METYX®

WIND ENERGY

www.metyx.com


Photo Courtesy of TPI Composites


Photo Courtesy of LM Windpower

METYX®

ABOUT US

FROM DESIGN TO SERIAL PRODUCTION...

METYX is a leading global supplier of multiaxial, RTM, woven, vacuum bagging, vacuum infusion, surface veils reinforcements, plug and mold production, design, lab and engineering, core and fabric kitting services as well 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.

METYX has strategic supply chain partnership agreements with key wind energy customers to ensure that a highly responsive, reliable delivery and logistics service is provided. Key stockholding and reordering is provided to strategic customers for the key materials regularly needed for manufacturing composite wind turbine blades and other components, with a tailored logistics supply chain service.

"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 LM Windpower

Wind Energy: Rotor Blades and Nacelles

All composites needs for wind turbine blade manufacturers.

For over two decades, METYX has been a trusted partner in wind turbine blade production across the globe. With a deep understanding of composite materials, our expertise is focused on meeting the demands of our clients while continually improving our processes, production capacity, product range, and environmental standards.

As wind turbine blades become larger and more complex, the need for advanced materials and manufacturing processes continues to grow.

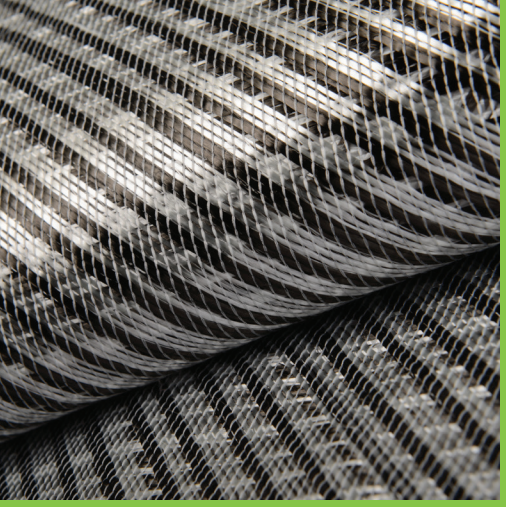
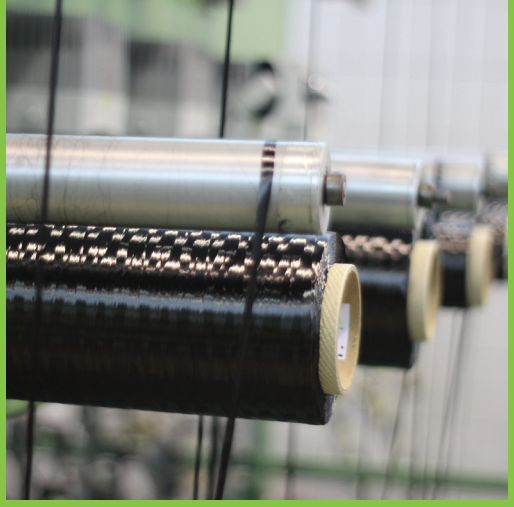
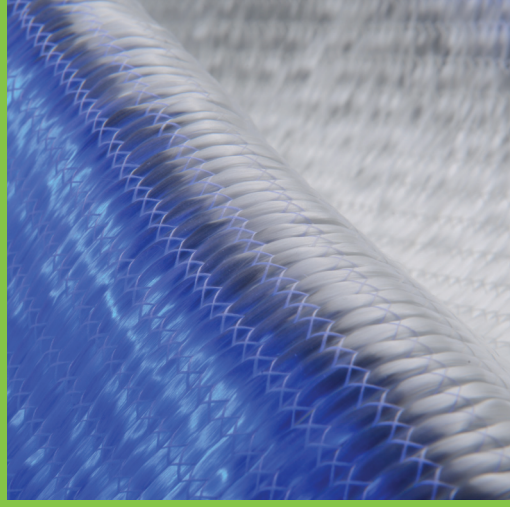
METYX is committed to investing in the latest technologies to ensure that our products meet the highest quality standards, whether for infusion, prepreg, or pultrusion manufacturing processes.

The extensive range of METYX products and services provided for wind turbine manufacturers includes:

- Eglass, H-glass and carbon fiber based unidirectional (UD), biaxial and triaxial multiaxial standard & custom made fabrics
- In-house manufactured vacuum infusion consumables - peel plies, breather fabrics and flow meshes
- Kitting services for fabrics, cores (PVC, PET and balsa) and vacuum consumables
- Composite tooling design and fabrication (plugs and molds)
- Engineering and production processing technical support
- Prototyping and GL laboratory testing services
- Pultrusion plank
- 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), vacuum leak detectors, vacuum bagging materials, balsa and foam cores, mold release agents, surface veils, structural adhesives, resins and hardeners, gel coats, sheet wax products

"METYX serves wind turbine blade manufacturers with complete offerings from fabric to plug and mold production!"

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

Non crimp fabrics for cost effective wind turbinemanufacturers: Adaptation to evolved blades

METYX DNV-GL certified and high quality non-crimp fabrics, e-glass, h-glass and carbon, are used to reinforce the shear webs, spar caps and blade shells, root segments, nacelles and spinners of wind turbine rotor blades. These UD and multiaxial reinforcements are made up of multiple plies of parallel fibers, each lying in a different orientation or axis that allows customers to process multiple layers of unidirectional fibers in a single fabric.

Superior mechanical performance for longer wind blades

To meet the increasing requirements of rotor blades with longer blade lengths of OEMs, METYX delivers superior mechanical performance in highly loaded structures which also demands a high withstanding the stress and is able to answer longer and lighter wind blade design needs.

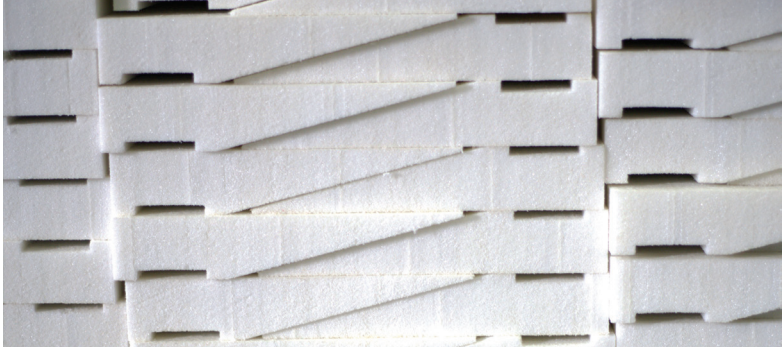
Vacuum Consumables & Bought-in Products

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 wind energy customers manufacturing FRP parts.

The range of high quality materials, infusion consumables and ancillary manufacturing products sourced from global leading suppliers for such as Turkish market Composite Integration, Scott Bader, Axel, Westlake etc. including vacuum pumps, resin transfer molding and resin infusion injection machines, vacuum leak detectors, vacuum bagging consumables, core materials, mold release agents, JM surface veils, adhesives, resins and hardeners, gel coats, sheet wax products.

"METYX strength lies in tailor-made products in order to enhance production processes."

Photo Courtesy of ENERCON



Ready-to-Use Kits for Production Efficiency

METYX helps increase and optimize production capacity by reducing cost of materials and process time by offering ready to use kits, integrated into the manufacturing process of OEMs. All kit designs are fully evaluated by experienced METYX engineers that have the competence, flexibility and agility to support you flexibility throughout the entire process from choice of core, to finishing and kitting and eventually to provide a complete "total cost" solution.

Kits from balsa or foam core materials (PET, PVC) are cut, shaped, and preformed as needed to the highest levels of accuracy, supplied with full traceability. Core material finishing options or finish combinations include: grooved, perforated, scrim fabric applied, and single or double contoured. Installed equipment includes a high productivity slicing machine, which can very rapidly cut to size PVC and PET foam block material.

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. To minimize waste and reduce cost, the largest CNC kit cutting machines, able to handle fabrics up to 3.5 m wide, are used for large order.

Building know-how on long-lasting relationships with OEMs!

Tooling: Mold & Plug Solutions

METYX offers fully integrated and highly specialized mold and plug solutions in short lead times and at very affordable prices worldwide from Turkey and Hungary production plants. The comprehensive offering comprises development and production of master plugs (pattern), molds to related products and services such as wind blade mold heating systems, wind blade mould automation systems, as well as installation services and transport systems for wind turbine blades and tower elements.

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.

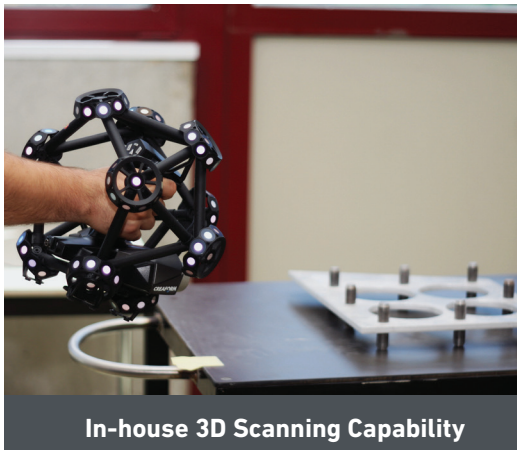
"METYX cost effectively provides complete composite tooling solution from concept to delivery."

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



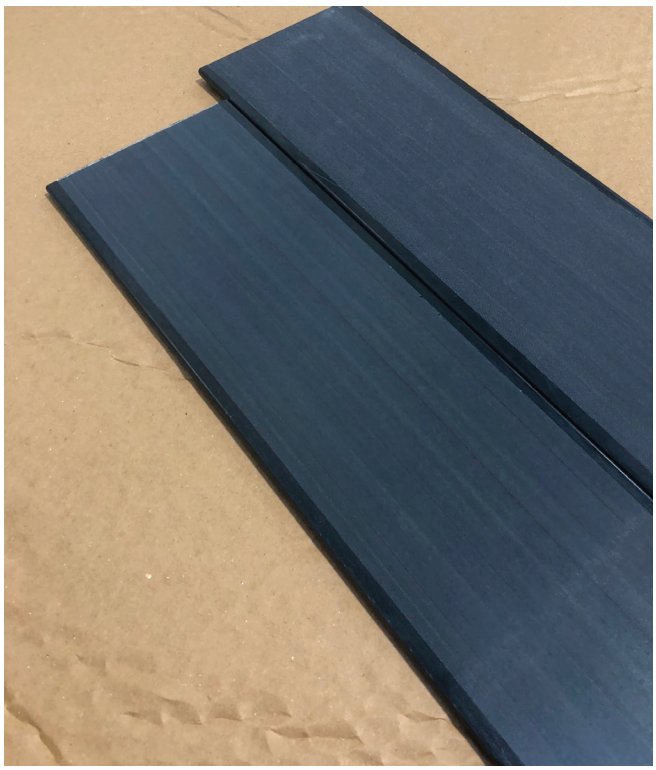
In-house 3D Scanning Capability

Pultrusion

METYX has recently added pultruded planks to its product range in order to meet the OEMs one-stop shop expectation from the company. These planks are made of carbon fiber and an epoxy matrix system and are used in the spar cap of wind turbine rotor blades. It is also planning to produce with polyurethane system.

METYX having the capability for different resin systems such as PU injection and EP matrix systems with the expertise on the carbon and glass fiber materials.

The company offers a wide range of carbon, e-glass, or hybrid NCF solutions for different applications thus. Carbon pultruded plank offers a one step forward solution to fulfil the customer's needs.



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 permability tests, textile testing, laminate and base materials testing to provide key physical, thermal and mechanical property data.

From design to serial production...

METYX reverse engineering; rapid prototyping; tooling know-how support the industry in terms of design and meet the specific requirements. No matter what the turbine design, the end goal is always the same: make wind energy more cost efficient and this is what METYX presents; one stop shop for all composite needs in wind energy.

Photo Courtesy of TPI Composites

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 the latest technologies available to ensure quality standards are maintained. Achieving the highest levels of quality is a core business value in our organization . METYX has gained a variety of independent accreditations and certifications needed to serve global OEMs over the years.

PROKS CERTIFICATION ISO/IEC 27001

TÜV NORD

TÜV NORD CERT GmbH

ISO 9001 / ISO 14001 / ISO 45001

"METYX is a strong, long-established and reputable global supplier, delivering solutions to the highest quality and customer service standards."

METY CALC composite calculator

CALCULATE

physical, mechanical and cost of fiber/matrix composite constructions

Sustainability Policies

Businesses have an important role to play in protecting the planet as global economy drivers and 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 also 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 materials are produced as well as on choosing suppliers and how and where our products are marketed. In acknowledging both impact and responsibility, the company embraces sustainability principles and consistently sets high goals to meet carbon neutral requirements.

METYX®

20 YEARS
IN COMPOSITES

Istanbul Factory
Orhanli Mah.
Gulsum Sok.
No:14 34956 Tuzla
Istanbul/ TÜRKİYE
Tel: +90 216 394 32 60
Fax: +90 216 394 32 58

Manisa Factory 1
MOSB 1.Kisim
Malazgirt Cad.
No:2 45030 Yunusemre
Manisa/TÜRKİYE
Tel: +90 236 302 04 04
Fax: +90 236 302 04 05

Manisa Factory 2
Kecilikoy OSB Mah.
Cumhuriyet Cad.
No:3 45030 Yunusemre
Manisa/TÜRKİYE
Tel: +90 236 302 04 04
Fax: +90 236 302 04 05

USA Factory
2504 Lowell Road
Gastonia
NC 28054
USA
Tel: +1 (704) 824-1030
Fax: +1 (704) 824-1031

Hungary Factory
H-7400 Kaposvár,
Dombóvári
út 3657/135ww. hrsz.
HUNGARY
Tel: +36 82 510 126
Fax: +36 82 510 127

Logistic Center Mustafa Capra Mah. Kecilikoy OSB Apt. No:15/1 Yunusemre Manisa/TURKEY Tel: +90 236 302 04 04 Fax: +90 236 302 04 05

www.metyx.com | **info@metyx.com**