murrSystems®
Simply Smart Systems

Laser marking mp-LM Series

Labelling solutions, hardware, software and accessories

Automated and cost-efficient laser labelling

New and unique system

Murrplastik Systemtechnik GmbH is the only manufacturer to offer a high-quality, flexible and automated laser labelling system. The hardware requires no consumables, marks different label plates and materials (abrasion-resistant) and achieves a high output through automated batch processing and integration of the labelling software.

The laser labelling systems mp-LM 1, mp-LM 3 and mp-LM 10 do not require ink, colour ribbon or toner.
Another special feature on the labelling market is the wide range of materials.

In addition to polycarbonate and polypropylene, the mp-LM series can also label stainless steel, anodised aluminium, laser foil and magnetic labels for any industrial as well as individual requirement.

Symbolic visualisation of the labelling process

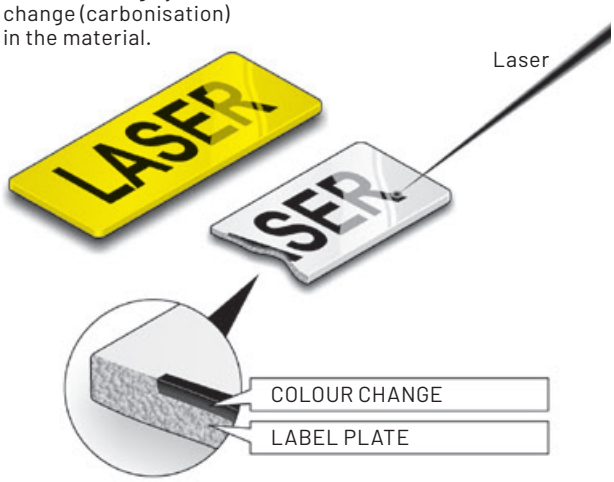
Principle of laser labelling of plastic labels (carbonisation)

The high labelling quality of the mp-LM 1, mp-LM 3 and mp-LM 10 results from the carbonisation (chemical reaction) in the labelling material. This is a colour change that is produced by the impact of the laser beam.

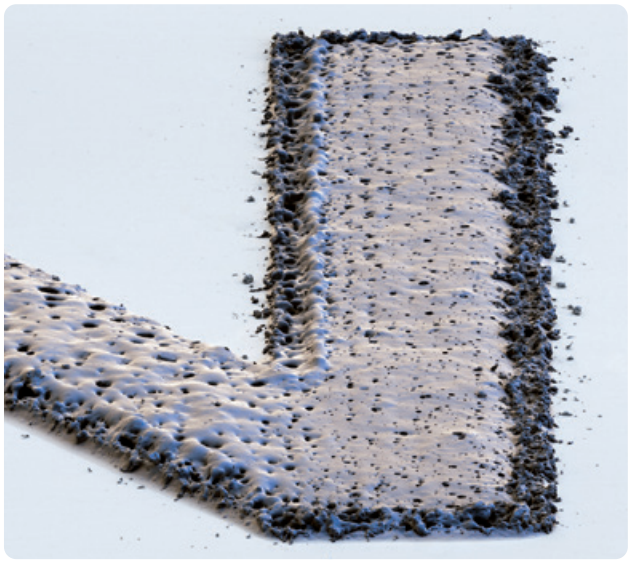
The laser labelling is contact-free. Carbonisation is used for light-coloured plastics where the colour changes from light to dark.

Principle:

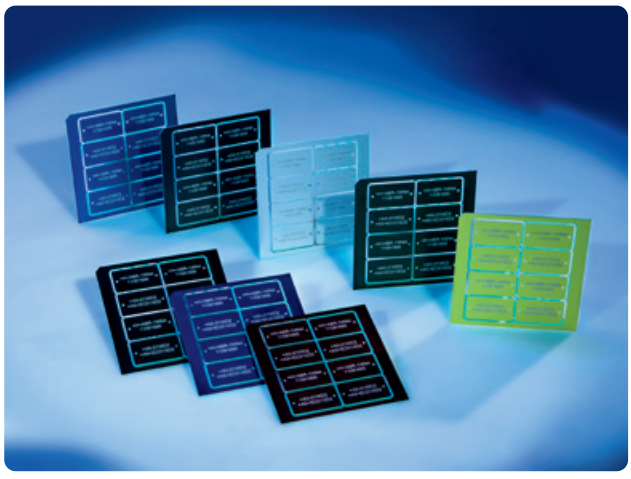
Laser labelling by colour change (carbonisation) in the material.



The high quality of the laser labelling with the mp-LM Series is the result of the disintegration of the plastic structures. Carbon is released from these compounds (carbonisation).



Macro image: Carbonisation of the material to be labelled



Lasered metal plates

Labelling of various laser materials Labelling of various laser materials

A high quality laser labelling for Laser Alu, Laser Alumatt, Laser Mat and Laser Foils is obtained by removing anodised and/or lacquered layers. With Laser stainless steel, the labelling contrast is obtained by engraving.

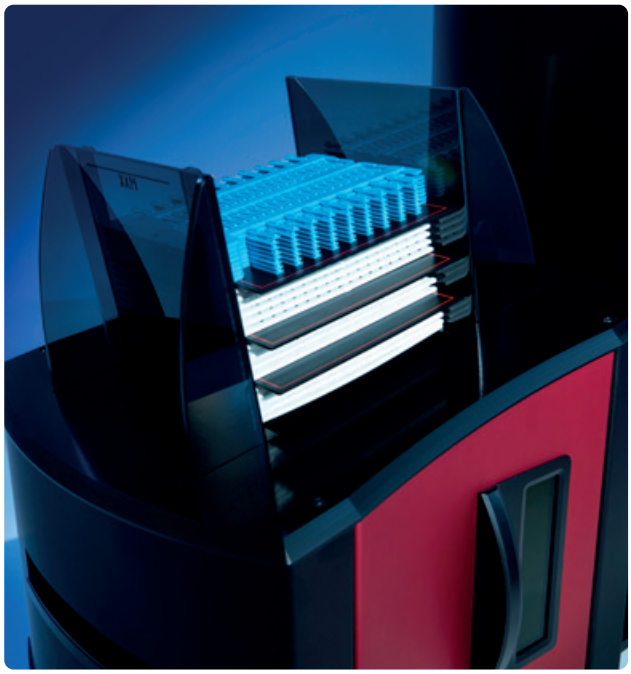
Automated and cost-efficient laser labelling

mp-LM 1, mp-LM 3 and mp-LM 10

Our mp-LM 1, mp-LM 3 and mp-LM 10 laser labelling devices provide an attractive and affordable labelling system for automated processing of individual print jobs.
The high-performance lasers are used in particular for project-related labelling of a wide variety of label types and materials. Their focus is on medium to high labelling volumes.

Due to the high degree of automation, the user can focus on his core competences and save resources.
For the cus-tomer, a continuous system integration of hardware, software and material provides optimum labelling quality as well as very high efficiency and profitability in everyday operations.

Fig. mp-LM 1, mp-LM 3 and mp-LM 10



Batch processing

Single assembly

The highlight of the cost-efficient mp-LM series is the flexible automation. The devices have an integrated control as well as a magazine holder for automated batch processing.

During the labelling process, the label mats are stacked directly in the labelling magazine. For individual laser jobs, the label mats can be placed on a variable base plate and inserted into the magazine.

If a "print job" contains different label types, these are reliably separated from each other by separating plates. The completed label mats are discharged into a collection container.

All three mp-LM versions can be connected via USB port (single user) or via Ethernet (network) via a PC with the approved Murrplastik mp-UniversalMarkingSoftware and operate it. The output quality of the labelling is set via the marking speed, the number of print cycles and the font according to customer-specific requirements.

The more powerful the laser unit, the faster the printing process. The laser power of the mp-LM 1, mp-LM 3 and mp-LM 10 is 1 Watt, 3 Watt and 10 Watt respectively.
For example, the labelling of a plate mat LAM 30x17 takes 41 seconds with the mp-LM 1 and is reduced to 13 seconds with the mp-LM 10.

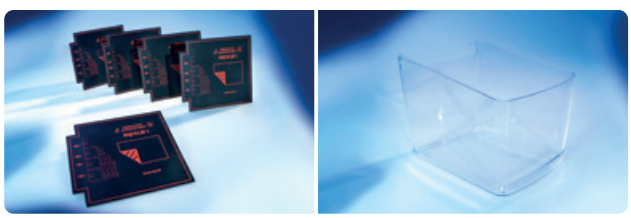


Fig. separating plates, collection container

Technical data and advantages

	mpLM1 Laser Marking	mpLM3 Laser Marking	mpLM10 Laser Marking
Laser source	1.5 watt solid state laser Nd:YAG	3 watt solid state laser Nd:YAG	10 watt solid state laser Nd:YAG
Wavelength	1064 nm		
Cooling	Air		
Printablearea	120 x 120 mm²		
Safety	Laser class 1		
Input voltage	100 – 240 V AC		
Power consumption	max. 200 W		
Dimensions	475 x 795 x 300 mm (H x B x T)		
Weight	17,5 kg	17,5 kg	18,5 kg
Interfaces	USB, Ethernet		
Labelling time*	41 seconds	22 seconds	13 seconds

* Labelling of a label mat LAM 30x17

MINIMUM OPERATING AND FOLLOW-UP COSTS

- No consumables needed – high cost savings
- Almost service free, low maintenance effort
- Low set-up times
- Economical even for low labelling volumes

GOOD PRICE-PERFORMANCE RATIO

- Minimal operating costs
- High productivity and labelling speed
- Up to 10,000 labelling pates per hour
- Attractive initial investment

PERMANENT LABELLING

- Highest durability of the labelling: Labelling is resistant to abrasion and is as durable as an engraving
- Will not be bleached out by UV radiation

LABELLING OF VARIOUS MATERIALS

Polycarbonate, Polypropylene, Laser Mat, Laser Alumatt, Laser Alu, Laser stainless steel, Laser Monomatt, Magnetic labels

HIGH QUALITY

- Smallest fonts and graphics possible (e.g. QR and bar codes)
- Durable and abrasion-resistant labelling by carbonisation (plastic) or laser engraving (stainless steel, aluminium), high resistance to UV radiation, acids, oils, mechanical stress and extreme environmental impacts
- The UniversalMarking software guarantees a process-optimised print output

FLEXIBLE AUTOMATION

- From individual production to mass production
- Stacking with different materials and label types (mixed assembly)
- Specially developed magazine holder for automated batch processing
- Complete labelling in one device
- Time saving due to optional magazine filling aid

SAFETY

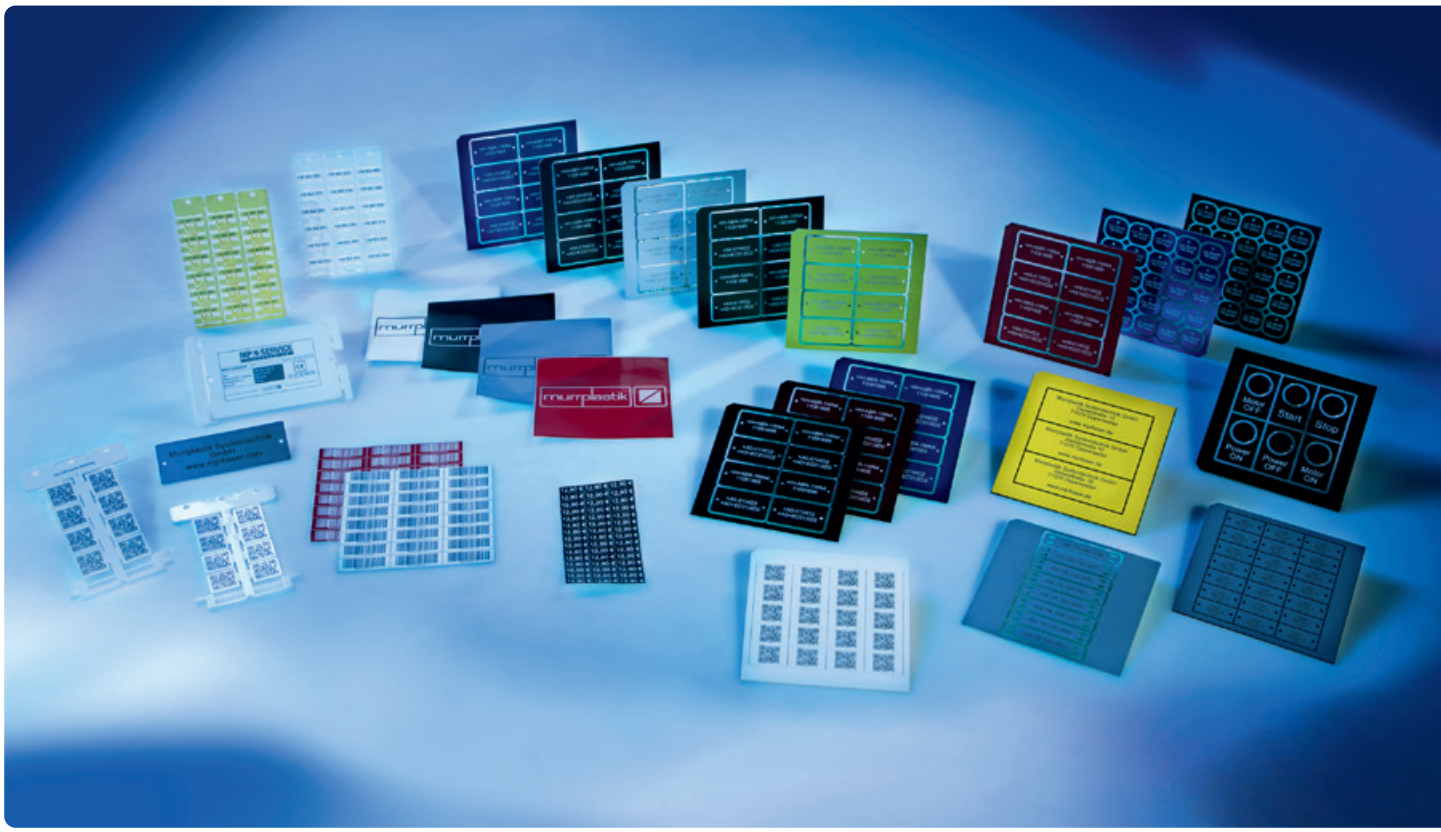
Laser class 1

Variety of materials and colours

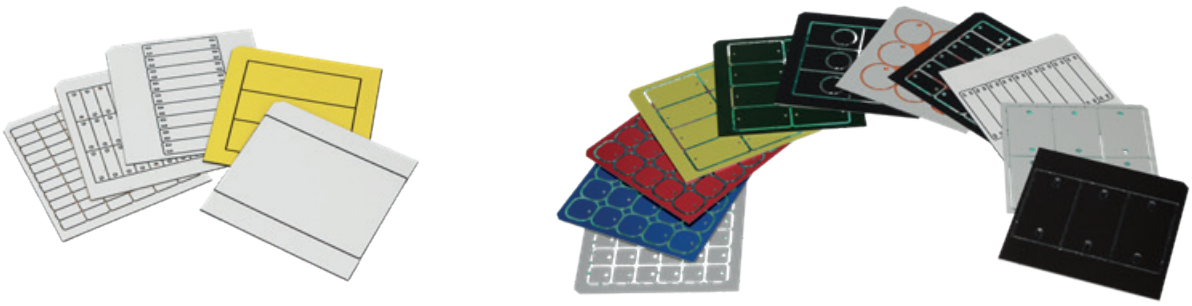
Versatile, durable and resistant

Unique on the labelling market is that with the mp-LM series it is possible to mark a variety of other materials in addi-tion to polycarbonate and polypropylene, such as stainless steel, anodised aluminium, laser foil and magnetic labels.

All three laser labelling systems can be used to mark the same materials in different colours, thicknesses and carrier materials as well as materials for different applications (indoor/outdoor).

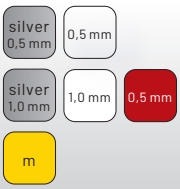


Label plates of a variety of materials: polycarbonate, polypropylene, anodised aluminium, stainless steel



Additional selection of different shapes, colours and label dimensions

Variety of materials and colours

Materials	Description	Colours*
PC (Polycarbonate)	Polycarbonate is a versatile, extremely durable and resistant high-performance plastic that is very break-resistant and impact-resistant. The thermoplastic material has a low water absorption and therefore enables a permanent form stability.	
PP (Polypropylene)	Polypropylene is a thermoplastic from the group of polyolefins, which is extremely durable and resistant. Its characteristics are good mechanical, thermal and chemical resistance.	
LM (Laser Mat) LABEL ON DEMAND	Laser Mat is a two-layer material (polyurethane) with a UV resistant top layer. Laser engraving removes the top layer, making the underlying colour layer visible.	
LAM (Laser Alumatt) LABEL ON DEMAND	Laser Alumatt is a coated aluminium (with polyester and polyurethane). The polyurethane centre layer provides an optimised black colour change during laser engraving. The polyester top layer provides a higher chemical resistance.	
LA (Laser Alu) LABEL ON DEMAND	Laser Alu is an anodised aluminium in various colour combinations.	
LES (Laser Stainless steel)	Laser stainless steel is a V4A stainless steel. It is suitable for industrial environments of pharmaceutical, chemical and food indus-tries.	
LMM (Laser Monomatt) LABEL ON DEMAND	Laser Monomatt is a single-layer polycarbonate and is used, for example, for type labels. Individual sizes are possible.	
Magnetic labels LABEL ON DEMAND	The magnetic labels are based on Laser Mat in silver/black with an additional magnetic foil.	
ELF (label laser foil)	Polyacrylate/Acrylate: Acrylates are polymers with high resistance to chemicals, humidity, temperature, UV radiation and other environmental impacts. They are suitable for label laser foils, which are also forgery-proof and smear-resistant due to their material characteristics and they offer an excellent readability.	

* Possible colour differences to the original material are due to printing!

d= detectable, m= matt, g= glossy

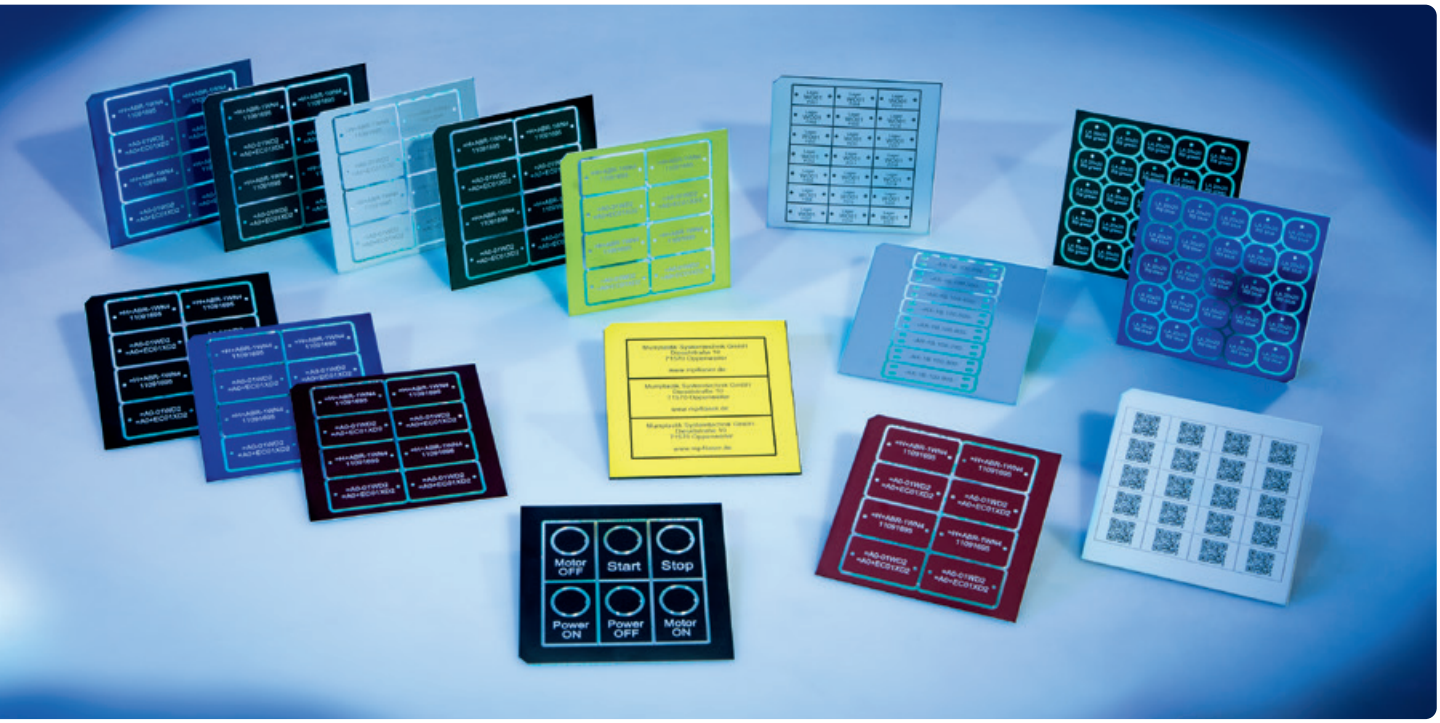
Areas of application

Single wires	Cables	Device and device location	Terminals	Type plates	Conduits	Push-buttons and Signal lamps
✓	✓	✓	✓	✓	✓	✓
✗	✓	✗	✗	✗	✓	✗
✗	✓	✓	✗	✓	✓	✓
✗	✓	✓	✗	✓	✓	✓
✗	✓	✓	✗	✓	✓	✓
✗	✓	✓	✗	✓	✓	✓
✗	✓	✓	✗	✓	✓	✓
✗	✓	✓	✗	✓	✓	✓
✗	✗	✓	✗	✓	✗	✓
✗	✓	✓	✗	✓	✗	✓

Individual, fast and flexible services

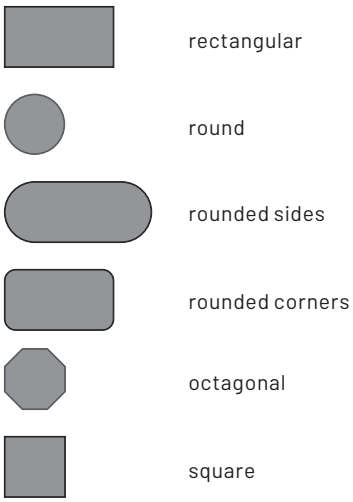
“LABEL ON DEMAND” – Customer-specific label plates

With “Label On Demand”, Murrplastik offers its customers a unique added value on the labelling market. The customer orders his tailor-made label plates from our service department. Our experts provide support for the users from a wide variety of industries with regard to the various labelling requirements. Different sizes can be manufactured in different materials (see page 8), shapes, colours and with individual mounting options.



Examples of “Label on demand” projects

Flexible design



- rectangular
- round
- rounded sides
- rounded corners
- octagonal
- square

- Labels in different materials
- All shapes within the labelling area of 120 x 120 mm2 possible
- Various shapes and colours
- With three different types of carrier materials
- With customer-specific mounting options
- Automated production in high quality
- Short production times
- Special variants and shapes on request

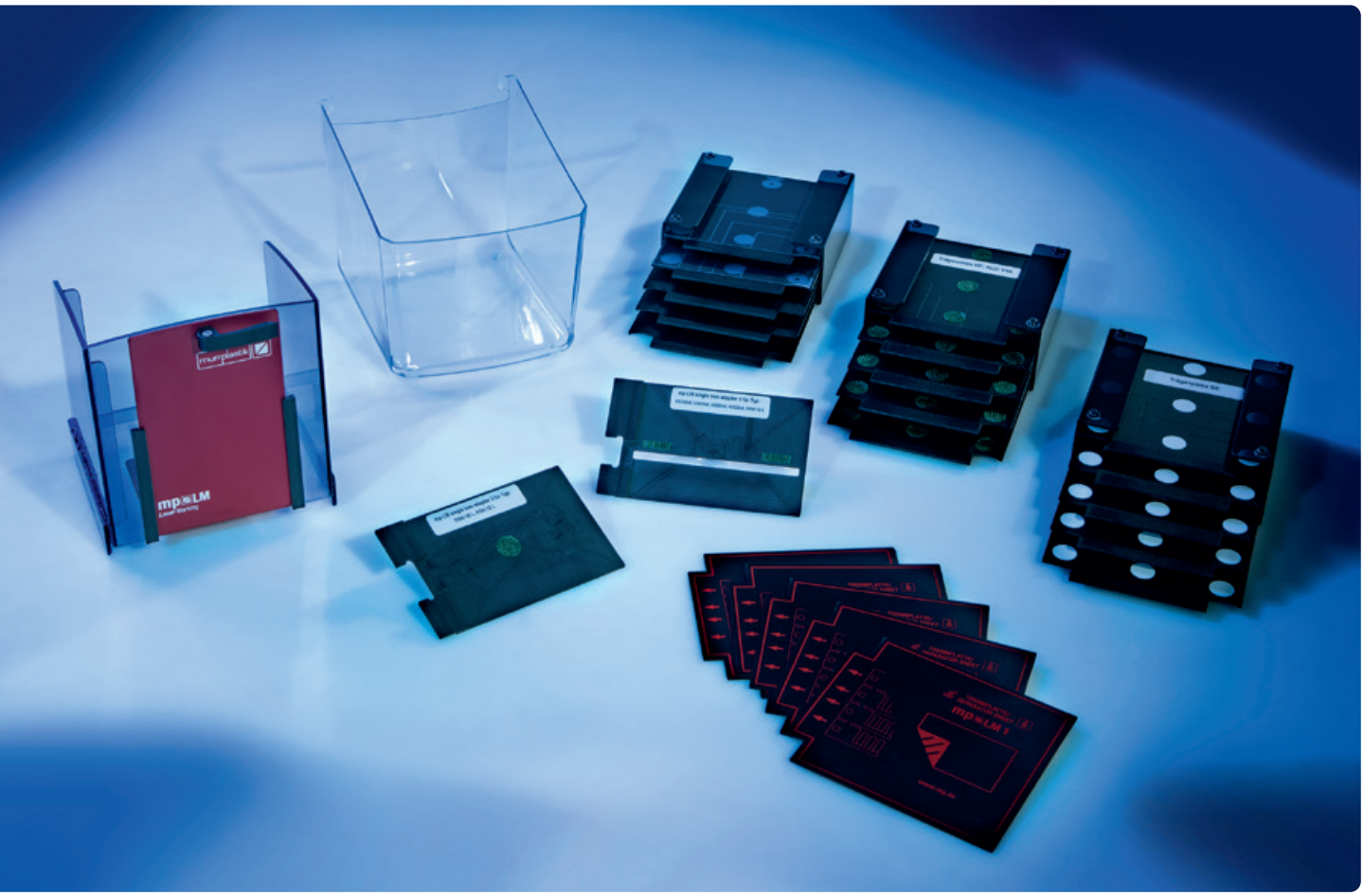
Your advantages plus added value

Many companies operate more cost-effectively with the purchase of labelling services than with in-house production. In addition to an increase in quality, this means significant time savings for industrial users when producing individual labels with Murrplastik.

And it's that simple: The "Label On Demand Service" generates the print parameters and the customer compares them with the order confirmation and sketch. A follow-up order is possible with the article number at any later time. Labels on Demand can be purchased at the first order from a minimum order quantity of five packs of four mats each. This mini-mum order quantity does not apply to follow-up orders.

Production facility for customer-specific "Label on demand" label plates

Accessories provide real added value



Optional accessories of the mp-LM Series

Magazine filling aid (mp-LM B)

The magazine filling aid mp-LM B is used to prepare a magazine filling for the laser labelling devices mp-LM 1, mp-LM 3 and mp-LM 10. It enables the entire labelling process to run smoothly and time-optimised. While a print job is being processed on an mp-LM laser labelling device, the magazine filling of the following job can be prepared at the same time.

- ✔ Parallel preparation of magazine assembly possible
- ✔ Smooth and time-optimised labelling process

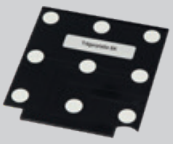
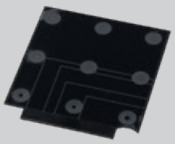
Carrier plates

- Stackable directly in the labelling magazine
- Spare glue dots available for order
- Flexible mounting of various labelling materials

The mp-LM carrier plates are used for flexible mounting of various Murrplastik labelling materials. They are equipped with 9 glue dots (HF and SK) or a full-surface adhesive layer (Premium) to ensure material adhesion. Various materials and label types can be stacked directly in the insertion shaft during stacking.

The following Murrplastik materials can be processed with the mp-LM carrier plates:

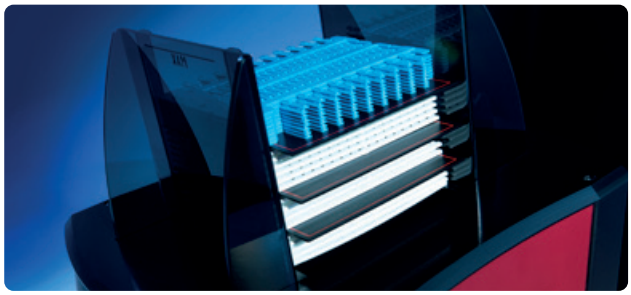
- LM Laser Mat
- LA Laser aluminium
- LAM Laser Alumatt
- LMM Laser Monomatt
- LES Laser stainless steel

			
Area of application	mp-LM Carrier plate HF/Alu/V4A	mp-LM Carrier plate SK materials	mp-LM Carrier plate premium
Adhesion for non-self-adhesive materials	✓	✗	✓
Adhesion for self-adhesive materials	✗	✓	✓
Mounting of all mp-LM materials	✗	✗	✓
Service life	✓ ✓	✓ ✓	✓ ✓ ✓

Accessories provide real added value

Separating plates for mixed assembly

If different label types are stacked in the insertion shaft for a print job, they are separated from each other by separating plates in the magazine (mixed assembly). The specially developed magazine unit automatically separates the various types of labels in one process by using the separating plates. The customer can focus on other tasks during this time.



Mixed assembly

The labelled material is dispensed loosely into the removable collection container

- Mixed assembly in one order possible
- Optimised labelling process (time saving)

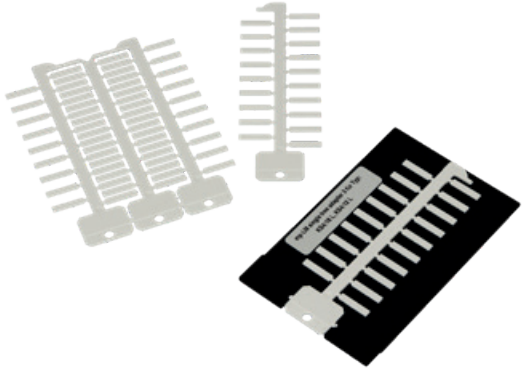
Single-line adapter

The single-line adapter is an adapter plate for inserting a single line of labels into the magazine shaft of the laser label-ling system. The individual line is positioned and fixed on the adapter plate with the aid of pins and adhesive surfaces.

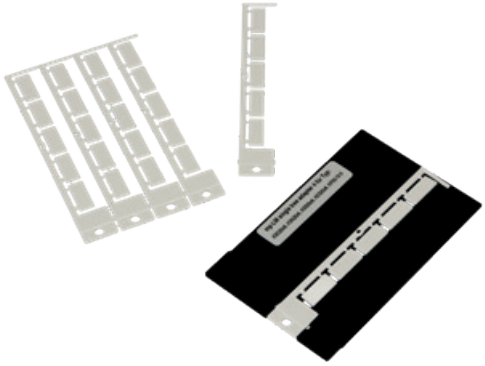
The mp-LM series is primarily designed for automated processing of large, individual print jobs. However, only com-plete frames can be inserted to ensure consistent positioning in the labelling area.

With the help of the mp-LM single-line adapters, individual lines of the plastic plates that have not yet been marked can be further processed in a laser labelling device. There are suitable single-line adapters for the different label types.

- No remaining individual lines



Single-line adapter for 4-line material



Single-line adapter for 3-line material

Suction and filter unit

The compact mp-LM F suction and filter unit was specially developed for the mp-LM series and is used for effective filtration of fine dust emissions.

Emissions occur during the laser labelling process – depending on the labelling material and laser parameters.
Even if these emissions are not harmful to health for laser markable materials (PC and PP materials), we generally recom-mend the use of an mp-LM F Suction and filter unit. It is absolutely necessary for the materials: LM Laser Mat, LAM Laser Alumatt, LA Laser aluminium.

The suction and filter unit prevents odour emission and ensures that the air at the workplace is kept clean.
The unit is generally designed to suction dry, non-flammable dusts, gases and vapours from non-explosive air mixtures. Due to its robust construction, the unit is also suitable for heavy-duty commercial use. It replaces the integrated mp-LM laser suction, which is deactivated when the mp-LM F suction and filter unit is used.

- Effective filtration of fine dust emissions
- Avoidance of odour emissions
- Keeping air clean at the workplace

Transport box

With the mp-LM aluminium trolley you can transport your mp-LM device safely and securely to an external, mobile use. The pre-formed inlay of the aluminium trolley protects the mp-LM from vibrations and damage. Accessories can be stored separately in the integrated extra compartment (suction hose, separating plates, manual, etc.).

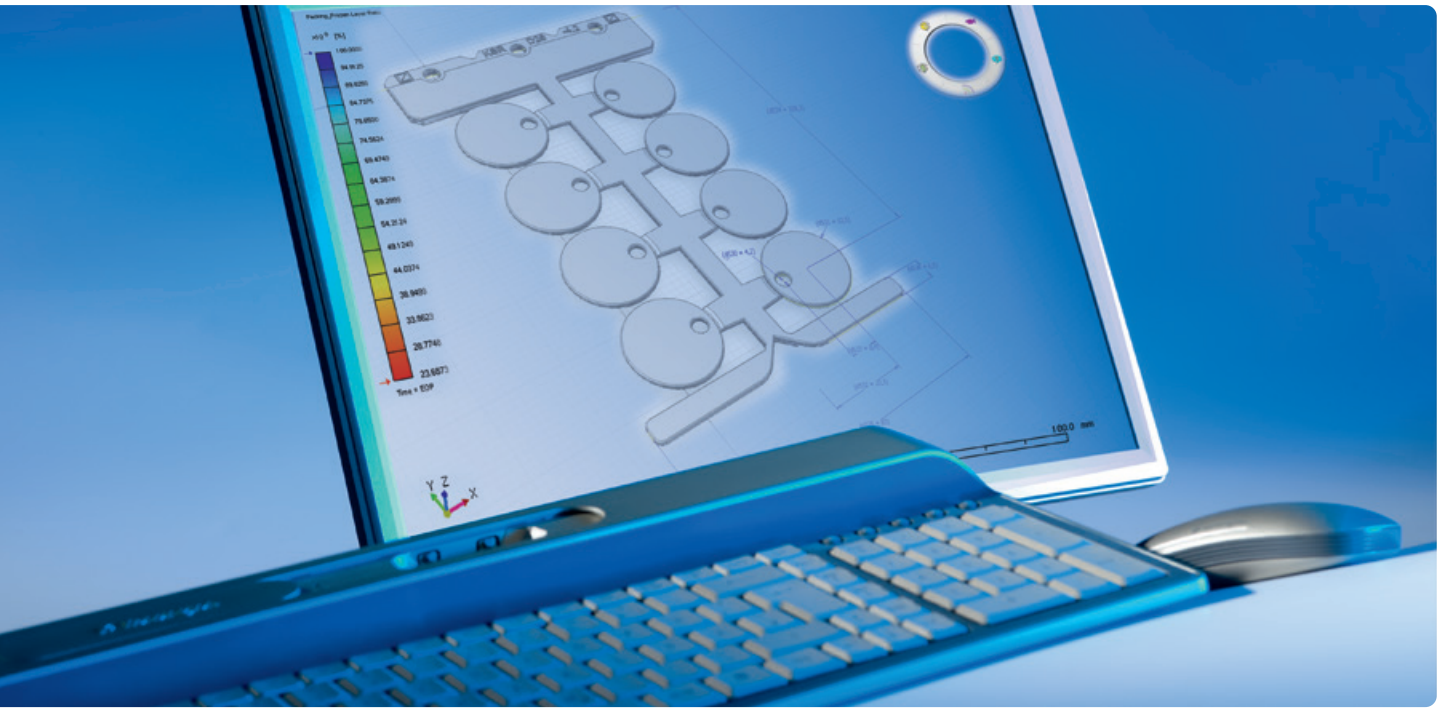
- Safe transport of the mp-LM device
- Protection against vibrations and damage
- Storage of accessories

One software for all label types

Device-independent, intuitive and interactive labelling software

With the mp-UniversalMarkingSoftware all labelling technologies can be operated: Lasering, engraving, plotting, inkjet and thermal transfer printing. All driver settings are configured directly in the software. The user is provided with a complex, easy-to-use labelling software.

The laser labelling system mp-LM 1, mp-LM 3 and mp-LM 10 can be controlled via USB port at the individual workstation or via Ethernet in the network.



The mp-UniversalMarkingSoftware offers various added values for the users:

- All parameters such as numbers, symbols, logos, fonts and degree of blackness are directly controlled via the modern graphical user interface of the new software generation.
- Different fonts, styles and sizes can be used on one label.
- The support of common graphic formats, extensive symbol libraries and import from CAE/CAD systems ensure pro-cess optimisation, time savings and cost reduction for the user.
- The labelling process (processing of the print job) can be sped up by up to 50% compared to the software ACS Gold Studio.
- Vector and bitmap file formats can also be used without conversion in the graphics editor.
- A special feature of the operation is that a component list (required label types) is created from a labelling project.
- The following language versions are available: German, English, Italian, French, Spanish and Portuguese.

- ✔ Process optimisation
- ✔ Time saving
- ✔ Cost reduction
- ✔ Transparent workflows

Tested quality

Quality

Murrplastik is one of the world's leading manufacturers of manual and computerised labelling systems.

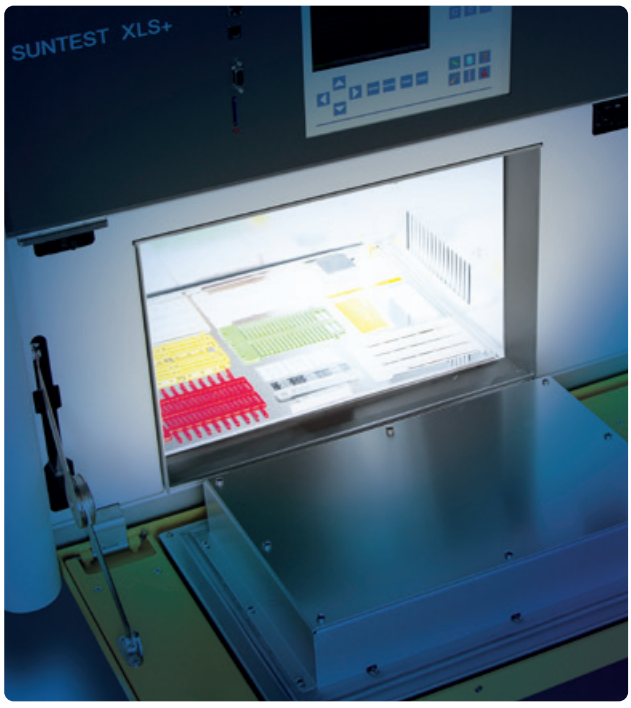
- Approved for many years
- For manufacturing plants in the automotive industry
- Railway engineering
- In-house testing facilities
- Top quality
- Durability
- Robustness
- Economical use

We test our materials for a wide variety of characteristics

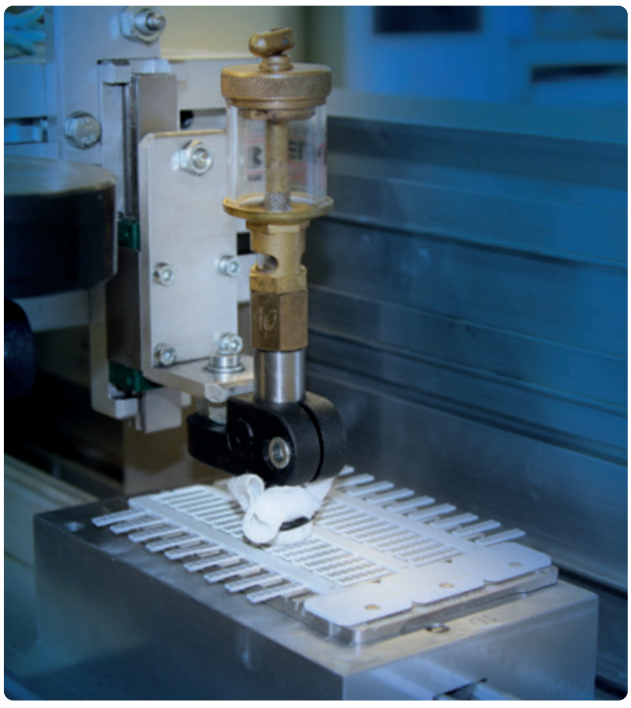
- Flammability
- Halogen-free properties
- UV-resistance
- Ageing
- Functional testing
- Hardness testing
- Vibration, shock and impact properties
- Smear resistance
- Scratch and abrasion resistance

Railway systems | Automotive | Mechanical engineering | Robotics

Halogen-free properties | Flammability | Temperature



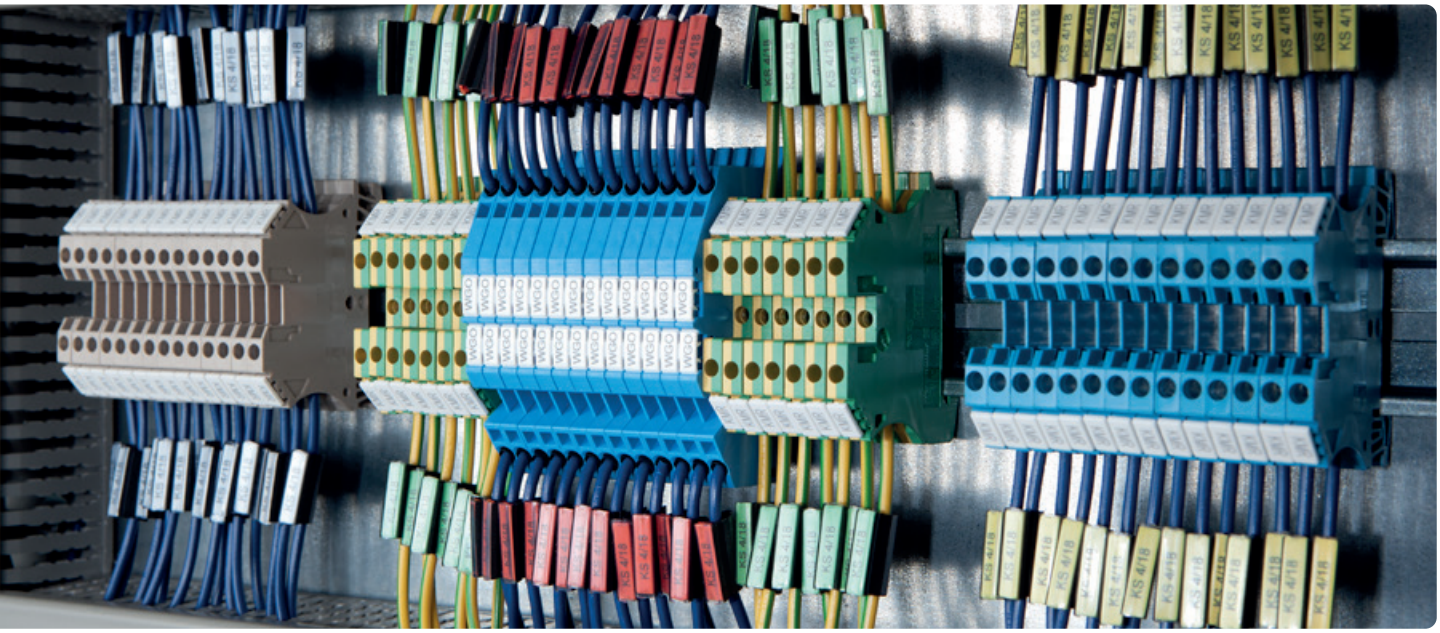
Testing of UV resistance



Smear resistance test

Labelling solutions from A-Z

Professional labelling systems



Murrplastik Systemtechnik GmbH is the world's leading manufacturer of industrial labelling systems. Our labelling sys-tems, materials and software are known for their very high quality, durability, versatility and economical use. Our port-folio includes hardware, software and consuma-bles that guarantee perfect interaction through a high level of system integration. We offer our customers complete solutions from one source. Be convinced of our versatile, universal, standardised and customer-specific labelling solutions.

Our "Label On Demand" service gives you the unique opportunity to have your specific label produced by us in a cus-tomised manner. Within the 120 x 120 mm2 labelling area, Murrplastik produces your individually required label sizes in a wide variety of materials, shapes, colours, carrier materials and mounting options.

We always design our labelling systems with the following objectives in mind: "We will develop the right label for your individual labelling requirements. Every day we face your challenges with great enthusiasm."

We offer you:

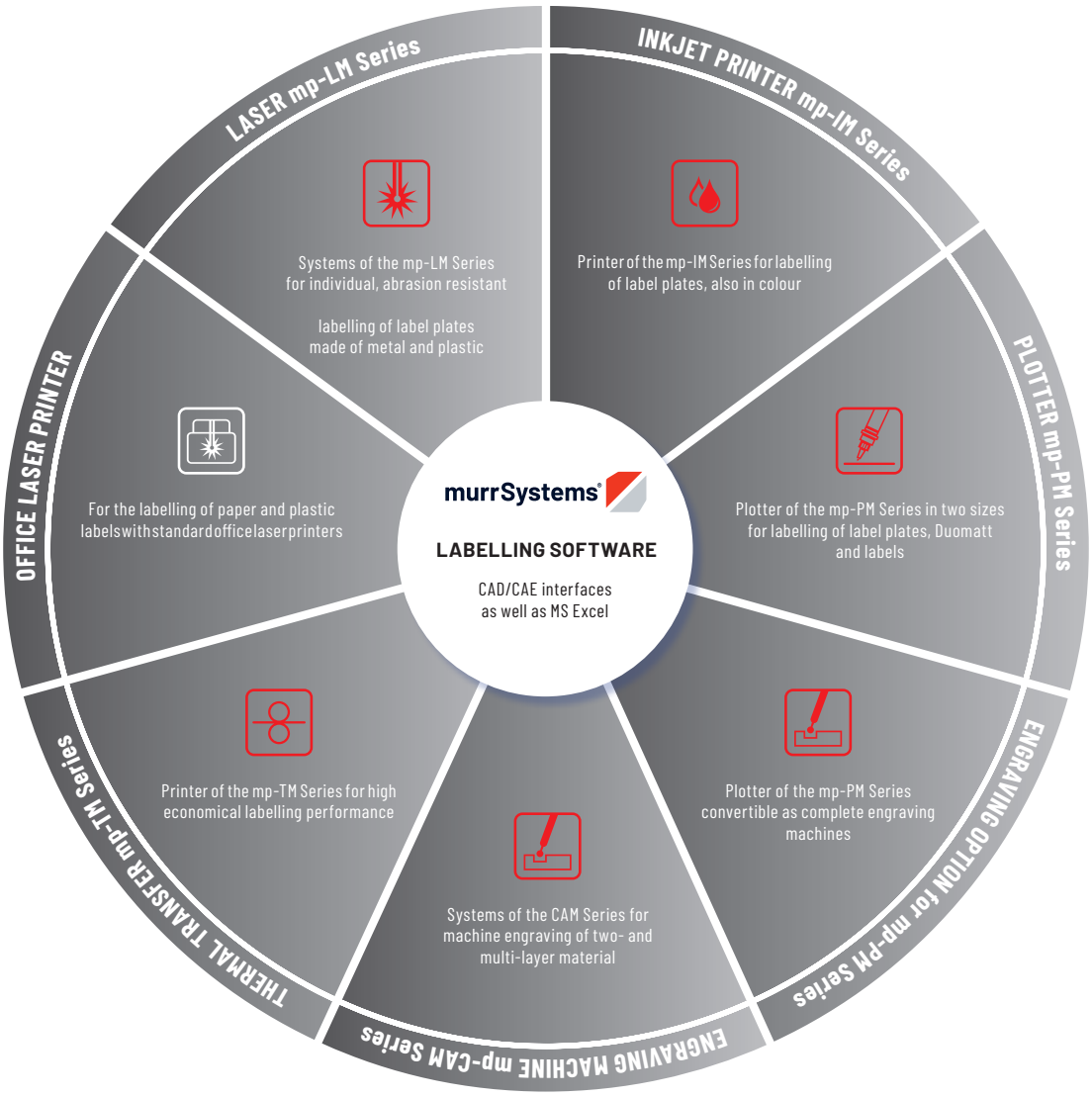
- Software-supported labelling
- Safe, high-speed production
- Fast, durable and flexible labelling
- Time and cost-saving labelling
- Large range of labelling materials and labelling systems
- Innovative and cost-effective solutions
- High quality, durability and versatility
- Labelling services

Labelling technologies

Murrplastik Systemtechnik GmbH is the only company to offer a wide range of labelling technologies: Plotter, inkjet printer, engrav-ing device, thermal transfer and laser labelling systems. With all labelling technologies it is possible to control these centrally with the same software (mp-UniversalMarkingSoftware).

The variety of our labelling systems ranges from transportable to fully automatic workstations with different equipment options.

We have the right hardware for your labelling requirements:



mpLM Serie *Laser* Marking

mpIM Serie *Inkjet* Marking

mpPM Serie *Plotter* Marking

mpEM Serie *Engraving* Marking

mpTM Serie *Thermotransfer* Marking

murrSystems®
Simply Smart Systems

www.murr-systems.com

MP8901864231 0601HS