

UNIQUE APPLICATION INVOLVING TWIN SCREW EXTRUDER INSPIRES INNOVATION IN HIGH VISCOSITY PUMPS

IPEC PROVIDES POLYMER SOLUTION PUMP FOR CUSTOMER NFM

THE CHALLENGE

NFM is an innovative provider of extrusion systems and solutions. In order to meet a variety of production demands for the rubber and plastics industries, they found themselves in need of a pump that could accurately inject high viscosity polymer solutions at high flow rates into a twin screw extruder, a system that includes a set of two parallel screws that continuously rotate inside of a barrel. As raw material moves along the barrel, it can be mixed, cooked, heated, cooled, and pumped by the two screws. This particular manufacturing process requires performant and flexible pumps that can adapt to a variety of production demands.

After being an Industrial Pump & Equipment (IPEC) customer for many years using the Milton Roy mRoy and Milroyal series of pumps, NFM approached IPEC when the flows and pressures required to pump polymer rose beyond the typical applications of existing pumps.

This challenge is what brought NFM, Milton Roy, and Industrial Pump & Equipment together.



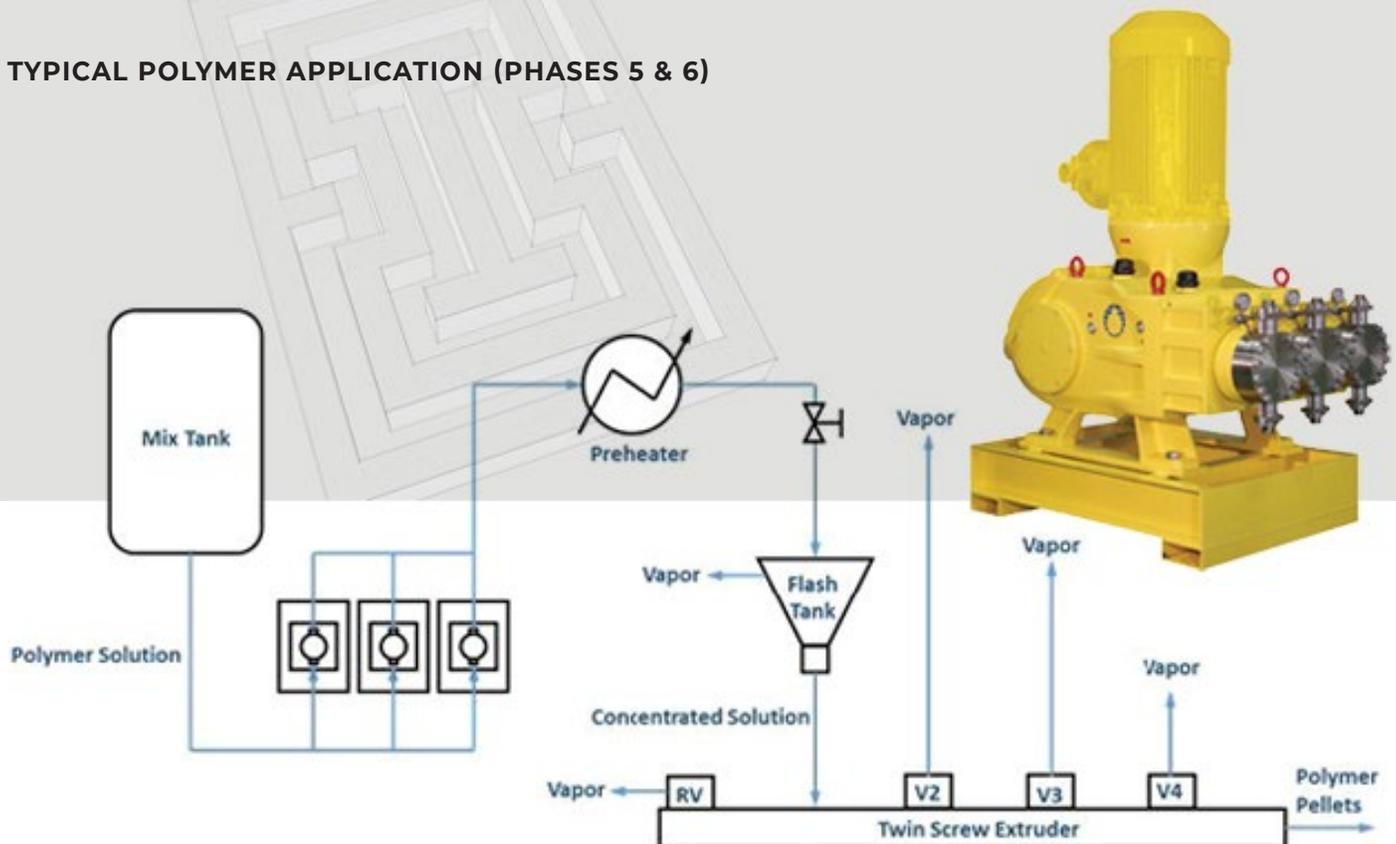
COLLABORATING ON AN INNOVATIVE SOLUTION

Recognizing NFM's unique application, IPEC reached out to its engineering partners at Milton Roy headquarters in Europe to create a customized solution for NFM using the MegaRoyal pump. The Milton Roy Europe (MRE) engineering and project team have extensive knowledge, experience, and expertise in the application of their products, making them a natural fit.

During the proposal stages, they emphasized the importance of knowing certain fluid properties to aid in the design of the pump liquid end. MRE's ability to transparently communicate their knowledge led NFM to decide that MegaRoyal design was the correct solution to suit their needs.

Milton Roy and IPEC were able to collaborate on the development of a polymer solution pump capable of handling polymers and other viscous fluids. Made and engineered out of Milton Roy's facility in Pont Saint Pierre France, the result of this collaboration is NFM's customized Megaroyal Polymer Solution Pump.

TYPICAL POLYMER APPLICATION (PHASES 5 & 6)



The application detail and general process schematic are based on an installation involving a NFM/WE Twin Screw Extruder.



FEATURES AND BENEFITS OF THE MEGAROYAL POLYMER SOLUTION PUMP:

- Delivers constant flow rates 7,000 LPH max (1,850 GPH max) at 70 bar / 1,015 psi discharge pressure.
- Heating jackets maintain the right temperature (+90°C / +194°F) of the polymer solution in order to maintain the required viscosity.
- Special check valves designed to handle viscous polymer solutions (10,000 cps).
- Capable of supporting the continuous operation of feeding the extruder.
- The accuracy of the MEGAROYAL dosing pump allows the synchronization with the extruder rotation speed to produce a constant quality of the plastic pellet.
- High level of accuracy, linearity and repeatability adapts to the production flow as needed.

THE RESULTS

The Megaroyal Polymer Solution Pump provides accurate injection of high flow polymer solutions into an extruder to produce raw plastic pellets.

The Megaroyal triplex monobloc pump is equipped with a VFD motor that adjusts to changes in production flow rates as needed. Ultimately, the pump is able to maintain high flow and pressure in high viscosity applications.

By working together, NFM, Milton Roy, and IPEC developed a cutting-edge pump capable of handling unique applications like pumping polymers and other viscous components. Powered by Milton Roy's manufacturing dependability and NFM's extrusion system ingenuity, the Megaroyal pump provides the reliability and flexibility needed to meet the needs of the rubber and plastics industries.

ABOUT NFM

NFM/Welding Engineers, Inc. is a global leader in extrusion system design. NFM excels in developing new processing technologies and providing extrusion systems and solutions to the rubber and plastics industries. They specialize in rubber extrusion systems, plastic extrusion systems, polymer compounding, and post-reactor polymer finishing.

Established in 1973, NFM has built a strong reputation for providing reliable systems and engineering, manufacturing quality and craftsmanship, product performance, and excellence in customer service.

[Learn more about NFM.](#)



ABOUT MILTON ROY

Founded in 1936, Milton Roy manufactures chemical metering pumps, mixtures, and systems engineered to fit any application. The company is renowned for its reliability in providing products that perform consistently for years.

As industries worldwide face increasing challenges, Milton Roy uses decades of expertise to engineer customized solutions to meet their needs and drive progress. [Learn more about Milton Roy.](#)

ABOUT INDUSTRIAL PUMP & EQUIPMENT

Industrial Pump & Equipment began in the 1950s as a direct factory sales office for Milton Roy Co. and grew quickly from there. In 1961, Industrial Pump & Equipment became the exclusive representative for Sundyne Pumps and Compressors in Ohio. In 1967, they signed on to be the exclusive representative for Badger Meter products in Ohio.

Today, the company is a leading authorized channel partner and distributor of equipment used to transfer, pump, mix, filter, or meter any fluid or gas in a manufacturing process, particularly for applications that involve corrosive or toxic liquids or gases or other unique application requirements. The equipment we supply is built to API and ANSI standards and specifications and provides reliable service to the end user. [Learn more about IPEC.](#)



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