

Polypipe – Planning for the future of manufacturing with Autodesk

A leader in its industry, Polypipe is using technology to explore a number of areas where it's looking to innovate and stay ahead of the competition.

With over 2,200 employees, Polypipe is one of Europe's largest and most innovative manufacturers of plastic pipe systems for residential, commercial, and civil infrastructure sectors. Their clients include major construction companies, power, rail and water networks. The company is also at the heart of some of the UK's largest ongoing infrastructure projects.

Andrew Cullum, Marketing and Development Director at Polypipe Civils

"As a manufacturer working primarily with the construction sector we're very aware of how both industries are changing and we're always looking ahead at how we can adapt and innovate to meet our clients' needs for both now and in the future. We're working with Autodesk to help us overcome both our short-term challenges such as getting ready for BIM, as well as our longer term challenges in terms of how we manufacture for the future, from exploring connected products to additive manufacturing."

A total water management solution

One of Polypipe's key business priorities is to offer clients a 'roof to river' total water management solution. This requires the sharing of knowledge and expertise from across its three main divisions: Residential, Commercial and Civil Infrastructure. A piping system that works well in a residential environment could potentially work equally well on a commercial project.

Having both consistent file formats and a standardised approach to product development, project solutions and manufacturing is therefore critical, because it helps avoid duplication within the business as a whole and reduces waste. Polypipe uses Autodesk's Product Design Suite and Infrastructure Design Suite for 3D modelling project solutions and off-site modular manufacturing and development, which allows the company to more easily create products in a consistent file format, that are also 'BIM ready'.

"Creating product files that are 'BIM-ready' is obviously important for ensuring we are in-step with our construction clients and meeting their needs, but actually having a better, more consistent approach to how we integrate our



Image courtesy of Polypipe

products in project designs and manufacture products also opens up a lot more opportunities for us as a business," explains Cullum. "Our aim is to create a product library that our clients can access, providing a more immersive and engaging experience and giving them the opportunity to work with our engineering experts to configure their Polypipe solution to their requirements."

"This will play a key role in our drive to extend our engineering expertise and to add value to client projects - streamlining the enquiry, validation, quote, and order process to support our clients and help them to achieve their goals. Extending this concept to link client requests and orders directly to production, resourcing, and finance systems will in turn drive efficiency and leverage new disruptions in the production process to improve production flexibility and agility. This could be a real game-changer for our business in terms of how we manufacture products in the future."

A journey to the future

Polypipe is also looking at how closer relationships with clients and more consistent and accessible data could open up completely new business models. "We have the tools now that could in

the future be used to design and manufacture 'connected' products that once installed will be able to provide real-time data to both ourselves and our clients," says Cullum. "This would not only allow for better monitoring and maintenance of a product following installation, but also provide valuable information that could help us improve our products so we have a continuous cycle of innovation. Connected products could enable us to provide our clients with value and services beyond the initial supply of systems - it's a really interesting area for us to explore."

Additive manufacturing

Another area of excitement for this forward looking company is the area of additive manufacturing, with 3D printing already being harnessed alongside configurable robotics to accelerate product development and production processes.

"3D printing is a hugely exciting area as it enables us to innovate even more quickly and cheaply, and to react and adapt to market changes or advances in materials," says Cullum. "We will soon be able to develop prototypes for specific customer projects in much shorter timescales and we see huge potential here for prototyping and customised product manufacture too."



Image courtesy of Polypipe

"Ensuring we are ready to support BIM is clearly important, but as a company we are conscious it's just one factor contributing to the wider disruption of the manufacturing landscape. Understanding and addressing all these wider disruptions will allow us to better deliver our 'roof to river' vision for our clients, and give us a real competitive advantage. As we continue our journey towards engineering excellence we're glad to be working closely with a company like Autodesk that can help us understand 'what's coming next', where the future of manufacturing is heading, and how we can take advantage of new trends and technologies to grow our business."

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