

## ABEL Pumps **Case Study** - Corrugated Cardboard

ODD pumps available through SANDPIPER & ABEL

**Application Profile:** Solving a difficult glue transfer application in a corrugated paper mill.

**Industry:** Corrugated Cardboard

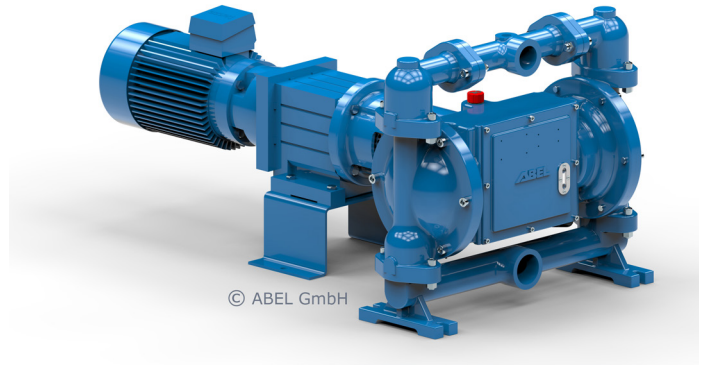
**Product Produced:** Cardboard

Today, corrugated cardboard packaging is seen everywhere. However, even though this product has been around for over 100 years, few know how complex the production process is and how varied the product is depending on configuration and structure.

A well known European paper company has been producing raw paper for corrugated cardboard in two different locations, in France and in Germany, for more than 50 years. These raw papers are the basis for producing packaging and corrugated cardboard products.

One of their factories produces corrugated boxes, die-cut packaging and folding boxes in various shapes and sizes.

Corrugated cardboard is light and stable. It's secret, as the name implies, are the corrugations, which make the cardboard extremely strong. At the same time, the air-

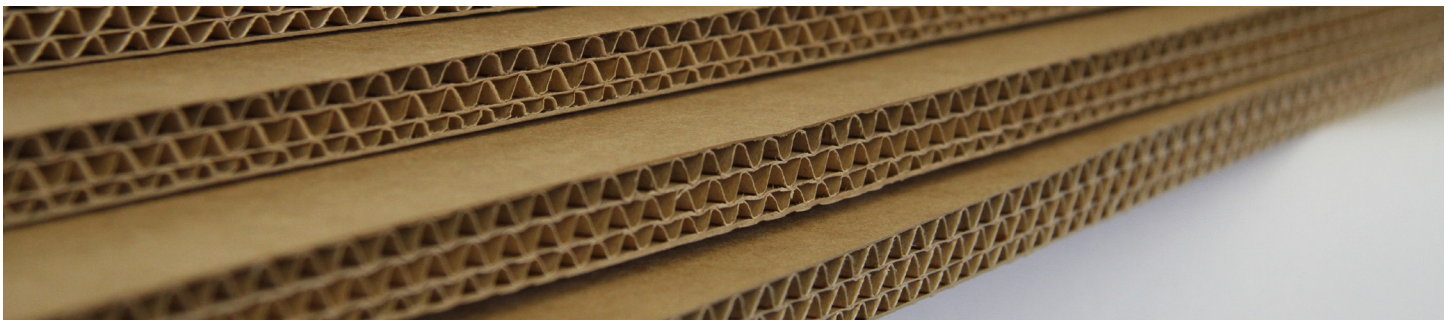


filled chambers created by the corrugations ensure its unique cushioning function.

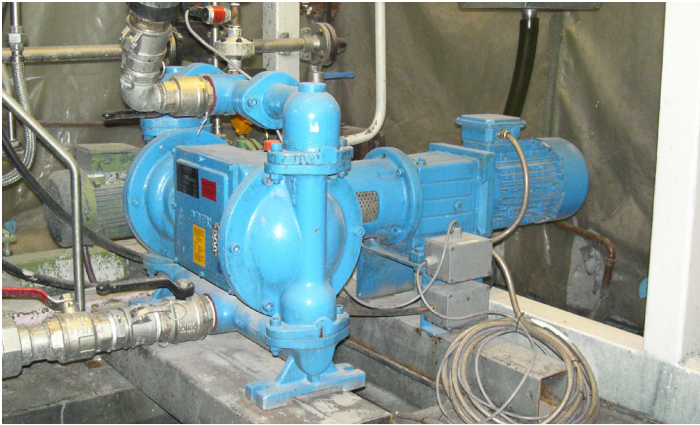
The product is produced by combining different layers of paper by means of starch glue. Fluted sheets and flat liner boards are glued to each other in several layers, so that the final result is a single, dual, or triple wall corrugated cardboard.

The core manufacturing piece is the flute lamination machine. This very long machine consists of several individual units which are separately and independently controlled.

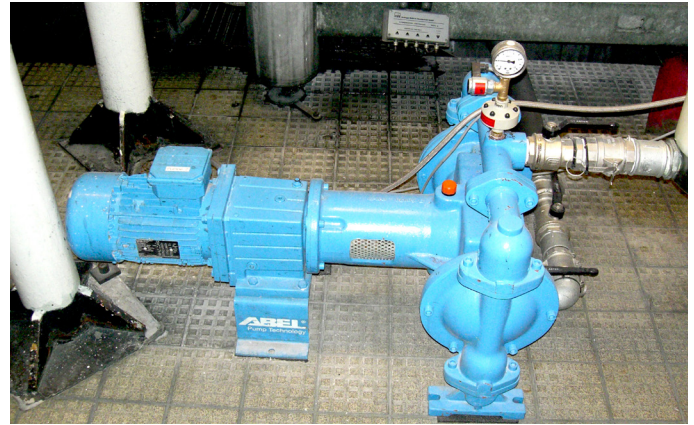
Inside, the individual layers of paper are heated, moistened, laminated and then dried. Afterwards the desired format is cut to size.



Corrugated cardboard in profile (source: VDW)



Electromechanical diaphragm pump, Type EM-040Z0300-SG for glue circulation



Electromechanical diaphragm pump, Type EM-040Z0300-SG as reflux pump for excess glue

An important component in manufacturing corrugated cardboard is the glue that is used. Most paper companies use glue that is based on natural starch. Electric diaphragm pumps made by ABEL are used to transport the glue at a temperature of 35 – 40°C to and from the flute lamination machine, and to maintain continuous circulation.

These pumps are electrically driven, double diaphragm pumps with mechanical diaphragm actuation. Unlike the previously used compressed air diaphragm pumps, they generate considerably less noise.

In addition, the energy usage is reduced. The ABEL EM pumps offer high efficiency and consume far less energy than pumps operated with compressed air. Cost savings are especially significant during continuous operation. Energy conservation was one of the main reasons this customer selected these pumps. All installed pumps are controlled by a variable frequency drive. Being true positive displacement pumps, EM pumps are very tolerant of changing degrees of viscosity of the pumped glue and therefore can deliver constant and consistent flow independent of counterpressure.

The first ABEL EM pump was delivered and commissioned in the summer of 2011. Since then, another 7 identical EM pumps have been added. All of the glue pumps in this corrugated cardboard factory have been completely switched from compressed air drive to electric drive. The EM pumps provide reliability, efficiency and low operating costs to our customer.



[Learn More about ABEL EODD Pumps](#)

**[CONTACT US](#)**

**SANDPIPER®**

800 North Main Street  
Mansfield, OH 44902

419-524-8388

[sandpiperpump.com](http://sandpiperpump.com)

