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ADDRESS

W.S. Tyler 8570 Tyler Boulevard, Mentor, OH 44060, USA www.wstyler.com

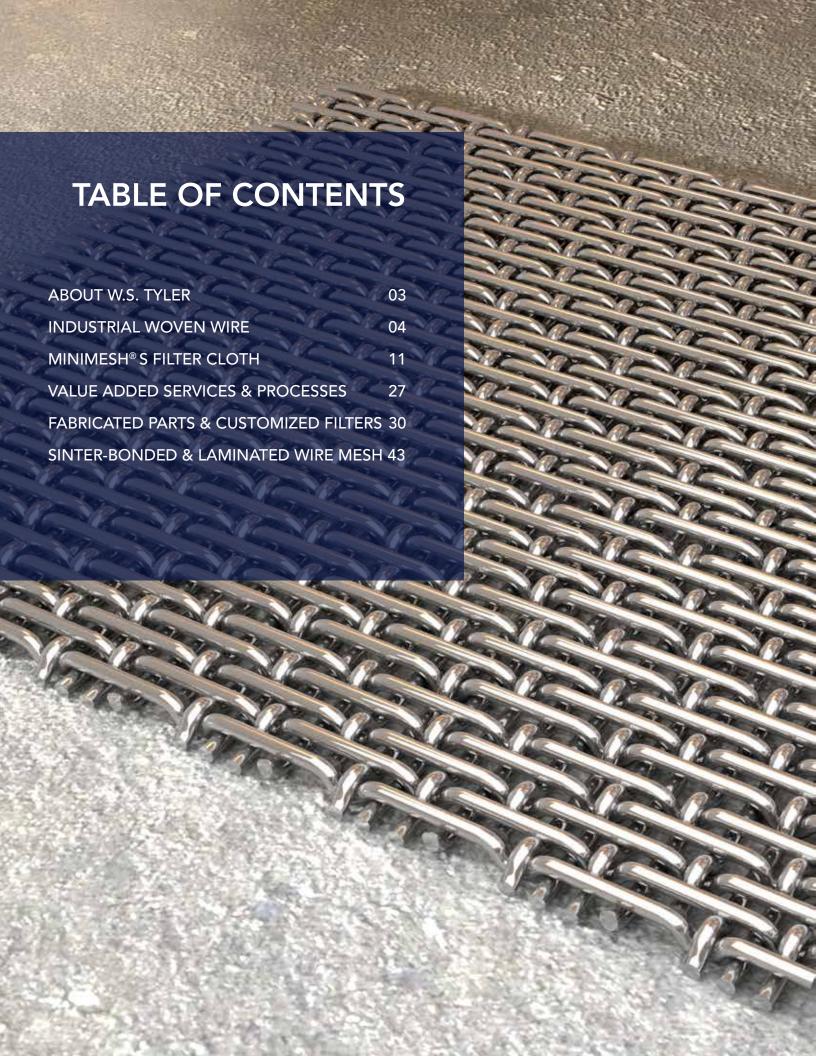


PHONE

1-800-321-6188 1-440-974-1047

A Haver & Boecker Company





OUR STORY

Founded in 1872, W.S. Tyler® quickly established itself as a pioneer in the engineering and production of woven wire and mesh materials. For over 140 years, we have been committed to maintaining that standard of excellence. Today, W.S. Tyler is partnered with German multinational Haver & Boecker, solidifying our place as one of the world's leading manufacturers of wire cloth and mesh materials.

Our combination of innovation and tradition allows us to meet and exceed the high expectations of our customers. With a wealth of experience, relentless research & development, and a passion for precision, W.S. Tyler remains well-positioned to continue its vision into the future.

Whether it's large quantities or customized roll pieces, W.S. Tyler supplies you with what you need to complete your project. This includes a diverse selection of standard rolls, roll sections, cut-to-size pieces, strips, discs, fabricated parts, filter elements, and industrial screens.

We support our woven wire products with state-of-the-art equipment and technologies, ensuring a consistent, reliable quality that meets our highest expectations. Our passion for precision is a constant acknowledgement that even the smallest details can make the biggest differences.











WIRE CLOTH TERMINOLOGY ACCORDING TO ISO 9044



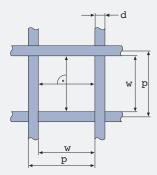
Aperture width (labeled w in the below diagram) is the distance between two adjacent warp or weft wires, measured in the projected plane at the mid positions.

Warp: All wires running lengthwise of the cloth as woven.

Weft: All wires running across the cloth as woven.

Wire diameter (d) is the width of the wires in the woven cloth. (The wire diameter may be altered slightly during the weaving process.)

Pitch (p) is the distance between the midpoints of two adjacent wires. Represents the sum of the aperture width (w) and wire diameter (d).



The number of apertures per unit length (n) is the number of apertures counted in a row one behind the other for a given unit length. The unit length may be 1cm, 1dm, 1in, or any other unit of length; however, the number of apertures with a length of 25.4mm is designated as "Mesh".

Mesh = number of apertures per linear inch = 25.4mm : p n/cm = number of apertures per cm = 10 : p n/cm^2 = number of apertures per cm^2 = (10 : p)²

Open screening area (A_o) is the percentage of the area of all apertures in the total screening surface, or the ratio of the square of the nominal aperture width (w) to the square of the nominal pitch (p), rounded to a full percentage value.

$$A_0 = 100 \cdot (w : p)^2$$

Type of weave is the way in which the warp and weft wires cross each other.

Weight (G) of the steel wire cloth screen section in kg per m²:

$$G = (12.7 \cdot d^2) : p$$

$$G = (Mesh \cdot d^2)$$

The actual value can be up to 3% lower.

The wire diameter can be calculated using the following equation:

$$d = \sqrt{\frac{G \cdot p}{12.7}}$$
 $d = \sqrt{\frac{2 \cdot G}{Mesh}}$

WIRE CLOTH TERMINOLOGY ACCORDING TO ISO 9044

Material: The user specifies the choice of material with respect to:

- A.) The final application and requirements of the wire cloth, including resistance to environmental corrosion, suitability for food products, etc.
- B.) Any further processing, including suitability for shaping, welding and surface treatment, etc.

Materials should be designated in accordance with appropriate standards or, if none exist, according to commercial specifications.

DELIVERY

Roll lengths: A standard roll is 100 feet long. Half rolls are 12.5m or 15m long. The length of rolls may vary by plus or minus 10 percent. The delivered length is the amount invoiced.

Partial lengths are also available.

Cloth width: For full rolls or roll pieces, the width of the cloth must not be less than the nominal width, but may exceed it by 2% (standard widths are 48" or 60" wide).

Strips and cut-to-size pieces: For strips, the width must be specified. When ordering quantities less than a standard roll, the length of individual strips may be reduced accordingly. For cut-to-size pieces, the sides, lengths, angles, and radii must be specified.

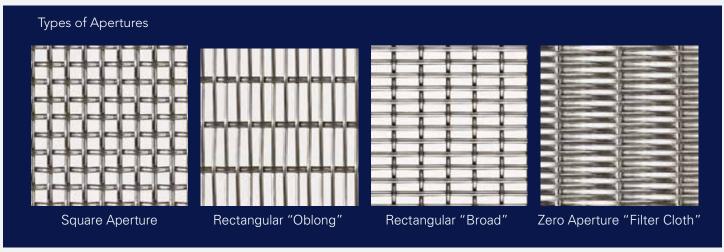
LABELING

Woven wire cloth must be labeled with the following information:

- The name and the trademark of the manufacturer
- The material of the wire
- The nominal aperture width (w)
- The nominal wire diameter (d)
- The type of plane
- The length and width of the roll or strip, or the size and number of pieces
- The weight (mass), if required

If the cloth roll consists of several roll pieces, the length of each piece must be indicated.

Woven wire cloth in strips or pieces must be labeled on the outer packing. The length and weight of each strip (coil) must be specified, subject to agreement.



TESTING OF WOVEN WIRE CLOTH ACCORDING TO ISO 9044

DETERMINATION OF THE WIRE DIAMETER

The post-weaving wire diameter will be determined using one of the following procedures:

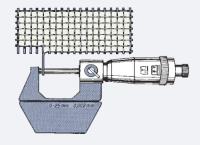
- 1.) Measuring wires that have been loosened from the woven wire cloth by using a micrometer screw.
- 2.) Measuring the wires in the cloth, provided there is sufficient space for the instrument.

Due to the heavy deformation that occurs during the weaving, the preprocessed tolerance of the wire cannot be determined in the woven wire cloth; however, the nominal wire diameter can be calculated using the empirical weight formula.

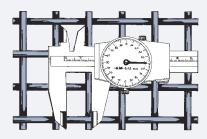
DETERMINATION OF APERTURE WIDTH

First, as part of a simplified measuring method, the number of pitches (p) in a given length (L) is determined. The given length is then divided by the number of pitches to calculate the average pitch. Subtracting the wire diameter (d) from the average pitch provides the aperture width (w).

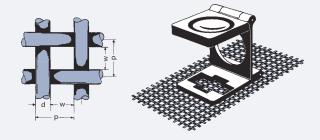
In order to determine the mean value of the aperture widths, it is important to measure as many pitches as possible to obtain a representative sample. When measuring aperture widths between 1mm and 16mm, ten pitches have to be checked. Smaller widths, such as 0.1mm or less, must be checked within twenty pitches.



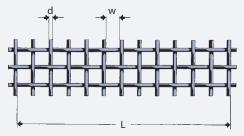
Micrometer screw used to determine wire diameter.



Vernier caliper for measuring aperture widths of more than 4mm. It can also be used for aperture widths of greater than 10mm.



Counting glass for measuring aperture widths less than 1mm in a row with determined length.



Measuring row with determined length for aperture widths of 1mm to 16mm.

ORDERING WOVEN WIRE CLOTH

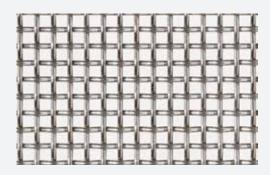
REQUIRED DETAILS FOR WIRE CLOTH ORDERS

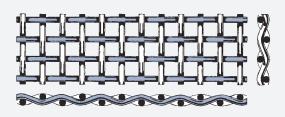
- 1.) Quantity: Number of pieces or rolls.
- 2.) Dimensions: Length and width of pieces or rolls.
- 3.) The choice of material.
- 4.) Aperture width (w). Alternatively, mesh count per linear inch or number of meshes per cm² may be given instead of aperture width.
- 5.) Wire diameter (d).
- 6.) The type of weave, if necessary.
- 7.) Post-weaving processing, if desired.
- 8.) Shaped parts or filters: Provide samples, sketches, or drawings, preferably with permissible tolerances.
- 9.) Samples: In the event of possessing a previous sample of wire cloth, and you wish to send it to us, our team will analyze its specifications.
- Repeat orders: A roll label or exact technical data of the previous order will allow us to furnish you with the correct material.

For more information, you can contact a W.S. Tyler representative by calling 1-800-321-6188 or by email at info@wstyler.com

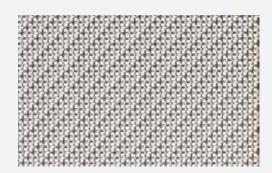


TYPES OF WEAVE - SQUARE & OBLONG





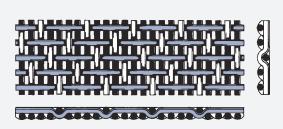
Plain Weave





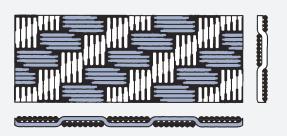
Twilled Weave, 4-bonded





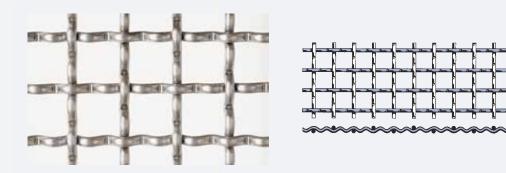
Twilled Weave, 5-bonded, EGLA 5, Satin Twilled Weave



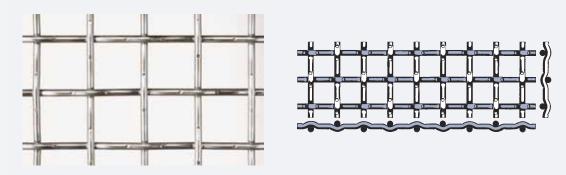


MULTIPLEX, Twilled Weave, 4-bonded

TYPES OF WEAVE - SQUARE & OBLONG



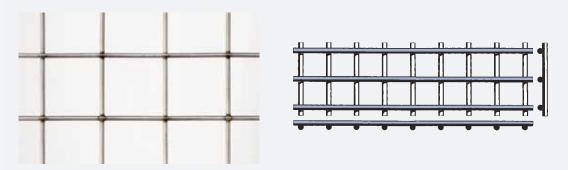
Double Intermediate Crimp Screen, Type C



Lock Scrimp Screen, Type D



Flat Top Screen, Type E



Pressure Welded Screen, Type F



MINIMESH® S METAL FILTER CLOTH

Metal filter cloth has been used as filtration media for over 100 years. W.S. Tyler's MINIMESH® is characterized by its ease of production, minimal maintenance, and long lifespan. The geometric filter structure is uniform throughout the entire area when compared to fiber-based filter materials made of paper, metal, or plastic. Due to its metallic material, wire mesh filters have excellent mechanical strength, stability, wettability, and high resistance to temperature, chemical, or other physical influences. MINIMESH® filter cloth is used for filtration, fluidizing, drying, screening, and various thermal, electronic, and acoustic applications. In addition, it is suitable for all conventional fabrication processes.

MINIMESH® S METAL FILTER CLOTH WITH PRECISION PORES.

Using new theoretical calculation methods, W.S. Tyler, along with our parent company Haver & Boecker, advanced the development of metal filter cloth by creating the MINIMESH® S metal filter cloth generation.

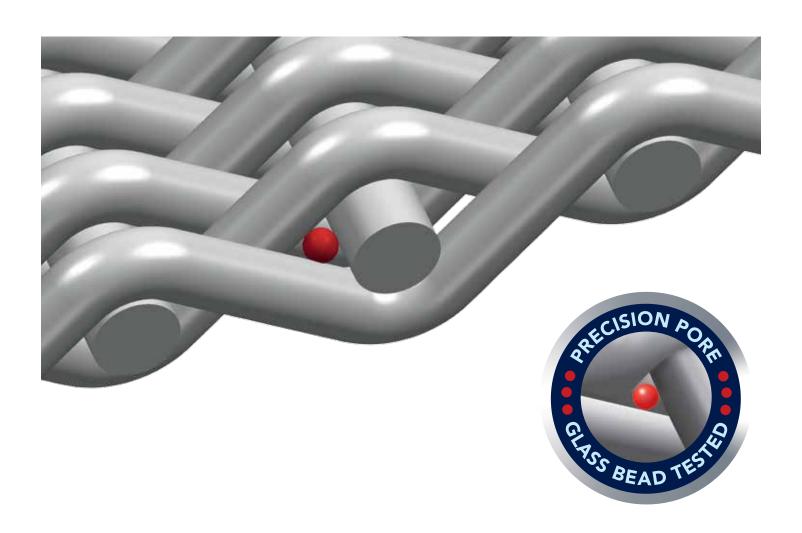
MINIMESH® S filter cloth features optimized pore geometry. The precision pores and cloth structure lead to improved flow capacity and selectivity, providing excellent cleanability, reduced blocking tendency, mechanical stability, and durability.

FASTER, MORE STABLE, MORE ENERGY-EFFICIENT.

The filter characteristics of MINIMESH® S metal-filter cloth can be tailored to the individual needs of the application. Even after processing, in highly formed areas, the predetermined characteristic is maintained; therefore, industrial filtration processes are permanently stable, precise, energy-efficient, and economical.

THE BEST MATERIALS FOR THE BEST WOVEN MESH.

MINIMESH® S metal filter cloth is predominantly made of stainless steel, in grades such as 304 and 316. Other materials can be used per customer request, provided they conform to pre-requisite metallurgical properties for precision wire.



$$\left[\left(\frac{1+\frac{d_s}{d_k}}{\frac{p}{d_k}}\right)^2-1\right]\left(\frac{X_{max}}{d_k}\right)^2+2\left[\left(\frac{1+\frac{d_s}{d_k}}{\frac{p}{d_k}}\right)^2\left(1-\frac{p}{d_k}\right)-\frac{d_s}{d_k}\right]\frac{X_{max}}{d_k}+\left(\frac{1+\frac{d_s}{d_k}}{\frac{p}{d_k}}\right)^2\left(\frac{p}{d_k}-1\right)^2=0$$

A DISTINCT ADVANTAGE: RELIABLE FILTRATION PROPERTIES



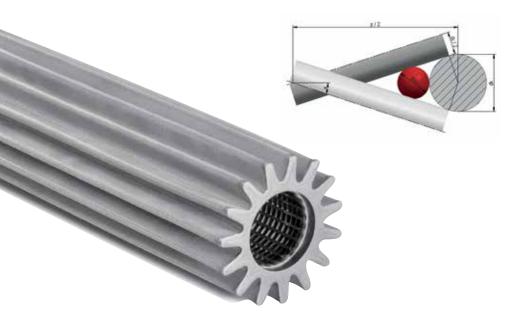
ANOTHER MILESTONE IN THE DESIGN OF FILTER CLOTH.

Compared to other filter media, filters made of wire mesh offer a distinct advantage: their specific properties can be precisely defined geometrically by the weave type, wire diameter, and mesh count. As a result, the geometric pore size and permeability can be accurately calculated in advance, without the need

of expensive measuring equipment. The degree of accuracy makes it possible to determine the correct cloth specification for the application and reproducing customized filter elements precisely and economically.

ADVANTAGES OF MINIMESH® S FILTER CLOTH:

- Precise filter characteristics
- Flow-optimized cloth structure
- Precise cut-point
- Glass-bead tested precision pores
- High flow rate
- Easy cleaning
- Low blocking tendency
- Long filter service life



HIGH PERFORMANCE: EXACT CUT-POINT DUE TO PRECISION PORES

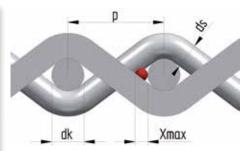
Mathematically defined in advance, the pore size of the MINIMESH® specification is validated by established evaluation methods. The glass-bead test is an authoritative cross-industry test method for determining the maximum

pore size, or "filter cut point".

Based on the method, the independent, internationally renowned standards institute, Whitehouse Scientific, tested the MINIMESH® filter cloth and confirmed the remarkable properties of the next generation of filters. In

particular, for ultra-fine cloth with pore sizes less than 20 microns, the high degree of uniformity of the precision pores yields distinct results.



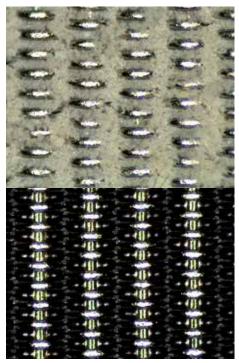


The heart of the MINIMESH® S filter generation: Precision pores with precisely defined geometry.

As an additional quality assurance measure, MINIMESH® S metal filter cloths are bubble point tested. According to the customer's wishes, the determination and specification of filter characteristics is performed using first bubble, mean pore size, or both of these parameters.



A REMARKABLE SOLUTION: IMPROVED PURGING AND LESS BLOCKING



Dirt holding capacity of a HIFLO 30-S. Above: loaded

With MINIMESH® S metal filter cloth, the desired filtration effect and flow rate is maintained significantly longer than conventional filter media. The blocking tendency is low and cleaning is easier compared to its counterparts, leading to long-lasting, precise filtration and an extended service life of filter elements.

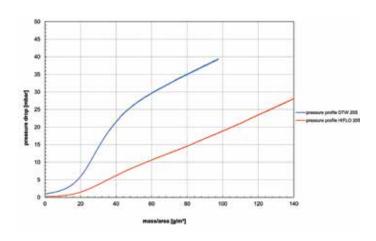
The careful verification of these properties has been carried out in collaboration with the Institut fur mechanische Verfahrenstechnik (Institute for Mechanical Process Engineering) at the University of Stuttgart. This includes air flow measurement, in which the pressure difference is measured as a function of flow rate, the determination of separation efficiency, the dirt holding

capacity with test dust, according to ISO 12103, and the purging properties mentioned in accordance with VDI 3926 Type 2.

To demonstrate the purity of MINIMESH® filter cloth, we use a standardized residual analysis system that differentiates the detected particles according to metallic, non-metallic, and fibrous categories.







Dirt holding capacity with test dust according to

ALWAYS MORE EFFICIENT: GOOD PERMEABILITY AND LOW PRESSURE LOSS

When a fluid flows through a filter medium, a pressure difference is generated between the inlet and outlet sides. This phenomenon is dependent upon the geometric properties of the filter, the load, and the properties of the fluid.

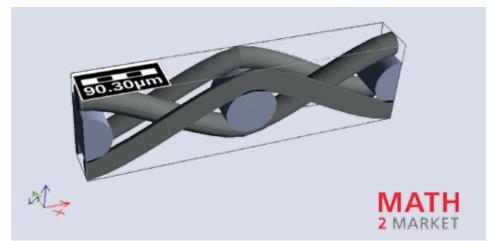
W.S. Tyer specifies the value zeta (ζ) as a parameter for evaluating the permeability of fixed-flow data. This pressure drop coefficient is valid for a flow rate of 1m/second. The smaller zeta, the lower the pressure drop.

(zeta)
$$\zeta = \frac{\Delta p}{\frac{\rho}{2} \cdot v^2}$$

with
$$v = 1 \frac{m}{s}$$

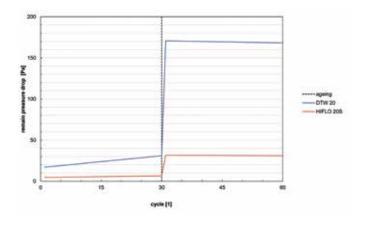
 $\rho = 1,2041 \frac{kg}{m^3}$ (medium air)

Even with a small pore size range, the MINIMESH® S metal filter cloth achieves a high flow rate with a low pressure drop, which contributes to greater energy efficiency and cost-effectiveness throughout the filtration process.



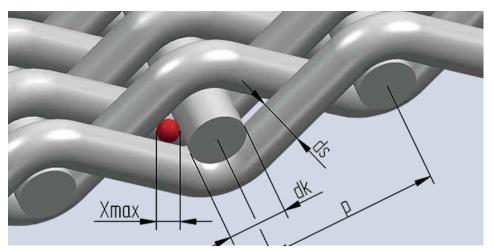


The cloth structure of the MINIMESH® S metal filter cloth is flow-optimised.



Purging properties according to VDI 3926.

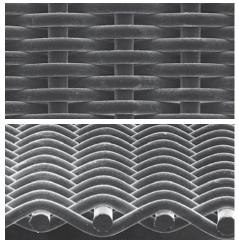
MINIMESH® SPW-S – SINGLE PLAIN DUTCH WEAVE

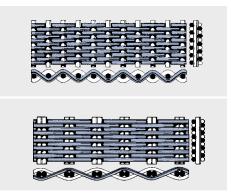


SPW – Single Plain Dutch Weave.
Weft wires are woven in a plain weave without space between them, making the aperture width zero. Because there is approximately five times more weft wires than warp wires, the strength is higher in the weft direction. The SPW filter weave is used for surface filtration and noted for its ease of cleaning and back flushing. The pore size of the most common MINIMESH® SPW filter is within the range of 40µm to 300µm. To reduce

pore size, single and double warp wires are used.

Due to its robust design and superb flow properties, it is suitable for almost every application, from separating solids from a viscous phase as a filter to minimizing sound.

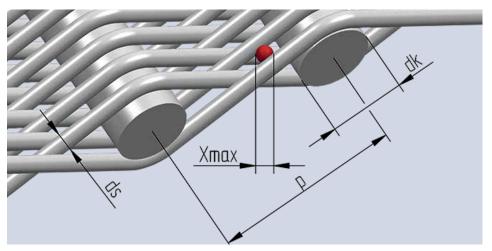




Notes on the SPW-S table: Column 3: largest geometrical determined pore size, tolerance ± 5% (AVIF-Project A224, A251)

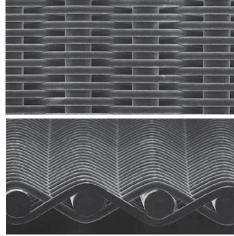
1	2	3	4	5	6	7	8
Type of	MESH	Geometric	Pressure	Tensile strength	Porosity	Weight	Cloth
weave		pore size	drop-coeffi-	warp weft	theor.		thickness
		μm	cient ζ	N/cm N/cm	%	kg/m²	mm
SPW 30-S	120 x 620	30	190	145 245	60	0.43	0.14
SPW 40-S	90 x 460	41	145	170 310	61	0.54	0.18
SPW 50-S	72 x 380	50	125	210 375	61	0.67	0.22
SPW 60-S	60 x 300	61	105	265 455	61	0.83	0.27
SPW 70-S	52 x 280	70	95	305 480	61	0.93	0.30
SPW 80-S	45 x 230	81	85	355 600	61	1.11	0.35
SPW 90-S	40 x 200	91	80	405 675	61	1.26	0.40
SPW 100-S	35 x 190	103	70	415 805	62	1.39	0.46
SPW 125-S	29 x 150	126	62	565 905	61	1.74	0.56
SPW 150-S	24 x 120	152	57	690 1120	61	2.13	0.66
SPW 175-S	21 x 110	174	52	770 1265	61	2.44	0.77
SPW 200-S	18 x 90	203	50	945 1495	60	2.89	0.90
SPW 250-S	14 x 70	260	42	1120 1870	61	3.67	1.14
SPW 300-S	12 x 64	302	40	1060 1995	61	4.00	1.30

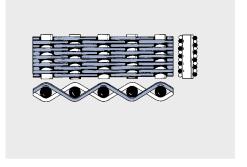
MINIMESH® HIFLO-S – HIGH PERFORMANCE FILTER WEAVE



The MINIMESH® HIFLO-S filter weave corresponds to the pore size range of MINIMESH® SPW-S. In utilizing ultrafine wires woven in a plain weave, a larger number of pores per unit area is achieved, allowing a high throughput rate despite the small pore size. The MINIMESH® HIFLO-S is a surface filter, meaning the smallest pore is determined by the distance between weft wires and not by the pores within the three-dimensional filter weave. Cleaning, back flushing, and strength

are similar to the MINIMESH® SPW-S filter. As a general rule, MINIMESH® HIFLO-S is used for filtration jobs that require high throughput rates, with low filter medium contamination levels.

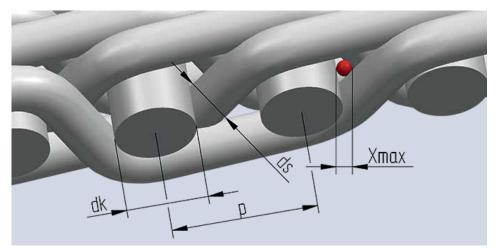


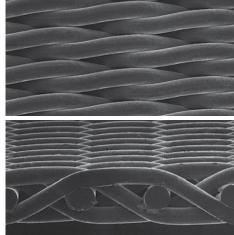


Notes on the HIFLO-S table: Column 3: largest geometrical determined pore size, tolerance ± 5% (AVIF-Project A224, A251)

1	2	3	4	5	6	7	8
Type of	MESH	Geometric	Pressure	Tensile strength	Porosity	Weight	Cloth
weave		pore size	drop-coeffi-	warp weft	theor.		thickness
		μm	cient ζ	N/cm N/cm	%	kg/m²	mm
HIFLO 15-S	230 x 1650	15	345	100 120	63	0.20	0.07
HIFLO 20-S	175 x 1250	20	240	105 155	63	0.24	0.08
HIFLO 25-S	142 x 1020	25	200	125 180	63	0.30	0.10
HIFLO 30-S	117 x 840	30	170	145 210	63	0.36	0.12
HIFLO 35-S	80 x 700	36	120	285 250	63	0.53	0.18
HIFLO 40-S	88 x 640	40	125	185 270	63	0.48	0.16

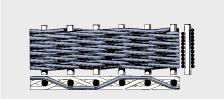
MINIMESH® DTW-S – DUTCH TWILLED WEAVE

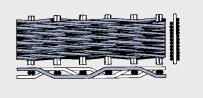




DTW – Dutch Twilled Weave.
Our MINIMESH® DTW-S twilled filter
weave features weft wires woven as
close as possible in a classic 2/2 twilled
weave. The ultra-fine weft wires allow
excellent flow-through properties with
very small pore sizes. The MINIMESH®
DTW-S filter weave is thicker and more
stable than the MINIMESH® HIFLO-S.
The filter is marked by good workability
and very compact pore distribution.

MINIMESH® DTW-S is also a surface filter and, in most cases, the filtered material accumulates as a filter cake on the mesh surface. MINIMESH® DTW-S filter weaves are suitable as a distribution medium due to the high wettability and reach a precise separation efficiency.

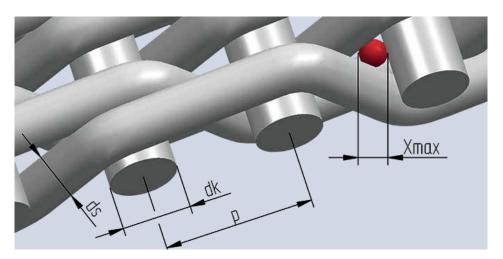




<u>Notes on the DTW-S table:</u> Column 3: largest geometrical determined pore size, tolerance ± 5% (AVIF-Project A224 A251)

1	2	3	4	5	6	7	8
Type of weave	MESH	Geometric pore size µm	Pressure drop-coeffi- cient ζ	Tensile strength warp weft N/cm N/cm	Porosity theor. %	Weight kg/m²	Cloth thickness mm
DTW 7-S	425 x 2800	7	2970	100 245	34	0.33	0.06
DTW 8-S	375 x 2300	8	3800	150 220	33	0.45	0.09
DTW 9-S	240 x 1600	9	4830	300 290	31	0.76	0.14
DTW 10-S	325 x 2300	10	2370	160 225	34	0.45	0.09
DTW 14-S	200 x 1400	14	1500	225 450	34	0.75	0.14
DTW 20-S	165 x 1400	20	800	185 465	40	0.69	0.15
DTW 21-S	165 x 1100	21	1220	190 565	36	0.84	0.17
DTW 45-S	80 x 700	46	330	190 790	46	1.15	0.27
DTW 90-S	40 x 560	88	300	235 1080	48	1.51	0.37
DTW 95-S	35 x 500	94	400	170 1325	47	1.70	0.41
DTW 120-S	30 x 360	121	260	440 1850	45	2.55	0.59

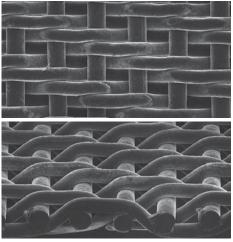
MINIMESH® BMT/BMT-ZZ-S: BROAD MESH TWILLED DUTCH WEAVE

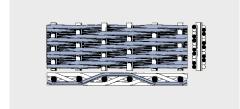


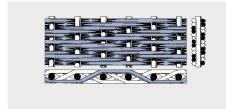
BMT/BMT-ZZ -

Broad MeshTwilled Dutch Weave.
The MINIMESH® BMT-S filter weave is a specialized 2/2 twilled Dutch weave where weft wires are not as close to each other, as seen in MINIMESH® DTW-S, but instead woven at a defined distance.
The weave allows us to accurately meet specific customer requirements

for a surface filter. We recommend the MINIMESH® BMT-S in zigzag design, which provides the greatest possible mesh stability. MINIMESH® BMT-S is characterized by its high throughput and economy.



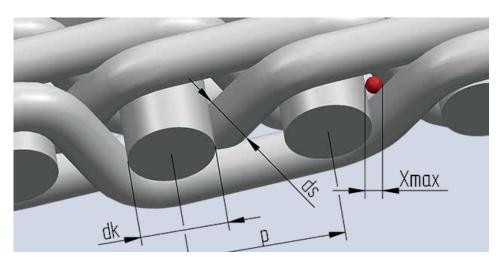




Notes on the BMT-S and BMT ZZ-S table: Column 3: largest geometrical determined pore size verified by glass bead test, tolerance ± 5%

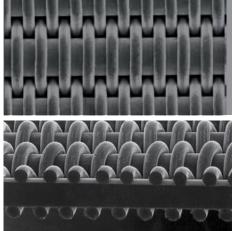
1	2	3	4	5	6	7	8
Type of weave	MESH	Geometric .	Pressure	Tensile strengt	,	Weight	Cloth
		pore size	drop-coeffi-	warp weft	theor.		thickness
		μm	cient ζ	N/cm N/cm	%	kg/m²	mm
BMT ZZ 13-S	325 x 1900	13	1210	155 195	41	0.41	0.09
BMT ZZ 14-S	325 x 1600	14	1030	165 280	40	0.43	0.09
BMT ZZ 16-S	260 x 1250	16	1050	170 360	40	0.58	0.12
BMT ZZ 27-S	200 x 900	27	430	200 395	47	0.63	0.15
BMT ZZ 39-S	165 x 800	39	300	190 360	49	0.69	0.17
BMT ZZ 41-S	200 x 600	41	160	185 210	62	0.46	0.15
BMT 45-S	120 x 600	45	170	350 395	51	0.89	0.23
BMT 55-S	120 x 400	55	90	270 320	60	0.72	0.23

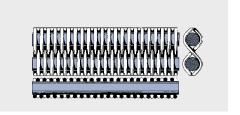
MINIMESH® RPD-S – REVERSE PLAIN DUTCH WEAVE



RPD – Reverse Plain Dutch Weave.
Like the MINIMESH® SPW-S, the
MINIMESH® RPD-S is a plain weave
filter mesh, but features a reverse wire
diameter arrangement. The MINIMESH®
RPD-S consists of thin warp wires
positioned close to each other and
thicker weft wire, woven in at a defined
distance. The resulting strength in the
warp direction makes the MINIMESH®
RPD-S a popular choice as a filter belt.
Moreover, the versatile, reverse plain
Dutch weave is used in applications

that require specific acoustic properties, mechanical robustness, and high throughput for filtration.

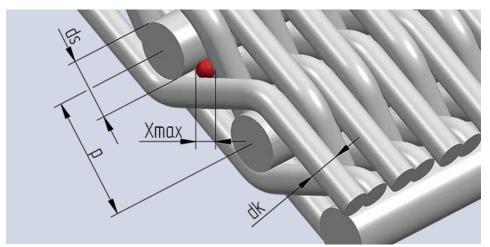




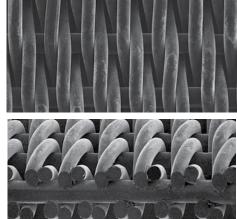
Notes on the RPD-S table: Column 3: largest geometrical determined pore size verified by glass bead test, tolerance ± 5%

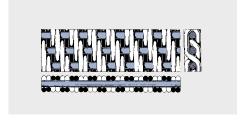
1	2	3	4	5	6	7	8
Type of	MESH	Geometric	Pressure	Tensile strength	Porosity	Weight	Cloth
weave		pore size	drop-coeffi-	warp weft	theor.		thickness
		μm	cient ζ	N/cm N/cm	%	kg/m²	mm
RPD 20-S	645 x 130	20	600	200 500	50	0.85	0.20
RPD 40-S	324 x 75	40	280	350 715	52	1.35	0.35
RPD 60-S	218 x 52	62	160	510 810	54	1.70	0.47
RPD 90-S	174 x 45	90	80	640 680	58	1.75	0.52
RPD 125-S	132 x 35	125	65	845 760	60	2.15	0.68
RPD 150-S	106 x 28	150	60	1070 880	60	2.70	0.81
RPD 175-S	89 x 24	175	50	1300 1000	60	3.15	0.96
RPD 200-S	89 x 22	200	42	1400 750	61	3.00	0.96

MINIMESH® TRD-S – TWILLED REVERSE DUTCH WEAVE.









Notes on the TRD-S table: Column 3: largest geometrical determined pore size verified by glass bead test, tolerance ± 5%

1	2	3	4	5	6	7	8
Type of	MESH	Geometric	Pressure	Tensile strength	Porosity	Weight	Cloth
weave		pore size	drop-coeffi-	warp weft	theor.		thickness
		μm	cient ζ	N/cm N/cm	%	kg/m²	mm
TRD 75-S	400 x 125	75	80	330 275	61	0.78	0.26
TRD 115-S	320 x 38	115	110	1445 640	52	2.66	0.70
TRD 260-S	132 x 18	263	60	5815 530	57	4.45	1.31
TRD 320-S	132 x 17	319	35	2575 765	58	4.08	1.24

MINIMESH® RPD HIFLO-S: A REVOLUTION IN FILTRATION

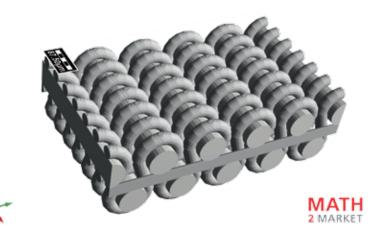
THE REINVENTION OF INDUSTRIAL METAL-FILTER CLOTH.

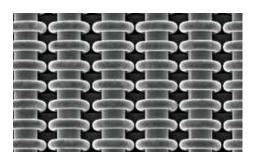
MINIMESH® RPD HIFLO-S is a highperformance, metal-filter cloth that is fundamentally different from all previous woven metal media. Manufactured with revolutionary weaving technology, it possesses properties that set new standards and transformed industrial filtration processes, making them quicker, safer, and more efficient.

Where conventional filter cloths have reached their limits, MINIMESH® RPD HIFLO-S breaks through those barriers and operates in a new dimension for filtration. Using proprietary weaving technology developed by Haver & Boecker, a three-dimensional pore geometry is created, giving MINIMESH® RPD HIFLO-S metal-filter cloth truly exceptional qualities. With its cutting-edge features, it fulfills the critical requirements for industrial use.

TWICE THE FLOW RATE AT THE SAME SIZE.

Previous filter cloths with small pore sizes led to reduced flow rates and significant pressure losses during the production process. With the reverse plain Dutch weave of MINIMESH® RPD HIFLO-S, that loss of performance is eliminated. Due to its revolutionary structure, which effectively increases the number of pores and open surface over the same area, the flow rate is more than doubled. In addition, the flow conditions

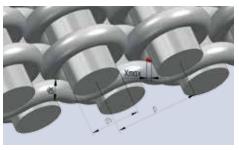




are optimized and turbulence around the filter cloth is avoided.

CORROSION AND TEMPERATURE RESISTANT MATERIALS.

MINIMESH® RPD HIFLO-S metal-filter cloth is made using relatively strong wires. The effects of the decision are twofold. For one, it has a positive impact on the cost. For another, even in the small pore range, special materials, such as Alloy 310 S, Iconel 600, Superduplex, Duplex, Hastelloy C 22, and titanium, can now be woven, which had not been possible. Introduced with MINIMESH® RPD HIFLO-S, corrosion and temperature resistant materials are available with pore sizes smaller than 40 microns.



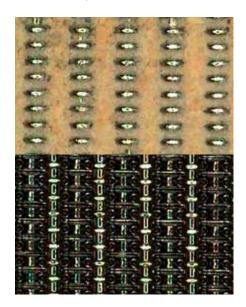
HIGH PERFORMANCE: CUT-POINT AND LONGEVITY

The highest level of precision, even after processing.

The pore size of MINIMESH® RPD HIFLO-S metal-filter cloth can be precisely calculated in advance and adapted to the respective requirements. The precision pores can achieve extremely high cut-points and dimensional stability. The independent, internationally renowned institute, Whitehouse Scientific, tested and confirmed these properties.

MINIMESH® RPD HIFLO-S: A REVOLUTION IN FILTRATION

Dirt holding capacity of a RPD HIFLO 40-S. Above: loaded, below: unloaded



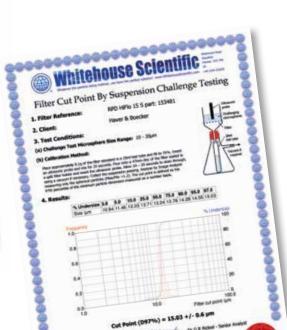
OPTIMUM DIRT HOLDING AND PURGING PROPERTIES.

The structure depth of MINIMESH® RPD HIFLO-S facilitates high separation efficiency without rapid blinding, leading to longer filtration processes between cleaning intervals and extended filter service life. Its dirt holding capacity and cleaning characteristics have proven to be excellent. Filtration is efficient, safe, and stable with a long service life of filter elements.



DIFFERENT PORE SIZES IN ONE LOT.

The innovative weaving technology of MINIMESH® RPD HIFLO-S allows for the calibration of pore sizes within one batch from 5 to 40 microns as desired. The production volumes can be perfectly matched to the specific requirements.



Geometric poresize verified by glass bead test, tolerance ±10%

1	2	3	4	5	6	7	8
Type of weave	MESH	Geometric pore size µm *	Pressure drop- coeffi-cient ζ	Tensile strength warp weft N/cm N/cm	Porosity theor. %	Weight	Cloth thickness mm
RPD HIFLO 5-S	850 x 380	5	9020	100 510	34	0.95	0.18
RPD HIFLO 10-S	850 x 380	10	1680	100 500	44	0.95	0.21
RPD HIFLO 15-S	850 x 380	15	850	110 510	49	0.95	0.23
RPD HIFLO 20-S	640 x 200	20	400	140 780	53	1.35	0.36
RPD HIFLO 25-S	425 x 150	25	480	190 490	54	1.10	0.30
RPD HIFLO 30-S	425 x 150	30	200	205 485	64	1.10	0.38
RPD HIFLO 40-S	325 x 115	40	140	270 570	64	1.50	0.52

SELECTING THE APPROPRIATE FILTER MEDIUM

If the wire cloth is used as a surface filter, then the following design data is necessary for selecting the optimum type of woven wire cloth:

Fluid properties:

Process temperature

Density ρ

Kinematic viscosity $\, {f v} \,$

Flow properties:

Volumetric flowrate

Flow area A

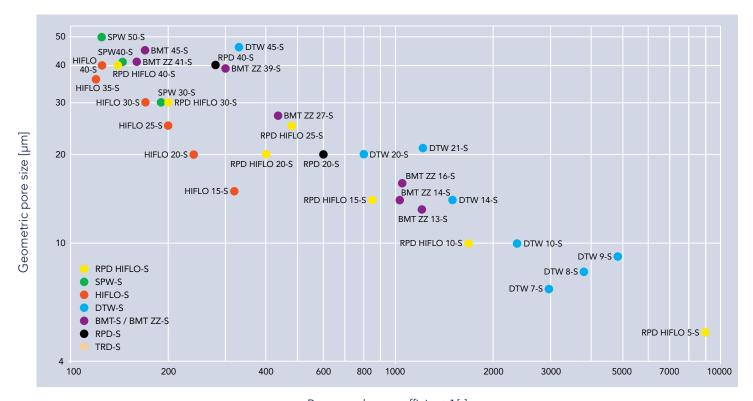
Maximum pressure drop Dr

Particle properties:

Particle size/particle size distribution

Particle cut size

This data allows the permeability and geometric pore diameter to be determined. The characteristic values allow the selection of the appropriate woven wire cloth – in accordance with the required application and the material requirement.



Pressure drop coefficient ζ [-]



VALUE ADDED SERVICES & PROCESSES



W.S. Tyler woven wire cloth is produced with looms, designed and manufactured by our parent company. Controlled production processes up to clean-room conditions and continuous process control not only guarantees high product quality but also allows us to develop special weave types to meet specific customer requirements. High production capacities in connection with a large product range held in stock, gives us the assurance of supply to our customers.

ANNEALING / SINTERING

Heat treatment for facilitating further processing: for example soft annealing for 3D forming of parts, or sintering for fixing wire intersections.



ADHESION

Sealing and protection of welded joints, borders and seams of components. Applications can also include high temperature food grade adhesives.

CALENDERING

The cloth is rolled to a specified thickness, simultaneously producing a smooth surface. For fine mesh, this can also influence the filtration criteria of the cloth

CLEANING

For rolled goods, slit coils, or cut-to-size pieces. Various cleaning processes are available; vapor degreasing or aqueous ultrasonic cleaning as appropriate.



CUTTING PROCESSES

(Pieces, Strips and Coils)
Single-piece or high volume processing:
rotary or stationary blades, splitting
systems, water-jet cutting, plasma
cutting or laser cutting.

PRESSING / DEEP DRAWING

Fully automated for large production runs or as single part production for perforated, embossed or formed components.

WELDING

Plasma, TIG, MIG, MAG and resistance welding - with high precision seam and spot welding.

STRAIGHTEN AND STRETCHING

The cloth is stretched to eliminate any bends or waves that prevent the wire from lying flat



VALUE ADDED SERVICES & PROCESSES



OUR PROCESSES APPLY TO WOVEN WIRE CLOTH, INDUSTRIAL SCREENS, FILTER CLOTH AND FILTER ELEMENTS

PLASTIC INJECTION MOLDING

Automatic or manual feeding, also for full integration of stamping and quality checking processes.

PACKING

Manual or fully automatic, loose or single packing. Reusable or disposable packaging: solutions for all automation and process requirements.

STAMPING & PUNCHING

High production material flow lowers cost and provides consistent quality.

MORE PRODUCTION POSSIBILITIES

- Electric discharge machining (EDM)
- Joining technology (welding/soldering/bonding)
- Forming/embossing/bordering/pleating
- Cylinder fabrication (automatic/manual)
- Laminating & Marking



FABRICATED PARTS & CUSTOMIZED FILTERS



Whether it's a simple part or complex component, woven wire cloth is prevalent in numerous industries and even appears in many aspects of everyday life. From flow filters in water taps to precision filter elements in spacecraft, woven wire cloth fulfills a variety of requirements and remains fundamental to the area of application.

These efforts include new weave types, automation solutions, and conceptualizing the most streamlined production and testing process.

At W.S. Tyler, we are constantly pushing technical boundaries in order to produce optimum solutions and deliver innovative products.

A prerequisite for achieving that innovation is our in-house expertise in manufacturing, finishing, and processing wire mesh. Due to our understanding of the entire manufacturing process, we are able to approach our customers wishes with precision and assure maximum quality throughout production and after-sale service.

Whether you want single parts and small production runs with short delivery time, or need a more involved partner for large production runs, at W.S. Tyler, you will find tailor-made solutions and

attentive, reliable service.

Founded upon the time-honored values of precision and quality, W.S.

Tyler began producing woven wire and mesh materials in northeast Ohio in 1872. Today, we continue to grow and refuse to compromise those principles, determined as ever to meet the evolving demands of our customers.

With an experienced staff of experts and a relentless commitment to research and development, W.S. Tyler remains at the forefront of design and engineering. Our trademark blend of tradition and innovation leaves us well-positioned for the future.

FUNCTION IN FORM

The material, shape, and function of filters and fabricated part is closely interrelated. W.S. Tyler conceptualizes, designs, and produces metal woven wire made of steel, stainless steel alloys, and special materials such as titanium, Hastelloy, silver, non-ferrous metals, aluminum, phosphor bronze, brass, copper, nickel, or Monel.

We meet our customers' need for highend products, acting as an innovating partner by offering a wide selection of proven products alongside specially designed bespoke solutions for new applications and development.

SINGLE SOURCE PRODUCTION: ENHANCING YOUR SECURITY.



METAL WOVEN MESH

The control of the production process begins with the design and machines we use to manufacture our products and extends to a structured production environment, including clean-room conditions and continuous process control. In-depth knowledge of our production processes guarantees exceptional product quality and allows us to develop specialized weaves to meet specific customer requirements. High production capacities and a large product range held in stock enables us to reliably supply our customers.

PLANNING AND FEASIBILITY STUDIES

Meticulous process planning and technical feasibility studies, per our Advanced Product Quality Planning (APQP) methods, lead to quality assurance and precise matching of all processes to given requirements.

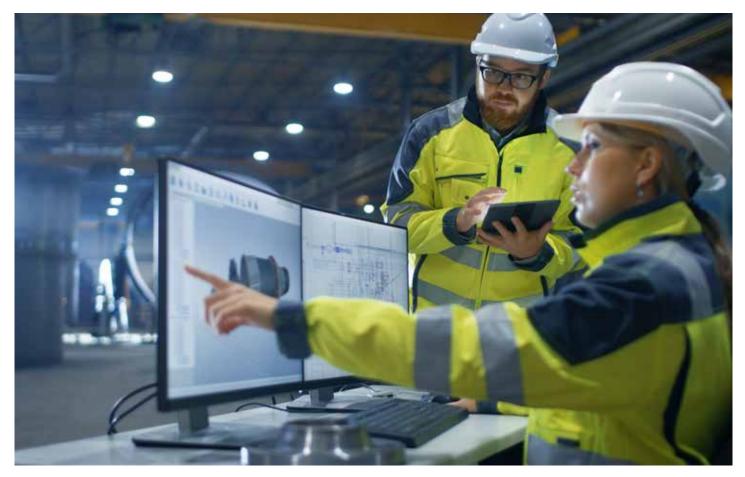
TAILORED DESIGN

W.S. Tyler's engineers, technicians, and product designers implement the ideas and wishes of our customers using modern, three-dimensional CAD systems. Our customers requests are analyzed and implemented, from conception to completion. This process can involve the construction of any

tooling, equipment, or special machines, and include associated production and packing lines.

HIGH-LEVEL TOOLING

In addition to CAD drawing, our special machine and tooling design delivers CAM data to our CNC machine tools for turning, milling, and electrical discharge machining of classic stamping and deep drawing tools. This includes fully automatic special machines, handling systems, and injection molding tools for filter production.

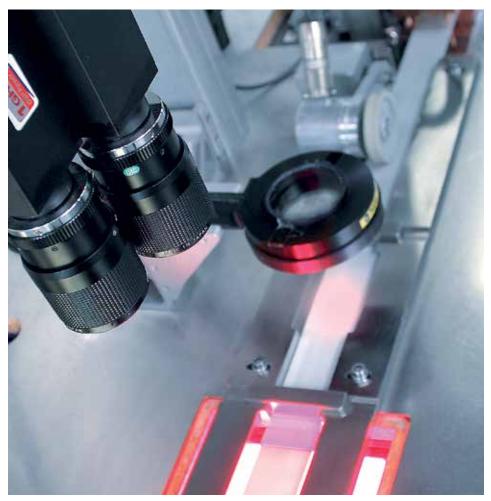


PRODUCTION ON MODERN MACHINES

Subsequent processing takes place using state-of-the-art systems and machinery, including high-precision cutting machines, mechanical and hydraulic presses, welding systems for aluminum and non-ferrous metals, and injection molding technology. All heat-treatment processes are available in our annealing center. Cleaning systems guarantee maximum cleanliness. Our chemical laboratory ensures continuous monitoring.

SYSTEMIC QUALITY

Our quality management system is certified to ISO 9001.



A FASCINATING VARIETY: PRODUCTS FOR A WIDE RANGE OF APPLICATIONS.



- AUTOMOTIVE INDUSTRY
- AVIATION AND AEROSPACE
- CASTING
- CHEMICALS
- DESIGN
- ELECTRICAL ENGINEERING

- FOOD INDUSTRY
- HOUSEHOLD APPLIANCES
- MECHANICAL ENGINEERING
- MEDICAL TECHNOLOGY
- PLASTICS PROCESSING
- WATER FILTRATION



NEW CONCEPTS: MORE INNOVATION







SECTIONS AND ROUND PARTS

Single-piece or multi-part production takes place using various cutting processes, including rotary or stationary blades, splitting systems, water-jet cutting, laser cutting, plasma cutting, stamping, or round cutting. Depending on the requirement, mesh parts can be single- or multi-layered, or a pleated design with or without edge bordering.

Typical application areas:

Screening, classifying, filtration, separating of various materials, plastic melt filtration, soil-catch screens, chromatography, or automotive-trim parts.

DEEP-DRAWN PARTS

Single- or multi-layered mesh is manually or automatically formed into a three-dimensional shape. The domed shape gives a larger filter area compared to flat disks. Careful quality inspection can be either manual or automatic depending on the production quantity and agreed testing procedure.

Typical application areas:

Microphone shields, noise attenuation screens, funnel screens, oil filters, air filters, protective covers, and more.

EDGED PARTS

A rolled edge ensures that parts can be easily separated; therefore, they are especially suitable for any subsequent automated processes. A solid border also guarantees that the edges are fixed.

Typical application areas:

Flow screens in water taps, filtration in medical applications and automotive technology.

NEW CONCEPTS: MORE INNOVATION







PRESSED ARTICLES

The compression of edges enhances stability and prevents the migration of wires. Multiple layers can be pressed as required.

Typical application areas:

Protective units in switch cabinets, gas measurement sensors, plastic fiber manufacturing.

CYLINDERS AND FILTER CARTRIDGES

Single or multiple layers, smooth or pleated mesh in cylindrical form, joined together by spot or rolled joint welding. Support cores and connections as required. The longitudinal seam is joined by lapping or butting together. We offer continuous and woven seamless cylinders for large production runs.

Typical application areas:

Screening, classifying, filtration or separation of various materials, such as water, hydraulic oil and cooling fluids.

CONED AND TAPERED PARTS

Single or multiple layers, pleated or smooth surface. These components can be produced as single parts or from partial segments and, if necessary, with supports and edge bordering.

Typical application areas:

Screening and classifying, filtration, or separation of various materials.

NEW CONCEPTS: MORE INNOVATION







PACKING

Multi-layered, rolled cylinders of mesh, consisting of one or more mesh specification, as required. Edge bordering and face-side finishing as required.

Typical application areas:

Fuel feeding, exhaust treatment, and homogenization of compressed air.

PLASTIC INJECTION MOLDED PARTS

Various designs of wire mesh combined with injection molding for edge protection, sealing, joining, support or assembly elements, or used for forming shapes.

Typical application areas:

Speaker covers, fuel filters, oil filters, and much more.

HYBRID PRODUCTS

Metal or hybrid mesh (metal/monofil) is back-molded and foil laminated to create an adhesive component. The part can then be deep-drawn, with the possibility of creative, illuminating backlight.

Typical application areas:

Decorative applications, such as premium automotive interior parts or elegant packaging.

OPTIMUM QUALITY: GUARANTEED



The careful selection of material, its condition, and processing possibilities is integral in defining the properties of filters and fabricated parts. Certain requirements can only be fulfilled by certain materials.

Customers worldwide can count on the knowledge and extensive processing experience that the experts at W.S. Tyler possess. We can offer critical advice on which woven wire cloth to select and with which form the required function is best fulfilled in order to provide maximum safety and stability, as well as economic production.

Certified measurements and tests in combination with our own in-house processes for quality assurance ensure that all woven wire products from W.S. Tyler fulfill your requirements. We pull out all of the stops to deliver an unrivaled product.

AUTOMATIC MAXIMUM EFFICIENCY

By intelligently linking processes, from stamping, testing, cleaning, and packing, we create the basis for optimum efficiency. We feature robots for bonding applications, processoriented work station systems, automatic pressing, testing and packing lines that automatically and reliably pack the product in bubble packs. We're also willing to develop individual solutions for even the toughest customer requirements.

The Haver Vision System plays a pivotal role. It utilizes visual inspection and monitors large-scale production. The system is continuously being developed to meet the growing demands of ourselves and our customers as we strive to achieve a zero-defect solution for the most extreme, technical sectors.

WOVEN MESH AND MATERIAL ANALYSES IN OUR OWN LABORATORY

All of the wire and woven mesh manufactured by W.S. Tyler is examined in our laboratory according to national, international, and our own high standards. Included in the inspection are tensile and compressive tests, performed with industry-leading equipment. Material testing is done using mobile XRF equipment.

EXTRUDER SCREENS



W.S. Tyler produces wire cloth extruder screens. These screens are also known as screen pacs. These special shaped filters are used in the plastic melt filtration process and are of the highest quality. We can produce them in various configurations, including options for single and multilayer designs, rim bound and raw edge filters.

EXTRUDER SCREENS:

- Available in stainless steel, carbon steel, brass, etc.
- Different sizes are available upon request
- Various shapes are available, i.e. circles, kidney and rectangular
- Configurations are available from single layer to custom spot-welded multilayer screens
- These filters can be designed with retention ranges from anywhere between 10 and 1,000 microns



EXTRUDER SCREENS FOR:

- Plastic Recycling
- Plastic Injection Molding
- Pelletizing
- Containers
- Pharmaceutical
- Industrial Applications
- Cable Production
- Hose Tube Extrusion
- Medical Catheter and Tubing Extrusion





LEARN MORE ABOUT OUR EXTRUDER SCREENS WWW.WSTYLER.COM





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POROSTAR® - SINTER-BONDED

CHARACTERISTICS AND APPLICATION

POROSTAR® is a woven wire cloth laminate. Its individually woven wire cloth layers are bonded together by diffusion.

The technique used during the manufacturing of POROSTAR® ensures that all wires are completely bonded together while preserving the geometric structure of each woven layer.

This process results in a stable filter plate that will maintain its pore size, distribution and permeability. POROSTAR® can be formed and welded and is corrosion resistant.

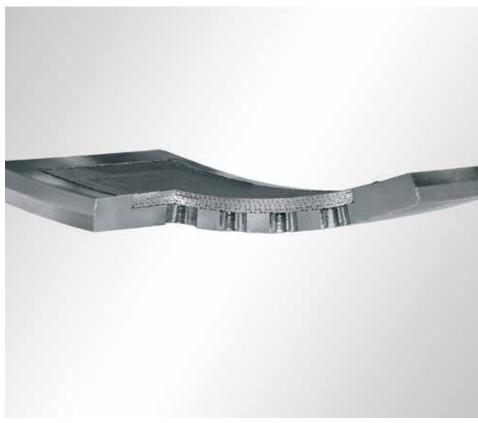
POROSTAR® is used for filtration and fluidizing purposes in many

industries: chemical, petro-chemical, pharmaceutical, plastic, food, automobile, mechanical engineering and many others.

This filter medium typically has a pore size of 5 to 1000 microns. Even at maximum pressure, POROSTAR® cannot release any small parts of the filter medium.

MATERIALS

POROSTAR is generally manufactured from various grades of stainless steel (304, 316, etc.) other specialized alloys are also available (316 Ti, Hastelloy C 22, Alloy 59, etc.)





POROSTAR® - SINTER-BONDED

CONSTRUCTION AND FUNCTION:

1. Protection layer:

Protection of the filter layer against physical influences

2. Filter layer:

Selected according to the poresize

3. Protection layer:

Protects the filtration layer from possible deformation under high pressure

4. Support layer

5. Support layer 90°

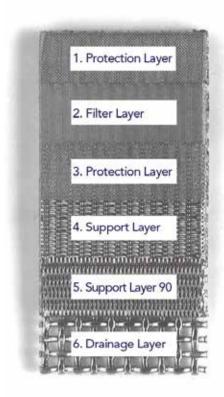
Makes the wire cloth laminate stable and improves the welding characteristics

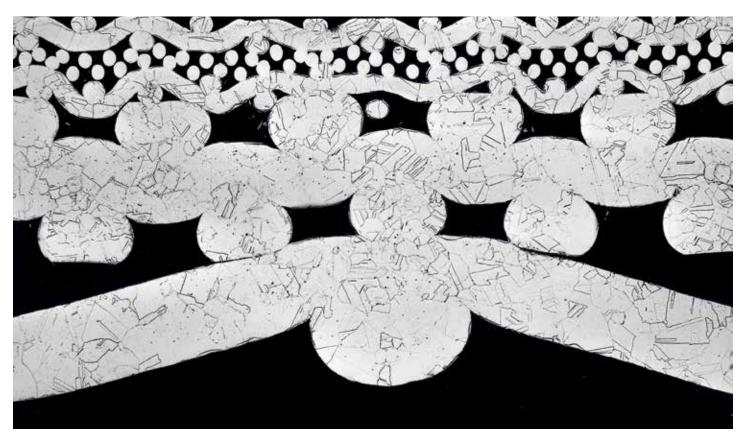
6. Drainage layer:

Improves the quantity of the filter capacity

If material processing makes it necessary, the construction can be made without the first protection layer.

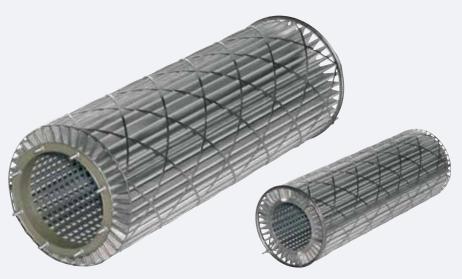
POROSTAR® is designed with five or six layers and specially suitable for unbalanced loads.





FILTER CYLINDER

POROSTAR® Starfilter with reinforcement cage



POROSTAR® Starfilter, of variable ø and length





POROSTAR® Filter Cylinder with cover and connection ring

POROSTAR® Tandem-Filter Candle



POROSTAR® Cylinder with flange rings.

Longitudinal and circumferencial seam glued.



FILTER CANDLES

POROSTAR® Filter Candle with different connectors.



POROSTAR® Filter Candle with bottom flange and receiving ring



PLYMESH - LAMINATED WIRE MESH

PLYMESH LAMINATED PANEL

PLYMESH is a porous, sheet metal like medium for fluidization and filtration applications.

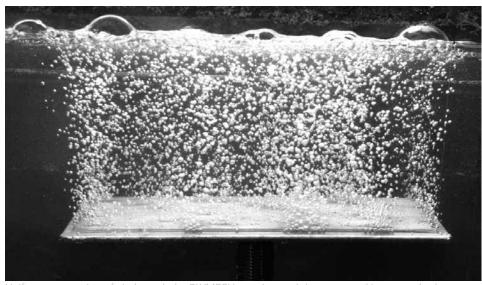
Each individual wire cloth layer is bonded together by means of a special manufacturing process.

These laminated panels can be made up of woven wire cloth layers with square openings or MINIMESH filter cloth specifications, or a combination of both types. PLYMESH has a defined pore size ranging from 5 to 500 microns.

PLYMESH has a smooth surface, with flattened knuckles on the outer wire cloth layers. The pore size and flow capacity of PLYMESH can be predertmined.

PLYMESH can also be supplied in panels and engineered parts in "ready to be installed components" such as candles, cylinders, cones and aeration pads.

The standard size of PLYMESH sheets is $500 \times 1,000$ mm. Special sizes upon request.

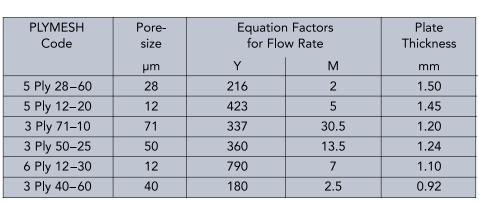


Uniform penetration of air through the PLYMESH aeration pad demonstrated in a water bath

APPLICATION:

PLYMESH aeration pads are a highly efficient discharging aid in silos, especially where high temperatures are concerned. PLYMESH is a proven separating element between air and the material being transported. Other applications can include: flow regulation in water pipes, drinking water filtration, sound attenuation for air outlets, filter inserts for air aspirating holes, water separators for fuel, hydraulic filtration, and for aviation and aerospace.





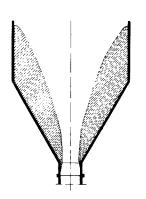


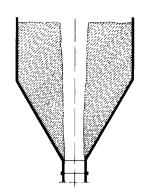
Physical Data (standard specifications)

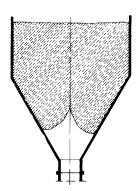
PLYMESH - LAMINATED WIRE MESH

PLYMESH AERATION PADS

PLYMESH aeration pads are used to fluidize and optimize the flow rate of powdered and pulverized products in silos and bunkers. Powdered material tends to densify during the storage and become solid. In this case, it is no longer possible to rely on gravity alone for extraction. To ensure the flow, PLYMESH aeration pads are used. PLYMESH aeration pads and candles are easy to install, even in silos that are already in operation.







By installing PLYMESH aeration pads it is possible to avoid problems, such as funnelling, ratholing and bridging formation.

FUNCTION:

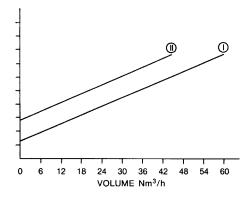
The PLYMESH aeration pad is installed internally into the cone of, for instance, a silo. Air is continuously or intermittently blown through the PLYMESH into the pulverized substance. The air requirement for a silo depends on the chosen PLYMESH type and the number of aeration pads. As a standard value we recommend 40 – 60 m3 of air per hour at a pressure of 500 mbar. For different service conditions the values can be taken from the diagram. These values have been determined under the following conditions: outer dimension 100 x 200 mm PLYMESH material (I.): 3 Ply 40-60 (II.): 6 Ply 12-30

CONFIGURATION:

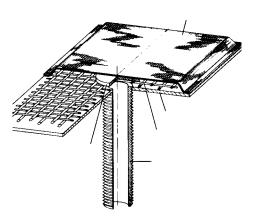
PLYMESH aeration pads are temperature and corrosion resistant. The standard dimensions are 100 x 200 mm and 120 mm diameter. Other shapes and sizes upon request.

PLYMESH: standard specifications are 6 Ply 12-30, 3 Ply 40-60 and 3 Ply 71-10. Egla-Screen: stainless steel screen with a smooth surface on one side as distribution backing support. Deflector Plate: required to deflect the compressed air

Base Plate: stainless steel, 2 mm thick Pipe Union: steel, galvanized inside.



Air requirement for PLYMESH aeration pads



Configuration of a PLYMESH aeration pad

GET IN TOUCH

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