

Extrusion of a Wide Variety of Pipes without Retooling

Pipe Extrusion “through Thick and Thin”

Producing high-quality HDPE pipes and reacting flexibly to customer requirements in terms of diameter and wall thickness was the target pursued by Canadian Encoma Ltd. In line with this commitment, the industry newcomer opted for a QuickSwitch line from KraussMaffei Extrusion. The production efficiency achieved even with small batch sizes was so impressive that an order for a second line followed just a few months later.



Thanks to the QuickSwitch system, Encoma is able to produce multi-layer HDPE pipes with diameters ranging between 25 and 63 mm on one and the same line. © KraussMaffei

QuickSwitch is the name of KraussMaffei Extrusion's unique package solution for the flexible production of pipes with widely differing dimensions on one and the same line without retooling. The core component of this line is the calibration system, which is set to new pipe dimensions fully automatically and in almost no time without having to stop the production line. The waste produced during the “quick switch”

period is limited to a cone-shaped piece of material of four to six meters length. This contributes not only to higher efficiency but also to enhanced sustainability in pipe production.

In addition to changing the pipe dimensions at the push of a button, QuickSwitch also handles the fine adjustment of pipe wall thickness and pipe centering. Both parameters are of fundamental importance for the production of

high-quality pipes. Once saved, production data can be retrieved and adjusted at any time for maximum precision and reproducibility. The entire downstream equipment integrated into the control system is automatically adjusted as well, readjustment is therefore no longer necessary. Thanks to the intelligent control system, all production parameters can be monitored, documented and correlated with each other. The line



In addition to changing the pipe dimensions at the push of a button, QuickSwitch also handles the fine adjustment of pipe wall thickness and pipe centering. © KraussMaffei

thus manages itself and the personnel effort is minimal. All in all, QuickSwitch is the ideal solution for market newcomers like Encoma Ltd.

Practical Test – Underfloor Heating in Canada

Encoma started manufacturing multi-layer HDPE pipes for water supply, geothermal and cable protection applications as well as for underfloor heating in the fall of 2021. Within the frame of this project, KraussMaffei Extrusion installed a complete 3-layer QuickSwitch line covering the entire production process – from raw material to semi-finished product handling – in Manitoba, Canada. Just three months after the start of production, the company ordered two new lines – a second QuickSwitch line and a 5-layer PE-RT line specifically designed for underfloor heating

pipes. “Quality, reproducibility and production time achieved with the first QuickSwitch line for HDPE pipes were so convincing that we decided to go straight back to KraussMaffei as our machine supplier,” explains Derek Hofer, Plant Manager at Encoma.

With the line already installed at the Manitoba site, Encoma produces pipes with diameters ranging between 25 and 63 mm. The line now ordered will extend the dimensional range up to 160 mm.

“Thanks to the perfectly tailored machine solution, we are able to produce a wide range of different pipes for changing customer requirements even in small quantities.” Against this background, Derek Hofer is deeply convinced that the company is well prepared for future growth.

Benefits of the Flexible Pipe Extrusion Head

Adjustable pipe extrusion head: An axially adjustable conical die and/or mandrel provided in the melt discharge zone changes the discharge gap width to obtain different pipe wall thicknesses.

Suction bell for precise expansion: The bell is used to expand the flexible melt hose discharged from the pipe head to the required calibration diameter when the specified pipe diameter is larger than the diameter of the pipe extrusion die.

Adjustable calibration basket: The calibration basket is designed for the shaping function of a standard calibration unit. In addition, it can be continuously adjusted over the entire diameter range of pipes produced on the line.

Reliable end seal: Conventional pipe extrusion lines are equipped with seals

that are designed for a specific pipe diameter only. Thanks to the modular end seal design composed of several moving segments and combined with pneumatic cylinders, the vacuum tank is perfectly tight against ambient pressure over the entire diameter range. The seal is automatically adapted to the new pipe diameter.

Centric guide system: With conventional lines, the pipes are guided by supporting discs or prism rollers inside the tanks. QuickSwitch extrusion lines are equipped with combined rollers that ensure centric guidance and reliable support of the pipes while maintaining the pipe shape.

Constant pull-off force: To ensure that the pipe is always conveyed in centered position through the haul-off system, sensors measure the actual pipe diameter and trigger any necessary corrections.

Cutting system: The cutting system is provided with an independent diameter detection and adjustment system. When used in combination with a variable clamping jaw system, no retooling is required in the event of dimensional changes.

All-in-one control system: All parameters required for specific pipe dimensions are stored once in the C6 line control system. The line adjusts to the desired pipe dimensions fully automatically within a few minutes and produces on-spec products from the very first pipe after the dimension change. ■



One of the first loads of three-layer HDPE pipes with a silicone inner layer produced by the industry newcomer Encoma in Canada. © KraussMaffei

Info

Text

Annette Beierling is Pipe & Profile Product & Application Owner at KraussMaffei.

Contact

www.kraussmaffei.com

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