Material SIPERM® HP

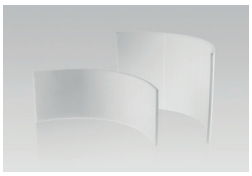
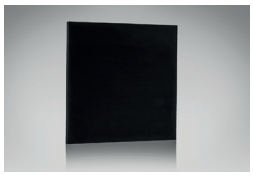
Polyethylene / PE-UHMW / HDPE

HP

Product overview

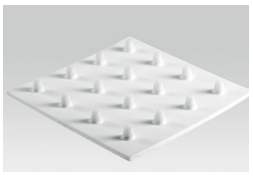
- **Plates**

  Size: 1000 x 1000 mm and 1200 x 1000 mm; Thickness: 3 - 20 mm
  other sizes (weldments and cuts) upon request

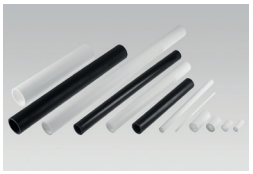
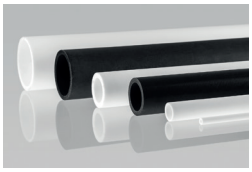

- **Cam plates**

  Size: 850 x 850 mm; Thickness: 5 - 8 mm
  Sintered spacer cams make an additional support redundant.



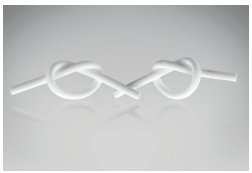

- **Tubes**

  seamless and as weldment – dimensions upon request

- **Discs and shaped parts**

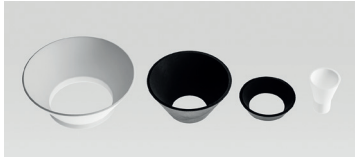
  For the production of discs and shaped parts of different sizes, we have a comprehensive tool park at our disposal. Upon request, we will be pleased to inform you on available sizes and special shapes.

- **Fluidization units**

  seamless fluidization bottoms – dimensions upon request
  welded fluidization bottoms according to customer specification






- **Filter cartridges**

  seamless and as weldment – dimensions upon request

Technical data

Polyethylene / PE-UHMW / HDPE

Filter grade	Density	Porosity	Specific flow coefficient		Porometer ø pore size	Bubble Point Pressure difference	Shear strength	Tensile strength	Elongation
	[g/cm³]	[%]	laminar [m²] x10⁻¹²	turbulent [m] x10⁻⁷	[µm]	[Pa]	[N/mm²]	[N/mm²]	[%]
HP FI i	0,58 - 0,62	35 - 39	12	100	22	825	12	8	35
HP 5	0,56 - 0,62	35 - 39	0,7	6,5	7	3551	10	4	50
HP 10	0,56 - 0,60	37 - 41	3,4	20	12	1825	8	4	30
HP 20	0,53 - 0,57	40 - 44	11	51	18	1075	9	5	40
HP 40	0,51 - 0,55	42 - 46	19	60	35	425	6	4	20
HP 60	0,54 - 0,61	36 - 43	23	72	62	210	7	5	16
HP 80	0,46 - 0,54	43 - 52	30	80	78	125	7	5	15
HP 100	0,41 - 0,47	52 - 57	48	101	97	105	6	5	12
HP antistatic i	0,49 - 0,53	44 - 48	15	55	22	775	4	3	15
HP FI-R i	0,58 - 0,62	35 - 39	12	100	22	825	12	7	35
	EN ISO 2738	*DIN ISO 30911-3*	*DIN ISO 4022*		*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.

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HP FI – Standard plate material for fluidization

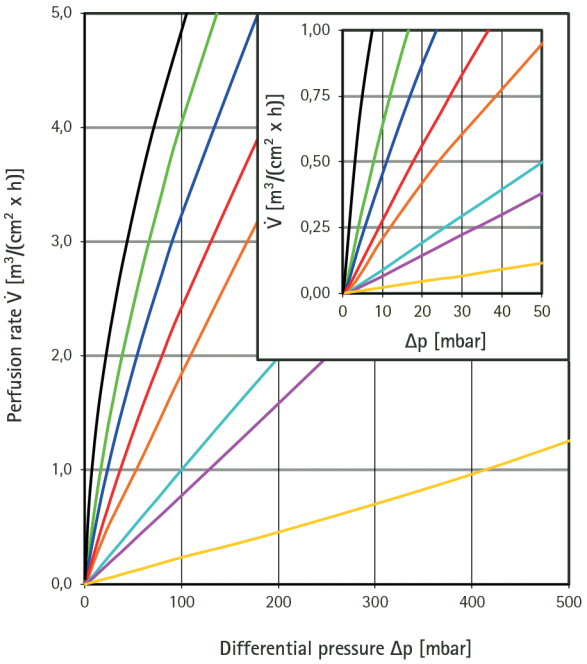
HP antistatic – Standard material antistatic; Surface resistivity <10^6 Ohm / All other HP grades are also available in antistatic version.

HP FI-R – Stainless steel infiltrated standard plate material for fluidization. The material is detectable and therefore suitable for use in the food industry.

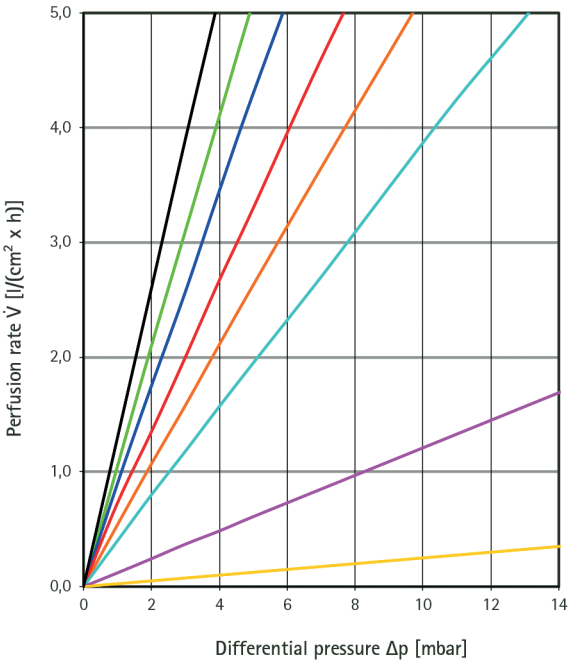
Permeability according to DIN ISO 4022

measured on discs (Ø80 x 5,7 mm) / surface area perfused: 20 cm² / correspond to 1 mm material thickness

Air at 20°C



Water at 20°C



HP 100
HP 80
HP 60
HP 40
HP 20
HP 10
HP 5
HP Fl

Machining instructions

Turning	Tool shape:	Pointed finishing or side tool
	Effective cutting angle:	5 - 30°
	Clearance angle:	10 - 15°
	Depth of cut:	0.1 - 0.5 mm
	Cutting speed:	200 – 500 m/min
Welding	Hot gas and heated tool welding	
	Filler material:	Polyethylene wire (Natural PE)
	Electrode diameter:	3 – 5 mm
	Welding temperature:	200 – 250 °C

Machining

SIPERM® HP can be rolled, bent, pressed, stamped, milled, turned or drilled, either cold after gentle heating. SIPERM® HP 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® HP 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® HP 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® HP the following media can be used:

- Solvents: acetone, ethanol, methanol, benzine (RT)
- Acetic acid 10%
- Hydrofluoric acid 40%
- Hydrochloric acid (any concentration)
- Nitric acid 25%
- Sodium hydroxide solution

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.

Please note that when cleaning SIPERM® HP with surfactants, the material loses its hydrophobic property.
Moreover, surfactants reduce the material's resistance to cracking.

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