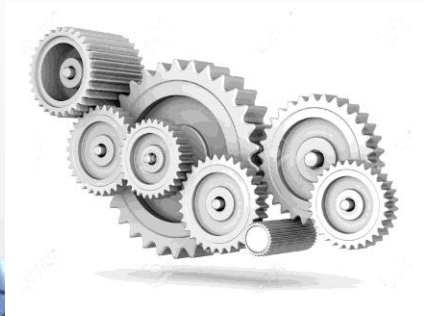
B&T Composites

The company B&T Composites is located in Florina and is active in the world of composite materials since 2007. We specialize in producing products from glass and carbon fibers using the technique filament winding.

We can be proud of:

- **high-precision machinery and technology**
- **our expertise**
- **and highly trained staff**



The business areas cover a wide range of applications in the areas:

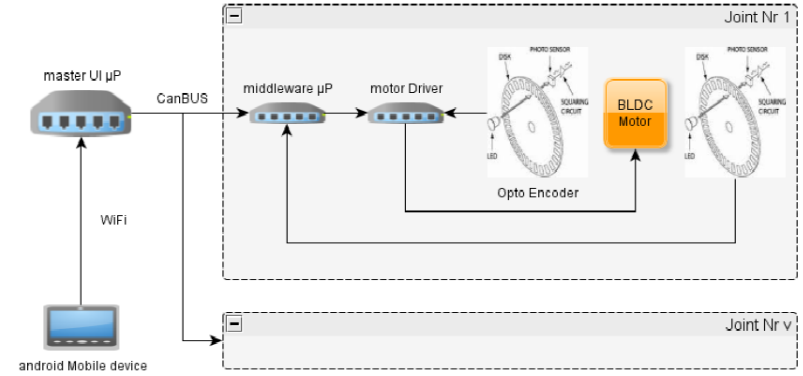
- navigation
- of the industry
- infrastructure

In our effort to continuously develop innovative products many Public Universities follow us such as:

- **The National Technical University**
- **The Aristotle University of Thessaloniki**
- **The University of Patras**
- **The Technological Educational Institute of Kavala**

Future Aspirations

The immediate future plans of the B & T Composites is the combination of synthetic material with electronic and mechanical engineering. The company has already carried out research into robots and goes directly to the construction of light flex robotic arm with six degrees of freedom arms made of carbon fibers and structures produced with the innovative 3D printing process.



The robotic arm is the first step to create light carbon exoskeleton that is a mobile mechanical structure which is actuated by a hydraulic and pneumatic motor system. The main function of an exoskeleton suit is to increase the strength and endurance of the person that wears it. The main fields of application are in medicine for enhancing the precision of doctors in high-precision operations, to assist paraplegic persons to enable them to walk but also help staff to move heavy patients the fire escape for fire-fighters environments with hardship the army to move equipment from the military with heavy weight.

B & T Composites expands into new markets

In June 2015, the B&T Composites proceeded to the strategic creation of the company B&T Composites Denmark.

The openness of B&T Composites is stimulated by the growing share of the European market to win. Scandinavian countries, Germany, Spain, Denmark and the customer list of countries does not stop even here.

By the end of the year there will be the creation of complete B&T Composites in Russia.

Below is an excerpt from the Business Plan of B & T Composites for the European market starting in 2016:

The company is targeting in the 2016 to rapidly increase its turnover. B&T Composites has over the last two years investigated the market and the possibility to get a portion of the marked volume. B&T Composite are sure by invest in a more aggressive market penetration.

B&T Composites will during the next year reach 10 mill euro.

After having established our self with filament technology products B&T Composites will continue developing market with new production methods

However, today's focus is concentrated on:
Market, technology, customer, today’s business segment and new opportunities
We must “do what we are saying and say what we are doing”

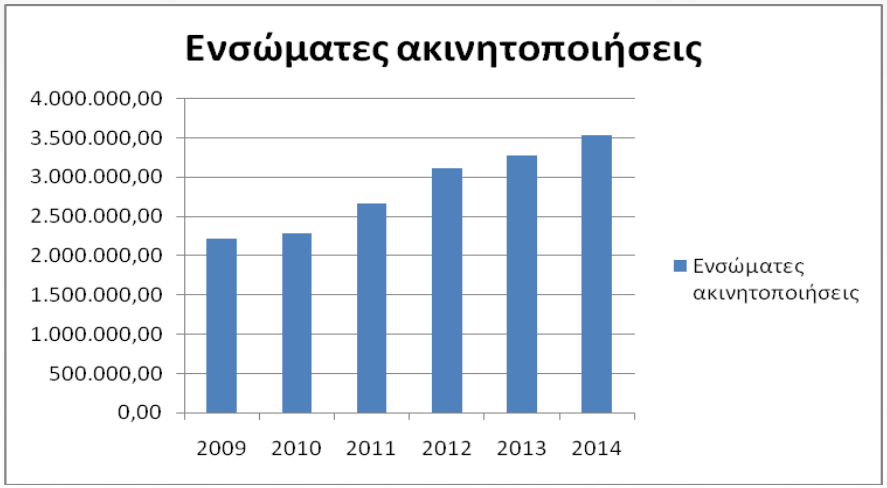
Business segments:

B&T Composites will concentrate the activities on market that we have knowledge and there it is possible to get a good volume and a fair profit. We have over the last year investigated the market and we see the following market segments as our focus for entrance.

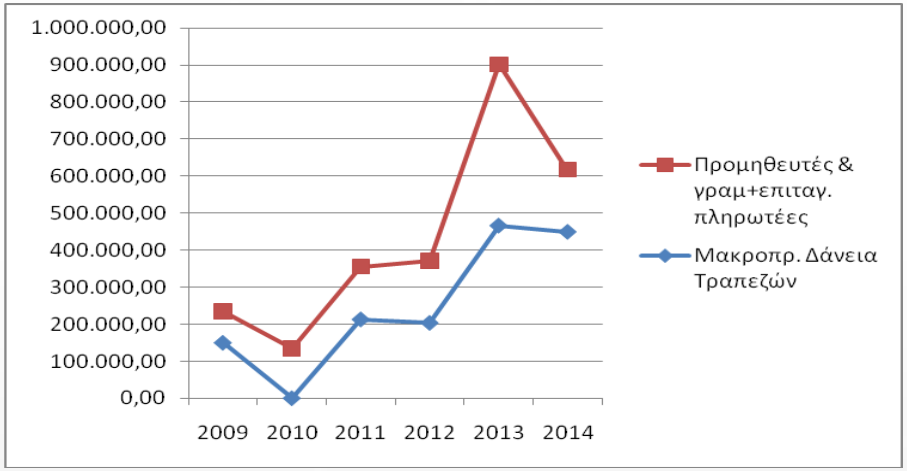
- Rollers for paper and plastic industries and associated industries, a fast growing market.
- Industry automatization components such as couplings, cranes and support structures.
- Wind business components such as couplings, actuators and hydraulic components.
- Water treatment, there are a need for tubes and small containers, need for lower weight.
- Oil & Gas including small submarines today this industry are under pressure due to low oil prices, but there are in the business a trend looking for reducing of cost, hereby introduction of composites.
- Hydraulic cylinders for different business segments
- Automotive industry drive train and steering systems for special applications.
- Yachts and marine industry

Additionally, the target markets for 2016 are mainly the Russian and the Arabic ones.

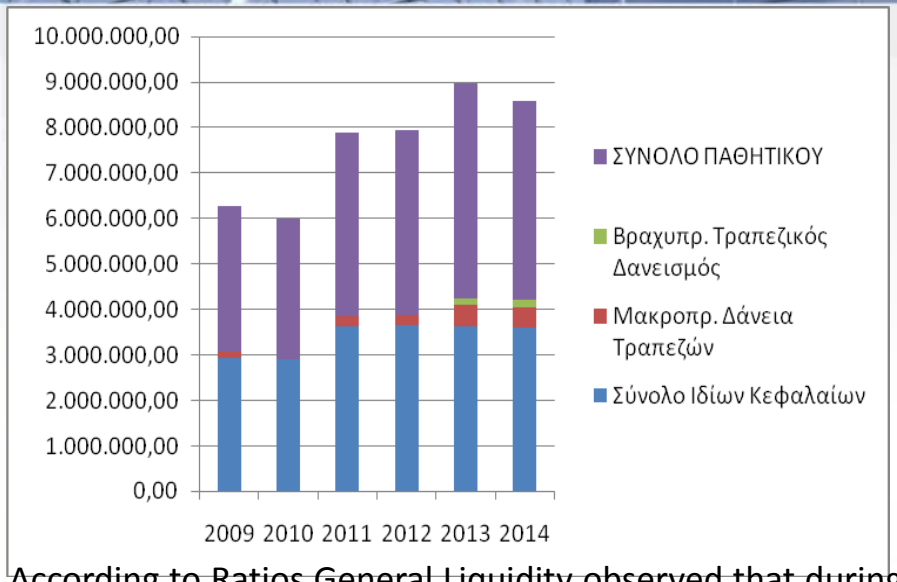
Financial Analysis and Prospects



The company is intensive in tangible assets by investing in fixed assets, since the voltage standard size of business records during the above period percentage growth rate of 74.16% -80.34% with respect to tangible fixed assets in relation to total assets. Also, the rate in percentage of total assets show arise in the five years 2010-2014from74.22% to 80.57%, an increase of approximately8.5% as shown in the table.



Although the long-term loan amounts to 10,25% in 2014, moving incrementally from 2010 (5.28%), which together with the dramatic drop in the proportion of suppliers and cheques payable from 9.18% in 2013 to 3.79% in 2014, total liabilities, shows the repayment of current liabilities of the company and solvency of the company to third.



In 2014 the amount of long and short term liabilities compared to total liabilities amounts to 18.02%, while the amount of equity at the rate of 81.98%. There is, then, that equity in relation to total liabilities exceed total liabilities, both long term and short term, to the point where not applicable for on-lending enterprise that combined with the expected increase sales and turning the company's sales outside the Greek borders to create all those guarantees for the further development and prosperity of the company.

According to Ratios General Liquidity observed that during the five years 2010-2014 the value exceeds 2, which is the ideal value of the index number, so it is presumed that the overall liquidity of the company is satisfactory to very encouraging for the subsequentdevelopmentoftheactivityof.

Also, the ratios of Special or Emergency Liquidity, presents particularly high prices, far exceeded the unit (1) which is the ideal value, which indicates that the company may liquidate directly active amount of data a euros for every euroowes.

The Liquidity Ratios Cash depicts what percentage of the available and highly liquid securities sufficient to repay short-term obligations. As shown by the results of the analysis of the index number, whose ideal value is 0.5 - 1, during the period 2010 to 2012 the price is above the unit indicating that the company can immediately liquidate assets amount data at least 05 euros for each euro owes.

Finally, considering the Ratios Capital Structure or structural balance shows the possibility the company will cover interest payments and loans so that over the years not facing financing problems. This data comes from the company SOL, the largest auditing company in Greece, following a financial analysis of the financial statements of B & T Composites.

B&T Composites and environment

The company having developped timeless sense of responsibility towards the environment incorporates this trend in its facilities.

It has already had two photovoltaic parks, performance 100kW each,contributing significantly to reducing emissions of carbon dioxide CO2.So apart from economic and regional development, the use and operation of the two photovoltaic parks contributesto the fight against climate change.

CO2	SO2	CO	NOx	HC	Particles
255.000.000 gr/KWh	4.470.000 gr/KWh	54.000 gr/KWh	360.000 gr/KWh	15.000 gr/KWh	240.000 gr/KWh

Our photovoltaic parks produce 300.000KW/h per year contributing in the avoidance of the dirts above and CO2.

The environmental sensitivity of the company does not stop here. The last year has completed a pioneering solar energy utilization system.

By installing 16 solar panels, we manage to collect solar energy, which heats water. With the right water pipe system is fed into the polymerization oven which maintains a constant temperature 100^{o}C. This takes much less use of electricity with significant economic and environmental benefits. At the same time strengthened the system heating facilities.

The lighting system of solar energy in the production area makes the building stand-alone and "green." The domes placed per meter on the roof of the factory have the ability to diffuse light in doors. This saves a large amount of power that would be required to adequately lit by 9,000 sqm plant.

Rainwater collected in tanks and used for the water supply of the surrounding area and toilets.

The Recycle paper, plastic, metal, battery is an important priority for the company.

In the B & T Composites we believe it is our duty to contribute actively to the improvement of living conditions and fostering an environmental culture.

Corporate social responsibility

The company B&T Composites having a deep sense of responsibility,social diligence, sensitivity and consciousness feels an urgent need promoting business ethics.

Thus, in recent years a team sponsor ART Aristotle University of Thessaloniki, which in 2006 designed, constructed and assembled a racing car.It was the first time inGreece that such a project was accomplished entirely by students.

Formula StudentTeam of the University of Patras, UoP Racing, is also a group that uses carbon shaftsfor their car.

The company B&T Composites, recognizing the importance of education in the development of responsible entrepreneurship, support for doctoral dissertations and dissertations Engineering researchers of polytechnics in the country. So they are available to their hosting in its facilities and providing that their essays and equipment needed to build the continuation of research and technological development.

The B & T Composites know that will lead inexorably not only to increase the knowledge produced and to significant innovations that will improve the competitiveness of our products.

The B&T Composites acting as an active member of society, offered a free static study, design, construction and housing placement for the entrance of the 1st General Lyceum of Florina,made of glass fiber, reinforced with carbon fibers.

The company, taking into account the welfare of workers, maintains two-way communication with them and respond to their concerns. Personal characteristics and skills are developed in a favorable employment environment and individual initiative is convergence. So we manage to provide optimum levels of cooperation.

In the end, Research and development in the manufacturing process and our products is achieved with the participation of the company in a variety of publications and research projects.

Posts

1.Volonakis, S., Tsouvalis, N., Chatzidouros, E., Tiriakidis, V., Compressed Liquid Tank (5000 psi and 1000 psi) Manufactured by Filament Wound Composite Materials (carbon fibers and epoxy resins)" (2011-2014), “D2.2: Technical report on the results of mechanical testing”.

2.Chatzidouros, E., Tiriakidis, V., Volonakis, S., Tsouvalis, N., Compressed Liquid Tank (5000 psi and 1000 psi) Manufactured by Filament Wound Composite Materials (carbon fibers and epoxy resins)" (2011-2014), “D1.1: Applications and Technical requirements of Pressure vessels for Gas Storage”.

3.Chatzidouros, E., Volonakis, S., Project Title: DEEP CO HOUS, “D1.2: Report - Structural requirements”, National GSRT, April 2014.

4.Volonakis, S. D., Chatzidouros, E.V., Tsouvalis, N., Tiriakidis, V., Design, analysis and testing of carbon fiber reinforced plastic (CFRP) structures for deep underwater applications, in Underwater Intervention Conference proceedings, New Orleans, February 2015.

5.Filament winding composite equipment manufacturing.

6.CFRP composite manufacturing using resin infusion and hand lay-up methods CFRP composite products for various industries.

Projects

1.“DEEP CO HOUS” Project (National-GSRT) “Design, manufacturing and testing of deep sea pressure housings made of composite materials” http://deepcohous.gr/

2. Project (National-GSRT), Manufacturing of 350-700 bar Compressed Gas Hydrogen (CGH2) type III-IV Pressure vessels.

3. European program Fix O3: project AGE-CO-DEEP.

4. Design and manufacturing of the new CFRP drive shafts, June 2013.

5. Numerous industrial contracts and products concerning CFRP parts.

Research

1. "Competition and Entrepreneurship". Project title: "Creation and Exploitation of the Innovation based in Research and Technological Development", (2012). Involved partners:
-Professor Nicholas G. Tsouvalis, National Technical University of Athens, School of Naval Architecture and Marine Engineering, Division of Marine Structures, Shipbuilding Technology Laboratory,
-Dr. Spyros Volonakis, CEng, CMarEng, MEng, Shipbuilding Technology Laboratory, Division of Marine Structures, School of Naval Architecture and Marine Engineering, PhD, ALSMARINE, Technical Department,
-B&T Composites

2."Competition and Entrepreneurship". Project title: " Vessel for liquids storage under pressure, manufacturing with Composites Materials (carbon fibers and epoxy resin system)", (2007-2013). Involved partners:
-Professor Dr. Nicholas G. Tsouvalis, National Technical University of Athens, School of Naval Architecture and Marine Engineering, Division of Marine Structures, Shipbuilding Technology Laboratory,
-Dr. Spyros Volonakis, CEng, CMarEng, MEng, Shipbuilding Technology Laboratory, Division of Marine Structures, School of Naval Architecture and Marine Engineering, PhD, ALSMARINE, Technical Department,
-Dr. Elias Chatzidouros, Naval Architect & Marine Engineer, PhD, ALSMARINE, Technical Department,
-B&T Composites.

3. "DEEP CO HOUS". Project title “Design, manufacturing and testing of deep sea pressure housings made of composite materials”, (2014-2015). Involved partners:
-Professor Dr. Nicholas G. Tsouvalis, National Technical University of Athens, School of Naval Architecture and Marine Engineering, Division of Marine Structures, Shipbuilding Technology Laboratory,
-Dr. Spyros Volonakis, CEng, CMarEng, MEng, Shipbuilding Technology Laboratory, Division of Marine Structures, School of Naval Architecture and Marine Engineering, PhD, ALSMARINE, Technical Department,
-Dr. Elias Chatzidouros, Naval Architect & Marine Engineer, PhD, ALSMARINE, Technical Department,
-B&T Composites.

4. “Optimization of the Manufacturing Conditions of Tubes with Composite Materials”, Involved partners: ---
- Associate Professor Dr. G. Mansour Department of Mechanical Engineering A.U.TH.,
-Assistant Professor Dr. A. Korlos Department Alexander Technological Educational Institute of Thessaloniki ,
- Academic Assosciate Dr. D. Tzetzis International Hellenic University
- PhD Candidate K. Tsongas,
- PhD Candidate K. Tzikas

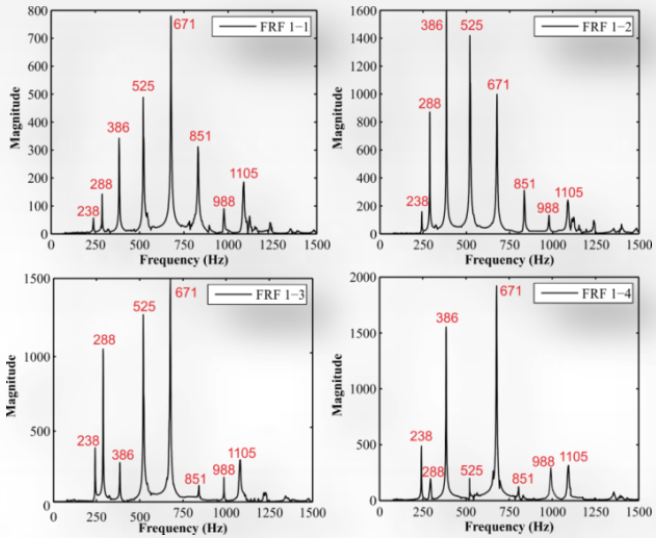
5. Static Tests on Ring Specimens for Mechanical Property Characterization of Filament Wound Composite Material, (May 2015), Involved partners:
-Associate Professor Dr. Theodore P. Philippidis, University of Patras, Department of Mechanical Engineering and Aeronautics
-Researcher Georgios A. Roukis.

6. Static Tests on Un-Notched Ring Specimens for Mechanical Property Characterization of Filament Wound Composite Material, (January 2013), Involved partners:
-Associate Professor Dr. Theodore P. Philippidis, University of Patras, Department of Mechanical Engineering and Aeronautics
-Post-doctoral researcher Theoni T. Assimakopoulou
- PhD Candidate Iordanis T. Masmanidis

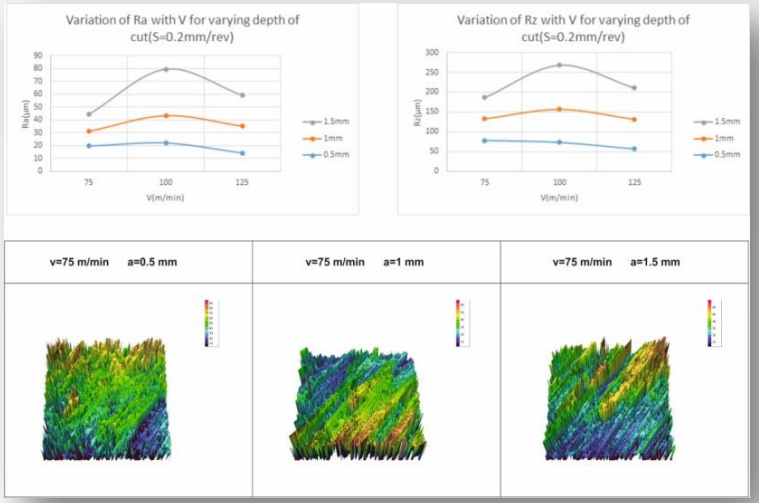
7. Static Tests on Tubular Specimens for Mechanical Property Characterization of Filament Wound Composite Material, (December 2012), Involved partners:
-Associate Professor Dr. Theodore P. Philippidis, University of Patras, Department of Mechanical Engineering and Aeronautics
-Post-doctoral researcher Theoni T. Assimakopoulou
- PhD Candidate Iordanis T. Masmanidis

8. Development of carbon-epoxy beams and joints with different cross-sections (2015-2016), Involved partners:
Associate Professor Dr. G. Mansour Department of Mechanical Engineering A.U.TH.,
-Assistant Professor Dr. A. Korlos Department Alexander Technological Educational Institute of Thessaloniki,
-PhD Candidate K. Tsongas,
- PhD Candidate K. Tzikas

9. Multi-dimensional vibrational damages diagnosis in complicated constructions applied in observation of building integrity of machinery and naval constructions and marine engineering. Acronym IMS-PB-DIAGNOSIS
- Professor I. Georgiou , National Technical University of Athens, School of Naval Architecture and Marine Engineering,
-PhD Candidate Nikolaos Kintzios

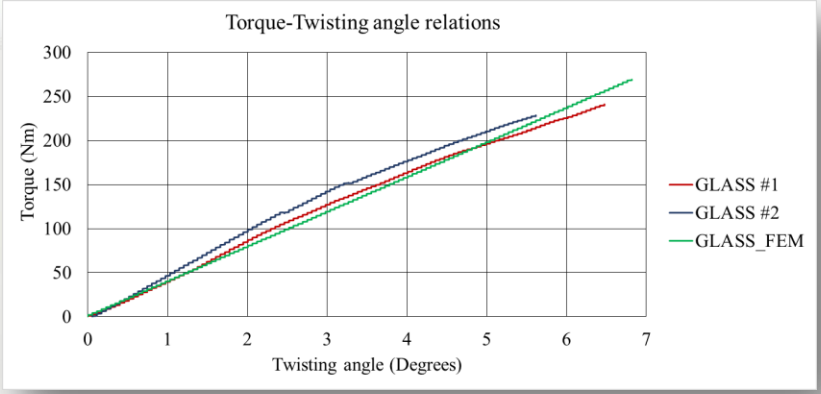


Shaft vibration test- amplitude oscillation-frequency diagrams (AUTH)

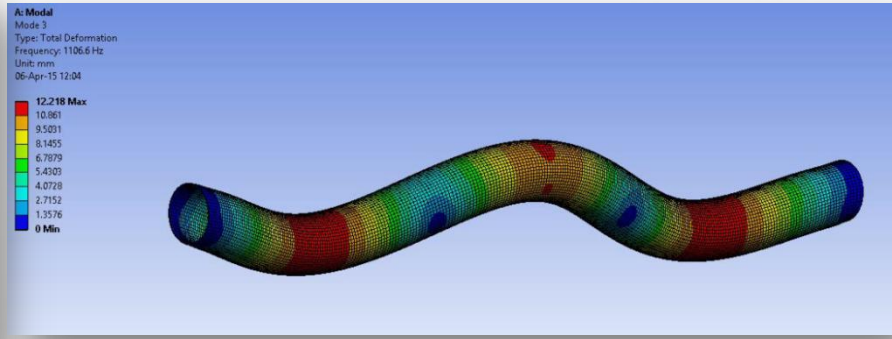


Diagrams of Rz-speed cutting given the single revolution (0.2mm/rev) and changing cutting depth (0.5mm, 1mm, 1.5mm)

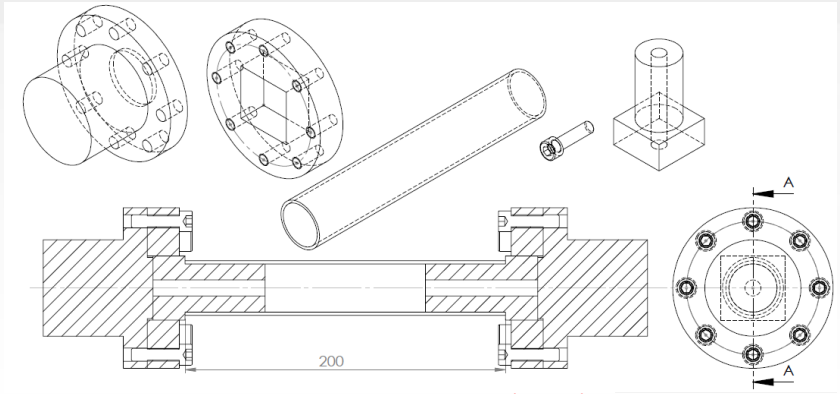
Shaft surface study with electronic microscope (AUTH)



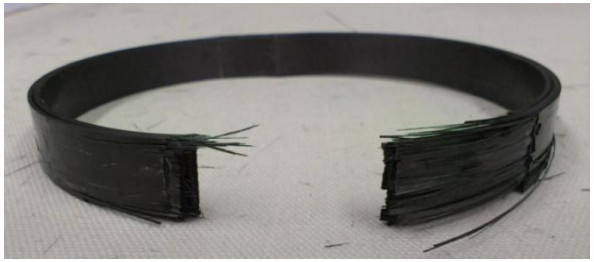
Convergence of experimental and calculated data (AUTH)

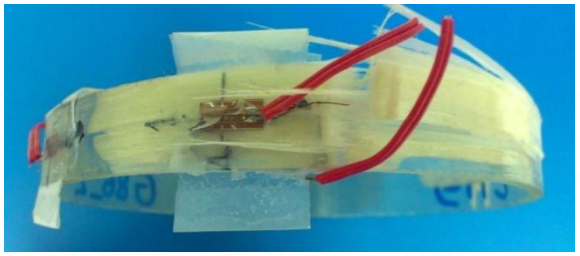


Depiction with ANSYS 3nd shaft frequency during the vibration test (AUTH)

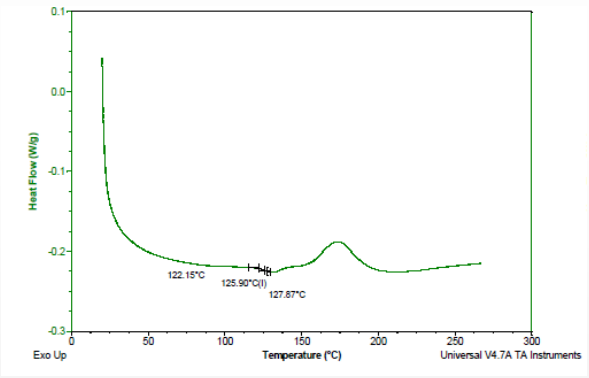


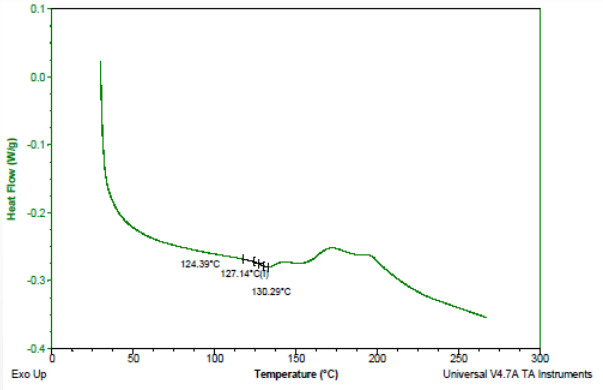
Experimental construction (AUTH)





Determination of mechanical properties of filament wound carbon και glass fiber composites materilas (University of Patras)





Heat flow diagrams and Tg determination in the curing oven

Horizon 2020

1. Call H2020-BBI-PPP-2015-1-, Topic: BBI.VC2.F2, Type of Action: BBI-IA-FLAG, Proposal number:709737, Proposal acronym: FINAICOST, Involved partners: ACTISA S.L, CELSUR, UWB, HIGH, UNIBO, ENVIPARK, PARAGON, B&T COMPOSITES

2. Call NMP 19: Proposal title "Materials for severe operating conditions, including added-value functionalities". Project title: Integrated MULTIfunction nano-materials for Carbon Fiber Reinforced Polymers. Involved partners: IMDEA, UOB, GLONATECH, SG, NTUA, TNO, GE, TEKNIKER, MSSMAT, ALS, ENGINSOFT, TELEDYNE, B&T COMPOSITES

3. Call NMP 22–2015: Proposal title "Fiber-based materials for non-clothing applications, (Innovation Action)". Project title: Fabrics based ultra light-weight and rapid assembly wind turbine blades. Involved partners: IMDEA, GAMESA, TWI, UOB, ALS, B&T COMPOSITES

4. Call NMP-07-2015: Proposal title: "3D Lithography for AM Bones and Bone-Inspired Structures using Nano-Enhanced Materials" Proposal number: SEP-210264058 Involved Partners: B&T Composites, Technical University of Thrace

European Research Programs

1. Call identifier H2020-BBI-PPP-2014-1.Project title: Natural Fiber for Industry and Construction.
Topic BBI.VC3.F1 Type of action BBI-IA-FLAG. Involved partners:
ACTISA S.L, CELSUR, UWB, HIGH, UNIBO, ENVIPARK, PARAGON, B&T COMPOSITES

2. Call NMP-20-2014: Type of action RIA. Call identifier H2020-NMP-2014-two-stage. Project title: Broadening multiscale material models for enhancing polymer design. Involved Partners:
ENGINSOFT S.P.A, ALS, UNISA, NANOTHINX, B&T COMPOSITES

3.Call FP7 ENV.2013.6.3-1: Turning waste into a resource through innovative technologies, processes and services. Project title: Cost effective carbon fibres recovery technologies. Involved partners:
EuCIA, UoB, KhAI, BIOGLS, ATALAN, IVL, SUPREN, AIMPLAS, IVL, AIMPLAS, CEIIA, FIWA, CLB, B&T COMPOSITES

4.Call FP7-2013-NMP-ICT-FOF. Project title: Composite production, Automation and Systems. Involved Partners: Laboratory for manufacturing systems & automation, University of Patras, ACCIONA, AITIIP, PRIMA INDUSTRIES, CIT CHALMERS, B&T COMPOSITES

5.Call FP7 SST-2012.5.2-3. Project title: Innovative structural and outfitting materials for ships. Involved Partners: UoB, Signal Generix, Luis Cruises, ALS Marine LTD, Maritime Institute of Eastern Mediterranean, B&T COMPOSITES.

6.Project Proposal: MULTIscale modeling of CNT enriched carbon fiber reinforced COMPosite materials "MULTICOMP". Involved Partners: IMDEA, ALS, B&T Composites, NANOTHINX,Ecole Central de Paris, Tekniker

7. Call SP1-JTI-FCH.2012.1.3 Project title: Compressed hydrogen onboard storage (CGH2). Involved Partners

8. Global proposal. Project title: Natural fiber for industry and construction. Involved Partners: Actisa, Envipark, University of West Bohemia, EGE UN, TU DARMSTADT, TECNALIA,CSIS, High Technology masterbatches S.L, Procema Cercetare, CERIB, ANDALTEC, RTU, IK4-CIDETEC, BAY ZOLTAN, AEIPLOUS, B&T Composites, Valueform LTD, Universidad de Granada, Artes S.R.L, Manufacturas Plasticas Vilchez, Diputation Provincial de Granada

Conclusion

Taking into account the environmental difficulties that exist throughout the Greek economy as well as the unwillingness of the Greek financial system to promote and assist creatively the development of companies such as “B & T COMPOSITES”, it is highly estimated that with the support and the systematic boost of the operation of the company the results will be extremely impressive. Therefore, we thank you for your patience in giving attention to the previous lines that significantly present a crucial but so important part of the company’s activity and future goals. However, it is expected to provoke your interest considering the company’s short and long-term expectations along with your business sympathy for creating an innovative and successful enterprising entity.

Thank you for your attention