

Laser Excellence



CigLine Laser Systems for the Tobacco Industry

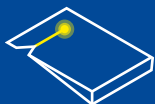


microlasertech.com

Laser Excellence since 2000

Based near Munich, MLT Micro Laser Technology develops high-performance laser systems for industrial applications worldwide. With installations across Europe, the Americas and Asia, MLT is an established partner for precision laser material processing. Many of our systems have been operating reliably in industrial production for more than two decades.

Industries



Packaging

MAP, Easy Opening & flexible packaging



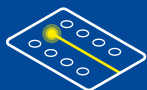
Tobacco

Tipping paper & cigarette perforation



Currency & Identity

Microstructures, perforation & security features



Pharma & Medical

Cleanroom quality & precision processing



Adhesive Tapes

Perforation & complex contour cutting



Abrasives

Wear-free cutting & precise contours



Acoustics

Micro-perforation for sound absorption



Automotive

Technical films & functional components



Special Solutions

Custom solutions for special requirements

Our Worldwide Representatives



CigLine Products

MLT's CigLine systems are proven, standardized laser machines used worldwide in the tobacco industry. Our CigLine Standard Machines:

CigLine MLP10®



CigLine MLP50®



CigLine PerfOnline®



CigLine PerfLab®



CigLine OPD®



Compact Production

CigLine MLP10[®]

The CigLine MLP10[®] from MLT is a high-performance laser perforation system for processing cigarette filter paper. Designed as an offline system, it is ideally suited to small and medium production volumes of up to 50 tonnes per year.

The MLP10 combines ease of operation with a high degree of flexibility. The system can be operated with both single and double bobbins, providing a reliable solution for precise micro-perforation in filter paper production.

SYSTEM BENEFITS

Compact and Flexible

The compact offline concept supports fast setup and reliable operation. Patented MLT Vario-Polygon technology ensures consistent perforation at high web speeds, while up to eight adjustable heads provide flexibility for changing production requirements.

APPLICATIONS

Suitable for

- ✓ Laser perforation of cigarette tipping paper
- ✓ Production volumes up to 50 t/year
- ✓ Offline production environments
- ✓ Single- and double-bobbin operation
- ✓ Flexible hole patterns and porosity levels



Perforation

Unwinder / Rewinder	Micro-Perforation	Focusing Heads
Max. bobbin diameter 450 mm	Based on the patented MLT Vario-Polygon system	Number of perforation heads 4–8
Max. paper unwinding length 3,500 m	Polygon speed 66,000 RPM	Head positioning Across the full web width
Max. bobbin / tipping paper width 100 mm	Holes per second 228,000	Focusing lens adjustment 0.01 mm resolution
Max. winding speed 600 m/min	Hole density per centimetre 5–30	Shutter configuration Individual shutter per head
Acceleration 0–600 m/min in less than 3 seconds	Typical porosity 50–3,000 Coresta Units	
Basis weight 35–45 g/m ²		
Number of cutting blades 1 (optional)		
Zero-Meter System Available as an option		



Laser Source	Processing Directions	Technologies
Laser type CO₂ laser	Web direction (WD) ✓	Cutting ✕
Wavelength 10.6 µm	Crossweb direction (CW) ✕	Scoring ✕
Typical laser power 200–1,000 W	Free form applications ✕	Perforation ✓
		Marking ✕

High-Volume Production

CigLine MLP50[®]

The CigLine MLP50[®] from MLT is a high-performance multi-bobbin laser perforation system for cigarette filter paper. Specifically designed for high production volumes of more than 50 tonnes per year, the system enables the simultaneous processing of 4 or 5 bobbins.

The system comes standard with 16 perforation heads, with up to 20 heads available as an option. Its specialized polygon technology enables exceptionally high production speeds of several hundred metres per minute.

SYSTEM BENEFITS

Throughput and Precision

Multi-bobbin processing and patented polygon technology combine high throughput with precise, repeatable perforation. Up to 20 perforation heads and an integrated workflow provide flexibility for demanding production requirements.

APPLICATIONS

Suitable for

- ✓ Laser perforation of cigarette tipping paper
- ✓ Production volumes above 50 t/year
- ✓ Simultaneous processing of 4 or 5 bobbins
- ✓ High-speed production
- ✓ Variable porosity and hole density



Perforation

Unwinder / Rewinder	Micro-Perforation	Focusing Heads
Max. bobbin diameter 800 mm	Based on the patented MLT Vario-Polygon system	Number of perforation heads 8–20
Max. paper unwinding length 4,000 m	Polygon speed 70,000 RPM	Head positioning Across the full web width
Max. bobbin / tipping paper width 350 mm	Holes per second 500,000	Focusing lens adjustment 0.01 mm resolution
Max. winding speed 700 m/min	Hole density per centimetre 5–50	Shutter configuration Individual shutter per head
Acceleration 0–700 m/min in less than 3 seconds	Typical porosity 50–4,000 Coresta Units	
Basis weight 35–45 g/m ²		
Number of cutting blades Up to 5		
Zero-Meter System Available as an option		



Laser Source	Processing Directions	Technologies
Laser type CO₂ laser	Web direction (WD) ✓	Cutting ✕
Wavelength 10.6 µm	Crossweb direction (CW) ✕	Scoring ✕
Typical laser power 1,000–2,000 W	Free form applications ✕	Perforation ✓
		Marking ✕

Inline Cigarette Perforation

CigLine PerfOnline®

The CigLine PerfOnline® is a high-performance laser module for perforating cigarettes directly in the cigarette maker. Designed for retrofit projects or as a replacement for existing laser systems, it supports production speeds of up to 10,000 cigarettes per minute.



Perforation

Technical Specifications	Processing Directions	Technologies
Laser power 250 W, 500 W	Web direction (WD) ✓	Cutting ✗
Number of lasers 1	Crossweb direction (CW) ✗	Scoring ✗
Number of nozzles 2	Free form applications ✗	Perforation ✓
Number of perforation rows Up to 4 (2 per nozzle)		Marking ✗
Number of holes 5–21 per row		
Ventilation Up to 80 %		
Production speed Up to 10,000 CPM		

SYSTEM BENEFITS

Flexible Integration

The adaptable MLT front-end is tailored to the required DME and machine configuration. This enables precise integration into existing production lines, whether as a retrofit or replacement solution.

APPLICATIONS

Suitable for

- ✓ Inline perforation of cigarettes
- ✓ Retrofitting existing cigarette makers
- ✓ Replacing existing laser systems
- ✓ Ventilation with variable hole counts

Research and Pilot Production

CigLine PerfLab®

The CigLine PerfLab® is a stand-alone system for the online perforation of cigarettes and filter rods. Developed for research, product development and small production runs, it provides a flexible platform for testing new products under realistic process conditions.



Perforation

Technical Specifications	Processing Directions	Technologies
Laser power 250 W, 500 W	Web direction (WD) ✓	Cutting ✗
Number of lasers 1–2	Crossweb direction (CW) ✗	Scoring ✗
Number of nozzles 2–4	Free form applications ✗	Perforation ✓
Number of perforation rows Up to 16 (4 per nozzle)		Marking ✗
Number of holes 5–21 per row		
Ventilation Up to 80 %		
Production speed Up to 1,700 CPM		

SYSTEM BENEFITS

Development and Testing

PerfLab enables new products and perforation patterns to be developed, tested and validated under realistic conditions. Its flexible laser and nozzle configuration accelerates development cycles, while the stand-alone design simplifies implementation.

APPLICATIONS

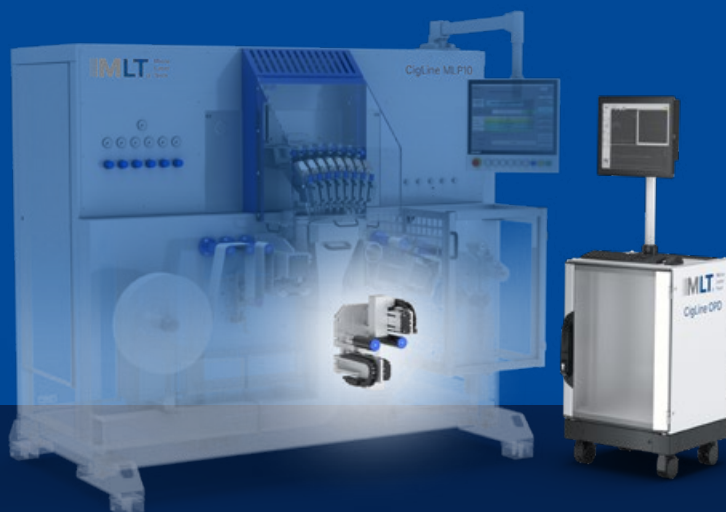
Suitable for

- ✓ Research and development
- ✓ Product development and prototyping
- ✓ Small batches and product launches
- ✓ Online perforation of cigarettes and filter rods

Online Quality Control

CigLine OPD®

The CigLine OPD® (Online Porosity Detection) system is the ideal solution for quality control in the offline perforation of filter paper. It not only supports fast and precise setup of new products but also continuously monitors the consistency of perforation patterns throughout production.



Perforation

Technical Specifications	Processing Directions	Technologies
Inspection Display of individual holes within the control zone	Web direction (WD) ✓	Cutting ✗
Positioning Servo axis for fast, precise detection of perforation zones	Crossweb direction (CW) ✗	Scoring ✗
Setup LiveView for rapid product setup	Free form applications ✗	Perforation ✓
LiveView speed Up to 500 m/min		Marking ✗
Measurement display Coresta Units (CU)		
Measurement range Approx. 50–3,600 CU		

SYSTEM BENEFITS

Real-Time Quality Control

High-resolution camera technology and intelligent analysis software monitor perforation quality in real time. LiveView supports fast product setup, while immediate deviation detection helps maintain consistent quality and reduce manual inspection.

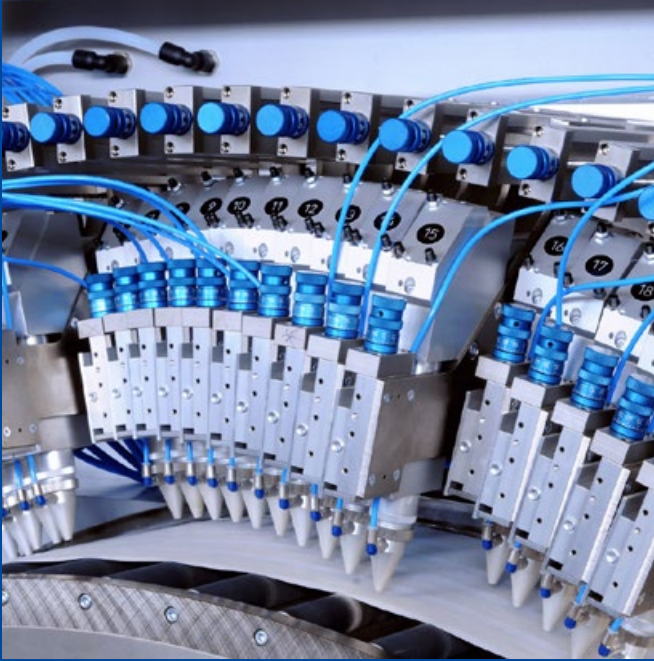
APPLICATIONS

Suitable for

- ✓ Quality control of perforated filter paper
- ✓ Monitoring consistent perforation patterns
- ✓ Optimizing setup and production start-up

Inside CigLine

A closer look at the precision engineering and advanced perforation technology inside MLT's CigLine laser systems.



CigLine MLP50®



CigLine PerfOnline®



CigLine PerfLab®

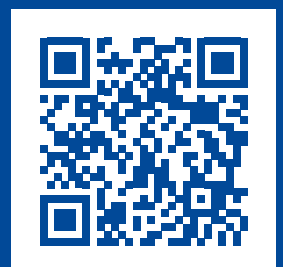


CigLine OPD®



MLT Micro Laser Technology GmbH
Benzstr. 5b | 85551 Kirchheim b. München
Germany

+49 (0) 89 90 11 96 700
contact@microlasertech.com



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