



# HOBRAFILT

**Depth filter sheet**

**Three-dimensional depth filter**

**Three types of filtration mechanisms**

**Reliable solution of filtration**

**Economically profitable solution**



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Certifications:

ISO 9001

ISO 14001



## Depth filter sheet HOBRAFILT

### Characteristic

The filter sheet is in principle three-dimensional depth filter, totalled of adsorbents with big inner surface. It is possible to imagine it as a tangle of variously long cellulose and canals inside the sheet where impurities get caught. Unlike the screen filtration the filter tract get manifold larger by depth filter sheet through the inherence of adsorbent and that's why quantity of filtrated solution increases.

### Mechanism of filtration

In the process of filtration through filter sheets there are three different below specified filter mechanisms. In praxis pursuant to broad dispersion of the element's size no of these three filter mechanisms occurs by itself by the filtration, but there is allways more or less big overlapping which is finally decisive for the result of filtration.

1. Mechanical filtration - direct filtration of extraneous substances through porous layer - all elements bigger than orifices of filter sheet are caught mechanically.
2. Electrostatical adsorption - small molecular interactions so-called Van der Waals forces, which rise between the elements of solution and the material of filter sheet. This way it is ensured that inside the filter sheet in cellulose and canals there are caught even elements smaller than the size of the pores.
3. Electrokinetical adsorption - based on the existence of so-called Zeta - potential and asserted by the sheets with microbiological effectivity. Excellent effects against electrically negative particles of impurities, microorganisms and viruses suspended in filtrated liquid are reached through the change of natural negativ electrokinetical charge of filter sheet to the positive charge - it means Zeta potential. This is reached through the special modification by health unexceptionable polyelectrolytes. Owing to this modification there are caught even particles tenfold smaller than the pores size of filter sheet.



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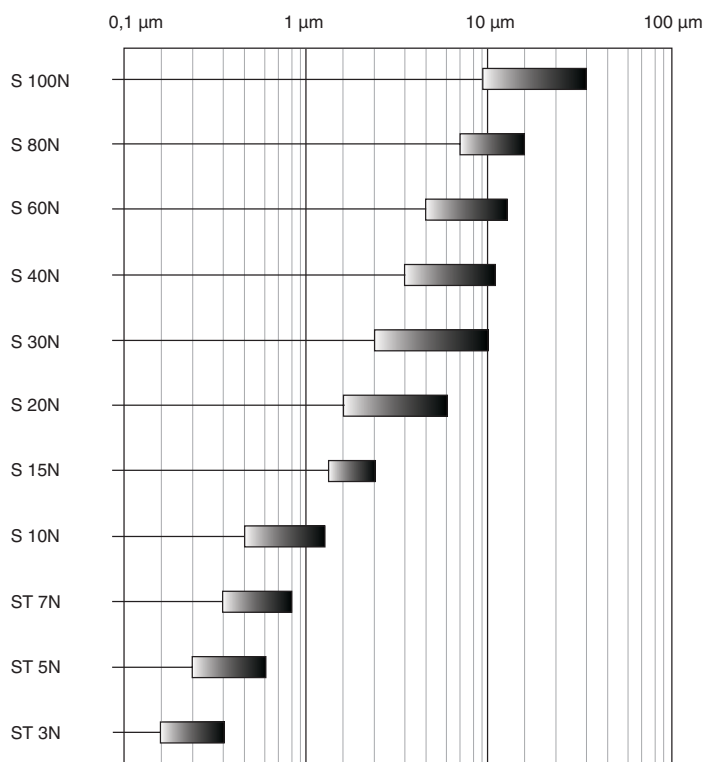
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Type of sheet	flow rate	retention rate	thickness
	(l/m <sup>2</sup> /min)	(micron)	(mm)
ST 3 N	25 – 38	0,2	3,8 +/- 0,15
ST 5 N	44 – 67	0,3	3,8 +/- 0,15
ST 7 N	79 – 109	0,4	3,8 +/- 0,15
S 10 N	127 – 174	0,8	3,6 +/- 0,10
S 15 N	182 – 227	2	3,6 +/- 0,10
S 20 N	233 – 280	3	3,6 +/- 0,10
S 30 N	275 – 321	4	3,6 +/- 0,10
S 40 N	420 – 540	5	3,6 +/- 0,10
S 60 N	711 – 889	6	3,6 +/- 0,10
S 80 N	1076 – 1390	8	3,6 +/- 0,10
S 100 N	1278 – 1789	11	3,3 +/- 0,10
DZ 170 N	> 1350	-	3,4 +/- 0,20



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#### Packaging and dimensions of filter sheets

The sheets are packaged in shrink-wrap by packages and after that in RESA cartons. Filter sheets are made standardly in sizes:

Size	pc/package	pc/carton	pc on the pallet / weight of pallet
200x200 mm	20	400	9 600/ 500
300x300 mm	25	100	3 200 /400
400x400 mm	25	100	2 400/ 500
600x614 mm	25	50	1 000/ 600
805x820 mm		245	245/ 250

Special sizes inclusive rounds - according the requires of the customer.



## Usage in various lines of industry



### Filtration of wine

High-flow pre-filtration	S80N, S60N, S40N
Cleansing filtration	S30N, S20N
Fine cleansing filtration	S15N, S10N
Microbiologically effective	ST7N, ST5N, ST3N



### Filtration of beer

Silting filtration	DZ 170
High-flow pre-filtration	S100N, S80N, S60N, S40N
Cleansing	S30N, S20N
Fine	S15N, S10N
Microbiologically effective	ST7N, ST 5N, ST3N



### Filtration of alcohol and soft drinks

High-flow pre-filtration	S100N, S80N, S60N, S40N
Cleansing	S30N, S20N
Fine	S15N, S10N
Microbiologically effective	ST7N, ST5N, ST3N



### Filtration in pharmacy

High-flow pre-filtration	S100N, S80N, S60N, S40N
Cleansing	S30N, S20N
Fine cleansing	S15N, S10N
Microbiologically effective	ST7N, ST5N, ST3N



### Filtration in cosmetics and chemistry

High-flow pre-filtration	S100N, S80N, S60N, S40N
Cleansing	S30N, S20N
Fine cleansing	S15N, S10N
Microbiologically effective	ST7N, ST5N, ST3N



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## Filter sheets - usage in viniculture

### Characteristics

The filter sheet is in principle three-dimensional depth filter, totalled of adsorbents with big inner surface. It is possible to imagine it as a tangle of variously long cellules and canals inside the sheet where impurities get caught. Unlike the screen filtration the filter tract get manifold larger by depth filter sheet through the inherence of adsorbent and that's why quantity of filtrated solution increases.

### Mechanism of filtration

In the process of filtration through filter sheets there are three different below specified filter mechanisms. In praxis pursuant to broad dispersion of the element's size no of these three filter mechanisms occurs by itself by the filtration, but there is allways more or less big overlapping which is finally decisive for the result of filtration.

1) Mechanical filtration - direct filtration of extraneous substances through porous layer - all elements bigger than orifices of filter sheet are caught mechanically.

2) Electrostatical adsorption - small molecular interactions so-called Van der Waals forces, which rise between the elements of solution and the material of filter sheet. This way it is ensured that inside the filter sheet in cellules and canals there are caught even elements smaller than the size of the pores.

3) Electrokinetical adsorption - based on the existence of so-called Zeta - potential and asserted by the sheets with microbiological effectivity. Excellent effects against electricly negative particles of impurities, microorganisms and viruses suspended in filtrated liquid are reached through the change of natural negativ electrokinetical charge of filter sheet to the positive charge - it means Zeta potential. This is reached through the special modification by health unexceptionable polyelectrolytes. Owing to this modification there are caught even particles tenfold smaller than the pores size of filter sheet.

Level of cleaning	Function despatch	Filter sheet	Quantity l/m <sup>2</sup> /hour	Max. different of pressure
<b>Type</b>				
Pre-filtration	coarse sediments	S 60 N	1 000 l	3 bar
cleaning		S 40 N		
		S 30 N		
1. Fine filtration	yeasts	S 20 N	800 l	3 bar
		S 15 N		
2. Fine filtration	yeasts	S 10 N	500 l	2 bar
	bacteria			
1. Filtration before bottling	reduction of yeas and bacteria germs	ST 7 N	350 – 400 l	1,2 bar
2. Filtration before bottling	reduction of germs or prevention of membrane candle	ST 5 N		
		ST 3 N	300 l	1,2 bar



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## Filter sheets - usage in brewing industry

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Level of cleaning	Function despatch	Filter sheet	Quantity l/m <sup>2</sup> /hour	Max. different of pressure
<b>Type</b>				
Pre-filtration	coarse impurities	DZ 170	300 l	2,5 bar
Fine filtration	yeasts coloids	S 10N	150 l	1,2 bar
1. Filtration before bottling	reduction of yeast and bacteria germs	ST 7 N	150 l	1,2 bar
2. Filtration before bottling	microorganisms	ST 5 N		
		ST 3 N	150 l	1,2 bar



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## Filter sheets - usage in beverages industry

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<b>Type</b>				
Pre-filtration	coarse impurities	S 100 N	900 l	3 bar
		S 80 N		
Clearing/fining filtration	germs of yeast and fine sediments	S 60 N	700 l	2,5 bar
		S 40 N		
Fine filtration	yeast bacteria	S 20 N	500 l	2 bar
		S 15 N		
		S 10 N		
1. Filtration before bottling	reduction of yeast and bacteria germs	ST 7 N	350 l	1,2 bar
2. Filtration before bottling	microorganisms	ST 5 N	300 l	1,2 bar
		ST 3 N		



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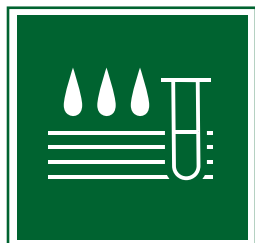
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## Filter sheets - usage in chemistry and cosmetics

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<b>Type</b>				
Pre-filtration	coarse impurities	S 100 N	900 l	3 bar
		S 80 N		
Clearing/fining filtration	germs of yeast and fine sediments	S 60 N	700 l	2,5 bar
		S 40 N		
Fine filtration	yeast bacteria	S 20 N	500 l	2 bar
		S 15 N		
		S 10 N		
1. Filtration before bottling	reduction of yeast and bacteria germs	ST 7 N	350 l	1,2 bar
Microbiological filtration	microorganisms	ST 5 N	300 l	1,2 bar
		ST 3 N		



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## Filter sheets - usage in pharmacy

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Type				
Pre-filtration	coarse impurities	S 100 N	900 l	3 bar
		S 80 N		
Cleaning/Fining filtration	impurities of high-viscose liquids	S 60 N	700 l	2,5 bar
		S 40 N		
Fine filtration	retention of pyrogens	S 30 N	500 l	2 bar
		S 20 N		
1. Filtration before bottling	reduction of yeast and bacteria germs	S 15 N	350 l	1,2 bar
		S 10 N		
Microbiological filtration	microorganisms	ST 7 N	300 l	1,2 bar
		ST 5 N		
		ST 3 N		