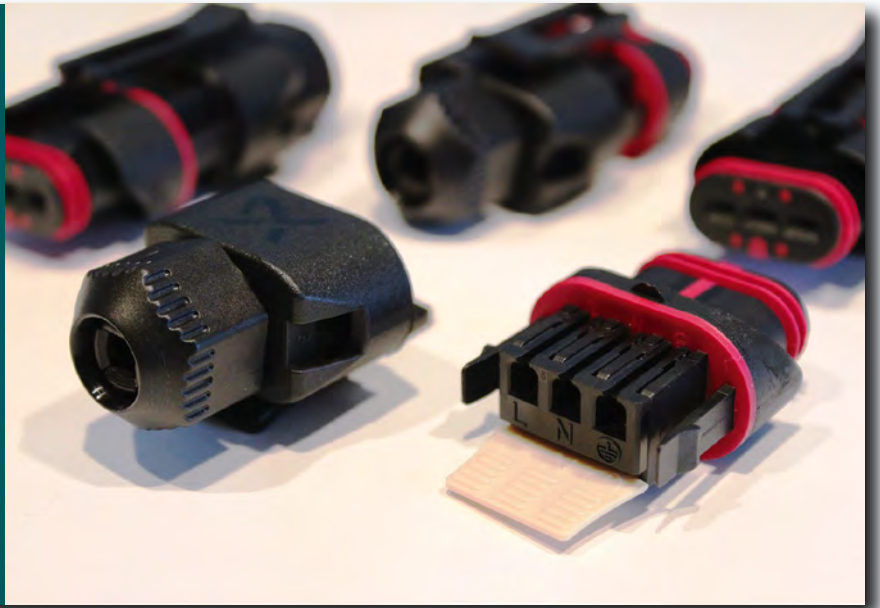


Sumitomo (SHI) Demag project managed a multi-component connector moulding system for Molex Ireland, delivering first production within six months of design freeze, writes **Chris Smith**



Turnkey system delivers for Molex

Molex Ireland turned to Sumitomo Demag's project management team to develop the production system for this new two-shot connector for pump maker Grundfos

Injection moulding equipment maker Sumitomo (SHI) Demag played a key role in the development of a new range of multi-component connectors for interconnect products manufacturer Molex Ireland, working closely with specialist mouldmaker Hofmann Innovation and hot runner manufacturer Männer as well as moulding technical consultancy G&A Moulding to deliver a fully-proven turnkey manufacturing system to the factory floor.

The complex manufacturing project involved production of a two-shot sealed connector that was to be used by pump maker Grundfos in its latest energy-efficient product line. Annual production rates would run into several million pieces a year. The project was critical to Molex as it would open up a new global market for the company, enabling it to target applications requiring rugged sealed multi-component connectors.

New technology

Molex opted for a completely new manufacturing process for the connectors, involving the use of an 8+8-cavity two-component mould designed to manufacture the connector inserts in a single moulding process. A key requirement of the production system was to achieve a strong and reliable bond between the hard PBT first shot polymer and the flexible TPE used to create the seal in the second shot.

The company's schedule called for initial production within six months of freezing the part design; Sumitomo Demag says this presented a considerable challenge to

the project participants as lead times for a multi-component tool of this type are typically in excess of 20 weeks.

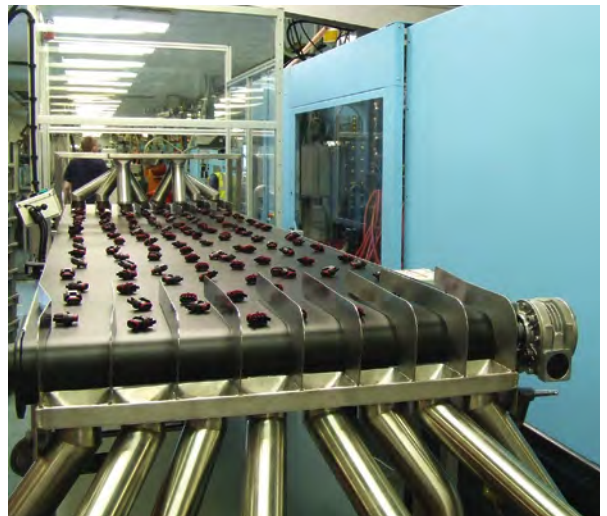
"We were confident that Sumitomo (SHI) Demag could provide the right equipment as they had a successful installation base of multi-component injection moulding equipment worldwide," says Molex process engineer Donal Costello.

"But more importantly we needed them to work effectively as technology partners with the other stake holders of this project. It was their extensive network of very competent and innovative experts, plus their ability to help us turn this challenging project around in the short timeframe, which set them apart from their competitors," he says.

The project was managed by the Sumitomo Demag team in the UK together with the projects department at the company's headquarters at Schwaig in Germany, who also selected and worked closely with the tooling and hot runner suppliers. A 350 tonne multi-component machine was selected for the task and configured with an 840 main injection unit with a piggy-backed 120 second unit. The Multi 350-840H/120R machine, which is based on the company's Systec hydraulic base design, is also equipped with a 180° integrated rotary turntable.

Parts are unloaded from the machine by an integrated Harmo beam robot, which places them onto an indexing conveyor from where they are loaded into storage containers via a chute system. Cavity identification is maintained through the production process.

Sumitomo (SHI) Demag was able to secure two



weeks of production time on a similar machine it had supplied to one of its other customers, allowing the Molex moulds to be trialled while the production machine was still being constructed at the German factory. This helped hold to the connector maker's demanding time schedules.

Further time was saved at the installation and commissioning stage by sending the Molex machine direct from the Sumitomo (SHI) Demag factory to the Hofmann Innovation mouldmaking plant. "We were able to test the materials, fit the moulds, complete validation and commissioning so that when the machine got to Molex all we had to do was install the system," says Nigel Flowers, managing director of Sumitomo (SHI) Demag's UK subsidiary.

The installation team then worked 24 hours-a-day over the Christmas period at the Molex factory at Shannon in Ireland to have the validated system in

production on time.

"This project involved a new customer, new product type and a new sector for Molex globally - we had to be 100% confident that our chosen partners could deliver a manufacturing solution that was both capable and reliable," says Costello. "Sumitomo (SHI) Demag, in conjunction with the other stakeholders Hofmann, Männer and John Goff [at G&A Moulding Technology], really helped us to de-risk the entire project."

The 350 tonne Multi machine is the largest and most recent Sumitomo Demag machine to be installed at the Molex moulding operation.

Click on the links for more information:

■ www.sumitomo-shi-demag.eu

■ www.hofmann-innovation.com

■ www.maenner-group.com

■ www.gandamoulding.co.uk

Above left:
The Sumitomo Demag Multi machine installed in the Molex plant at Shannon in Ireland

Above right:
Finished parts are removed from the 8+8 cavity mould by robot and placed on an indexing conveyor

compounding **film and sheet** **injection** **pipe and profile**
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