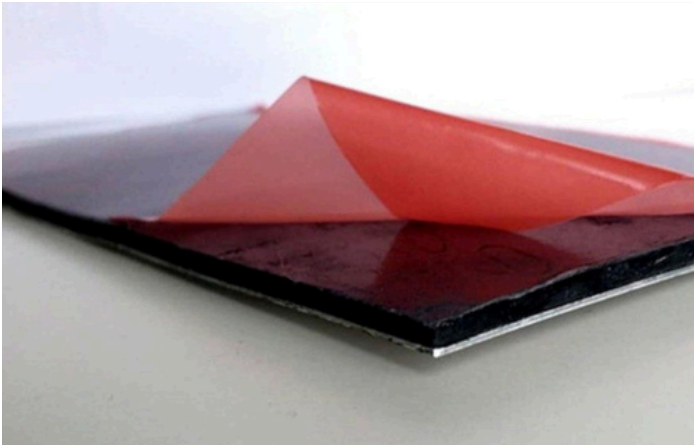




## InnoDamp Tile™

### FA / FS

#### Constrained Layer Vibration Damping Tiles

#### DESCRIPTION

InnoDamp Tile™ is a high-performance constrained layer vibration damping system engineered to control structure-borne noise and resonant vibration in lightweight and heavy-gauge metal panels.

The system consists of a metal constraining layer (aluminium for FA, steel for FS) permanently bonded to a high-loss viscoelastic damping core, forming a mechanically optimized composite.

InnoDamp Tile converts bending strain energy into shear deformation within the viscoelastic layer, dissipating vibrational energy as heat and significantly reducing radiated noise.

Unlike mass-loaded sound deadeners, InnoDamp Tile achieves damping without relying on added mass, preserving structural efficiency while delivering consistent broadband vibration control.

### PRODUCT VARIANTS

- **InnoDamp Tile FA**

Aluminium-Constrained Damping Tile

Designed for aluminium and lightweight steel structures where weight sensitivity, corrosion resistance, and thermal stability are critical.

- **InnoDamp Tile FS**

Steel-Constrained Damping Tile

Optimized for steel structures and heavy-gauge panels, providing higher bending stiffness and enhanced low-frequency vibration control.

#### Typical Applications

- Marine vessels:

Bulkheads, decks, hull plating, engine room boundaries

- Rail & transport:

Vehicle floors, side panels, enclosures

- Industrial equipment:

Machine housings, generator enclosures, compressors

- Architectural & OEM applications:

Metal partitions, technical enclosures, vibrating panels

#### Installation Guidelines

1. Substrate must be clean, dry, and free of oil, dust, or corrosion.
2. Apply at temperatures  $\geq +10^{\circ}\text{C}$ .
3. Peel-and-stick installation with firm pressure (roller recommended).
4. Full adhesive bond strength achieved within 24 hours.
5. Edge sealing recommended for aggressive environments.

| Parameter             | InnoDamp Tile FA       | InnoDamp Tile FS       |
|-----------------------|------------------------|------------------------|
| Constraining Layer    | Aluminium              | Steel                  |
| Total Thickness       | ~4.2 mm                | ~4.2 mm                |
| Tile Dimensions       | 200 × 100 mm           | 200 × 100 mm           |
| Surface Density       | ~4.0 kg/m <sup>2</sup> | ~9.0 kg/m <sup>2</sup> |
| Installation Method   | Self-adhesive          | Self-adhesive          |
| Recommended Coverage  | 80–90%                 | 80–90%                 |
| Operating Temperature | –30 °C to +100 °C      | –30 °C to +100 °C      |

### DAMPING MECHANISM

When a metal panel is excited by mechanical or acoustic forces, bending waves propagate through the structure. InnODamp Tile introduces a stiff constraining layer bonded to a viscoelastic core, forcing the core to undergo shear deformation as the panel bends.

This shear strain results in:

- Conversion of vibrational energy into heat
- Suppression of panel resonance amplitudes
- Reduction of structure-borne and radiated noise
- This mechanism is fundamentally more efficient and predictable than mass-based damping approaches.

### KEY ENGINEERING ADVANTAGES

True Constrained Layer Damping (CLD)

Energy dissipation through controlled shear deformation, not mass loading.

Optimized Metal–Viscoelastic Coupling

Engineered bonding ensures efficient strain transfer into the damping layer.

High Damping Efficiency at Low Surface Coverage

Effective performance typically achieved with 60–70% panel coverage.

Broadband Performance

Effective across low and mid-frequency structural resonance ranges.

Weight-Efficient Design

Superior damping-to-weight ratio compared to bitumen-based systems.

Permanent Self-Adhesive Bonding

Industrial-grade pressure-sensitive adhesive for rapid installation.

Durable in Harsh Environments

Resistant to moisture, humidity, and marine atmospheres.

### DESIGN PHILOSOPHY

InnODamp Tile™ is engineered as a structural vibration control solution, not as a cosmetic noise treatment.

Its performance is based on mechanics, material science, and controlled energy dissipation, making it suitable for demanding engineering applications where predictable damping behavior is required.

The data provided represent typical values obtained from laboratory testing and engineering evaluation. Actual performance depends on substrate properties, installation quality, and operational conditions. Users are responsible for verifying suitability under real service environments.