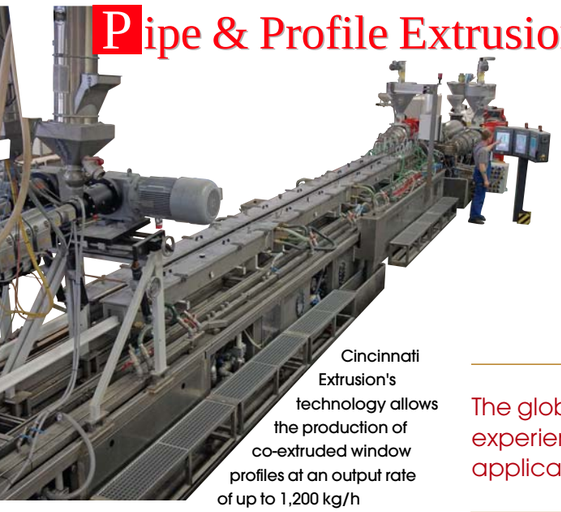

Cincinnati Extrusion's technology allows the production of co-extruded window profiles at an output rate of up to 1,200 kg/h

Optimised for extrusion

The global pipe and profile extrusion market continues to experience robust development and growth in market applications

Austrian extrusion manufacturer Cincinnati Extrusion (www.cet-austria.com) supplied an extrusion system package combining an Argos 135 with two Konos 72 extruders to Germany's Profine for the high speed production of co-extruded window profiles. The system not only ensures a high output of 1,200 kg/h but also reaches that output with an energy optimisation package.

The recently installed line sets itself apart from conventional extrusion equipment by reaching a 30% higher line speed in continuous operation. The main factor in this new speed level for the industry is the die developed by Profine, which optimally processes the high throughput delivered by the extruders. Two compact Konos 72 conical twin-screw extruders are used as co-extruders with an extremely short melt channel between the extruders and the die.

Cincinnati Extrusion's energy optimisation package claims to use up to 25% less energy, using energy-efficient AC motors and the new Polytherm screw geometry, which optimises the energy input into the extruder so that a lower torque is sufficient to reach the same throughput. With the IntraCool system, Konos is the first series of conical twin screw extruders completely without active screw root tempering.

Connecting Europe with Asia

Involved in a government water pipeline project transporting drinking water from the Ömerli reservoir on the Asian side of Istanbul to the European part of the city, pipe manufacturer Firat produced 4,000m of large-diameter pipe at quick time.

To enable the pipes to withstand the high pressures of the water flowing through and the surrounding water, they come with 109.1mm thick walls. For the production of the large-diameter pipes, each 13m long and weighing 5 tonnes, Cincinnati Extrusion simultaneously remodeled two extrusion lines on site. The extrusion dies as well as the downstream aggregates were adapted to handle the unique dimensions.

The PHPO 100 and PHPO 63 pipe extrusion dies equipped with spiral mandrel distributors and die-face cooling ensure optimal melt temperatures and an excellent melt distribution, even with the high viscosity of the PE100 material. A modification using a special die and mandrel components allow for the production of pipes with wall thickness of 109.1mm without any problems.

Both lines with an output of 1,000 kg/h each operated round the clock for a whole month to have the 4,000m of large-diameter pipe delivered on time. While one of the two lines is equipped with a Proton 150-30 G single screw extruder, the second line features a Monos 120-37 G high-speed extruder. With the processing unit extended to 37D, Monos extruders reach a 30% higher output than their predecessor models from the Proton series, so that the extruder model can be scaled down by one size to produce the same output.

Cincinnati Extrusion and the Battenfeld Extrusion Group are owned by the European private equity investor Triton. Headquartered in Bad Oeynhausen, Germany, Battenfeld Extrusionstechnik (www.bex.battenfeld.com) specialises in offering turnkey extrusion lines to the market, from material feeding to the control system and including extruders, dies and downstream equipment.

Since the acquisition of Cincinnati Extrusion and its integration into the former SMS plastics technology division as a sister company, the two companies have consistently pursued a two-brand strategy in the global market.

Battenfeld Extrusionstechnik managing director Wolfgang Studener explains the situation as follows: "Both brands enjoy an excellent reputation worldwide. While Cincinnati Extrusion concentrates more on business with individual machines, our focus is more on complete systems. Naturally, this implies that we have a very different customer base; direct competition is relatively small with less than 10 percent."

Application showcase

KraussMaffei Berstorff (www.kraussmaffei.com) advances pipe and profile extrusion technology at the recently held Chinaplas 2008 exhibition with the KME 60 XS single-screw extruder and a die to produce technical profiles from PMMA and PO.

Machines in the KraussMaffei Berstorff XS series are capable of delivering a high return on investment by keeping manufacturing costs low. The XS concept results in machines ready for integration in an automated extrusion line, covering all applications in technical profile and pipe extrusion. XS machines can also be used in co-extrusion systems.

With its proven design characteristics, the XS single-screw extruders are equipped as standard with KraussMaffei Berstorff's C5 extrusion line control system, which ensures effective, highly stable processes and facilitates automation and comprehensive data capture.

Also displayed was the KME 90-36 B/R single-screw extruder for pipe extrusion. KraussMaffei's 36D single-screw pipe extruders deliver high, pulsation-free output. The longer processing unit achieves far better thermal and material homogeneity at consistently lower melt temperatures. The extruders guarantee constant high pipe quality and cover a wide application spectrum, including production of single and multi-layer pipe, metal composite pipe and corrugated or wound pipe.

In Jiaxing, China, KraussMaffei Extrusion Technology (KMET) held an open house event to showcase two extrusion lines in operation, a KMD 90-32/P twin-screw extruder and a KME 30-25 C co-extruder will be producing PVC profiles while the other extrusion line produces HDPE pipe on a line headed by a KME 90-36 B/R single-screw extruder and a RKW 36 pipehead.

KMET supplies the Asian market with high-end pipe and profile systems at cost competitive prices, with the Performance extruder series built using core components from Europe combined with components from KMET production. For pipe extrusion, the Performance series includes 36D twin-screw extruders for PVC and 36D single-screw extruders for polyolefin pipe. Pipeheads and downstream units are available for pipe diameters between 16 and 630 mm. For profile extrusion, KMET offers 32D twin-screw extruders for PVC.

On the surface

Polyolefins suppliers are getting in the act with new grade developments to meet today's processing needs, with a growing emphasis on how these new technologies can boost application innovations in myriad pipe extrusion fields.

Reliance (www.ril.com) has received the PE100 certification for its Relene 46GP003 PE pipe grade, manufactured at Gandhar, India.

This certification enables Reliance's entry into the select group of manufacturers to have received the PE100 certification. The only Indian and seventh Asian producer to receive the certification for pipe applications, Reliance would build on its own in-house capability to produce PE pipes and create a differentiated platform in the PE pipe field.

According to Reliance, pipes made out of PE 100 grades have outstanding pressure and abrasion resistance, superior stress crack resistance and provide a higher margin of safety. These pipes find extensive use in applications for gas and water distribution, and sewage disposal.

LyondellBasell Industries (www.lyondellbasell.com) has launched a new range of developmental polybutene-1 (PB-1) resins marketed as Akoafloor that can be used in surface heating and cooling pipe systems. The Akoafloor resins are initially being targeted at the Chinese market.

Akoafloor resins are PB-1 copolymers that can address the demanding requirements of surface heating and cooling systems used in household and commercial buildings. "We have been working on this new generation of pipe resins in close collaboration with customers in Asia and Europe," says Remi Perrin, global PB-1 marketing, innovation & product manager for LyondellBasell. "Several approval tests are underway for pipes produced using Akoafloor resins, and in parallel, we are working on the development of new industry standards."

Test results show that pipes made of Akoafloor resins offer excellent flexibility and properties for surface heating and cooling applications in modern architecture. The resins can be processed on high speed extrusion lines — up to 50% faster than incumbent materials, it is claimed — offering improved surface finish and faster crystallisation speed.

In China and Asia Pacific, PB-1 based pipes that have been designed, specified and manufactured by LyondellBasell's customers have demonstrated proven consistency and reliability since market introduction, where the product is expected to make a significant contribution to the sustainable development of building infrastructure and energy management.