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MLP-50

Laser Perforation, the Filter Ventilation Solution of Choice

Manual needle rolling of tipping paper perforations is pretty much out-of-date. Laser perforation is the modern cigarette manufacturer's preferred solution. Tobacco Asia *talks to one of the leading equipment providers.*

By Thomas Schmid

Laser perforation systems often go somewhat under the radar compared to other, more prominent tobacco machineries like filter or cigarette makers or primary processing equipment. Yet without them, manufacturing "light" cigarettes would be a much more inaccurate and slower task. Additionally, and as far as tobacco products are concerned, there actually are only a small handful of suppliers around, the arena being clearly dominated by German companies. Hauni and Rofin-Baasel (since bought out by Coherent) commonly spring to mind, but so does Micro Laser Technology GmbH; or MLT for short. Founded in the year 2000. MLT is today considered one of the market leaders in the field of specialized laser machine design. "We provide support to our clients from the consultation and planning stage all the way through to development, manufacturing and servicing," asserts the firm's head of sales and marketing, Axel Näther. "For the tobacco industry, our sophisticated applications are handling laser perforation for cigarette ventilation but also laser cutting of cardboard packaging."

Plenty of choice at superior quality

The company's MLP range is specifically geared towards cigarette manufacturing and, depending on the model, can be used offline or online. The most popular model for offline deployment is the company's MLP10. According to Näther, "it offers a highly interesting starting price on the one side, yet still delivers the same quality as [our] bigger systems." Simultaneously, it affords a lot of flexibility where widely varying production outputs are concerned. "Most customers install one or two [of the large] MLP50 or MLP50TWIN systems together with several MLP10 units. That way they can cover large volumes with

the MLP50 range and at the same time take advantage of the MLP10's flexibility for small-scale production." All of the company's offline models are stand-alone systems exclusively used for tipping paper perforation. But, MLT also offers online modules, the MLP-M series, which are integrated into the cigarette maker itself. However, Näther readily admits that "our MLP-M online system is the least frequently deployed one."

He concedes the company might-have previously dawdled a bit too long in updating it; but since its recently implemented upgrade it can now cope easily with increasingly faster cigarette production. "Modern cigarette makers are getting speedier and speedier, which is why we needed to equip our classic [MLP-M] online module with a more powerful laser source."

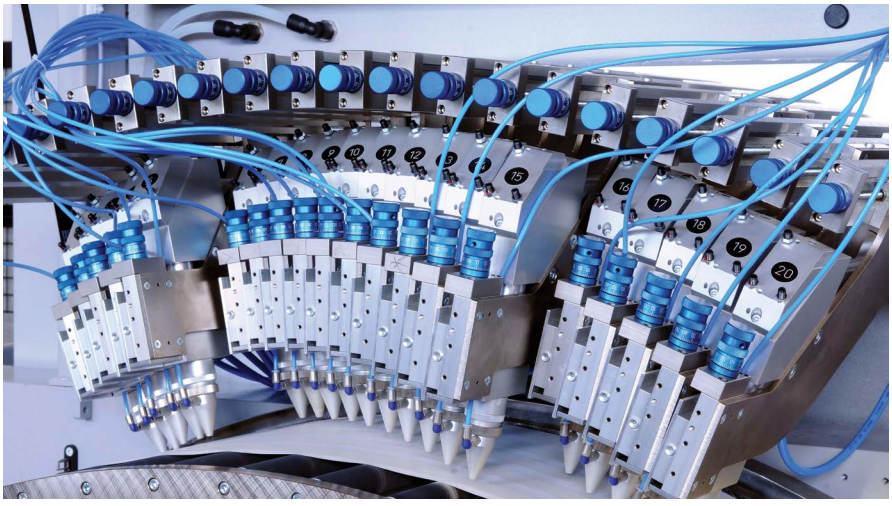
[All photos courtesy of Micro Laser Technology GmbH]

Consistent, highly stable operation

But coming back to tipping paper perforation, a process indispensable for manufacturing "light" cigarettes, Näther explains that the various offline models' settings -- such as number of perforation rows, hole diameters, etc. -- are freely adjustable and for as many different cigarette products as desired. "Once set up, the settings are stored in the software and the operator can select the desired product from the operator screen. The system handles everything reliably from there onwards during the entire production run."

The MLP10 to MLP50TWIN systems are capable of comfortably handling up to 700 meters of tipping paper a minute, applying up to one million holes per second. "Even with three production shifts per day, our systems will not falter and maintain extremely high consistency and stability throughout," Näther claims, adding that "this performance outstrips manual punching in every regard."

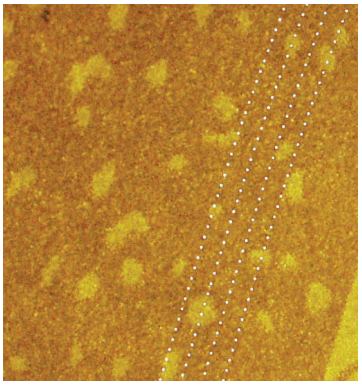
The enormous speed and sheer volume achievable through laser perforation aside, perforation holes applied by rather antiquated needle rollers are typically also much larger in diameter, the rows due to the manual process often applied inconsistently. "Laser perforation for tipping paper today is a very well established technology, is low in running costs and delivers outstanding, results that are simply impossible to obtain with manual rollers," Näther insists.



[All photos courtesy of Micro Laser Technology GmbH]

Up to 20 perforation heads in one machine

The principle of online perforation: 1 or 2 rows per cigarette



Offline-perforated ventilation rows

The MLP Range

Model	Main Application	Key Tech Specs
MLP10	Offline perforation of tipping paper	• Typically single bobbin operation • For small production volumes and test batches • Laser power 200W up to 1,000W • 8 perforation rows
MLP50	Offline perforation of tipping paper	• For medium and large production batches • Laser power 1,000W up to 4000W • Up to 20 perforation rows • Multiple bobbin operation with automated slicing into single bobbins
MLP50 TWIN	Offline perforation of tipping paper	• For large production volumes • Laser power 4,000W up to 8,000W • Up to 40 perforation rows • Multiple bobbin operation with automated slicing into single bobbins
MLP-M	Online perforation of cigarettes	• Used inside cigarette makers and lab machines • Typically equipped with super-pulse lasers, offering a peak power of over 1,000W • Capacity up to 8,000+ cigarettes/minute and per module • Several optional MLT modules for new tobacco products available

(Source: Micro Laser Technology GmbH)

[All photos courtesy of Micro Laser Technology GmbH]

Single-bobbins slicing on an MLP-50

Champion punchers from China

Established in 1998, Wuhan Dazu Jinshikai Laser System Co. Ltd. is located in China's "Optics Valley" in the central province of Wuhan. Specialized in r&d, manufacturing, and marketing of high-powered laser processing equipment to a broad variety of industries, its principal laser perforation product line for the tobacco sector is the Han*SGS range (alternatively also written as HANSGS). The series comprises three distinctive models: GS-D400/8P, GS-D600/8P, GS-D2000/8P.The laser components used in the units apparently are from Rofin-Coherent, while the paper feeders are likewise supplied by a German company, Beckhoff. Meanwhile, the optical system prisms hail from a US company. The entire optical system is fully encased, which makes regular cleaning and maintenance unnecessary and greatly extends lifespan. An optional zero meter mechanism ensures that tipping paper is punched reliably and it automatically stops the machine in case of paper breaks or blockages. Maximum perforation. The achievable speeds of up to 8.64 million holes per minute and a maximum paper line speed of up to 650m/min place the Chinese company's equipment as some of the top performers in the laser perforator segment.

Exemplary customer care and after sales services

Customer satisfaction is high on the agenda at MLT. It is not merely a matter of peddling as many units as possible, but exceptional care is taken by the company to custom-design and test each and every system before it is installed in situ. After in-depth consultations with the client as per their particular needs and wants, each system is subjected to a meticulous test run at MLT's r&d facility. "That means we actually produce [a test batch of] the first customer materials even before we eventually ship the newly purchased system," elaborates Näther. And it doesn't end there, either. "We also dispatch a service engineer to setup and install the system on-site," Näther says, adding that "getting an MLP10 and MLP50 up and running [at the client factory] can be done within two weeks on average." However, the larger MLP50TWIN "may need a little more time, perhaps four weeks," he concedes. The finalizing steps after installation then involve thorough supervision by MLT technical personnel "during the first production days" as well as comprehensive training of the customer's own staff, if required. "Whether training is needed or not depends on the customer, though. Many among them already have a lot of experience in operating our systems and simply order additional machines." After sales services provided by MLT for all its solutions typically comprise a 24-month warranty, as well as maintenance agreements and — depending on negotiations – individual extended services. "But we normally suggest at least one annual on-site maintenance service," says Näther.

Constantly devising new ideas

Despite the fact that there are only a comparatively small number of tobacco industry-specific laser perforation suppliers around, Näther nevertheless says that competition is stiff. "It's not only that we have to compete against other supplier companies but we very often also must deal with the ideas or solutions customers may have in mind," he says. "Not every idea or solution can always be realized… and if so, it may sometimes take years. That means that we at MLT are constantly compelled to rethink establish concepts and develop further ideas to remain competitive and contribute new solutions to the market." While Näther declines to disclose his company's concrete global market share he divulges that MLT "is represented [with its systems] in Asia, Western and Eastern Europe at approximately equal proportions." But he also says that Asia is one of the company's key markets due to the region's high concentration of cigarette manufacturers." China is of particular importance [to us] due to increasing demand of cigarettes from among the country's huge smoking population. We already have installations there and see good potential for future business, too."