

Aerospace: The economic beauty of achieving more with less

Unique processing technology allows for part consolidation and efficient manufacturing: Combination of Egmond Plastic's Fusible-Core Technology and a VICTREX® PEEK polymer solution result in more than 30% cost and up to 50% weight reductions

Thornton Cleveleys (UK), April 9th, 2015 – In the manufacturing of complex fuel housings for the global aircraft industry, cost savings of more than 30% and weight savings of up to 50% can be achieved as opposed to existing metal designs. The efficient production, including part consolidation, is the result of Egmond Plastic BV, a leading injection moulding specialist, combining their own Fusible-Core Technology with a high-performance polymer solution provided by Victrex. Carbon-fibre grades of VICTREX® PEEK polymer eliminate the use of a separate bearing, for example, since this is now integrated into the overall design of the housing.

Fuel housings for aerospace applications have very complex inner geometries which are not mouldable using conventional injection-moulding technology. Egmond Plastic's Fusible-Core Technology enables mouldings of complex hollow housings, manifolds and pipes. Richard Brandwijk, Managing Director at Egmond Plastic BV, explains: "Our Fusible-Core Technology, in combination with carbon-fibre reinforced VICTREX PEEK polymer, delivers numerous benefits. These include cost reduction, enhanced manufacturing speed, and, in addition, weight reduction leading to improved fuel efficiency and reduced CO2 emissions. Along with part consolidation, this exceptional technology and material combination enables the design of very complex parts, beyond the capabilities of standard injection-moulding and metal processes."



Utilising a near net-shape manufacturing process for the fusible core allows for an 80% time saving versus machined parts. Secondary treatments for corrosion protection, such as anodising, can be eliminated. Lead times can be reduced by 50%. These factors collectively result in part cost savings of more than 30% versus metal equivalents.

"The global aerospace industry stands to gain enormously by persistently replacing metals in key

applications, in which Egmond has demonstrated tremendous leadership,” said Uwe Marburger, Aerospace Business Development Manager at Victrex. “Clearly, our PEEK knowledge and material solutions help enable the use of a technology that addresses some of the toughest challenges in complex aerospace part design and production.”

Previously, the end-user had generally specified aluminium for the production of fuel containing parts, but a PEEK carbon-fibre reinforced polymer demonstrates superior fatigue performance, compared to aluminium. It does this while meeting all the engineering requirements for this application, including stiffness, effective flame, smoke and toxicity (FST) performance, and resistance to aggressive chemicals, including notably, for this aerospace application, resistance to jet fuel and Skydrol hydraulic fluid. Parts can range in size all the way up to 30cm x 30cm x 40cm, and typically the process is used for production runs of up to 2,000 parts.

Egmond's unique Fusible-Core Technology has already established a proven track record using VICTREX PEEK. The key exhibit is a fuel pump for the Eurofighter Typhoon, a jet fighter in use in several countries in Europe. This pump has been in successful operational use for more than 20 years.

For further information about Fusible-Core injection moulding technology, visit Egmond Plastic online at www.egmondplastic.nl.

During **Aircraft Interiors Expo** in Hamburg Victrex will exhibit its cutting-edge solutions to the Aerospace sector on **Stand 6D110**.

Caption/Copyright:

Aerospace fuel housing made from VICTREX® PEEK polymer—up to 50% weight savings achieved. © PTI Technologies

About Victrex plc

Victrex, headquartered in the UK, is an innovative world leader in high performance polymer solutions focused on the Aerospace, Automotive, Electronics, Energy and Medical markets. Every day, millions of people rely on products or applications which contain our polymers, from smartphones, aeroplanes and cars to oil & gas operations and medical devices. With over 35 years' experience, we are investing in technical excellence to deliver leading edge solutions to our customers and our markets, and to drive value for our shareholders. Find out more at www.victrexplc.com

About Egmond Plastic

Egmond Plastic BV is a leading supplier in the field of injection moulding and mould manufacturing for the medical, aerospace, and defence industries, and many more. We develop our own moulds or outsource the manufacture of moulds (under guidance) to one of our partners in countries such as China. On a daily basis, we work with complex materials such as PEEK (Victrex) and PEI (Ultem), with or without glass and/or carbon fibres. Egmond Plastic was one of the first companies worldwide to specialise in the manufacture of high-tech plastics solutions with complex designs. We are in fact still the only company worldwide that can injection mould hollow components. For further information, visit Egmond Plastic online at www.egmondplastic.nl.

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