Onshore, offshore and deep-sea pipeline repair: views from 3X Engineering

An innovative approach, customized solutions and processability are helping composite materials to gain ground on the metal materials traditionally used in the pipeline repair sector. Stan Boulet D’Autra, founder and CEO of the Monegasque company 3X Engineering, updates us on the evolution of this sector and shares his 20 years of experience and innovation.

JEC Composites Magazine: What are 3X Engineering's lines of business?

Stan Boulet D’Autra: Our main line of business is industrial maintenance in the area of temporary or permanent rehabilitation of structures. We operated mostly in the oil & gas sector, where the poor state of repair of the installations due to corrosion requires operators to find solutions for increasing the service life of their pipelines.

On top of that, oil price issues make it necessary to find technical solutions that allow repairs without shutting down production. For that, 3X Engineering has developed a range of composite products and services that enable continued efficiency, while maintaining the pressure resistance that operators require.

JEC: What are your areas of expertise?

Stan Boulet D’Autra: Since 1990, 3X Engineering has been specializing in pipeline rehabilitation. We’ve used our experience to extend our expertise to other fields, like the repair of overhead contact line structures, for example.

Through patents we’ve co-developed with large companies like Alstom, Total and the (French railway company) SNCF, 3X has been able to prove the effectiveness of composites compared to traditional repair methods, in terms of the weight of the pressure resistance that operators require.

JEC: Can you tell us how your sales break down for this past fiscal year?

Stan Boulet D’Autra: In 2013, we had sales of €4.3 million, 60% of which was from pipeline repairs using our REINFORCEKIT 4D composite system, 30% using our REINFORCEKIT HEA solution for the repair of overhead contact line structures, and 30% using STOPKIT, a product that can repair a leak under as much as 80 bar pressure.

JEC: Composite materials enable you to provide customized solutions. Can you explain how you approach a repair job?

Stan Boulet D’Autra: 3X Engineering has developed a range of products that comply with the ISO 24817 and ASME PCC2 international standards. These standards, along with the properties of the composites that 3X uses, are what define the repair “design”, the length and number of plies, etc. While 3X Engineering has grown internationally, it succeeded in delivering high quality tailor-made and client-oriented solutions. Today, 3X Engineering has grown from one pipe repair systems supplier into a worldwide structure repair reference with renowned unique and high-quality products and services.

The company’s philosophy has remained unchanged since its inception: offer the client unique, innovative, reliable products for reaching the highest quality standards.

JEC: Composite materials are used in a wide variety of applications. How do you approach the challenge of developing new applications?

Stan Boulet D’Autra: To answer this, we need first to understand the properties of the composites that we use, and then to define the “design” of the repair.

JEC: What challenges do you face today?

Stan Boulet D’Autra: Today, the main obstacle to the development of composite repair is the steel repair work. However, both the arrival of materials engineers in the market and the massive use of composite materials in the aerospace sector are contributing to change some techniques used on composite repair.

JEC: As you specialize in pipeline repair, what are your development goals in that market?

Stan Boulet D’Autra: 3X Engineering is constantly developing its worldwide sales network through franchised outlets. Also, almost all of our products are patented. We estimate that we still have about 70% of the market to capture. Currently, 3X employs 15 people; we plan to hire 4 or 5 more people for marketing and R&D. We optimize our products via new resins and fibres, for example, on a permanent basis. For that, 3X Engineering has set up a complete research laboratory with different scanning and product quality measurement equipment. A special machine was developed to help divers apply the products as efficiently as possible. The next step is to apply composites in the offshore environment.

JEC: How do you manage the cost and quality?

Stan Boulet D’Autra: We work in partnership with the Total for the application of composite materials in the offshore underwater environment. A special machine was developed to help divers apply the products as efficiently as possible. The next step is to apply composites in the offshore environment.

JEC: With 20 years of activity in the oil & gas sector, what are the challenges that 3X Engineering must address in the future?

Stan Boulet D’Autra: The challenge of the next few years will be to reinforce 3X Engineering’s position as one of the world’s leading composite repair providers. To meet this goal, our marketing strategy relies in the combination of research, creativity and the quality of 3X products.

More information: www.3xengineering.com