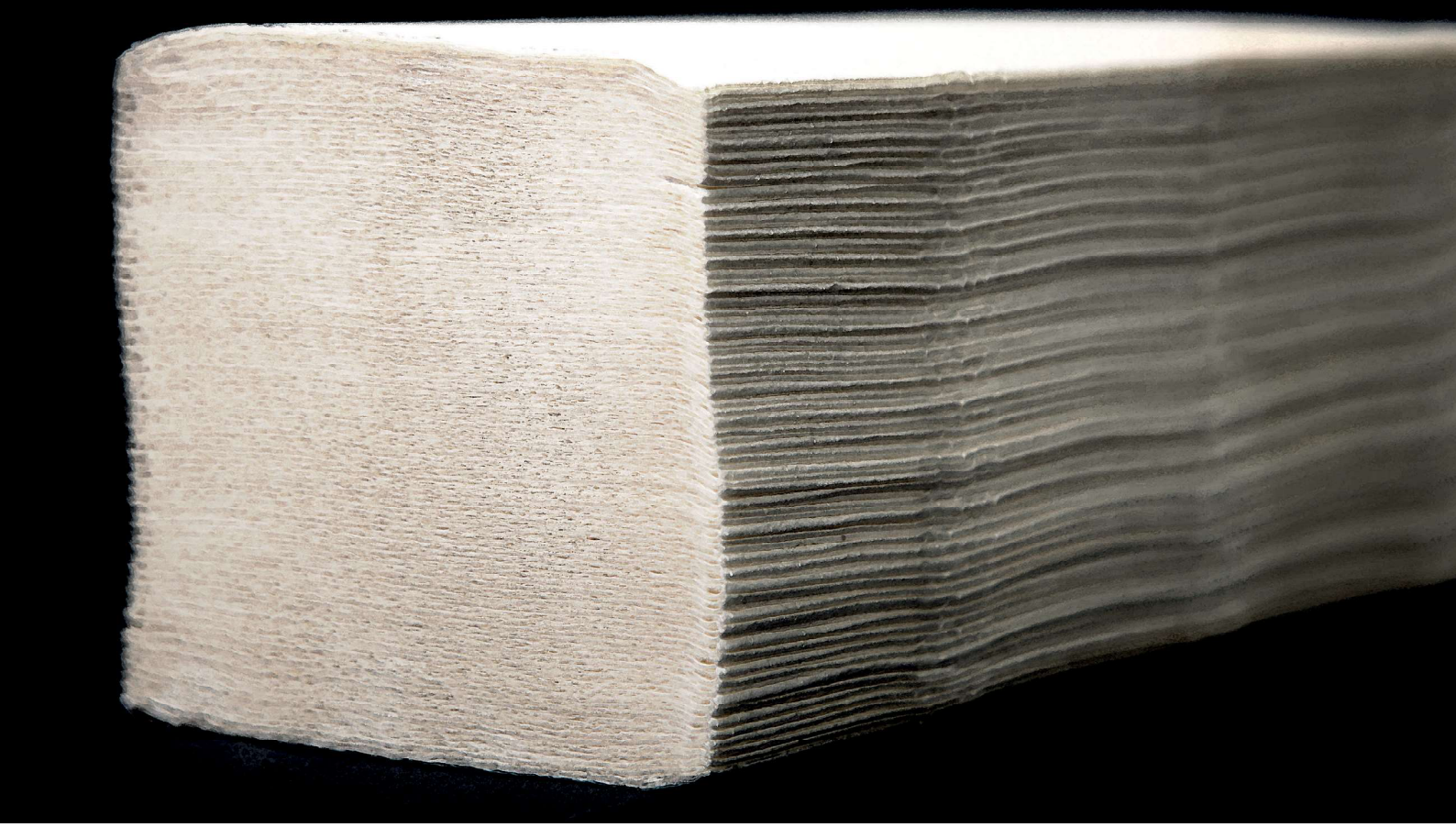
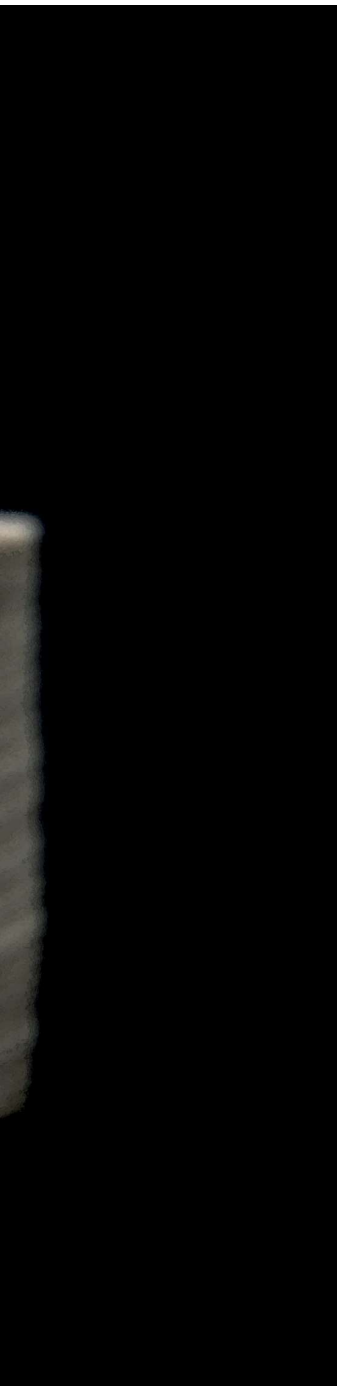
AFD

Toilet tissue

The toilet paper market is changing. The traditional roll, first introduced in the United States in 1879, will soon become obsolete. Instead, these products will be replaced by individual sheets boxed in a packet. This means that the shape of the product will change: from a cylindrical roll to a traditional four-sided box. Why? To protect the environment, and make the production - as well as the transport - of this essential paper product more sustainable. by: Alessandro Giampaoli - AFD Srls



changes shape



Changes and progress have the ability to affect our lives in two different ways: they can either be sudden, often traumatic, and change our lives overnight or they can occur slowly, under our eyes, affecting our routine or habits gradually and on a daily basis.
An example of progress which affected everyone's life significantly over the last two decades can be found in the invention and spread of the Internet. While comparing the tissue industry to the development of the World Wide Web could seem a long shot at first, it is important to acknowledge that toilet paper has brought - and is still bringing - its own great revolutions in the industry.
Looking at the past, the first system of industrial production of toilet paper for the general public was patented and introduced in 1857. The man behind this winning idea was a thirty-year-old New Yorker named Joseph C. Gayetty. Made from Manila hemp, it was sold in rectangular sheets packed in boxes. The amusing thing was that every sheet carried the name of the inventor. Twenty-two years later, in 1879, another great revolution occurred: the Scott Paper Company of Philadelphia introduced toilet paper in rolls. However, although firmly settled in the public's mind as paper rolls, there is no guarantee that toilet paper won't evolve to a new form in the years to come. Optimization processes, waste limitation and transport efficiency are only some of the factors influencing the industrial and manufacturing sectors nowadays and encouraging them to cut costs. Now, let's take a look at the paper roll. At its center there is a cardboard core which serves the purpose of sustaining the paper around it. However, its round space prevents an optimal use of space in the container lorry, increasing significantly transport costs. In addition, the current paper roll often requires a toilet roll holder: an item which many interior designers would love to get rid of. In terms of geometry, a possible alternative to the paper roll could be a rectangular-shaped container, a box. This item could hold lots of individually cut, singular paper sheets. By abandoning the cardboard core, all the empty spaces could be filled optimizing loads and increasing transport efficiency. Furthermore, the same interleaving machines used nowadays could be used to produce paper sheets which are currently used of handkerchiefs, towels or napkin. By implementing this simple change, many benefits would be observable in the production chain. The toilet roll holder would become an element of the past and all you would need in your restrooms would be a shelf on which to place your box of toilet tissue: a box which could be decorated in many ways to fit the design of your home. Why then, considered all these advantages, is toilet paper still produced in rolls? The answer is very simple: interleaving machines - the one which would produce toilet paper in single sheets - have low output and consume a lot of electricity. Up until now, the fastest interleaving machines could only produce a quarter of the output achieved by an equivalent paper roll machine. And the difference in the amount of electricity consumed was significant. Even the most advanced interleaving machines measuring a meter and half in width require 100 kW/h vacuum pumps, while those of three meters wide require pumps of 300 kW/h or stronger. Energy consumption using these systems is skyrocketing. Nevertheless, many manufacturers are moving forward towards greater sustainability standards: the acquisition of MTC by the Korber group says volumes about these market trends. However, innovation and new advances are not always implemented by the larger enterprises

> "Our new interfolding machine has reached incredible results in terms of energy consumption"

◀ The new shape of toilet paper.

▲ IM Converting interfolding line.

AFD Srls

The province of Lucca has been considered as the main European area for the paper industry, and among the most important in the world. The "Paper dust" has entered into all economic sectors of our industrial fabric, as has the story of AFD, which was born out of this dust. We started working at companies that were building machines for processing, when electronics and automation was in its infancy. We saw the first PLC on-board machines, instead of the old relay logic, the programming of the first axis controls and of the first industrial networks.
In 1989 we created the first electronic "Pressina", and participated in the Gemini project, the first converting machine with dedicated axis controls and first-generation brushless motors.
In 1995 we started to manufacture interfolder machines that were recognised as the fastest and most productive on the market.
In 2007, AFD was born, giving rise to machines such as the I-Jet500 for industrial roller and interfolding IMFOLD. Currently we are working with several transformers around the world.
Finally, and the most important thing, we are not just a technology supplier but above all, we listen to and implement the ideas of entrepreneurs that are looking ahead.

on the market: new companies have often greater innovative skills and flexibility, and are able to set the basis for revolutions in the toilet tissue production. That is at least the business model of **AFD**, which has recently acquired shares of one of the new companies in the tissue industry, IM Converting. This new brand has been producing some very interesting products over the last two years, specifically in terms of interleaving machines. By embracing a different perspective and through great flexibility, IM Converting has produced an interleaving machine which was capable of tackling what seemed to be unsolvable technical obstacles. In the first place, their new interfolding machine has reached incredible results in terms of energy consumption, using less than 37 kW/h for its vacuum system - which equals a third of the average energy consumptions of competitor interfolding production lines. When fully operational, the measured energy consumption of normal production rates never exceeded 25 kW/h.
In addition, thanks to a special patented system, the machine is able to process any type of paper from facial tissues to paper towels without the need of changing the rollers, vacuum pumps or really anything else. Furthermore, with the line being produced this year, these machines aim at reaching today's market's most coveted target of 35 cycles per minute, bringing the output of these new machines much closer to the one of classic paper roll production lines. So the tipping point is really close and AFD aims to be at forefront, to ensure its customers are competitive and ready for the future challenges. ●

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