

Unique micro-porous air permeable products

METAPOR[®]
and **ESPOR**[®]

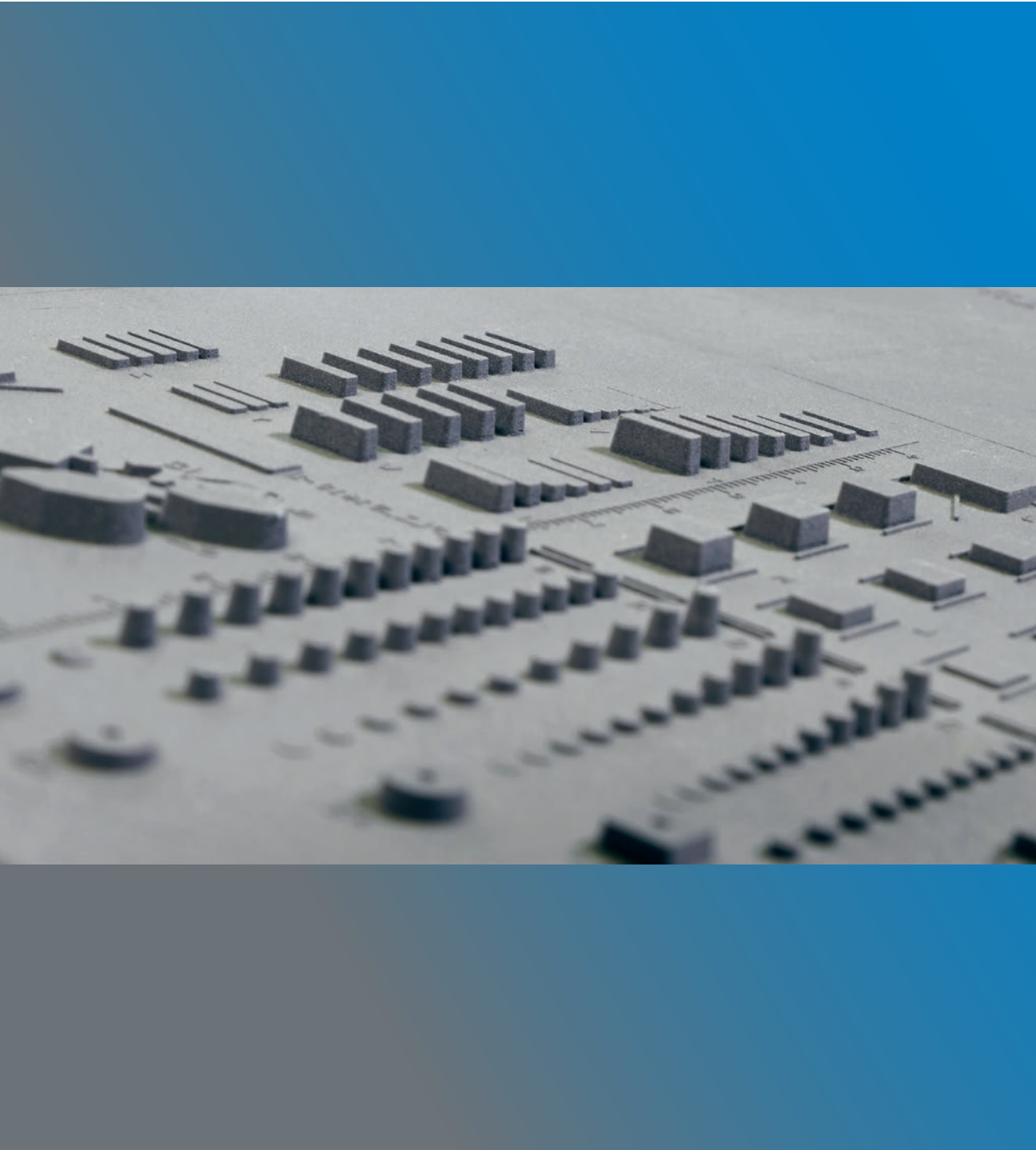
Solutions for Plant & Mechanical engineering, Thermoforming, Vacuum-forming, Vacuum-clamping, Automotive, Semiconductor and many other industries

portec

Portec Switzerland is a specialist in developing, manufacturing and sales of porous materials and moulds for various business areas.

Our unique micro-porous air permeable products under the trade names METAPOR® and ESPOR® have been adding value for over 30 years in industries such as Thermoforming, Vacuum-forming, Vacuum-clamping, Automotive, Semiconductor and many more.



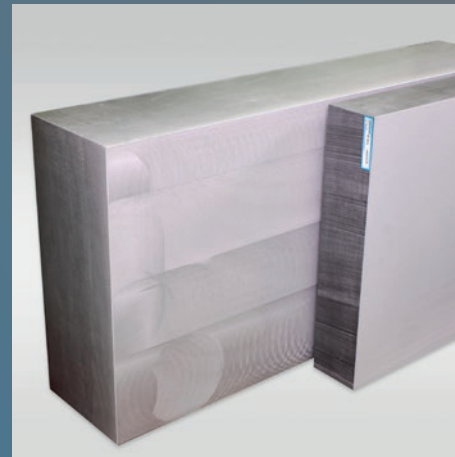


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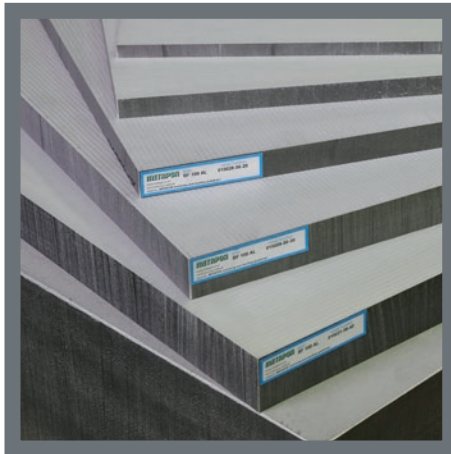
METAPOR[®] Block Material

Due to the micro-porous structure of our materials, air permeability is achieved over the entire surface.



What is METAPOR®

METAPOR®
porous materials
have a steady
and homogenous
air distribution



METAPOR® is a trademark of our micro-porous block materials. It is a composite material consisting of two major components.

METAPOR® porous materials have a steady and homogenous air distribution ensuring high quality parts that meet your requirements. A wide variety of METAPOR® products are available:

- Different types of granules, such as aluminium, stainless steel or ceramic are being used in various applications.
- Pore sizes, high mechanical strength, air permeability, high temperature stability and other technical characteristics are important parameters to consider.

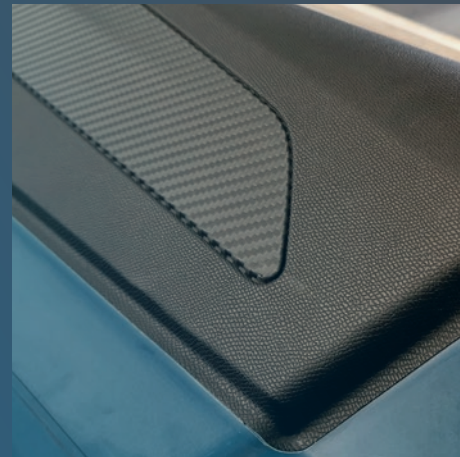
METAPOR® machinability is excellent. METAPOR® may be machined with standard CNC machines. Unlike sintered materials, the pores of METAPOR® do not become clogged when machined.

Due to the natural porosity of METAPOR®, hole drilling is no longer needed. Its micro permeability replaces moulding/demoulding vents required in conventional tools (moulds used for the deep drawing of plastic films and plates). METAPOR® can easily be bonded to combine large and deep drawn moulds or to attach METAPOR® inserts to aluminium frames. Various types of METAPOR® are available to solve your challenges.



Air Permeable Casting Technology

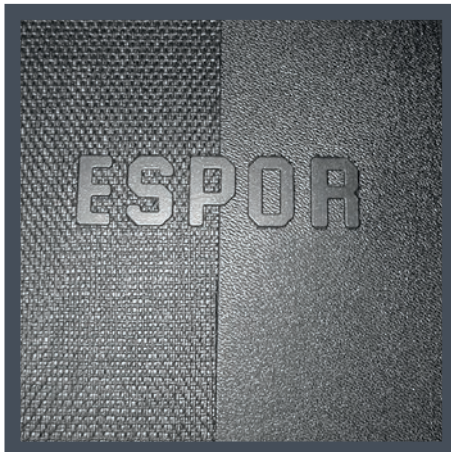
ESPOR® moulds: The efficient way to optimally grained surfaces.



What is ESPOR®



*Porous ESPOR® Mould
(various structures "negative")*



*Thermoformed structured part, Polystyrene
1mm, produced out of the porous ESPOR®
mould*

ESPOR® air permeable casting technology is a patented application of our porous materials combined with a unique manufacturing process developed by Portec. Moulds are manufactured according to your patterns.

ESPOR® technology is used to manufacture customer specific micro-porous air-permeable products for numerous industrial applications where homogenous air-permeability is required. Over the last few decades, we have been producing a large number of ESPOR® moulds for various industries.

ESPOR® moulds combine the economic benefits of classic thermoforming technology with the optical advantages of modern moulded skin and laminating technologies.

ESPOR® moulds transfer the grain structure onto the foil during the thermoforming process without grain stretching.

Our ESPOR® technology is an excellent option for parts with a complex surface, smooth surface or parts requiring highly detailed fine structures (e.g. IMG-moulds).

ESPOR® moulds are a reasonably priced alternative compared to expensive moulds made out of nickel, nickel-copper or milled moulds in general.

A further advantage besides the competitive price is our efficient manufacturing process.

ESPOR® moulds are available with a short lead time allowing your parts to be available more quickly.

Business Areas

Breathable Mould Material for Thermo- and Vacuum Forming

Faster Air Evacuation / High Definition & Accuracy / Unlimited Design Intricacy /
Crystal clear transparent parts / Ideal for flat and large Surfaces

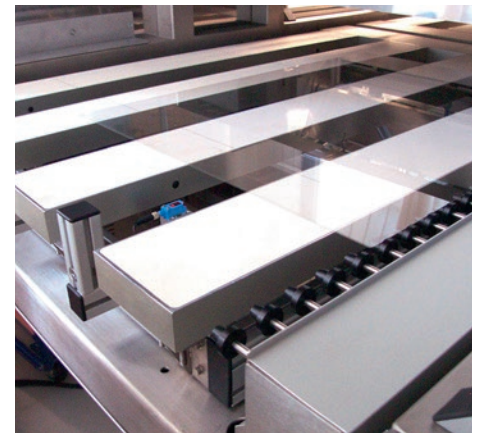
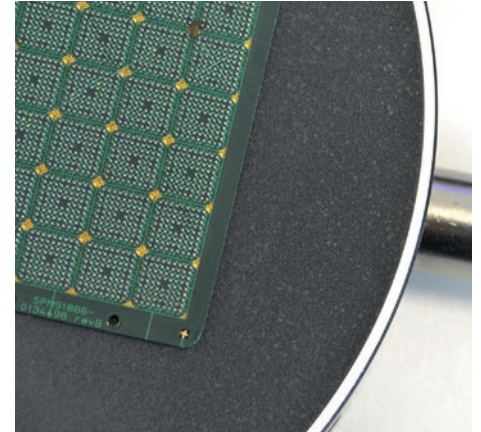
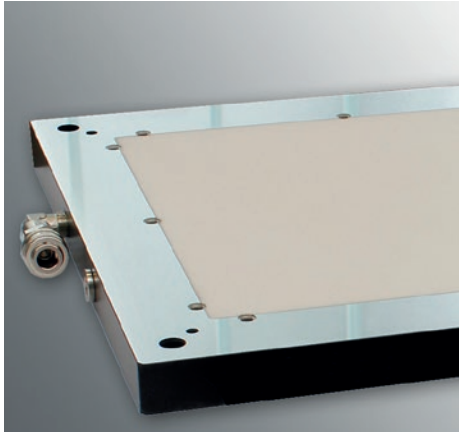
Porous material for Vacuum Clamping applications

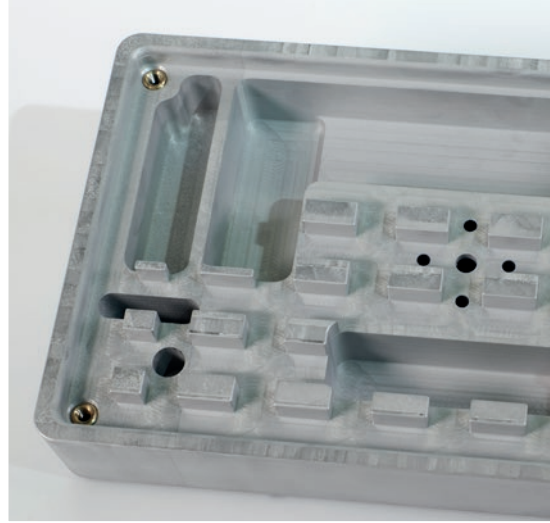
A constant decompression within the material allows for a strong holding force,
even when the clamping surface is only partially covered.

METAPOR® easily meets your highest expectations regarding smoothness and
flatness on surfaces.

Porous material for air cushion applications

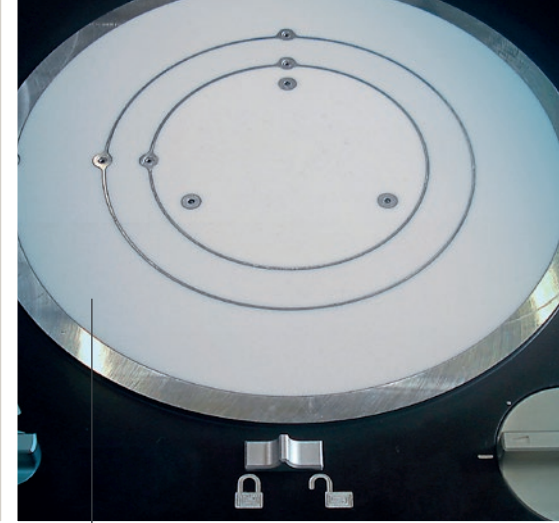
Often materials are transported on rollers or belts. METAPOR® is a perfect solution
for contact-less transportation via an air cushion for sensitive materials such as
semi-conductor wafers, glass substrates, specialty foils and flat displays.





High Definition & Accuracy

With METAPOR®, surfaces requiring intricate and complex geometries are easy to produce. The even porosity of METAPOR® on all surfaces results in homogenous material wall thickness, no air inclusions and no stretching of the foil. The results are high-definition thermoformed parts without deformations.



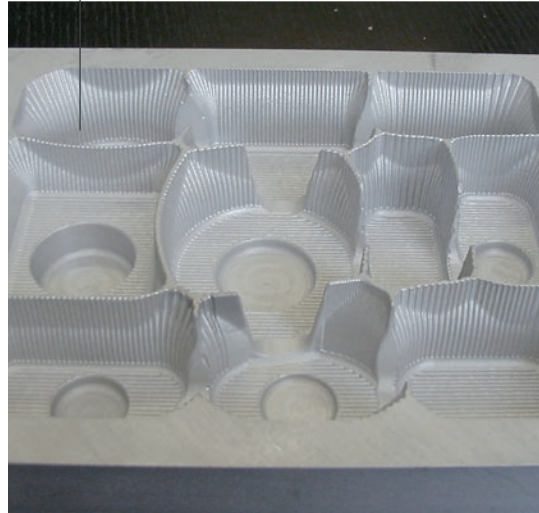
METAPOR® Porous material for vacuum clamping applications

Fixing of thin sheets, foils, glass substrates and other workpieces.



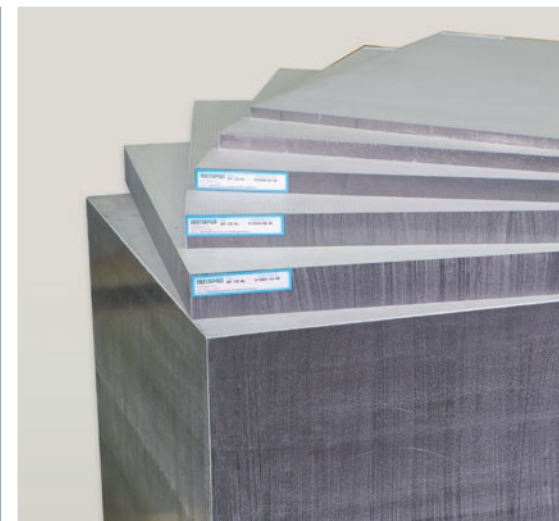
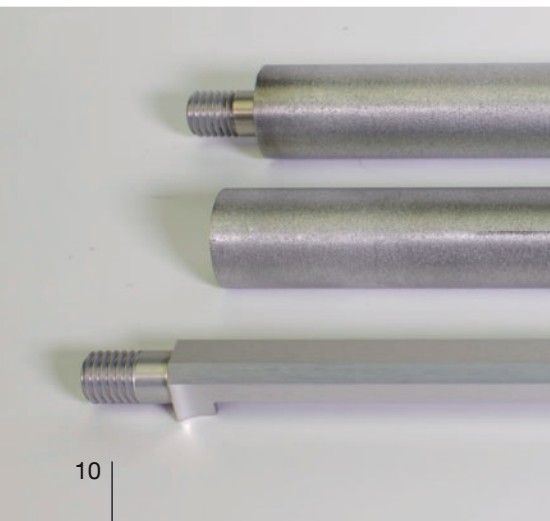
More Design Flexibility

METAPOR® allows the formation of parts with steeper sides and more intricate details. The homogenous distribution of micro-porous vents makes this level of detail possible throughout the entire tool. With METAPOR®, deep draw thermoforming applications with complex geometries become possible.



Higher Quality Moulds

METAPOR® delivers a superior quality surface finish on plastic moulds due to the invisible micro-vents that leave no trace of ventilation openings. With METAPOR® you can achieve a surface finish that is smooth and glossy.



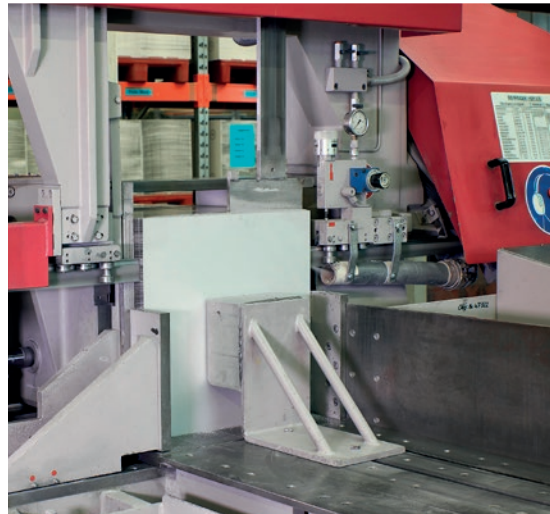
Faster Air Evacuation

Rapid and even air evacuation assures that the plastic remains within its temperature formability window resulting in a reduction of stresses and better mechanical properties. METAPOR® is often used for large flat surfaces and bottom inserts to eliminate trapped air and related waviness.



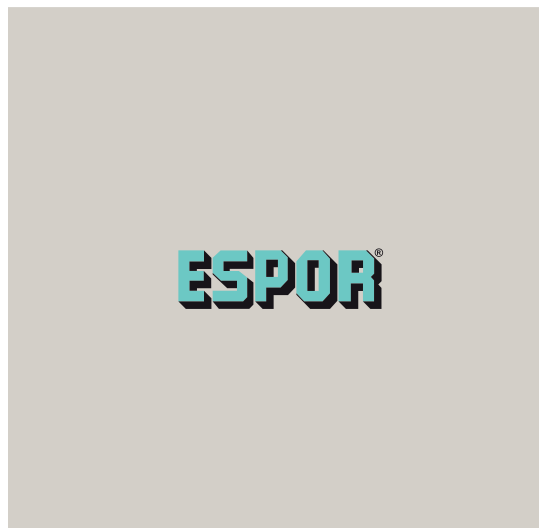
METAPOR® Porous material for air cushion applications

Air cushion deflection roller with electric drive.



Cheaper and Faster Tooling

METAPOR® permits economical tooling because it has “built in” micro-porous holes which eliminate the need to drill moulding/demoulding vents. METAPOR® has to be machined dry without any liquid coolant. It’s possible to saw, mill, turn, grind and even polish METAPOR® without closing the pores.



Surface Quality

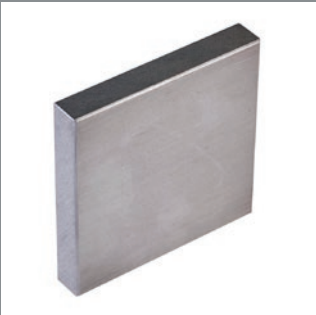
The absence of drilled vacuum holes eliminates surface imperfections on transparent and highly cosmetic parts. This results in crystal clear transparent parts without markings & striations.

METAPOR® Block Material

METAPOR® products are available for a wide range of applications. The major differences are within the granule type, air permeability, pore size and temperature stability.



METAPOR® HD 100 AL



METAPOR® HD 210 AL



METAPOR® BF 100 AL



METAPOR® MC 100 AL



METAPOR® MC 240 AL



METAPOR® MC 100 WHITE



METAPOR® CE 100 WHITE



METAPOR® CE 170 WHITE



METAPOR® MA 100 BLACK



METAPOR® ES 240 INOX

Aluminium composites



METAPOR® HD 100 AL



METAPOR® HD 210 AL



METAPOR® BF 100 AL



METAPOR® MC 100 AL



METAPOR® MC 240 AL

Product	HD 100 AL	HD 210 AL	BF 100 AL	BF 210 AL	MC 100 AL	MC 200 AL	MC 240 AL
Air permeability *	50%	50%	100%	100%	800%	700%	800%
Application							
Vacuum clamping	★☆☆	★☆☆	★★★	★★★	★★★	★☆☆	★★★
Air cushion / air film	★☆☆	★☆☆	★★★★	★★★★	★★★★	★★★	★★★★
Injection mould and blow mould venting	-	-	-	-	-	-	-
Ceramic industry	-	-	-	-	-	★★★	-
EPS, EPE, EPP foam moulds (resist high pressure steam)	-	-	-	-	-	★★★	-
Thermoforming							
PET	★★★★	★★★	★★★	★★★★	-	-	-
PP	★★★★	★★★	★★★★	★★★★	-	-	-
PS	★★★	★★★	★★★★	★★★★	-	-	-
PE	★★★★	★★★	★★★	★★★	-	-	-
PVC	★★★★	★★★★	★★★	★★★	-	-	-
ABS	★☆☆	★☆☆	★★★	★★★	-	-	-
PC	★☆☆	★★★★	-	-	-	-	-
Transparent applications	★★★★	★★★★	★☆☆	★☆☆	-	-	-
High temperature	★☆☆	★★★★	★☆☆	★★★★	★☆☆	★★★	★★★★
Low surface roughness	★★★★	★★★★	★★★	★★★	★☆☆	★☆☆	★☆☆
High surface resistance	★★★	★★★	★★★	★★★	★☆☆	★☆☆	★☆☆
Porosity	20%	21%	17%	19%	26%	22%	26%
Heat resistance	108 °C	240 °C	108 °C	240 °C	108 °C	200 °C	240 °C
Available in 500 x 500 mm	☑	☑	☑	☑	☑	☑	☑
Available in 1000 x 500 mm	☑	☑	☑	-	-	-	-

* Reference values to the air permeability of METAPOR® BF 100 AL

Nonmetal composites

Product	MC 100 WHITE	CE 100 WHITE	CE 170 WHITE
Air permeability *	800%	100%	100%
Application			
Vacuum clamping	★★☆	★★★	★★★
Air cushion / air film	★★★	★★★	★★★
Injection mould and blow mould venting	-	-	-
Ceramic industry	★★★	★★★	★★★
EPS, EPE, EPP foam moulds (resist high pressure steam)	-	-	-
Thermoforming			
PET	-	-	-
PP	-	-	-
PS	-	-	-
PE	-	-	-
PVC	-	-	-
ABS	-	-	-
PC	-	-	-
Transparent applications	-	-	-
High temperature	★☆☆	★☆☆	★★★☆☆
Low surface roughness	★☆☆	★★★	★★★
High surface resistance	★★☆	★★★	★★★
Porosity	20%	20%	19%
Heat resistance	108 °C	108 °C	170 °C
Available in 500 x 500 mm	☑	☑	☑
Available in 1000 x 500 mm	-	-	-

* Reference values to the air permeability of METAPOR® BF 100 AL

Other composites

MA 100 BLACK	ES 240 INOX
100%	200%
★★★	★★☆
-	-
-	★★★
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
★☆☆	★★★
★★★☆☆	★★★☆☆
★★★	★★★
21%	29%
108 °C	240 °C
☑	☑
-	-



METAPOR® MC 100 WHITE



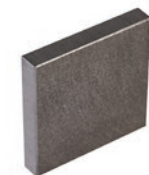
METAPOR® CE 100 WHITE



METAPOR® CE 170 WHITE

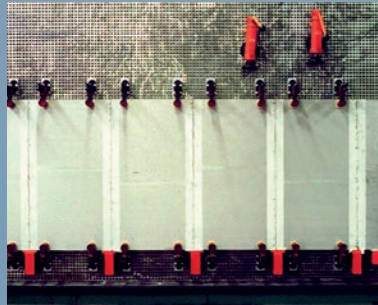
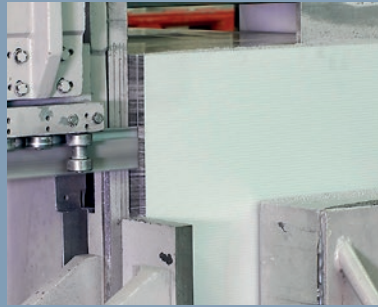


METAPOR® MA 100 BLACK



METAPOR® ES 240 INOX

Services



Cutting Service

METAPOR® can be custom cut to your desired thickness and dimensions.

Gluing Service

Larger plates can be fabricated by bonding multiple slabs of METAPOR® using an appropriate adhesive system. Dimensions up to 3500 x 2000 mm will be assembled at our facilities upon request.

Coatings

Various coatings can be applied without clogging the pores. Emergency running properties and surface protection requirements can be improved.

Component and Assembly

METAPOR® may be ordered directly from us or through one of our partners. If you wish to receive finished parts made out of METAPOR®, please send us your inquiry. We are able to produce and assemble your parts based on technical drawings or 3D data.

Many of our METAPOR® distributors are specialised in certain fields of applications. We are happy to connect you with the METAPOR® partner that will best suit your needs. Our goal is to help you save time and money by matching you with a partner that is able to service all of your unique application needs.



Since 1991 our name has been a guarantee for Swiss Quality, innovative solutions and reliable high tech products.

Our porous air permeable products offer significant advantages for many vacuum and other pressure related applications which require consistent permeability.

We look forward to hearing from you with any questions, comments, or other requests. Application and technical assistance is a phone call or key stroke away.



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