



INNOVATION
FOR MORE THAN
30 YEARS



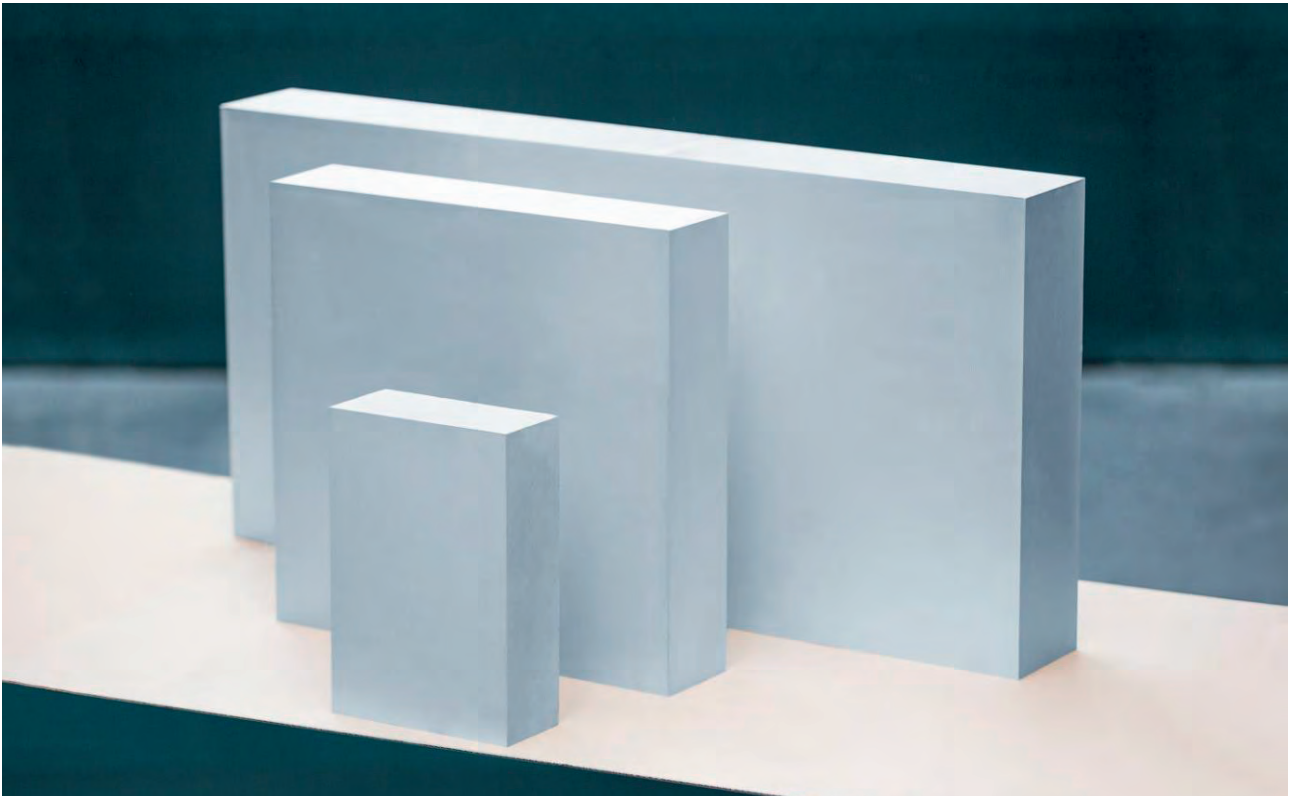
POROUS SLABS AND BLOCKS

ALWA POR



ALWA Technische Produkte für Kunststoffverarbeitung, Modell- und Formbau GmbH
Röntgenstr. 1, 48599 Gronau, Germany
Phone: +49 (0) 25 62 - 9 81 57, Fax: +49 (0) 25 62 - 9 81 59, E-Mail: info@alwa.de

ALWA POR ALUMINIUM



ALWA POR ALUMINIUM:

- is made of aluminium and a resin binder.
- is porous and is produced as a block or slab in our factory in Gronau, Germany.
- has a surface structure from very smooth to good depending on the pore size and is characterized by a good porosity.
- is easily machinable and can be polished to a shiny surface.
- is particularly suitable for thermoforming and other vacuum processing, and is also suitable for:
 - hot steam or water steam processing (EPS/EPE/EPP),
 - vacuum clamping and gripper technology,
 - filter applications,
 - air film sliding technology,
 - aeration of aquaria, fish ponds and sewage treatment plants,
 - foundry and many other applications.

Delivery forms: Blocks and slabs are available in different wall thicknesses (steps of 10 mm)

200 x 300 x 20 – 150 mm
500 x 500 x 20 – 150 mm
700 x 600 x 20 – 130 mm (is now available)
1000 x 500 x 20 – 150 mm
1200 x 600 x 20 – 130 mm (is now available)

The slab tolerance values are between 0 – 0.6 mm in length, width and thickness.

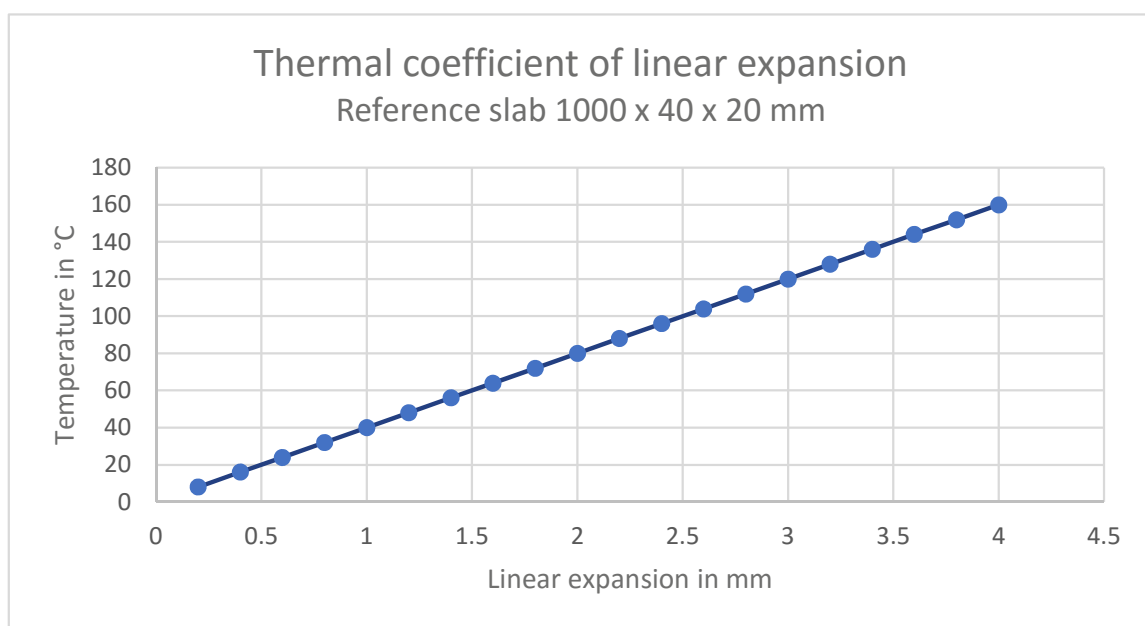
Non-binding milling data:

R10 ball nose ~ 7000 RPM feeding speed ~ 5000 mm/min.
R 4 ball nose ~ 7000 RPM feeding speed ~ 3500 mm/min.

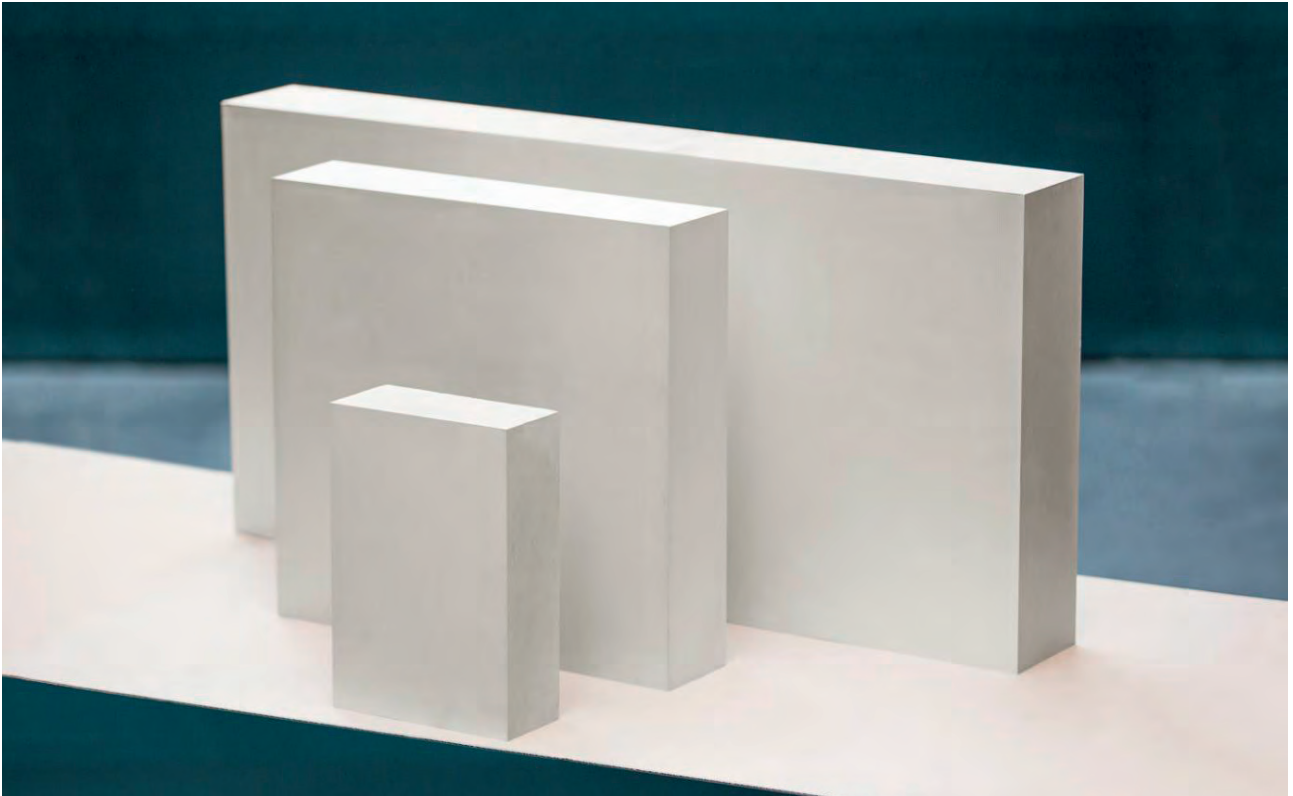
Technical data:

Characteristic	Norm	Unit	Value
ALWA POR ALUMINIUM 1 very smooth surface	Average pore diameter	μ	~ 6 – 9
ALWA POR ALUMINIUM 2 smooth surface			~ 12 – 15
ALWA POR ALUMINIUM 3 good surface (NEW)			~ 30
ALWA POR ALUMINIUM 4 good surface			~ 50 – 53
ALWA POR ALUMINIUM 5 good surface			~ > 60
Total porosity ALWA POR ALUMINIUM 1, 2 and 4		%	~ 17 – 20
Total porosity ALWA POR ALUMINIUM 3 and 5		%	~ 30
Density (depending on the variety)		g/cm ³	~ 1.7 – 2.0
Hardness (dot-matrix) (depending on the variety)	DIN 53505	Shore D	~ 84 – 96
Flexural strength (depending on the variety)	DIN 53452	M P A	~ 35
E-Module (depending on the variety)	DIN 53457-B3	M P A	~ 9600
Impact strength (depending on the variety)	DIN 53453	kJ/m ²	~ 11
Thermal coefficient of linear expansion	DIN 53752	°C ⁻¹ x 10 ⁻⁶	~ 27.2
Thermal conductivity	DIN 52612	Wm ⁻¹ °C ⁻¹	~ 19
Long-term temperature resistance (mould temperature)	DIN 53462	°C	~ 190
Glas transition temperature (TG)		°C	~ 300

Please consider the different thermal coefficients of linear expansion if ALWA POR ALUMINIUM is screwed on a slab or something is screwed on ALWA POR ALUMINIUM (slab, block or mould). Drill larger holes for the screws into the material, so that the different expansion coefficients can level out. Screw connections which are used several times should be equipped with threaded sleeves.



ALWA POR MINERAL



ALWA POR MINERAL:

- is made of mineral particles and a resin binder.
- is porous and produced as a block or slab in our factory in Gronau, Germany.
- has a very smooth surface with good porosity.
- is easily machinable.
- is suitable for:
 - vacuum clamping technology,
 - filter applications,
 - aeration of aquaria, fish ponds and sewage treatment plants,
 - air film and sliding technology and many other applications.

Delivery forms: Blocks and slabs are available in different wall thicknesses (steps of 10 mm)

200 x 300 x 20 – 150 mm
500 x 500 x 20 – 150 mm
700 x 600 x 20 – 130 mm (is now available)
1000 x 500 x 20 – 150 mm
1200 x 600 x 20 – 130 mm (is now available)
The slab tolerance values are between 0 – 0.6 mm in length, width and thickness.

ALWA POR MINERAL:

Article	Average pore diameter	Total porosity
ALWA POR MINERAL	~ 28 – 31 μ	~ 16 – 20 %

Technical data:

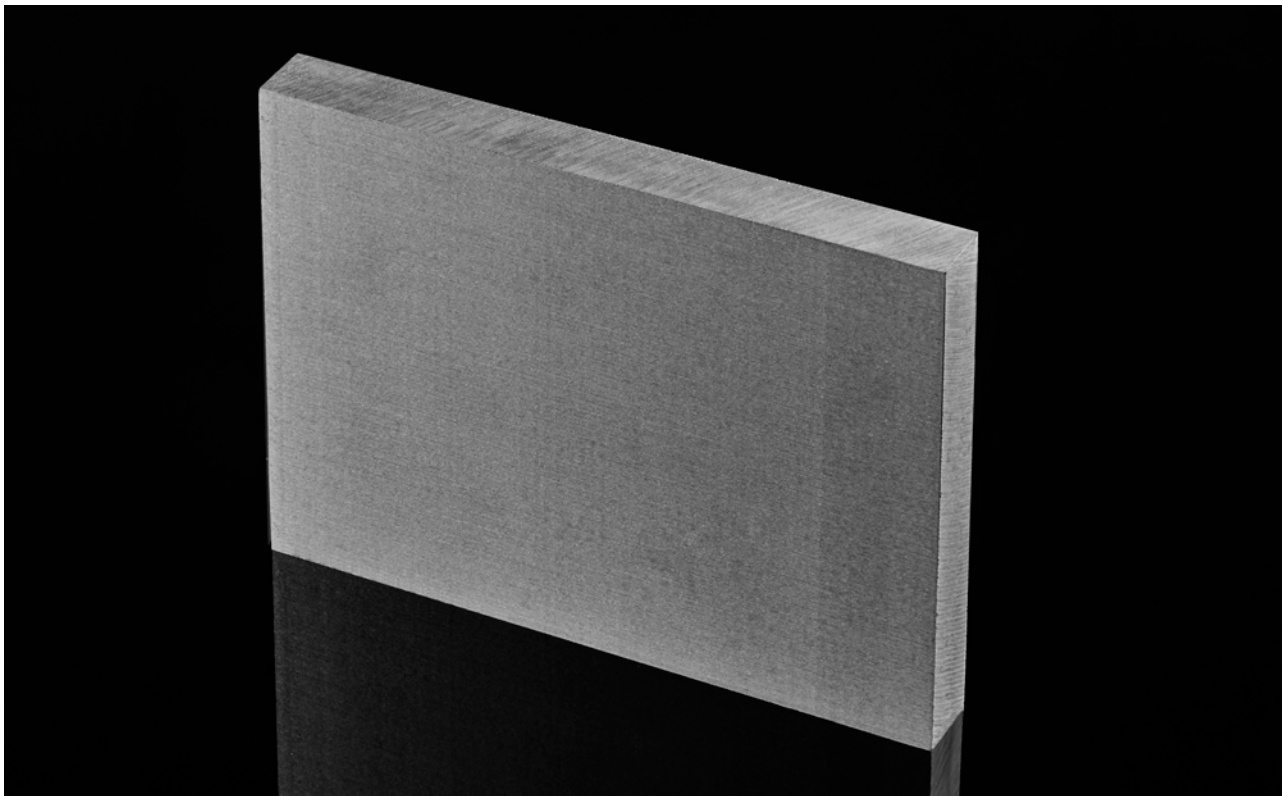
Characteristic	Norm	Unit	Value
Density		g/cm ³	~ 1.7
Hardness (dot-matrix)	DIN 53505	Shore D	~ 95
Flexural strength	DIN 53452	M P A	~ 27 – 29
E-Module	DIN 53457-B3	M P A	~ 14520
Impact strength	DIN 53453	kJ/m ²	~ 1
Thermal coefficient of linear expansion	DIN 53752	°C ⁻¹ x 10 ⁻⁶	~ 26 – 30
Thermal conductivity	DIN 52612	Wm ⁻¹ °C ⁻¹	~ 1.6
Long-term temperature resistance (mould temperature)	DIN 53462	°C	~ 130

Please consider the different thermal coefficients of linear expansion if ALWA POR MINERAL is screwed on a slab or something is screwed on ALWA POR MINERAL (slab, block or mould). Drill larger holes for the screws into the material, so that the different expansion coefficients can level out. Screw connections which are used several times should be equipped with threaded sleeves.

On demand ALWA POR MINERAL can be produced with a smaller average pore diameter (~ between 5 – 20 μ).



ALWA POR (CHROME) STEEL



ALWA POR (CHROME) STEEL:

- is made of steel or chrome steel (stainless steel) and a resin binder.
- is porous and produced as a block or slab in our factory in Gronau, Germany.
- has a good surface with good porosity.
- is machinable (e.g., grinding and polishing).
- is suitable for injection moulds and blow moulds venting (thermoplastics and rubber).
- prevents compression resistance. The injection moulding material spreads better in the cavities.
- is an economic alternative to expensive sinter plates.
- can be cleaned with methyl ethyl ketone (MEK).

Delivery forms: Blocks and slabs are available in different wall thicknesses (steps of 10 mm)

ALWA POR STEEL: 200 x 300 x 20 – 50 mm

ALWA POR CHROME STEEL: 200 x 300 x 20 – 50 mm

The slab tolerance values are between 0 – 0.6 mm in length, width and thickness.

Technical data ALWA POR STEEL:

Characteristic	Norm	Unit	Value
Average pore diameter		μ	~ 14
Total porosity		%	> 30
Density		g/cm ³	~ 4.4
Hardness (dot-matrix)	DIN 53505	Shore D	~ 95
Long-term temperature resistance (mould temperature)	DIN 53462	°C	~ 190

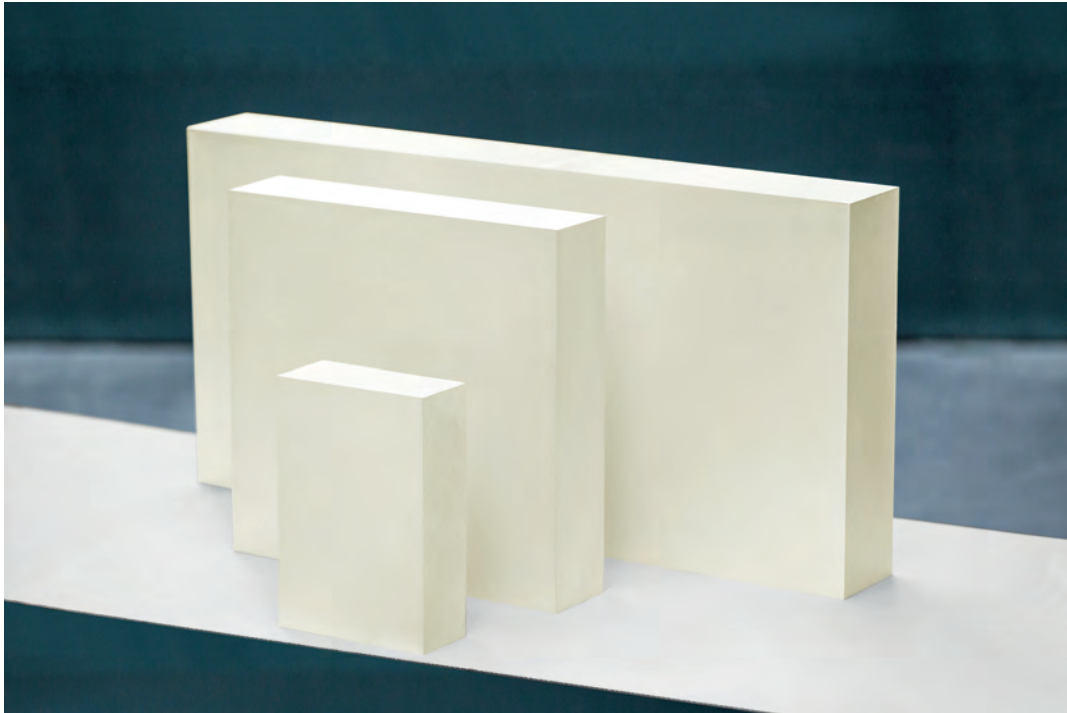
Technical data ALWA POR CHROME STEEL:

Characteristic	Norm	Unit	Value
Average pore diameter		μ	~ 18
Total porosity		%	> 28
Density		g/cm ³	~ 3.7
Hardness (dot-matrix)	DIN 53505	Shore D	~ 95
Long-term temperature resistance (mould temperature)	DIN 53462	°C	~ 190

Please consider the different thermal coefficients of linear expansion if ALWA POR (CHROME) STEEL is screwed on a slab or something is screwed on ALWA POR (CHROME) STEEL (slab, block or mould). Drill larger holes for the screws into the material, so that the different expansion coefficients can level out. Screw connections which are used several times should be equipped with threaded sleeves.



ALWA POR PLASTIC



ALWA POR PLASTIC:

- is made of plastic particles and a resin binder.
- is porous and produced as a block or slab in our factory in Gronau, Germany.
- is easily machinable.
- is suitable for:
 - vacuum clamping technology,
 - filter applications,
 - aeration of sewage treatment plants,
 - air film sliding technology and many other applications.



Versions of ALWA POR PLASTIC:

Article	Average pore diameter	Total porosity
ALWA POR PLASTIC	flexibly adjustable from $\sim 8 - 23 \mu$	depending on the average pore diameter between $\sim 30 - 33 \%$

Technical data:

Characteristic	Norm	Unit	Value
Density		g/cm^3	~ 0.79
Hardness (dot-matrix)	DIN 53505	Shore D	according to the average pore diameter $\sim 75 - 84$
E-Module	DIN 53457-B3	N/m^2	~ 6.98
Long-term temperature resistance (mould temperature)	DIN 53462	$^{\circ}\text{C}$	~ 65

Delivery froms: Blocks and slabs (customised dimensions)

For flat and longer slabs, we recommend storing the slabs vertically or place a weight on top if horizontally stored to avoid bending of the slabs and thus the bi-metal effect.