ePASSPORT PERSONALIZATION TECHNOLOGY

PRODUCT OVERVIEW

CONTENTS

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.

Service Hub Russia
HQ Germany
Production Center Germany
Production Center Slovakia
Production Center Bosnia & Herzegovina
Production Center Serbia
Service Hub Georgia
Service Hub Spain
Service Hub Iraq
Service Hub Turkey
Production Center USA
Service Hub South Korea
Service Hub Japan
Production Center China
Service Hub Taiwan
Service Hub United Arab Emirates
Service Hub India
Service Hub Mexico
Service Hub El Salvador
Production Center Malaysia
Service Hub Uganda
Service Hub Brazil
Service Hub South Africa
Service Hub Australia

Mühlbauer
Bosnia & Herzegovina

Mühlbauer
China

Mühlbauer
Germany

Mühlbauer
Malaysia

Mühlbauer
Serbia

Mühlbauer
Slovakia

Mühlbauer
USA

MPS
Precision Parts & Surface Engineering

AUTOMATION
Production Equipment & Systems

WORLD OF TECURITY®
Government & Technology Solutions

MANUFACTURING EXECUTION SYSTEMS

MB MCES
PERSONALIZATION MANAGEMENT

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
INTEGRATED PRODUCTION MANAGEMENT SOFTWARE

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®
TOTAL PROCESS TRANSPARENCY

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
CONNECTOR BETWEEN SYSTEMS

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

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
- MCES / 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%

TECHNICAL DATA

- 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

INKJET SYSTEMS

LASER SYSTEMS

LAMINATION

MAILING

KEY MODULES

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

Number detection

Inkjet printing
(pigmented ink)

Contactless chip encoding
(external)

Security foil lamination
(external)

UPH

20   40   60   80   100   120

IDENTIFIER 60 Novus

DESKTOP PASSPORT PERSONALIZATION SYSTEM

Mühlbauer's IDENTIFIER 60 Novus is a modular desktop system for the personalization of passports of the latest generation. It is processed either by inkjet technology or by laser engraving or a combination of both. The passbook is fed into the input slot or an input magazine of the machine system. The modular system allows for the combination of all necessary modules to fulfill a complete personalization of the booklet. Inkjet and / or laser systems, lamination modules and optical / electrical verification can be integrated in the system. The system can be enhanced with magazine input and output stackers.

KEY MODULES

- Booklet input
  (input slot or input magazine)
- Inkjet printing
  (pigmented ink)
- Booklet output
  (output slot or output stacker)
- Contactless chip encoding
- Security foil lamination
- 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
- MCES / 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%

TECHNICAL DATA

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- Print resolution inkjet: 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

UPH

| 20 | 40 | 60 | 80 | 100 | 120 | 140 |

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 inkjet technology or by laser engraving or combinations of both. The passbook is fed into the input slot or an input magazine of the machine system. The modular system allows for the combination of all necessary modules to fulfill a complete personalization of the booklet. Inkjet and / or laser systems, lamination modules and optical / electrical verification can be integrated in the system.

The system can be enhanced with magazine input and output stacker.

KEY MODULES

Booklet input	Security foil lamination	Page turning
(input slot, input magazine, input stacker for closed booklets)		
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
- MCES / 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 ●

UPH

40   80   120   160   200   240

IDENTIFIER 6000

PASSPORT PERSONALIZATION SYSTEM

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

KEY MODULES

Multi booklet input (stacker or magazine)	Inkjet printing (impact printing possible)
Booklet opening	Security foil lamination
Passport identification module (e.g. serial number detection)	Laser perforation
Cleaning module	Laser engraving
Contactless chip encoding	Page turning modules
Numbering station (optionally with unique matrix unit)	Quality assurance & data verification

Booklet closing

Labeling module

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
- MCES / INCAPE / 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

UPH

| 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 |

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 creates the optimal solution for the personalization of minimum quantities of booklets.

PLS 50 P

KEY MODULES

Passport lamination

UPH

| | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 |

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

IDENTIFIER 6 LAM

DESKTOP PASSPORT LAMINATION SYSTEM

Mühlbauer's IDENTIFIER 6 LAM is a semi-automatic solution for the lamination of secure overlay films to passports. Overlay films are processed on reel-to-reel basis. To ensure an accurate over-lay positioning, the system uses printed registration marks or holographic print marks on the overlay film.

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%

TECHNICAL DATA

- 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

INKJET SYSTEMS

LASER SYSTEMS

LAMINATION

MAILING

KEY MODULES

Manual booklet input / output

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

UPH

| 20 | 40 | 60 | 80 | 100 | 120 | 140 |

SPLS 100

ROLL-OFF LAMINATION SYSTEM

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

FEATURES & ADVANTAGES

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%

TECHNICAL DATA

- 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

KEY MODULES

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

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

UPH

| 40 | 80 | 120 | 160 | 200 | 240 |

PASSMAIL 1500

PASSPORT MAILING SYSTEM

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

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
- MCES / INCAPE ready

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
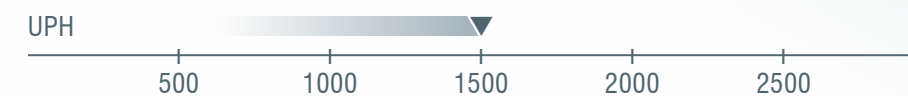 » Humidity: 50%; +/-10%

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

UPH

| 500 | 1000 | 1500 | 2000 | 2500 |

QUALITY ASSURANCE

PPT 2018/A
Abrasion stress test

PPT 2018/BP
Back pocket test

PPT 2018/DB
Dynamic bending test

PPT 2018/I
Impact test

PPT 2018/P
Pen test

PPT 2018/SP
Sheet pull test

PPT 2018/ST
Sheet turning test

PPT 2018/T
Torsion test

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
- eSIM 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

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