

Fruitful fibers

Ensure the end product: control every process parameter

Technology has come a long way since paper pulp was tested by dipping a wooden stick into the pulp vat and seeing how much pulp came up with it. Today, the type of fiber raw material and grind is chosen to match the type of paper being manufactured. To ensure the end product is of high quality, you need to be able to control every process parameter – which is where the L&W Fiber Tester Plus comes in.

1987 – Say “cheese”

To get the fibers in the paper pulp to bind together, the pulp is ground before reaching the paper machine. In the mid 1980s, the Swedish Pulp and Paper Research Institute (STFI) worked on a grinding management and control project. They found that in some cases, the fibers seemed to be longer after grinding, even though they ought to get shorter...

The length and shape of cellulose fibers affect the strength, stiffness and quality of the paper. The straighter the fiber, the stiffer the paper. So STFI decided to investigate how the fibers were affected in the various process steps. However, the newly formed project group was not satisfied with simply finding this out, they also wanted to see exactly what was happening. To get this full picture, they needed image analysis equipment.



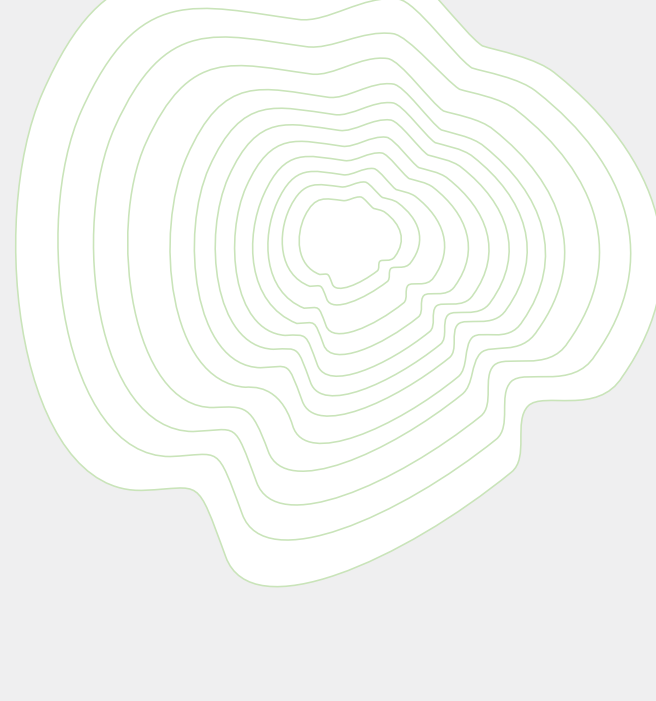
First laboratory measurements

The project to create a platform able to measure fibers automatically, eventually led to the Fiber Master, a measuring device that was used in fiber research at STFI. Unfortunately, image analysis required so much computer processing power that the IT hardware alone cost more than anyone was prepared to pay for the entire system.

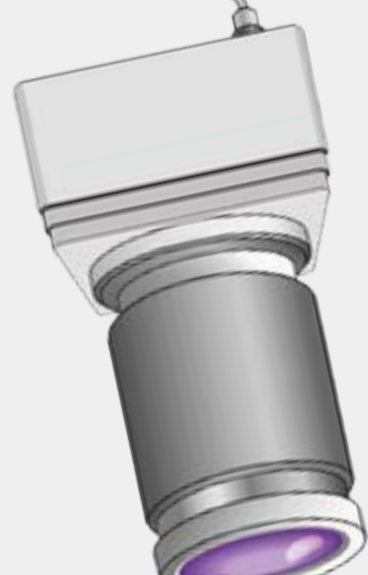
1993 – Time for field studies

A new generation Fiber Master was built to take fiber measurements at pulp and paper mills. At a stretch, the equipment could be called portable. So the equipment was unveiled, loaded onto a truck and taken to different mills to measure the length and shape of fibers industrially “on some scale”.

As computer processing power was still very expensive, this was a pure research project rather than with any commercial intentions. After several years of field work, it was resolved to productize the research findings. The project was financed by a number of forestry companies and government funds.



1996 – The very first smart camera?



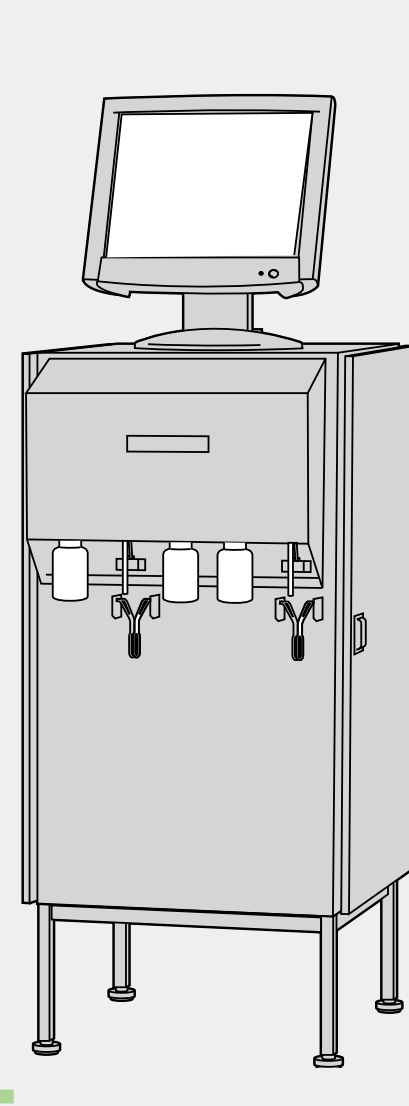
As the computers were not able to keep pace in terms of managing image processing quickly enough, the project team was “forced” to develop and build their own camera.

The sensor in the camera was incorporated with a processor for image processing developed in Linköping where a few individuals possessed this expertise. Et voila, the project team now had a specially made camera able to measure fiber properties and where image processing could be done directly in the camera.

1998 – Fiber Master

In 1998, Per-Ivar Fransson and his colleague Håkan Karlsson started a separate company that took over sales and development work for the Fiber Master.

The system, that was designed to be used in both laboratories and at processing mills, was mainly sold on the Nordic market but a few did reach other parts of Europe. It is worth noting that many of the systems sold are still in active use today.

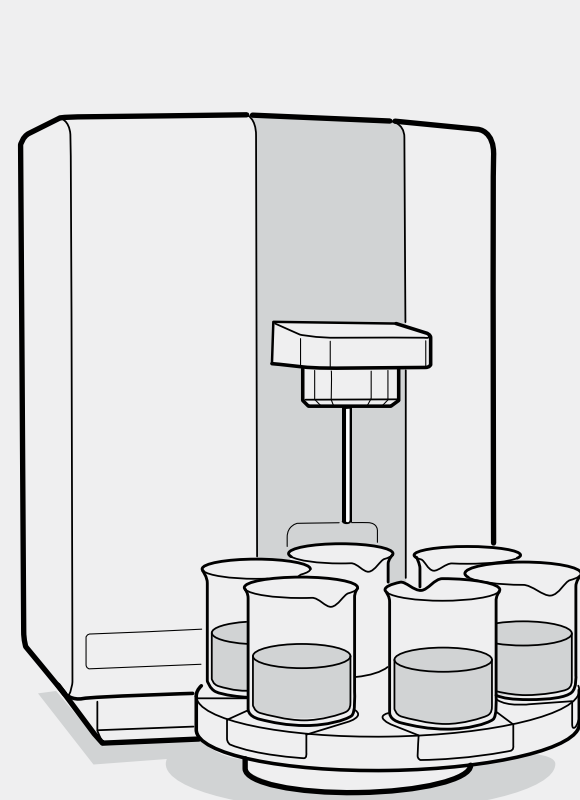


2002 – In the lab again

In 2002, Fransson and Karlsson’s company was acquired by Lorenzen & Wettre.

As Lorenzen & Wettre is more oriented towards laboratory measuring equipment, a project was started to develop an instrument for laboratory use.

2005 – L&W Fiber Tester launched



In 2005, the Fiber Tester was launched, a laboratory instrument that could not only measure length, shape and breadth, but also deformations and other types of particles in the pulp.

A major step forward compared to the technology Fransson and Karlsson had employed. Pulp is differentiated into mechanical pulp, chemical pulp and pulp made from recycled paper today. Irrespective of the type, it is important that every step of the production is based on reliable information.

2014 – L&W Fiber Tester gets a “+” mark

In 2014, three years after being acquired by ABB, Lorenzen & Wettre launched the L&W Fiber Tester Plus. With its even higher resolution, you can now view the fiber’s macro fibrills (how the surface of the fiber has been treated).

“We are now also starting to get a bit more of an insight into what determines how well fibers bind together in paper,” says Per-Ivar Fransson. “In short, you could say that this is what gives it the + mark.”



“Albeit only pictorially, we can see what happens in the different process steps.

And if you are sufficiently knowledgeable in the subject, you can also understand what is happening. And why.”

Facts

- Based on the latest and fastest technology.
- Ensures a smooth and even paper quality and high operating reliability in paper machines.
- Measures fiber dimensions rapidly.
- Analyses the binding capacity by measuring the fibrills, the presence of other particles in the pulp and much more besides, and shows images of the fiber at the same time.
- Can now view fibrills, the parts that the actual fiber is composed of.
- The result of over 100 years of development work in the pulp and paper industry and the latest technology. A near matchless combination.
- Greatly beneficial for researchers into these processes.