INTEGRA PLANK

INTEGRA OPEN CELL

INTEGRA EXPANDED

INTEGRA SPECIALS

INTEGRA TILE
CLIP-IN TILE

CLIP-IN STANDARD

CLIP-IN NONIUS

LAY-IN TILE

LAY-IN TEGULAR
LAY-IN DEEP TEGULAR

LAY-IN FLAT

LAY-IN MICROLOOK

ADDITIONAL INFORMATION

WALL JOINTING DETAILS
INTEGRATION AND LIGHTING
COLOUR AND PATTERN
PERFORATION
ACoustics
FIRE
MAINTENANCE GUIDE
INTEGRA TILE

Integra offers a vast range of specially chosen standard ceiling types. Integra Tile is the right choice when speedy delivery and installation, reasonable price and above all; high quality, acoustic performance and aesthetics appearance are required.
CLIP-IN STANDARD

Integra Tile Clip-in Panels, offer a monolithic chic ceiling appearance through the concealed suspension system. Integra Clip-in tiles are available in galvanized steel, aluminium and offer the advantage of independent demounting and easy access to the plenum. The Integra Clip-in system can be used in offices, production plants, computer rooms, as well as public transportation locations such as airports and subways.
**Material**  
Galvanized Steel, Aluminum

**Dimensions**  
300x300, 600x600 mm

**Standard Perforation (mm)**  
Ø0.7, Ø1.5, Ø1.8, Ø2.5, Ø3.0, Ø7.0

**Special Perforation (mm)**  
Ø4.5, Ø12.0, 8x8 square  
(For detailed information on perforations pls. see pp. 41-45)

**Standard Colours**  
RAL 9010 and RAL 9006  
- Production is possible in all other RAL Colours upon request.  
- Antibacterial paint option is available upon request, especially for areas with hygiene requirements.  
- Panels with wood appearance can be produced if requested.  
(For detailed information on Colours pls. see pp. 37-39)

**Areas of Use**  
Offices, production facilities, airports, shopping centers, metro stations and especially spaces such as kitchens and hospitals where hygiene is important.

**Acoustics**  
NRC: 0.60 - 0.70 (For detailed information pls. see pp. 47-55)

**Fire**  
Resistance to Fire class B-s1, d0 (For detailed information pls. see pp. 57-59)
Accessories

01 52010001 CLPN-400 Clip-in Profile
Dimensions (mm) 29x32x4000x0,5
Packaging Details 40 m/carton
Weight 0,51 kg/m

02 52010016 CLM-35 Hanger Clip
Dimensions (mm) 154
Packaging Details 250 pc/carton
Weight 0,03 kg/pce

03 52010006 AH 209 Coupling Clip
Dimensions (mm) 154
Packaging Details 1000 pc/carton
Weight 0,003 kg/pce

Accessories Joint Details
Using a nonius hanger is a better choice when installing a more rigid ceiling with the Clip-in System, especially in areas such as metro stations.
Material
Galvanized Steel, Aluminum

Dimensions
300x300, 600x600 mm

Standard Perforation (mm)
Ø0.7, Ø1.5, Ø1.8, Ø2.5, Ø3.0, Ø7.0

Special Perforation (mm)
Ø4.5, Ø12.0, 8x8 square
(For detailed information on perforations pls. see pp. 41-45)

Standard Colours
RAL 9010 and RAL 9006
- Production is possible in all other RAL colours upon request.
- Antibacterial paint option is available upon request, especially for areas with hygiene requirements.
- Panels with wood appearance can be produced if requested.
(For detailed information on Colours pls. see pp. 37-39)

Areas of Use
Production facilities, airports, shopping centers, metro stations.

Acoustics
NRC: 0.60 - 0.70 (For detailed information pls. see pp. 47-55)

Fire
Resistance to Fire class B-s1, d0 (For detailed information pls. see pp. 57-59)
**CLIP-IN NONIUS**

**Accessories**

01. **52010001 CLPN-400 Clip-in Profile**
- Dimensions (mm): 29x32x400x0.5
- Packaging Details: 40 m/carton
- Weight: 0.51 kg/m

02. **52010019 CLM-35-N Nonius Rigid Hanger-Lower**
- Dimensions (mm): 182
- Packaging Details: 100 pc/carton
- Weight: 0.042 kg/pc

03. **52030025 NU-100 Nonius Rigid Hanger-Upper**
- Dimensions (mm): 1000
- Packaging Details: 100 pc/packaging
- Weight: 0.015 kg/pc

04. **52030026 1/14 Nonius Connection Pin**
- Dimensions (mm):
- Packaging Details: 200 pc/carton
- Weight: 0.006 kg/pc

**Accessories Joint Details**
CLIP-IN NONIUS

SYSTEM DETAIL

MAX. 1000 mm

EDGE OPTIONS

BEVELLED

SQUARE

PLUTO

05

52010006 AH 209 Coupling Clip

Dimensions (mm): 1000 pc/carton
Packaging Details: 0.003 kg/pc

07

52010021 CDPR 310 C-Wall Angle

Dimensions (mm): 20x40x20x3000x0.5
Packaging Details: 96 m/carton
Weight: 0.326 kg/m

09

17020101 TP-02 Steel Anchor

Dimensions (mm): 500 pc/carton
Packaging Details: 0.018 kg/pc

06

52010005 AH 37 Clip In Profile Splice

Dimensions (mm): 145
Packaging Details: 500 pc/carton
Weight: 0.026 kg/pc

08

52010008 KT 40 Wedge Clip

Dimensions (mm): 500 pc/carton
Packaging Details: 0.008 kg/pc

01

BEVELLED

04

05

06

07

08

09
LAY-IN TEGULAR
LAY-IN DEEP TEGULAR

Integra Lay-in panels, which offer different alternatives for modern ceiling designs, are composed of two main groups: Tegular and Deep Tegular. The Tegular Lay-in panels have 8 mm recessed from the T-24 system. The Deep Tegular panels enhance the gap effect with a 12 mm recessed. Available in galvanized steel and aluminium, Integra Lay-in panels can be custom-designed and produced with the possibility of different recessed dimensions. The Tegular / Deep Tegular Lay-in system offers the ideal solution for particularly renovation projects in particular.
### Material
- Galvanized Steel, Aluminum

### Dimensions
- 600x600 mm

### Standard Perforation (mm)
- Ø0.7, Ø1.5, Ø1.8, Ø2.5, Ø3.0, Ø7.0

### Special Perforation (mm)
- Ø4.5, Ø12.0, 8x8 square
  (For detailed information on perforations pls. see pp. 41-45)

### Standard Colours
- RAL 9010 and RAL 9006

- Production is possible in all other RAL Colours upon request.
- Antibacterial paint option is available upon request, especially for areas with hygiene requirements.
- Panels with wood appearance can be produced if requested.
  (For detailed information on Colours pls. see pp. 37-39)

### Areas of Use
- Renovation projects, offices, shopping centers, airports

### Acoustics
- NRC: 0.60 - 0.70 (For detailed information pls. see pp. 47-55)

### Fire
- Resistance to Fire class B-s1, d0 (For detailed information pls. see pp. 57-59)
LAY-IN TEGULAR / LAY-IN DEEP TEGULAR

**SYSTEM DETAIL**

**Accessories**

**01**
- **52040101 AS-GR24-B01 T24 Main Runner - 3600**
- Dimensions (mm): 24x38x3600x0.4
- Packaging Details: 90 m/carton
- Weight: 1.344 kg/pc

**02**
- **52040102 AS-GR24-B02 T24 Cross Runner - 1200**
- Dimensions (mm): 24x30x1200x0.4
- Packaging Details: 60 m/carton
- Weight: 0.3896 kg/pc

**03**
- **52040102 AS-GR24-B03 T24 Cross Runner - 600**
- Dimensions (mm): 24x30x600x0.4
- Packaging Details: 45 m/carton
- Weight: 0.187 kg/pc

**04**
- **52040902 AS-GR1508-B05 Z - Wall Angle**
- Dimensions (mm): 25x15x8x15x3050x0.5
- Packaging Details: 106.75 m/carton
- Weight: 0.79 kg/pc

**05**
- **13011128 HDVC/4 Double Spring Clip**
- Dimensions (mm): 24 mm
- Packaging Details: 500 pc/carton
- Weight: 0.0082 kg/pc

**06**
- **17010104 DST-01 Hanger Wire**
- Dimensions (mm): 1000
- Packaging Details: 500 pc/carton
- Weight: 0.10 kg/pc

**07**
- **17020101 TP-02 Steel Anchor**
- Dimensions (mm): 24 mm
- Packaging Details: 500 pc/carton
- Weight: 0.018 kg/pc
Integra Flat Lay-in panels are fully compatible with various T-24 suspension systems and are available in galvanized steel and aluminium. As with all other Lay-in systems, Flat Lay-in panels can also be easily demounted without the need for tools.
Material: Galvanized Steel, Aluminum

Dimensions: 600x600 mm

Standard Perforation (mm): Ø0.7, Ø1.5, Ø1.8, Ø2.5, Ø3.0, Ø7.0

Special Perforation (mm): Ø4.5, Ø12.0, 8x8 square
(For detailed information on perforations pls. see pp. 41-45)

Standard Colours: RAL 9010 and RAL 9006

- Production is possible in all other RAL Colours upon request.
- Antibacterial paint option is available upon request, especially for areas with hygiene requirements.
- Panels with wood appearance can be produced if requested.
(For detailed information on Colours pls. see pp. 37-39)

Areas of Use: Renovation projects, offices, shopping centers, airports

Acoustics: NRC: 0.60 - 0.70 (For detailed information pls. see pp. 47-55)

Fire: Resistance to Fire class B-s1, d0 (For detailed information pls. see pp. 57-59)
## Accessories

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<thead>
<tr>
<th>Item</th>
<th>Code</th>
<th>Description</th>
<th>Dimensions (mm)</th>
<th>Packaging Details</th>
<th>Weight</th>
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<tr>
<td>01</td>
<td>52040101 AS-GR24-B01 T24 Main Runner-3600</td>
<td>24x38x3600x0.4</td>
<td>90 m/carton</td>
<td>1.344 kg/pc</td>
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<td>02</td>
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<td>24x30x1200x0.4</td>
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<td>04</td>
<td>52010021 CDPR 310 C-Wall Angle</td>
<td>20x40x20x3000x0.5</td>
<td>96 m/carton</td>
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<tr>
<td>05</td>
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<td>06</td>
<td>13011128 HDVC/4 Double Spring Clip</td>
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<td>0.0082 kg/pc</td>
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<td>07</td>
<td>17010104 DST-01 Hanger Wire</td>
<td>1000</td>
<td>500 pc/carton</td>
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<td>08</td>
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## Accessories Joint Details

![Joint Details Diagram](image)
LAY-IN
MICROLOOK

Integra Microlook Lay-in panels are fully compatible with various T-15 suspension profiles and are available in galvanized steel and aluminium. Microlook Lay-in panels create a narrower gap on the ceiling with the T-15 suspension profile and allow for a modern ceiling design. Integra Microlook Lay-in system offers the right solutions for offices, and shops in malls.
**Material**
Galvanized Steel, Aluminum

**Dimensions**
600x600 mm

**Standard Perforation (mm)**
Ø0.7, Ø1.5, Ø1.8, Ø2.5, Ø3.0, Ø7.0

**Special Perforation (mm)**
Ø4.5, Ø12.0, 8x8 square
(For detailed information on perforations pls. see pp. 41-45)

**Standard Colours**
RAL 9010 and RAL 9006
- Production is possible in all other RAL Colours upon request.
- Antibacterial paint option is available upon request, especially for areas with hygiene requirements.
- Panels with wood appearance can be produced if requested.
(For detailed information on Colours pls. see pp. 37-39)

**Areas of Use**
Renovation projects, offices, shopping centers

**Acoustics**
NRC: 0.60 - 0.70 (For detailed information pls. see pp. 47-55)

**Fire**
Resistance to Fire class B-s1, d0 (For detailed information pls. see pp. 57-59)
# LAY-IN MICROLOOK

## System Detail

<table>
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<th>Dimensions (mm)</th>
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<td>02</td>
<td>T15 Cross Runner - 1200</td>
<td>15x30x1200x0.4</td>
<td>60 m/carton</td>
<td>0.3896 kg/pc</td>
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<td>03</td>
<td>T15 Cross Runner - 600</td>
<td>15x30x600x0.4</td>
<td>45 m/carton</td>
<td>0.187 kg/pc</td>
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<td>04</td>
<td>1508-B05 Z - Wall Angle</td>
<td>25x15x8x15x3950x0.5</td>
<td>106.75 m/carton</td>
<td>0.79 kg/pc</td>
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<tr>
<td>05</td>
<td>1301128 HDVC/4 Double Spring Clip</td>
<td>15x30x600x0.4</td>
<td>45 m/carton</td>
<td>0.0082 kg/pc</td>
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<tr>
<td>06</td>
<td>17010104 DST-01 Hanger Wire</td>
<td>1000</td>
<td>500 pc/carton</td>
<td>0.10 kg/pc</td>
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<tr>
<td>07</td>
<td>17020101 TP-02 Steel Anchor</td>
<td>500 pc/carton</td>
<td>0.018 kg/pc</td>
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</table>

## Accessories Joint Details

- T15 Joint Details
- 1508-B05 Joint Details
- 17020101 TP-02 Joint Details

## Groove Suspension

- Groove Suspension: 48 mm, 15 mm x 8 mm
# WALL JOINT DETAILS

## C-WALL ANGLE CDPR 310

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## L-WALL ANGLE WL 3000

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## GRIDAL AS-GR1919-B04

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WALL JOINT DETAILS

Z PROFILE WITH FOLDING TABS  BTZ - 300

Packaging Details

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SHADOW ANGLE  AS-GR1508-B05

Packaging Details

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HALF CLIP-IN PROFILE  HCLN-400

Packaging Details

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INTEGRATION and LIGHTING

Integra Metal Ceilings can be integrated with various lighting, ventilation, heating and sprinkler systems. Custom-made cutting and bending can be carried out for lighting fixtures and ventilation inlets while special designs compatible with system details can also be produced on demand.
All elements produced for lighting fixtures and ventilation inlets of various sizes are coated with electrostatic powder paint after perforation, cutting and bending. This provides full protection against the effects of outside agents on the surface.
INTEGRATION AND LIGHTING

MODUS DP. MIR. REFL. PERFORATED
MODUS DP. MIR. REFL. WITHOUT PERFORATION
MODUS PC LAMEL WITHOUT PERFORATION

MODUS

Modus is used in spaces where a high lighting technique and energy saving solutions are needed.

DP. MIR. REFL.
The reflector which provides glare control is produced from highly reflective aluminum and is double parabolic.

PC LAMEL
The fixture which emits direct light, illuminates the environment through polycarbonate lamella.

Light Technique: Direct
Characteristics: The fixture body is produced from steel sheets. Coated with highly reflective electrostatic powder coating
Light Source: T5 4x14W, 3x14W, 4x24W, 3x24W
Ballast: Electronic Ballast (Hot ignition)
Electrical Protection: Class I, IP 20
Installation: The fixture is integrated into the metal ceiling plate.

QUADUS

Quadus is the fixture for all spaces where the lighting technique and energy efficiency are important.

DEPTH MATTE REFLECTOR
The reflector which provides high glare control is produced from highly reflective, 0.4 mm thick, 9 celled satin-matt aluminum and is double parabolic.

OPAL DIFFUSER
The fixture which emits direct light emits the illuminates into the environment with an opal diffuser. The opal diffuser is acrylic PMMA.

Light Technique: Direct
Light Source: TC-L 3X18W, 3X24W
Ballast: Electronic Ballast (Hot Ignition)
Electrical Protection: Class I, IP 20
Installation: The fixture is integrated into the metal ceiling plate.
Integra Metal Ceiling Systems offer a broad selection of colours to support the imagination of designers. In addition to the standard RAL colours on Integra’s colour card, the panels can be produced in all RAL colours or with wood appearance upon request. An antibacterial paint option is also available for use in areas where hygiene is important.
COLOURS

RAL COLOURS

RAL 9010
RAL 9002
RAL 9016
RAL 7047
RAL 7004
RAL 9005
RAL 2008
RAL 1018
RAL 6002
RAL 9006 METALLIC
RAL 9022 METALLIC
RAL 9007 METALLIC

OPTIONS FOR WOOD APPEARANCE

101-V13 Walnut-1
104-V1 Walnut-2
100-V1 Acacia

For other colour and wood patterns, please contact Integra head office.
COLOURS

- RAL 9003
- RAL 1013
- RAL 7035
- RAL 8011
- RAL 3005
- RAL 3020
- RAL 5012
- RAL 1035 METALLIC
- RAL 7048 METALLIC

- 108-V3 Oak-1
- 103-V7 Oak-2
- 102-V1 Pine
All products are offered in plain or perforated form (0.7mm, 1.5mm, 1.8mm, 2.5mm, 3.0mm, 7.0mm). All perforated products can be produced with various plain borders upon request. Special perforated products may be available on request.
Perforation
Open Area
Ø0.7 mm
%2.4

Perforation
Open Area
Ø1.5 mm
%11

Perforation
Open Area
Ø1.5 mm
%22

Perforation
Open Area
Ø1.8 mm
%10.5

Perforation
Open Area
Ø1.8 mm
%21

Perforation
Open Area
Ø2.5 mm
%16

Perforation
Open Area
Ø3 mm
%10

Perforation
Open Area
Ø3 mm
%20

Perforation
Open Area
Ø7 mm
%32

STANDARD PERFORATIONS
PERFORATION

SPECIAL PERFORATIONS

- Perforation Open Area Ø2.5 mm  %32
- Perforation Open Area Ø4.5 mm  %41
- Perforation Open Area Ø4.5 mm  %55
- Perforation Open Area Ø12 mm  %28
- Perforation Open Area 8x8 mm  %7
- Perforation Open Area 8x8 mm  %28
- Perforation Open Area 8x8 mm  %64
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<th>Alignment Form</th>
<th>Max. Perforation Width (mm)</th>
<th>Max. Roll Width (mm)</th>
<th>Max. Material Thickness Steel (mm)</th>
<th>Max. Material Thickness Alu. (mm)</th>
<th>NRC</th>
<th>CLw</th>
<th>NRC</th>
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<td>697</td>
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<td>Ø7.0</td>
<td>%32.0</td>
<td>Square</td>
<td>715</td>
<td>1250</td>
<td>1.0</td>
<td>1.0</td>
<td>0.70</td>
<td>0.75</td>
<td>0.85</td>
<td>0.85</td>
</tr>
</tbody>
</table>
## PERFORATION

### SPECIAL PERFORATIONS

<table>
<thead>
<tr>
<th>Perforation Diameter (mm)</th>
<th>Open Area (%)</th>
<th>Aligned Form</th>
<th>Max. Perforation Width (mm)</th>
<th>Max. Roll Width (mm)</th>
<th>Max. Material Thickness Steel (mm)</th>
<th>Max. Material Thickness Alu. (mm)</th>
<th>Sound Absorption (Soundtex)</th>
<th>Sound Absorption (Soundtex + Rockwool)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø2.5</td>
<td>%32.0</td>
<td>Diagonal</td>
<td>1270</td>
<td>1300</td>
<td>0.7</td>
<td>1.0</td>
<td>0.60</td>
<td>0.65</td>
</tr>
<tr>
<td>Ø4.5</td>
<td>%41.0</td>
<td>Diagonal</td>
<td>1270</td>
<td>1300</td>
<td>0.7</td>
<td>1.0</td>
<td>0.60</td>
<td>0.60</td>
</tr>
<tr>
<td>Ø4.5</td>
<td>%55.0</td>
<td>Diagonal</td>
<td>1270</td>
<td>1300</td>
<td>0.7</td>
<td>1.0</td>
<td>0.60</td>
<td>0.60</td>
</tr>
<tr>
<td>Ø12.0</td>
<td>%28.0</td>
<td>Square</td>
<td>1270</td>
<td>1300</td>
<td>0.7</td>
<td>1.0</td>
<td>0.75</td>
<td>0.75</td>
</tr>
<tr>
<td>8x8</td>
<td>%7.0</td>
<td>Square</td>
<td>1270</td>
<td>1300</td>
<td>0.7</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8x8</td>
<td>%28.0</td>
<td>Square</td>
<td>1270</td>
<td>1300</td>
<td>0.7</td>
<td>1.0</td>
<td>0.75</td>
<td>0.75</td>
</tr>
<tr>
<td>8x8</td>
<td>%64.0</td>
<td>Square</td>
<td>1270</td>
<td>1300</td>
<td>0.7</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ACOUSTICS

Integra panels are manufactured with acoustic inlay to provide the best acoustic solutions. Special acoustic infill materials can be adapted for particular acoustic requirements.
**ACOUSTICS**

Building acoustics can be reviewed under 3 main titles.

**Indoor acoustics:** Associated with providing acoustic properties in enclosed spaces. While the most important evaluation criterion is reverberation time, "sound absorption" in the space is the key to achieving the acoustic values desired.

**Sound insulation:** Associated with the feature of building and building conditions to prevent sound passing between two rooms. It can be divided into 2 types: providing sound insulation by air way and impact sound insulation in adjacent areas.

**Noise:** Associated with sounds in the outside environment such as vehicle noise, air conditioner, lighting equipment and background sounds or the human voice coming from the adjoining room.

**SOUND ABSORPTION:**

When a sound wave hits any surface, part of its energy is reflected back into the room while the other part of it affects the surface. Part of the sound wave energy is converted into thermal energy and is absorbed while the remaining part is transmitted. The level of the energy converted into thermal energy is dependent on the sound absorption capacity of the panel.

Sound absorption values are related directly to the material used and perforations applied on the panel. Perforated Metal Ceilings improve room acoustics and reduce the echo time.

**SOUND INSULATION**

Sound insulation is applied in order to; protect against the hazardous effects of noise by insulating the living environment from undesired sounds, to reduce the sounds emitted from noisy areas in the environment into the surrounding area and to create suitable conditions of use in spaces such as movie theaters and recording studios. Sound reduction values are generally subjected to testing according to EN ISO 140 and EN ISO 717-1 norms in the 1/3 octave band. The sound reduction value for acoustic applications in buildings is tested at frequencies ranging from 100 to 3150 Hz as per ISO and from 125 to 4000 Hz as per ASTM. The sound insulation value for ceilings according to the EN ISO 717-1 norms is defined as Dn,c,w (dB). INTEGRA metal ceiling panels sound insulation values are able to decrease sound transmissions arising from sound sources such as ventilation in the ceiling void, lighting systems and noise transmitted from room to room. (20-40 dB)
Size : 600x600x0.6 mm
Perforation Type : Ø0.7 mm, Square
Open Area : 2.4%
Acoustical Inlay : Soundtex

Volume of reverberation room : 214 m³
Sample area : 10.87 m²
System height : 0.2 m
Signal : Broad band
Band-width : 1/3 octave

$\alpha_w$ (ISO 11654) = 0.60
NRC (ASTM - C 423) = 0.60
\[
\alpha_w (\text{ISO 11654}) = 0.60 \\
\text{NRC (ASTM - C 423)} = 0.60
\]

\[
\alpha_w (\text{ISO 11654}) = 0.90 \\
\text{NRC (ASTM - C 423)} = 0.85
\]
ACOUSTICS

Size : 600x600x0.6 mm
Perforation Type : Ø1.8 mm, Square
Open Area : 21%
Acoustical Inlay : Soundtex

Volume of reverberation room : 214 m³
Sample area : 10.87 m²
System height : 0.2 m
Signal : Broad band
Band-width : 1/3 octave

\( \alpha_w \) (ISO 11654) = 0.60
NRC (ASTM - C 423) = 0.60

\[
\begin{array}{ccccccc}
1/3 \text{oct.} & 0.28 & 0.53 & 0.81 & 0.52 & 0.61 & 0.63 \\
1/1 \text{oct.} & 0.17 & 0.59 & 0.80 & 0.46 & 0.60 & 0.63 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
1/3 \text{oct.} & 0.40 & 0.73 & 0.73 & 0.61 & 0.65 & 0.62 \\
1/1 \text{oct.} & 0.28 & 0.62 & 0.78 & 0.53 & 0.62 & 0.63 \\
\end{array}
\]

---

Size : 600x600x0.6 mm
Perforation Type : Ø1.8 mm, Square
Open Area : 21%
Acoustical Inlay : Soundtex + 25 mm x 50 kg/m³ rockwool

Volume of reverberation room : 214 m³
Sample area : 10.87 m²
System height : 0.2 m
Signal : Broad band
Band-width : 1/3 octave

\( \alpha_w \) (ISO 11654) = 0.90
NRC (ASTM - C 423) = 0.85

\[
\begin{array}{ccccccc}
1/3 \text{oct.} & 0.28 & 0.62 & 0.86 & 0.85 & 0.92 & 0.89 \\
1/1 \text{oct.} & 0.47 & 0.81 & 0.93 & 0.78 & 0.92 & 0.82 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
1/3 \text{oct.} & 0.68 & 0.80 & 0.90 & 0.90 & 0.93 & 0.75 \\
1/1 \text{oct.} & 0.46 & 0.74 & 0.90 & 0.84 & 0.92 & 0.82 \\
\end{array}
\]
**ACOUSTICS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>600x600x0.6 mm</td>
</tr>
<tr>
<td>Perforation Type</td>
<td>Ø2.5 mm, Square</td>
</tr>
<tr>
<td>Open Area</td>
<td>16%</td>
</tr>
<tr>
<td>Acoustical Inlay</td>
<td>Soundtex</td>
</tr>
</tbody>
</table>

Volume of reverberation room : 214 m³
Sample area : 10.87 m²
System height : 0.2 m
Signal : Broad band
Band-width : 1/3 octave

\[ \alpha_w \text{ (ISO 11654)} = 0.70 \]
\[ \text{NRC (ASTM - C 423)} = 0.70 \]

<table>
<thead>
<tr>
<th>Frequency (1/3 oct)</th>
<th>125</th>
<th>250</th>
<th>500</th>
<th>1k</th>
<th>2k</th>
<th>4k</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3 oct.</td>
<td>0.29</td>
<td>0.55</td>
<td>0.83</td>
<td>0.63</td>
<td>0.70</td>
<td>0.69</td>
</tr>
<tr>
<td>1/1 oct.</td>
<td>0.34</td>
<td>0.69</td>
<td>0.83</td>
<td>0.63</td>
<td>0.70</td>
<td>0.66</td>
</tr>
</tbody>
</table>

\[ \alpha_s \text{ (1/3 oct)} = 0.29 \]
\[ 0.55 \]
\[ 0.83 \]
\[ 0.63 \]
\[ 0.70 \]
\[ 0.69 \]

\[ \alpha_s \text{ (1/1 oct)} = 0.34 \]
\[ 0.69 \]
\[ 0.83 \]
\[ 0.63 \]
\[ 0.70 \]
\[ 0.66 \]

**Sound absorption coefficient**

**\( \alpha_w \) (ISO 11654) = 0.85**

\[ \text{NRC (ASTM - C 423)} = 0.80 \]

<table>
<thead>
<tr>
<th>Frequency (1/3 oct)</th>
<th>125</th>
<th>250</th>
<th>500</th>
<th>1k</th>
<th>2k</th>
<th>4k</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3 oct.</td>
<td>0.29</td>
<td>0.64</td>
<td>0.85</td>
<td>0.82</td>
<td>0.86</td>
<td>0.78</td>
</tr>
<tr>
<td>1/1 oct.</td>
<td>0.46</td>
<td>0.73</td>
<td>0.86</td>
<td>0.81</td>
<td>0.85</td>
<td>0.71</td>
</tr>
</tbody>
</table>

\[ \alpha_s \text{ (1/3 oct)} = 0.46 \]
\[ 0.73 \]
\[ 0.86 \]
\[ 0.81 \]
\[ 0.85 \]
\[ 0.71 \]
ACOUSTICS

Size : 600x600x0.6 mm
Perforation Type : Ø3 mm, Square
Open Area : 20%
Acoustical Inlay : Soundtex

Volume of reverberation room : 214 m³
Sample area : 10.87 m²
System height : 0.2 m
Signal : Broad band
Band-width : 1/3 octave

\[ \alpha_w \text{ (ISO 11654)} = 0.65 \]
\[ \text{NRC (ASTM - C 423)} = 0.65 \]

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>1/3 oct.</th>
<th>1/1 oct.</th>
</tr>
</thead>
<tbody>
<tr>
<td>125</td>
<td>0.25</td>
<td>0.29</td>
</tr>
<tr>
<td>250</td>
<td>0.55</td>
<td>0.65</td>
</tr>
<tr>
<td>500</td>
<td>0.79</td>
<td>0.80</td>
</tr>
<tr>
<td>1k</td>
<td>0.60</td>
<td>0.60</td>
</tr>
<tr>
<td>2k</td>
<td>0.65</td>
<td>0.65</td>
</tr>
<tr>
<td>4k</td>
<td>0.66</td>
<td>0.62</td>
</tr>
</tbody>
</table>

\[ \alpha_s \text{(1/3 oct. Hz)} = 0.32 \]
\[ \alpha_s \text{(1/1 oct. Hz)} = 0.46 \]

\[ \alpha_w \text{ (ISO 11654)} = 0.90 \]
\[ \text{NRC (ASTM - C 423)} = 0.85 \]

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>1/3 oct.</th>
<th>1/1 oct.</th>
</tr>
</thead>
<tbody>
<tr>
<td>125</td>
<td>0.32</td>
<td>0.46</td>
</tr>
<tr>
<td>250</td>
<td>0.66</td>
<td>0.78</td>
</tr>
<tr>
<td>500</td>
<td>0.90</td>
<td>0.92</td>
</tr>
<tr>
<td>1k</td>
<td>0.83</td>
<td>0.83</td>
</tr>
<tr>
<td>2k</td>
<td>0.89</td>
<td>0.89</td>
</tr>
<tr>
<td>4k</td>
<td>0.83</td>
<td>0.89</td>
</tr>
</tbody>
</table>

\[ \text{Sound absorption coefficient } \alpha_s \text{ for 1/1 oct. } = 0.75 \]
**ACOUSTICS**

Size: 600x600x0.6 mm  
Perforation Type: Ø7 mm, Square  
Open Area: 32%  
Acoustical Inlay: Soundtex

Volume of reverberation room: 214 m³  
Sample area: 10.87 m²  
System height: 0.2 m  
Signal: Broad band  
Band-width: 1/3 octave

\( \alpha_w \) (ISO 11654) = 0.75  
NRC (ASTM - C 423) = 0.70

---

Size: 600x600x0.6 mm  
Perforation Type: Ø7 mm, Square  
Open Area: 32%  
Acoustical Inlay: Soundtex + 25 mm x 18.7 kg/m³ glasswool

Volume of reverberation room: 214 m³  
Sample area: 10.87 m²  
System height: 0.2 m  
Signal: Broad band  
Band-width: 1/3 octave

\( \alpha_w \) (ISO 11654) = 0.85  
NRC (ASTM - C 423) = 0.85
ACOUSTICS

Size: 600x600x0.6 mm
Perforation Type: Ø12 mm, Square
Open Area: 28%
Acoustical Inlay: Soundtex

Volume of reverberation room: 214 m³
Sample area: 10.87 m²
System height: 0.2 m
Signal: Broad band
Band-width: 1/3 octave

$\alpha_w$ (ISO 11654) = 0.75
NRC (ASTM - C 423) = 0.75

Size: 600x600x0.6 mm
Perforation Type: Ø12 mm, Square
Open Area: 28%
Acoustical Inlay: Soundtex + 25 mm x 18.7 kg/m³ glasswool

Volume of reverberation room: 214 m³
Sample area: 10.87 m²
System height: 0.2 m
Signal: Broad band
Band-width: 1/3 octave

$\alpha_w$ (ISO 11654) = 0.85
NRC (ASTM - C 423) = 0.80
Fires that break out in the buildings and spread very rapidly cause a high level of destruction. For this reason, subjects relating to fire safety have to be handled carefully extremely at the design stage of the building and materials selection is vitally important. The main purpose of ensuring fire safety is to minimize the degree of destruction arising from an outbreak of fire.
When providing fire safety, above all else, the type of building and room in which the suspended ceiling system to be installed is important. During the initial stages of a fire there are three critical conditions to be considered.

- Suspended ceilings should not contribute to the spread of the fire or the formation of smoke. This may be ensured by the use of suspended ceiling systems that conform to the Euro class B-s1 (s2) d0 class of reaction to fire.
- While rescue and evacuation operations are conducted during the early stages of the fire, suspended ceiling systems should not be demolished or collapse. This is possible with suspended ceiling systems capable of withstanding heat up to approximately 300°C.
- Suspended ceiling systems should not include any combustible materials.

**Reaction to Fire performance classes for building materials other than flooring**

<table>
<thead>
<tr>
<th>B</th>
<th>s1,</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic class</td>
<td>Smoke class formation</td>
<td>Flame draplet</td>
</tr>
</tbody>
</table>

- **Basic classes**
  A1, A2, B, C, D, E and F (A1; the best, F; the worst)

- **Smoke formation classes**
  s1, s2, and s3 (s1; the best)

- **Flame dripping classes**
  d0, d1, d2, (d0; the best)

**Fire reaction class- Euroclass (EN 13501-1) standard**

```
A1
A2-s1,d0  A2-s1,d1  A2-s1,d2
A2-s2,d0  A2-s2,d1  A2-s2,d2
A2-s3,d0  A2-s3,d1  A2-s3,d2
B-s1,d0   B-s1,d1   B-s1,d2
B-s2,d0   B-s2,d1   B-s2,d2
B-s3,d0   B-s3,d1   B-s3,d2
C-s1,d0   C-s1,d1   C-s1,d2
C-s2,d0   C-s2,d1   C-s2,d2
C-s3,d0   C-s3,d1   C-s3,d2
D-s1,d0   D-s1,d1   D-s1,d2
D-s2,d0   D-s2,d1   D-s2,d2
D-s3,d0   D-s3,d1   D-s3,d2
E         E-d2
F
```
**FIRE**

Fire reaction performance classes for building materials other than flooring

<table>
<thead>
<tr>
<th>Inflammables Feature of the Material</th>
<th>No Smoke Formation</th>
<th>No Burning/Dripping Particles</th>
<th>European class (as per TS EN 13501-1 Inflammables)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammables</td>
<td>X</td>
<td>X</td>
<td>A1</td>
</tr>
<tr>
<td>Hard-flammable</td>
<td>X</td>
<td>X</td>
<td>A2 - s1,d0</td>
</tr>
<tr>
<td>Hard flaming</td>
<td>X</td>
<td>X</td>
<td>B, C - s1,d0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>A2 - s2,d0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2, B, C - s3,d0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>A2, B, C - s1,d1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2, B, C - s1,d2</td>
</tr>
<tr>
<td>(minimum)</td>
<td></td>
<td></td>
<td>A2, B, C - s3,d2</td>
</tr>
<tr>
<td>Normal flaming</td>
<td></td>
<td>X</td>
<td>D - s1,d0</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>D - s2,d0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D - s3,d0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D - s1,d2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D - s2,d2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D - s3,d2</td>
</tr>
<tr>
<td>(minimum)</td>
<td></td>
<td></td>
<td>E - d2</td>
</tr>
<tr>
<td>Easy-flaming</td>
<td></td>
<td></td>
<td>F</td>
</tr>
</tbody>
</table>

Fire reaction classes for INTEGRA metal ceiling panels subjected to tests in international institutes and laboratories in accordance with EN 13501-1 standard

<table>
<thead>
<tr>
<th>FIRE REACTION CLASS</th>
<th>WITHOUT FABRIC</th>
<th>ROYALIN -FABRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galvanized steel</td>
<td>B-s1,d0</td>
<td>B-s1,d0</td>
</tr>
<tr>
<td>Aluminum</td>
<td>B-s1,d0</td>
<td>B-s1,d0</td>
</tr>
</tbody>
</table>

All fire reports required for perforated Integra metal ceiling panels, whether with acoustic fabric or not, can be obtained upon request from Integra head office.
MAINTENANCE GUIDE

Field Cutting
Metal ceilings may need to be field cut to accommodate special conditions: less than full module perimeters, columns penetrating the ceiling etc. Such cuts should be made by competent craftsmen using appropriate tools: duct snips, electric sheet metal shears or hand-saws. Extreme care must be exercised to prevent damage to painted surfaces or buckling and distortion. Cut edges should be concealed with the appropriate trim.

Cleaning and Maintenance
Dust should be removed from painted surfaces by wiping with a clean soft cloth. Grease and finger prints should be removed with a mild household cleaner suitable for painted surfaces. Do not use abrasive cleaners or scrub the surface.

Storage and Transportation
Ceiling components should be stored under conditions of use in a dry interior location and should remain in cartons until installation. Care must be exercised during the handling and opening of cartons to avoid damage.
Offering high quality solutions to all interior dimensions.
Since 2000 Integra has been providing solutions to architects, interior designers and contractors through its extensive range of products which include; metal ceilings, partition walls and raised access floorings.
Integra offers a wide range of high-quality products through its extensive line of design alternatives and options. Incorporation the Tile, Plank, Open Cell, Expanded and fully customised ceiling systems, all of which can be supplied in different shapes, colours and sizes.
Better quality in living and working spaces