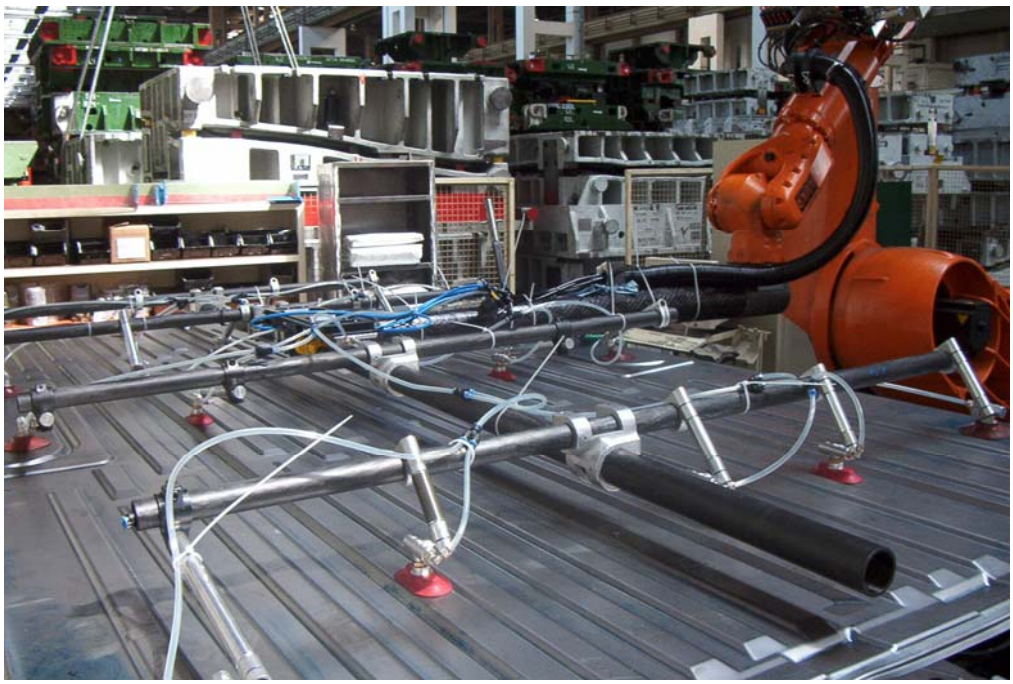
COMPOTECH
Structural Composite Tubes

CASE STUDY

Bilsing Automation improves performance and increases cost effectiveness by using CompoTech's carbon fibre tubes

Whilst Bilsing Automation, a German-headquartered manufacturer of robots for automated plants, accepts that initial costs may be higher when using carbon fibre compared to aluminium, the company also realises that the overall value it can offer its customers outweighs those additional costs. Twenty of Bilsing's current clients now have CompoTech carbon fibre structural tubes in their robots, and all future Bilsing projects will feature them as standard.



Bilsing robot using tapered and round CompoTech composite tubes.

Until recently, aluminium or steel robotic components have been standard in the automation industry. Car manufacturers, press shops, foundries and other plants have used aluminium booms and grippers, accepting considerable vibration, regular downtime to realign the machines, and unnecessary weight which causes stability and balance issues. Bilsing Automation, a 'turnkey' solution provider to the industry, is continually looking for new developments that will enable it to stay one step ahead of the competition. In 2005, Bilsing started working with CompoTech and very quickly realised the substantial benefits that the composite company could bring to their products, not only improving their own processes and efficiencies but also those of their end customers.

CompoTech has developed a unique process which enables them to manufacture structural tubes in custom shapes and sizes out of ultra high modulus pitch carbon fibre. Due to this higher elastic modulus (or stiffness), the vibration experienced with the aluminium booms and grippers can be reduced significantly, if not removed completely. To accommodate the vibration, a press needs to be opened widely to avoid component contact with other parts of the machinery. The wider the press has to open, the slower the cycle time. By decreasing the vibration using a CompoTech carbon fibre tube, the press opening is reduced and the working speed of the machine is increased, thereby increasing overall productivity of the whole production line

"Our clients typically experience a 10-20% increase in productivity when using robots with carbon fibre booms," says Alfred Bilsing, CEO of Bilsing Automation and veteran of the automation industry. "Our approach is to look at every aspect of the solution we provide to our clients – from design and engineering to materials to customer support – and see where we can add value to their process. A figure of 10-20% improved productivity is considerable by anyone's standards and confirms that we made the right choice by working with CompoTech."

Indeed, Bilsing is now researching how more CompoTech carbon fibre tubes can be used in their automation solutions, particularly for their automotive clients. In recent years, the automotive industry has become more accepting of carbon fibre and the

benefits it brings, so Bilsing is happier than ever to promote this aspect of their own products.

Bilsing's relationship with CompoTech is about far more than simply product supply. A strategic relationship has been formed to develop and manufacture a standard carbon tube to be used across all of their machines, which will bring even more cost efficiencies and value to the end customer. It is also recognised by both companies that, not if, but when, the automation system is constructed wholly from carbon fibre components, a complete overhaul of the design will be required, providing the opportunity for even further developments.

About CompoTech

CompoTech designs, develops and manufactures structural composite tubes for a range of industrial and marine applications. Established over ten years ago, CompoTech has a design office and manufacturing plant in the Czech Republic and a sales office in the UK, but supports customers around the world. CompoTech has developed an unrivalled Zero degree axial fibre laying process for manufacturing components of the highest standard on their custom-built machines. The company supplies a range of rigid and strong composite tubes to industrial sectors for use in industrial rollers, drive shafts, hydraulics and pneumatics, robot frames, and high voltage insulation; and supplies tubes to the marine sector for applications such as headfoils, masts, spars, hydraulic cylinders and other structural components.

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