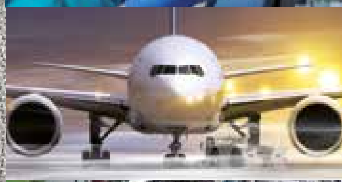
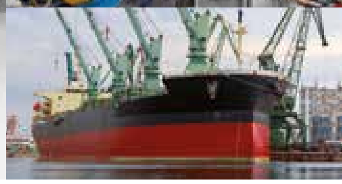




BOPP
Sintered Wire Cloth

SWISS PRECISION

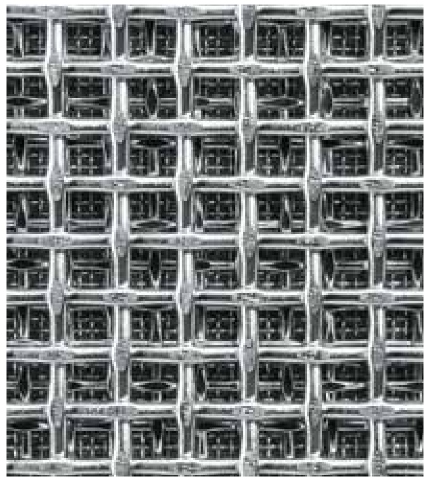
bopp.com

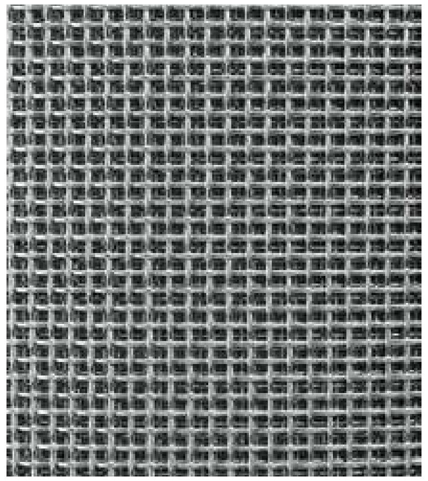
BOPP SINTERED WIRE CLOTH

Increasingly, multiple layered mesh laminates are now being specified to meet the challenges of today's demanding filtration applications. These advanced solutions enable a range of advantages which often more than justify the slightly higher initial cost price, alongside improvements in efficiency and durability.

Based on many years of experience in practice, we offer a selection of standard products developed to meet the requirements of a wide range of industrial applications. However, specific challenges may merit opting for a bespoke solution in terms of both materials and weaving style.

We use only the highest quality raw materials for our products. They are produced in dust free, air conditioned plant rooms, using state of the art equipment and highly precise weaving machines, which we have developed ourselves in-house. When combined with our comprehensive quality control procedures, we can guarantee the highest levels of quality, cleanliness and freedom from defects.





THE BASIC PRINCIPLE

Carefully selected wire cloths are brought together and sintered using a combination of heat and pressure. This process effectively combines the benefits offered by each individual layer and facilitates optimum filtration capabilities. Sintered wire cloths produced this way yield the finest filtration results and are also resistant to physical loading, thanks to the robust mesh structure. The smooth surfaces also facilitate cleaning processes such as backwashing.

POREMET

This lead-like filter medium consists of five different wire cloth layers, put together so precisely that they achieve the optimum combination of stability, filter fineness, flow rate and backwashing properties. POREMET is particularly suitable for fine and finest filtration applications at high pressures and harsh operating environments.

MATERIALS

- DIN 1.4404/AISI 316L, DIN 1.4539/AISI 904L
- Hastelloy alloys
- Other materials available on request

APPLICATION RECOMMENDATIONS

Filtration of highly viscous liquids: Nutsche filters, centrifuges, fluidised beds, aeration of silos, applications in biotechnology.

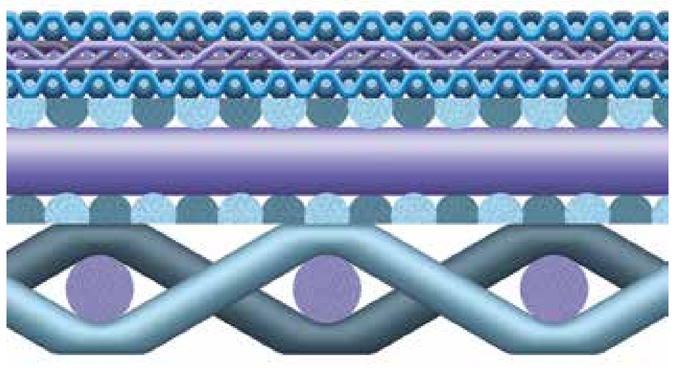
Protective layer of square weave mesh, protects the filter mesh against damage

Filtration layer, defines the filter fineness

Distribution layer (square weave mesh), drainage mesh

Upper twilled layer, support mesh

Lower twilled layer, support mesh



Absolute filter fineness: 5 – 120 microns

ABSOLTA

In contrast to POREMET, **ABSOLTA N** is a highly porous filter medium developed to achieve increased flow rates at moderate pressures. ABSOLTA is particularly useful for its cleanability and backwashing capabilities. **ABSOLTA D** is also a five layer structure at a reduced thickness of 1.7 mm – 1.8 mm.

MATERIALS

- DIN 1.4404/AISI 316L, DIN 1.4539/AISI 904L
- Hastelloy alloys
- Other materials available on request

APPLICATION RECOMMENDATIONS

Optimum flow rates and backwashing properties make ABSOLTA ideal for applications in liquid and gas filtration.

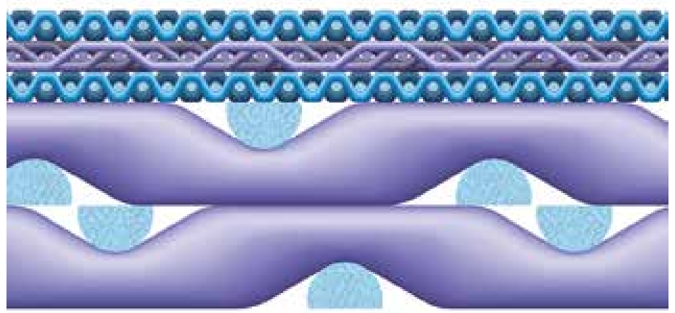
Protective layer of square weave mesh, protects the filter mesh against damage

Filtration layer, defines the filter fineness

Distribution layer (square weave mesh), drainage mesh

Inner support mesh, square weave mesh

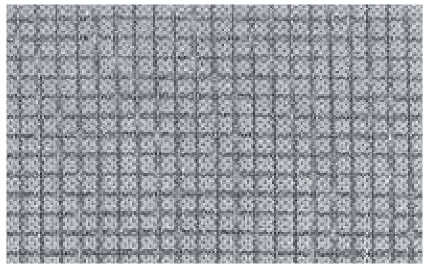
Outer support mesh, square weave mesh)

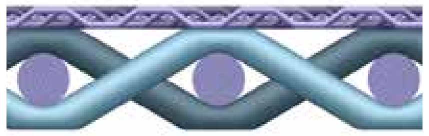


Absolute filter fineness: 15 – 90 microns

Both ABSOLTA and POREMET can be specified with a range of support meshes, enabling them to perform with significant loadings.

TOPMESH 2



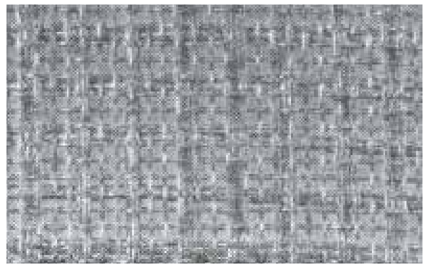


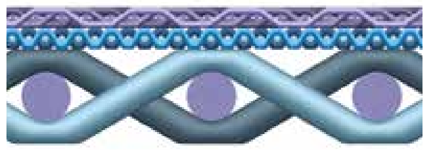
TOPMESH 2 was developed to compensate for the reduced rigidity of fine filter cloths. Combining a filter cloth with a square weave support mesh provides stability at moderate pressures combined with good backwashing properties. A minimal number of layers means reduced pressure loss combined with effective backwashing. TOPMESH 2 is therefore ideal for CIP (Cleaning in Place) filters in the pharmaceutical industry. For applications where high pressure loads and larger diameter units are used, additional support media will be required.

APPLICATION RECOMMENDATIONS

Filters for the separation of separate solids and liquids, surface filtration for particulate separation, sieve plates, aeration filters, hydraulic filters, backwashing filters (also automated), cleaning baskets for small components.

TOPMESH 3



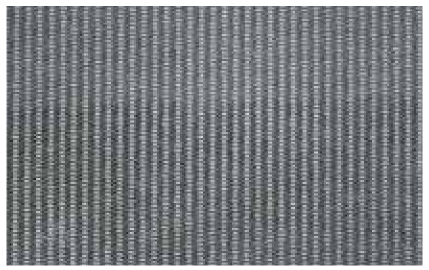


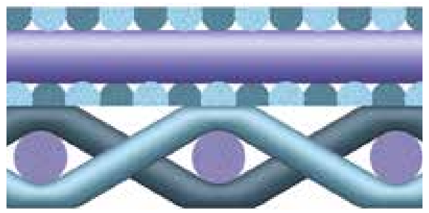
In comparison with TOPMESH 2, this laminate features an additional bonded layer between the filter mesh and the square weave support mesh. Constant low flow resistance and good backwashing capabilities enable higher pressure loads to be handled. TOPMESH 3 is particularly suitable for use with CIP (Cleaning In Place) filters.

APPLICATION RECOMMENDATIONS

As TOPMESH 2 as well as for sturdy aeration filters, Nutsche filter floors, spray driers, drying plant, container baskets for cleaning plant and filter drums for coolant lubrication equipment.

POREFLO





POREFLO is a two or three layer laminate featuring offset layers of twilled wire cloth. The resultant thickening of the surface changes the laminate into a highly stable, air permeable metallic membrane with reduced porosity. POREFLO is particularly suitable for applications where high levels of flow resistance are required.

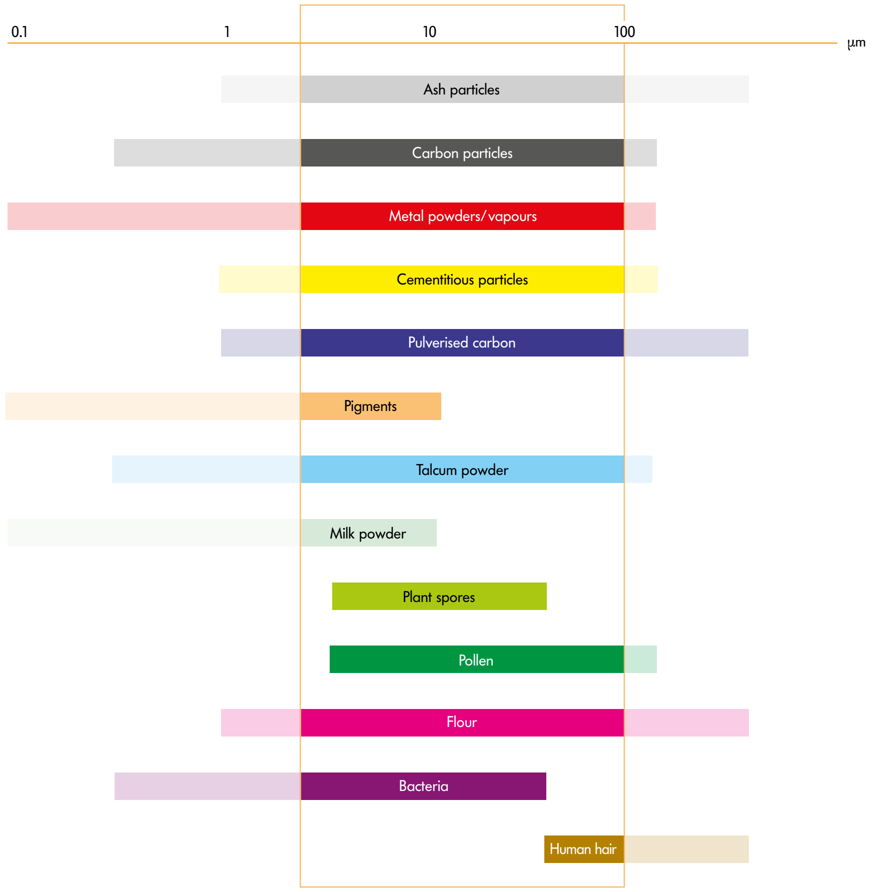
APPLICATION RECOMMENDATIONS

Fluidisation elements, fluidised bed floors, aeration elements, pneumatic conveyor troughs.

PROPERTIES AND BENEFITS

- Defined fine and finest aperture sizes and regular particle size distribution
- Exceptionally robust, resistant to mechanical and thermal loading up to 600°C, extended operating life and therefore reduced downtime
- High flow rates, selectable rates of flow resistance
- Suitable for backwashing at high pressures
- Reduced loading of filter media with pulsation
- Sustained product quality, advanced resistance to corrosion with the use of noble metals such as stainless steel, Hastelloy, Inconel etc.
- Diverse lamination options, with combinations of up to 1000 layers possible
- Panel sizes up to 1200 mm x 1200 mm without welds

SPECTRUM OF APPLICATIONS



PRODUCT COMPARISON: SELECTION AID

	Poremet	Absolta	Topmesh 2	Topmesh 3	Poreflo	Fine Meshes	Special Laminates
Compression Strength	++	++	o	+	++	-	++
Resistance to Backwashing	+	+	++	++	o	-	++
Backwashing Effectiveness	o	+	++	++	-	++	++
TIG welding	++	+	o	+	++	-	++
Resistance to Welding	++	-	++	-	++	++	++
Bend Radius	+	o	++	+	++	++	++
Resistance to Pressure	o	+	++	+	-	++	++
Flow Rate	o	+	++	+	-	++	++
Rigidity	++	++	o	+	++	-	++
Pliability	-	-	++	o	-	++	++

++ = very good / + = good / o = satisfactory / - = sufficient

Alongside our existing product range, we develop and produce bonded meshes to individual customer specifications. We also manufacture balanced structures which remain pliable despite their thickness and stability, and laminates with extremely large numbers of layers (up to 1000 and beyond), which are used for heat exchanger applications such as those found in Stirling engines.

POREMET/ABSOLTA PRODUCT RANGE AND FABRICATED EXAMPLES

PANELS (base material)
Maximum 1200 mm x 1200 mm (dependent upon type of laminate and material)

ROUNDELS
Pierced Ø 10 mm-300 mm or laser cut to Ø 1200 mm

BLANKS
Weld free shapes within panel sizes

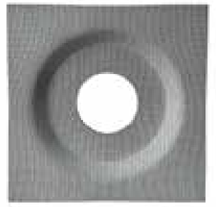
EDGES
Cut or fused

WELD SEAMS
Width/thickness of weld seams is dependent upon the construction of the laminate As a rule: Width of weld seam is equal to double the value of the laminate thickness

CYLINDERS/CANDLES
Smallest diameters:

- POREMET 4 layer Ø 14 mm, 5 layer Ø 25 mm
- ABSOLTA 4 layer Ø 30 mm, 5 layer Ø 40 mm

DISKS/FILTER FLOORS
Largest disk diameter Ø 3200 mm with weld seams, can be larger if produced in segments

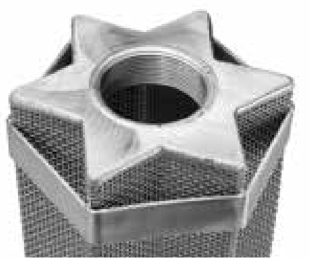


FABRICATION

Fabrications using sintered wire cloth are an important part of our product portfolio. Skilled and experienced staff, state of the art equipment, test rigs developed in-house and stringent quality control procedures guarantee the highest quality standards.

PROCESSES

- Cutting, blanking
- Forming, bending, rolling, chamfering, pleating
- Spot, roll seam and plasma welding, soldering, bonding, welding into frames, flange assembly, profiling
- Manufacture of components and semi-finished goods to drawings provided
- Prototype development, one-offs, small production runs through to mass production



TECHNICAL DATA SINTERED MESH LAMINATES

Description		Geometric pore size µm	Thickness mm	Porosity %	Pressure Drop mbar	A_s mm²/cm	R_p N/cm	Weight kg/m²	specific flow-rate ratio Eu
Poremet	Poremet 2	10	1.7	30	6.80	5.1	1080	9.50	5146
	Poremet 5	14	1.7	30	5.00	5.1	1080	10.00	3784
	Poremet 10	21	1.7	30	3.10	5.1	1080	10.00	2346
	Poremet 15	20	1.7	30	2.05	5.1	1080	9.50	1551
	Poremet 20	25	1.7	30	1.91	5.1	1080	9.50	1446
	Poremet 30	35	1.7	30	1.69	5.1	1080	9.50	1279
	Poremet 40	50	1.7	30	1.54	5.1	1080	9.50	1166
	Poremet 50	60	1.7	30	1.43	5.1	1080	10.00	1082
	Poremet 60	75	1.7	30	1.34	5.1	1080	10.00	1014
	Poremet 75	90	1.7	30	0.56	5.1	1080	10.00	424
Absolta	Absolta 2	10	2.5	55	4.30	4.9	780	9.00	3254
	Absolta 5	14	2.5	55	3.30	4.9	780	9.00	2498
	Absolta 10	21	2.5	55	2.25	4.9	780	9.00	1703
	Absolta 15	20	2.5	55	1.46	4.9	780	8.50	1105
	Absolta 20	25	2.5	55	0.61	4.9	780	8.50	462
	Absolta 30	35	2.5	55	0.53	4.9	780	8.50	401
	Absolta 40	50	2.5	55	0.40	4.9	780	8.50	303
	Absolta 50	60	2.5	55	0.29	4.9	780	9.00	219
	Absolta 60	75	2.5	55	0.19	4.9	780	9.00	144
	Absolta 75	90	2.5	55	0.08	4.9	780	9.00	61
Topmesh 3-layer	TM3-KT 2	10	2.0	60	3.54	3.6	573	6.60	2682
	TM3-KT 5	14	2.0	60	2.77	3.6	573	6.60	2099
	TM3-KT 10	21	2.0	60	1.72	3.6	573	6.60	1298
	TM3-BM 15	15	2.0	60	0.62	3.6	573	6.60	469
	TM3-BM 20	20	2.0	60	0.58	3.6	573	6.20	439
	TM3-BM 25	25	2.0	60	0.47	3.6	573	6.20	356
	TM3-BM 30	30	2.0	60	0.35	3.6	573	6.20	265
	TM3-QM 40	42	2.0	60	0.13	3.6	573	6.10	98
	TM3-QM 50	50	2.0	60	0.11	3.6	573	6.10	83
	TM3-QM 60	63	2.0	60	0.08	3.6	573	6.10	61
	TM3-QM 80	80	2.0	60	0.07	3.6	573	6.10	53
	TM3-QM 100	100	2.0	60	0.07	3.6	573	6.20	53
	TM3-QM 150	160	2.0	60	0.06	3.6	573	6.20	45
	TM3-QM 200	200	2.0	60	0.06	3.6	573	6.20	45
	TM3-QM 500	530	2.0	60	0.03	3.6	573	6.20	23
Topmesh 2-layer	TM2-KT 2	10	0.7	60	4.60	1.3	207	2.30	3481
	TM2-KT 5	14	0.7	60	3.80	1.3	207	2.30	2876
	TM2-KT 10	21	0.7	60	1.80	1.3	207	2.30	1362
	TM2-BM 15	15	0.7	60	0.71	1.3	207	2.30	537
	TM2-BM 20	20	0.7	60	0.53	1.3	207	2.30	401
	TM2-BM 25	25	0.7	60	0.48	1.3	207	2.30	363
	TM2-BM 30	30	0.7	60	0.40	1.3	207	2.30	303
	TM2-BM 40	40	0.7	60	0.38	1.3	207	2.30	288
	TM2-QM 50	50	0.7	60	0.10	1.3	207	2.30	76
	TM2-QM 60	61	0.7	60	0.09	1.3	207	2.30	68
	TM2-QM 80	80	0.7	60	0.06	1.3	207	2.30	45
	TM2-QM 100	100	0.8	70	0.04	1.3	207	1.77	30
	TM2-QM 150	150	0.8	70	0.03	1.3	207	1.77	23
	TM2-QM 200	250	1.4	65	0.03	1.3	207	3.75	23
	TM2-QM 500	530	1.4	65	0.02	1.3	207	3.75	15
Poreflo	PF-303		1.25	10	100.00	5.2	1101	8.80	75683
	PF-304		1.45	15	50.00	5.2	1101	9.60	37841
	PF-305		1.60	20	20.00	5.2	1101	9.90	15137
	PF-206		0.85	10	10.00	4.8	1016	7.20	7568
	PF-207		1.00	12	5.00	4.8	1016	7.20	3784
	PF-208		1.05	14	2.50	4.8	1016	7.30	1892
	PF-209		1.20	20	1.25	4.8	1016	7.50	946
	PF-211		1.45	35	0.70	4.8	1016	7.50	530

Geometric pore size The geometric pore size is a calculated value which is based on characteristic parameters such as weave structure, wire diameter and pitch. The geometric pore size describes the diameter of the largest sphere, which can just pass through the fabric. The calculation equations were developed and validated experimentally by the IMVT Institute of the University of Stuttgart as part of the AVIF projects A224 and A251. For fabric specifications for which the calculation method does not apply the pore sizes were determined by a glas bead dry screening.

Porosity Ratio of empty volume in the mesh to total volume of the weave. The total volume is defined by the external dimensions length, width and thickness of the weave.

Pressure drop It is calculated for gas at an inflow speed of ca 20m/min. The values are suitable for comparing the laminates.

A_s Is the effective average of the wires, which run perpendicular to the cut edge.

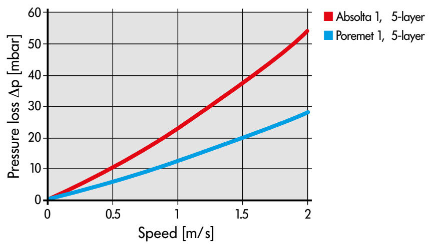
R_p Is the value of the yield load perpendicular to the cross-section As of the weave, which should not be exceeded.

Eu Dimensionless Euler number to assess the ratio of pressure forces to inertial forces in the specified weave. Higher values mean higher pressure difference values under the same conditions (Air, 20 m/min, 20 °C). The values are only intended for comparisons of flow resistance of different weave specifications.

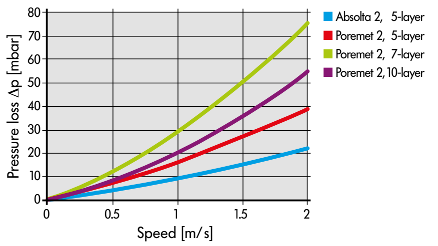
The values given in these tables are typical for sintered meshes. These properties are not guaranteed. We retain the right to make technical changes and to implement further developments.

AIR FLOW PRESSURE LOSS FOR A NOMINAL FILTER

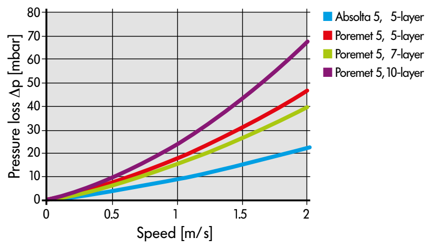
1 µm nominal filter



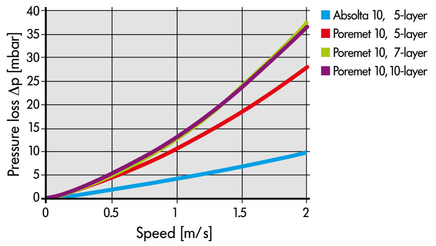
2 µm nominal filter



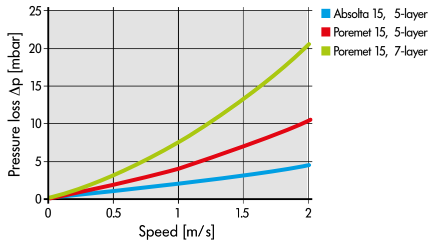
5 µm nominal filter



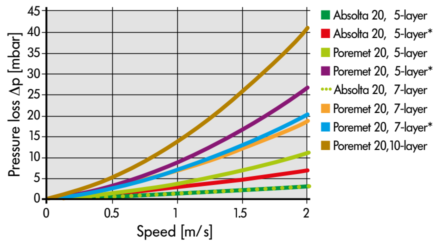
10 µm nominal filter



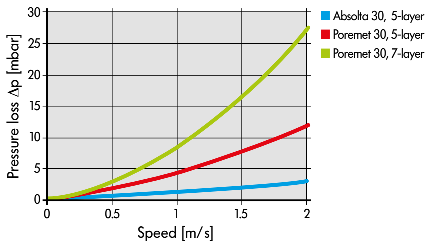
15 µm nominal filter



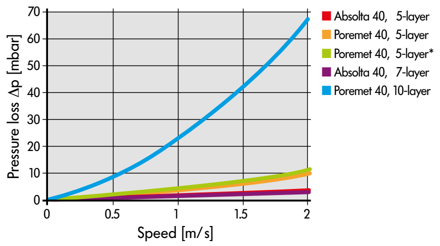
20 µm nominal filter



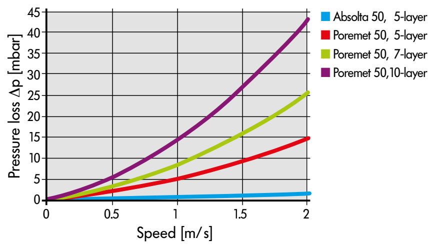
30 µm nominal filter



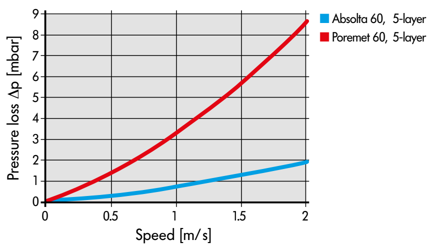
40 µm nominal filter



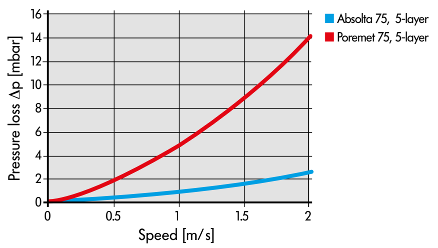
50 µm nominal filter



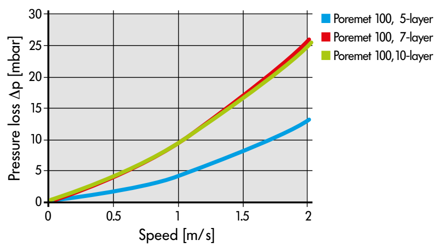
60 µm nominal filter



75 µm nominal filter



100 µm nominal filter

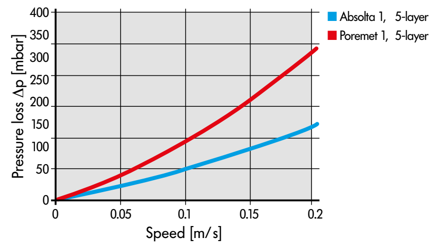


*Based on specific filter mesh combinations

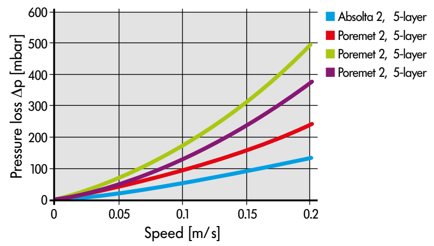
Pressure loss graphs given here are the result of rayl testing in laboratory conditions using calibrated equipment. Variations are possible dependent upon the design; the tabular values are intended to assist with selection and comparison, any liability is excluded. We recommend further clarification for technical dimensions.

FLUID FLOW PRESSURE LOSS FOR A NOMINAL FILTER

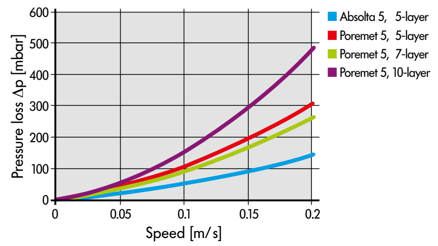
1 µm nominal filter



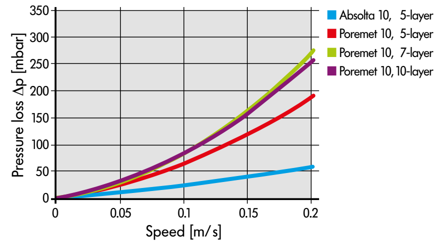
2 µm nominal filter



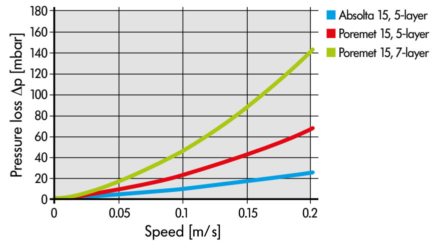
5 µm nominal filter



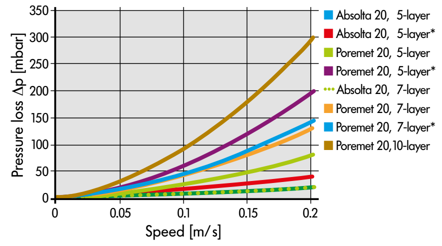
10 µm nominal filter



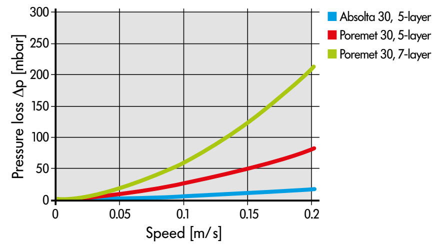
15 µm nominal filter



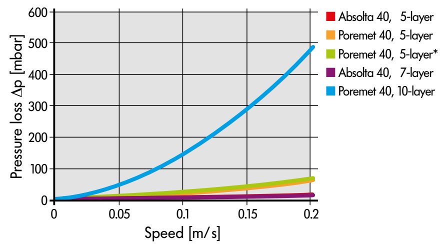
20 µm nominal filter



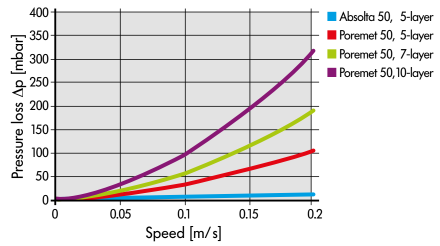
30 µm nominal filter



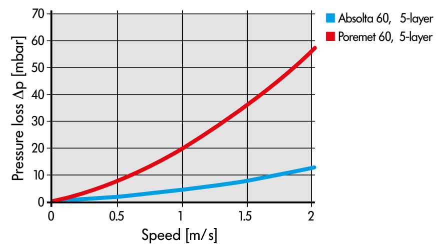
40 µm nominal filter



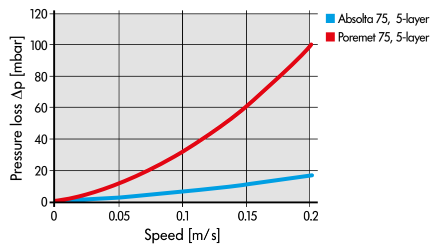
50 µm nominal filter



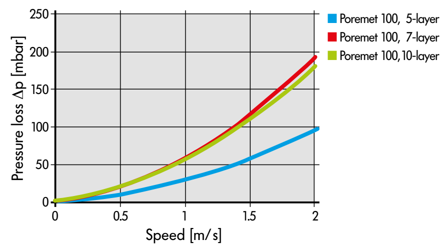
60 µm nominal filter



75 µm nominal filter



100 µm nominal filter



* Based on specific filter mesh combinations

These pressure loss curves are based on calculated pressure losses for water on the basis of the air flow measurements, assuming laminar and incompressible flow. The same limitations therefore apply as with the diagrams on page 10.

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