



SOLUTIONS FOR
**VIBRATIONS
CONTROL**

CONTROL OF VIBRATIONS

WELLNESS AND PRODUCTIVITY



The vibrations caused by engines, machinery, presses, industrial processing in general and natural events are harmful phenomena either for the environment than for the health.

For over 40 years, Isolgamma has been producing and distributing products and solutions for acoustic insulation and vibration damping, with the aim of improving the quality of life.

Since 1972 – the year the company was founded – up today, the launching of innovative products protected by international patents, expansion into new markets and sectors and the attainment of quality certifications have established the reputation of the Isolgamma brand worldwide, also thanks to the company's extensive experience and on-going research activities. We constantly implement cutting-edge technologies to create highly performing products, while providing adequate solutions to any customer needs. The study and creation of eco-compatible products, combined with the manufacture of highly performing items, have made Isolgamma a first-rate company – on both the Italian and international markets – in the construction, industrial, transport and special paving sectors.

Mechanical vibrations are oscillating movements of an element around its own equilibrium point. They are produced during a machine or equipment operation and can generate a risk to the health and safety of workers, of the population that lives in the same area, can cause significant damage to the structures of buildings and affect the operation of other nearby equipment, reducing their performance over the years and increasing maintenance activities.

In most cases, the reduction of the risk source is the only measure to be taken in order to bring back the exposure to values below the prescribed limits.





SILENCE MAKERS



VIBRATIONS IN CIVIL AND INDUSTRIAL FIELDS

The vibrations in the working field are mainly those due to moving tools and machinery.

They are characterized by very variable values both in wideness and frequency of vibration. However, it is possible to roughly divide the vibrating instruments into equipment characterized by low frequencies and high wideness (typical of percussion instruments) and equipment where the high frequency is associated with a low wideness value (rotary motion instruments).

The vibrations involving the whole body are linked to different sources:

- Means of transport (buses, lorries, cars, etc.).
- Self-propelled machines (tractors, mechanical shovels, forklifts, etc.).
- Fixed installations (metal and wood working machines, ventilation systems, pumping plants, etc.).

COMPLIANCE WITH REGULATIONS

For the prevention of exposure diseases to vibrations and for the management of protection and safety in the workplace is suggested to refer to DIRECTIVE 2002/44/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 June 2002 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (vibration). The assessment of the level of exposure to vibration is based on the calculation of daily exposure A(8) expressed as equivalent continuous

acceleration over an eight-hour period, calculated as the highest (rms) value, or the highest vibration dose value (VDV) of the frequency-weighted accelerations, determined on three orthogonal axes (1,4awx, 1,4awy, awz for a seated or standing worker) in accordance with Chapters 5, 6 and 7, Annex A and Annex B to ISO standard 2631-1(1997).

TECHNICAL SUPPORT AND DESIGN

Our R & D office is able to support the designer or the client in all phases of the project, from the preliminary study to the implementation by offering a complete consulting service by studying and developing customized solutions, supported by inspections and installation checking on site.

Isolgomma has two laboratories specialised in research, testing and inspections; one is dedicated to the building sector, the other specialises in studying and producing systems that reduce vibrations for the industrial and rail transport sectors.

The evaluation of the suitable solution is developed by analyzing the problem starting from the acting loads; in functions of these we can distinguish interventions for light loads, typically in the civil engineering field, for heavy loads, when we move in environments with industrial machinery or finally solutions with anti-vibration feet in direct applications under small or medium size systems.

CONTROL OF VIBRATIONS

ANTI-VIBRATION SYSTEMS FOR LIGHT LOADS



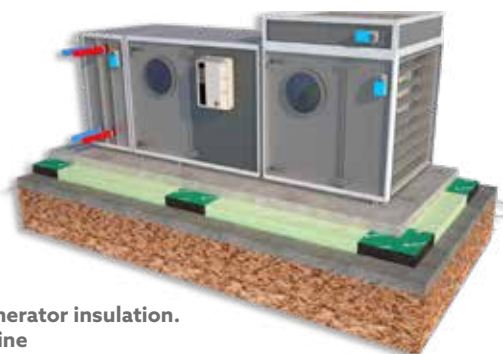
The different disturbing sources are often machines or environments with low weight, therefore they need specific solutions.

The solutions for light loads are characterized by systems that allow high performance even in presence of low loads and with different disturbing frequencies.

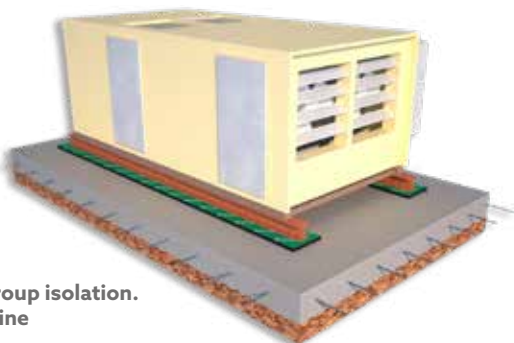
The particular point-bearing shape of **MEGAPOINT** panel or the **PAD & STRIPE** hybrid systems allow to design customized solutions for most of the disturbing sources.

APPLICATION FIELDS

- Isolation of inertial bases for HVAC, generators, etc.
- Swimming pools isolation
- Isolation of building foundations from vibrations coming from the ground as linear support



Cogenerator insulation.
PAD line



HVAC group isolation.
STRIPE line



Swimming pool insulation.
MEGAPOINT line



Isolation of textile production plant.
MEGAPOINT line



ANTI-VIBRATION SYSTEMS FOR LIGHT LOADS

ANTI-VIBRATION SYSTEMS
FOR HEAVY LOADS

ANTI-VIBRATION
SUPPORTS

EXAMPLES OF APPLICATIONS FOR LIGHT LOADS

The main quantities of various disturbing sources lead us to operate in different fields.



STRIPE

2015

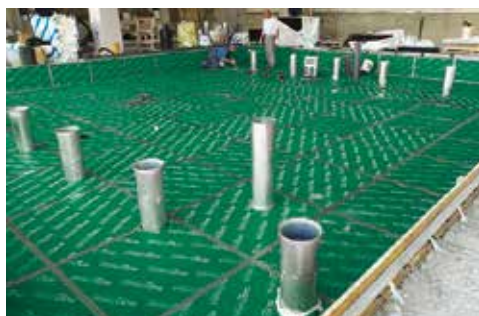
Technical
room
Bolzano
hospital



PAD

2014

Grinding mill
Ireland



MEGAMAT/ POINT

2017

Basement of
textile frames
Gavazzi
Tessuti
Tecnici Spa,
Lecco



MEGAPOINT/ MEGAMAT

2018

Indoor
swimming
pool
Hotel in
Verona

TECHNICAL INFORMATION

Our **MEGAPOINT** and **PAD & STRIPE** products are designed to work with low loads and are the ideal solution to control disturbing sources included in this load range.

In the side view, relevance areas of each product are highlighted, according to the specific pressure acting on the anti-vibration element.

APPLICATION AREA					
Specific load (N/mm ²)	2,00				MEGAMAT ME 950
	1,20				MEGAMAT ME 800
	0,70				MEGAMAT ME 650
	0,35				MEGAMAT ME 500 (M10 EPM)
	0,20				PAD STRIPE
	0,10				MEGAPOINT

VIBRATION CONTROL

ANTI-VIBRATION SYSTEMS FOR HEAVY LOADS



Building and Industry fields require anti-vibration systems to isolate buildings or heavy machinery.

Both in the construction and industrial sectors it is necessary to isolate buildings or heavy machinery that require products with high mechanical resistance and excellent anti-vibration performance.

The wide range of **MEGAMAT** solutions for these applications allows to reduce the vibrations coming from very heavy machinery such as presses, hammers, engines or be used as discrete or continuous supports as insulation of building foundations.

APPLICATION FIELDS

- Insulation of heavy machinery under inertial bases
- Punctual isolation of engines, cogenerators, etc.
- Isolation of buildings foundations from vibrations of the ground



Example of inertial inertial application in the pit.
MEGAMAT line



Example of floating stand application.
MEGAMAT line



Example of application on residential building foundations.
MEGAMAT line



ANTI-VIBRATION SYSTEMS
FOR LIGHT LOADS

**ANTI-VIBRATION SYSTEMS
FOR HEAVY LOADS**

ANTI-VIBRATION
SUPPORTS

EXAMPLES OF APPLICATIONS FOR HEAVY LOADS

The **MEGAMAT** line allows the various characteristics of the products to create specific solutions in presence of sources with displacements even on three axes.

Furthermore, the excellent mechanical properties allow the application of the product in building field as a support to reduce the vibrations coming from the external environment. In the various fields of application, MEGAMAT line is ideal to mitigate the vibrations with high performance products designed to work with high loads.



MEGAMAT

2016

Inertial stand
on the pit
Monchieri SpA,
Brescia



MEGAMAT

2014

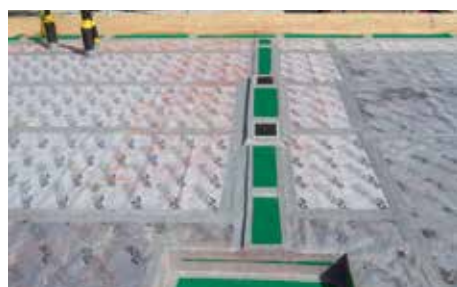
Building
foundation
Poland



MEGAMAT

2017

Inertial stand
on the pit
Monchieri SpA,
Brescia



MEGAMAT

2010

Anti-vibration
supports on
a commercial
structure
COOP,
Switzerland

TECHNICAL INFORMATION

Thanks to the four different densities and characteristics, the **MEGAMAT** line grants high performance both for industrial and civil applications.

In the side view, relevance areas of each product are highlighted, according to the specific pressure acting on the anti-vibration element.

APPLICATION AREA					
Specific load (N/mm ²)	2,00				MEGAMAT ME 950
	1,20				MEGAMAT ME 800
	0,70				MEGAMAT ME 650
	0,35				MEGAMAT ME 500 (M10 EPM)
	0,20				PAD STRIPE
	0,10				MEGAPOINT

VIBRATION CONTROL

ANTI-VIBRATION SUPPORTS



Anti-vibration systems for on-board installations.

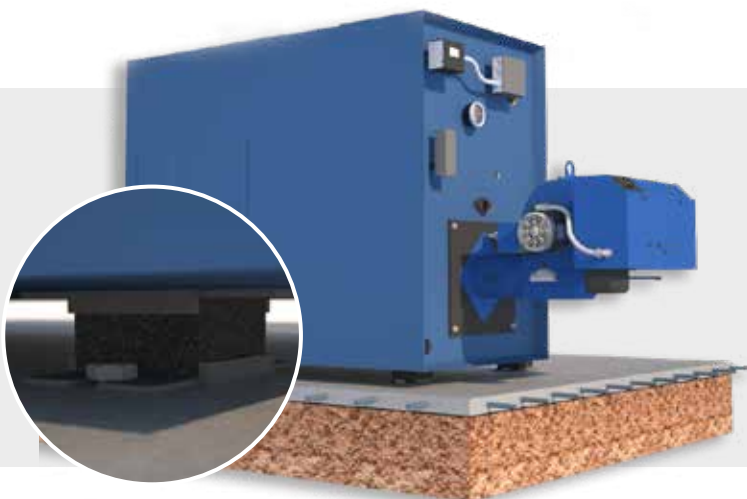
These solutions have been designed to provide the various types of machinery with anti-vibration systems to be installed on the machine.

The product is designed to be used on different types of plants according to weight and disturbing frequency. The product range is made of different sizes supports proportional to the loads and dimensions of the machine to be insulated.

APPLICATION FIELDS

- Vibration control of vibrating machines
- Where an anti-vibration product is required without machinery removal





ANTI-VIBRATION SYSTEMS
FOR LIGHT LOADS

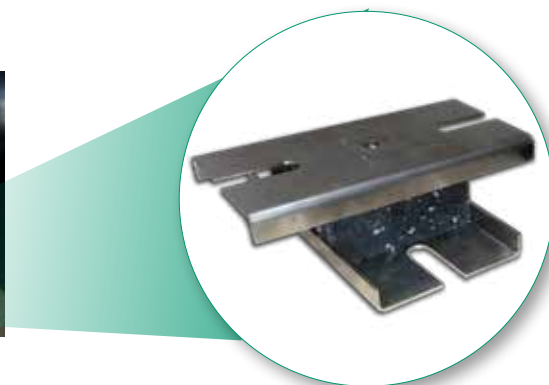
ANTI-VIBRATION SYSTEMS
FOR HEAVY LOADS

**ANTI-VIBRATION
SUPPORTS**

ANTIVIBRATION SUPPORTS APPLICATIONS

Anti-vibration supports allow to solve difficult existing situations; where it is not possible to remove the machine or a plant, the supports can be installed directly with a minimally invasive intervention but resolute in most cases.

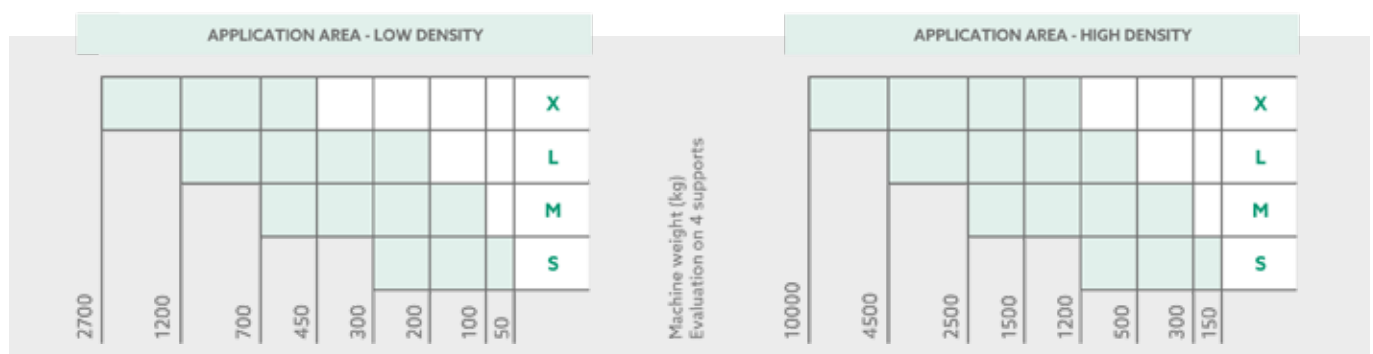
Even in new installations, the supports can be used, especially where inertial bases are not allowed or where there are very limited spaces.



TECHNICAL INFORMATION

The **ANTIVIBRATION SUPPORTS** line consists of four sizes with variable density ranges; these different sizes and features allow a lot of possibilities of use in different situations.

The underlying representation highlights the areas of relevance of each support.



VIBRATION CONTROL

PRODUCT LINES

MEGAPOINT

The **MEGAPOINT** product completes the range of **MEGAMAT** vibration damping solutions especially where it is necessary to isolate light machines or with particularly low disturbing frequencies. The **MEGAPOINT** shape has been studied to guarantee high performance with low thickness (25 mm) with a good mechanical behaviour and the strength required in industrial and construction applications.

The product is equipped with a high-weight TNT support which makes the product ideal even under high-thickness inertial bases.

The use of recycled raw materials contributes to having a product with low environmental impact.

APPLICATION FIELDS

- Light machinery isolation (textile frames, HVAC, ecogenerators, etc.)
- Isolation of swimming pools
- Measurement rooms

PAD & STRIPE

The **PAD & STRIPE** line is the specific vibration isolation solution for all applications where the vibration sources have a very low weight. The **PAD & STRIPE** products are pre-cut supports and ready to use, respectively square or rectangular, composed of granules and rubber fibres SBR and EPDM agglomerated with polyurethane glue in two different thicknesses, to adapt to a wide range of loads.

The products can be used directly under the support feet of vibrating machines or by interposing an inertial base; in this case the casting of the base can be done on a disposable form-work, or directly on the products, interposing the Fybro polyester panels between the rubber supports.

The flexibility design of the insulating layer makes **PAD & STRIPE** products of great applicability to the most construction situations.

APPLICATION FIELDS

- Isolation of inertial bases for HVAC, ecogenerators, etc.

MEGAPOINT

PAD

STRIPE

MEGAMAT

The **MEGAMAT** line is a valid solution against noise pollution produced by vibrations and re-irradiated noises of operating machines, presses and / or air handling units, in the industrial and construction sectors. The product is in panels made of SBR and EPDM rubber agglomerated with polyurethane glues. All panels are protected by a waterproof synthetic anti-tear red fabric that guarantees mechanical protection and water resistance in case of application of concrete castings directly on the product.

Thanks to the four density families, the **MEGAMAT** line grants high performance in applications on light and heavy machinery or as a support or insulating element inside structures and foundations of buildings.



MEGAMAT

APPLICATION FIELDS

- Isolation of heavy machinery under inertial bases
- Structural insulation of buildings under beams, plinths, pillars and load-bearing walls
- Isolation of buildings foundations from vibrations of the ground

PRODUCT LINES COMPARISON

		MEGAPOINT	PAD STRIPE	MEGAMAT			
				ME 500 (M10 EPM)	ME 650	ME 800	ME 950
Thickness	mm	25	20 - 50	10 - 20 - 30 - 40 - 50			
Static use range	N/mm²	0,002	0,050	0,050	0,070	0,120	0,250
Dynamic use range	N/mm²	0,002 - 0,040	0,050 - 0,350	0,050 - 0,350	0,070 - 0,700	0,120 - 1,200	0,250 - 1,500
Maximum loads	N/mm²	0,100	1,000	1,000	2,000	3,000	4,000
Static elastic module	N/mm²	0,060	0,623	0,623	0,120	0,240	0,440
Dynamic elastic module	N/mm²	0,296	1,750	1,750	3,600	2,400	4,450
25% compression	N/mm²	0,037	0,200	0,200	0,396	0,634	1,125
Loss factor		0,147	0,143	0,143	0,140	0,136	0,137
Fire resistance		Classe E					



SILENCE MAKERS

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FOR HEAVY LOADS

ANTI-VIBRATION
SUPPORTS



[isolgomma.com](https://www.isolgomma.com)



ISOLGOMMA SRL

Via dell'Artigianato, 24
36020 Albettonne (VI) Italy
Tel. +39 0444 790781
Fax +39 0444 790784
info@isolgomma.com

Distributor