Dosing system for wide range of viscosities

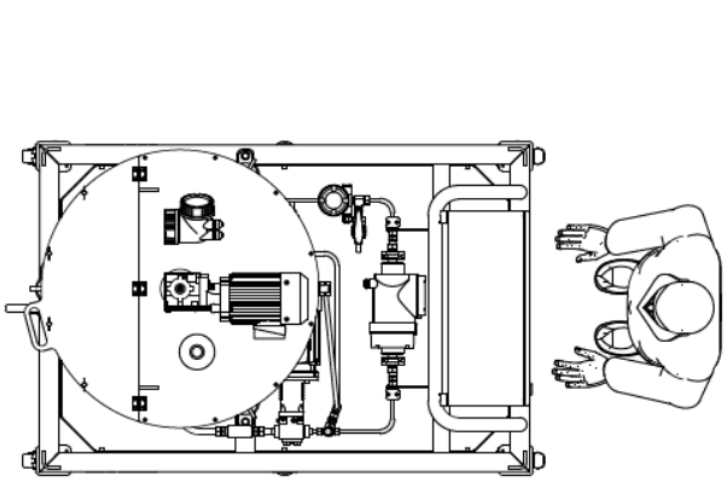
Thanks to its excellent relationship with DSM Engineering Plastics in Emmen, Suurmond was contracted to develop a viscous media dosing system for DSM's production plant in China. The challenging aspect was to reliably pump liquid media across a wide range of viscosities, at relatively high pressure *and* precision.

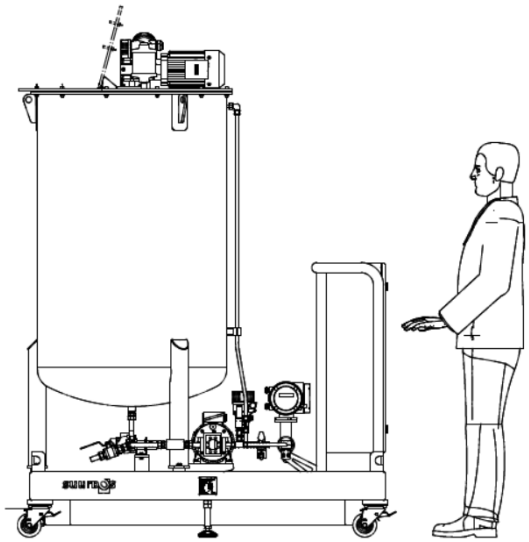
DSM Plastics is an international leader in the development, production and supply of high-quality thermoplastics. The company has a specialised R&D department in Geleen (NL), and its main production sites are located in the Netherlands, Belgium, China, India and the United States.

Viscous media dosing in China

The production facility in China was in need of a high-precision viscous media dosing unit to dispense small quantities of additives to a compounding process that takes place in a mixing extruder. Not only was it essential to be able to dose with high precision; there were also stringent demands in terms of flow rate *and* the ability to operate across a wide range of viscosities, typically from 150 to 1500 mPas.

Moreover, the item at the top of the wish list was: 'a *dependable* unit'. It goes without saying that for DSM, as supplier to the world's largest electronics manufacturers, failure to deliver on time is not an option.



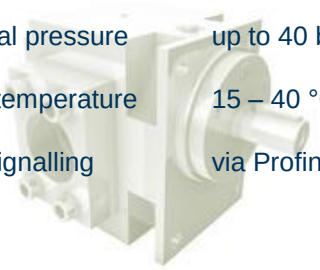


Designed for chemical processes

Given the excellent contact between Suurmond and DSM Engineering Plastics in Emmen, it's no surprise that the Chinese request found its way to Nunspeet. Based on the customer's needs and wishes, Suurmond developed a suurDOS® fluid dosing unit that incorporates a stainless steel Cinox gear pump from manufacturer MAAG.

This type of rotary positive displacement pump was specifically developed for chemical industry applications. These pumps have superior corrosion resistance and can withstand high temperatures. In particular, this type of pump has proven to be capable of accurately handling a wide range of viscosities.

TECHNICAL SPECIFICATIONS	
Volume per revolution	2.78 ml
Capacity	30 – 340 kg/h
Viscosity range	150 – 1500 mPas
Differential pressure	up to 40 bar
Process temperature	15 – 40 °C
Control signalling	via Profinet



suurDOS®

The solution was built as a mobile unit that includes not only the pump unit with 1.1 kW AC motor/reducer, but also a buffer tank and the controller for the complete unit. One of the controller's functions is to enable setting of the additive dosing rate (SETPOINT). The dosing precision is tightly controlled via a feedback loop, with a mass flow sensor to measure actual media flow rate, and a PID controller for the pump motor.

The suurDOS® unit is now successfully in operation at the facility of the end user, who by all accounts is more than satisfied.