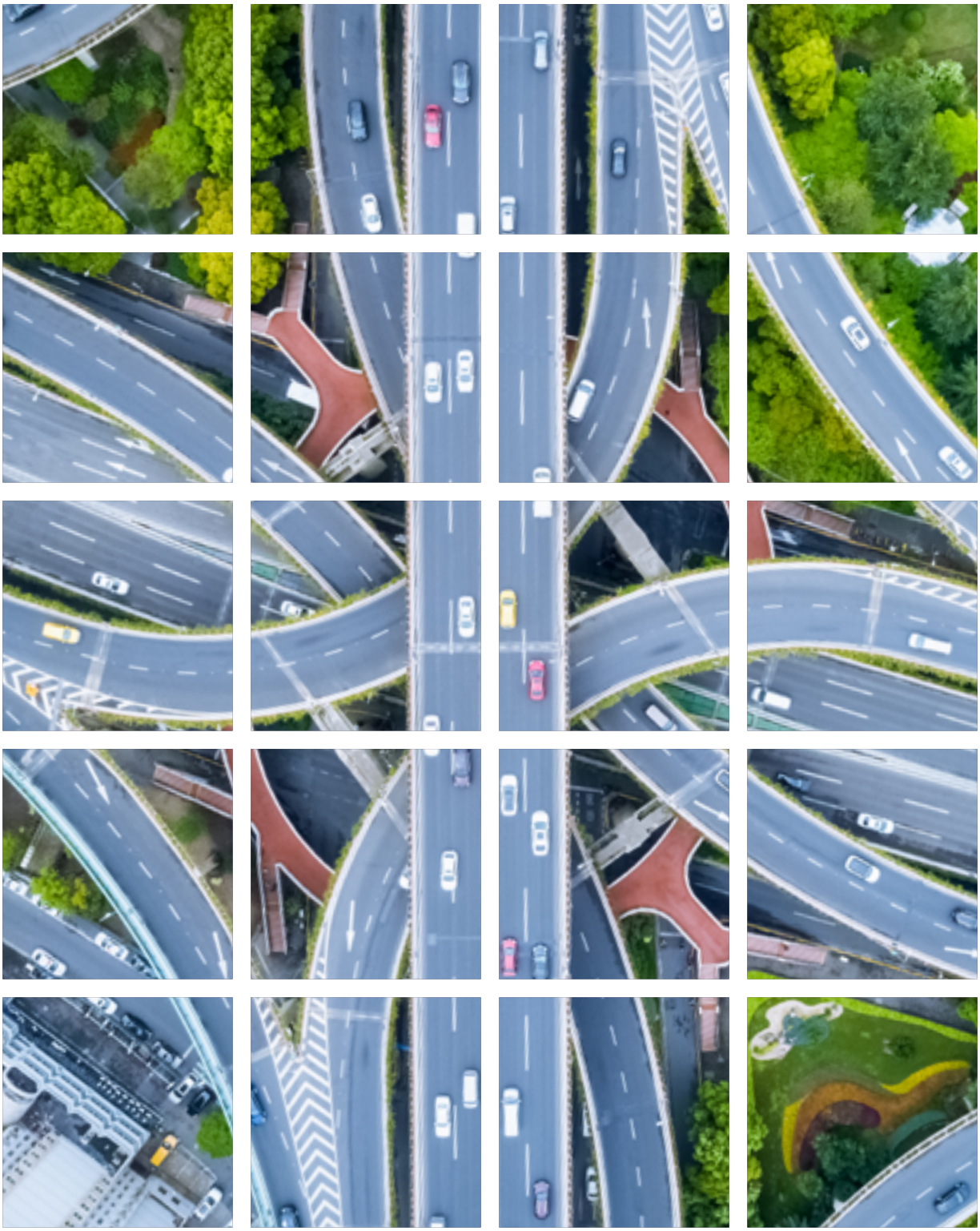

SAATImotion

Precision Fabrics & Components for Automotive Applications

FOR THE MANY, BY THE FEW

SAATI

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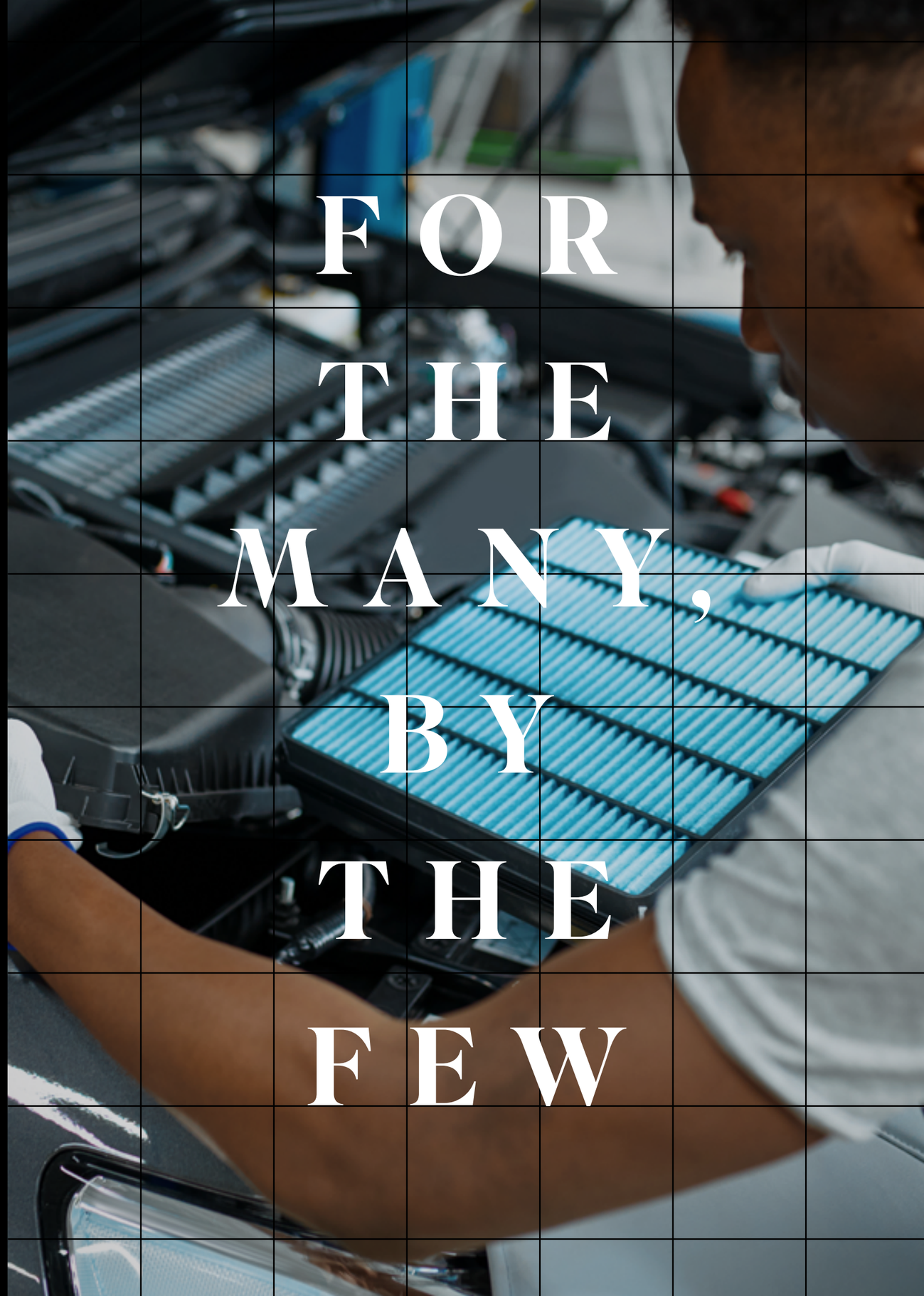
SAATI

SAATImotion Brochure

Engage with SAATI

SAATI S.p.A. Via Milano, 14-22070 Appiano Gentile (CO), Italy | www.saati.com



SAATI produces many products for all types of markets that find their way into the daily life of billions of people. We are leaders in both process and microfiltration, screen printing, and personal and vehicular multi-threat protection products.

SAATI

Over Eighty Years of Innovative Action

SAATI is a multinational group with corporate headquarters that have been situated in northern Italy since 1935. Today SAATI is a leading force in the development, manufacturing and commercialization of high tech filter media & chemicals.

SAATI's passion and creativity are the foundation for an unsurpassed tradition of continuous innovation in the filtration markets. This endless pursuit is what drives SAATI's dedicated customer-centric R&D to functionalize products beyond simple filtration.

SAATI's wide range of synthetic textiles and fabricated parts in Polyester, Nylon, Polypropylene, PEEK and PPS are the ideal engineered solution for demanding microfiltration applications.

Through specialized processing and rigorous inspection, SAATI ensures consistent lot quality across tolerances, uniformity, strength, stability, and cleanliness for applications with pore sizes from 7 to 3,000 microns.

Perfecting the Art of Precision Woven Fabrics

With over 1,000 employees spread across multiple facilities worldwide, and a strong established track record in innovation and manufacturing excellence, SAATI's mission is to improve the life of every person every day – through working with both customers and partners to create a safer, healthier and cleaner world.

To guarantee product reliability, SAATI constantly runs tests and has all of the stritctest and most up to date certifications that validate the consistency, performance, quality and characteristics of each item.

Specific SAATI fabrics are tested and certified in accordance with USP CLASS VI/ISO 10993 Regulations, and these fabrics are inspected and transformed into customized shapes in Class 10,000/ISO Class 7 Clean Rooms in accordance with UNI ISO 9001 regulations.

Customer Driven Innovation

Thanks to a direct presence in many countries, it is easy for customers to reach out, wherever they are located, and the response is always prompt. SAATI staff has a high level of technical expertise and dedication, and is always aiming to find the best solution for the customer's requirements.

SAATI sales representatives and engineers understand their customers' applications, working closely with staff in both the production and R&D departments to offer the customized solutions that best meets their needs.

The quality of SAATI's products is backed by the dedication and expertise of SAATI's customer service. Thanks to offices, warehouses, storage and fabrication facilities throughout the world, SAATI provides strong local support, expert responses to customer inquiries, strong engineering capability, technical support and fast delivery around the world.

SAATImotion Manufacturing

Automotive Devices

Automotive devices are among the most demanding fabric applications. SAATImotion automotive fabrics are more than up to the task; they are the preferred choice for automotive components such as fuel injectors, water separators, in-line fuel filters, in-tank filters, SCR systems, gear boxes, hydraulic suspension, power steering, ABS, and engine & cabin air filters. The precise aperture size, uniform high flow rates, and lot-to-lot consistency make SAATIcare fabrics the ideal solution for demanding automotive applications.

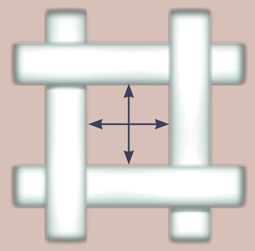
Manufactured To The Most Exacting Standards

SAATImotion fabrics are woven with monofilament polyester, polyamide, PPS or PEEK fibers with smooth and uniform surfaces that are particularly suitable for automotive applications. The monofilament fibers are non-shredding to reduce the risk of particulate contamination. The fibers are woven to exceptionally tight tolerances, creating uniform pore sizes, excellent strength, and good dimensional stability.

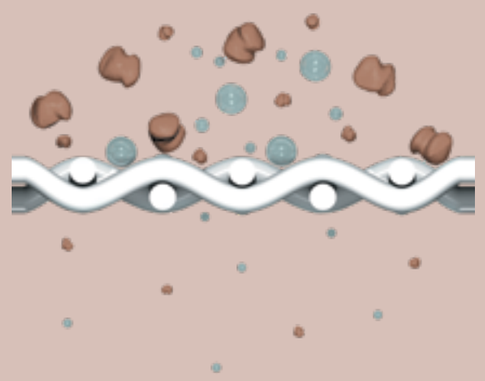
Customized to Meet Specific Customer Needs

Typical surface modifications requested include plasma treatment, adding hydrophilic or hydrophobic characteristics, and dyeing in virtually any color.

SAATI Engineers can also evaluate developing a fully customized solution using your specific chemistry applied to the mesh surface to functionalize the surface beyond simple filtration action.



Precise Mesh Opening
The Mesh Opening is the square space between two warp and two weft yarns



High flow rates with low pressure loss

SAATI Engineers can also evaluate the development of fully customized solutions using your specific needs to functionalize the surface beyond typical filtration action.

SAATImotion

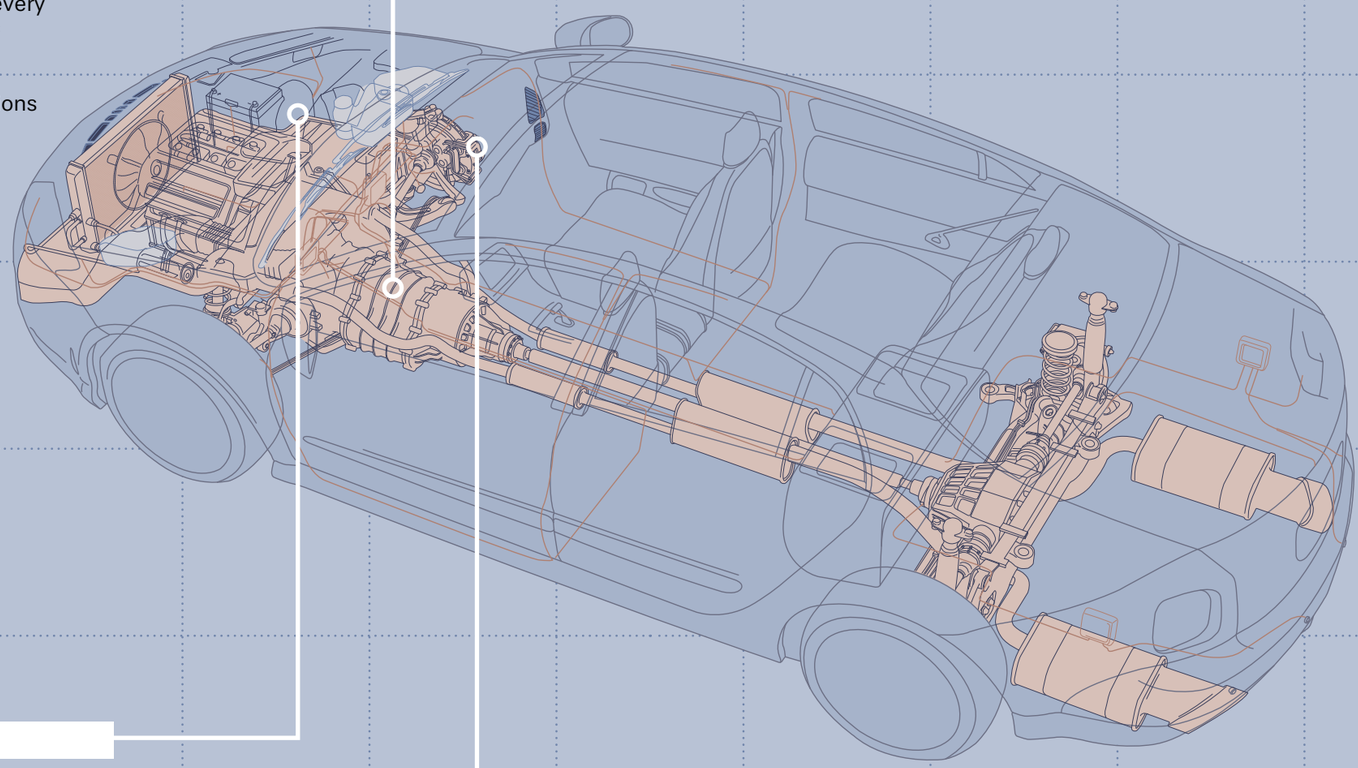
Enhancing The Performance Of Automotive Filtration Systems

Today, the motor vehicle industry requires increasingly advanced filtration performances in order to achieve maximum results at every production stage. Filter media plays a key role as integral part of modern automotive systems.

That's why SAATImotion offers a wide range of filter media solutions thought out down to the smallest details to satisfy the required conditions of carmakers, automotive component manufacturers and injection molders.

SAATImotion's Automotive Industry Advantages

- Long lasting filters
- High dust holding capacity
- Excellent filtration efficiency
- Low pressure drop
- Resistance to common fuels
- Consistency and quality
- Non-shredding properties
- Good thermal stability
- Good chemical resistance
- High mechanical strength
- High workability
- Environmentally friendly (fully recyclable)
- Many years of expertise



Powertrain

Air Management System
- Engine Air Filter

Engine Management System
- In-Tank Filter
- Injection Filter
- Hydrophobic Pre-Filter (Water Separator)
- In-Line Fuel Filter
- Silica Gel For Coolant

Transmission/Hydraulic
- Gear Box
- Hydraulic Suspension
- Power Steering
- ABS
- By-Pass

Emission Control/System
- SCR (Selective Catalytic Reduction) System

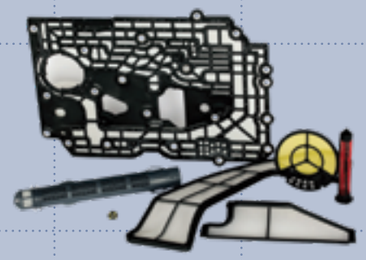
Washing

- Water Reservoir Filters
- Windshield Wiper Fluid Filters

Cabin

- Air Conditioning Filtration
- Cabin Air Filters
- Automotive Electronics

Unlike metal wire mesh, SAATImotion synthetic woven fabrics are fully recyclable, as they are made of the same polymers used in plastic filter housing in vehicles.



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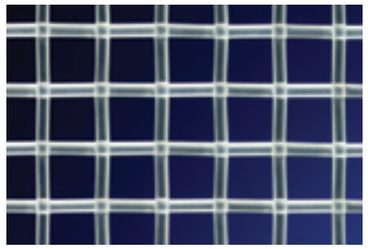
SAATImotion Automotive Fabrics

SAATImotion includes a wide and complete range of avant-garde technical fabrics woven with monofilament yarns in different polymers such as polyester (PET) and polyamide (PA6.6), polypropylene (PP), PPS and PEEK.

SAATImotion fabrics guarantee a good performance against aggressive synthetic oils and several types of fuel thanks to a higher resistance to ageing in harsh environments and high flow capacity required by modern fuel delivery systems.



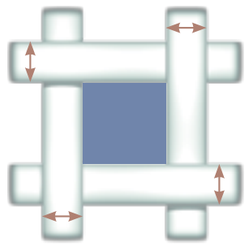
SAATImotion Key Fabric Features

Repeatable performance with high flow rates and minimal clogging, ideal for a predictable particle removal. This consistent behavior ensures a longer life for filter systems.

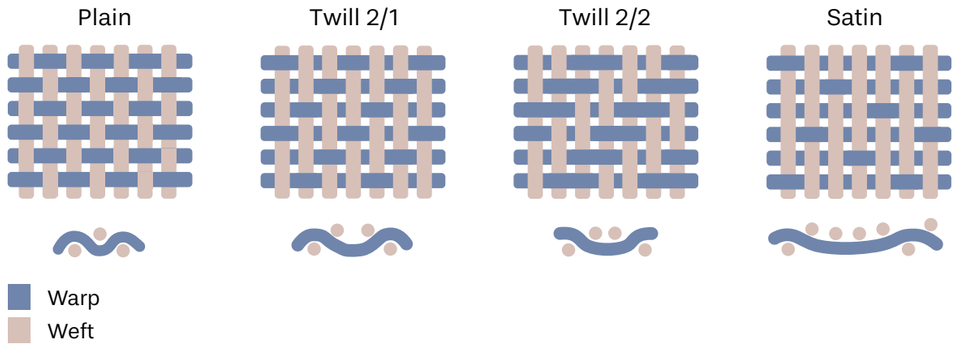
All SAATI fabrics can grant exceptional mechanical performances, and are developed to resist particularly high tension levels.

These technical fabrics have uniform mesh opening (range from 7 to 2000 µm), have a smooth surface, can be easily cleaned and are non-shredding.

Moreover, the overall screening performance and non-corroding properties make SAATImotion the ideal solution for fuel delivery and water systems.



Weave Types



SAATImotion PEEK Fabrics

Poly ether ether ketone (PEEK) is a thermoplastic semi-crystalline polymer belonging to the Polyaryletherketone (PAEK) family, characterized by outstanding properties which are maintained even at high temperature.

Thermal Properties

SAATImotion PEEK is characterized by a melting point around 320°C and a glass transition temperature around 156°C. As a result it can be used as an alternative to wire mesh for high temperature application where standard synthetic fabrics fail.

Chemical Resistance

SAATImotion PEEK fabrics show a very high chemical resistance, even in high temperature conditions. Only concentrated strong acids like sulphuric and nitric acids are capable of dissolving PEEK materials.

Mechanical Resistence

SAATImotion PEEK is characterized by a high mechanical properties, especially in terms of wear and friction resistance.

Hydrolysis Resistance

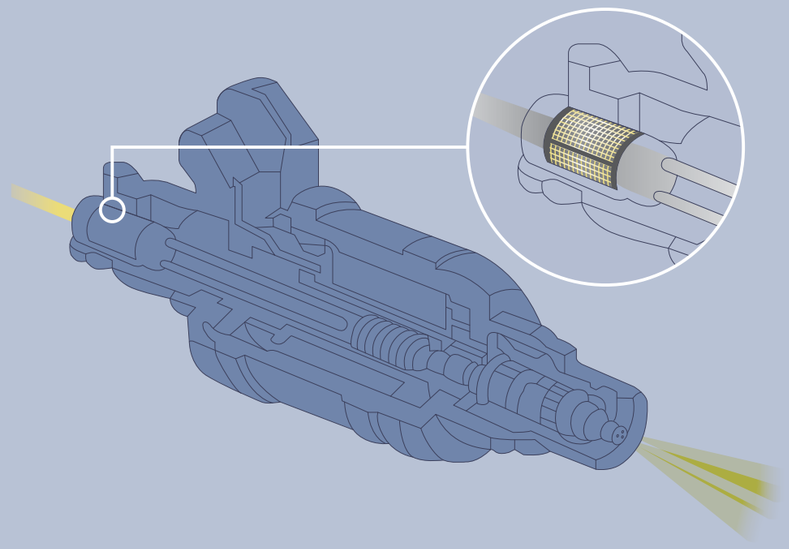
SAATImotion PEEK is suitable for applications in which a significant hydrolysis resistance is required. Steam and high pressure water do not affect fabric mechanical properties, even after a long exposure.

Attribute	PEEK	PPS	PA	PES	PP
Temperature Resistance	+++	+++	+	+	-
Chemical Resistance	+++	++	+	+	++
Dimensional Stability	+++	++	+	++	+
Gamma Radiation	+++	++	++	++	+
Flex Fatigue	++	+	+++	++	+
Abrasion Resistance	++	+	+++	+	-
Relative Tensile Strength	++	++	++	++	+
Specific Weight	++	++	++	++	+++

+++ = Excellent ++ = Good + = Fair - = Poor

Product	Mesh Opening	Open Area	Air Permeability [l/m²s @ 200Pa]
PEEK 36/24	36	24	2740
PEEK 25/13	25	13	1320

Due to these properties PEEK fabrics are ideal for filtration applications as a substitution for traditional filter media such as PA, PES, PP or Wire mesh.



Injector Filters

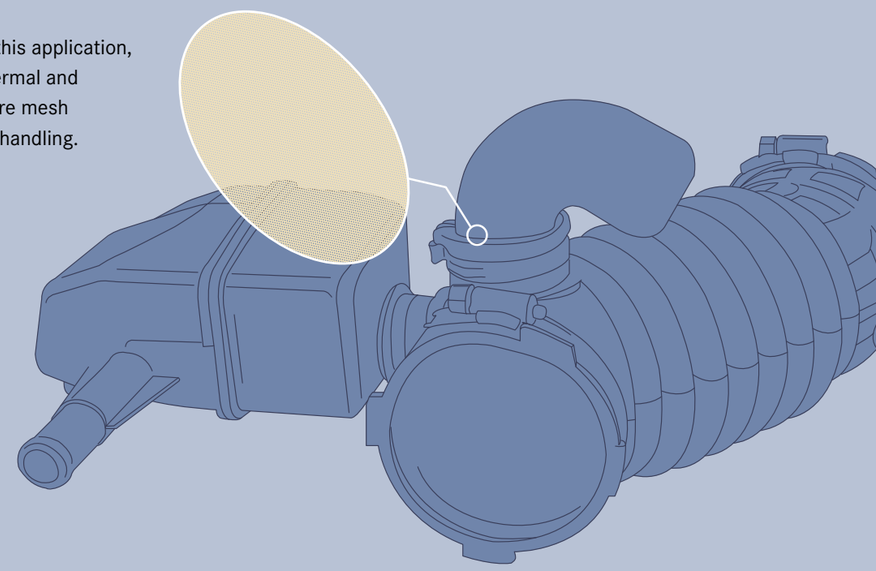
Typically injector filters are realized using PA mesh or Wire mesh. Both these solutions show potential limitations:

- Wire mesh offers high temperature and chemical resistance, however has poor fatigue resistance and requires expensive and dedicated toolings for injection molding process.
- PA mesh has the tendency to swell when in contact with hot fuels and provides poor resistance to some bio fuel blends, which could lead to component failure and damage.

PEEK fabrics are the ideal solution for this application, since they can match the chemical, thermal and mechanical resistance properties of wire mesh and retain synthetic materials' ease of handling.

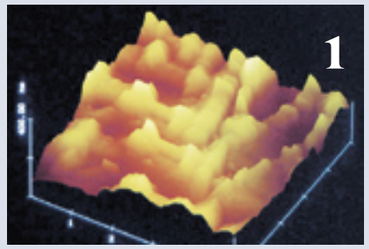
Other Applications

- Intake Resonator: PEEK provides enhanced chemical resistance to protect intake sound dampening systems even in the harshest under-hood temperatures
- Oil Filter Bypass: Typically of PA or PES media, in applications requiring extended high temp. (>150°C) exposure, SAATImotion PEEK offers continuous performance through filter life.



Surface Treatments

In addition to the deep know-how in weaving, SAATI has unsurpassed experience in surface treatments, and knows how to finish the fabrics in order to enhance their mechanical performances, or to add further functional properties. Almost any surface treatment can be applied including customers own proprietary coating.



1. **Plasma Treatments** SAATI has pioneered the use of cold plasma to modify the screen fabrics surface properties. The plasma treatment increases the fabrics hydrophilicity making it far more wettable. This also enhances the bond of subsequent coatings and plastics while leaving the undersurface properties completely unaffected. The intensity of the treatment can also be modified to meet customers unique requirements.
2. **Hydrophobic Treatments** This enables the separation of water from oil-based products such as fuels.
3. **Hydrophilic Treatments** Optimizes the wetting process of the fabric's surface in terms of speed and effectiveness.
4. **Metalization** Light, flexible polyester fabrics can be metalized with nickel, aluminum, titanium or other metals so that they reflect electromagnetic energy and dissipate static charges. Moreover the metalization enhances cosmetic features of the product itself.
5. **Dyeing** Fabrics can be dyed to virtually any color. They are used for computer anti-glare screens, fashion shoes, hand bags and racing car air filters. Food grade dyes can be used. Select one of our many standard colors or have one specially matched.
6. **Antistatic Finishing** An antistatic treatment can be applied to reduce the build-up of static charges often associated with synthetic fabrics.

   In addition to these, we can study in partnership with the customers special different treatments according to specific application, needs and required performances.

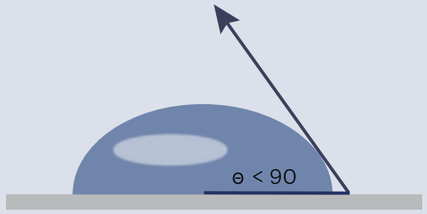
SAATImotion Hyphobe®

Water Repellent Surface Treatment

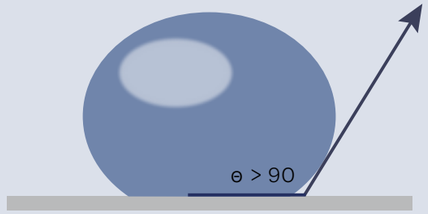
The water separation efficiency of SAATImotion filter media for the automotive industry can be increased by applying SAATImotion Hyphobe® – a customized water repellant surface treatment – that satisfies the current requirements of diesel injection systems, leading to greater water separation.

Water-repelling effectiveness is determined by the contact angle between liquid droplet and the mesh surface. A liquid drop forms into a spherical shape because of the liquid surface tension.

When the liquid drop is in contact with a surface of solid material, the shape of the drop will change according to interaction created between the liquid and the solid material.

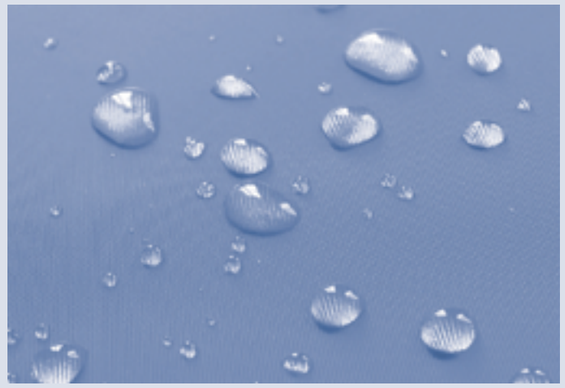


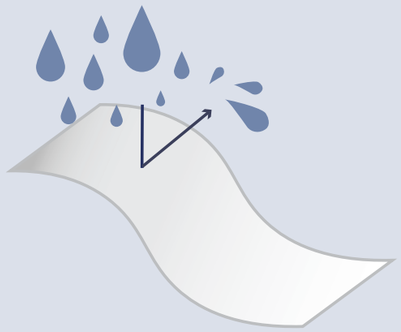
Contangle angle ϴ of a liquid drop on a standard fabric



Contangle angle ϴ of a liquid drop on a SAATImotion Hyphobe fabric

The lower the angle of contact - the higher the wettability of the material





The hydrophobic treatment protects the filter media against liquids such as water

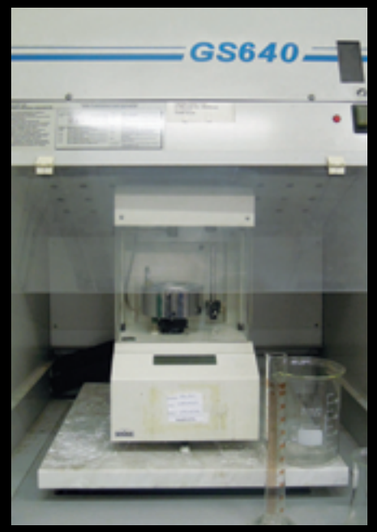
SAATImotion Hyphobe®

Main Advantages of SAATImotion Hyphobe® for Fuel/Water Separation:

- High levels of fuel filtration performance
- Low pressure drop at the filter
- Capability to capture small droplets even with fuel low interfacial tension.

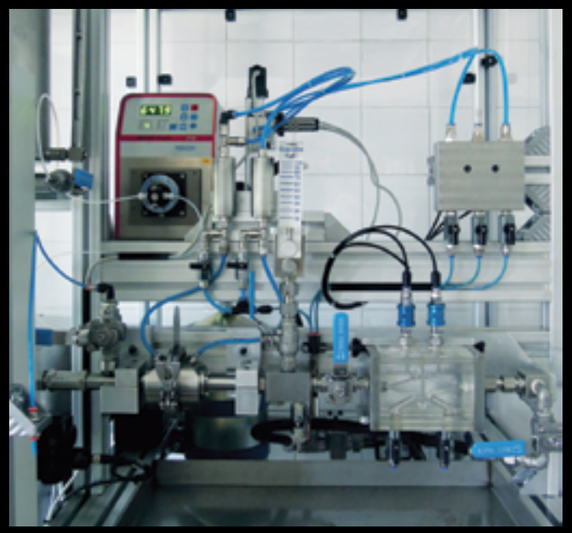
In addition to Diesel-Water separator, Hyphobe® is suitable for other automotive applications such as:

- Hydrophobic pre-filter (water separator)
- Cabin Air Filter
- Acoustic screen for Automotive Electronics (SAATIfil Acoustex®)



LAB Capabilities

ISO/TS 16332 Filtration efficiency test bench



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Fabricated Components

SAATI not only designs and produces precision woven fabrics but has the ability to engineer them into finished or partly finished products. Thanks to processing equipment and long experience, SAATI provides fabrics cut-to-fit, lot-to-lot consistency and high quality custom fabricated parts, in almost any requested shape.

Ribbon

SAATImotion fabrics can be economically slit using heat or, if a tighter tolerance and improved edge quality are needed, the fabrics can be ultrasonically slit.

Production Technology involved: Heat, Ultrasonics.

Tubes - Cut to Length

For all applications requiring molded cylindrical filters, SAATI offers fabrics tubes and rectangles with two open ends, cold or laser cut to length.

Many applications can accept the quality of a cold cut tube in view of its economic advantage.

On the contrary, if the component must have one end sealed and one end open, SAATI is able to combine the two technologies in the same process and supply tubes with one ultrasonically sealed end.

Ultrasonic technology is also applied to the realization of rectangle filters.

Production technology involved: Cold (Die-Cut), Heat, Ultrasonic.

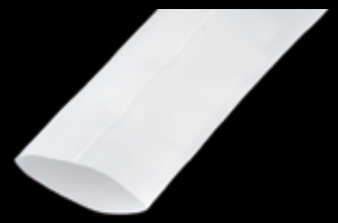
Continuous Tubes

Two layers of filter media are simultaneously slit with heated blades to form a continuous tube.

Ultrasonically welded tubular ribbons, although similar in construction to heat slit items, can be produced in a wide range of sizes, including very small ones.

Two or more narrow layers can be attached using ultrasonic slitting, a fine filtration media can be supported or protected with a coarser one.

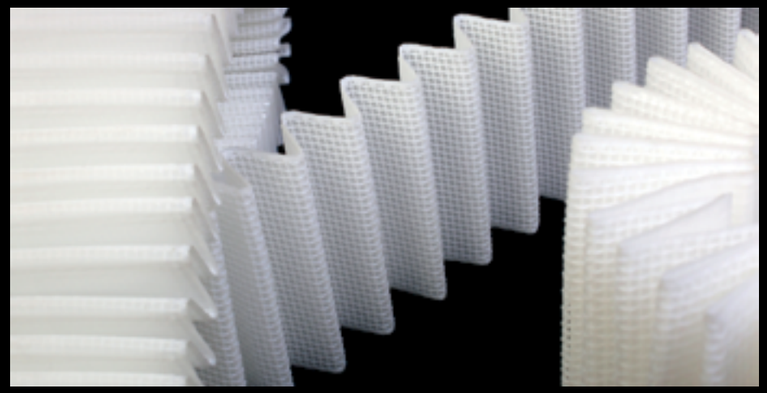
Production Technology involved: Heat, Ultrasonics.



Pleated Components

Mono or Multi-layer pleated components such as pack, ribbon and cartridges, can be manufactured for all applications requiring high filtration capacity in a narrow space.

Production technology involved: Heat And Ultrasonics.

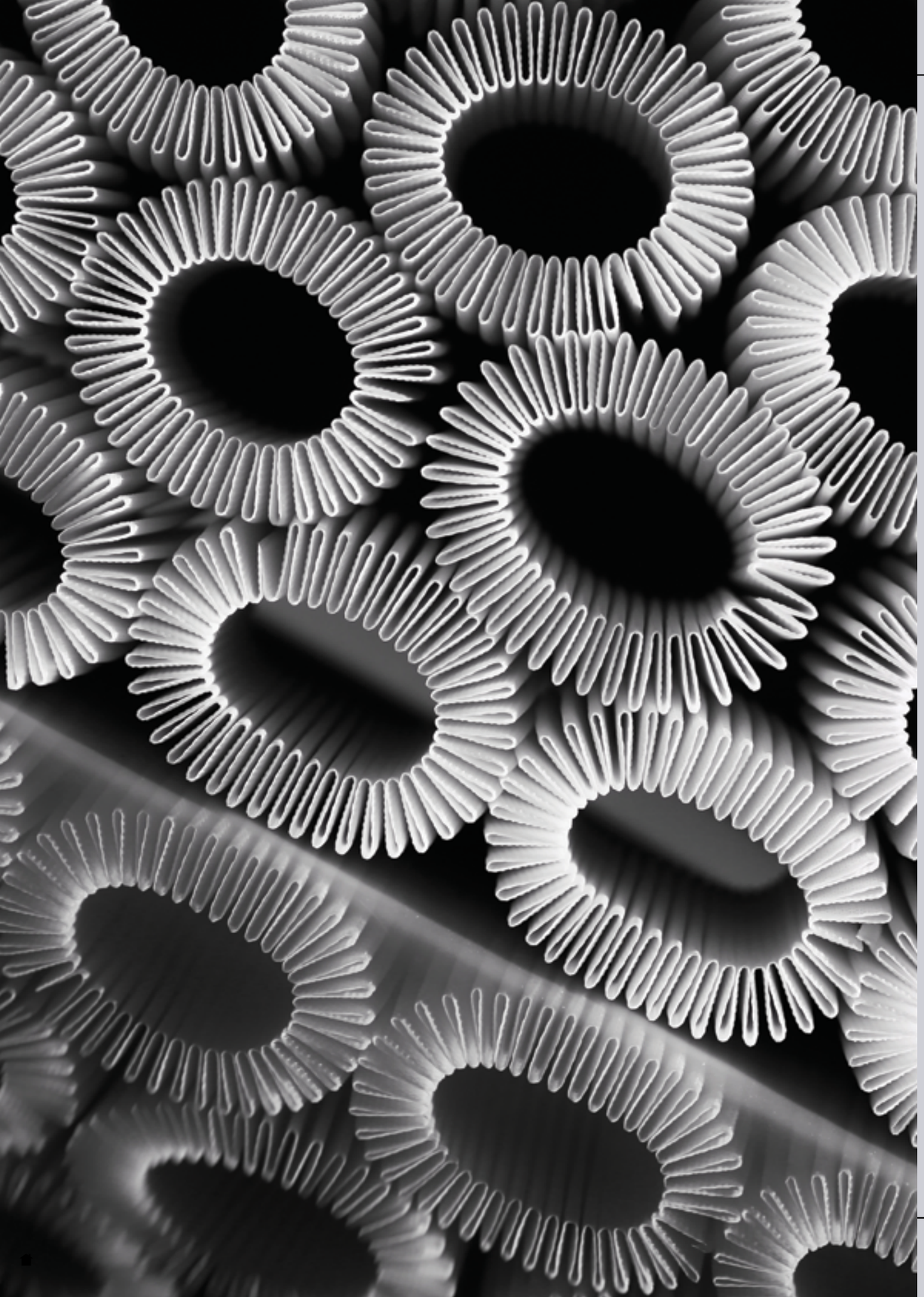


Shapes

Cold or Laser cut parts can be provided in almost any shape or size with nominal dimensional quality.

One or more layers of fabrics can be ultrasonically cut or sealed into virtually any shape using a CNC plotter, assuring a faithful reproduction of design.

Production Technology involved: Cold (Die-Cut), Ultrasonics, Laser.



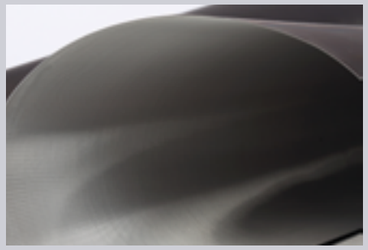
Lamination Capabilities

Laminated Fabrics

SAATI is able to laminate different combination of products for every filtration need:

Woven Fabric + Woven Fabric

- Progressive filtration
- Combination with different functionality
- High protection from dust and metal particles
- Strict airflow control
- Possibility to have Hyphobe® coating for water and oil repellency
- Aesthetic solution



Woven Fabric + Non-Woven

- High dust holding capacity
- Pre-filtration function
- Protection against heavy particles
- Stiffness and good workability
- Combination of different polymers

Interactive Product Index

Notes

Take notes before you contact your Local SAATI rep

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SAATI is Social

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