

German manufacturer promotes innovation in machine clothing

DONALD G. MEADOWS

Kufferath family maintains 214-year tradition.

In the days when most paper was still made by hand, Germany's river ruhr attracted a lot of mills. Daniel Kufferath's father owned one of those mills, and Daniel set up business manufacturing hand molds for papermaking in what is now the city of Düren, just west of Cologne.

Andreas Kufferath, Daniel's eldest son, continued the manufacturing operations and named the firm after himself. The company celebrated its 200th anniversary in 1982 and is still family owned and operated. Franz-Ferdinand Kufferath heads the company today, representing the sixth generation of managing partners.

To stay in business for so long, a company needs to be knowledgeable, skilled, and innovative. Over the years, Kufferath has shown its abilities in those areas. In 1833, the company received a patent for its development of the shadow watermark. In 1896, the company patented a forming roll with inward dewatering. In 1936, the company patented the diagonal seam for forming roll covers. In 1951, the company developed and patented the weaving seam.

The bulk of Kufferath's efforts have been directed toward the forming section. That reflects the company's heritage of making wire hand molds for papermaking. Over the last decade or so, the company has expanded production to include dryer fabric and woven fabrics for the press section. Kufferath also manufactures dandy rolls and forming sections, plus the occasional watermark.

The German company has been looking at entering the U.S. market. It already serves about 50 mills in Europe. Most of its customers are board producers, though Kufferath is also promoting its products to writing paper, newsprint, and tissue producers.

Kufferath differs with the idea of one-stop shopping for machine fabric. "You need a variety of suppliers to get a greater number of innovative products," he said. A mill should choose the best supplier for each position of its paper machines, he said. "It's highly unlikely that one supplier would have the optimum product for every position."

The company has a total of 29 looms for producing machine clothing. Those include a mix of mechanical and com-

Kufferath's headquarters in Düren, Germany



puter-controlled machines. The newest is 12.5 m wide. One weaver is usually responsible for 5–6 machines.

Different color filaments are used to help identify specific applications. With red threads in the weft running across white threads in the warp, forming fabric appears pink. Drying fabric is blue, and press felts are a deep yellow.

The company's laboratory tests the filaments used for making the fabric and tests the finished products. A sample of every woven piece delivered is kept on file, according to Kufferath. When it ships a new fabric, Kufferath now accepts the old fabric for recycling as an added service to its customers.

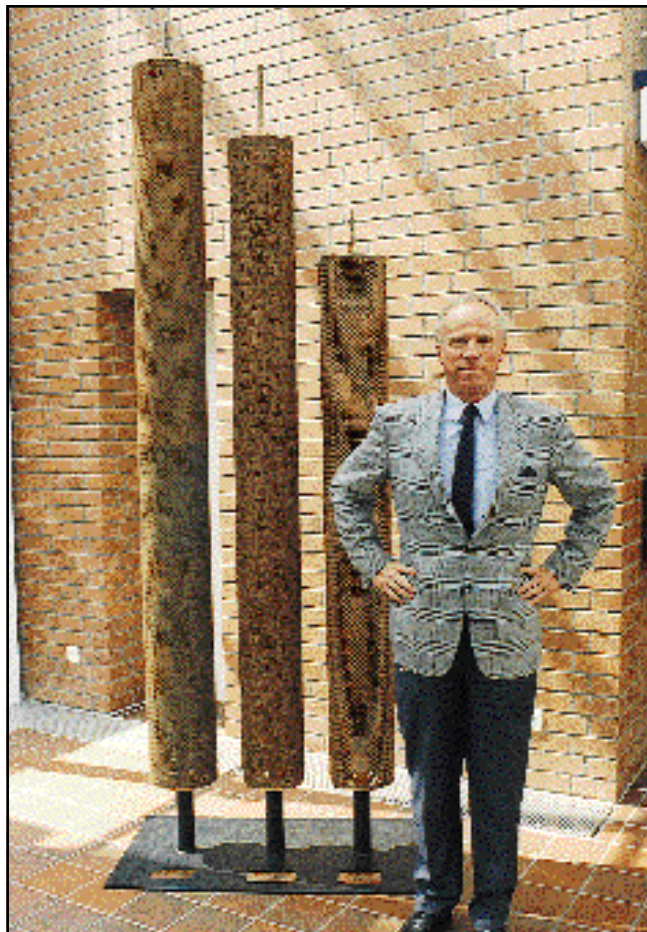
Batt-less press fabric

One of the company's most recent innovations is a new type of press fabric. Unlike traditional press fabrics, the design produced by Kufferath is "batt-less." The Vacoflex press fabrics are woven from monofilaments. The multilayer construction has so far been marketed for board grades at and above 250 g/m². "A key advantage of the new design is that it runs 2–3 times longer than conventional felts," Kufferath said. It's also very stable and does not require a breaking-in period.

In initial reports six years ago, company manager Dietrich Holle described the design as "a multilayer fabric of

Machine Clothing

Franz-Ferdinand Kufferath—sixth generation managing partner



The quality control area



Seaming the modern way



Dandy roll manufacturing



monofilaments whose meshes are pyramidal in z-direction.” The goal is to provide a large storage volume for water in a nearly incompressible fabric, he said. The designers also sought to develop a fabric whose physical properties remained constant throughout its use.

Beginning with slower machines, the company has tested the press fabric at speeds to 600 m/min. Plans are to continue testing on faster machines, on up to 1000–2000 m/min. The company has also tried running the press fabric on various paper grades to check marking, with good results. “We think we’ll be able to use it for all grades,” Kufferath said. Several machines in The Netherlands are equipped with this type of press fabric, he noted.

“Papermakers appreciate that we’ve taken a new approach to their felt problems,” Kufferath said. Reports from mills using the new design indicate a 1–10% improvement in dewatering, he said. ■

Meadows is editor of Tappi Journal.