Say it with flowers

Part of a large US company since 2015, a hot runner systems manufacturer located within the beautiful Aosta valley region of north-western Italy is planning to grow tall like the mountains that surround it. Steven Pacitti visited the factory

There is a saying in Italy about customers that 'sometimes they ask for flowers', which suggests the importance of strong relationships and the ability to go the extra mile to deliver added value. Rather than flowers, Italian hot runner systems supplier Thermoplay offers technical products, and it is doing so at a rapid pace.

Says general manager Roberto Bertone: "Since 2008 the market has become very aggressive as the demands of the customer continue to increase. Time is of the essence."

It has been a busy few years for Thermoplay, particularly since the company was acquired by global industrial and aerospace manufacturing provider Barnes Group Inc. in 2015. Thermoplay is now a business of Barnes Group's Molding Solutions strategic business unit. The fact that Barnes Group already owned Synventive (hot runner systems and components) and Männer (high precision mould-making and injection moulding system solutions) has provided opportunities for synergistic growth.

Joining a group of 5,000-plus employees was a new reality for what was a privately-held organisation. Although the management team was retained, the family exited the business after the Barnes Group deal.

"During the last decade, the company has grown significantly and we now have more than 200 staff," said Bertone. "Our only manufacturing facility is here in Italy, but we have subsidiaries in Germany, France, UK, India, Brazil and Portugal."

The most obvious synergy for Thermoplay was with Barnes Group-owned businesses Synventive, which was acquired in 2012 and has large manufacturing plants in the US, Germany, and China. The US and China locations are priorities for Thermoplay, according to global sales director Davide Albertazzi.

"We want to target growth in North America and China, and also focus on building our caps and closures business. We can base our operations out of Synventive's strategic locations. Before the Barnes Group acquisition, we had a small subsidiary in China," Albertazzi explained.

"We're continuing our integration with Synventive now," said Bertone. "We've already partnered with Priamus, integrating our temperature controller with their sensor control systems. Barnes Group also acquired injection mould maker Foboha last year, which has a great alliance with fellow mould maker Männer (acquired by Barnes in 2012).

According to Bertone, Barnes Group's decision to acquire Thermoplay was based on the company's stand-out product portfolio and some "unique patents".

"We don't just make standard systems like some of the big hot runner system suppliers; a lot is tailor-made with some special nozzle patents. Our objective is to create a difference for the customer with lower cost systems, and we have a greater focus on packaging here," said Bertone.

Thermoplay has invested heavily in its Pont-Saint-Martin, Aosta facility in Italy and has doubled the size of the plant since 2008, having grown to an 11,000sqm site. "The Aosta Valley gives good opportunities for start-ups and the government offers incentives."

The F011 valve gate nozzle is suitable for use in restricted areas and allows injection on an 'inside' surface of the part

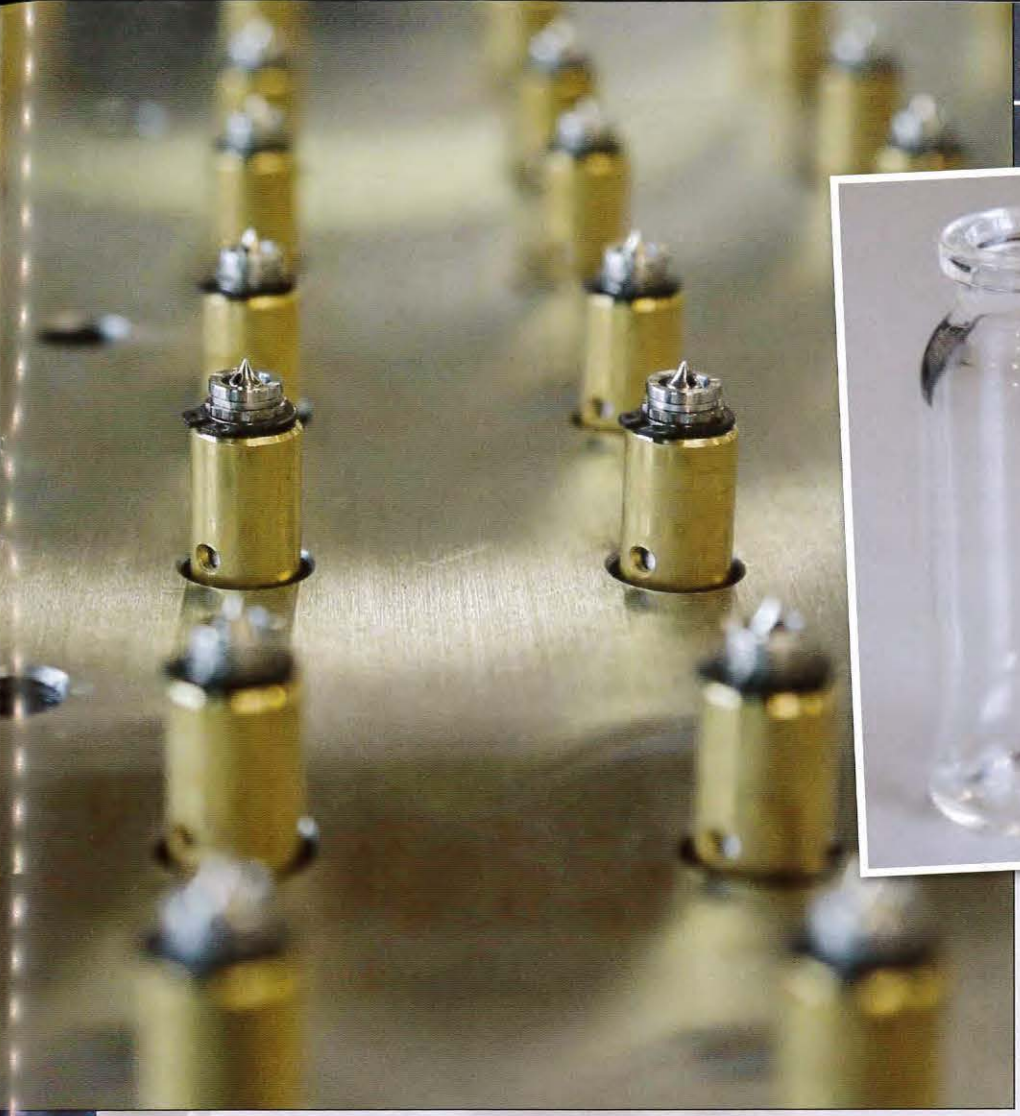
Calling Thermoplay an "open company", Bertone went on to say that the firm is open to investments in software, machines and more, with further investments on the horizon.

"While we already distribute the majority of our production to Europe and offer excellent service, we can still develop our export business further and our synergies with Synventive can help us achieve this," explained Albertazzi.

"The geography of Barnes Group has changed and expanded significantly in recent years. However, different markets have different factors to consider. North America is about complexity and Just-In-Time (JIT) mentality, meaning that materials are delivered at the time they are required and minimal inventory is kept. China requires fast delivery for different types of applications, while India has a lot of good mould makers in the multi-cavity area."

The aforementioned focus on packaging is evident in Thermoplay's sales, the majority of which are in this sector, including caps and closures, personal care and medical, requiring more precision through valve gates. Automotive, electronics and white goods are also key markets for Thermoplay.

"Increasing cavity is a focus, as are devel-



Main image: Special multi tip nozzles are designed for axial injection of small parts, such as the membrane for a perfume dispenser. Left and below: A recent launch saw Thermoplay develop a hot runner manifold that made the latest innovations in hot half design available to the injection blow moulding sector (Aoki or Nissei ASB, or similar)

Time is of the essence

Boasting a large and experienced design team in Italy, and several others scattered across facilities in Germany, Portugal and India, the emphasis on innovation, creative thinking and standardisation is quickly evident during a tour of the Aosta facility.

Thermoplay's HSE and quality manager, Fabio Cappello, took *Plastics in Packaging* on a tour of the factory and its JIT philosophy. A Hypox polymer removing system takes metallic components such as moulds and hot runner plates and removes carbon residuals during a maintenance process that can take up to five days.

The company operates a water recycling system, which comes from both the manufacturing machines and plant cleaning service. All wastewater is collected and sent to a depuration system, allowing it to be used again on the manufacturing machines. Thanks to this system, the Aosta facility is able to save about 80 per cent of water waste. In addition, the entire factory roof is covered by photovoltaic panels, which produce around 190kWh of clean energy and contribute to cost savings.

"We have a four- to six-week turnaround for hot halves and special systems and one week for standard nozzles," explained Cappello. "When it comes to nozzles, there are always some special parts needed by customers."

As such, 3D modelling and parts are an essential part of the modern day development process.

"Time is of the essence," said Cappello, mirroring the sentiments of general manager Roberto Bertone.

opments in shut-off, stack moulds, and cube moulds – multi-cavity is a must," explained Bertone. "JIT remains a real trend, as does the reduction of time to market using online software developments, mould component standardisation, and delivery of projects."

At the moment, it is more about improvements in technology rather than revolution.

"Reliability is critical and hot runner systems must comply with longer scheduled maintenance intervals of the moulds," said Guido Bosonetto, research and development designer for Thermoplay. "Strict control is imperative, and materials and coatings play a strategic role. We are doing a lot of work with flow simulations in order to get a homogeneous and balanced filling of the cavities."

A mould maker is increasingly looking to co-design, whilst seeking to conduct filling analysis, choose the right nozzle and perform FEA thermal and structural FEA calculations, all in two weeks. Everything has to be done JIT. Co-injection, meanwhile, looks for new applications in food packaging and cosmetics (thin-wall packaging), where light and oxygen blocking is required.

"These applications are relatively new for co-injection and enable us to use recycled material inside," said Bosonetto. "Polycyclohexylene terephthalate (PCT) polymers can contain 35 per cent recycled content, but the target is to increase this."

Caps and closures are a major contributor to Thermoplay's packaging applications, and the reduction of weight and waste in plastics parts has been a focus in recent years. However, Bosonetto notes that caps for water bottles are at the absolute limit in terms of weight.

"Other hot runner innovation target areas are achieving glitter or metallic masterbatches via a mixer in the nozzle, and quicker colour changeovers.

"Valve gate hot runner systems are gaining in popularity for multi-cavity applications, and customers are demanding smaller diameter nozzles with reduced pitch. Thermoplay has made strong efforts in this direction during the last two years."

It is still in the early days under new ownership, but with synergies identified and integration well under way, Thermoplay is ready and open for business and investments. It spells busy times ahead.

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