Material SIPERM® B

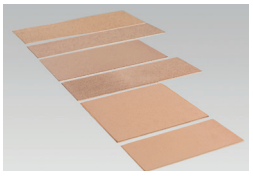
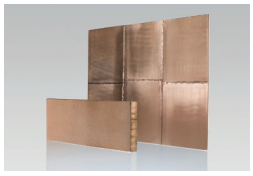
Bronze CuSn 10
Temperature resistance: 200 °C oxidizing atmosphere / 350 °C reducing atmosphere

B

Product overview

- **Plates**

Size: 250 x 500, 500 x 500, 750 x 450, 800 x 300, 1000 x 300, 1000 x 450 mm, seamless
Thickness: 2 - 10 mm
other sizes (weldments and cuts) upon request

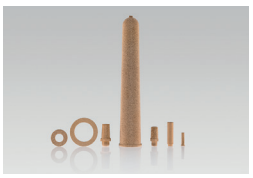




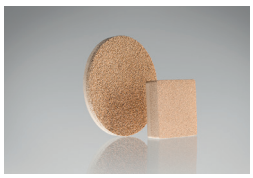
- **Tubes**

seamless and as weldment – dimensions upon request


- **Discs and shaped parts**

For the production of discs and shaped parts of different sizes, we have a comprehensive tool park at our disposal. Upon request, we will be pleased to inform you on available sizes and special shapes.



- **Fluidization units**

Fluidization bottoms according to customer specification

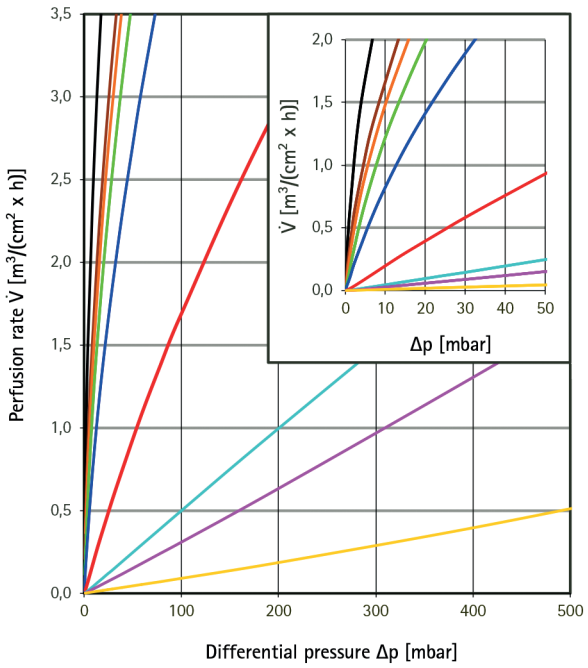

- **Filter cartridges**

seamless and as weldment – dimensions upon request

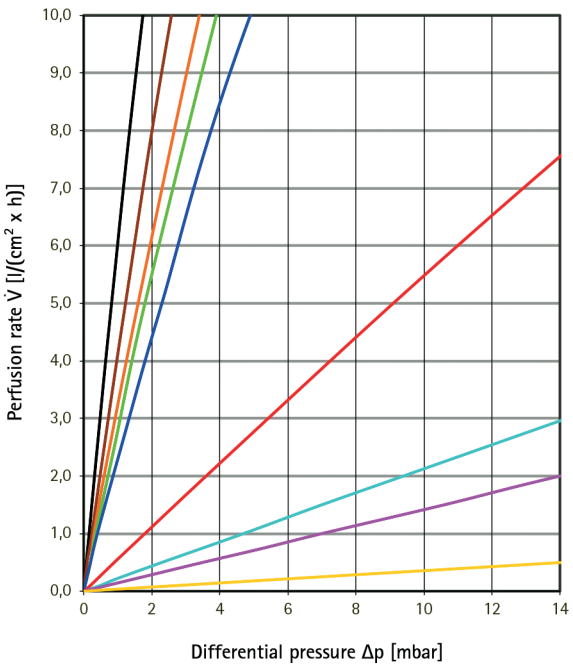

Permeability according to DIN ISO 4022

measured on discs (Ø80 x 3 mm) / surface area perfused: 20 cm² / correspond to 1 mm material thickness

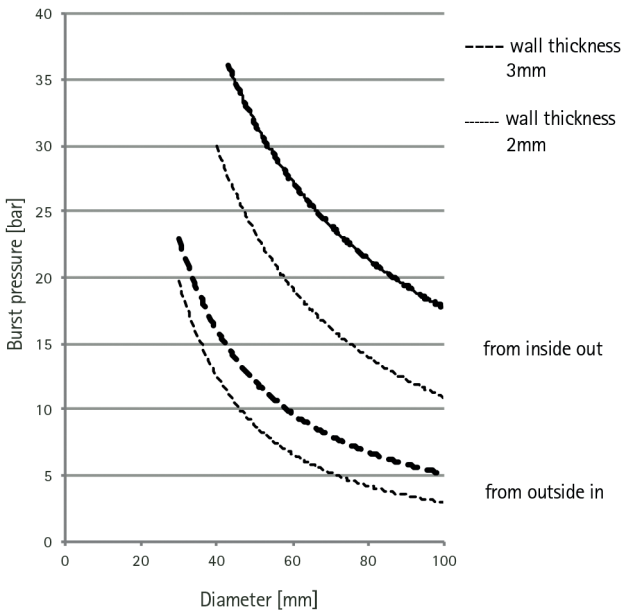
Air at 20 °C

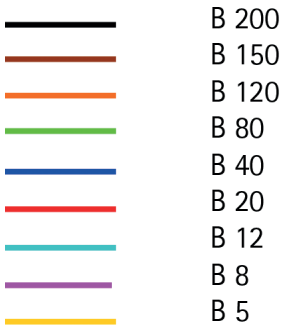


Water at 20 °C



Bursting strength of tubes





Technical data

Bronze CuSn 10
Temperature resistance: 200 °C oxidizing atmosphere / 350 °C reducing atmosphere

Filter grade	Density	Porosity	Specific flow coefficient		Separation efficiency (liquid) 98 %	Porometer ø pore size	Bubble Point Pressure difference	Shear strength	Tensile strength	Bending strength		
	[g/cm³]	[%]	laminar [m²] x10⁻¹²	turbulent [m] x10⁻⁷	[µm]	[µm]	[Pa]	[N/mm²]	[N/mm²]	δ el [N/mm²]	δ 0,1 [N/mm²]	δ Breakage [N/mm²]
B 5	6,0 - 6,4	27 - 32	1	1,5	12	3	5225	200	120	60	80	200
B 8	5,7 - 6,1	31 - 35	4	16	19	6	2425	170	105	60	70	150
B 12	5,1 - 5,9	33 - 38	6	35	28	9	1725	150	100	40	40	130
B 20	5,4 - 5,8	34 - 39	16	54	42	18	1125	140	65	25	30	90
B 40	5,2 - 5,6	36 - 41	65	120	75	34	625	110	30	15	25	40
B 80	5,0 - 5,4	39 - 43	80	200	131	55	525	90	25	15	20	35
B 120	4,9 - 5,3	40 - 44	90	250	225	70	325	80	20	10	10	25
B 150	4,7 - 5,1	42 - 47	120	300	251	90	225	60	10	10	10	25
B 200	4,5 - 4,9	44 - 49	180	400	301	105	125	40	5	5	5	10
	EN ISO 2738	*DIN ISO 30911-3*	*DIN ISO 4022*		*according to ISO 4572*	*ASTM E1294*	*DIN ISO 4003*	*DIN ISO 30911-6*	*according to EN ISO 2740*	*according to DIN ISO 3325*		

All stated values are mean values; the single values can differ according to the dimensions of the components.

Machining instructions

Turning	Tool shape:	Pointed finishing or side tool
	Hard metal grades:	ISO / ANSI K 20
	Effective cutting angle:	10°
	Clearance angle:	10°
	Depth of cut:	0.5 mm
	Cutting speed:	100 – 300 m/min
Welding	Porous sintered materials are welded by TIG. The material must be free from dirt and grease. The welding speed must be as high as possible to achieve optimal reduction of heat influx into the material.	
	Filler material:	Bronze wire CuSn 9 or CuSn 10
	Inert gas flow:	5 l/min
	Electrode diameter:	1.5 – 3 mm
	Current strength:	70 – 120 A

Machining

SIPERM® B can be rolled, bent, pressed, stamped, milled, turned or drilled, either cold after gentle heating. SIPERM® B materials with a finer pore structure are generally more suitable for machining than those of a coarser grade.

Any machining should avoid following the direction of perfusion flow, as the pores could become blocked – water jet cutting and electrical discharge machining is, however, possible. When scrolling or bending SIPERM® B plates, it should be noted that the minimum bending radius is dependent on pore size and the material´s strength. Generally, however, the radius should not be less than 10 times the wall thickness.

SIPERM® B semi-finished products can be joined by welding, riveting or bonding, both to other SIPERM® components or different materials, to form units or components of any size.

Please do not hesitate to contact us!

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Cleaning instructions

When all impurities are retained on the surface of the filter element without the penetration of particles into the pore channels, mechanical cleaning is usually sufficient. The counterflow cleaning is not sufficient when impurities have solidified inside the filter. Then we recommend the chemical dissolution of the residue in solvents which do not attack the filter.

Mechanical cleaning

This can easily be done by reverse washing (back-flushing) in a clean liquid or gas without disassembling the SIPERM®-component. The medium used for the reverse-washing process may either be the filtrate itself or the medium which is flowing through the SIPERM®-component. It is however recommended to work with a gas counterflow, if the filtrate is a gas, or with a liquid counterflow, if it is a liquid filtrate. If very dirty, the cleaning process is more thorough, the more often it is repeated.

Also possible is the back-blowing with a hot steam, for instance for vapor degreasing with a steam cleaner.

The cleaning effect in counterflow can be supported by gently brushing with a soft brush (nylon brush). It is recommended to carry out this process simultaneously with the passage of the counterflow-medium in order to prevent further accumulation.

For smaller, removable filter parts, the ultrasonic cleaning by the resonance method is possible.

Chemical cleaning

The choice of the suitable solvent as well as the success of the cleaning process depends on the nature of the impurity. Therefore, recommendations can only be very general.

For the cleaning of SIPERM® B the following media can be used:

- All standard solvents such as benzene, carbon tetrachloride, alcohol, acetone
- Acetic acid up to 25 % (30 - 60 min) or 20 % (1 - 2 h)
- Hydrochloric acid up to 10 % (30 - 60 min)
- Alkali- and alkaline earth metal solutions

After dissolving and flushing out the impurities, the neutralization with hot water is advisable, and if necessary, a potassium-dichromatepickling, followed by thorough rinsing.

The length of cleaning and the temperature used can be varied according to the degree of contamination. However, as a word of caution, it should not be forgotten that compared to solid material, highly porous sintered material has a vastly increased surface area and thus is far more susceptible to any aggressive cleaning medium. For this reason, the cleaning time and cleaning temperature must not exceed the absolutely necessary level.

Depending on the application it must be ensured that the highly porous sintered parts are dried thoroughly after cleaning. Cleaning with solvents in any case requires a complete drying of the porous sintered component before reuse. Solvents should under no circumstances be used for the cleaning of sintered components, which operate in systems where, for safety reasons, the use or insertion of solvents is prohibited.

In the case of metallic materials calcination is also possible, i.e. burning of crop residues at higher temperatures.

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