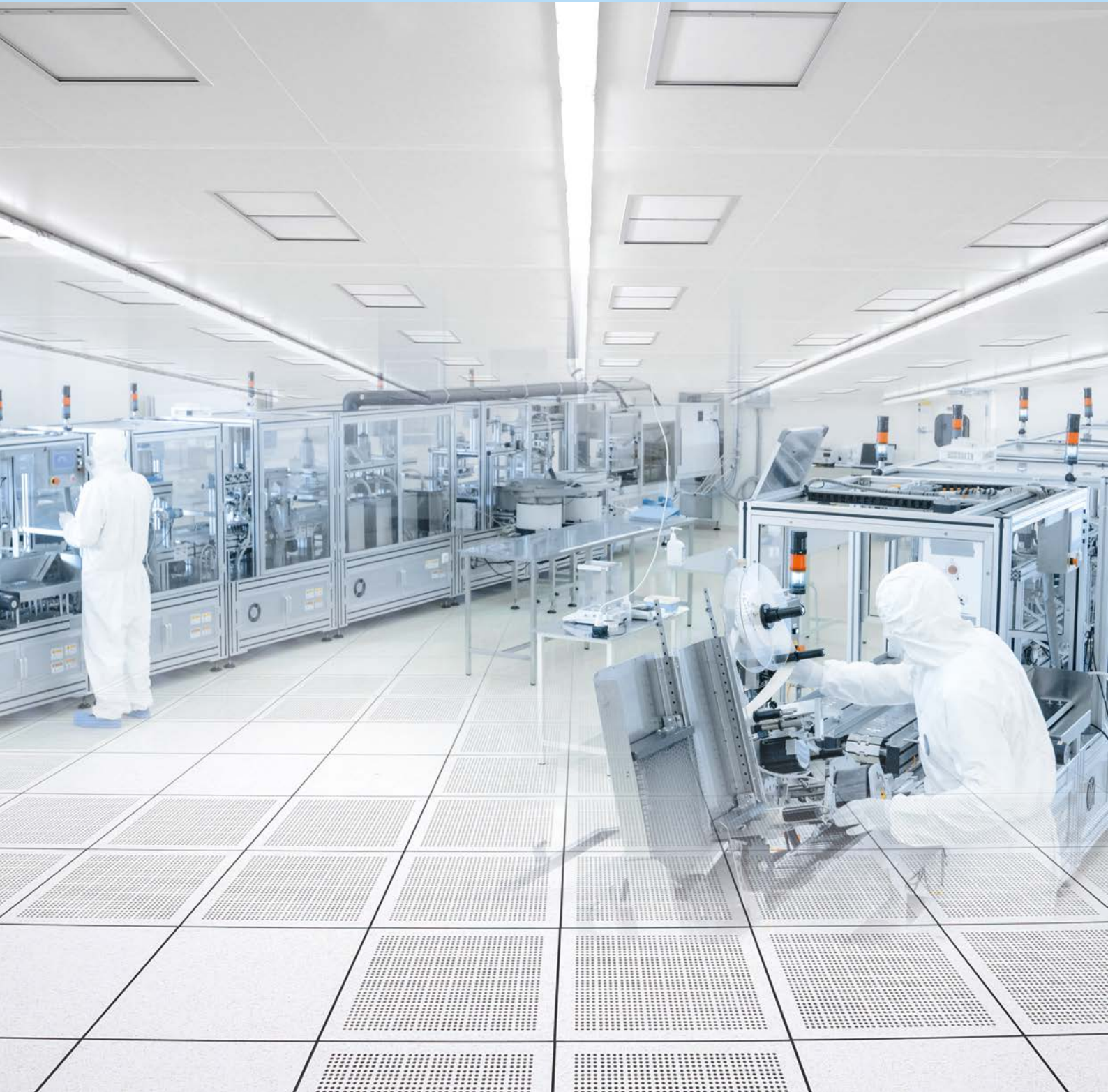




MADE IN ITALY

The Raised Flooring System for Cleanrooms



ALU RAISED
FLOORING DIVISION



Alu Raised Flooring Division



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The technical data contained in this catalog may be modified at any time without prior notice; as further development and engineering improvements are made to products or to adapt to changes in specifications, customer needs, manufacturing improvements, and regulations.

SUSTAINABILITY PERFORMANCE

ATMOSPHERIC EMISSIONS MANAGEMENT

Reducing emissions is important for NPF, for the community and for the ecosystem in which we live. The objective is pursued through internal management which involves the adoption of procedures, management systems, innovative purification and abatement systems, as well as the innovation of production processes to reduce emissions at source.

Atmospheric emissions are subject to authorization and periodic checks are planned in order to verify compliance with the permitted limits.

The extraction and treatment of emissions generated by production plants are, in addition to being mandatory from a regulatory point of view, essential for maintaining a healthy work environment.

ENERGY EFFICIENCY

NPF has always applied a corporate strategy aimed at reducing CO₂ emissions and recovering all industrial waste produced by the company, constantly innovating the systems and **reducing the need for energy from fossil sources**.

ELECTRICITY

A further 40% saving was possible through the installation of hybrid presses that allowed us to reduce electricity consumption.

In addition, a 950 kwpp photovoltaic system has been installed, distributed across the entire roof surface, which helps to satisfy the company's needs.



METHANE

With the installation of new generation melting furnaces, methane consumption has been reduced by 30%.

These new, higher-performance furnaces are equipped with a melting chamber that presents a restricted entrance for the aluminum load, avoiding the heat dispersion to the outside environment.

*Thanks to these measures,
we were able to reduce CO₂ emissions
by 1,200 tons in one year.*

RELEASE AGENT RECOVERY SYSTEM

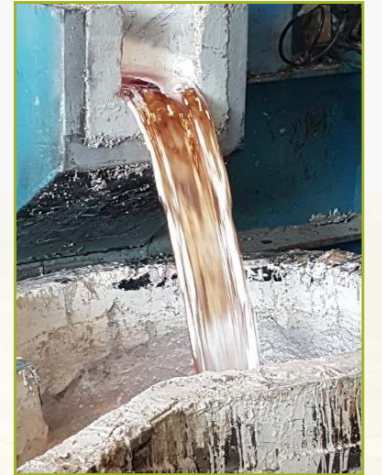
In 2022, NPF installed a release agent recovery system that permitted to reduce the purchase of release agent as a raw material by 50% and consequently also the disposal of processing wastewater.

This system was designed and built by an internal research and development team.

RAW MATERIAL

Important note, NPF uses 100% aluminum ingots exclusively produced from recycled aluminum (secondary aluminum ingots).

Furthermore, the scrap of each piece is recovered and remelted because **aluminum does not produce waste** and can be remelted infinitely.



CERTIFICATIONS

NPF has made significant investments to safeguard and protect the environment. In fact, NPF has always pursued an environmental policy that aims to strengthen the approach towards sustainable development, through a series of interventions such as: management procedures, plant investments and actions aimed at mitigating emissions, monitoring water consumption, protecting biodiversity and flora.

We are able to evaluate the consumption of CO₂ of every single piece.

This is possible thanks to the use of the *SimaPro* software, that allows to analyze and monitor the environmental performance of products and services, by calculating the carbon footprint of the organization and of the product.

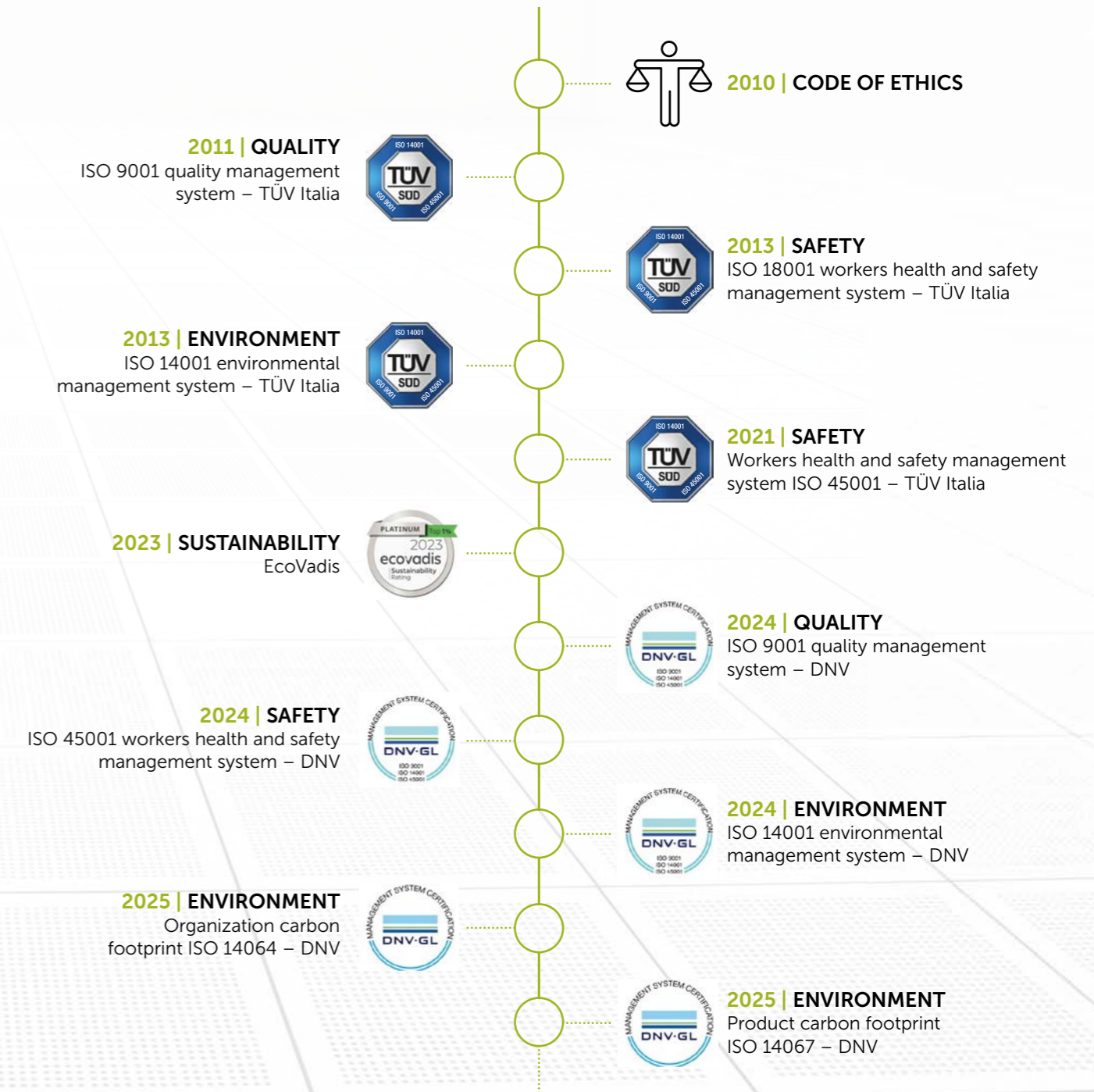
The **carbon footprint** is a parameter that is used to evaluate greenhouse gas emissions and therefore the environmental impact of a product throughout its life cycle.

To do this, the primary data relating to the entire life cycle of our products are analyzed. Specifically, this data concerns the purchase of raw materials, the volumes of aluminum casted, the product bills of materials, consumption of all types (from energy to waste), and the distribution of the finished product. Once all the primary data have been collected, they are processed in spreadsheets according to LCA (Life Cycle Assessment) rule, which generate the environmental impact calculation model in the dedicated *SimaPro* software.

Thanks to the application of this model, we are therefore able to identify the strengths and weaknesses of products life cycle and monitor environmental performance, at the smallest detail level.



The certifications of our management and organization systems as well as the attestations of responsibility and ethics ensure an added value. They are synonymous of quality, attention, safety, prevention and responsibility. They also contribute as a tool for selection and preference by customers and suppliers, as a demonstration of our company's commitment.



COMPANY PROFILE

NPF COMPANY is headquartered in Bosisio Parini (Lecco) Italy. We are a privately held Italian owned Company group. We are leaders in the production of specific ready to use aluminum die casting, according to the industry standard **4.0**.

We have over 60 years' experience, 4 production locations in Europe totaling 55,000 sqm (592,000 SF), with 35 die casting presses, a production of more than 10 million pieces across various markets, such as **Raised flooring system**, electric engines, lighting, gear boxes, alternators, electrical generators, hydraulic pumps, home appliances, pneumatics, hydraulics, gate automation, inverters, oil & gas and gardening products.

With in depth collaboration with many customers who utilize aluminum raised flooring systems for cleanrooms, we improved and expanded our range of products. We can now offer more capacity and better performing, price competitive, "Made and designed in Italy" products, developed specifically for industries dedicated to the microelectronics, semiconductor, nanotechnology, and data center market.

The new range of panels as well as the substructures is now available for **European, Asian and US markets**. The newly designed and improved product line with increased performance for ever more demanding applications and equipment loads at a competitive price.

Our 'Raised Floor' production process is located on one site (**Italy**), and we have installed new production lines, which gives us shorter lead time production and better quality control.

Numbers	
Die casting press	nr. 35 / range 260÷2800 ton
Capacity	9.000 ton / anno-year
Plants	nr. 4 / 55.000 sqm



THE FLOORING SYSTEM

The raised flooring system "Clean & Heavy-Duty system" was created in compliance with the strict quality requirements of indoor controlled environments. Specifically, according to UNI EN ISO 14644-1, through to ISO 1. The specifications of ALU series panels used by this system, such as load capacity, corrosion resistance, condensable volatile material emission levels, make it a valuable tool that can also be used where chemical process are involved and in cleanrooms.

The panels are aluminum diecast, with standard sizes of **600mmx600mmxH 50mm** and **24"x24"xH 1.97"** for the North American market. They offer precise tolerances and high load capacity.

The panels are installed on specific modular support structures, with elevation heights that vary from **250 mm to over 1000 mm (10" up to 39,50") Finished Floor Height (FFH)**. Greater elevations achieved via specialized Understructure.

The panels are available with different finishings:

- PVC Vinyl Tile (2-mm/0.078"), Static Dissipative (SD) or Electro Conductive (EC) applied on the upper side by means of conductive glue
- Conductive epoxy powder coating.

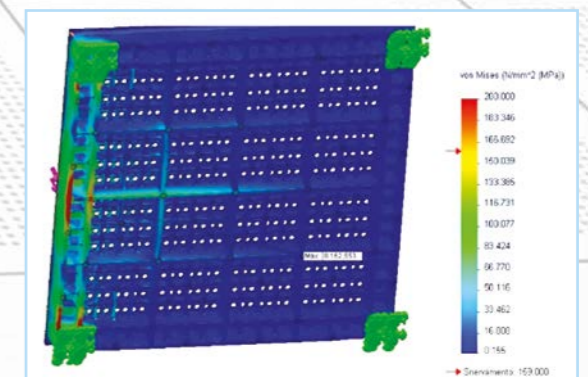
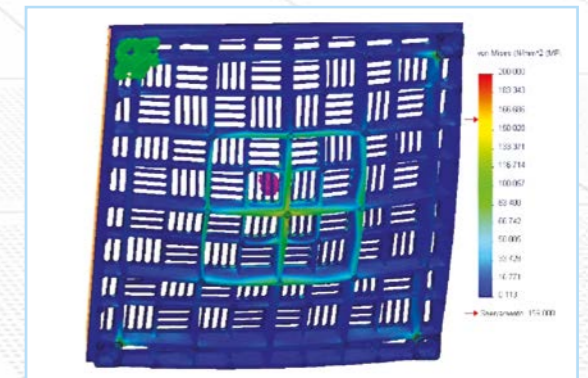
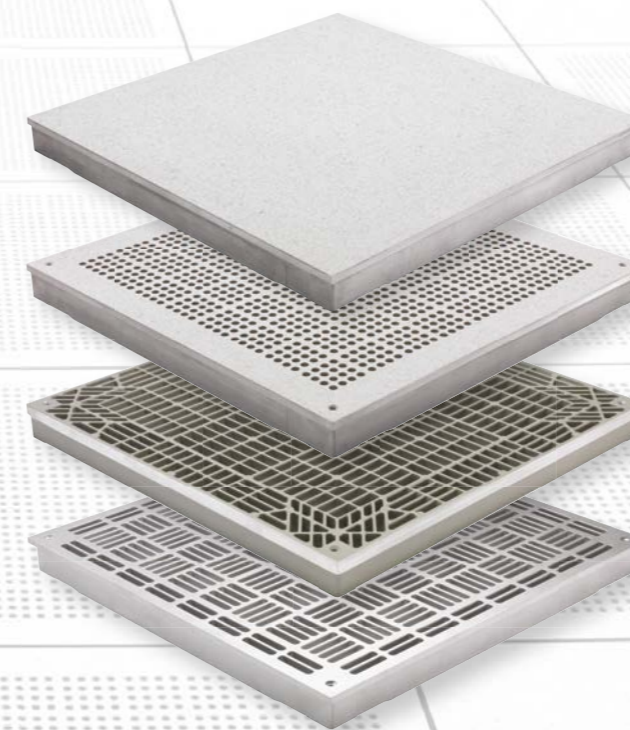
The specifications of these aluminum die cast panels are **non-magnetic, high load capacity, durable and highly conductive (current), incombustible (EN13501-1/ EN13501-2)**.

The ALU series panels are specifically designed for air conduction to guarantee high levels of air purity within the classified area. They are designed to be perforated or grates, to modulate airflow according to requirements and free air capacities of each type of tile.

The support structure of the raised flooring panels is made of **Aluminum or Steel pedestals** that can carry an axial weight load **more than 110kN (25,000 lbs)**. They are designed with a square base (Aluminum or Steel), a head, a threaded stud (Aluminum or Steel), an adjustment nut, a diecast aluminum collar, and an Aluminum or Steel tube base.

If required, it is also possible add to the support structure, **Aluminum stringers and/or Aluminum diagonal bracing**.

The support structure can be finished with an epoxy coating that is conductive and resistant to chemicals agents. To reduce vibrations, the heads are equipped with a dissipative compound EVA gasket.

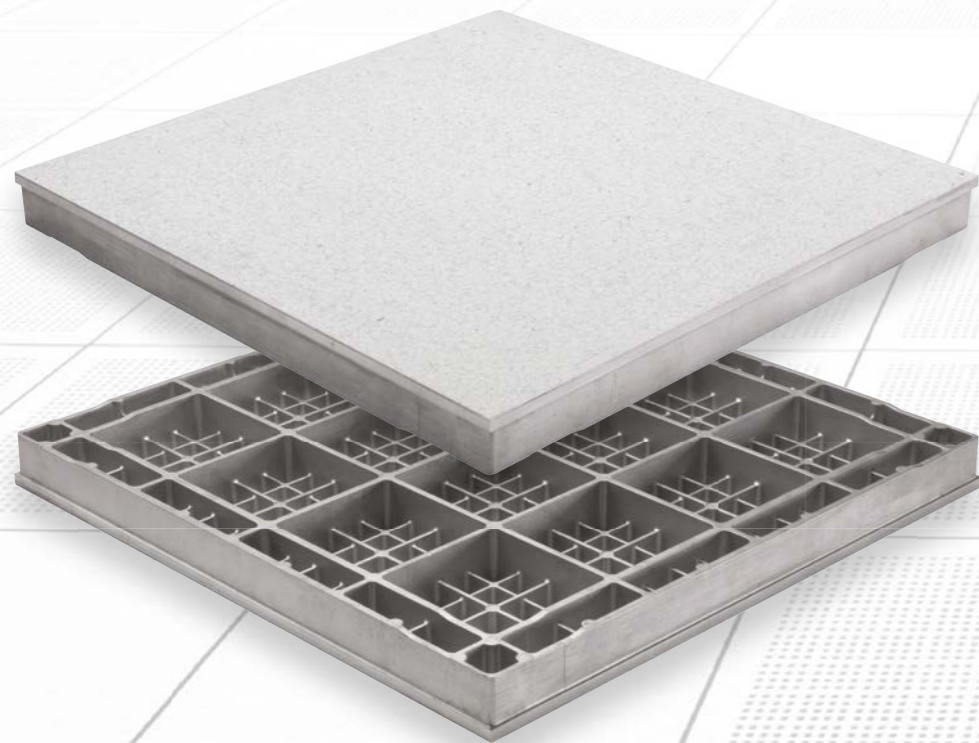


SOLID (BLIND) PANELS 600x600 mm

These panels are 600x600xH 50 mm overall thickness (which includes the PVC – 2mm). The panel is produced by high pressure die casting of an aluminum alloy, as a result of advanced concept die matrix manufacturing.

The panels are predominantly made of solid top cover plate, with interior stiffener ribs, symmetrically positioned and integral to the panel's surface. The thickness and height of ribs vary to guarantee higher resistance and appropriate load distribution while reducing weight. Each panel is machined to size using computerized numerical control (CNC) machine-driven equipment.

Article	Description	Size (mm)	Concentrated Load @ ½ edge (kN)	Ultimate Load @ ½ edge (kN)
ALU 1B-SP	Standard Performance Blind Panel	600x600xH50	8	16
ALU 2B-HP	High Performance Blind Panel	600x600xH50	12,5	25
ALU3B-UHP	Ultra-High Performance Blind Panel	600x600xH50	14	31
ALU4B-HDP	Heavy Duty Performance Blind Panel	600x600xH50	17	38
Complies with	UNI EN12825:2003 = CLASS 6A			
Options	epoxy powder coating 10 ⁶ Ω, corner lock for M6 Inox fasteners			



PERFORATED PANELS 600x600 mm

Perforated panels are cast from the same Die as the SOLID panels; therefore, they have the same specifications (see page 10), with the addition of **1024** or **512 holes** drilled into the top surface for the air flow needs.

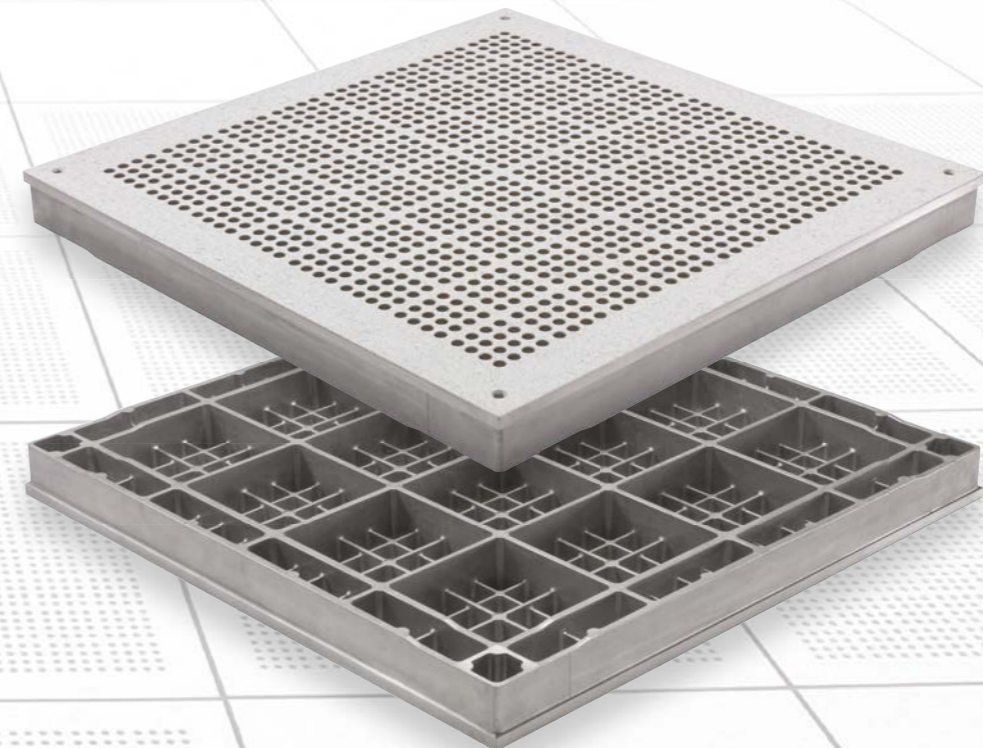
The perforated panels can be equipped with sliding and adjustable aluminum damper (see the page regarding accessories).

Article	Description	Size (mm)	Concentrated Load @ ½ edge (kN)	Ultimate Load @ ½ edge (kN)
ALU 1P-SP	Standard Performance Perforated Panel	600x600xH50	8	16
ALU 2P-HP	High Performance Perforated Panel	600x600xH50	12,5	25
ALU3P-UHP	Ultra-High Performance Perforated Panel	600x600xH50	14	31
ALU4P-HDP	Heavy Duty Performance Perforated Panel	600x600xH50	17	38
Complies with	UNI EN12825:2003 = CLASS 6A			
Options	epoxy powder coating 10 ⁶ Ω, corner lock for M6 Inox fasteners			

NOTES

Version with 1.024 holes: air flow more than 20% panel free area.

Version with 512 holes: air flow more than 10% of panel free area.

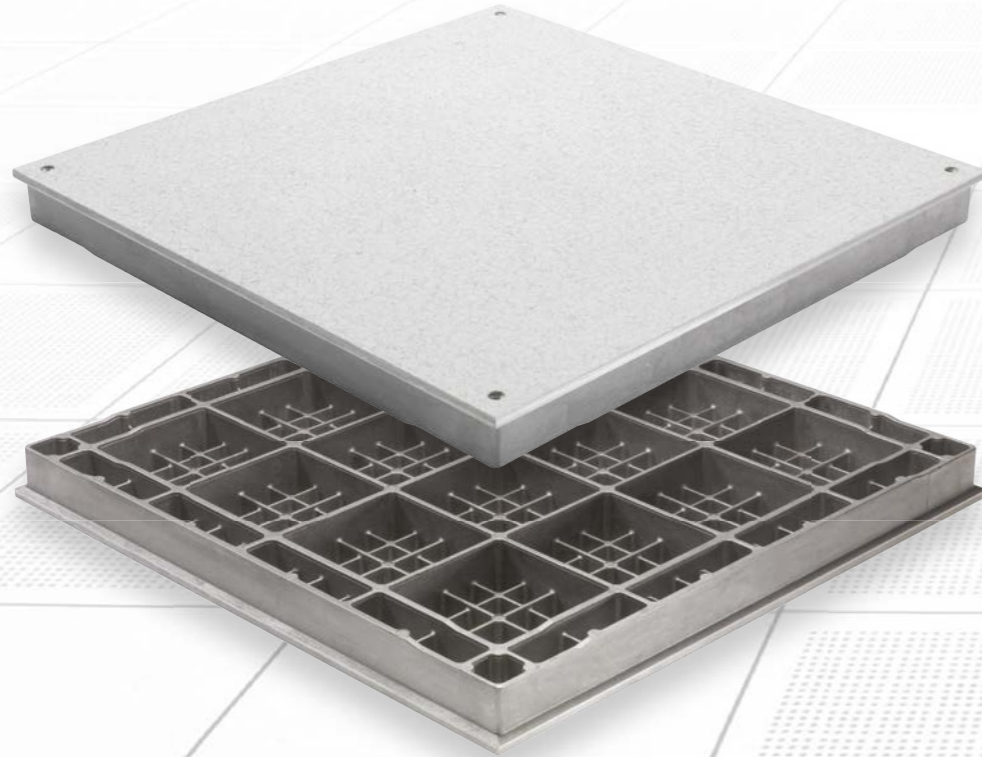


SOLID (BLIND) PANELS 24"x24"

These panels are 24"x24" and 1.97" overall thickness (which includes the PVC – 0.078"-). The panel is produced by high pressure die casting of an aluminum alloy, as a result of advanced concept die matrix manufacturing.

The panels are predominantly made of solid top cover plate, with interior stiffener ribs, symmetrically positioned and integral to the panel's surface. The thickness and height of ribs vary to guarantee higher resistance and appropriate load distribution while reducing weight. Each panel is machined to size using computerized numerical control (CNC) machine-driven equipment.

Article	Description	Size (inches)	Concentrated Load @ ½ edge	Ultimate Load @ ½ edge
ALU5B-SP	Standard Performance Solid (Blind) Panel	24"x24"x H1,97"	1.800 lbs (8 kN)	7.000 lbs (31 kN)
ALU6B-HP	High Performance Solid (Blind) Panel	24"x24"x H1,97"	2.300 lbs (10 kN)	8.500 lbs (38 kN)
Complies with	CISCA Test procedures			
Options	epoxy powder coating 10 ⁶ Ω, corner lock for ¼" Inox fasteners			



PERFORATED PANELS 24"x24"

Perforated panels are cast from the same Die as the SOLID panels; therefore, they have the same specifications (see page 12), with the addition of **1024** or **512 holes** drilled into the top surface for the air flow needs.

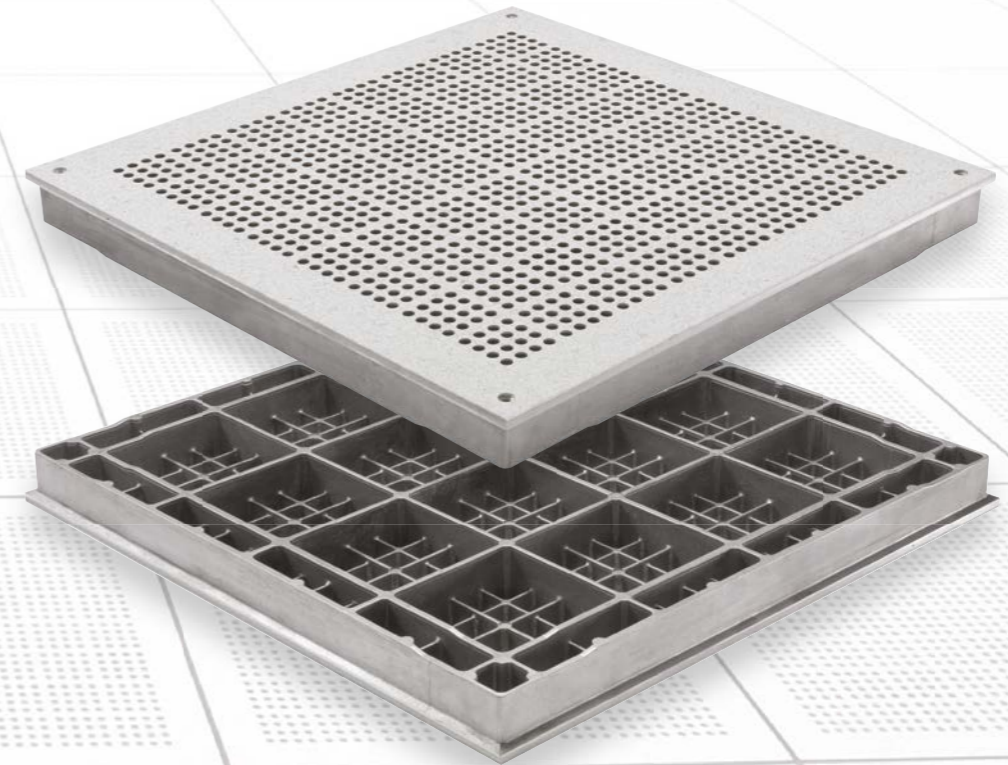
The perforated panels can be equipped with sliding aluminum adjustable air dampers (see the page regarding accessories)

Article	Description	Size (inches)	Concentrated Load @ ½ edge	Ultimate Load @ ½ edge
ALU5P-SP	Standard Performance Perforated Panel	24"x24"x H1,97"	1.800 lbs (8 kN)	7.000 lbs (31 kN)
ALU6P-HP	High Performance Perforated Panel	24"x24"x H1,97"	2.300 lbs (10 kN)	8.500 lbs (38 kN)
Complies with	CISCA Test procedures			
Options	epoxy powder coating 10 ⁶ Ω, corner lock for ¼" Inox fasteners			

NOTE

Version with 1024 holes: air flow more than 20% of panel free area.

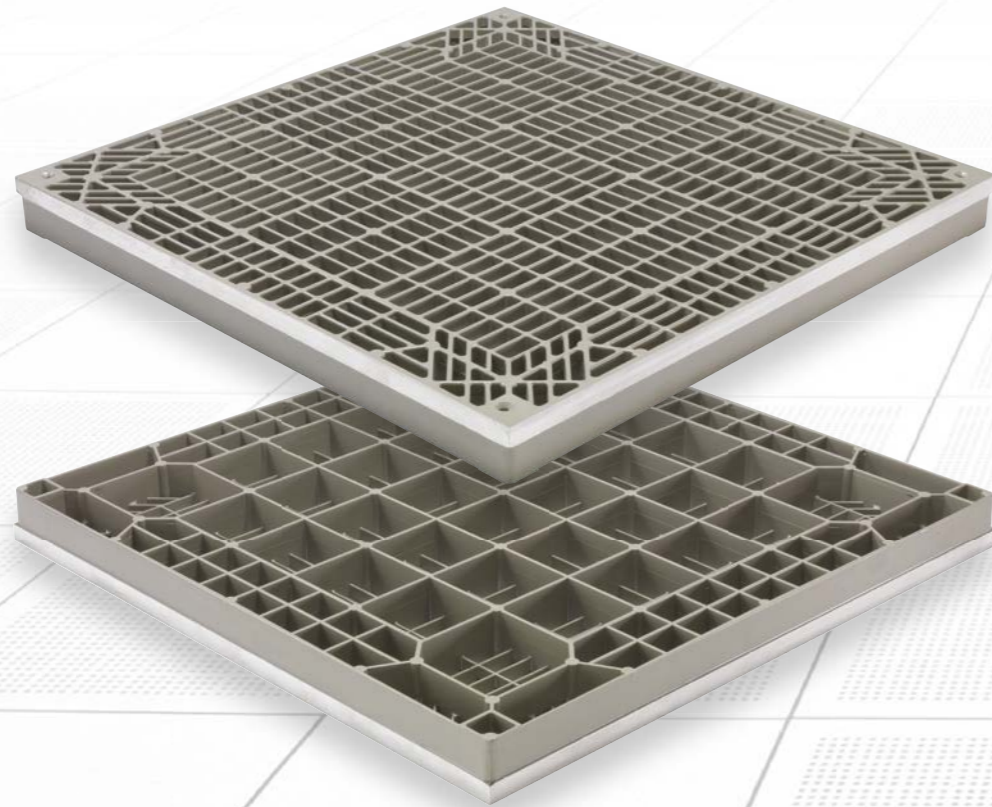
Version with 512 holes: air flow more than 10% of panel free area.



GRATING PANELS 600x600 mm

Grating panel is 600x600, with an overall finished thickness of 50mm (Height). It is produced by high pressure die casting of an aluminum alloy. The free area opening is **more than 60%** of the entire surface area. The advanced concept matrix produces a multi-level ribbed panel. These ribs have different heights and thicknesses to create a particular structure that ensures higher strength and load capacity specifications.

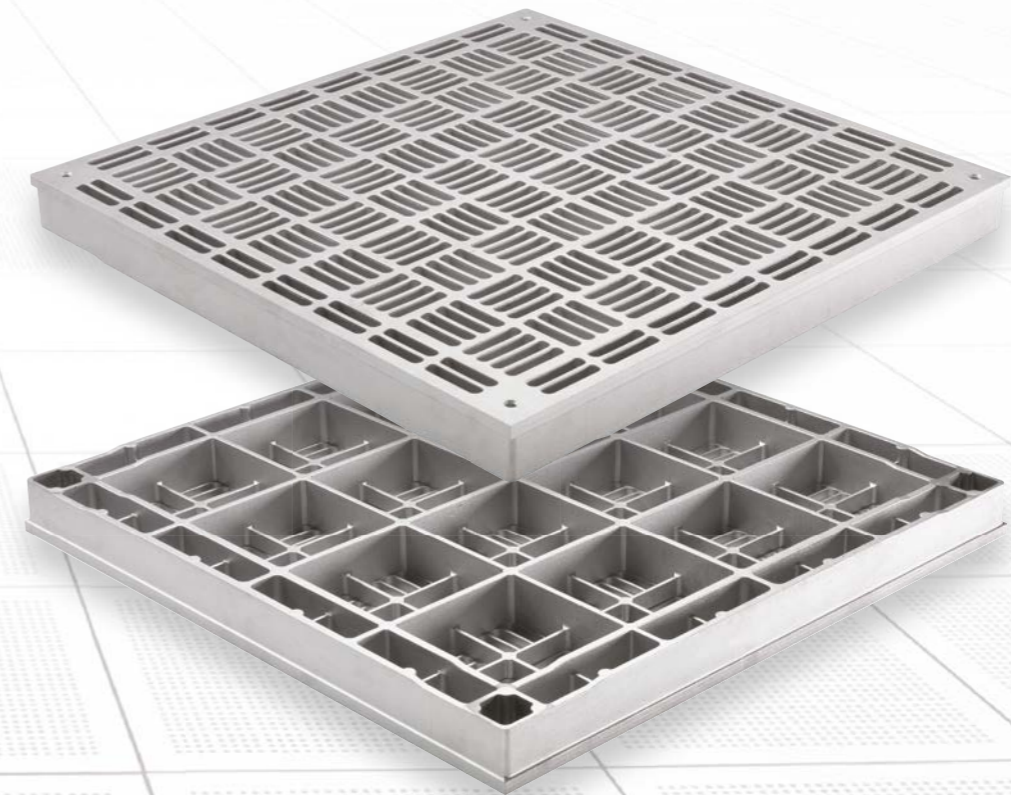
Article	Description	Size (mm)	Open ratio (%)	Concentrated Load @ ½ edge (kN)	Ultimate Load @ ½ edge (kN)
ALU-G1 SP	Standard Performance Grating Panel	600x600xH50	> 60	8	16
Complies with	UNI EN12825:2003 = CLASS 6A				
Options	epoxy powder coating 10 ⁶ Ω, corner lock for M6 Inox fasteners				



GRATING PANELS 600x600 mm

Grating panel is 600x600, with an overall finished thickness of 50mm (Height). It is produced by high pressure die casting of an aluminum alloy. The free area opening is **more than 49%** of the entire surface area. The advanced concept matrix produces a multi-level ribbed panel. These ribs have different heights and thicknesses to create a particular structure that ensures higher strength and load capacity specifications.

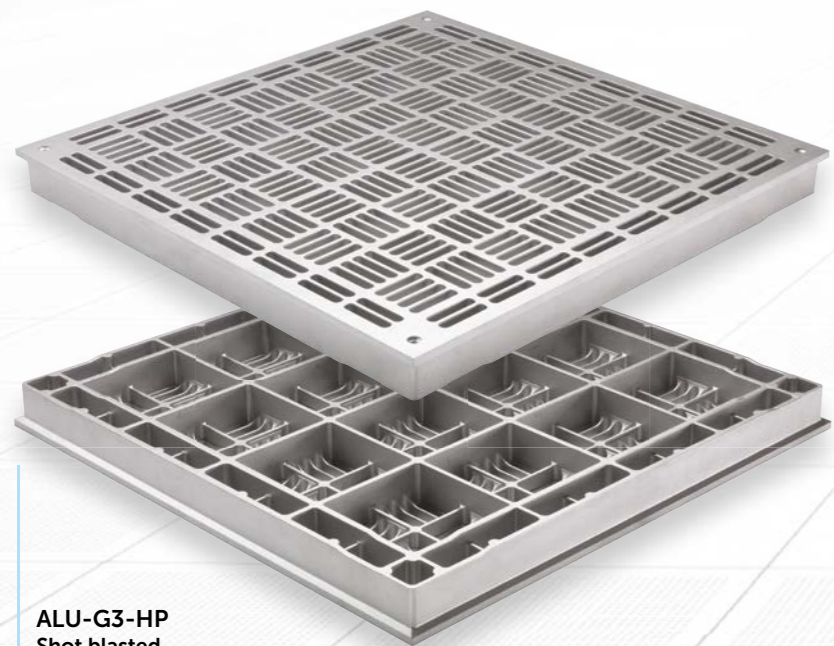
Article	Description	Size (mm)	Open ratio (%)	Concentrated Load @ ½ edge (kN)	Ultimate Load @ ½ edge (kN)
ALU-G2 UHP	Ultra High Performance Grating Panel	600x600xH50	> 49	17	38
Complies with	UNI EN12825:2003 = CLASS 6A				
Options	shot blasting, epoxy powder coating 10 ⁶ Ω, corner lock for M6 Inox fasteners				



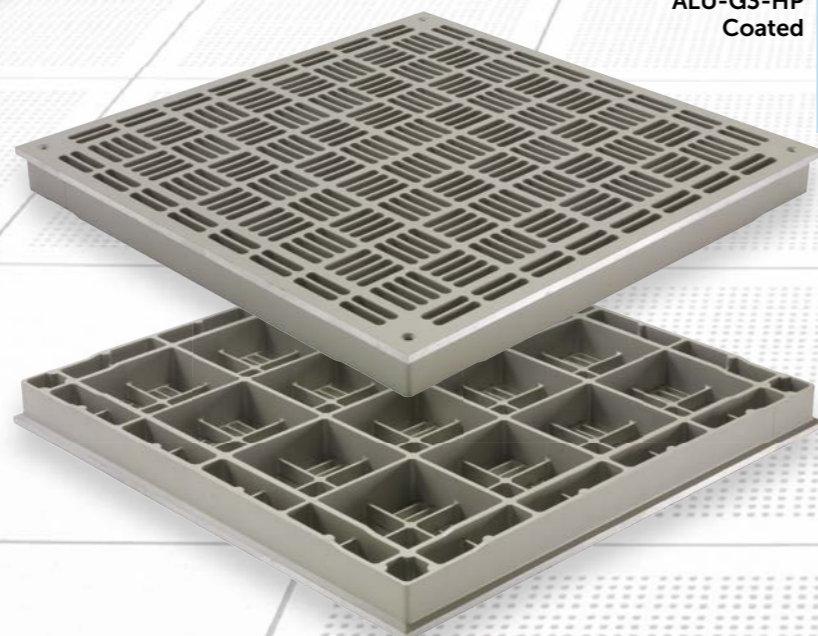
GRATING PANELS 24"x24"

Grating panels are 24"x24", with an overall finished thickness of 1,97" (Height). They are produced by high pressure die casting of an aluminum alloy. The free area opening is more **than 47%** of the entire surface area. The advanced concept matrix produces a multi-level ribbed panel. These ribs have different heights and thicknesses to create a particular structure that ensures higher strength and load capacity specifications.

Article	Description	Size (inches)	Open ratio (%)	Concentrated Load @ ½ edge	Ultimate Load @ ½ edge
ALU-G3-HP	High Performance Grating Panel	24"x24"x H1,97"	> 47	2.300 lbs (10 kN)	8.500 lbs (38 kN)
Complies with	CISCA Test procedures				
Options	shot blasting, epoxy powder coating 10 ⁶ Ω, corner lock for ¼" Inox fasteners				



ALU-G3-HP
Shot blasted



ALU-G3-HP
Coated

PVC COATING

PVC coating is ideal for raised finish flooring of cleanrooms.

This coating is suitable for all applications and it consists of two options, either a electro **conductive** (EC 10⁴ - 10⁶ Ω) or **static** dissipative (SD 10⁶ - 10⁸ Ω) wearing surface that will meet your projects and specification requirements.

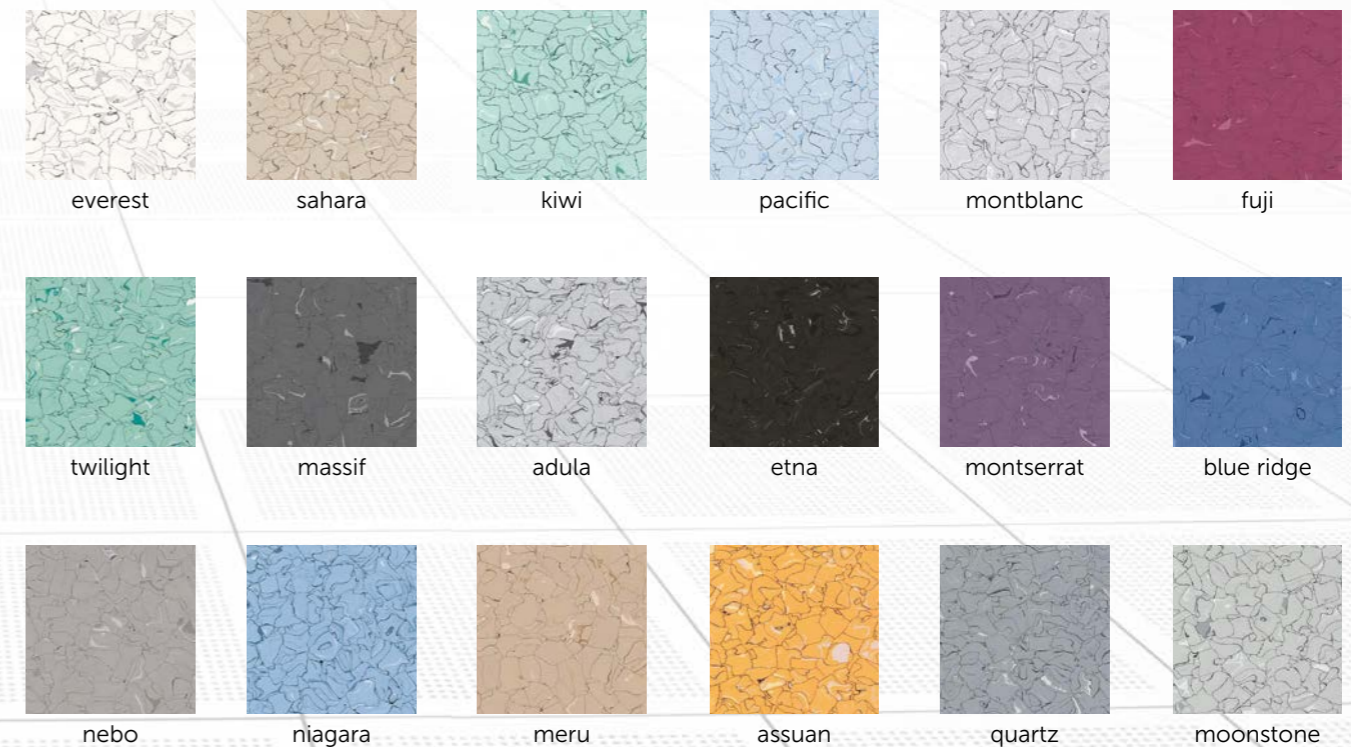
Main functional properties:

- coating is cut from high density homogeneous blocks;
- volatile emissions are reduced;
- maintenance costs are low;
- it can easily be fixed and restored to initial conditions many times;
- technical specifications stay constant for the entire life cycle;
- the surface is compact and pore free.

In summary, a new electric conductivity system has been created using chips covered with a conductive coating. It offers higher performances and higher durability.



The range of colours may vary at any time without prior notice.



UNDERSTRUCTURE SUPPORTS: ALUMINUM PEDESTALS

Under-structure raised flooring for cleanrooms from FFH 250 mm (10") up to 1000mm (39,5"), suitable for Metric or Standard Imperial (SI) panel 600x600 mm and 24"x24".

Article	Description	FFH (mm)	Ultimate Load (kN)	Base (mm)	Head (mm)	Tube (mm)	Regulation Thread
ALU45-HP	Alu Heavy Pedestal	280 – 900 (11" – 35,5")	> 50 (11,250 lbs)	150x150 (5,9"x5,9")	85x85 (3,35"x3,35")	ø 40 (1,57")	M20
ALU65-SHP	High Alu Super Heavy Pedestal	280 - 1000 (11" – 39,5")	> 80 (18,000 lbs)	150x150 (5,9"x5,9")	85x85 (3,35"x3,35")	ø 50 (1,97")	M24
ALU65-SHP-US	Alu Super Heavy Pedestal-US Market	250 - 1000 (10" – 39,5")	> 110 (25,000 lbs)	150x150 (5,9"x5,9")	85x85 (3,35"x3,35")	ø 50 (1,97")	1" (steel)

Gasket	Dissipative Compound EVA
Complies with	UNI EN12825:2003
Options	<ul style="list-style-type: none"> Epoxy powder coating 10⁶ Ω Possibility to add Corner Lock M6 or 1/4" clearance hole, countersunk Possibility to connect Aluminum stringers Possibility to connect Aluminum diagonal bracings

NOTES

- Die cast aluminum head with reinforcement ribs
- Die cast aluminum threaded Stud (Steel threaded Stud for ALU 65 SHP-US)
- Die cast aluminum base with reinforcement ribs
- Shock-absorbing conductive gasket, 2mm/0,078", (<10⁶ conductivity) applied to the head
- Aluminum tube
- These pedestals are made completely in aluminum (except for thread ALU65 SHP-US that is made in steel) and electrical conductivity is ensured by material properties
- Regulation: +/- 25mm (+/- 1")

UNDERSTRUCTURE SUPPORTS: STEEL PEDESTALS

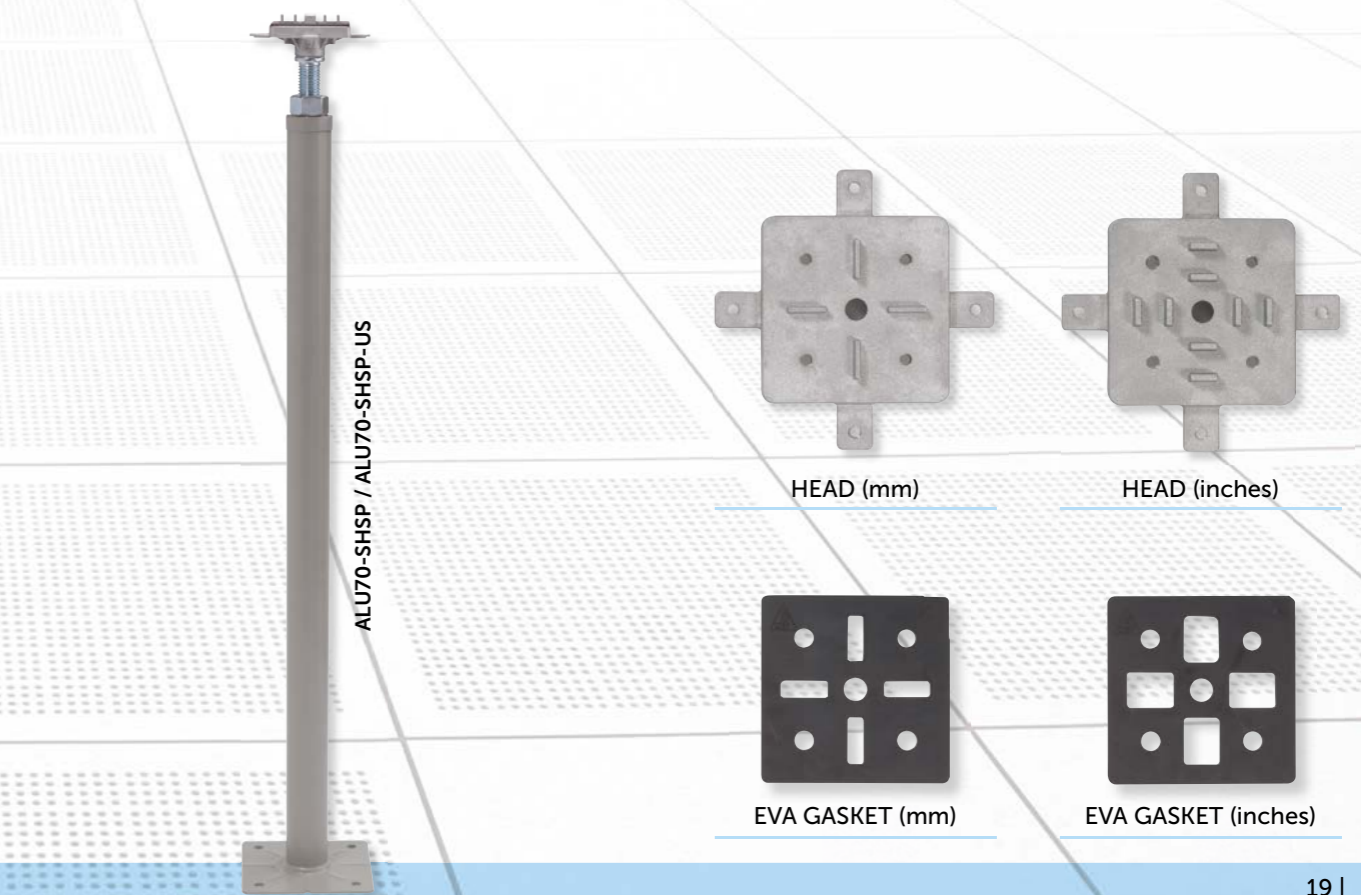
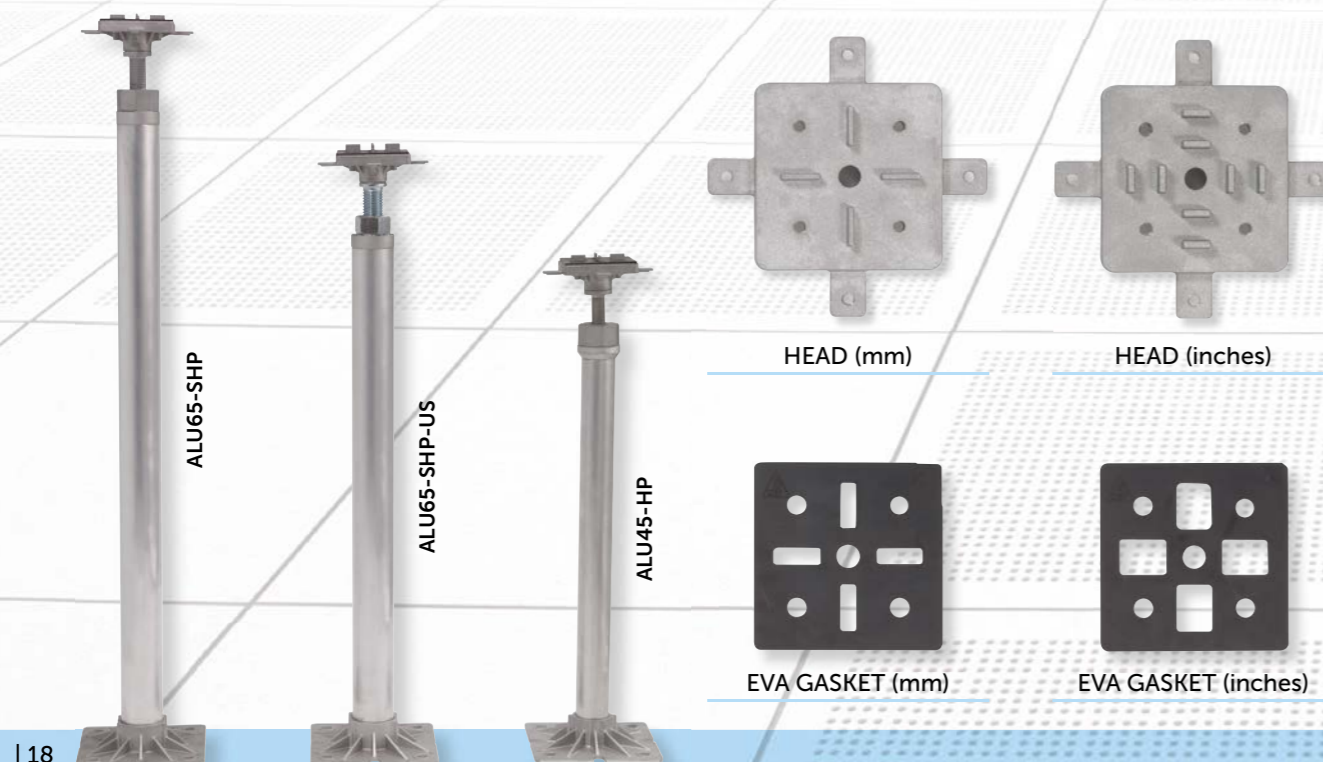
Under-structure raised flooring for cleanrooms from FFH 250 mm (10") up to 1000mm (39,5"), suitable for Metric or Standard Imperial (SI) panel 600x600 mm and 24"x24".

Article	Description	FFH (mm)	Ultimate Load (kN)	Base (mm)	Head (mm)	Tube (mm)	Regulation Thread
ALU70-SHSP (metric)*	Super Heavy STEEL Pedestal	250 – 1000	> 105	150x150	85x85 (Aluminum)	ø 48	1" (Steel)
ALU70-SHSP-US (SI)**	Super Heavy STEEL Pedestal	10" to 39,5"	> 25,000 lbs	5,9x5,9 inch	3,35x3,35"	ø 1,89" (Steel)	1" (Steel)

Gasket	Dissipative Compound EVA
Complies with	* UNI EN12825:2003 / ** CISCA Test procedures
Options	<ul style="list-style-type: none"> Epoxy powder coating 10⁶ Ω Possibility to add Corner Lock M6 or 1/4" clearance hole, countersunk Possibility to connect Aluminum stringers Possibility to connect Aluminum diagonal bracings

NOTES

- Tube and base are made of steel and joint welded
- Steel Adjusting Nut for head regulation
- Die cast aluminum head with reinforced ribs
- Adjustment +/- 1" (+/- 25mm)
- Shock-absorbing conductive gasket, 2mm, (<10⁶ conductivity) applied to the head
- The pedestals are made completely of Steel and Aluminum and electrical conductivity is ensured by material properties



RAISED FLOORING ACCESSORIES

Aluminum slide damper for Perforated or Grating Panels. Easily adjustable from the top of the panels, allow customers to maintain uniform balancing of airflow inside cleanrooms and easily post installation adjustments with fasteners.

Damper is suitable for metric or standard imperial (SI).

Factory assembled or supplied separated for on-site installation.

Closed Damper



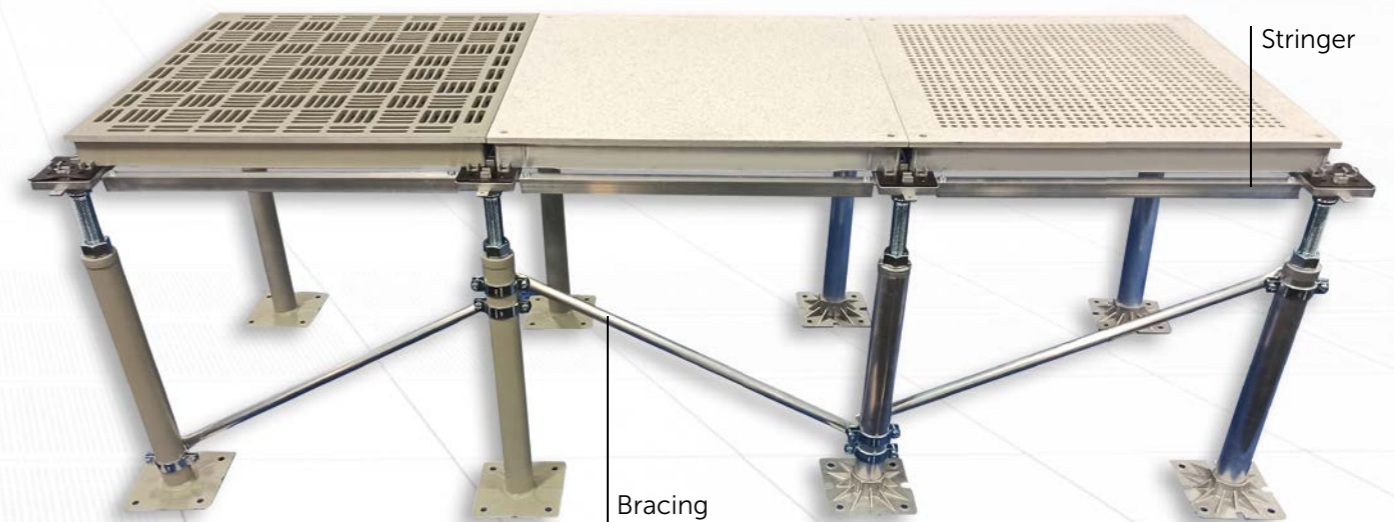
Open Damper



RAISED FLOORING ACCESSORIES

Stringers and bracings are made of aluminum and easily assembled with brackets and fasteners supplied as a kit for on-site installation.

Stringers are offered in two different sizes to be compatible with both 24" and 600 mm Raised Access Floor Systems.



RAISED FLOORING ACCESSORIES

View panel option (PMMA) allows easy access to underfloor flush gauges, piping and electrical boxes plus wiring that run under cleanroom floors.

Inspection dimension:

522x522 mm for ALU 1B & ALU 2B

503x503 mm for ALU 3B & ALU 4B

19,80"x19,80" for ALU 5B & ALU 6B

Drop into any floor location, finger holes for easy no tool access.



Metric version



Inches version

RAISED FLOORING ACCESSORIES

Recessed Electrical And Data Box for a trouble-free access to underlying installations.



PROJECT PORTFOLIO EXAMPLES



PROJECT: **CORIOLIS**
SITE: FRANCE
AREA: 4.200 sqm
CLEANROOM
CLASSIFICATION: ISO 3



PROJECT: **WAVE OPTICS**
SITE: UK
AREA: 2000 sqm
CLEANROOM
CLASSIFICATION: ISO 4

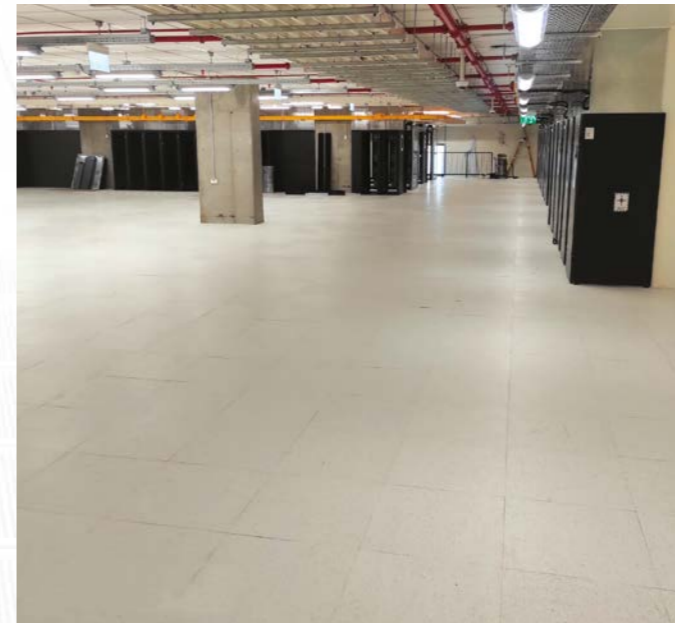


PROJECT: **F1 & F3**
SITE: ITALY
AREA: 3600 sqm
CLEANROOM
CLASSIFICATION: ISO 3 / ISO 5

PROJECT PORTFOLIO EXAMPLES



PROJECT: **GATEWAY**
SITE: FRANCE
AREA: 15.000 sqm
CLEANROOM
CLASSIFICATION: ISO 3



PROJECT: **IDC 9 Bldg**
SITE: ISRAEL
AREA: 1300 sqm
CLEANROOM
CLASSIFICATION: ISO 6



PROJECT: **TPI 5**
SITE: ITALY
AREA: 1300 sqm
CLEANROOM
CLASSIFICATION: ISO 5

PROJECT PORTFOLIO EXAMPLES



PROJECT: **FAB 300mm**
SITE: ITALY
AREA: 5100 sqm
CLEANROOM
CLASSIFICATION: ISO 3 / ISO 5



PROJECT: **VISHAY**
SITE: ITALY
AREA: 600 sqm
CLEANROOM
CLASSIFICATION: ISO 6



PROJECT: **V SIC 200mm**
SITE: ITALY
AREA: 3500 sqm
CLEANROOM
CLASSIFICATION: ISO 3

PROJECT PORTFOLIO EXAMPLES



PROJECT: **R&D LAB**
SITE: UK
AREA: 1.000 sqm
CLEANROOM
CLASSIFICATION: ISO 4



PROJECT: **TELEDYNE**
SITE: FRANCE
AREA: 800 sqm
CLEANROOM
CLASSIFICATION: ISO 5



PROJECT: **LYNRED**
SITE: FRANCE
AREA: 300 sqm
CLEANROOM
CLASSIFICATION: ISO 3



NPF GROUP
Headquarters



NPF Nuova Presso Fondal
Die Casting Plant
Alu-Raised Flooring Division



PFB Presso Fondal
Die Casting Plant



LMB Lavorazioni Meccaniche
CNC Machining Plant



NG Design
Tooling Maker Plant



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