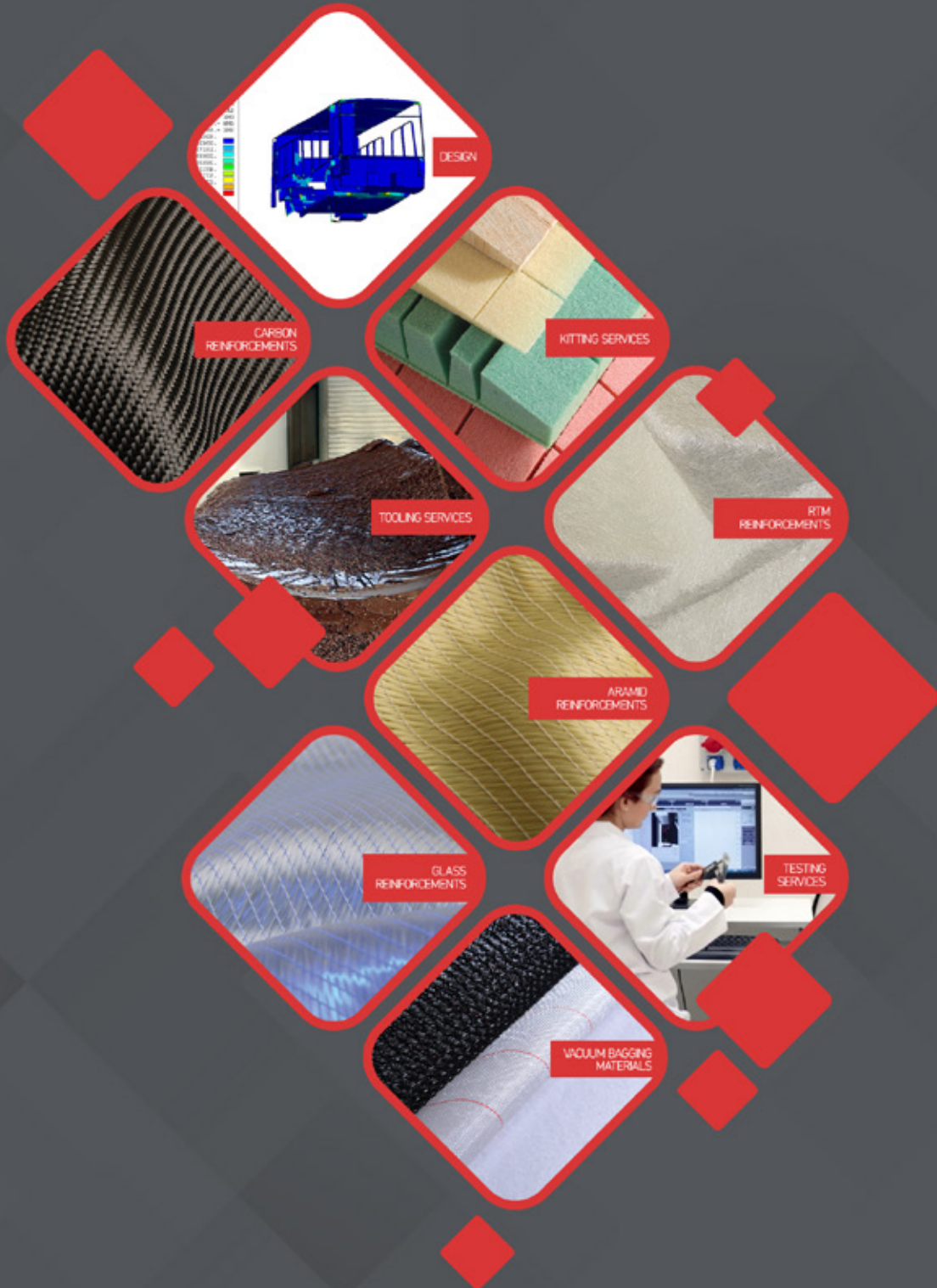


# METEX<sup>®</sup>

c o m p o s i t e s

STRENGTH. SUPPORT. SOLUTIONS.

FROM DESIGN TO SERIAL PRODUCTION  
YOUR GLOBAL SOLUTION PARTNER



# 01 ABOUT US



## FROM DESIGN TO SERIAL PRODUCTION...

METYX Composites is a leading global supplier of multiaxial, RTM, woven, vacuum bagging, 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 80 years' experience in the textile industry; the last two decades in technical textile and composites...*

METYX Composites 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 Composites to offer the most complete composite solution on the market. Consult with METYX Composites 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.

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

– Mr. Ugur Ustunel, CEO

### Committed to its partners around the world

METYX Composites is represented in more than 30 countries around the world through distributors, producing 24/7/365 at its four state-of-art production facilities in Turkey, Hungary and USA.

**We are aware that being a partner is different from just being a supplier, it requires a reliability, innovation, early problem solving and guidance.**

METYX Composites is a highly responsive 'Solutions Partner', offering customers a full package of products and services, with reliable quality and delivery, effectively combining the strength of its production capabilities with its technical expertise to support its customers and deliver added value solutions.



**Museum of Future**  
Courtesy Photo of Advanced Fiberglass Industries L.L.C.

METYX Composites combines the strength of its production capabilities with its technical expertise to deliver added value solutions.



### APPROVED AND CERTIFIED QUALITY

All the production sites are run by accordingly ISO 9001 Quality, ISO 14001 Environmental, ISO 45001 Occupational Health and Safety Management Systems and ISO/IEC 27001 standards to ensure the highest quality reinforcements and most reliable end products. This important certification enables the company to serve global suppliers in the demanding wind industries and automotive, among other accounts. Other than that, METYX Composites has also technical certifications, including DNV and Lloyds Register. Virtually the whole range has been approved by world renowned industry certification bodies. All technical textiles are certified in weight range and fiber type, including glass, aramid, carbon, hybrids and fabric forms – in woven and non-woven forms. Shipbuilders, designers, and production managers should have confidence in quality of METYX Composites technical textiles to enhance their production.





## PRODUCTION AT FOUR SITES IN THE WORLD

METYX started to produce multiaxial reinforcements at its Tuzla, Istanbul factory in 2003.

The company was already an industry leader and well-known brand in Turkey and also in the world for its interlining production. Since then, METYX Composites has used its knitting expertise to develop and produce technical textiles using e-glass, h-glass, carbon and aramid fibers and by 2005, METYX Composites operated over 4000 sqm of facilities.

In 2011, the company doubled its sites in Turkey by acquiring its Manisa facility. Manisa was specifically

chosen for its strategic location; it was closer to wind blade manufacturers production sites that the company was aiming to grow in that industry.

Consequently, in 2013, METYX Hungary was acquired due to its logistical advantage and also its warehousing and potential capabilities by being former composite bus production facility owned by NABI. (North American Bus Industries)

Finally with the acquisition of US facility (Gastonia, NC) METYX Composites, has been able to offer its wide range of products and services to USA and Canada.

	 TR IST 1940	 TR MNS 2011	 HU KPS 2013	 US GST 2018
Technical Textile	■	■	■	■
Core Kit		■	■	■
Glass / Preform Kit		■	■	■
Plug & Mold		■	■	
Composite		■	■	



### PRODUCTS

- Multiaxial Product Group
- RTM Product Group
- Others

- Woven Fabrics
- Surface Veil Product Group
- Vacuum Bagging Products

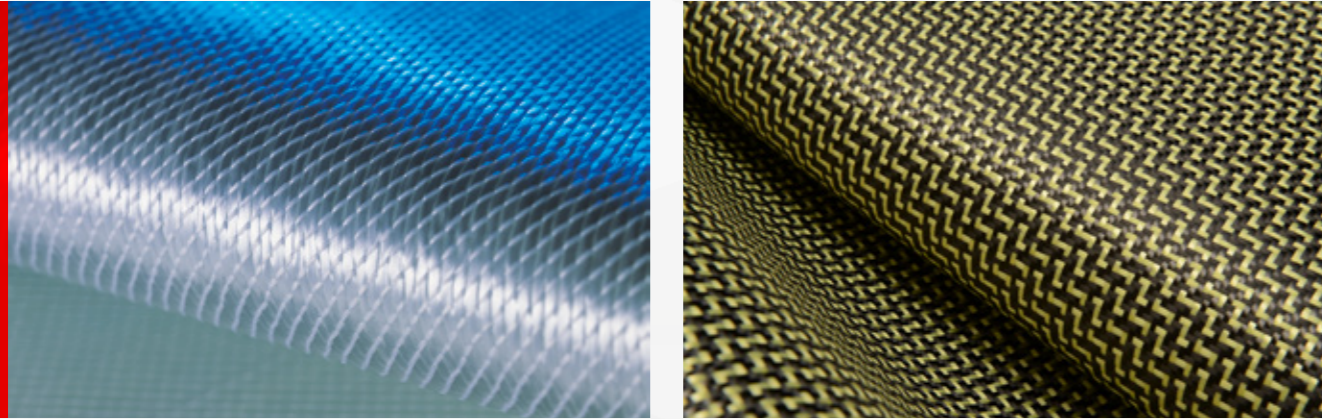
### SERVICES

- Core Materials and Fabric Kitting
- Tooling Services
- Others

- Testing and Consulting Services
- Trainings
- Distribution



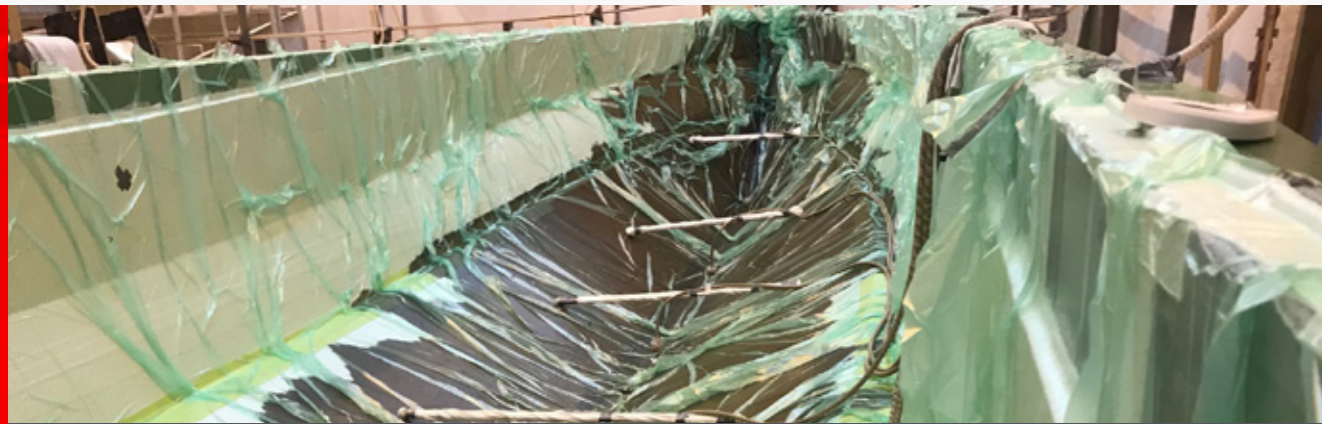
# 02 PRODUCTS



## MULTIAXIAL (NON-CRIMP) REINFORCEMENTS (E-GLASS / CARBON / ARAMID / HYBRID)

High performance multi-axial reinforcements are engineered fabrics consisting of one or more layers of unidirectional fibers. These layers are held in place by a non-structural stitching thread, which is generally a polyester yarn. METYX Composites offers a range of fabrics made of glass, carbon and aramid as well as hybrid fibers. They all can be tailor made solution that can be adapted to various production methods such as vacuum infusion, RTM, pultrusion, prepreg, hand-lay.

**Product Range:** Unidirectional, Biaxial, Triaxial, Quadraaxial, Combi Mats

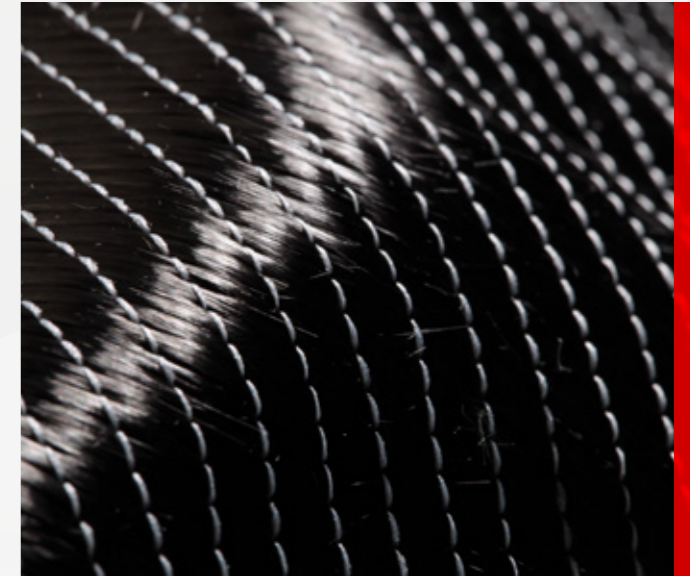


Courtesy photo of Swedeship,  
METYX Composites provided e-glass fabric for the project that fit perfectly with vacuum infusion.

## CARBON REINFORCEMENTS

METYX Composites is a reliable long-term supply partner for the top quality carbon fabrics. The multi-axial and woven carbon fabrics produced, provide superior strength and lightweight properties needed for high-performance end use CFRP applications. Standard fabrics and tapes, as well as spread tow and customized solutions to meet specific needs are supplied to order.

**Product Range:** Unidirectional, biaxial, triaxial, quadraaxial, wovens, hybrids (in the standard and spreaded forms)



*METYX Composites multi-axial and woven carbon fabrics deliver the superior strength, lightweight properties, and speed your high-end applications require. We are your reliable, long-term source for top quality carbon fabrics and customized solutions.*







**RTM REINFORCEMENTS**

METYX Composites produces the world’s leading multi-layer RTM reinforcements. This product group consists of METYCORE, METYCORE MAX and their FS (fire shield) options. They are heavily used in RTM and L-RTM in addition to vacuum infusion processes.



**METYCORE**

It is a stitched sandwich complex that consists of one or two layers of chopped strand mat and a core of PP (resin flow zone). METYCORE presents an optimised resin flow zone of polypropylene (PP). The resin flows horizontally into the core material and then impregnates the outer reinforcements through vertical injection. This “two-stage impregnation” process saves a significant amount of time as the flow enhancer causes horizontal injection throughout the full width of the component to experience extreme acceleration. It presents very good drapability, complex mould shapes can be easily draped while keeping perfect flow and surface finish properties.

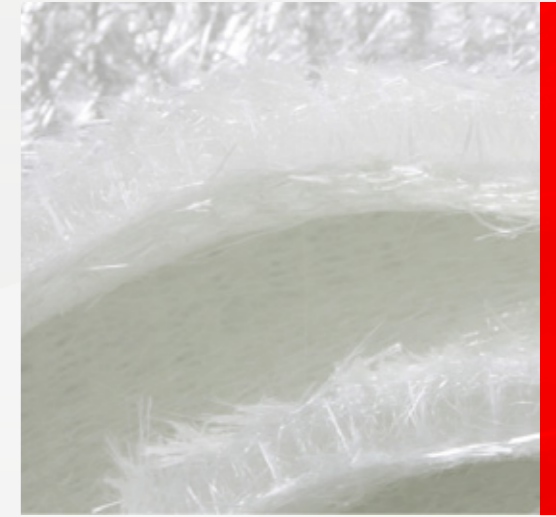
**Product Range**

- 200M . 180PP . 200M
- 200M . 250PP . 200M
- 300M . 180PP . 300M
- 300M . 250PP . 300M
- 450M . 180PP . 450M
- 450M . 250PP . 450M
- 600M . 180PP . 600M
- 600M . 250PP . 600M
- 750M . 180PP . 750M
- 750M . 250PP . 750M
- 900M . 180PP . 900M
- 900M . 250PP . 900M

**METYCORE MAX**

It contains all the benefits of METYCORE but it is designed to conform to the shape of mold and ideal for series production as well as large scale laminates that maximizes resin flow and reduces fill time. That’s how METYCORE MAX speeds up the production up to 40% and reduces labor.

**Product Range:** All different PP core alternatives are produced inhouse and different types could also be produced upon a request. (Eg. 120 PP – 180 PP – 250 PP – High Flow Versions etc.) Optionally, 0/90, 45/45 etc multiaxial fabrics could be added to the range.



*It can always be combined with other METYX Composites solutions for all your needs for RTM.*



Courtesy Photo of Polin Waterparks

**METYCORE FS AND METYCORE MAX FS: FIRE RETARDANT MATERIAL SOLUTIONS FOR RAIL INDUSTRY**

METYCORE FS and METYCORE MAX™ FS (Fire Shield) complements the RTM range in providing a solution geared towards the manufacture of composite parts requiring fire resistant characteristics. METYX Composites expanded range of EN 45545 rated fire, smoke and toxicity (FST) RTM reinforcements for lighter and stronger FRP laminate solutions for the rail sector.



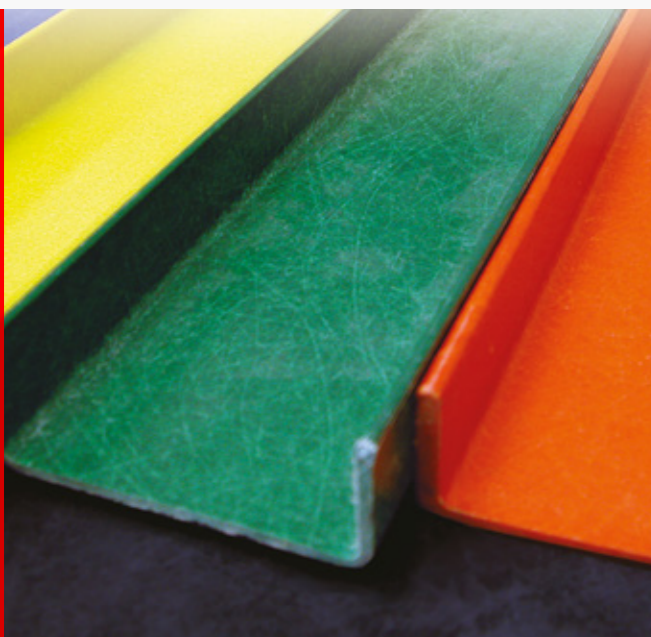


Courtesy Photo of Volkan Firefighting Vehicles

### WOVEN REINFORCEMENTS

METYX Composites woven fabrics are made by inter-weaving continuous fiber rovings to produce biaxial fabrics that can be used with most resin systems. Woven fabrics are typically used in the transport, marine, automotive, industries to increase the flexural and impact strength of laminates.

**Product Range:** They are available in all major types; e-glass, aramid and carbon fiber. The company can offer woven glass fabrics up to 350 cm.



### SURFACE VEILS

METYX Composites surface veils are non-woven, polyester fabrics. They are used to produce smooth, resin-rich, protective surfaces, mainly in pultrusion and filament winding processes. These fabrics offer features such as an improved surface smoothness, an additional surface protection and durability. They also reduce surface shrinkage with lower porosity.

**Product Range:** METYX Composites manufactures a wide range of surface veils for various applications. All surface veils are characterized by uniform fiber distribution; consistent tensile strength; smooth, soft surface; compatibility with all commonly used resin systems; and rapid wet-out.



### VACUUM BAGGING PRODUCTS

METYX Composites manufactures a full range of technical fabrics that work together to optimize your vacuum bagging systems and to solve molding challenges. As an integrated technical textile company, it offers the advantage of one-stop shopping for a full portfolio of superior composites related textile products.

#### Product Range:

**Peel Ply:** Polyester and polyamide 6 or 66. Washed and heat set. Various widths.

**Breather:** Polyester non-woven felt. Weights available from 150 to 300 gr/m<sup>2</sup>

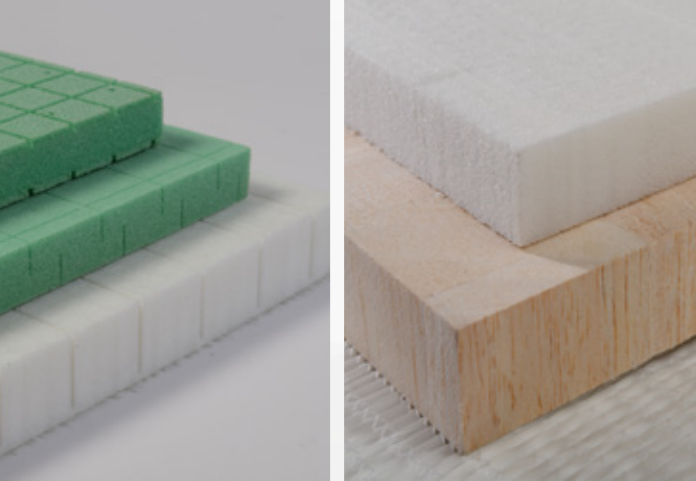
**Flowmesh:** Knitted polyethylene fabric in widths from 100 to 254 cm.



Courtesy Photo of LM



# 03 SERVICES



## CORE MATERIALS AND FABRIC KITTING

METYX Composites has invested and is continuing to invest in 'state-of-the-art' 5-axis NC processing centers with the highest levels of accuracy.

The kitting facilities can cost effectively machine balsa wood and all foam core materials including: PU, PET, SAN and PVC foams. The kits can be offered as grooved, perforated, scrim fabric applied, single or double contoured, combinations of stated finishing options.

METYX Composites is also able to cut the full range of multiaxial, RTM and woven reinforcements as well as supplying kits with vacuum consumables.

CNC fabric cutting machines are capable of handling fabric widths up to 100 inches in a very efficient and cost-effective way by minimizing scrap rates and reducing material costs.

All kit designs are fully evaluated by experienced METYX engineers, supported with CAD data, who take into account cost, quality, part geometry, mold lay-up and the manufacturing process being used.

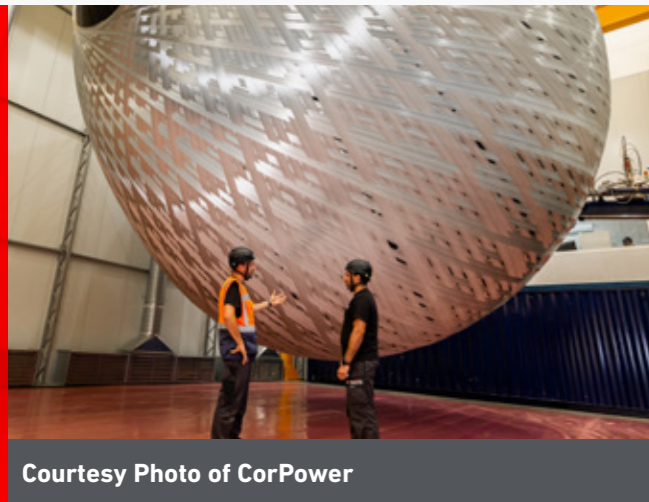
Kits are supplied with full traceability, cut, shaped, and preformed as needed, packed and labelled according to customer specified part reference numbers and manufacturing bills of materials (BOM), to ensure shop floor accuracy, efficiency and productivity.

### This service helps the customer to reduce,

- Raw material waste
- Resin consumption
- Flow media usage
- Lay up labor hours
- Lay up cycle time

### Increase,

- Core kit fitting on high curvature molds
- Repeatability and accuracy of panel geometry



Courtesy Photo of CorPower

## PLUG AND MOLD PRODUCTION

METYX Composites provides efficient, affordable and cutting-edge tooling solutions by offering engineering and manufacturing support for plugs, patterns, and high-quality tooling.

A competitive advantage of METYX Composites plug and mold production services is that it has the full backing and resources of the company. It has been produced wind blade mold components, hull and deck plugs and molds for boatbuilding, complex design tooling for automotive & transportation, multiple component architectural projects as well as direct negative (female) mold for limited production / volume parts.



### Engineering...

METYX Composites offers laminate design, analysis and process engineering support, rapid prototyping and tooling consultancy using 'state-of-the-art' design and production software, to customers in all industrial market sectors.

**FRP Mold Tool Production:** FRP molds with the required mechanical properties needed for molding finished composite components are produced from the high quality, defect free master plugs. Large scale single and multisplit FRP molds are produced for: hand lay, spray up, RTM, and infusion processes.

**Direct Negative Molds:** It can also be produced large scale molds using a direct molding technique, which is a very cost effective solution for producing prototypes and for one-off or limited run components. Direct negative molds are key for projects with a limited budget or tight timescale needed a fast tooling solution.

**Master Plug (Pattern) Production:** Standard master plugs are typically manufactured using a tooling board or foambased glass reinforced laminate base, onto which an epoxy or polyester paste is applied. Once set, the paste is then precision CNC milled to create the final



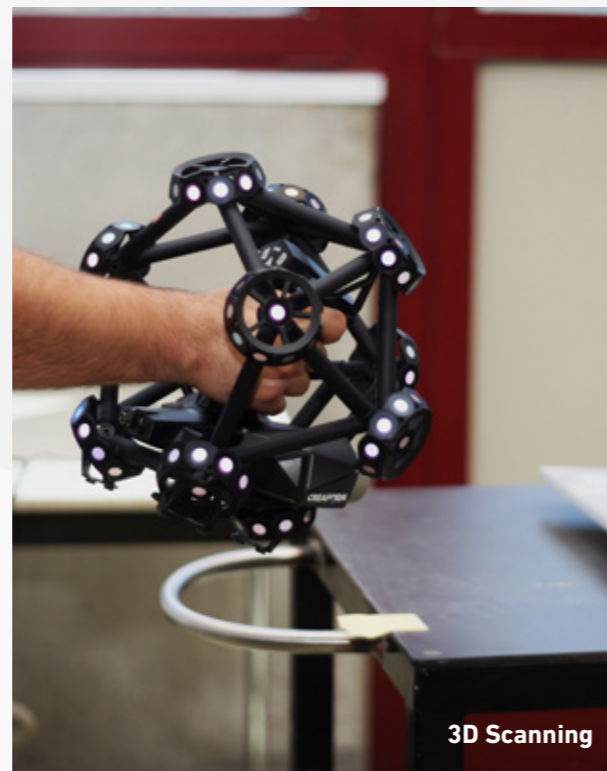


“ METYX Composites provides customers with a **cost effective complete composite** tooling solution **from concept to delivery**.

**5 - Axis CNC Machine:** At the heart of Tooling Center there is a 5-Axis CNC machine for large scale plug and mold production. The superior capabilities of this machine, coupled with the expertise of METYX Composites industry-leading technical team, ensure first-rate quality and craftsmanship on all tooling projects.



Courtesy Photo of Dromeas



3D Scanning

“ Our vacuum infused sandwich vinylester glass supported with carbon models D28, D33 and D38 Hardtop series are entirely built using METYX Composites supplied materials, including the molds – which are capable of being oven cured up to 80°C. We can solve our composites production challenges by using METYX Composites as a one-stop shop and solution partner.

**Efe Kuyumcu – Dromeas Yachts Owner and Marine Engineer**

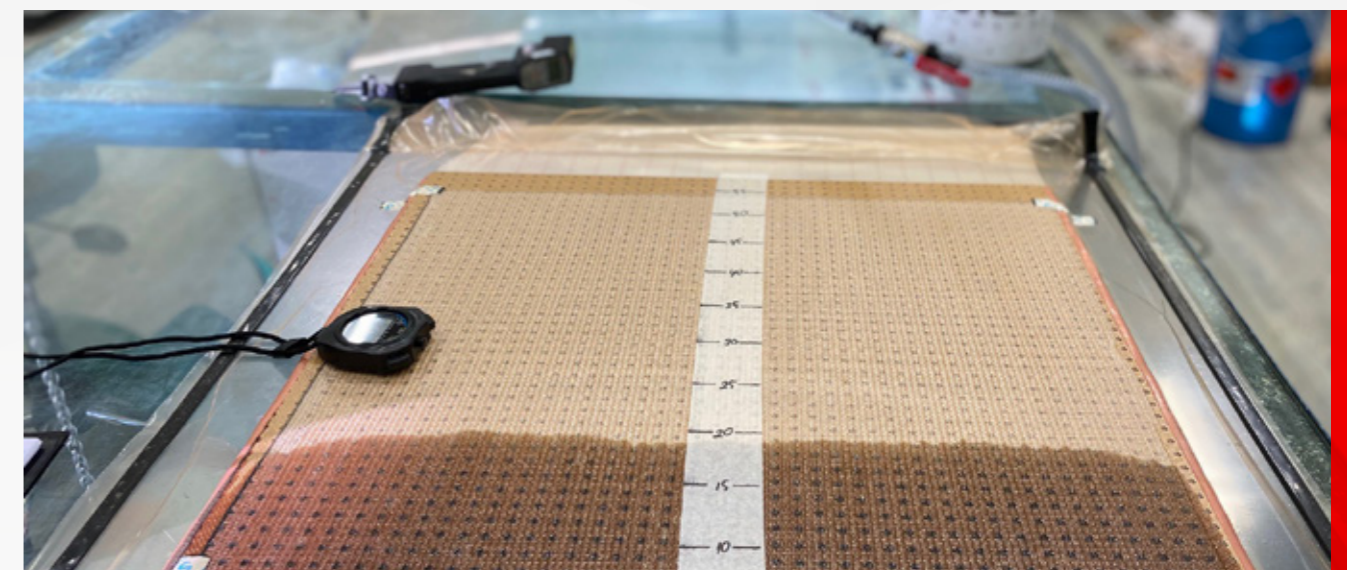


### TEST AND CONSULTING SERVICES

METYX Composites offers physical and mechanical testing services to ensure that material complies with industry specifications. As a full solution provider, the breadth of METYX Composites' physical and mechanical testing capabilities include ASTM, ISO, BS or DIN standards using industry standard testing methods.

#### Composite testing services include:

- Mechanical testing including tensile, flexural, shear and compressive properties
- Physical testing including fiber/resin and void content, density, hardness
- Adhesion property testing
- Thermal testing including DSC
- Rheological testing including dynamic & rotational viscosity
- Optical testing







### TRAININGS

METYX Composites is committed to disseminating composites know-how in the form of formal and practical composites training both in Turkey and worldwide. The signature event, METYX Composites Summit, is the most comprehensive event for high-performance composites in Turkey. The Summit brings together industry leaders from across the globe to present and discuss the most innovative approaches to producing high-tech composites. The company also conduct RTM seminars, RTM schools, infusion and infusion trainings.



### DISTRIBUTION

In order to fulfil the 'full service provider' commitment, METYX Composites has become an exclusive distributor of a leading suppliers such as Scott Bader, Axel, Composite Integration, Hexion, Adapa A/S in Turkey for many superior composites related products such as mold releases, resins, cleaners, adhesives, core materials, vacuum infusion materials and RTM equipment/tooling materials along with adaptive mold systems. With the same promise, it has taken distributorship of Composites Integration and Adapa A/S in the US.





## ONE-STOP SHOP FOR ALL YOUR NEEDS IN COMPOSITES

### STRENGTH.

Design  
Engineering  
Raw Materials  
Reinforcements  
Kitting  
Tooling  
Lab Services  
Consulting



With our qualified and experienced team

### SUPPORT.

Your Idea



Our Engineering  
Use of Right Materials  
Surveilled Production  
Process and Quality Control  
Prototype  
Series Production  
Warehousing & Logistics



Your Component

### SOLUTIONS.

TAILOR MADE PRODUCTS

&

SERVICES ON DEMAND

## WHY METYX COMPOSITES?

### MATERIALS

Range of products covers all reinforcement needs.

Fabrics suitable for all processes especially for infusion/closed molding.

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

- Fulfill design requirements / material specifications
- Special fabrics developed for special needs (E.g. areal weight range surface)
- Adaptation of materials to production process which means reduced cycle time and a better State-of-the-Art part

### COMPLETE PACKAGE

15+ years of experience in composite business with global players.

Selection and delivery of suitable high-quality fabrics.

Engineering, tooling, prototype production, parts production, training

Consulting service for technical problems

Technical help on site with experienced engineers

Process improvement (consulting, automation, customization)

- Put your part on the market earlier
- While putting a better part on the market

## SUSTAINABILITY

METYX Composites embraces a holistic approach to sustainability. Our corporate plans always consider economic, social, and environmental aspects. Implementing continuous improvement and achieving higher goals are the main pillars of the company. The continuous reduction of global resources consumption is prioritized within the company as well as carbon neutral aims is planned accordingly.

The company is committed to respect the planet we all live on to make it better place for future generations by adopting sustainability projects, planning, acting and measuring.







# DISTRIBUTION IN 30+ COUNTRIES

## 4 PRODUCTION FACILITIES

ISTANBUL (TUR)  
MANISA (TUR)  
KAPOSVAR (HUN)  
GASTONIA, NC (USA)



[www.metyx.com](http://www.metyx.com)

### **Istanbul Factory**

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

### **Manisa Factory**

MOSB 1.Kisim  
Malazgirt Cad.  
No:245030  
Manisa/TURKEY  
Tel: +90 236 302 04 04  
Fax: +90 236 302 04 05

### **Hungary Factory**

7400 Kaposvár,  
Dombóvári  
út3657/93. hrsz.  
HUNGARY  
Tel: +36 82 510 126  
Fax: +36 25 510 127

### **USA Factory**

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