ENGINEERING DATA SHEET

DSM 5.1.5

METAPOR MC 100 AL

1. Definition:

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. 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.

2. Application:

The most common application for METAPOR® is vacuum clamping. It is used to accurately hold down printed circuit boards, semi-conductor wafers, liquid crystal displays and other delicate components. General machining and manufacturing industries use the material to build flat and 3-D vacuum chucks to enable clamp parts for machining, trimming, and assembly. Most METAPOR® materials achieve a build-up of pressure within the vacuum clamping system, resulting in strong holding forces across the entire surface, even when it is only partially covered.

3. General Information:

- Material sizes - 500 x 500 x (10 up to 420) mm.
- Tolerance value:
  - Length, width -0 / +2.0 mm
  - Slab-thickness -0 / +0.5 mm
  - Slab-surface – Sawn

4. Machining & Handling Guidelines:

Please see below PDF document from METAPOR® on Machining and Handling Guidelines.

Adobe Acrobat Document

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5. Air Flow Rates:

The numbers are average values for calculating air consumption for overpressure or underpressure applications. Specification in Liter per minute per cm2.

Pressure in bar	Plate thickness in mm							
	10	15	20	25	30	40	60	100
0.2	3.54	2.928	2.196	1.872	1.653	1.358	0.977	0.798
0.3	4.138	3.685	2.977	2.51	2.226	1.851	1.39	1.112
0.4	4.661	4.441	3.623	3.063	2.731	2.269	1.709	1.421
0.5	5.44	5.146	4.184	3.553	3.168	2.649	2.022	1.676
0.6	6.719	5.93	4.63	3.973	3.572	2.977	2.295	1.888
0.7	7.234	6.738	5.174	4.368	3.937	3.285	2.504	2.106
0.8	8.122	7.521	5.695	4.726	4.28	3.583	2.721	2.295
0.9	9.019	8.305	6.228	4.982	4.578	3.838	2.925	2.469
1	9.913	9.088	6.816	5.447	4.887	4.094	3.115	2.648
2	18.852	16.918	12.688	9.946	9.016	7.583	4.718	4.061
3	27.791	24.748	18.561	14.445	13.145	11.073	6.321	5.138
4	36.729	32.578	24.433	18.944	17.274	14.563	7.924	6.439
5	45.668	40.409	30.306	23.443	21.403	18.053	9.527	7.684

6. Mechanical properties at 20°C:

These values are representative. For critical applications, refer to Manufacture.

Property	Standard	Units	Value
Density		g/cm^3	1.7
Shore hardness D	DIN EN ISO 868		82
Flexural strength	DIN EN ISO 178	Mpa	40
E-module	DIN EN ISO 527	Mpa	4900
Impact strength	DIN EN ISO 179-1	kJ/m^2	1
Compressive strength	DIN EN ISO 604	Mpa	24
Coefficient of thermal expansion 25-125°C	ISO 11359	$10^{-6} \times K^{-1}$	29
Heat conductivity at 20°C	DIN EN ISO 22007-2	W/m x K	25.6
Specific surface resistance	DIN EN 62631-3-2	Ohm	>500
Dimensional stability	DIN EN ISO 75-1	°C	108
Mean pore diameter		µm	89
Total porosity		%	26

Alternatives:

Alternatives are allowed only with the express written permission of ASMPT. Please email details of your request to engineering_enquiries@asmpt.com