



HiFlux Filtration A/S

# Micro-line 1050 SS Filters

1 - 1000 micron / 12 - 31 m<sup>3</sup>/h

HiFlux Micro-line 1050 SS filters in stainless acid-proof EN 1.4404 steel are designed as a compact inline universal filter with many applications.

The filter is supplied as a bag or strainer filter and can be fitted with a magnetic system for efficient retention of magnetic particles.

The filter is designed for a 16 bar design pressure at temperatures of up to 110 °C (water) or according to customers requirements.

The lid is designed in such a way that it can be opened and closed quickly - without using tools, which makes cleaning fast and simple so for the filter to be put back into operation quickly.

In the bag filter version the filter is used where there is a need for reliable fine filtering from 1 micron with a large dirt capacity. Filter bags are available in several material types and filtration ranges (see also data sheet for filter bags).

In the strainer filter version the filter is used where there is a need for a large flow and dirt capacity and a small differential pressure.

As standard the direction of flow is from the inside and out through the filter insert. The dirt is retained in the filter insert, which can be lifted out and cleaned. It is possible to use the strainer filter with reverse flow. This means that the dirt is retained on the outside of the strainer and it is possible to remove the sludge from the filter by fitting a valve into the drain.

The filter can be fitted with a unique magnetic system which makes it possible to collect magnetic particles as small as less than 1 micron. The magnetic insert is designed as an integrate part of the bag insert for simple and fast handling - again without any use of tools - in connection with cleaning.

The magnetic insert is of the HiFlux type which is fitted with Neodymium magnets. In comparison to conventional ceramic magnets provides a magnetic field which is seven times stronger, resulting in significant increases in both efficiency and capacity.

Fittings for suspending the filter can also be supplied as an extra option and should be fitted directly on to the filter housing.

The filter is shown with DN 50, PN16 EN 1092-1 flanges. Other connection types can be supplied in accordance to customers specifications. Standard with R2 nipples.

For other options see also **HiFlux Micro-line 1050**, **HiFlux TS** and **HiFlux TP** filters.

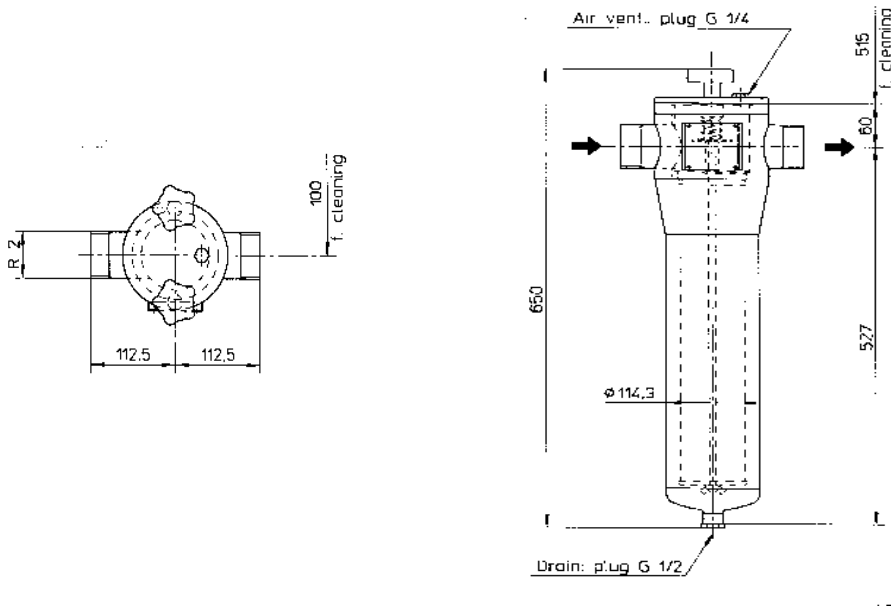


Processor AB  
Box 8011  
SE-163 08 SPÅNGA  
Sweden

Tel 08-564 722 60  
Fax 08-564 722 66  
www.processor.se  
info@processor.se



# Micro-line 1050 SS Filters



HiFlux Micro-line 1050 SS is manufactured in stainless acid-proof EN 1.4404 steel and accomodates current standards and norms for pressure vessels.

Design pressure: 16 bar  
 Test pressure: EN 13445  
 Max. differential pressure: 1,0 bar (bag filter), 2,0 bar (strainer filter)  
 Max. working temperature: 110° C (water) or according to customer requirements  
 Volume: 6 liters  
 Weight: 11 kg  
 Connection: Nippel R2 EN 10226-1 or flange DN 50, PN16 EN 1092-1

Filter bag (PA): 10-50 micron (max. 120° C)  
 Filter bag (PP): 1-5-10-25-50-100 micron (max. 90° C)  
 Strainer filter (EN 1.4301): 25-30-50-100-250-500-1000 micron

Magnetic system: HiFlux magnetic insert for both strainer and bag filters

A special strainer or bag for higher temperatures (max. 150° C) is available.

Capacity:  
 (at a viscosity of 1 cSt  
 and as a pressure filter)

Version	Strainer area Cm <sup>2</sup>	Capacity in m3/h at a differential pressure of			
		0,05 bar	0,10 bar	0,15 bar	0,20 bar
<b>Bag filter (1 µm)</b>	1050	12,0	16,0	19,0	22,0
<b>Mag. Bag filter*</b>	1050	13,0	19,0	23,0	26,0
<b>Strainer filter (25 µm)</b>	1050	15,0	22,0	26,0	31,0
<b>Mag. Strainer filter*</b>	1050	16,0	22,0	26,0	31,0

\* Optimum retention of magnetic particles as small as 1 micron is achieved by a flow of ≤ 10 m<sup>3</sup>/h when fitted with the HiFlux magnetic system.



# Mini & TWP Stainless Bag Filters

1 - 1000 micron / 2 - 150 m<sup>3</sup>/h

HiFlux Mini and TWP Bag Filters are used where there is a need for reliable fine filtration from 1 micron with a large dirt capacity. The filter housings are designed for a working pressure of 10 bar (Mini 8.5 bar) and equipped with a simple and secure closing system which makes it quick to change filter bags, thereby maximising the time the filters are in operation.

A compact design and a maximum built-in filter surface ensure the best possible flow and consequently a small differential pressure, long intervals between bag changes and lower energy consumption.

### The filter consists of three main elements

1. Filter housing which is designed in accordance with current pressure vessel norms and supplied in stainless acid-proof SUS316 steel (Mini EN 1.4404).
2. The support strainer which gives the filter bag mechanical strength and ensures that the bag can resist a differential pressure of up to 1 bar. The support strainer is made of stainless acid-proof SUS316 steel to ensure durability.
3. The filter bag is supplied in several material types and degrees of filtration. A special design in terms of stitching and choice of thread provides a robust filter bag without perforations. The filter material is selected after careful determination of the degree of filtration and maximum dirt capacity (see also data sheet for filter bags).

Filters of the TWP type can be supplied with the effective HiFlux magnetic system for retention of magnetic particles.

### Products often filtered with bag filters

District heating water	Cooling water	Cleaning fluids
Photographic chemicals	Varnish	Cutting oils and emulsions
Galvanic baths	Glue	Waste water
Juice	Paint	Sugar solutions
Chemicals	Condensate	Vegetable oils
Cosmetic fluids	Process water	etc.

For other options see also **HiFlux TP** and **HiFlux Micro-Line filters**.

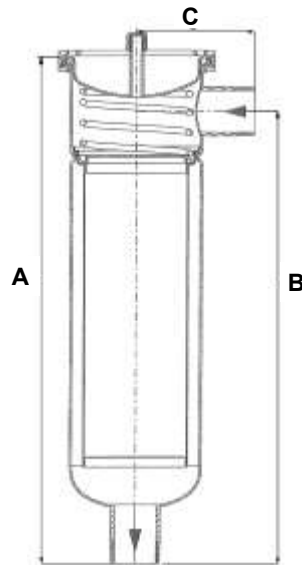


Processor AB  
Box 8011  
SE-163 08 SPÅNGA  
Sweden

Tel 08-564 722 60  
Fax 08-564 722 66  
www.processor.se  
info@processor.se



# Mini Stainless Bag Filters



Type	A	B	C	No.	Filterbags		Air vent.	Connection	Fittings
	mm	mm	mm		type	cm <sup>2</sup> /each	plug		type
Mini-1	330	282	115	1	0	650	Rp 1/4"	Rp 1	Vee clamp
Mini-2	490	441	115	1	X0	900	Rp 1/4"	Rp 1 1/2	Vee clamp

HiFlux standard bag filters type Mini are supplied in stainless acid-proof EN 1.4404 steel. The surface is electropolished on the inside and outside.

Design pressure:	8,5 bar
Test pressure:	12,2 bar
Max. differential pressure:	1,0 bar
Max. working temperature:	100 °C
Connection:	Thread EN 10226
Filter bags:	See data sheet for filter bags
Polypropylene:	1-5-10-25-50-100-200 micron (max. 90° C)
Polyester:	1-5-10-25-50-75-100-150-200-300 micron (max. 150° C)

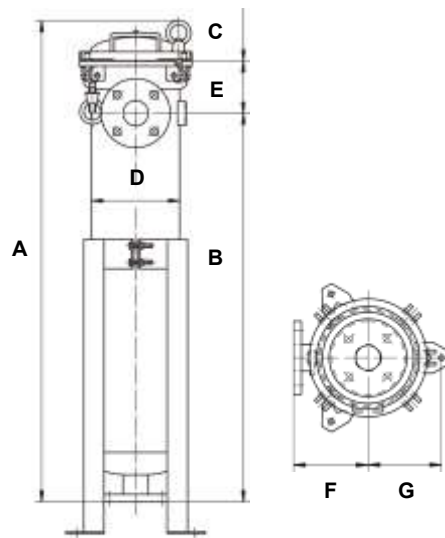
Capacity:  
(at a viscosity of 1 cSt  
and 5 micron filtration)

Type	Area cm <sup>2</sup>	Capacity in m <sup>3</sup> /h at differential pressure				
		0,05 bar	0,10* bar	0,15 bar	0,2 bar	0,3 bar
Mini-1	650	1,5	2	2,4	2,8	3,5
Mini-2	900	3	5	6	7	8,8

\* It is recommended that the filter installation is dimensioned on the basis of a differential pressure of 0.1 bar.



# TWP Stainless Bag Filters



Type	A	B	C	D	E	F	G	Filter bag		Air vent.	Connection	Fittings	
	mm	mm	mm	mm	mm	mm	mm	no.	type	cm <sup>2</sup> /each	plug	no.	
<b>TWP-1000</b>	640	455	300	139,8	100	135	130	1	1	1000	1/4" NPT	DN50	3
<b>TWP-2050</b>	780	550	350	210	125	168	166	1	1	2050	1/4" NPT	DN50	4
<b>TWP-4250</b>	1130	910	800	210	125	147	166	1	2	4250	1/4" NPT	Rp 2	4
<b>TWP-4250</b>	1160	930	800	210	125	168	166	1	2	4250	1/4" NPT	DN50	4
<b>TWP-4250</b>	1160	930	800	210	125	168	166	1	2	4250	1/4" NPT	DN80	4
<b>TWP-6300</b>	1605	1375	1250	210	125	168	166	1	3	6300	1/4" NPT	DN80	4
<b>TWP-6300</b>	1605	1355	1250	210	145	200	166	1	3	6300	1/4" NPT	DN100	4

HiFlux standard bag filters type TWP are supplied in stainless acid-proof SUS316 steel. The surface is electropolished on the inside and outside.

Design pressure: 10 bar  
 Test pressure: 15 bar  
 Max. differential pressure: 1,0 bar  
 Max. working temperature: 100 °C  
 Connection: Thread EN 10226, flange EN 1092-1/01  
 Gasket: EPDM  
 Filter bags: See data sheet for filter bags  
 Polypropylene: 1-5-10-25-50-100-200 micron (max. 90° C)  
 Polyester: 1-5-10-25-50-75-100-150-200-300 micron (max. 150° C)

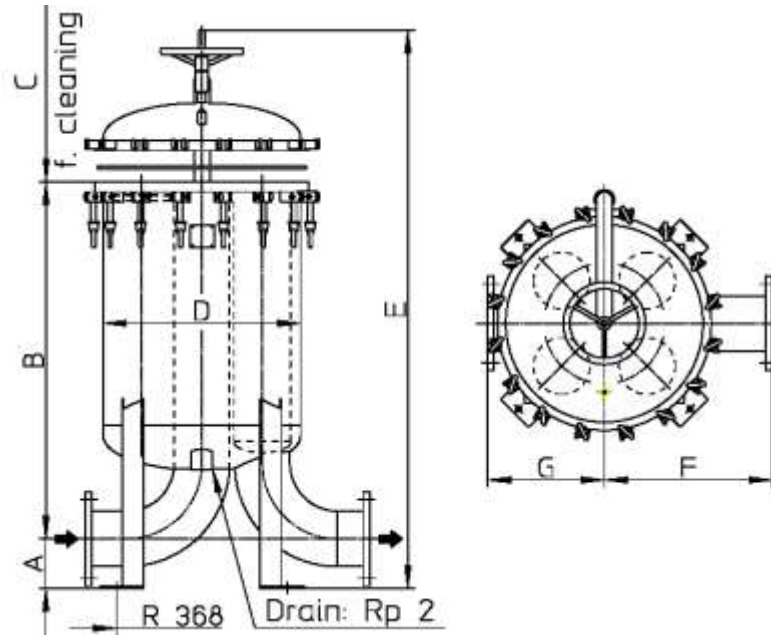
Capacity:  
 (at a viscosity of 1 cSt  
 and 5 micron filtration)

Type	Connection	Area cm <sup>2</sup>	Capacity in m <sup>3</sup> /h at differential pressure				
			0,05 bar	0,10* bar	0,15 bar	0,2 bar	0,3 bar
<b>TWP-1000</b>	DN50	1000	2,5	4	5	6	7
<b>TWP-2050</b>	DN50	2050	10	15	18	21	26
<b>TWP-4250</b>	DN80	4250	16	25	30	35	42
<b>TWP-6300</b>	DN100	6300	30	40	48	55	69

\* It is recommended that the filter installation shall be dimensioned on the basis of a differential pressure of 0.1 bar.



# TWP4 Stainless Bag Filters



Type	A	B	C	D	E	F	G	Filter bags		Air vent.	Connection	Fittings	
	mm	mm	mm	mm	mm	mm	mm	no.	type	cm <sup>2</sup> /stk.	plug		
<b>TWP4x4250</b>	150	1085	750	600	1635	510	355	4	2	4250	R 1/2	DN150	16
<b>TWP4x6300</b>	180	1600	1150	600	2180	470	470	4	3	6300	R 1/2	DN200	16

HiFlux standard bag filters type TWP4 are supplied in stainless acid-proof SUS316 steel. The surface is electropolished on the inside and outside.

- Design pressure: 10 bar
- Test pressure: 15 bar
- Max. differential pressure: 1,0 bar
- Max. working temperature: 100° C
- Connection: Flange EN 1092-1/01
- Packing: EPDM
- Filter bags: See data sheet for filter bags
- Polypropylene: 1-5-10-25-50-100-200 micron (max. 90° C)
- Polyester: 1-5-10-25-50-75-100-150-200-300 micron (max. 150° C)

Capacity:  
(at a viscosity of 1 cSt  
and 5 micron filtration)

**Capacity in m<sup>3</sup>/h at differential pressure**

Type	Area cm <sup>2</sup>	0,05 bar	0,10* bar	0,15 bar	0,2 bar	0,3 bar
<b>TWP4x4250</b>	17000	75	100	122	140	172
<b>TWP4x6300</b>	25200	112	150	180	210	260

\* It is recommended that the filter installation shall be dimensioned on the basis of a differential pressure of 0.1 bar.



1 - 800 micron / 12 - 588 m<sup>3</sup>/h

HiFlux TP Bag Filters are used where there is a need for reliable filtration from 1 micron with a large dirt capacity. The filter housings are designed for 10 or 16 bar working pressure, and they are equipped with a simple and secure closing system which makes it quick to change filter bags, thereby maximising the time the filters are in operation.

A compact design and a maximum built-in filter surface ensure the best possible flow and consequently a small differential pressure, long intervals between bag changes and lower energy consumption.

### The filter consists of three main elements

1. A filter housing which is designed in accordance with current pressure vessel norms and supplied in welded carbon steel or stainless acid-proof EN 1.4404 steel.
2. The support strainer, which can easily be removed from the filter housing, gives the filter bag mechanical strength and ensures that the bag can resist a differential pressure of up to 1 bar. The support strainer is made of stainless steel to ensure durability.  
As an optional extra the support strainer can be supplied with the magnetic system of the HiFlux type, which retains even very fine magnetic particles.
3. The filter bag is supplied in several material types and degrees of filtration. A special design in terms of stitching and choice of thread provides a robust filter bag without perforations.  
The filter material is selected after careful determination of the degree of filtration and maximum dirt capacity (see also data sheet for filter bags).

Special versions are available in accordance with the customers' specifications. Typical special versions include a different choice of material, a different connection type/size, different pressure and/or temperature levels. Approvals in accordance with PED 97/23/EC.

### Products often filtered with filter bags

District heating water	Cooling water	Cleaning fluids
Photographic chemicals	Varnish	Cutting oils and emulsions
Galvanic baths	Glue	Waste water
Juice	Paint	Sugar solutions
Chemicals	Condensate	Vegetable oils
Cosmetic fluids	Process water	etc.

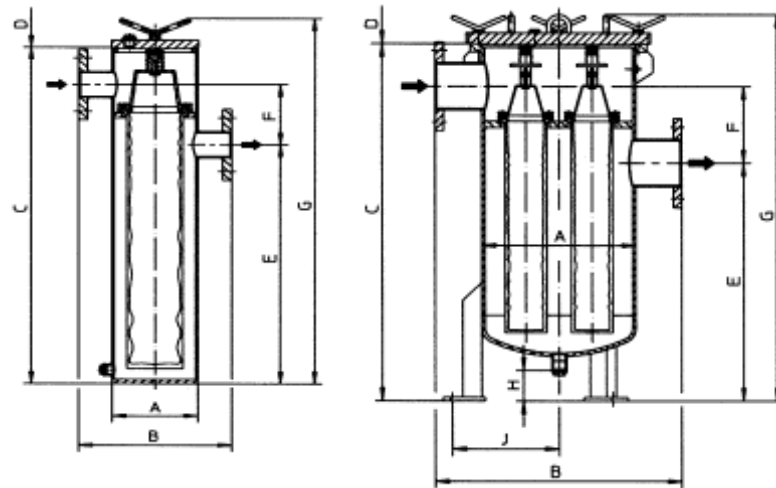
For other options see also **HiFlux Micro-Line 1050** and **HiFlux Micro-line filters**.



Processor AB  
Box 8011  
SE-163 08 SPÅNGA  
Sweden

Tel 08-564 722 60  
Fax 08-564 722 66  
www.processor.se  
info@processor.se





Type	A	B	C	D	E	F	G	H	J	Drain	Air vent.	Connection	Weight	Fittings
	mm	mm	mm	mm	mm	mm	mm	mm	mm		plug	DN	kg	no.
TP 2130	168,3	300	780	655	553	140	850	-	-	G½B	G½B	50	34	2
TP 2130	168,3	300	780	655	553	140	850	-	-	G½B	G½B	80	36	2
TP 4250	219,1	360	830	690	535	225	900	-	132	G½B	G½B	80	54	4
TP 4250	219,1	360	865	690	555	225	930	-	132	G½B	G½B	100	55	4
TP 6300	219,1	360	1270	1100	960	225	1335	-	132	G½B	G½B	100	70	4
TP 4x2130	406,4	650	1000	665	665	215	1100	115	280	GB1	G½B	125	185	6
TP 4x4250	508,0	750	1400	1000	920	300	1480	210	330	DN50	G½B	150	~215	10
TP 4x6300	508,0	750	1800	1400	1180	400	1880	210	330	DN50	G½B	200	~275	10
TP 5x4250	610,0	850	1450	1050	945	300	1530	210	380	DN50	G½B	200	~265	12
TP 5x6300	610,0	850	1860	1460	1210	400	1940	210	380	DN50	G½B	250	~330	12

HiFlux standard filters type TP are manufactured in carbon steel or stainless acid-proof steel EN 1.4404.

- Design pressure: 10 bar or 16 bar
- Test pressure: According to EN 13445
- Max. differential pressure: 1,0 bar
- Max. working pressure: 110° C (water) or according to customer requirements
- Flange connection: EN 1092-1, 2 pcs. pressure outlets G½B
- Filter bags: See data sheet for filter bags
- Polypropylene: 1-5-10-25-50-100-200 micron (max. 90° C)
- Polyamide (only 2130): 10-50 micron (max. 120° C)
- Polyester: 1-5-10-25-50-75-100-150-200-300 (max. 110° C)

Capacity: (at a viscosity of 1 cSt and 5 micron filtration)	TYPE	Connection DN	Filter area cm <sup>2</sup>	Capacity in m <sup>3</sup> /h at differential pressure				
				0,05 bar	0,10* bar	0,15 bar	0,2 bar	0,3 bar
	TP 2130	50	2130	12	19	23	27	34
	TP 2130	80	2130	12	21	27	32	37
	TP 4250	80	4250	25	34	42	48	59
	TP 4250	100	4250	36	48	59	68	83
	TP 6300	100	6300	36	48	59	68	83
	TP 4x2130	125	8520	60	108	130	144	178
	TP 4x4250	150	17000	118	160	196	225	276
	TP 4x6300	200	25200	199	270	332	380	467
	TP 5x4250	200	21250	170	230	282	324	400
	TP 5x6300	250	31500	251	340	418	479	588

\* It is recommended that the filter installation shall be dimensioned on the bags of a differential pressure of 0,1 bar.





1 - 800 micron

HiFlux Filter bags are manufactured specifically with regard to filtration of liquids, which means that requirements as to choice of materials, strength and fibre structure and treatment are quite specific.

When using bag filtration, the correct choice of bag is vital for the outcome. The filter material type, the quality of the material, structure, manufacturing, including factory tailoring and stitching of the bag, are significant elements in achieving a successful and a continuously good filtration outcome.

A wide range of different materials are currently used for filterbags. The most significant are Viscose, Nylon, Polyamide, Polypropylene, Polyester and Teflon.

VISCOSE has a good durability with solvents, but it is sensitive to acids and bases. Polyamide (PA) has good chemical resistance, but is sensitive to many acids, stronger bases and oxidation agents. POLYPROPYLENE (PP) is extremely resistant to chemicals and is tolerant to acids and bases, but is sensitive to aromatic hydrocarbons and strong oxidation agents. Its use is limited to temperatures below 90-100 °C. POLYESTER (PE) is one of the most usable materials with good chemical and temperature resistance. The material is sensitive to hydrolysis, however. TEFLON (PTFE) has excellent chemical and temperature resistance. However, the material has limited resistance to dissolved alkali metals and hydrocarbons containing fluor.

### There are two main types of filterbags

1. Needle felt consists of pressed fibres, which gives a three-dimensional structure with high porosity. This results in depth filtration in which the large particles are retained on the surface and the small particles are collected deep inside the fibre structure. The filtration efficiency cannot be determined in absolute values, but is expressed nominally, which means that the efficiency for a given degree of filtration for HiFlux Filterbags will be approximately 70 -80%. This is why a small amount of large particles will pass through the filter. If higher efficiency is required, a lower degree of filtration should therefore be selected. Needle felt bags can be washed and reused to some extent.
2. Monofilament, or a woven design, results in surface filtration in which the particles settle on the woven surface of the material. The threads in the weave are tied to each other, which ensures a fixed degree of filtration and minimum fibre migration. Monofilament bags can usually be washed and reused.

Filtration of gas/air and liquids with needle felt cannot be compared directly. In the case of filtration of liquids, the particles are suspended in a liquid which works as a carrying medium, and the flow rate through the weave is low compared to gas/air filtration. The particles will therefore have a far greater tendency to be carried with the flow and find their way through the filter medium. This factor is absolutely cardinal when determining the degree of filtration of the filter material.



Processor AB  
Box 8011  
SE-163 08 SPÅNGA  
Sweden

Tel 08-564 722 60  
Fax 08-564 722 66  
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info@processor.se



When choosing the material quality, the air percentage (Void Volume) is a significant factor for the ability of the filter medium to retain large amounts of dirt. The free volume increases with decreasing thread or fibre thickness in the fibre medium and provides an increased number of pores in the material which can collect and retain dirt particles. At the same degree of filtration a filter element with a high air percentage will, all other things being equal, be far better with a longer life and lower differential starting pressure as a result.

With a geometrically correct design and careful manufacturing, it is possible to obtain the greatest possible strength in the filterbags and avoid perforation of the filter material when stitching the bag. Perforation from stitching causes seepage between the dirty side and the clean side of the bag with lower retention as a result.

Materials	T <sub>max.</sub>	Filtration in micron										
	°C	1	5	10	25	50	100	150	200	300	600	800
<b>Polyamide</b>	120			x		x						
<b>Nylon Monofilament</b>	120					x	x	x	x	x	x	x
<b>Polypropylene</b>	100	x	x	x	x	x	x					
<b>Viscose</b>	110		x	x	x	x	x					
<b>Polyester</b>	135		x	x	x	x	x					
<b>Teflon</b>	250		x	x	x	x						

The chemical resistance and compatibility of the materials with the liquid to be filtered are very important in terms of obtaining a good result and a reasonable life for the bag. As processes and filtration tasks are often unique, the supplier of the bags should be included in making the correct choice, so that the combination chosen is definitely the most suitable.

Data	Mikro <sup>1)</sup>	TP <sup>2)</sup>	0	X0	1	2	3
<b>Length</b>	430	650	220	360	390	780	1170
<b>Diameter</b>	80	110	110	110	180	180	180
<b>Filter area cm<sup>2</sup></b>	1050	2130	650	900	2050	4250	6300
<b>Max. diff. pressure, bar<sup>3)</sup></b>	1	1	1	1	1	1	1

1. Bags for HiFlux filters of the Micro-line 1050 type.
2. Bags for HiFlux filters of the TP type
3. Max. differential pressure depends on the support strainer.

TP bags are equipped with a top ring of acid-proof steel. The Micro bags with an EPDM gasket. Other bags are as standard equipped with a top ring of acid-proof steel.

HiFlux Filter Bags are made in such a way that they fit filter housings from most leading manufacturers. Filter bags of other sizes and materials can be made in co-operation with our textile engineer.