

2018 Activities Report

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2



9



11



12

Table of Contents

Company News

Executive Letter	1
METYX USA	2
Manisa Construction	3
Hungary Warehouse	4
ISO Renewals	5
New Production Lines Investment	6
Package Sales	7
Trade Shows	8

Marine

Sirena Marine	9
Dromeas	10

Industrial

Renco-Fiberr Fiber	11
--------------------	----

Sponsorships

Supporting Future Engineering Talent	12
--------------------------------------	----

Executive Letter

Dear customers, colleagues and friends,

2018 was a global investment year for the METYX Group, facing challenges and coping with the economic crisis in Turkey. Nevertheless, we continue to expand and strengthen the business.

Acquisition of a new plant in USA

METYX, in 2018, completed the acquisition of 30 acre site and existing buildings which includes 130,000 sq. ft (~ 12,000 sq. m) of covered space in North Carolina. Significant support and incentive programs are being provided at both county and state levels which, combined with the ideal location, have made this a highly attractive package for us. We focused on setting up technical textiles production lines for manufacturing a range of glass and carbon fabrics, along with sales, customer service and warehousing facilities to serve the North American composites market which have been an interest of ours for several years now.

Manisa Factory Expansion

This year we have started the construction of our expanded site in Manisa. After the expansion of our facility (by acquiring a new site in Manisa in 2016), in 2017 we bought another 3.400 sqm site and an additional 1.700 sqm building to double our production capacity and to improve our wind turbine blade manufacture customer portfolio in the Aegean region.

Hungarian Facility

In the beginning of 2018, we received a 50% matched Government funded incentive package to support our investments in METYX Hungary Kft., Since then, METYX has made a significant investment in the expansion of the facility and increased staffing levels throughout the facility. Along with hiring many new team members, we also extended the warehousing facilities, by adding adding an additional 3,024 sqm (32,550 sq. ft) of fully enclosed storage space for composite technical fabrics, packaging and FRP tooling.

More Production Lines

2018 was a year of international expansion and major changes within our business. We closed the deal with Karl Mayer for more multiaxial production lines. We have also made investments in coating, glass kitting, preform kitting, and peel ply tape production lines.

Updated ISO 9001

We concluded the audits from global technical audit and certification companies TÜV Nord for Istanbul Manisa, Turkey factories as well as our newest factory in the US (METYX USA, Inc.) receiving ISO 9001:2015 certification along with SGS for the Hungarian (Kaposvar) factory with success in 2018. Finally we have upgraded ISO 9001 and ISO 14001 to the 2015 level.

We Are Looking Forward to Working with You

We will carry on with our investments to improve our global service and product quality. We thank you, our valued partners, for your loyalty and support received in 2018.



Uğur Üstünel
Managing Partner
METYX Composites



Tunç Şerif Üstünel
Managing Partner
METYX Composites



METYX USA, Gastonia, NC

New Technical Textiles Division In America

“Having been interested for several years, we believe it is time to invest and bring our portfolio of products and services to the North American market.”

In 2018 METYX Group purchased a 30 acre (120 000 sqm) site and existing buildings which includes 130,000 sq. ft (~12,000 sqm) of covered space in the USA by completing an agreement with the Gaston County Economic Development Commission in North Carolina. The site is located in Gastonia, a town approximately 28 miles west of Charlotte.

A total of US\$12.6 million will be invested over a five year period by METYX to develop production and customer service capabilities in the United States. Significant support and incentive programs are being provided at both county and state levels which, when combined with the ideal location, make this a highly attractive package for METYX.

METYX US operations in North Carolina, which is expected to employ up to 200 people, focuses on setting up technical textiles production lines for manufacturing a range of glass and carbon fabrics, along with design, sales, customer service and warehousing facilities to serve the North American composites market. In line with customer needs, fabric, core and vacuum consumable kit cutting capabilities will be added. METYX is primarily looking to establish business with US and Canadian OEMs and tier 1 converters in the marine, transportation, industrial and wind energy sectors.

Uğur Üstünel stated: “Having been interested for several years, we believe it is time to invest and bring our portfolio of products and services to the North American market. The US is a very attractive market, being the biggest globally in several key industry sectors with good future growth prospects. Without a doubt, it is a fiercely competitive region, but we believe that our passionate customer service culture and solutions offering approach, combined with our strong product and service offering gives us a unique selling proposition that will attract new business.”

North Carolina is an established manufacturing location in the USA, with more than 75,000 people working in plastics and chemicals manufacturing, being home to leading multinationals including DuPont (Dow Dupont) and BASF. The state has a long history of textile manufacturing, with around 700 companies.

Manufacturers in a number of target market sectors for METYX technical textile products are also in the region. In more recent years, North Carolina has seen significant growth in the renewable energy companies, particularly wind turbine generator manufacturing, as well as a growing number of automotive, truck and heavy machinery manufacturing companies. ■



Factory Expansion In Manisa Continues

METYX Composites started to the construction of recently acquired land and buildings adjacent to the existing factory in the Manisa Industrial Zone in 2018.

The expanded factory site, (a total of 27,500 sqm), provided METYX with sufficient space to double the production capacity at Manisa for glass and carbon fibre multiaxial fabrics, as well as to further grow the existing composite tool making facilities and increase the kitting service capacity.

A direct warper line has been installed, with the ability to produce homogeneous tension stitch yarns for glass and carbon technical fabrics used in the most demanding applications, along with a new powder coating line for manufacturing preformable fabrics.

New warehousing facilities for both raw materials and finished goods are also being constructed at Manisa to further improve stockholding and distribution services from this main production site, which not only serves domestic customers within Turkey, but also supplies a growing number of export customers. ■





METYX HUNGARY, Kaposvár

Warehouse Expansion In Hungary

The METYX Hungary factory, located in Kaposvár, has expanded its warehousing facilities, adding an additional 3,024 sq. m (32,550 sq. ft) of fully enclosed storage space for composite technical fabrics, packaging and FRP tooling. The extended warehouse now has two dedicated areas. One section has racking for up to 1,300 tonnes of additional METYX technical fabrics stock, including E-glass, carbon and hybrid multiaxial and woven reinforcements. The other section of the new warehouse has been equipped to store and handle large-scale FRP master plugs, molds and components produced by the METYX Group, typically for wind energy, marine, building and transportation customers in the EU, providing consolidated deliveries of reinforcements, cores, kits, vacuum consumables, tooling and composite components ordered.

This latest expansion is part of the METYX Group's five year growth plan for the Kaposvár site. Mr. Uğur Üstünel, Managing Partner of METYX Group stated: "We are very pleased to be on track with the next expansion phase of our operations in Kaposvár, meeting our commitments to the Hungarian government. Expanding the warehousing space before adding further production capacity in METYX Hungary was essential to ensure that we can continue to provide a high quality logistics and delivery service to our growing customer base across Europe."

METYX Hungary currently employs 199 people with six NCF (non-crimp fabric) production lines for both glass and carbon reinforcement fabrics. Over the next five years, the combined METYX Group and HIPA investment funds will be used to further extend the production facilities and infrastructure of the Kaposvár site. Future investment plans include increasing production capacity for producing glass and carbon fiber textiles, adding new NCF and weaving machines, as well as expanding the core kitting and component manufacture services from Hungary. The technical fabrics and kits manufactured by METYX Hungary are aimed at producers of composite parts used in major industrial market sectors including: building and construction, boatbuilding, automotive, transportation and wind energy; the ISO 9001 accredited Kaposvár site has completed intensive supply chain qualification programs with key wind turbine manufacturers. ■



METYX Proves Its Quality

With the up-to-date ISO 9001, METYX assures customers obtain benefit by receiving products/services that meet their requirements and deliver consistent performance.

Burcu TUNA, METYX Management Systems & Strategic Planning Manager stated: "ISO 9001, ISO 14001 and OHSAS 18001 allowed us to document effectively the details of our method for all staff to share and standardize the quality of work at every site. In addition to boosting our competitiveness through more accurate quality control, with these certifications, we have increased our employees safety and motivation because of our positive contribution to the environment."

METYX secures its quality with up to date ISO 9001, ISO 14001 and OHSAS 18001 certifications

METYX Group has completed the audits from global technical audit and certification companies TÜV Nord for Istanbul, Manisa, (Turkey) factories as well as our newest factory in the US (METYX USA, Inc.) receiving ISO 9001:2015 certification along with SGS for our Kaposvar (Hungary) factory with success. The group upgraded ISO 9001 and ISO 14001 to 2015. ■





Powder Coating Line

New Production Lines Investment

In our 15 years history in composite industry, METYX has never had a year without a technology or facility development. 2018 was no different and included both!

All our locations have gained brand new abilities that lifts up our products and services to the wind industry.

In order to empower our production line, Manisa factory has a new warping machine and Hungary has two brand new 100 inch production lines exclusively for wind industry customers.

The following investments are the product of few years of R&D and our teams hard work;

R&D tests and on-site trails for our powder coating line have been going on since 2017 and it is now up and running in Manisa as of mid-2018. The coating line is 12 meters long that coats the chosen fabric with a chemical powder using heat. While this is mainly for the special applications of the wind industry production process, it can be used in automotive or any other industry's fabrics which require a dry bindered preform.

Another important addition to Manisa is fabric preform (or glass kit) production line. A preform kit allows the wind blade manufacturer to save significant time by reducing the number of fabric pieces they place on the blade mold. METYX's fabric preform (or glass kit) production line is a combination of several different mechanical operations such as cutting, sewing or winding. Tailor made sewing machines are used which allows the operators, for example, laying down 80 ready-to-use pieces of glass fabric instead of 12.000.

Being a one-stop provider of composite materials, this year's improvements included one of our most important consumables- peel ply. With the hot-cutting system installation, our peel ply production line was completely renewed with a new transformer, along with a heated pneumatic knife system, a completely new design, enabling us to cut peel ply rolls to a variety of different widths simultaneously. ■



Preform

The Whole Package At One-Stop

"Package sell", being one of our main targets, means providing our customers all the material solutions they need from one single source. This includes our distributorship products that we import and supply within the Turkish composite market, along with our main product lines (technical textiles, core kit and vacuum consumables).

Our main goal is to provide our customers the ease of working with a single supplier.

We bring them solutions for several production methods, with more than 1.000 product offerings, through our solution partners Axel Plastic, Composite Integration, Solvay, Hexion, Silicone Composite, 3A Composites and Scott Bader.

With the strength of these partners, we are supporting our customers with the state-of-the-art composite technologies while improving their productions methods and create value-added products together. ■



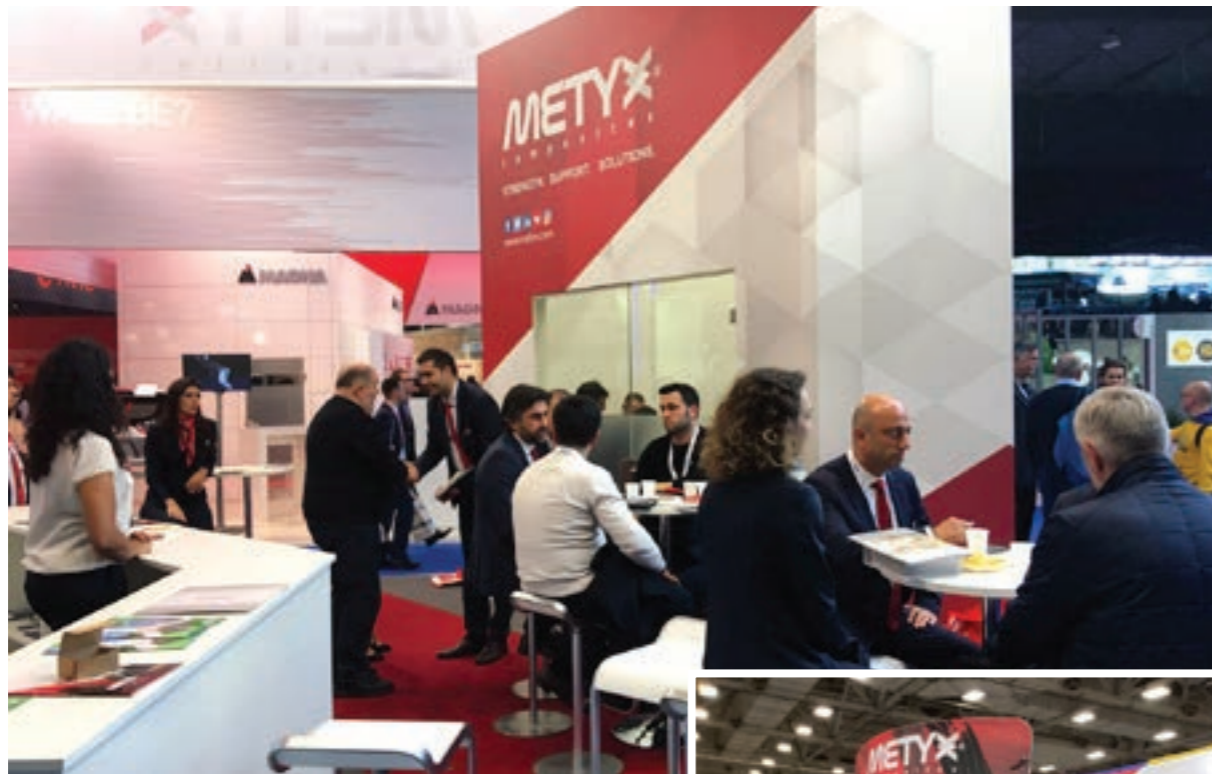
DROMEAS

- METYX Composites;
 - Multiaxial Fabrics
 - Non-Woven Fabrics
 - PVC Core Materials
 - Vacuum-Infusion Consumables
- Scott Bader;
 - Scott Bader Tooling System
 - Scott Bader Structural Bonding Adhesive
 - Scott Bader Vinyl Ester
- Axel Plastic;
 - Multi Release Agents
- Solvay;
 - Vacuum Infusion Consumables
- Hexion;
 - Hand-Lamination Epoxy Resins



POLIN

- METYX Composites;
 - METYX CORE Fabrics
 - Non-Woven Fabrics
- Composite Integration;
 - RTM Injection Machines
- Axel Plastics;
 - Multi Release Agent Systems



JEC 2018

Trade Show Activities 2018

JEC EUROPE 2018

March 6-8 // Paris, France

EUROASIA AIRSHOW 2018

April 25-29 // Antalya, Turkey

IBEX 2018

October 2-4 // Tampa, USA

CAMX 2018

October 16-18 // Orlando, USA

BURSA COMPOSITE MATERIALS PURCHASE GROUP ACTIVITY 2018

October 23-24 // Bursa, Turkey

7. TURKISH WIND ENERGY CONGRESS 2018

November 5-6 // Ankara, Turkey



CAMX 2018

Planned events for 2019

JEC EUROPE 2019

March 12-14 // Paris, France

SAMPE 2019

May 20-23 // Charlotte NC, USA

CAMX 2019

September 23-26 // Anaheim CA, USA

IBEX 2019

October 1-3 // Tampa FL, USA

IZMIR WIND SYMPOSIUM 2019

October 3-5 // Izmir, Turkey

COMPOSITES SUMMIT

October 10-12 // Istanbul, Turkey

METS 2019

November 19-21 // Amsterdam, Netherlands

WIND TURBINE BLADE MANUFACTURE 2019

December 9-11 // Düsseldorf, Germany



"Combination of the outstanding technical product performance and the fast, high quality, reliable service"

Sirena: Using Composites As A Marketing Material...

Globally recognized for their innovative boats, Sirena Marine of Turkey has established and maintained a respected reputation as master craftsmen in leisure boat building. Sirena 88 is built with use of the most advanced boat-building technologies that benefits from the development of its efficient hull underbody and having the best performance at a wide range of Froude numbers, from displacement mode up to planning condition. She is able to explore all corners of the world, cruising in comfort and safety with low fuel consumption.

The volume inside is quite ample for a yacht of her size. The joinery work built of high quality woods and fabrics, offers variety of options regarding its interior layout to maximize the joy of life at the sea according to every individual's needs. Clean, sober and essential lines that create a design that is both classic and modern; harmonious and balanced designs that never grow old.

To attain the high aesthetic finish standards and product performance needed for luxury superyachts, Sirena Marine chose METYX products at all stages of production from modelling to molding, from molding to the product manufacturing process.

Sirena Marine Motoryacht Project Associate Emirhan Cincik said: "In our perspective; composite materials we use on our boats are not only important as a structural material but also beneficial in marketing aspect of the brand as it describes the product itself. One of the intriguing feature we present to our prospective and existing customers is the specification of the material what the boat is made of. Indication of such materials like GRP Hull, Carbon-Hybrid Superstructure shows that all these components are substantially emphasized with their content in SIRENA MARINE; this utilization is also valid for all the marine / boatbuilding industry. Since all SIRENA yachts are produced with vacuum-infusion technique; our customers always feel that they are on a stable and safe boat. In this context, beside of being the integral part of our boats; METYX products also add value to our brand."

METYX products were chosen by Sirena Marine because of a combination of the outstanding technical product performance and the fast, high quality, reliable service provided. ■



TURKISH WIND ENERGY CONGRESS 2018



COMPOSITES EUROPE 2018



Courtesy photo of Dromeas

Dromeas Yachts Aims High-End Quality Production

DROMEAS YACHTS is a high-tech semi-custom powerboat builder focusing on vacuum infusion and epoxy glass & carbon-fiber boatbuilding from 23 to 60+ ft. Their motto is "We are enthusiastic about being at sea, no matter what the weather is. That's why we are building the toughest boats from the highest quality."

Efe Kuyumcu, Dromeas Yacht owner stated: "As a company that strives for innovation and focuses on high-end quality production, our cooperation with METYX allows us to control every step of our composites, whether it is sandwich composites vacuum infusion or carbon fiber constructions, follow their process and develop with impeccable pace."

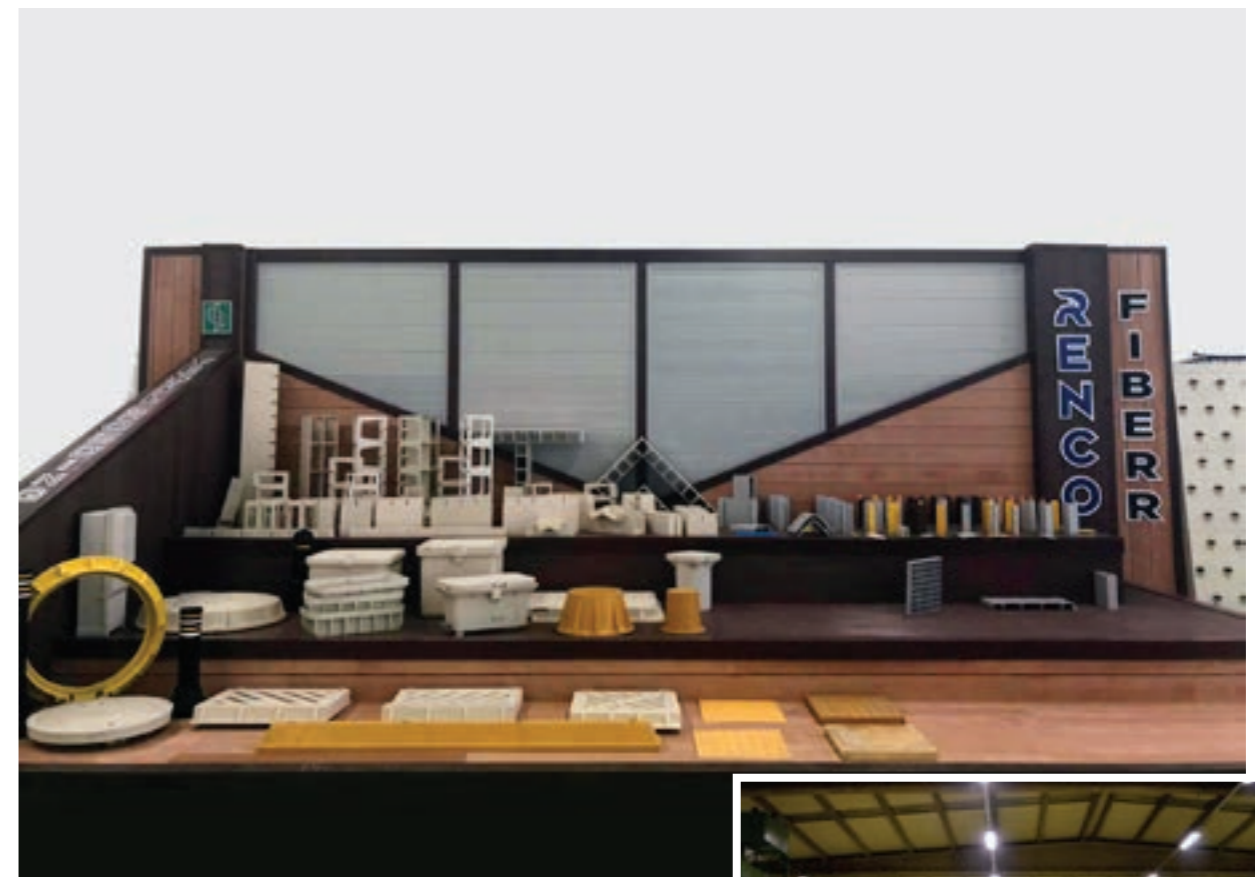
METYX's certified products, their quality control along with their fast response to our production needs and requirements allows us to improve our quality and helps us to maintain our production without any surprises.

Our vacuum infused sandwich epoxy glass serial production D28 & D33 Hardtop series is entirely built using METYX supplied materials (including the molds - which are capable of being oven cured up to 90°C).

We are able to solve our composite production challenges by using METYX as a one-stop shop and solution partner." ■



"We are able to solve our composite production challenges by using METYX as a one-stop shop and solution partner."



Renco-Fiberr Fiber: A Pultrusion Industry Update

Pultrusion is a manufacturing technology used to produce continuous lengths of FRP structural shapes with a consistent cross-section. The process involves saturating reinforced fibers with a polymer resin mixture in a resin impregnator and continuously pulling them through a heated steel forming die to polymerize the resin. The cured profile is rigid and corresponds to the shape of the die. It is ready to be cut to length or machined.

Pultruded products feature high strength and are lightweight. They are also corrosion and rot resistant making them ideal for corrosive environments. Moreover, they are easy to assemble, maintenance free, and non-conductive.

The features and benefits of pultrusion have made it one of the fastest growing processes within the composites industry for manufacturing composite parts. The process is now widely used in the consumer goods, construction, infrastructure, electrical, transportation, chemical industries and wind industries.



METYX Composites has been highly involved in this ever expanding industry by supplying raw materials such as internal mold release systems, surface veils and glass reinforcements tailored for the pultrusion process.

RENCO has been a pioneer in developing next generation new technologies and ideas, spearheading advancements in the renewable composite products industry for over two decades, providing patented and patent pending innovative and state of the art solutions for a variety of industries, with main focus on manufacturing and supplying of construction related renewable composite products. Fiberr Fiber as a division of RENCO; designed and assembled throughout the complex, composite parts produce with pultrusion. ■



Supporting Future Engineering Talent

For the benefit of learning, improving and innovating, our support to university projects continued in 2018. METYX has provided carbon, glass, multi-axial and woven fabrics, along with PVC core with several types of vacuum consumables to more than 20 university projects acting as their sponsor.

Our motivation is not only the value-added composite material technology, but also the values such as hard-work, team spirit, fairplay and practical thinking gained by the members of each team who some day will be our colleagues as engineers, decision makers and scientists.

We congratulate all the teams that participated in the races this year and hope they carry on with their hard work. ■

Undergraduate & Postgraduate engineering student projects supported during 2018 included:

ANADOLU UNIVERSITY	DOKUZ EYLÜL UNIVERSITY	KARABÜK UNIVERSITY	SAKARYA UNIVERSITY
BARTIN UNIVERSITY	DUMLUPINAR UNIVERSITY	KARADENİZ UNIVERSITY	T. C. PIRI REİS UNIVERSITY
BOĞAZIÇI UNIVERSITY	GAZİANTEP UNIVERSITY	MARMARA UNIVERSITY	T.C. YALOVA UNIVERSITY
CELAL BAYAR UNIVERSITY	İSTANBUL UNIVERSITY	MIDDLE EAST TECHNICAL UNIVERSITY	NEAR EAST UNIVERSITY
ÇUKUROVA UNIVERSITY	İZMİR ECONOMY UNIVERSITY		YILDIZ TEKNİK UNIVERSITY



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