pest and mould infestation	AESTUVER fire-resistant boards and elements do not rot or mould, and they are not susceptible to attack by pests
Anti-slip rating (based on BGR 181 and DIN 51130) ¹⁾	R10 for standard element (without coating) R13 when element surface is coated with suitable epoxy-resin-based coating system
Maximum permissible live load	Span = 60 cm 12.5 kN/m ² Span = 80 cm 7.0 kN/m ² Span = 95 cm 5.0 kN/m ² Span = 100 cm 4.5 kN/m ² Span = 125 cm 2.8 kN/m ²
Maximum permissible dynamic load ²⁾	Span = 100 cm; jump height 82 cm Test person = 100 kg

¹⁾ Test certificate of BGIA, 200623 753/3210

²⁾ Assessment report of MFPA Leipzig, UB III/B-06-014

AESTUVER D+2 fire-resistant element: weights and dimensions

Board thickness (mm)	Standard size (mm) ³⁾	Element weight kg/m ² at equilibrium moisture
approx. 52.5	W: max. 1,250 x L: approx. 625	approx. 47

³⁾ Tailored sizes and dimensions upon request

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