White Paper

Public Spaces

Acoustic Treatment Guidelines
Restaurants

VICOUSTIC
INNOVATIVE ACOUSTIC SOLUTIONS

Public Spaces

Acoustic Treatment Guidelines
Restaurants

Intro-
duction

One of the major acoustic issues in restaurants is the high level of background noise.

Recently, a survey undertaken in UK* found that **nearly 80% of people have left a restaurant, cafe or pub early because of noise**.

In addition, studies conducted by Zagat, an international dining guide, revealed that noise levels are the top complaint from those dinning out. Excess noise is considered even more annoying than poor service!

Vicoustic has developed this new White Paper to help you find a solution to control the background noise levels in your restaurant.

* Action On Hearing Loss - Speak Easy report 2016

⊙⊙⊙⊙◯ Reviewed 16 June 2018

Hipster Central

...The ambient noise was deafening, and it wouldn't be an exaggeration to say that we pretty much had to shout at each other to be heard. I don't mind bustle and energy at a restaurant, but this took it to a new level. If you're... More

⊙⊙⊙◯◯ Reviewed 30 January 2018   ▢ via mobile

Bring your ear plugs

...Significant downside here is the ambient noise. It was quite unbearable at times with large party tables trying to shout across at each other making the ambience for a couples dinner quite impossible. Downstairs seemed a bit more bearable but we were on the mezzanine... More

⊙⊙⊙⊙◯ Reviewed 18 November 2017   ▢ via mobile

Great food but super noisy

...Everything was excellent except for the noise, would be worthwhile looking at some noise dampening, I can't remember being in a louder restaurant. Probably not an ideal venue if you want to have a conversation. I'd go back but only if a table outside was... More

Restaurants
Acoustic treatment guidelines

Why are restaurants so noisy?
10 — 11

How to control noise build-up in restaurants?
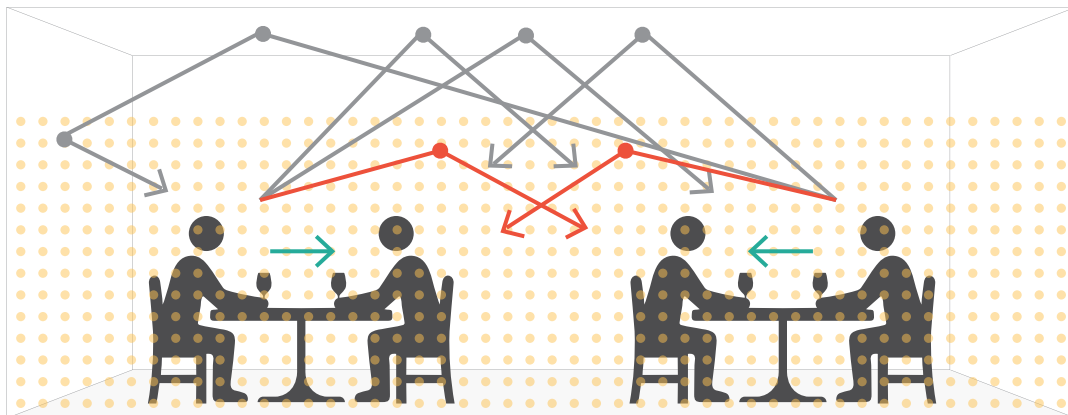12 — 13

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Why are restaurants so noisy?

Figure 1

●——→ Direct sound
●——→ Reflections from walls
●——→ Reflections from Ceiling
● ● ● Background noise

Typically, new Restaurants have very hard, reflective surfaces, such as glass, concrete, plasterboard, among others.

In such environments, sound is strongly reflected many times around a room's surfaces taking a long time before it is finally absorbed. This leads to very reverberant rooms.

In such rooms, background noise created by multiple conversations will quickly build up, making it very hard for people to understand each other.

Consequently, people in such loud environments need to raise their voices above background noise levels to be able to understand each other, consequently increasing background noise.
This build-up of sound, also known as the Lombard effect, causes discomfort to everyone, both clients and workers.

Figure 2
• *Flat Panel VMT, Nature Collection, Tropical Pattern* 1

How to control noise build–up in restaurants?

One of the major aspects to take into account when designing the acoustics of a restaurant, cafe or pub, is to develop solutions to control the room's reverberation time (RT). This will help minimize the noise 'build-up' process, making communication easier and will avoid people having to raise their voices to be heard and understood.

However, it should be noted that lack of background noise in a restaurant will also result in an environment that potentially lacks atmosphere and mood – no one wants to eat in a restaurant with no vibrancy and energy, which offers no speech privacy and where everyone can hear your talk. Therefore, there is a fine balance to strike in creating the perfect ambience in a restaurant and dining setting.

Best Practice Guidelines state maximum RTs between 0,8 to 1,0s (it is likely that very small restaurants would need RTs closer to 0,6s). This will create a balanced acoustic environment where those two extreme conditions are likely to be avoided.

• **Ceiling Treatment** For the ceiling treatment, it is recommended that a restaurant uses absorptive ceiling product. This can be achieved using Flat Panel VMT, Vixagon VMT and ViCloud VMT in the Restaurant's ceiling.

• **Wall Treatment** To control strong sound reflection from walls, and in this way control both Reverberation Time and noise build up, we recommend the use of Flat Panel VMT and Vixagons VMT.

Acoustic Treatment Positioning

In terms of positioning the acoustic treatment, it should ideally be distributed evenly over a room's surfaces; this will help create a more homogeneous acoustic environment and will control strong, specular reflections from all surfaces.

However, due to project constraints, for the most part, this is not feasible. In these situations, one should look for the best possible compromise. Ceiling treatment is usually preferential, since it is ordinarily the biggest surface available for acoustic treatment and it covers all of the restaurant's area.

Recommended **products**

Flat Panel VMT

Flat Panel VMT is a sound absorbing panel, extremely efficient in middle and high frequencies, where speech occurs, making it ideal for your restaurant. It can simulate real material such as concrete, marble, wood, any creative patterns or alternatively solid colors.

Figure 4

• Flat Panel VMT, Concrete Collection, Pattern 1 **1**

Performance

Sound Absorption Coefficient

| | Flat Panel VMT 40 mm |
| | Flat Panel VMT 20 mm |

f(Hz)	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000
α	0,10	0,13	0,23	0,26	0,33	0,37	0,54	0,74	0,78	0,80	0,84	0,84	0,82	0,79	0,80	0,80	0,86	0,87
	0,04	0,03	0,08	0,13	0,18	0,21	0,33	0,48	0,55	0,64	0,76	0,84	0,82	0,79	0,80	0,80	0,86	0,87
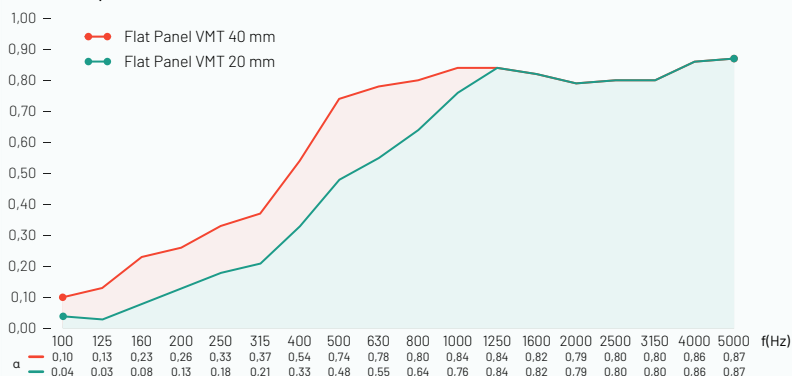
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Meet the new
VicSpacer

VicSpacer is a new fixation system for Flat Panel VMT, specially developed to improve the acoustics of any room.

By spacing the panel 40 mm away from the walls / ceiling, VicSpacer helps to enhance the Flat Panel VMT acoustic performance in the medium / low-frequency regions.

VicSpacer will need to be combined with Flat Panel VMT of 20 mm thickness (not included).

Main features

- It makes Flat Panel VMT compatible with the VicFix J profile system
- Compatible with all sizes of Flat Panel VMT, including XXL panels (2380 × 1190 × 20 mm)
- Covers the white sides of Flat Panel VMT
- Improves substantially the acoustic performance of Flat Panel VMT
- Can be installed in the ceiling[1] and corners[2], acting as Bass Trap
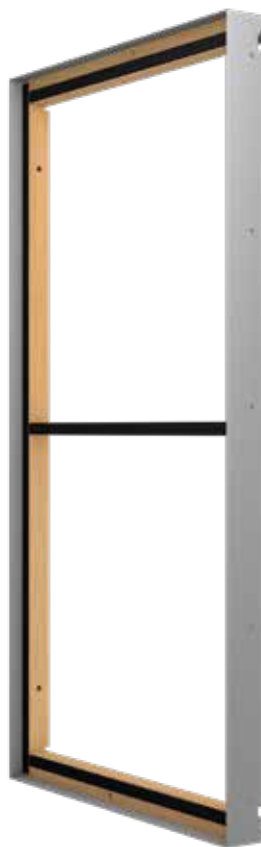
Colors

White Matte   Black Matte   Grey Matte

[1] For ceiling installation do not use the VicFix Mini supplied with the product. Use the VicFix J Profile 2m (sold separately) or fix the panels with screws.
[2] For corner installation use VicFix Corner and VicFix 80 mm (sold separately).

Dimensions

599 × 1194 × 66 mm
/ 23,6" × 47,0" × 2.6"

Package Information

4 units/box

Technical Information
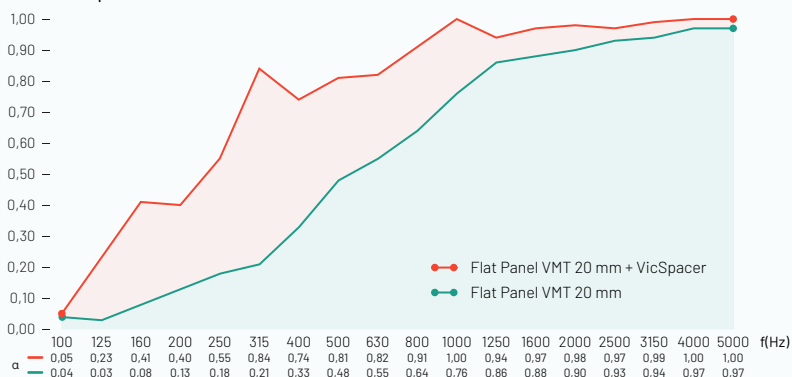
Raw Material:
Wood and Lacquered Steel
NRC: 0.85 (VMT 20 mm + VicSpacer)
Installation: VicFix Mini (included);
VicFix J Profile

Performance

Sound Absorption Coefficient

● Flat Panel VMT 20 mm + VicSpacer
● Flat Panel VMT 20 mm

| f(Hz)	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000
α	0,05	0,23	0,41	0,40	0,55	0,84	0,74	0,81	0,82	0,91	1,00	0,94	0,97	0,98	0,97	0,99	1,00	1,00
	0,04	0,03	0,08	0,13	0,18	0,21	0,33	0,48	0,55	0,64	0,76	0,86	0,88	0,90	0,93	0,94	0,97	0,97

VicSpacer **Plus**

This version of the new VicSpacer includes 8 extra PET panels, to further improve the performance of the Flat Panel VMT.

By using one additional layer of PET to increase absorption, this new accessory will help to deal with the most demanding acoustic challenges.

VicSpacer Plus will need to be combined with Flat Panel VMT of 20 mm thickness (not included).

A Flat Panel VMT (1190 × 595 × 20 mm, not included)
B VicPET Wool (542 × 555 × 40 mm, only included in VicSpacer Plus)
C Wood frame
D Velcro stripe
E VicFix Mini
F Coated steel frame
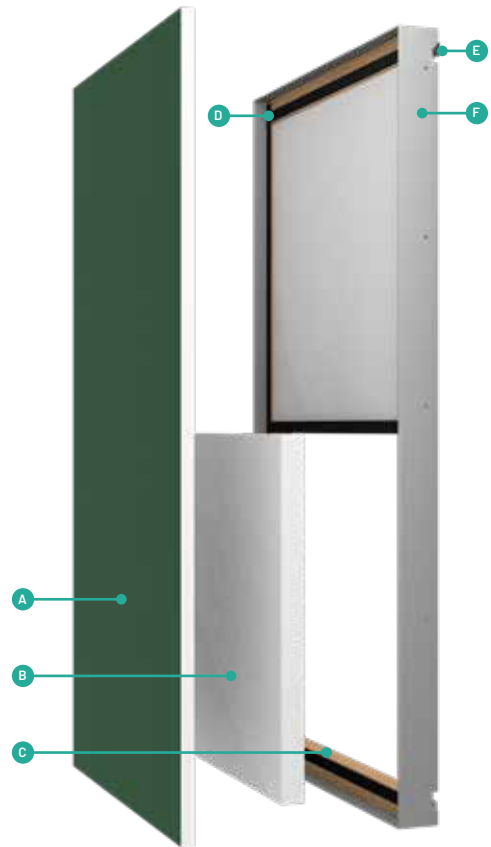
Colors

White Matte

Black Matte

Grey Matte

Dimensions

599 × 1194 × 66 mm
/ 23,6" × 47,0" × 2.6"

Package Information

4 units/box

Technical Information
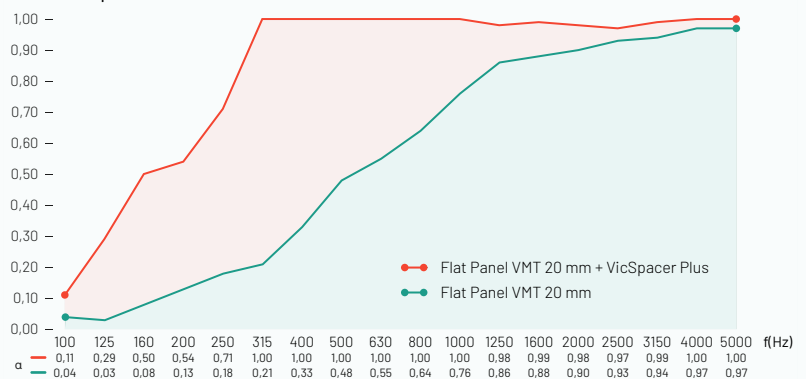
Raw Material: VicPET Wool, Wood and Lacquered Steel
NRC: 0.95 (VMT 20 mm + VicSpacer Plus)
Installation: VicFix Mini (included); VicFix J Profile

Performance

Sound Absorption Coefficient

Flat Panel VMT 20 mm + VicSpacer Plus
Flat Panel VMT 20 mm

f(Hz)	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000
α	0,11	0,29	0,50	0,54	0,71	1,00	1,00	1,00	1,00	1,00	1,00	0,98	0,99	0,98	0,97	0,99	1,00	1,00
	0,04	0,03	0,08	0,13	0,18	0,21	0,33	0,48	0,55	0,64	0,76	0,86	0,88	0,90	0,93	0,94	0,97	0,97

ViCloud VMT

ViCloud VMT is a simple and lightweight suspended acoustic solution. Being a suspended acoustic element, it presents twice the area of absorbing material exposed than a common acoustic panel, making it a very effective solution and ideal for big restaurants with high ceilings.
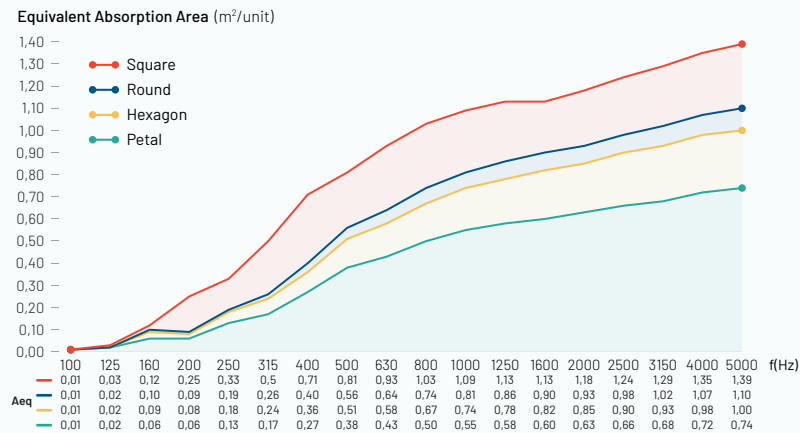
Figure 5

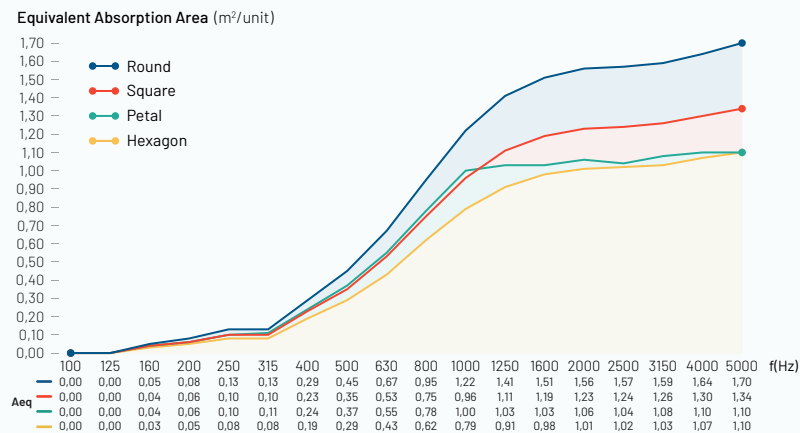• *ViCloud VMT Flat* **1**

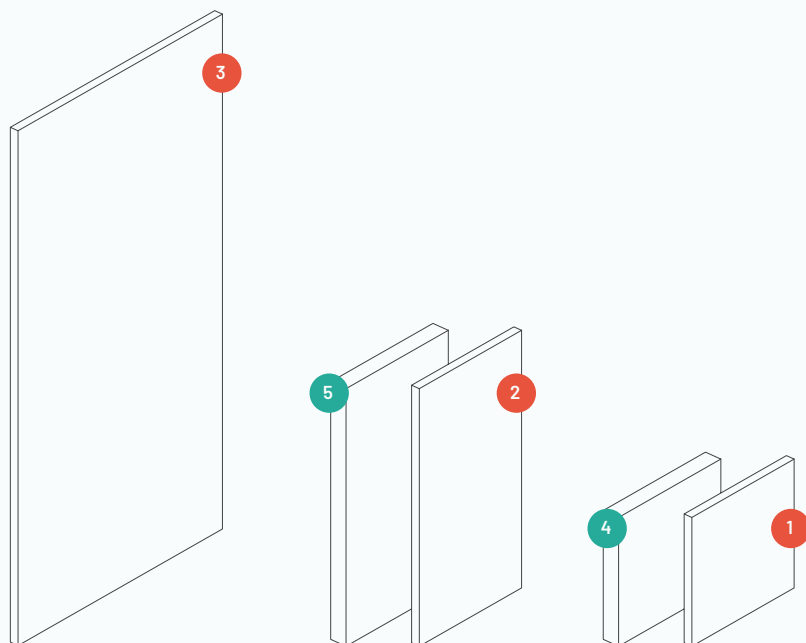• *ViCloud VMT 3D* **2**

Performance (ViCloud VMT Flat)

Equivalent Absorption Area (m²/unit)

- Square
- Round
- Hexagon
- Petal

	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	f(Hz)
	0,01	0,03	0,12	0,25	0,33	0,5	0,71	0,81	0,93	1,03	1,09	1,13	1,13	1,18	1,24	1,29	1,35	1,39	
Aeq	0,01	0,02	0,10	0,09	0,19	0,26	0,40	0,56	0,64	0,74	0,81	0,86	0,90	0,93	0,98	1,02	1,07	1,10	
	0,01	0,02	0,09	0,08	0,18	0,24	0,36	0,51	0,58	0,67	0,74	0,78	0,82	0,85	0,90	0,93	0,98	1,00	
	0,01	0,02	0,06	0,06	0,13	0,17	0,27	0,38	0,43	0,50	0,55	0,58	0,60	0,63	0,66	0,68	0,72	0,74	

Performance (ViCloud VMT 3D)

Equivalent Absorption Area (m²/unit)

- Round
- Square
- Petal
- Hexagon

	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	f(Hz)
	0,00	0,00	0,05	0,08	0,13	0,13	0,29	0,45	0,67	0,95	1,22	1,41	1,51	1,56	1,57	1,59	1,64	1,70	
Aeq	0,00	0,00	0,04	0,06	0,10	0,10	0,23	0,35	0,53	0,75	0,96	1,11	1,19	1,23	1,24	1,26	1,30	1,34	
	0,00	0,00	0,04	0,06	0,08	0,11	0,24	0,37	0,55	0,78	1,00	1,03	1,03	1,06	1,04	1,08	1,10	1,10	
	0,00	0,00	0,03	0,05	0,08	0,08	0,19	0,29	0,43	0,62	0,79	0,91	0,98	1,01	1,02	1,03	1,07	1,10	

A+

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Flat Panel VMT

Dimensions*
1. 595 × 595 × 20 mm / 23.4″ × 23.4″ × 0.8″
2. 1190 × 595 × 20 mm / 46.8″ × 23.4″ × 0.8″
3. 2380 × 1190 × 20 mm / 93,7″ × 46.8″ × 0,8″
4. 595 × 595 × 40 mm / 46.8″ × 23.4″ × 1.6″
5. 1190 × 595 × 40 mm / 23.4″ × 46.8″ × 1.6″

Package Information
1 2 3 8 units/box
4 5 8 units/box

Box Dimensions
1. 665 × 675 × 195 mm / 26.2″ × 26.6″ × 7.8″
2. 1260 × 675 × 190 mm / 49.6″ × 26.6″ × 7.5″
3. 2470 × 1275 × 170 mm / 97.2″ × 50.2″ × 6.7″
4. 665 × 675 × 355 mm / 26.2″ × 26.6″ × 14″
5. 1260 × 675 × 355 mm / 49.6″ × 26.6″ × 14″

* Please notice that the dimensions of this panel have a tolerance of +/- 2 mm

Features
• Light weight
• Easy to Install
• Easy to clean and maintain
• High Performance in medium and high frequencies

Technical Information
Raw Material: VicPET Wool
Acoustic Properties: Medium and High Frequencies Absorption
NRC: 1 2 3 0,55; 4 5 0,70
Fire Rate: 1 2 3 Europe: Euroclass B -s2, d0; USA: Class A (ASTM-E84); Canada: CAN/ULC S102, Flame Spread Rating: 5, Smoke Developed Classification: 115;
4 5 Europe: Euroclass B - s2, d0; USA: Class A (ASTM-E84); Canada: N/A
Installation: Velcro (included), Flexi Glue Ultra, AluFrame Single, AluFrame Double, AluFrame VMT T, VicSpacer, VicSpacer Plus

Available Finishes
Collections
• Natural Stones
• Natural Woods
• 3D
• Concrete
• Nature
• Tiles

VMT Colors

Natural White	Black	Grey	Light Grey
Musk Green	Moss Green	Blue	Bondi Blue
Beige	Brown	Pumpkin Orange	Coral

All available patterns can be found at the end of this White Paper and at vicoustic.com

Vixagon VMT
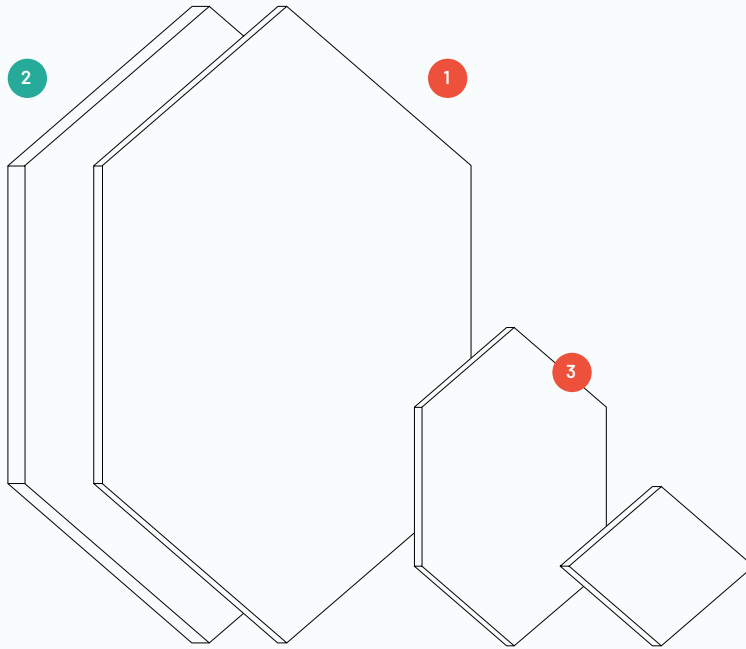
Dimensions*
- **1** 700 × 606 × 20 mm / 27,56" × 23,86" × 0,8"
- **2** 700 × 606 × 40 mm / 27,56" × 23,86" × 1,6"
- **3** 350 × 303 × 20 mm / 13,78" × 11,93" × 0,8"

Package Information
- **1** 6 units/box
- **2** 12 units/box
- **3** 36 + 36 units/box **

Box Dimensions
745 × 650 × 390 mm / 29.3" × 25.6" × 15.3"

* Please notice that the dimensions of these panels have a tolerance of +/- 2 mm.
**The Vixagons Mini are packed in a really innovative way: we are using the same material as the product itself as packaging material. This will give the bonus of having extra Diamond shapes that can be used in conjunction with your Vixagon to create your art-work.

Features
- Light weight
- Easy to Install
- Easy to clean and maintain
- High Performance in medium and high frequencies

Technical Information
Raw Material: VicPET Wool
Acoustic Properties: Medium and High Frequencies Absorption
NRC: **1** **3** 0,55; **2** 0,70
Fire Rate: **1** **3** Europe: Euroclass B –s2, d0; USA: Class A (ASTM-E84); Canada: CAN/ULC S102, Flame Spread Rating: 5, Smoke Developed Classification: 115;
2 Europe: Euroclass B - s2, d0; USA: Class A (ASTM-E84); Canada: N/A
Installation: Velcro, Flexi Glue Ultra

Available Finishes
Collections
- Natural Stones
- Natural Woods
- Concrete
- Nature

VMT Colors

Natural White · Black · Grey · Light Grey

Musk Green · Moss Green · Blue · Bondi Blue

Beige · Brown · Pumpkin Orange · Coral

All available patterns can be found at the end of this White Paper and at vicoustic.com

ViCloud Flat VMT

1 **Square**

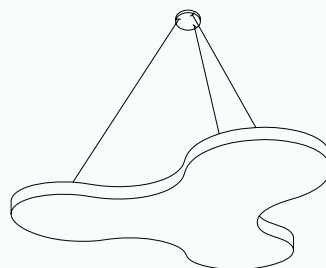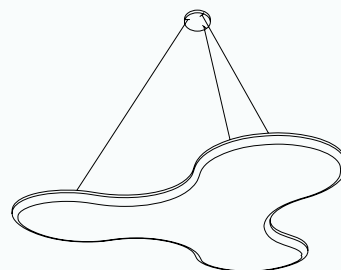**3** **Round**

2 **Hexagon**

4 **Petal**

Dimensions*

1 1160 × 1160 × 40 mm / 45.7" × 45.7" × 1.6"
2 1160 × 1005 × 40 mm / 45.7" × 39.6" × 1.6"
3 Ø 1160 × 40 mm / Ø 45.7" × 1.6"
4 1160 × 1068 × 40 mm / 45.7" × 42" × 1.6"

Package Information

4 units/box

Box Dimensions

1267 × 1267 × 170 mm / 49.9" × 49.7" × 6.7"

Features

• Premium high density VicPET Wool
• High Performance in medium and high
  frequencies
• Light weight
• Easy to install
• Easy to clean and maintain

Technical Information

Raw Material: VicPET Wool
Acoustic Properties: Medium and High
Frequencies Absorption
Fire Rate: Europe: Euroclass B - s2, d0;
USA: Class A (ASTM-E84); Canada: N/A
Installation: Magnetic and Mechanical
Suspended Fixation (Included)

Available Finishes

Collections
• Natural Stones
• Natural Woods
• Concrete
• Nature

VMT Colors

Natural White	Black	Grey	Light Grey
Musk Green	Moss Green	Blue	Bondi Blue
Beige	Brown	Pumpkin Orange	Coral

**Please notice that the dimensions of this
panel have a tolerance of +/- 2 mm*

*All available patterns can be found at the end
of this White Paper and at vicoustic.com*

ViCloud 3D VMT

1 Square

3 Round

2 Hexagon

4 Petal

Dimensions*

1 1160 × 1160 × 40 mm / 45.7″ × 45.7″ × 1.6″
2 1160 × 1005 × 40 mm / 45.7″ × 39.6″ × 1.6″
3 Ø 1160 × 40 mm / Ø 45.7″ × 1.6″
4 1160 × 1068 × 40 mm / 45.7″ × 42″ × 1.6″

Package Information

4 units/box

Box Dimensions

1267 × 1267 × 170 mm / 49.9″ × 49.7″ × 6.7″

Features

• Premium high density VicPET Wool
• High Performance in medium and high frequencies
• Light weight
• Easy to install
• Easy to clean and maintain

Technical Information

Raw Material: VicPET Wool
Acoustic Properties: Medium and High Frequencies Absorption
Fire Rate: Europe: Euroclass B - s2, d0; USA: Class A (ASTM-E84); Canada: N/A
Installation: Magnetic and Mechanical Suspended Fixation (Included)

Available Finishes

Collections

• Natural Stones
• Natural Woods
• Concrete
• Nature

VMT Colors

Natural White

Black

Grey

Light Grey

Musk Green

Moss Green

Blue

Bondi Blue

Beige

Brown

Pumpkin Orange

Coral

Please notice that the dimensions of this panel have a tolerance of +/- 2 mm

All available patterns can be found at the end of this White Paper and at vicoustic.com

GEN_VMT
The Generative Collection

reddot winner 2020

GEN_VMT, The Generative Collection, is a set of acoustic tiles and clouds awarded the Red Dot: Product Design 2020 for its outstanding design.

The innovations introduced by the environmentally sustainable raw material VicPET Wool and the VMT technology, developed for superb acoustic performance, take on a new dimension in terms of design. The geometry of GEN_VMT allows generating endless combinations with no limit to creativity.

PENRAY 01 Cloud

A redefinition of the acoustic clouds concept, its generative structure allows to create combinations and optimize the acoustic environment adding aesthetic values to any space.

PENRAY 01 Tiles

A set of tiles formed by two different modules, that once connected generate different combinations. An ideal solution for small spaces.

PENRAY 02 Tiles

Presented in 4 different pentagonal shapes, the tiles can be connected at will, generating endless combinations of shapes and colors.

Dimensions

1 1187 × 949 mm / 46.7″ × 37.4″
2 Tile 01.1: 400 × 460 × 20 mm / 15.8″ × 18.1″ × 0.8″
Tile 01.2: 230 × 320 × 20 mm / 9.1″ × 12.6″ × 0.8″
3 355 × 355 × 20 mm / 14″ × 14″ × 0.78″

Package Information

1 1 units/box;
2 **3** 12 units/box

Technical Information

Raw Material: VicPET Wool
Acoustic Properties: Medium and High Frequencies Absorption
NRC: **1** N/A **2** **3** 0,30
Fire Rate: Europe: Euroclass B S2, d0; USA: Class A (ASTM-E84)
Installation: **1** Mechanical and Magnetic Suspended Fixation
2 **3** Double sided tape, Flexi Glue Ultra

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The VMT Product Line is very easy to install, not requiring any specialized and expensive labor.

Figure 6

• *Flat Panel VMT Customized* **1**

• *ViCloud VMT Flat Customized* **2**

Customization

VMT stands for Virtual Material Technology. These are panels developed exclusively by Vicoustic using an innovative dyeing technology.

You can simulate concrete, marble, wood and other materials, achieving an amazing and realistic look in any setting with the added benefit of having the acoustics controlled. In this way, you can play with the customers' perception by having, for example, a restaurant full of marble but that doesn't sound too reverberant!

You can dye your preferred art/design/color, include the Logo of your restaurant or have VMT panels with just solid colors. There are several existing collections in Vicoustic's catalogue. The size and shape of your panels are also customizable. Imagination is the limit for the appearance and for the environment you want to achieve.

Installation

Installing VMT Products is so easy that you don't need to close your restaurant for the installation. The installation can be done overnight avoiding disrupting your business.

Flat Panel VMT can be installed with **VicSpacer** and **VicSpacer Plus** significantly increasing its performance, and is also compatible with with T-Bar systems or, like Vixagon VMT can simply be glued or applied using Velcro to any surface.

Maintenance

ViCloud Flat VMT and ViCloud 3D come with its own mechanical/magnetic fixation system and can be fixed with a screw or using its magnet if installed onto a metal surface. The magnet works on most of T-Bars systems making installation really easy – when the T-Bar is not strong enough to sustain ViCloud VMT we advise the use of a metal accessory compatible with T-Frames.

All VMT Products can be easily cleaned with water.

They can be removed and cleaned under running water or directly by using a wet wipe.

Please note: Do not use products or cleaning methods with temperatures above 80º C since these may damage the panels.

Quantities Needed

The table below gives you an idea of the quantity of acoustic treatment you will need to treat your restaurant.

The values presented are based on a room's dimensions and consider standard restaurant finishes for floors, walls and ceilings. You can use these values as a guideline and scale them according to your room's size.

For more complex rooms or if you need help with your project please contact Vicoustic's Team.

Figure 7

• ViCloud 3D, Natural Stones Collection, Emperador Dark Pattern ➊
• Flat Panel VMT, Natural Stones Collection, Invisible Grey Pattern ➋
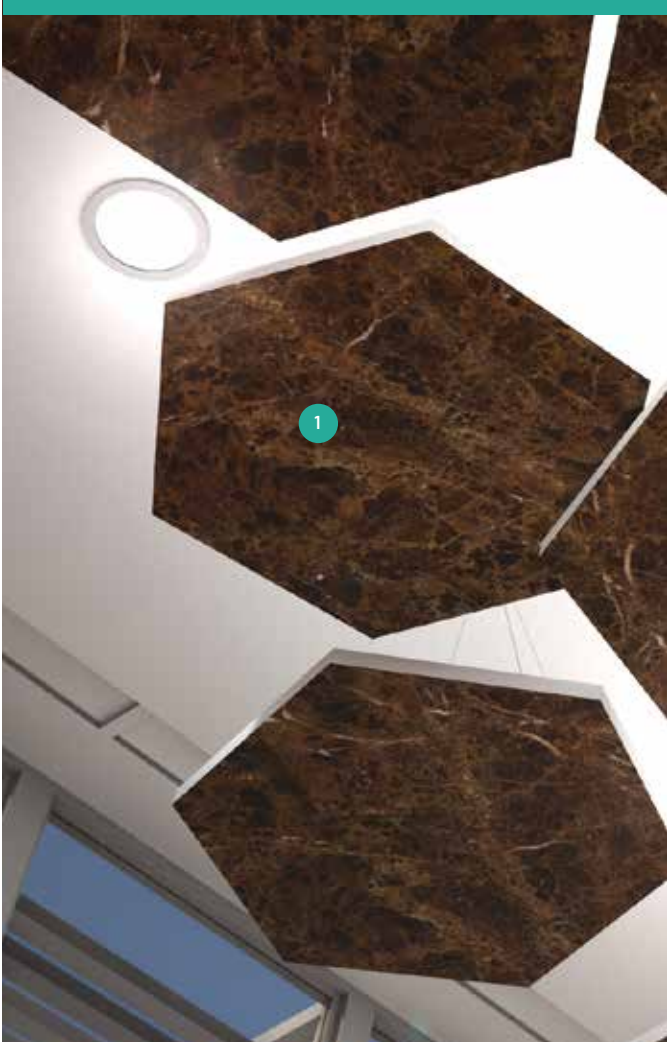
Height (m / ft)	Floor Area (m² / sq ft)	Volume (m³)	Vicoustic's Proposed Target RT (s)
3 / 10	20 / 215	60	0,8
3 / 10	30 / 320	90	0,8
3 / 10	50 / 430	150	0,8
3 / 10	100 / 1075	300	< 0,9
3 / 10	200 / 2150	600	< 1,0

(2)

Estimated m² of Panels Needed*

Flat Panel VMT	ViCloud VMT	VicSpacer + Flat Panel VMT (20 mm)	VicSpacer Plus + Flat Panel VMT (20 mm)	Using a **Mix Solution**	
				Direct Instalation	Suspended Instalation
7.1	8	5.8	5.3	2.8	5.4
11.4	13.5	9.7	8.8	5.7	8.1
22.7	26.9	17.8	16.2	11.4	16.1
42.6	48.4	32.2	29.4	17	29.6
76	86.1	58.4	53.3	28.4	53,8

Box of Flat Panel VMT (1190 × 595 × 20 mm) - 5.66 m²
Box of Vixagon VMT (20 mm) - 3.80 m²
Box of ViCloud VMT Square - 5.40 m²

Acoustic Treatment
Results

No acoustic treatment

Without any acoustic treatment, restaurant noise may quickly build-up due to strong reflections from the ceiling and walls.
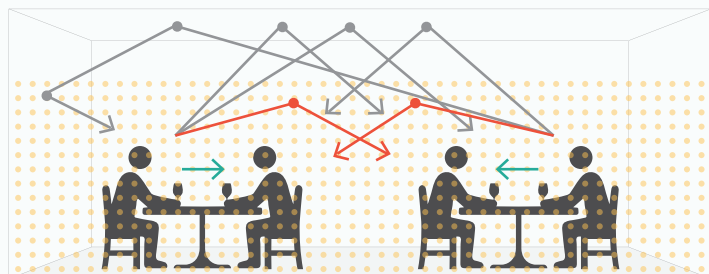
→ Direct Dound
→ Reflections from walls
→ Reflections from Ceiling
● ● ● Background noise

Only on the ceiling

With acoustic treatments implemented at ceiling level, strong reflections are now being controlled. Noise build-up is therefore being minimized. However, there may still be some strong reflections from the walls.
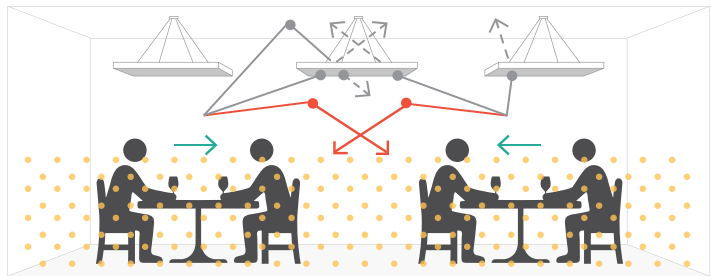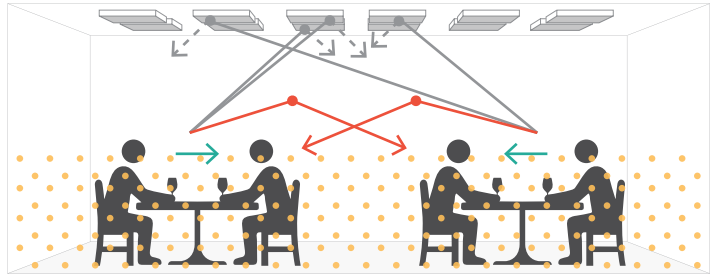
On the ceiling and walls

Distributing the acoustic treatment more evenly across all room surfaces will better control strong reflections. This ultimately means that less material needs to be used in the ceiling.
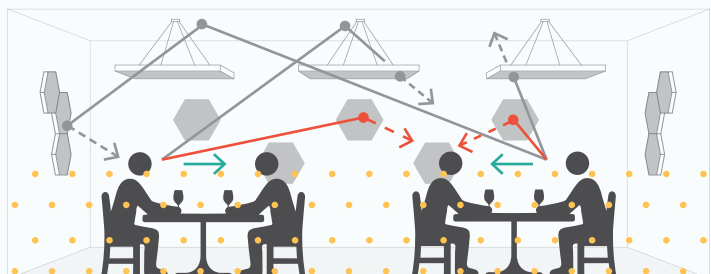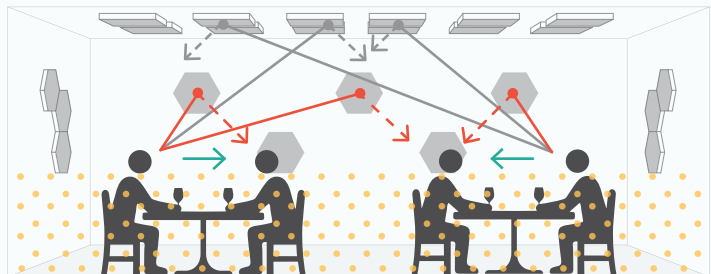
Vicoustic
Perfecting
Acoustics
Sustainably

Vicoustic is a company in constant evolution with strong international expression, represented in more than 80 countries

Vicoustic understands sound - and we know what makes a truly exceptional acoustic and audio experience. Being at the forefront of acoustic technology, we combine engineered systems with stunning design to bring you sound that is free of compromises, but full of high quality performance.
A leading force in the industry, founded in 2007, Vicoustic is found in over 80 countries around the world. We understand the unique sound dynamics of a room or venue. So whether it's a Home Cinema, Hi-Fi room to a professional sound system for radio and television, our expertise for peak acoustic performance is second-to-none.
The products from Vicoustic deliver clever and innovative solutions to meet the demands of spaces which require a sophisticated soundscape. Taking on board the high standards of our customers, we continuously strive to manufacture products of superior functionality, adaptability, but all the while with a sustainable and environmentally conscious mind-set.

Quality at the heart of sound

Vicoustic is concerned with design, leading technology and sound solutions. And alongside this vision, our work is always underpinned by producing sound with materials and systems of the highest quality. We listen to our customers and take on board their acoustic needs, what we do is very personal. We are proud of our work and Vicoustic would never create something that we wouldn't use ourselves. Designed and manufactured in Portugal, our facilities underwent great transformation in 2015 to incorporate state of the art equipment and new production and coating systems. This ensured that Vicoustic was able to maintain the high quality standards expected of its products, increase production volumes, but also create those bespoke products for our custom projects. This is led by our own 'in-house' Quality Department, who oversee all aspects of quality from the company.
The ability of Vicoustic to create individually designed items at a premium quality means that our products can meet the needs of most spaces (no matter how unusual) to ensure the best acoustics and environment to enjoy sound...we have it covered.

Vicoustic
Team

From conception through to completion, we work closely with architects, engineers and designers to deliver a project successfully irrespective of complexity.

Our project team includes senior acoustic engineers and designers that are experts in taking you on your acoustic and design needs.

The pioneering hardware and software tools we have engineered have proved to be very reliable to support the integration of acoustic treatment and sound insulation solutions through a new-build or a refurbishing project.

Our Research and Development Team is also available to develop customized products to satisfy your needs.

Our customers will also be supported by our Sales, Marketing and Logistics teams to assist with transportation, communication and all information that may be required: pricing; installation guides; catalogues; etc.

Together we have proven that we can provide high levels of value to see our customers through the whole process of installing acoustic solutions.

This includes reliable and effective recommendations of products and support services throughout your whole project process from conception through to completion.

We do
• Custom Designed Products
• Room Design Recommendations
• Technical Support

Technology and rigorous in-house testing are the foundations for every Vicoustic Product

This is what makes Vicoustic a distinguished brand and leader in its sector

We believe that Vicoustic should constantly be paving the way, innovating and driving sound technologies to ensure that we are not only leading the field, but producing the best acoustics in every space we are acoustically curating. What makes us outliers in the industry is our 'Vicoustic Research Centre', inaugurated in 2012 alongside the Vicoustic HQ. We pride ourselves on developing and continuously advancing our technologies and ways of working to deliver the best product to our customers.
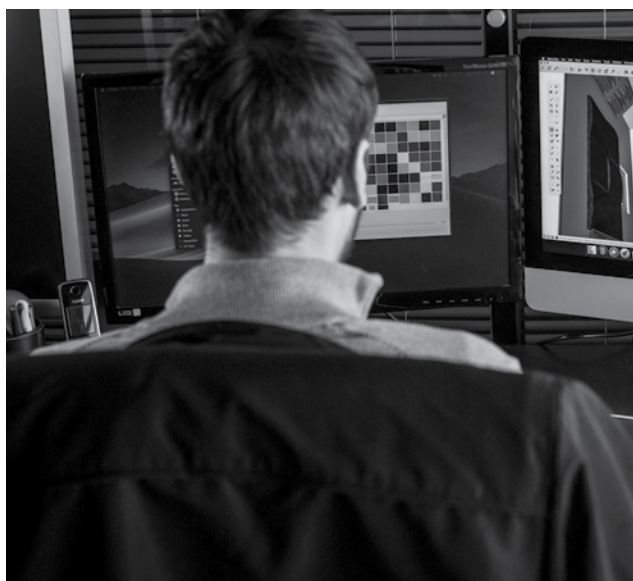
The Research Centre operates on a multidisciplinary platform: the 'Multifunctional Room' and the 'Innovative Acoustic Chamber'. We have a brilliant (and fun!) time using this centre to test our products and investigate and challenge the way we use audio and acoustic technologies.

The 'Multifunctional Room', lined with magnetic walls, allows us to assemble, mount and test different combinations of acoustic products quickly and efficiently. Not only does this allow us to analyse performance, quality and design, it also gives us the opportunity to share this learning with our Vicoustic partners across the world

The 'Innovative Acoustic Chamber' is a world leading testing facility. 4-ton mechanical walls allow us to adapt the size of the space to the bespoke requirements of our customer. With a specialized sound insulation system, we can develop product and test resonance, sound frequency and, best of all, curate that beautiful acoustic ambiance only made possible by emulating the space the system will eventually call home. The sound behaviour is captured using B&K microphones and each element of the acoustic can then be identified and tested so nothing is missed and everything can be fine-tuned.

Our aim is to invest in programmes to optimise acoustic performance within specific architecture and interior spaces. This means we can produce aesthetically pleasing products, whilst also upholding key safety and environmental regulations.

Vicoustic
Sustainability Approach

In the past decade, Vicoustic has been developing a strong concern in terms of creating new sustainable acoustic solutions

We are committed to making products in an environmentally friendly way. This is important to Vicoustic and an integral part of our product development. Following an extensive project looking into the sustainability of our creations, a substantial part of our products are now made using recycled or recyclable materials.

Most notably, Vicoustic has increased the use of VicPET Wool. A non-woven textile with superb acoustic performance, but predominantly made from recycled plastic bottles. 2018 sees a 3rd Vicoustic factory opening, meaning we are more determined than ever to use eco-friendly products in our lines.

But sustainability is not limited to manufacturing. Our aim for a greener product is also in the quality and durability of our creations and we aim for these to have a great, long and lasting life.

ECO FRIENDLY

FIRE RATED

EASY CUT

Vicoustic's continuing research and innovation in acoustic solutions, in its pursuit of new materials, led to the development of VicPET Wool

Instead of using commonplace raw materials, the latest Vicoustic line of products uses new and responsible raw materials that are predominantly made of recycled PET Bottles (65%), which are recyclable and low emitting materials (low VOC emissions).

Alongside being made of sustainable materials, these products maintain all necessary fire safety regulations and are classified as Class 1 according to OEKO-TEX 100 Standard, i.e. meeting the human-ecological requirements presently established for baby articles.

We, at Vicoustic, are doing all this in an innovative way, without compromising the acoustic performance or the design and quality of our products. Installing our new line of products not only will ensure you meet your acoustic needs, but can also promote the sustainable ambitions of your company and helps you earn the credits normally available in the Green Building Certification Schemes such as LEED (USA); WELL (UK); HQE (France); etc.

VicPET
Wool

Properties
- Does not irritate skin or eyes
- Recyclable (100% PET)
- Good indoor air quality - zero emission of VOC's or formaldehyde
- No chemicals used
- Humidity resistant
- No dust generation during handling
- Class I acc. to Oeko-Tex 100 Standard

Description
- Non-woven product
- 100% polyester fibres
- Thermally bonded
- Colour: White or Black

Other features
- Flammability: Euroclass B, s1 d0
- Thickness (range): 20 to 80 mm
- Weight: 800 to 1600 grams/m^2

Finishes

VMT Colors
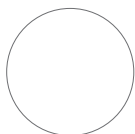
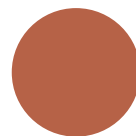Natural White

Black
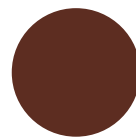
Grey

Light Grey

Blue
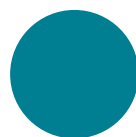
Bondi Blue
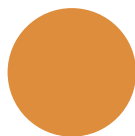
Pumpkin Orange

Coral

Musk Green

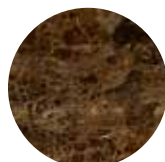Moss Green

Beige

Brown

VMT **Collections**

Natural Stones
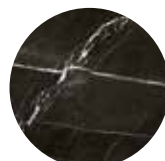
Calacatta
Carrara

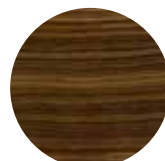Calacatta
Cremo

Emperador
Dark

Fusion
Wow

Grey
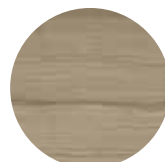Stone

Hematite
Black

Invisible
Grey

Magic
Brown
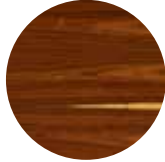
Moonlight
Grey

Patagonia

Port
Black

Striato
Elegante

Travertino
Classico

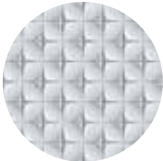## Natural Woods

Almond
Oak

Black
Laurel

Ebony

Oak

3D

3D_1

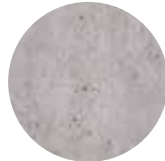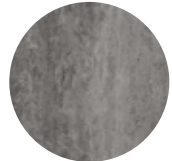3D_2

Concrete

Concrete_1
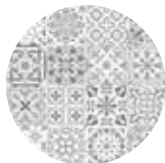
Concrete_3

Nature

Leafs

Palm B&W

Tropical

Tiles

Tiles_1

Tiles_3

Glossary

dB (decibel) – The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the root mean-square pressure of the sound field and reference pressure $(2 \times 10^{-5}$ Pa).

Direct Sound – Sound that arrives at the listener's position directly from the sound source, i.e. without being reflected from any objects or surface.

First Reflections – Usually defined as the sound reflections that reach the listening position up to approximately 20ms after the direct sound.

Lombard Effect – Psychoacoustic Effect named after the French otolaryngologist Étienne Lombard observed and reported that people with normal hearing raised their voice when subject to noise.

Reverberation – An acoustical phenomenon that occurs in enclosed spaces, when sound persists in that space as a result of repeated reflection or scattering from surfaces enclosing the space or objects within it.

Reverberation Time (s) – A measure of the degree of reverberation in a space. It is equal to the time required for the level of a steady sound to decay by 60 dB after it has been turned off.

Sound Absorption – The portion of the sound energy that is absorbed and not returned when a sound wave hits a surface.

Sound Reflection – The portion of the sound energy that is returned when a sound wave hits a surface.

Speech Privacy – It is the inability of an unintentional listener to understand another person's conversation. Lack of Speech privacy is frequently related with acoustic dissatisfaction within offices – e.g. overhearing unwanted conversations, or feeling overheard.

Production

Strategically located in the largest industrial cluster in Portugal

Packaging

Each individual panel is inspected, placed in plastic casing and boxed. Production and Logistic enhancements guarantee high quality control and fast expedition

Shipping

Vicoustic Acoustic Solutions are currently being shipped over 80 different countries worldwide

Installation

"Out of the box" solutions, easy to install

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VICOUSTIC
INNOVATIVE ACOUSTIC SOLUTIONS

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