



ePASSPORT PERSONALIZATION TECHNOLOGY

PRODUCT OVERVIEW



CONTENTS

MÜHLBAUER GROUP AT A GLANCE	4
MANUFACTURING EXECUTION SYSTEMS	6
INKJET & LASER SYSTEMS	
IDENTIFIER 6 INK	8
IDENTIFIER 60	10
IDENTIFIER 60 PLUS	12
IDENTIFIER 6000	14
LAMINATION	
PLS 50P	16
IDENTIFIER 6 LAM	18
SPLS 100	20
MAILING	
PASSMAIL 1500	22
QUALITY ASSURANCE	24
PRODUCT PORTFOLIO	25
NOTES	26



MÜHLBAUER GROUP AT A GLANCE

MÜHLBAUER'S BUSINESS UNITS AND SITES

Founded in 1981 in the heart of Bavaria, the Mühlbauer Group has ever since grown to a leading global player in the fields of Parts & Systems, Semiconductor Related Products, Document Solution Related Products and TECURITY® Solutions. With around 3,500 employees, technology centers in Germany, Malaysia, Slovakia, the U.S.A. and Serbia and 35 sales and service locations worldwide, Mühlbauer created a strong competence network around the globe.

We continuously invest in the latest technologies and innovative processes to enhance our competences and provide you with optimized solutions. Our in-house precision part production MPS – Mühlbauer Parts & Systems – guarantees unlimited flexibility and highest customer satisfaction.

Our business unit AUTOMATION does not only develop and assemble individually customized production systems, but also provides matching software solutions for the production process of Document and Solution Related Products. Vision inspection technologies as well as semiconductor and RFID applications complete our comprehensive portfolio.

Our business unit TECURITY® is established as a competent partner for the implementation of security systems for identifying and verifying both documents and individuals. Our clients benefit from more than three decades experiential value which we have gained during the realization of over 300 ID projects worldwide.





Mühlbauer





Mühlbauer Germany



ühlbauer



Mühlbaue Slovakia



USA



MPS
Precision Parts & Surface Engineering



AUTOMATION Production Equipment & System



WORLD OF TECURITY® Government & Technology Solutions



MANUFACTURING EXECUTION SYSTEMS



MB MCES is a personalization management software, which integrates incoming data with product definitions and controls the associated physical and electrical personalization processes. MB MCES handles personalization data from a variety of different input methods and formats.



MB INCAPE is Mühlbauer's Production Management Software for the production and personalization of electronic cards and documents (e.g. ID cards, ePassports, Driver's Licenses, EMV or GSM cards). Combining data management, production control and material management, the system allows for highly automated processes. It processes customer- and application-specific production, personalization, quality control and document delivery scenarios with highest solution flexibility.



MB PALAMAX®, Mühlbauer's Smart Factory solution, is developed for card, tag or booklet productions, personalization factories and semiconductor backend shop floors to set and collect process data to monitor and improve the efficiency of production and personalization for later processing, visualization and statistical analysis.



MB TOOL LEADER is a software package which consists of several applications and serves as a reliable link between the individual systems involved in the production process. By means of MB TOOL LEADER, the entire process chain – from the incoming order to the final precision part – can easily be monitored and controlled. This real-time machine monitoring guarantees an automated production process. Production errors can be detected and solved at an early stage. Thus, MB TOOL LEADER reduces the machine downtimes, which in turn leads to an increase of the machine's productivity by up to 20 percent.

FEATURES & ADVANTAGES



Configurable workflow steps regarding personalization, quality assurance & issuance



Fully-automated processing & production management



Scalability regarding different documents, machines & personalization locations



Flawless integration of Mühlbauer's material management system (MB INCAPE WAREHOUSE)



Connection to card / document management systems via web service, database, file-based interface



Standard interface to personalization machines with integration of third-party machines possible



Integration of MB USER MANAGEMENT



Full coverage of production control requirements (security industry & EMV standards)



Seamless connection to MB PALAMAX® & MB DATA PREPARATION



Simplified administration due to web-based operator clients



Monitoring of real-time performance of the production



Seamless tracking of documents from point of production to issuance



Statistical tool analyze collected data & deliver customized statistics on OEE



Tool which enables the remote operation of machines on the shop floor from a control centre



Tool which increases effectiveness & efficiency so that production becomes more profitable



Enables production engineering to prepare & test a repeatable factory set-up. Factories can switch between products within minutes.



IDENTIFIER 6 INK

DESKTOP PASSPORT PERSONALIZATION SYSTEM

The IDENTIFIER 6 INK is a semi-automatic system for the per-sonalization of the passport, several options like RFID, serial sonalization of the latest generation of passports. It is processed number detection and alignment vision are available. After perby inkjet technology. The passport booklet is manually fed into sonalization, the passport is returned to the operator through the the machine. The machine aligns the booklet (optionally) and front slot of the system. personalizes it by using inkjet technology. To enable a full per-



KEY MODULES



Booklet input / ouput (single-slot, front-in / front-out)



Number detection



Inkjet printing (piamented ink)



Contactless chip encoding (external)



Security foil lamination (external)





FEATURES & ADVANTAGES

KEY FEATURES

- Compact desktop passport personalization system
- Front-loading / front-receiving
- Fully pigmented ink
- Passport thickness: 24, 32, 48 pages others available on request
- Same printer core as in IDENTIFIER 60 & IDENTIFIER 6000 for forensically identical results
- Online support
- MB MCES / MB INCAPE ready

PRODUCTIVITY & PROCESS UNITS

- Manual passport input
- External RFID / chip personalization system (optional)
- Vision system for optical print alignment (optional)
- 4 color inkjet printing technology
- Printing of holder page & observation page opposite
- Environmental conditions:
- » Room temperature: 23°C; +/-5°C
- » Humidity: 50%; +/-10%

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- Print resolution: up to 1200 dpi
- Interface: TCP / IP protocol, optional USB
- IC module types: Contactless: ISO 14443 / 15693
- Throughput: up to 80 passports per hour; depending on process & chip coding time
- · Printing text format: OCR-B fonts MRZ others on request
- Picture format: able to print & use format BMP, GIF, JPEG, PNG or TIFF others on request











IDENTIFIER 60 Novus

DESKTOP PASSPORT PERSONALIZATION SYSTEM

the personalization of passports of the latest generation. It is pro-sonalization of the booklet. Inkjet and / or laser systems, lamination cessed either by inkjet technology or by laser engraving or a com-modules and optical / electrical verification can be integrated in the bination of both. The passbook is fed into the input slot or an input system. The system can be enhanced with magazine input and magazine of the machine system. The modular system allows for output stackers.

Mühlbauer's IDENTIFIER 60 Novus is a modular desktop system for the combination of all necessary modules to fulfill a complete per-



KFY MODULES



Booklet input (input slot or input magazine)



Inkjet printing (pigmented ink)



Booklet output (output slot or output stacker)









Page turning



Laser engraving



Vision inspection / QA









FEATURES & ADVANTAGES

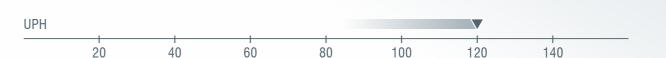
KEY FEATURES

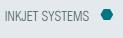
- Modular office passport personalization system even upgradeable on site
- Industrial design
- Manual or automatic passport feeding
- Color inkjet personalization technology available
- Laser personalization technology available
- Same printer core as in IDENTIFIER 6 & IDENTIFIER 6000 for forensically identical results
- In-line lamination module available
- Inside verification available
- Online support
- MB MCES / MB INCAPE ready

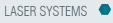
PRODUCTIVITY & PROCESS UNITS

- Manual or automatic passport feeding
- Passport magazine for up to 30 passports (optional)
- In-line RFID / chip coding system
- · Color inkjet printing system for paper-based holderpages
- Fully pigmented ink
- · Laser system available for PC-based data pages
- · Vision system for precise print alignment
- Optical inspection systems for input / output verification
- Data matching between optical & electronical personalization
- In-line lamination system for security overlay (optional)
- Environmental conditions:
- » Room temperature: 23°C; +/-3°C
- » Humidity: 50%; +/-10%

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- Print resolution inkiet: 1200 dpi
- Print resolution laser: up to 1,200 dpi
- Interface: TCP/IP
- IC Module types: Contactless: ISO 14443 / 15693
- Throughput: up to 120 passports per hour; depending on process & chip coding time











IDENTIFIER 60 PLUS

PASSPORT PERSONALIZATION SYSTEM

Mühlbauer's IDENTIFIER 60 Plus is a modular system for the personalization of passports of the latest generation. It is processed either by and / or laser systems, lamination modules and optical / electrical veriinkjet technology or by laser engraving or combinations of both. The fication can be integrated in the system. passbook is fed into the input slot or an input magazine of the machine The system can be enhanced with magazine input and output stacker. system. The modular system allows for the combination of all neces-



KFY MODULES



(input slot, input magazine, input stacker for closed booklets)



Security foil lamination



Page turning



Contactless chip encoding (single or parallel)



Vision inspection / QA



Alignment vision



Inkjet printing (different solutions available)



Booklet output (for opened or closed booklets)



Laser engraving (single or parallel)

FEATURES & ADVANTAGES

KEY FEATURES

- Modular office passport personalization system even upgradeable on site
- Industrial design
- Manual or automatic passport feeding
- Color inkjet personalization technology available
- Laser personalization technology available
- Same printer core as in IDENTIFIER 6 & IDENTIFIER 6000 for forensically identical results
- In-line lamination module available
- Inside verification available
- Online support
- MB MCES / MB INCAPE ready

PRODUCTIVITY & PROCESS UNITS

- Manual or automatic passport feeding
- Passport magazine for up to 30 passports (optional)
- In-line RFID / chip coding system
- Color inkjet printing system for paper based holderpages; full pigmented ink
- Laser system available for PC-based data pages
- Vision system for precise print alignment
- Optical inspection systems for input / output verification
- Data matching between optical & electronical personalization
- In-line lamination system for security overlay (optional)
- Environmental conditions:
- » Room temperature: 23°C; +/-3°C
- » Humidity: 50%; +/-10%

TECHNICAL DATA

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- Print resolution inkjet: depending on printer system from 360 dpi to 1200 dpi
- Print resolution laser: up to 1,200 dpi
- Interface: TCP/IP
- IC Module types: Contactless: ISO 14443 / 15693
- Throughput: up to 120 passports per hour; depending on process & chip coding time











INKJET SYSTEMS

LASER SYSTEMS

LAMINATION -

MAILING -

IDENTIFIER 6000

PASSPORT PERSONALIZATION SYSTEM

Mühlbauer's IDENTIFIER 6000 is a breakthrough in the develop- interface (GUI) provide a user-friendly experience. Thus, it reduces ment of high-class solutions for state-of-the-art passport / the operator fatigue and, at the same time, maximizes the degree ePassport personalization in ID-3 format (other formats available of productivity. Due to its highly flexible design, Mühlbauer's industrial demands with regard to modularity, integration of parallel and project demands. The fact that the machine can be adapted process modules, as well as latest electronics and software to changing requirements (even on site) again proves its high technology. The machine covers all passport personalization processes. Its ergonomic design and intuitive graphical user

versatility and reliability.



KEY MODULES



Multi booklet input (stacker or magazine)



Booklet opening



Passport identification module (e.g. serial number detection)



Cleaning module



Contactless chip encoding



Numbering station (optionally with unique matrix unit)



(impact printing possible)



Security foil lamination



Laser perforation



Laser engraving



Page turning modules



Quality assurance & data verification



Labeling module

Booklet closing





In-line reject module



Packaging module



Sorting module



Multi booklet output (tray)

FEATURES & ADVANTAGES

KEY FEATURES

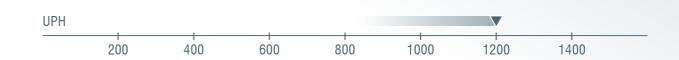
- Fully automatic high-speed passport personalization system
- Highly modular system design upgradeable even on site
- · Parallel process tracks to achieve max. speed & availability
- Multiple RFID / chip coding stations
- Inkjet and / or laser printing technologies
- In-line lamination unit for security overlays
- Optical inspection systems for input / output verification
- Data matching between optical & electronical personalization
- In-line lamination system for security-overlay available (optional)
- Same printer core as in ID 6 & ID 60 for forensically identical results
- Online support
- MB MCES / MB INCAPE / MB PALAMAX® ready

PRODUCTIVITY & PROCESS UNITS

- Automatic passport feeding & stacking from / to passport buffers
- · Capacity: up to 1,200 booklets
- Automatic page turning units
- Up to 12 RFID / chip coding units in parallel
- Up to 8 laser engraving systems
- Up to 8 parallel inkjet printing & lamination units
- High-speed DoD printing technology with UV curing ink available
- Vision system for input quality control & precise print alignment
- Electrical and / or optical output quality control
- In-line lamination system for security overlay (optional)
- Environmental conditions:
- » Room temperature: 23°C; +/-3°C
- » Humidity: 50%; +/-10%

TECHNICAL DATA

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- Print resolution inkjet: depending on printer system from 360 dpi to 1200 dpi
- Print resolution laser: up to 1,200 dpi
- Interface: TCP / IP
- IC Module types: Contactless: ISO 14443 / 15693
- Throughput: up to 1,200 passports per hour











INKJET SYSTEMS

LASER SYSTEMS

LAMINATION -

MAILING -

PLS 50P

PASSPORT LAMINATION SYSTEM

Mühlbauer's PLS 50P is designed for the lamination of booklets with sewn-in laminate. The closed booklet is processed through the laminator. In combination with the IDENTIFIER 6, PLS 50P



KEY MODULES



Passport lamination



FEATURES & ADVANTAGES

KEY FEATURES

- Compact desktop passport lamination system
- Easy to operate & maintain
- Closed booklets with sewn-in laminate

PRODUCTIVITY & PROCESS UNITS

- Manual passport feeding
- Adjustable lamination temperature & speed
- Environmental conditions:
- » Room temperature: 23°C; +/-3°C
- » Humidity: 50%; +/-10%

TECHNICAL DATA

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- Foils: max. size: ID-3 format
- Throughput: up to 60 passports per hour; depending on process parameters

ENHANCED SETUP FOR PLS 50P

- Lamination speed: 1 12 mm per s
- Lamination temperature: 40 200 °C
- Passport thickness: 3 5 mm

- INKJET SYSTEMS
- LASER SYSTEMS
 - LAMINATION -
 - MAILING -





IDENTIFIER 6 LAM

DESKTOP PASSPORT LAMINATION SYSTEM

the lamination of secure overlay films to passports. Overlay films holographic print marks on the overlay film. are processed on reel-to-reel basis. To ensure an accurate over-

Mühlbauer's IDENTIFIER 6 LAM is a semi-automatic solution for lay positioning, the system uses printed registration marks or



KEY MODULES



Manual booklet input / output



Security foil lamination (reel-to-reel for patches or endless

FEATURES & ADVANTAGES

KEY FEATURES

- Compact desktop passport lamination system
- · Reel-to-reel overlay foil processing
- Manual passport feeding
- Same lamination system as in IDENTIFIER 60 & IDENTIFIER 6000 for forensically identical results

PRODUCTIVITY & PROCESS UNITS

- Manual passport feeding
- Processing of secure overlay laminates based on reel-to-reel
- · Alignment of laminate by print mark registration
- Holographic print mark registration (optional)
- Programmable lamination parameters (temperature & speed)
- Environmental conditions:
- » Room temperature: 23°C; +/-3°C
- » Humidity: 50%; +/-10%

- INKJET SYSTEMS
- LASER SYSTEMS
 - LAMINATION -
 - MAILING -

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- Lamination speed: 1 30 mm / s
- Lamination temperature: 40 200 °C
- Foils on reels: max. width: 88 mm
- Foils on reels: max. diameter: 160 mm
- Throughput: up to 120 passports per hour; depending on process parameters









SPLS 100

ROLL-OFF LAMINATION SYSTEM

Mühlbauer's SPLS 100 is a semi-automatic system for the extended process parameter requirements. To ensure an accurate lamination of secure overlay films to passports. The system overlay positioning, the system uses printed registration marks is especially suitable for the processing of overlay films with or holographic print marks on the overlay film.



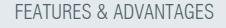
KEY MODULES



Manual booklet input (input slot front-in / front-out)



Lamination unit (reel-to-reel for patches or endless laminate)



KEY FEATURES

- High-speed desktop passport lamination system
- · Reel-to-reel overlay foil processing
- Suitable for special process parameter requirements
- Suitable for overlay film & overlay patches
- Manual passport feeding

PRODUCTIVITY & PROCESS UNITS

- Manual passport feeding
- Processing of secure overlay laminates based on reel-to-reel
- · Alignment of laminate by print mark registration
- Holographic print mark registration (optional)
- Programmable lamination parameters (temperature & speed)
- Adjustable lamination force
- Environmental conditions:
- » Room temperature: 23°C; +/-3°C
- » Humidity: 50%; +/-10%

- INKJET SYSTEMS
- LASER SYSTEMS
 - LAMINATION -
 - MAILING -

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- Lamination speed: 1 30 mm / s
- Lamination temperature: 40 220 °C
- Foils on reels: max. width: 88 mm
- Foils on reels: max. diameter: 120 mm
- Throughput: up to 200 passports per hour; depending on process parameters









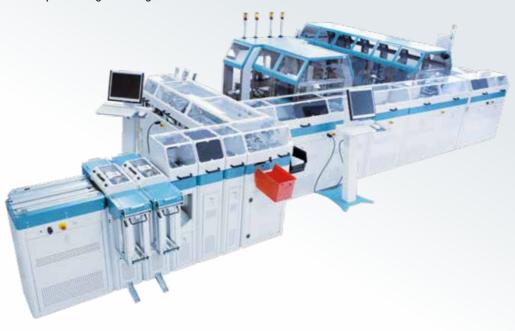


PASSMAIL 1500

PASSPORT MAILING SYSTEM

Mühlbauer's PASSMAIL 1500 is a high-speed passport mailing this mailing system, e.g. flexible matching features, attachment of system with modular design, which is easily configurable for all market demands in the security industry. PASSMAIL addresses by optical, mechanical or electrical means. The fact that the the growing demand in the passport industry and enables Passmail 1500 can easily be adapted to changing requirements a direct mailing of the passport to the citizen. All necessary (even on site) proves its high versatility and reliability. functionalities for the high-secure processing are integrated in

enclosures and advertisements, as well as output quality control



KEY MODULES



Carrier printer



Carrier buffer, sheet separation & alignment



Barcode reader 1D, 2D for online carrier-matching



Passport afixing on carrier sheet



Carrier pre- & post-folding

Carrier sheet collecting



Input & verification (option for stand-alone version: chip readers, vision inspection)



Passport input & verification (barcode reader, vision inspection)



Passport-on-carrier verification (sensoric system or vision inspection)



Turning stations



Enclosure stations



Reject bin



Envelope inserting, humidification & closing



Address label application



Envelope inspection





Check weigher



Output conveyor



Job separation



Envelope sorting







FEATURES & ADVANTAGES

KEY FEATURES

- Fully automatic, industrial designed, high-speed passport mailing system
- Highly modular system design upgradeable even on site
- Matching of letter & passport by document's optical and / or electronical identification
- Automatic feeding of enclosures & attachments
- Output sorting system modularly extendable
- Online support
- MB MCES / MB INCAPE readv

PRODUCTIVITY & PROCESS UNITS

- Automatic passport feeding from passport buffers
- Capacity of up to 1,200 booklets
- In-line letter printer
- Matching by RFID and / or optical document identification
- Up to 4 enclosure feeding units
- Support of various letter & envelope formats
- Check-weigher unit (optional)
- Security locks on all module doors
- Electrical and / or optical output quality control
- Environmental conditions:
- » Room temperature: 23°C; +/-3°C
- » Humidity: 50%; +/-10%

TECHNICAL DATA

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- · Letter formats: A4; US Letter
- Envelope formats: C5
- Folding types: C- / Z- V
- Throughput: up to 1,500 passports per hour; depending on process



INKJET SYSTEMS

LASER SYSTEMS

LAMINATION -

MAILING -

QUALITY ASSURANCE

TESTING EQUIPMENT ACCORDING TO ICAO 9303 REQUIREMENTS

















PRODUCT PORTFOLIO

YOUR ONE-STOP-SHOP TECHNOLOGY PARTNER

AUTOMATION

CARDS & ePASSPORTS

- IC Module Production
- Card Body & Smart Card Production
- Holderpage & Booklet Production
- Card & ePassport Personalization
- Packaging & Mailing

RFID / SMART LABEL

- Antenna Production & Inlay Assembly
- Converting
- Personalization

SEMICONDUCTOR BACKEND

- IC Module Production
- Carrier Tape Production
- Die Sorting

INDUSTRIAL INSPECTION SYSTEMS

- Packaging
- Metal Working
- Special Solutions

FUTURE TECHNOLOGIES

- Concentrator Solar Technology
- Flexible Solar Cell Technology
- Solar Panel Technology
- E-SIM PERSO
- LED Technology

TECURITY®

- ID Card Solution
- ePassport Solution
- MB IDVERSO® Border Management Solution
- Driver's License & Vehicle Registration Solution
- Production Facilities

PARTS & SYSTEMS

- Precision Parts
- Surface Engineering

CONSULTING

- Identification of Customer Requirements
- Planning & Design
- Implementation
- Ongoing Operations

SERVICE

- Worldwide Locations for Service & Support
- Worldwide Spare Parts Supply
- Reaction Time & Full Service Contracts
- Service & Maintenance Management
- Updates & Upgrades
- Teleservice, Remote Access & Hotline (24 hours)
- Training & Support on Different Levels
- Production & Administration Support



NOTES 26 | 27



MÜHLBAUER GERMANY

Mühlbauer Group Headquarters Josef-Mühlbauer-Platz 1, 93426 Roding, Germany Phone: +49 9461 952 0, Fax: +49 9461 952 1101 info@muehlbauer.de, www.muehlbauer.de

MÜHLBAUER USA

Muhlbauer Inc. 226 Pickett's Line Newport News, VA 23603-1366, USA Phone: +1 757 947 2820, Fax: +1 757 947 2930 info@muhlbauer.com, www.muhlbauer.com

MÜHLBAUER MALAYSIA

Muehlbauer Technologies Sdn. Bhd.
No. 3 Jalan TU 62, Taman Tasik Utama,
75450 Melaka, Malaysia
Phone: +60 6 2517 100, Fax: +60 6 2517 101
info@muehlbauer.com.my, www.muehlbauer.com.my

MÜHLBAUER SERBIA

Mühlbauer Technologies d.o.o. Evropska 17, 22300 Stara Pazova, Serbia Phone: +381 22 215 5100, Fax: +381 22 215 5130 serbia@muehlbauer.de, www.muhlbauer.com

MÜHLBAUER CHINA

Muehlbauer Technologies (Wuxi) Co., Ltd.
No 23. Huayi Road, Wuxi New District
214135 Wuxi, Jiangsu, China
Phone: +86 510 8190 0100, Fax: +86 510 8190 0101
info@muehlbauer.cn, www.muehlbauer.cn

MÜHLBAUER SLOVAKIA

Muehlbauer Technologies s.r.o. Novozámocká 233, 94905 Nitra, Slovakia Phone: +421 37 6946 000, Fax: +421 37 6946 501 info@muhlbauer.sk, www.muhlbauer.com



