

# “Micro-ventilation for mass-production”

TJI interview with Werner Grosse

**TJI: When did the idea for your business first come up?**

**Werner Grosse:** In 1979, I first encountered tipping paper in an engineering sense whilst working for a well-known European tipping paper finisher, engaged in printing, slitting and ESP electrostatic perforation. The first generation of wide web perforation machines placed enormous demands on retrofits and quality improvements regarding invisible holes and base porosity stability, something that our company did very well. We were real pioneers in the field, and were able to unveil to the world the concept of electrostatic perforated tipping paper for ventilated filter cigarettes.

**What brought about the idea?**

Demands to reduce the nicotine, tar and condensate levels of cigarettes required ventilated zones in the circumference of cigarette filters. This was something that offline ESP perforation technology could achieve with 80 to 200 micro-holes per cm<sup>2</sup>, each measuring between 30 and 70 microns and distributed in irregular patterns.

**What are its major benefits of the technology?**

The precise control of perforation intensity, holes density and permeability enables different air stream ventilation grades in cigarette filters. It also creates cigarette brands with unique smoking, ventilation and taste characteristics. The development of offline laser perforation technology in the mid-1980s and on into the 1990s enabled much higher porosity levels up to 2,000 C.U. (Coresta units) with hole sizes from 60 -200 microns, even though

electrostatic zone perforation is physically limited up to around 500 C.U. These days, many online laser perforation units in cigarette making machines are being introduced and fully embedded into complex high speed production lines, control and monitoring processes.

**What prompted your development of ventilated plug wrap paper?**

In the early 2000s, high-porosity plug wrap paper, ranging from 1,000 up to 2,500 C.U. was very rare and difficult to obtain from Chinese paper makers. So we thought of using powerful electrostatic micro perforation processes to avoid the expensive and logistical difficult import of high-porosity plug wrap paper into China at that time. IPM rose to that challenge together with a well-known Chinese tipping paper conglomerate, and built several high-capacity production lines for porosities up to 2,500 C.U.

**So how does the future look for this technology?**

In our opinion, in the future tipping paper will require a little less electrostatic but more offline and online laser micro-perforation processes. We are aiming to achieve cigarette air stream ventilation grades from 30 to 80 per cent as far as possible with non-invisible perforation bands or holes rows. The best perforation qualities will be assured through the highest porosity constants, through online optical porosity control and high-speed camera equipment for inline printing inspection and the final product certification of each tipping paper bobbin or production roll. In addition, all electrostatic and



Photo: ci

► **Werner Grosse, Managing Director at IPM (International Perforation Management).**

laser offline perforation machines will be linked to the production and quality control centre.

### **What lies ahead for electrostatic- and laser-perforated tipping paper?**

We believe that, in the coming years, this market segment will be characterised by ESP electrostatic zone micro-perforation for tipping paper with a PS-XXX-X automated quad bobbin, by slitting and rewind machines with integrated online porosity sensor scanner measurement, by full system feedback and quality control, by porosities up to 500 C.U. and by speeds up to 600 m per

minute. There will be huge volumes of laser-perforated tipping paper for major cigarette brands, produced with IPM patented LPM-1 offline wide web machines, which operate with high automated focus row position adjustments and embedded porosity sensor scanner quality control devices. The fact that state-of-the-art machines are operating cost-effectively and efficiently in the roll-by-roll production with 20 bobbin sets, up to 120 single-hole rows across the web, with porosities up to 1,200 C.U. and speeds up to 500m per minute shows what is now technologically possible in China.

### **What about micro ventilation?**

Modular, powerful electrostatic micro-perforation technologies are being so successfully applied in the cigarette tipping and plug wrap paper markets that there will be new industrial mass-production applications for them in, for example, Kraft paper, cement sacks or packaging paper where finely controlled ventilation effects, air diffusion through high hole densities up to 400,000 per m<sup>2</sup>, up to 5 million holes per second and high web speeds are all required.

Interview: Tim Glogan

# Hengfeng sets new milestone

In June this year the Mudanjiang Hengfeng Paper Co. inaugurated China's most advanced paper making line, maybe even the world's, with a capacity of manufacturing 20,000 tonnes of vacuum plate Al base paper, i.e. for high grade cigarette packaging paper.

**M**r. Guan Xingjiang, general manager of the Hengfeng group, spoke to TJI on the background and strategic objectives of the Hengfeng PM 16 project, a paper machine programme initiated in early 2009. "Currently the total consumption of Al paper is around 40,000 tonnes per year in China, and all the base paper needs to be imported from other countries. One reason is that the scientific research capabilities in China for specific industrial papers are not yet as highly developed as in the leading countries. To accelerate the development of China, Chinese enterprises need to participate in global competition and add value to products." As a result, Hengfeng signed a Main Part contract with French manufacturer Allimand and a Converting Equipment contract with Darmstadt-based Goebel in Germany in 2009. According to Hengfeng, this included the



Guan Xingjiang



New paper making line

most advanced 3300 paper machinery, all necessary stock parts, as well as press and drying parts. Also on the list of imports were AC drive control systems, DCS control systems, QCS software systems, CDCS control systems and WIS automation systems, all adding up to an impressive state-of-the-art paper making line. Vacuum plate Al base paper is an environment-friendly vacuum metal deposition paper requiring only 0.08 to

0.14 grammes of Al per square metre and is widely used for packaging of food, domestic and chemical products. Its use in the tobacco industry is growing and Hengfeng sees enormous growth potential. Guan Xingjiang sums it up succinctly: "This project will enhance our company's competitive abilities, benefit the development of local sustainability, and contribute to the local economy." **wmc**