



METVX[®]

**AUTOMOTIVE &
TRANSPORTATION**

www.metyx.com

ABOUT US



FROM DESIGN TO SERIAL PRODUCTION...

METYX is a leading global supplier of multiaxial, RTM, woven, vacuum infusion, vacuum bagging, surface veils reinforcements, plug and mold production, design, lab and engineering, core materials kitting and fabric kitting services as well a local distributor of world-renowned resins, adhesives, chemicals, core materials, equipment, and consumables.

Over 20 years' experience in the composites...

METYX is an ideal solution partner from small to large-scale composites applications for wind energy, marine, automotive, infrastructure, industrial, leisure, and many other industries demanding high standards, know-how and creativity.

For all your needs in composites METYX is here for you!

An impressive portfolio of products and services enables METYX to offer the most complete composite solution on the market. Consult with METYX engineers for your specific needs to speed up your production, reduce the weight, increase the efficiency and/or the performance, and eventually decrease your production costs.

Committed to its partners around the world

METYX is represented in more than 30 countries around the world through distributors, producing at its six state-of-art production facilities in Turkey, Hungary and USA.

“Our focus is always on our customers' needs. This is why we continue to invest in people and in new technologies to meet demands and exceed expectations. At the end, it is all about being able to offer all composite solutions under one roof.”

Mr. Ugur Ustunel

METYX Group CEO



Photo Courtesy of POLKIMA

Products & Services for Automotive & Transportation

METYX supplies the transportation industry from passenger cars to buses and rail and offers the benefits of lightweight and durable composites, that are realized for fuel savings and design and manufacturing efficiencies across the transportation spectrum.

Materials

Range of products covers all reinforcement needs

Fabrics suitable for all processes; closed molding, infusion, pultrusion and RTM/L-RTM

Hi-tech state-of-the-art fabrics:

- Fulfill design requirements/ material specifications
- Special fabrics developed for special needs (e.g. areal weight range, surface)
- E-glass, H-glass and aramid carbon fiber based unidirectional (UD), biaxial, triaxial, Combi Mat & hybrid multiaxial and woven, webbed carbon woven fabrics - thermoplastic coated, thermoformable, high drapeability fabrics.
- Adaptation of materials to production process which means reduced cycle time and a better State-of-the-Art production
- In-house manufactured vacuum infusion, vacuum bagging consumables - peel plies, breather fabrics and flow meshes.
- METYCORE, METYCORE MAX and FS (Fire Shield) RTM reinforcements

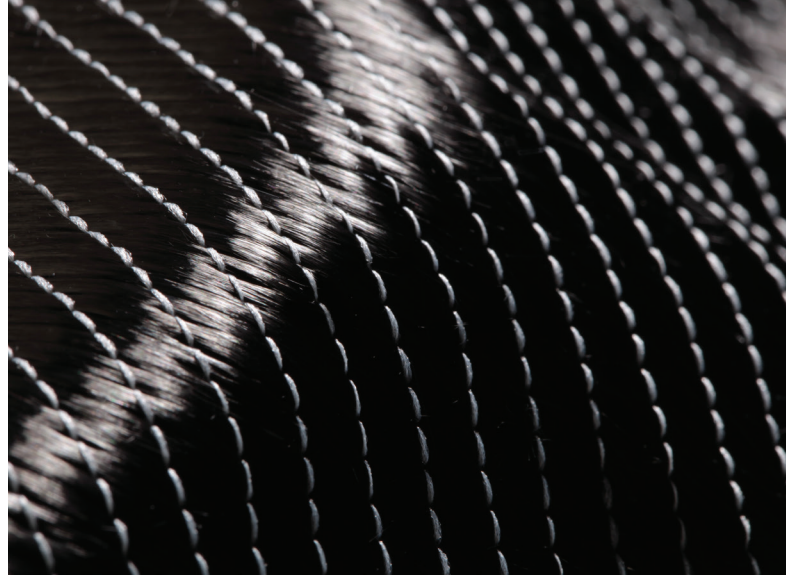
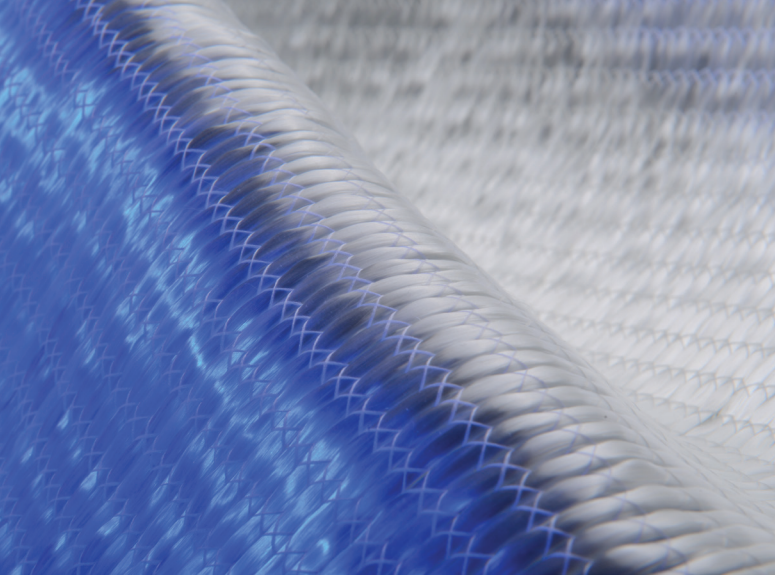
Complete Package

20+ years of experience in composite business with global players

Selection and delivery of suitable high-quality fabrics

- Kitting services for fabrics, cores (PVC, PET and balsa) and vacuum consumables.
- Engineering, tooling, prototype production, training
- Consulting service for technical problems
- Technical help on site with experienced engineers
- Process improvement (consulting, automation, customization)
- Coating technology and METYBOND (Woven or Non Crimped Fabrics products coated with e-glass, carbon and aramid with special adhesive.)
- Bought-in products from approved suppliers for Turkish market: Continuous filament mats (CFM); release agents; vacuum bagging consumables; bonding pastes and adhesives; resins and gel coats, sheet wax products.

“From design to serial production one - stop shop for all your needs in composites.”



Increase productivity, minimize costs and improve product quality with METYX non-crimp costs

For lightweight designs, standard and custom made E-glass and lower density 'hollow' H-glass, carbon fiber multiaxial fabrics are used in structural components in the bodywork, doors, rear bulkheads and B-pillars as well as in rims, wind deflectors, driver's cabs, suspension elements and superstructures at the passenger cars.

Carbon non-crimp fabrics are also driving e-mobility forward. They serve to protect the batteries, reduce weight and impress with high energy efficiency. The lowest possible weight in combination with a longer battery range is an important milestone on the road to electromobility.

Woven Fabric Reinforcements

METYX woven fabrics are made by interweaving continuous fiber rovings to produce biaxial fabrics that can be used with most resin systems. Woven fabrics are typically used to increase the flexural and impact strength of a laminate.

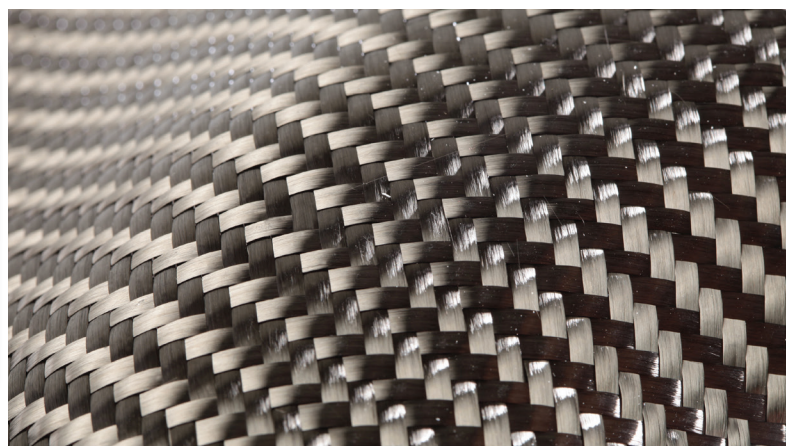
Product Range: Woven fabrics in sizes up to 350 cm wide (100 gr/m² - 1,200 gr/m²)

Webbed Carbon Fabrics

METYX 'webbed' carbon fiber woven fabrics combine higher mechanical performance with key processing benefits to meet the high productivity needs of automotive and transportation manufacturers. A thermoplastic web coating, which is varied according to the fabric areal weight, is uniformly applied to the woven fabric surface.

The webbing improves resin flow, makes the fabric less prone to deforming during dry lay-up and stabilizes the carbon fibers during the cutting process, so providing clean cut 'fringe free' fabric edges. Webbed carbon fabrics also have very good drapeability and can be thermoformed into preforms.

Our carbon fiber is used in such products where lightweight and strength are essential to achieving high performance, significant weight reduction and increased fuel efficiency or driving range.





Vacuum Consumables & Bought-in Products

METYX manufactures a range of peel ply, flow mesh, and breather fabric vacuum consumables, supplied in bulk, on a roll, or as cut to size kits, as well as sourcing a wide range of bought-in products regularly needed by automotive industry. The range of high quality materials, infusion consumables and ancillary manufacturing products sourced from global leading suppliers such as for Turkish market Composite Integration, Scott Bader, Axel, Westlake etc. including 3B continuous filament mats (CFM), vacuum leak detectors, vacuum bagging consumables, core materials, mold release agents, JM surface veils, adhesives, resins and gel coats, hardeners, sheet wax products, vacuum pumps, resin transfer molding and resin infusion injection machines.



For high drapeability and excellent resin flow: METYCORE RTM Reinforcements

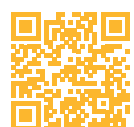
METYCORE - Triple layered chopped strand mat (CSM) glass and polypropylene (PP) fabric, available from 150M/125PP/150M up to 1200M/250PP/1200M. Stitched mat, surface veil, biaxial skin and lighter core options are offered.

METYCOREMAX - an engineered core between two layers of CSM glass fabric. A sandwich reinforcement product developed for easier closed molding of larger FRP parts and to reinforce highly filled resin systems.

METYCORE FS and **METYCORE MAX FS (Fire Shield)** are halogen free products, providing molders all the advantages of the existing Metycore range, plus fire retardancy properties to help meet rail passenger fire protection standards for rolling stock with respect to fire propagation, smoke formation and toxic fumes.

METYCORE FS has been independently assessed by the DAkkS accredited Brandhaus Rhein-Main test laboratory and passed: EN 45545-2 (02-2016); flame spread according to ISO 5658-2 (09-2006); heat release rate according to ISO 5660-1 (03-2015); smoke development according to DIN EN ISO 5659-2 (03.2013); toxicity according to DIN EN 45545-2 Annex C (02-2016).

Please see the catalogue for a full range of METYX products & services.





METYX Slicing & Kitting Services

A customized slicing and kit cutting service is provided for a wide range of cores, fabrics and vacuum consumables. Installed equipment includes 'state-of-the-art' 5-axis CNC processing centers for kitting, plus high productivity slicing machines, which rapidly cut to size foam block materials.

Core Material Kitting & Special Finishing

The kitting services cost effectively machine all foam core materials including PET and PVC. Finishing options include: grooved, perforated, scrim fabric applied, single/ double contoured or custom combinations. Kits are cut, shaped, and preformed as needed to the highest levels of accuracy, supplied with full traceability.

Fabrics & Vacuum Consumable Kitting

A kitting service is also offered for the complete range of METYX technical fabrics and vacuum consumables such as peel ply, flow mesh, and breather fabrics.





METYX Tooling Services

METYX offers fully integrated and highly specialized mold and plug solutions in short lead times and at very affordable prices worldwide. The METYX Tooling team has prime engineering expertise in producing large-scale composite plugs and molds exactly customized to the customers specifications. Single and multi-split, FRP molds are produced for: hand lay, spray up, RTM, and infusion processes. While standard master plugs are designed and manufactured in-house using an epoxy tooling paste, FRP molds are produced from high quality, surface defect free master plugs.

Key METYX Master Plug Features

- Expertise in machining tooling board, PU and Epoxy paste plug making materials
- Shape stability, with 5-axis CNC milled accuracy and finish,
- Large plug production capabilities - up to 10m x 6.2m x 4m
- High gloss polished surface finish – no imperfections,
- Tested to ensure no vacuum leaks,
- Modular production of single or multi sectioned plugs,
- Integrated plug heaters can be specified.

Key METYX FRP Mold Tool Features

- Only quality UPR / VE / Epoxy tooling materials are used for high durability
- Mold shell supports as needed for tool life
- Excellent part production repeatability
- Water based heating system options
- Laser scanning
- QC documentation
- Mold commissioning

“METYX cost effectively provides complete composite tooling solution from concept to delivery.”

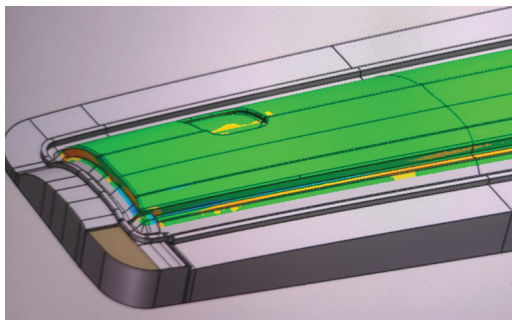
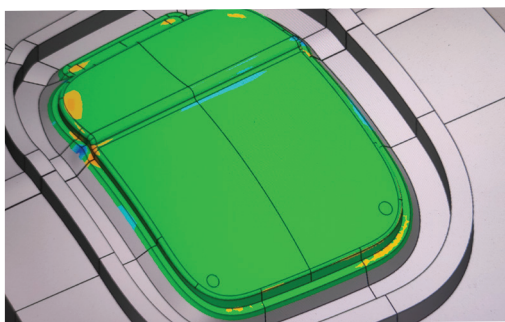




Photo Courtesy of VOLKAN

Specialist Injection Equipment & Silicone Mold Making Partners

Closed mold injection equipment: METYX can provide technical assistance with requirements for closed mold injection equipment such as: vacuum pumps, resin transfer molding and resin infusion injection machines. METYX works in close partnership with UK based Composite Integration Ltd., an innovative, world leading RTM and infusion technology design and injection equipment manufacturing company.

Silicone mold making: METYX provides technical support and complete systems for silicone mold making. Specialist spray equipment, silicone materials and consumables are sourced from Silicone Composites Ltd., which is a partner company with Composites Integration Ltd for Turkish market.

Silicone Composites' practical knowhow about silicone processing coupled with Composite Integration's skills in designing and building world-class equipment provides unparalleled molding making products and expertise.

For the rail sector, METYX has fire approved reinforcements which meet the EN 45545-2 rolling stock fire, smoke and toxic fumes (FST) standard. METYX Fire Shield (FS) products are globally used by leading manufacturers to cost effectively mold fire rated FRP parts for trams, subway and overground trains.



Photo Courtesy of SAZCILAR

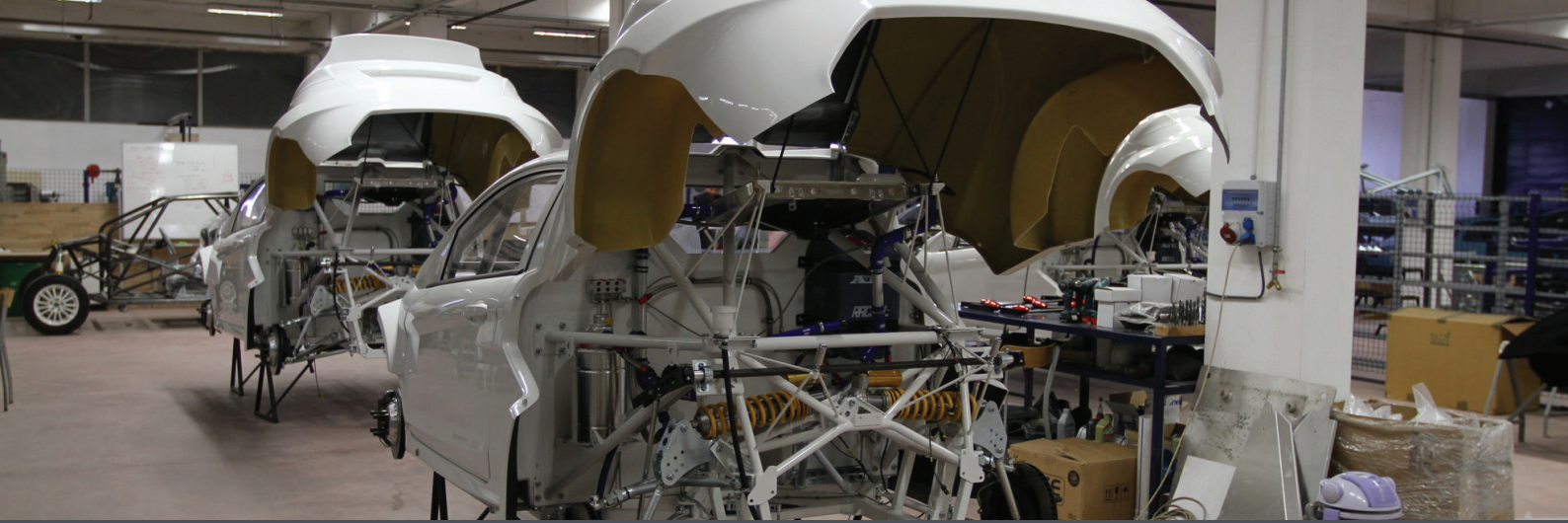


Photo Courtesy of AVİTAŞ

Engineering Services & Support

METYX offers engineering support using the very latest design and production software to customers in all industrial market sectors, including wind energy. Services provided include: laminate design and engineering (FEA), process engineering support; rapid prototyping; tooling consultancy.

Laboratory & Testing Services

METYX offers extensive laboratory and rapid response testing services to wind customers. METYX laboratory specialists have expertise in hand lay-up, vacuum infusion, pultrusion, compression molding and laboratory scale production of composite laminates. Capabilities include permeability tests, textile testing, laminate and base materials testing to provide key physical, thermal and mechanical property data.



Supporting Future Engineering Talent

METYX annually sponsors engineering university concept vehicle projects, providing materials and technical advice to student teams to help turn design ideas into reality. METYX strongly believes that supporting engineering student projects increases their understanding of composite materials, to help secure a better future for the industry.



ISTANBUL UNIVERSITY MILAT 1453 TEAM



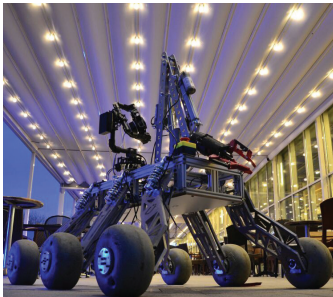
ULUDAG UNI. MACHINERY COMMUNITY



KARABUK UNIVERSITY KARVOLT TEAM



CUKUROVA UNI. ELECTROMOBILE TEAM



ISTANBUL UNIVERSITY MILAT 1453 TEAM



KARADENIZ UNI. KTECH TEAMCOMMUNITY



AYDIN UNIVERSITY



CUKUROVA UNI. ELECTROMOBILE TEAM



YILDIZ UNIVERSITY AESK CLUB



MIDDLE EAST TECH. UNI. COMMUNITY



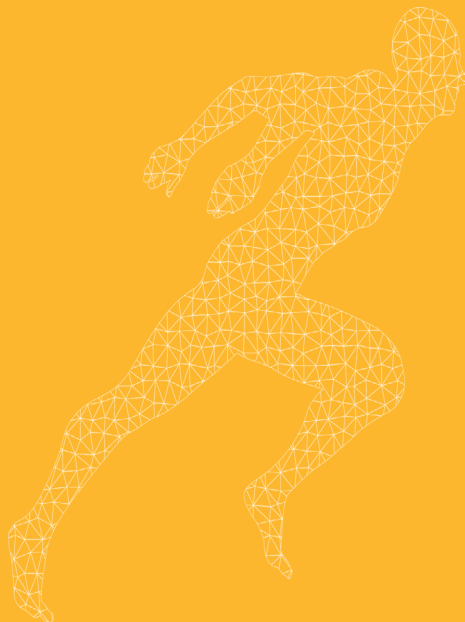
YILDIZ UNIVERSITY AESK CLUB



CUKUROVA UNI. ELECTROMOBILE TEAM

High Performance

- Experienced production team
- Flexible solutions
- Customized service upon customer demands
- Innovative solutions; coating technology and METYBOND
- Wide product range
- High quality control with high technologies such as metal dedector, sensors, c type needle sensor
- Focus on operational excellence
- Technical support even after sales
- Production under strict environmental production policies



Quality Systems

METYX has ISO 9001 Quality, ISO 14001 Environmental and ISO 45001 Occupational Health and Safety Management Systems as well as ISO/IEC 27001 certifications. These standards ensure that all products and services are consistently provided to the very highest quality standards. Ongoing investments are made in latest technologies available to ensure quality standards are maintained. Quality is a driving feature of our company values. METYX has gained a variety of independent accreditations and certifications needed to serve global OEMs over the years.



Sustainability



Businesses have an important role to play in protecting the planet as global economy drivers. We have a responsibility to ensure natural resources such as water and energy, and the ecosystems that depend on them for operations are used carefully so future generations have access to a clean planet. METYX is at the cutting edge of the rapid adaptation and innovative solutions needed to mobilize employees and customers to drive change. METYX is fully aware that it has great influence over what and how products are made, as well as on choosing suppliers and how and where the products are marketed. In acknowledging both impact and responsibility, the company has embraced sustainability principles and set high goals to meet carbon neutral requirements to serve global OEMs over the years.

METY CALC
composite
calculator **+** **-** **×** **÷**

CALCULATE

physical, mechanical and cost of fiber/matrix
composite constructions



20
YEARS
IN COMPOSITES

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