

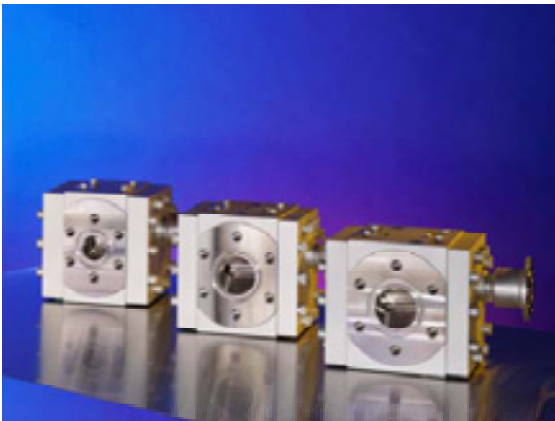
Gear pump assisted extrusion for thermoplastics and rubber

Nowadays gear pumps have to be considered not only as state of the art equipment in extrusion lines for high quality end products but also as an acknowledged instrument for improving the overall efficiency and user-friendliness of extrusion lines. Together with extruders, in the broad sense – kneaders, co-rotating twin-screw extruders, single-screw plasticizing extruders, etc. – they constitute crucial components of a production line that is being called upon to meet steadily rising demands in terms of quality and economics. The general term employed here is gear-pump-assisted extrusion.

Gear pumps are used both in new extrusion lines and for retrofitting existing ones. In both cases, the objective may be to step up production, achieve a more uniform product, enhance flexibility, improve product quality, or simply handle the polymer more gently. Gear pumps are used, for example, in the production of monofilaments, laminating and orientated films, rigid and thermoforming sheet, tubes, and profiles, as well as for the insulation of wires and cables. The materials processed, range from ordinary commodity plastics and engineering thermoplastics all the way to high temperature-resistant polymers.

Also the producers of rubber profiles and hoses have recognized this benefits a gear pump has, especially in utilizing their upstream equipment for full throughput rates while improving the quality of their end products.

Maag now presents the development of a new line of extrusion gear pumps, the extrex[®] GP / HV / HP.



Maag's rich experience, innovative approach, strong research processes and good relationship to the customer have fueled the development process for this new line of extrex[®] gear pumps. The company worked intimately with customers to engineer a new type of pump to address critical process applications. "We knew what types of improvements the customers wanted and so we worked closely with them to develop the new line," stated Thomas Roll, Product Manager extrusion & rubber, Maag Pump Systems Textron. "We couldn't be more excited with the outcome of the new extrex[®] line of products.

The new extrex[®] HV gear pump has a maximum Δp of 200 bar and a 25% higher specific volume compared to all standard designs. The new extrex[®] gear pump is also available in models such as HP for Δp up to 400 bar, RB for rubber processing, and the standard GP for regular extrusion process applications. Maag has added several upgrades and new features for the new gear pump such as easy adaptation, optimized rheological design, and modular construction."

The new extrex[®] product scope enables an ideal adaptation of pressure and viscosity to a broad range of processing methods. This easy adaptation to a wider range of processing conditions is made possible by the introduction of additional standard sizes for gear shafts and bearing clearances. The use of a "dynamic flow simulation program" (CFD), specially developed by Maag for this purpose, enables an optimized rheological design of the flow channels with the best possible avoidance of dead zones.

Maag continues to exceed customer expectations with new innovative gear pump and screen changer designs with long lasting durability. Maag has one of the most extensive lineups of gear pumps and screen changer products in the industry, and customers continue to purchase Maag's pump systems for long-lasting performance and outstanding quality.

With the expac[®] extrusion automation technology including the maax[®] control systems and measuring equipment Maag also offers semi- and fully automated PLC and PC based graphical user interfaces to easily integrate pumps and screen changers into existing or new extrusion equipment. These maax[®] controllers include temperature control zones, pressure control loops and a range of preprogrammed procedures for an easy control of the whole extrusion line. As an option, further functions for necessary auxiliaries like haul off and other downstream equipment are available.

Using plain text error messages the identification and elimination of process variations and failures is a very easy task. The maax[®] control systems also includes certain functions for process data acquisition and reporting to enable you to continuously scan and track your processes to identify critical conditions or simply have a quality control report for these processes available.



Maag Pump Systems Textron, part of Textron's Fluid and Power group, is the leading designer and manufacturer of gear pumps and filtration systems for the extrusion, polymer, industrial, and compounding process industries worldwide. More information is available at www.maag.com.