

In search of stability

As a major global producer of specialized adhesives for labelling applications, Avery Dennison invests continuously in the improvement and optimization of its products. To support the company's research into the stability of a specific type of resin, Avery Dennison asked Suurmond whether it could supply a test unit. Suurmond developed a test unit from scratch, supplying a user-friendly suurDOS® system that can run in three modes: manual, semi-automatic or fully-automatic.

Industrial labelling adhesives are applied across an extremely diverse range, ranging from the aerospace industry to the labels on food products.

Circulation and dosing

Avery Dennison uses many different types of adhesives in its products, and the company needed to investigate the stability of the resin component in these adhesives. To support this specific research, the engineers at Suurmond developed a suurDOS® SINGLE installation to handle a single fluid. The purpose of the installation is solely to continuously circulate the resin, and dose samples onto paper for analysis of the final result.



suurDOS® with double-walled vessel for cooling and heating of test fluid (under thermostatic control).

Third party products

Although Suurmond normally applies its own proprietary gear pumps, this time the order required two pumps from a different manufacturer. This is because the optimized resin product will ultimately be used in *existing* installations worldwide, incorporating these specific pumps. For the test situation to actually represent production conditions, it was therefore essential to use the exact same pumps. No problem for Suurmond.



Membrane pump with pulsation damper to supply inlet pressure to the dosing pump.

TECHNICAL SPECIFICATIONS

Media:	various resin and polymer mixtures
Volume flow rate:	1 – 7 l/min
Accuracy:	1 – 2 %
Viscosity:	100 – 1.000 mPa (at 20 °C)
Outlet pressure:	5 – 10 bar
Operating temperature:	5 – 40 °C

Smart solutions

The two pumps are installed in series, one for dosing, and the other as a charge pump for the dosing pump. Next to the pumps is the double-walled resin tank, which Suurmond has equipped with a smart assembly including an extra valve to prevent dry-running of the pumps.



Filters can be exchanged without mess due to the Gather dry-break couplings.



To emulate the production environment as closely as possible, the system is further equipped with a pressure control valve combined with two different filters. Quick couplings are used to simplify the exchange of filters. These couplings are of the dry-break type to avoid unnecessary product losses during filter exchange. This results in greater efficiency, ease of use, and a clean work environment.

The pressure control valve simulates pressure using a PID control in the pump outlet.

Control system

The processes in the standalone unit are controlled using a PLC with a Siemens HMI. This enables the user to choose from three settings: manual, semi-automatic and fully automatic operation.

Suurmond installed and commissioned the unit following delivery to the customer's site.

