DATA SHEET

FIXCEL® Metal Core Panel

Load bearing structure with exceptional rigidity and low nominal weight

FIXCEL®

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Description

FIXCEL® metal core panel provides a functional structure for constructions that require both horizontal and vertical rigidity. It is manufactured using triple seam rolling technology to join metal profiles together, thus forming a load bearing structure in the required width and length.

The FIXCEL® metal core panels can be made of hot-galvanised steel, stainless steel, carbon steel, copper, aluminium or marine aluminium.

Applications include, among others, modular multi-storey houses, floating buildings, elevator shafts, shipbuilding and pontoons. The metal panels are custom designed to the requirements of each application, including the necessary calculations.

Benefits

- **Extremely lightweight**
  - 17–40 kg per m²
- **High vertical load bearing capacity**
  - Even 19 tons/m
- **Energy efficient and hermetically sealed**
  - Good energy efficiency, < 100 kWh/brm²/year
  - Air leakage even 0.4 1/h
  - Possibility to use several insulation materials including eps, mineral wool and polyurethane
- **Corrosion resistant**
  - Hot-galvanized, no welds
- **Good sound insulation**
  - The measured sound reduction
    - R´w >_ 55 dB
  - The measured impact sound
    - L´nw <_53 dB
- **Fire-proof**
  - Load bearing double cell wall construction: REI 60
  - Load bearing double cell element floor: REI 60
    (R = Load bearing capacity, E = Integrity, I = Insulation)
- **Earthquake resistant**
  - Analysis made using FE method. Loads defined according to Unicode Building Code (UBC) 1997.
- **Mildew-free**
  - Non-organic material
- **100% recyclable**

Figure 1. FIXCEL® metal core panel made of steel

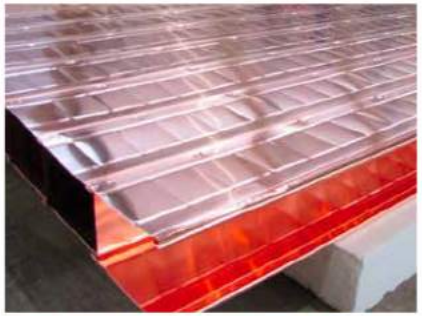

Figure 2. FIXCEL® metal core panel made of copper

Please note that some of the values are valid for combination structures, e.g. FIXCEL panel with insulation on the external wall or gypsum board on the internal wall.

Technical data

Dimensions

Depth of the metal panel: 70 mm, 100 mm, 150 mm, 200 mm or 300 mm

Web space: 100 mm, 150 mm, 200 mm, 250 mm, 300 mm

Thickness of the metal sheet: 0.7mm, 1.0 mm, 1.1 mm, 1.2 mm, 1.5 mm

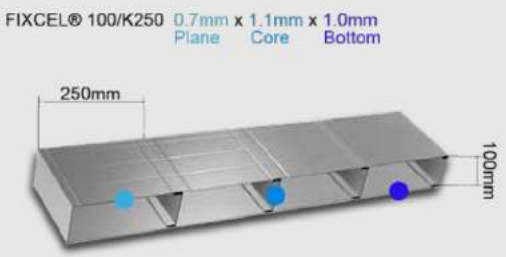

Figure 3. Example of FIXCEL® metal core panel dimensions

Span

Span with different FIXCEL panel types

		Span [m] by displacement L/300	FIXCEL weight [kg/m²]
FIXCEL®	150/ k150 0.7*0.7*0.7	5.05	18
FIXCEL®	200/ k150 0.7*1.0*0.7	7.1	23
FIXCEL®	200/ k100 0.7*1.0*0.7	7.6	30

Loading: Self weight, Surface structure 0.4 kN/m², Live load 2.0 kN/m²

The denser the web space, the more solid panel structure can be achieved.

Standards

SFS-EN 1990: 2002, Eurocode: Basis of structural design

SFS-EN 1993-1-1:2005, Eurocode 3: Design of steel structures. Part 1-1 General rules and rules for buildings

SFS-EN 1993-1-3: 2006, Eurocode 3: Design of steel structures. Part 1-3: General rules. Supplementary rules for cold-formed members and sheeting.

SFS-EN 1993-1-5:2006, Eurocode 3: The planning of steel structures. Part 1-5: Plated structural elements.

Figure 4. FIXCEL® material used in multi-storey office building, transported to its final destination by sea.

Fire resistance

The fire resistance tests are performed according to the following standards:

SFS-EN 1365-1: 1999, Fire resistance tests for load bearing elements – Part 1: Walls

SFS-EN 1365-2: 2000, Fire resistance tests for load bearing elements – Part 2: Floors and roofs

SFS-EN 1365-6: 2002, Fire resistance tests for load bearing elements – Part 6: Stairs

Figure 5. FIXCEL® material used for retrofitted elevator shafts