



ePASSPORT PRODUCTION TECHNOLOGY

PRODUCT OVERVIEW



CONTENTS

MÜHLBAUER GROUP AT A GLANCE..... 4

COMPREHENSIVE SOLUTIONS BY MÜHLBAUER 6

MANUFACTURING EXECUTION SYSTEMS 8

HOLDERPAGE PRODUCTION

Sheet Hot Stamping 10

Foil Punching 14

Inlay Production 16

Inlay Testing..... 20

Sheet Collating 24

Sheet Lamination 32

Holderpage Punching 36

Holderpage Inspection..... 38

Holderpage Milling 40

eCOVER LAMINATION 42

BOOKLET ASSEMBLY

Semi Automatic Booklet Line..... 44

Passport Booklet Production Systems 46

PASSPORT PRE-PERSONALIZATION

IDENTIFIER 6000 PERSYS..... 48

BOOKLET QUALIFICATIONS

PASSPORT TESTING SYSTEMS..... 50

PRODUCT PORTFOLIO 51



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 Solutions & Equipment for Security Systems, and innovative Technologies for Electromobility and Flexible Solar Solutions. With around 4,000 employees, technology centers in Germany, Malaysia, Slovakia, the U.S. and Serbia, and 35 sales and service locations worldwide, Mühlbauer created a strong competence network around the globe.

Our global corporation continuously invests in the most modern innovations and creative ideas in order to enhance our competences and to provide you with optimized solutions. We aim to protect the environment with our advanced technologies and make life easier for countless people.

Our in-house precision part production **MPS** – Muehlbauer Parts & Systems – guarantees unlimited flexibility and highest customer satisfaction.

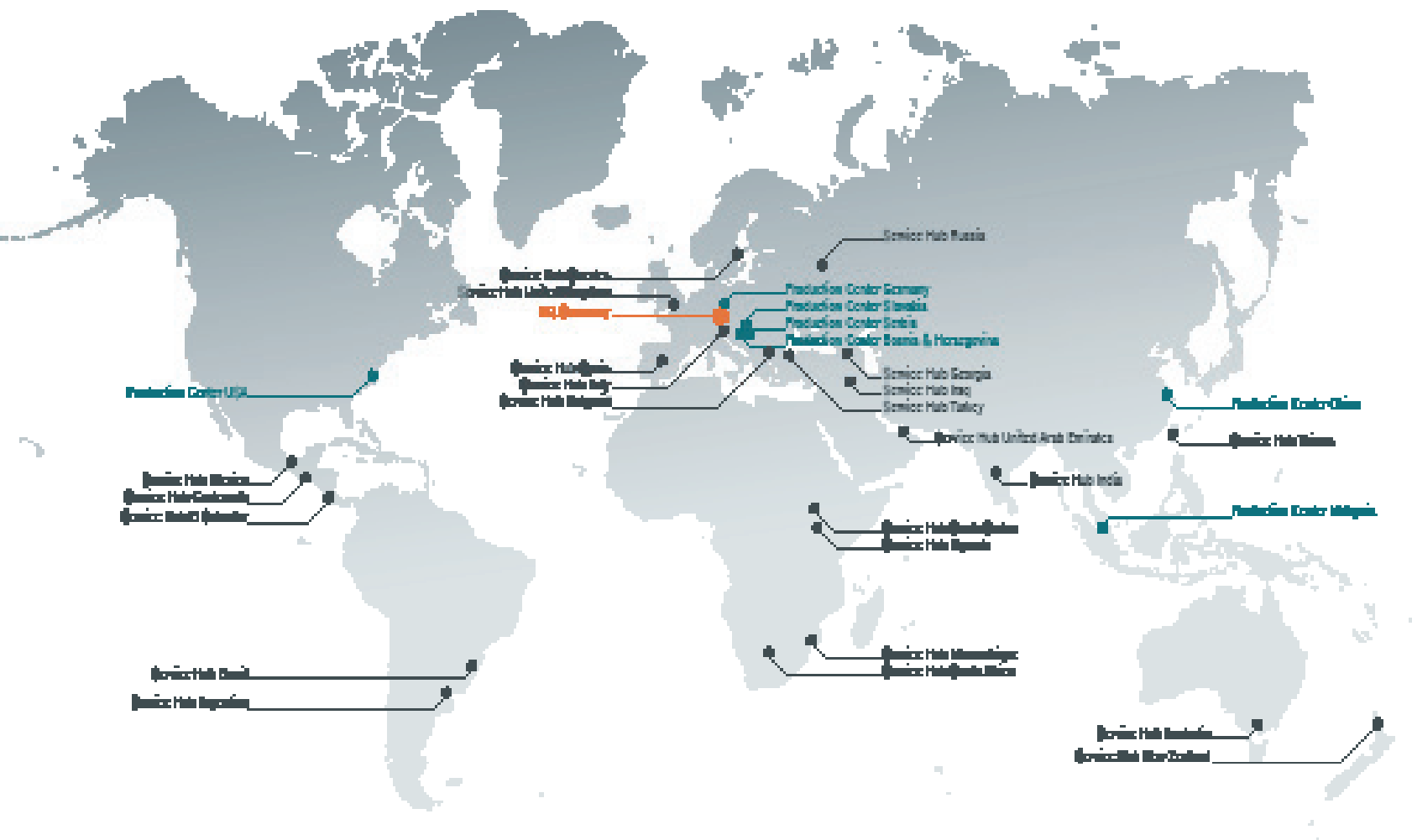
Our business unit **AUTOMATION** does not only develop and assemble individually customized production systems, but also offers intelligent software solutions for production automation

(Industry 4.0). Vision inspection technologies as well as semiconductor and RFID applications complete our comprehensive portfolio.

Our youngest and currently most dynamic division **ATECH – Advanced Energy Technologies** – brings unique machinery requirements to series production. For the eMobility industry, we have been offering highly efficient production lines for the manufacture of pouch- and prismatic cells for lithium-ion batteries, as well as MEA's & stacks for fuel cells since 2022. Another promising area in this business field is our expertise in precise reel to reel material handling, which enables us to provide innovative production concepts for flexible solar cells and panels.

Our business unit **SECURITY®** 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.

There is no “can’t do” at Muehlbauer. We tailor your solution!



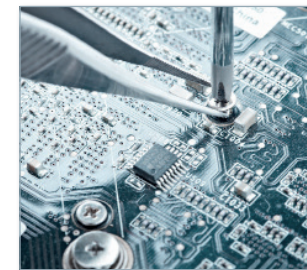
Mühlbauer
Bosnia & Herzegovina



Mühlbauer
China

Mühlbauer
GermanyMühlbauer
MalaysiaMühlbauer
SerbiaMühlbauer
SlovakiaMühlbauer
USA

MPS
Precision Parts & Surface Engineering



AUTOMATION

Production Equipment & Systems



MB ATECH
Battery & Fuel Cell Technologies



WORLD OF TECURITY®
Government & Technology Solutions



COMPREHENSIVE SOLUTIONS BY MÜHLBAUER



Providing high secure documents is an essential part of counteracting worldwide threats of criminal and terrorist activities. The positive identification of persons by means of secure documents – and therefore the confirmation of the document validity – is crucial.

Mühlbauer TECURITY® offers individual and modular end-to-end solutions and eID and Travel documents. As a reliable partner, Mühlbauer supports every phase and aspect of the solution process.

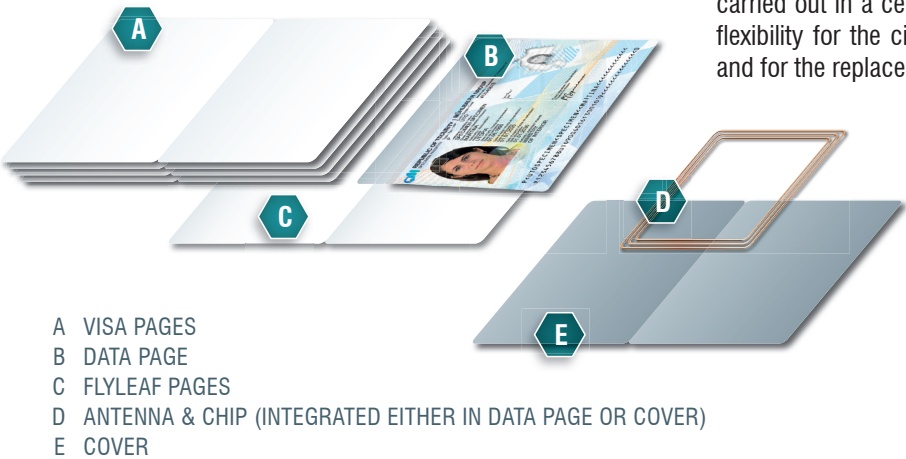
- Conception
- Enrollment
- Data Management
- Production
- Personalization
- Verification

Documents can be verified with regard to authenticity and data consistency either on fixed control stations or via mobile devices. Mühlbauer provides the required and customized hardware and software modules which enable the reliable verification of documents by different levels of security features:

- LEVEL 1:**
The security features can be verified without any tools
- LEVEL 2:**
(Handheld) devices are needed for verification
- LEVEL 3:**
The security features are verified by using forensic testing methods

Patented production technologies, in-house developed materials, high-quality personalization techniques, customized security features, as well as our unique hinge technology form the key elements of our ePassport solutions. In compliance with our customers' individual requirements, we provide high-end solutions for fraud-resistant documents.

Our flexible solutions enable the secure issuance of citizens' ePassports worldwide. Embassies abroad act as decentralized enrollment sites which are connected to the high-secure data infrastructure. The enrolled datasets are securely transferred to the central data management site in the home country for registration and further processing. Before the ePassports are issued at the respective embassies, production and personalization are carried out in a centralized location. We also guarantee highest flexibility for the citizens living abroad applying for ePassports and for the replacement of traveler documents.



MANUFACTURING EXECUTION SYSTEMS



MB MCES

PERSONALIZATION MANAGEMENT SYSTEM

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

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 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.



SSH 2008/2

SHEET HOT STAMPING

The SSH 2008/2 is the second generation of Mühlbauer's proven semi-automatic hot-stamping machine for sheets. DOVIDs like holograms and other heat-activatable features can be applied on plastic sheets. The holograms can be applied either on the surface of a final product or on a single sheet layer

which will be laminated to a final sheet in a later step. Thus, the hologram can be hidden inside the material structure as a forgery-proof security element. The SSH 2008/2 is preferably used for the production of embedded holograms for security documents like ID cards or passports.



KEY MODULES

-  x/y sheet table
-  Hot stamping unit (1 head)
-  DOVID application

FEATURES & TECHNICAL DATA

KEY FEATURES

- Semi-automatic sheet hot stamping system for applying holograms or KINEGRAMs® on overlay or core sheets
- The system can be matched with different products & layouts in very short time production surroundings
- All necessary parameters, (temperature, pressure & time) can be set according to different materials
- Highest security due to hologram / KINEGRAM® under the overlay
- Highest flexibility for various applications & customization like vision, barcode reader or OCR
- Highest accuracy for hologram / KINEGRAM® applications
- Operator-friendly handling system
- Flexibility due to adjustable & storable process parameters
- No offset between hologram / KINEGRAM® & card layout

PRODUCTIVITY / PROCESS UNITS

- Vacuum table for moving sheet from a loading position to all application positions in sequence & aligning sheets to a reference edge & clamping sheets by vacuum
- Feeding & positioning the tape under the application head by means of a tape spooler
- Special sensor placed in the stamping position for hologram positioning to print mark
- Pneumatic-driven application head allows a programmable adjustment of the press force, stamp temperature & dwell time
- Sharp edges of the applied holograms without flakes offered by special foil stripper
- Stamping tool for standard geometry for simple standard shapes (circle, rectangle with rounded corner, oval), for customized dimensions or for special geometry (optional)
- DOVID tape destruction before rewinding (with cutter to slit stamped hologram foil)

TECHNICAL DATA

- Sheet size: max. 630 x 630 mm
- Width of DOVID tape: max. 45 mm
- Core diameter: 1" or 3"
- Reel diameter: max. 120 mm
- Stamp size: max. ø 20 mm
- Hot stamping force: up to 3 kN
- Position accuracy: ± 0.1 mm
- Hot-stamping temperature: 20 - 170° C

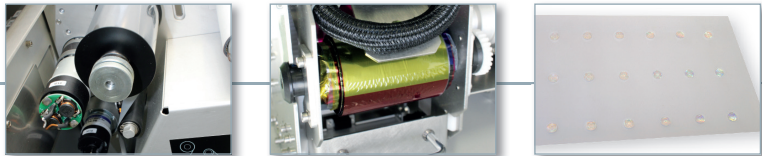


HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



ASH 10000

SHEET HOT STAMPING

Mühlbauer's ASH 10000 is designed for hot stamping of DOVIDs and security foils in defined position and pitching them onto plastic sheets. These DOVIDs are mainly applied on the backside of an overlay foil or on the printed core layer.

Both principles are providing the possibility to embed DOVIDs inside of the card structure, no matter if the foil is an overlay or a core material. The machine's main area of application is on ID-1 and ID-3 polycarbonate identity documents.



KEY MODULES



Reel or sheet input



DOVID application



Hot stamping unit (4-8 heads)



Cleaning module



Vision control system (optional)



Cutting unit - reel-to-sheet



Reel or sheet output

FEATURES & TECHNICAL DATA

KEY FEATURES

- Fully automatic sheet hot stamping system DOVID and security foils in defined position & pitch onto plastic sheets
- Hologram / KINEGRAM® applied under the overlay to achieve a highly durable security feature (up to level 3)
- Temperature & pressure can individually be set for each application head
- Hologram applied to the overlay foil by pressure & temperature

PRODUCTIVITY / PROCESS UNITS

- Input material supplied in reel (R2R, R2S) or sheet form (S2S)
- Reel slit into sheet size by sheet cutting unit (R2S)
- Alignment of foil & smooth transport through the machine
- Applying hologram from holo foil to sheet
- Standard - 4 hot-stamp heads, optional up to 8 hot-stamp-heads (sheet layout)
- Process quality checked by a vision system (optional)
- Bad holograms marked by a bad unit marker
- Collection of incorrect sheets in reject box
- Foil rewound onto the output foil spooler (R2R) or sheets are stacked in the output stacker (R2R, S2S)

TECHNICAL DATA

Input from reel (R2S, R2S); output to reel (R2R):

- Reel diameter: max. 500 mm
- Reel width: max. 630 mm
- Core diameter: 76 mm (3")
- Application temperature: RT -170°C
- Throughput: up to 10.000 UPH

Input Stacker & Alignment Unit (S2S):

- Max. height of sheet stacks: 700 mm
- Sheet Size: min. 270 mm x 194 mm
- Sheet Size: max. 630 mm x 630 mm
- Sheet materials: PVC, ABS, PC, paper: $\geq 0.075\text{mm}$

Hologram Size:

- Typical stamping tool size: max. $\varnothing 20\text{ mm}$ for standard thermal hologram foils

UPH

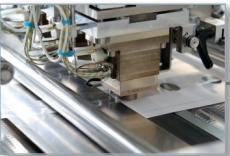
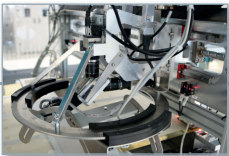
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HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



FP 201

FOIL PUNCHING SYSTEM

Mühlbauer's FP 201 is a semi-automatic system to punch thin plastic material. It is the ideal solution for low-cost punching of compensation layers for contactless cards, hybrid cards and RFID tickets.

Additionally, the FP 201 can be used for the production of windows in eCover inlays. As you can place more foils in one cycle, a throughput up to 300 foils per hour can be achieved.



FEATURES & TECHNICAL DATA

KEY FEATURES

- Manual input sheet
- Punching in one stroke with highest accuracy
- Manual sheet output
- In-house tool manufacturing for highest flexibility of tools
- Special / customized tool design
- Fast in-house regrinding service
- Most proven punching system for various materials

PRODUCTIVITY / PROCESS UNITS

- Hydro-pneumatic driven punching system (direct drive)
- No electricity: easiest operation & maintenance
- Availability: up to 95%
- Yield: up to 99.7%
- Alignment to reference pins

TECHNICAL DATA

- Sheet materials: PVC, PC, ABS, PET; others on request
- Sheet size max.: 350 mm x 500 mm
- Sheet thickness: 50 μ m - 300 μ m
- Punch drive: Hydro-pneumatic driven (air pressure connection 6 bar)
- Punching accuracy tool: +/- 0.02 mm
- Punching accuracy position: +/- 0.1 mm
- Throughput: up to 300 sheets per hour

KEY MODULES



Manual foil input



Automatic waste output



Foil punching unit



Manual foil output

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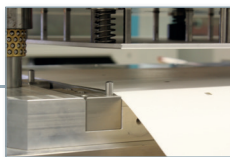
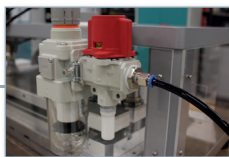
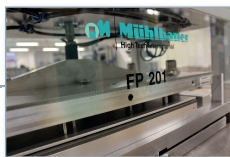
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HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



MTT 2462

WIRE EMBEDDING & RFID INLAY PRODUCTION SYSTEM

Mühlbauer's Wire Embedding and RFID Inlay Production System MTT covers all production processes in one: chip punching, chip module implanting, ultrasonic wire embedding, thermo-compression chip welding and electrical as well as optical test followed by bad unit marking. The MTT is a robust and proven solution with already 100 systems sold worldwide.

RFID inlays for any ePassport and Smart Card application can be produced: whether it is ID-1 or ID-3 format, or for hybrid, dual interface and contactless cards. The automatic sheet sorting process separates good sheets from rejected sheets. The rejected sheets can then easily be reworked through a special machine software mode.



KEY MODULES

 Automatic sheet feeding

 Ultrasonic wire embedding

 Optical quality check and bad unit marking

 Reject module detection by vision

 Thermo-compression chip welding

 Automatic sheet unloading

 Chip module punching

 Contactless test

 Sorting of good / rejected sheets

 Chip module implanting

FEATURES & TECHNICAL DATA

- KEY FEATURES**
 - All-in-one solution for wire embedding & RFID inlay production
 - Know-How regarding antenna design & sheet layout is completely kept in-house
 - Easy import of CAD data
 - Any antenna geometry is possible, including meander
 - Powerful design software for easy creation of new antenna layouts
 - High stability without any adhesive; vacuum is used instead
 - Electrical optical testing incl. bad unit marking
 - Rejected sheets can easily be reworked by MTT's "rework mode"
 - MB INCAPE ready
- PRODUCTIVITY / PROCESS UNITS**
 - Automatic sheet placement line +/- 0,1 mm
 - Fully automatic sheet feeding with vacuum tables
 - Pick & place unit capable of handling any chip size on the market
 - Direct removal of bad chips detected by vision
 - Pneumatic shuttle system for smooth transport of antennas
 - IC modules can be placed in mold-up & mold-down mode, without any major modifications on the machine
 - Ultrasonic wire embedding only or in combination with contactless chip embedding; adjustable control units for embedding & bonding; highest precision through linear motor in both x- & y-direction with longest lifetime
 - Thermo Compression Welding: up to 6 combi heads incl. thermo compression welding and wire break control sensors for standard applications
 - For dual interface cards up to 10 slim-head ultrasonic wire embedding possible incl. wire break control sensors
 - Yield: up to 99.7%
 - Real* wire embedding repeatability: less than +/- 0,05 mm
 - Real* chip embedding repeatability: less than +/- 0,05 mm
 - Real* thermo compression repeatability of welding less than +/- 0,01 mm
(* the real repeatability of linear motors is on +/- 6 mm)

- TECHNICAL DATA**
 - Materials: PETG, PVC, Polycarbonate, Teslin, paper; others on request
 - Max. sheet size: 600 x 600 mm - others on request
 - Sheet thickness: 0.1 – 0.3 mm (others on request)
 - Wire thickness: 0.08 – 0.12 mm
 - Module tape: 35 mm; reel diameter max. 330 mm
 - Spacer tape: 35 mm; reel diameter max. 330 mm
 - Throughput: up to 1,800 contactless inlays per hour; up to 2,300 dual interface inlays per hour; depending on antenna design & material



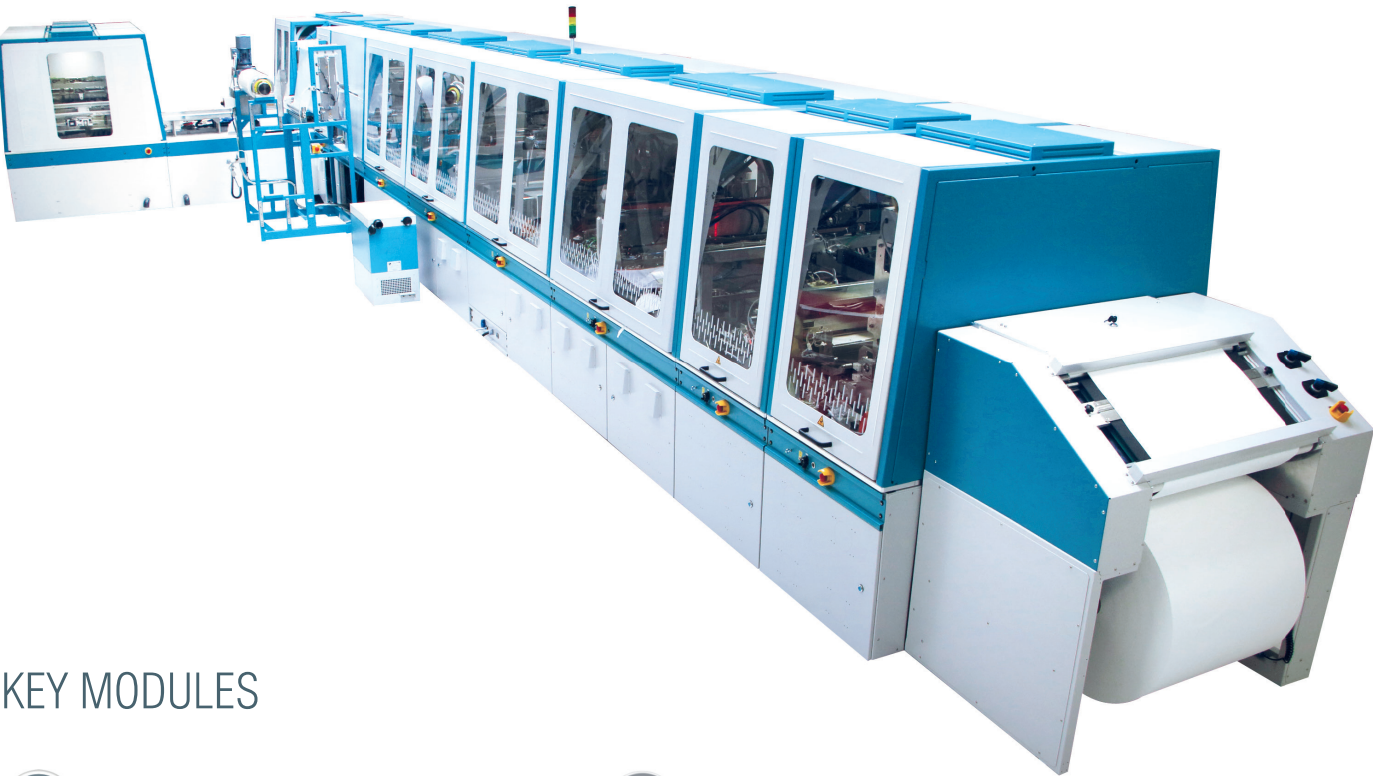
- HOLDERPAGE PRODUCTION
- eCOVER LAMINATION
- BOOKLET ASSEMBLY
- PASSPORT PRE-PERSONALIZATION

IAL 10000

INLAY ASSEMBLY LINE

IAL 10000, Mühlbauer's Inlay Assembly Line, is the first of its kind which can process unlaminated sheets. IAL 10000 supports ID-1, ID-3 documents and even customized form factors and includes Mühlbauer's new graphical interface for highest operator and maintenance convenience. The machine is operated by means of a touchscreen terminal. The inlay production process starts with the antenna creation, chip placement and all

the necessary electrical and / or vision tests – including marking of bad units and placing them in a reject box). This is followed by the collating process, during which various layers (number, material and thickness of layers may vary) are piled up, and the welding. IAL 10000 is a highly modular machine which can be tailored to the individual project requirements.



KEY MODULES

- Foil Input
- Cutting & Punching
- Glue dispensing
- Chip application
- Wire embedding

- Welding: wire to chip
- Electronic test
- Vision inspection
- Collating unit
- Unlam output

FEATURES & TECHNICAL DATA

KEY FEATURES

- Roll-to-Sheet, Sheet-to-Sheet, Roll-to-Roll
- Complete inlay assembly (including card / e-holder page layer collating)
- Fully modular as the process requests
- Wide format: 750 x 750 mm
- Automatic angle X, Y adjustment by vision system on various machine stations
- Inlay quality assurance: vision inspection and/or electrical test (ATS or RFM), bad mark printer, reject tray

PRODUCTIVITY / PROCESS UNITS

- Raw material is unwound from roll or sheets inserted into input stacker
- Reference holes & chip cavities are punched; then the foil is cut into sheets
- Glue is applied beside the chip cavities for chip fixation
- Chips are electrically tested before punching & placing them into cavities (optional)
- Vision system for detection of reject module, tape position & tape orientation
- Applying of the antenna is done by an ultrasonic wire embedding system with up to 12 heads per embedding module (optional: 2 embedding modules)
- Antenna wires are welded to chips
- Inspection by an optical inspection system and/or an electrical system, bad marked inlays are rejected into an integrated bin
- Manual rework of rejected inlays is possible. (alternatively: MTT 2462)
- Feeding & collating of additional compensation layer
- Feeding & collating of overlay from top and/or bottom

TECHNICAL DATA

- Sheet size: 190 x 190 mm, up to 750 x 750 mm
- Possible substrate materials: ABS, PC, PVC, PETG, Teslin, others on request
- Machine configurations: standard 4 heads; up to 24 heads
- Antenna types: Contactless, Dual Interface, Coil on Module (inductive coupling), Dipole

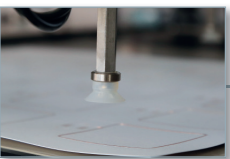


HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



ITH 540 & IT 50

INLAY TEST HANDLING & INLAY TESTING SYSTEMS

The inlay test handler ITH 540 is a semi-automatic machine for the testing of transponders integrated in sheets. The system is well-proven, easy-to-operate and offers the possibility to freely program different sheet layouts. Testing and pre-personalization of RFID pre-laminated sheets, collated sheets, laminated sheets and inlay sheets have significantly been simplified. The integrated ETS-surface for ergonomic operations guarantees convenient functionality for operators. Running costs are reduced by the machine's maintenance-friendly, long-lifetime construction.

The IT 50 inlay tester is used to manually check the functionality of the transponders integrated into sheets. The simple device offers highest flexibility as it can be transported to any location and allows an operator to quickly determine if the antenna is defect. Two LEDs indicate the test results; green indicates a functional antenna, whereas red indicates a defect. Damaged antennas are then be marked to ensure all antennas used in production are fully functional.



ITH 540



IT 50

FEATURES & TECHNICAL DATA

KEY FEATURES

ITH 540

- Realization of testing & pre-personalization
- High flexibility regarding materials & sheet layouts
- Operator-friendly
- Automatic reject marking
- Automatic counting of functional & rejected antennas

IT 50

- Manual inlay testing device
- Test based on ATS (Answer To Select) test of antennas
- Configuration is adjustable to customer requirements according to ISO 14443A or ISO 14443B

PRODUCTIVITY / PROCESS UNITS

ITH 540

- Y-axis sheet table
- Contactless testing station
- Reject marking
- Availability: up to 95%
- Yield: up to 99.7%

TECHNICAL DATA

- Max. sheet size: 800 x 800 mm
- Sheet thickness: 0.10 to 1.00 mm (others on request)
- Configuration: adjustable to customer requirements according to ISO 14443 A or B
- Throughput: Up to 1,000 sheets per hour; depending on material & test parameters, as well as on operator speed

KEY MODULES



Y-axis sheet table



Reject marking



Contactless test station

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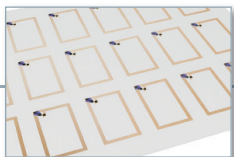
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HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



ITH 550

AUTOMATIC INLAY TEST HANDLING

The inlay test handler ITH 550 is a fully automatic machine for the testing of transponders integrated in sheets. The system is well-proven, easy-to-operate and designed to test different sheet layouts. The Testing and pre-personalization of RFID pre-laminat-

ed sheets or finalized sheets significantly been simplified. The integrated ETS-surface for ergonomic operations guarantees convenient functionality for operators. Running costs are reduced by the machine´s maintenance-freindly, long-lifetime construction.



FEATURES & TECHNICAL DATA

KEY FEATURES

- Realization of testing & pre-personalization
- High flexibility regarding materials & sheet layouts
- Operator-friendly
- Automatic reject marking
- Automatic counting of functional & rejected antennas

PRODUCTIVITY / PROCESS UNITS

- Input stack & sheet feeder
- Automatic sheet transport
- Contactless testing station
- Optical antenna & hologram inspection (optional)
- Reject marking
- Output stacker & reject box
- Availability: up to 95%
- Yield: up to 99.7%

TECHNICAL DATA

- Max. sheet size: 650 x 650 mm
- Sheet thickness: 0.20 to 0.80 mm (others on request)
- Configuration: adjustable to customer requirements according to ISO 14443 A or B
- Throughput: Up to 10,000 sheets per hour; depending on material per test parameters as well as on operator speed

KEY MODULES

-  Input feeder
-  Contactless test station
-  Vision inspection

-  Reject marking
-  Output stacker

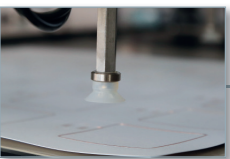


HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



SSC 2502 & SSC 2502/1

SEMI-AUTOMATIC SHEET COLLATING SYSTEMS

Mühlbauer's semi-automatic operated sheet collating system SSC 2502 is designed for the gathering and pre-fixing of plastic foils into sheets ready for lamination. Distinguished by its high flexibility the SSC 2502 is versatile and easy-to-handle. A swivel table along with a vertically adjustable frame and a foot switch operation method make the equipment easy to use for any operator. Adjustable edge guides and additional thermal welding units allow for the collation of a wide variety of products, including sheet sets containing contactless inlets.

The manually operated sheet collating system SSC 2502/1 is also designed for collating and welding of plastic foils into sheets ready for lamination. The system is flexibly adjustable in height and table position and thus guarantees operator-friendliness. The layers are manually aligned to reference edges and prefixed manually with an ultrasonic welding unit. This allows for the simultaneous prefixing of a complete set in less than one second and for the setting of a random number of spots. After the collating process the prefixed sheets are manually removed by the operator.



SSC 2502



SSC 2502/1

KEY MODULES

- Ultrasonic welding unit (SSC 2502/1)
- Thermal welding unit (SSC 2502)
- Adjustable stop pins

- Illumination (SSC 2502/1)
- Swivel mounted table
- Parameter control (SSC 2502)

FEATURES & TECHNICAL DATA

KEY FEATURES

- Semi-automatic operated collating system for individual sheet layers & security layers
- Suitable for standard collating tasks & security applications
- Smallest footprint requirements & easy operation
- Easy set-up & maintenance
- MB INCAPE ready

PRODUCTIVITY / PROCESS UNITS

- Alignment of sheet layers based on cutting edge of the sheet
- Adjustable stop-pins on table
- SSC 2502/1 – manual ultrasonic welding unit
- SSC 2502 – foot switch operated thermal welding
- Adjustable welding temperature
- Availability: up to 95%
- Yield: up to 99.7%
- Environmental conditions:
Room temperature: 23°C; +/-3°C
Humidity: 50%; +/-10%

TECHNICAL DATA

- Sheet materials: PVC, PC, ABS; others on request
- Sheet size min. / max.: 290 x 290 mm / 800 x 800 mm
- Sheet thickness min. / max.: 50 - 400 µm
- Max. collating thickness: up to 1 mm
- Max. welding temperature: up to 450°C
- Throughput: Up to 100 sheets per hour; depending on material & operator

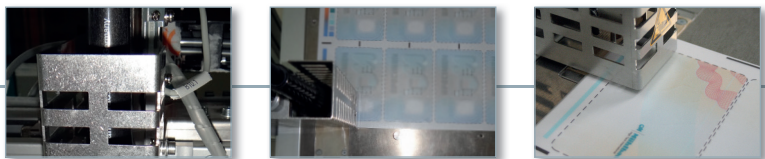


HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



SSC 2700

SEMI-AUTOMATIC SHEET COLLATING SYSTEMS

Mühlbauer's semi-automatic sheet collating system SSC 2700 is designed for the gathering and pre-fixing of plastic foils into sheets ready for lamination. Besides being versatile, the SSC 2700 stands out by its precision and accuracy. An integrated vision system ensures that only sheets that are perfectly aligned

to the print marks are collated. Additional thermal welding units and vision systems allow for the collation of a wide variety of products, including sheet sets containing contactless inlets and / or magnetic stripes.



KEY MODULES

- Sheet storage
- Vision inspection
- Two welding units
- Vacuum table
- Parameter control

FEATURES & TECHNICAL DATA

KEY FEATURES

- Semi-automatic collating system for individual sheet layers & security layers
- Suitable for standard collating tasks & security applications requiring vision controlled positioning processes
- Most precise vision-controlled alignment of sheet layers
- Smallest footprint requirement & easy operation
- Each single layer parameter is individually programmable (correct sequence)
- Material shelf for ergonomic supply of sheets (optional)
- Programmable welding position, time & temperature
- Up to 7 different welding positions programmable
- MB INCAPE ready

PRODUCTIVITY / PROCESS UNITS

- Vision system for high-precise sheet alignment of front & back-side print
- Alignment to print marks, antenna pads, security features or other visible features on the layers
- Integrated register punch for lamination of CLI / MLI feature (optional)
- UV-illumination system available to check presence of UV-print (optional)
- thickness measurements to avoid double sheets (optional)
- Up to three independent alignment camera systems
- Two thermal welding units from top, (optionally from top and bottom)
- Availability: up to 95%
- Yield: up to 99.7%

TECHNICAL DATA

- Sheet materials: PVC, PC, ABS; others on request
- Sheet size min. / max.: 290 x 290 mm / 750 x 750 mm
- Sheet thickness min. / max.: 50 - 400 μ m
- Max. collating thickness: up to 1 mm
- Max. welding temperature: up to 400°C
- Welding time / force: 0 – 10 sec / 78 – 188 N
- Throughput: up to 100 sheets per hour; depending on material & operator



HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION

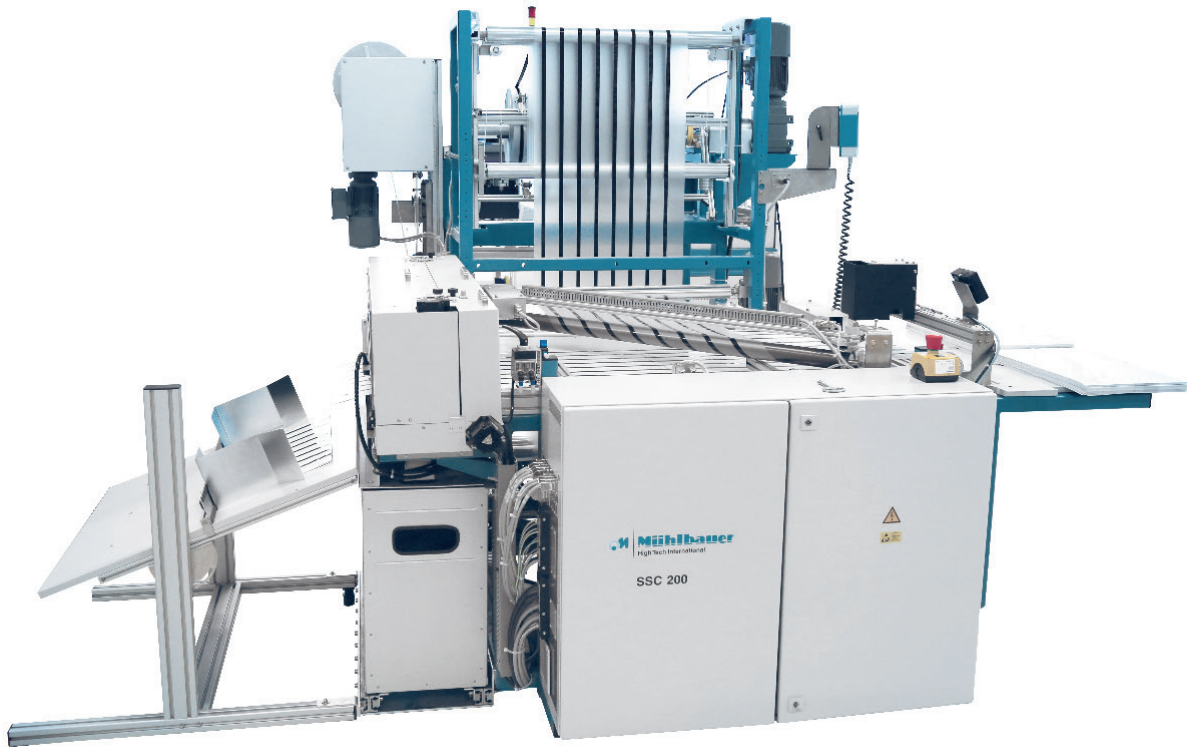


SSC 200

SEMI-AUTOMATIC SHEET COLLATING SYSTEMS

Mühlbauer's SSC 200 machine concept is as simple as it is ingenious. Only one operator gathers the core sheets before manually aligning them manually at the adjustable stop pins. The machine works individual independently from material and thickness. Depending on requirements, overlays from top and bottom are delivered from reel.

The manually collated core sheets are securely fixed to the automatic fed overlay by two ultrasonic welding systems before the complete set is cut and transferred to the output stacker. The SSC 200 is controlled by one operating panel which also stores pre-set production configurations.



KEY MODULES

- | | |
|---|---|
|  Manual sheet alignment table |  Parameter control |
|  Automatic overlay spooling unit |  Cutting unit |
|  Ultrasonic welding unit |  Sheet stacker |

FEATURES & TECHNICAL DATA

KEY FEATURES

- Semi-automatic collating system for high volumes
- Automatic feeding & positioning for overlay from reel
- Automatic transport & cutting system
- Automatic welding parameter control
- Manual feeding & alignment to reference edges of core layers in sheet format
- Easy set-up & maintenance
- MB INCAPE ready

PRODUCTIVITY / PROCESS UNITS

- Integrated spooling systems for overlay foil
- Integrated register punch for lamination of CLI / MLI feature (optional)
- Sensor-controlled alignment of overlay to edge or magstripe
- Two adjustable ultrasonic welding units
- Adjustable stop pins
- UV-illumination system to check security feature (optional)
- Thickness measurement system to avoid double sheets (optional)
- Cutting unit after welding position
- Sensor-controlled overlay alignment to edge or magstripe position
- Availability: up to 95%
- Yield: up to 99.7%

TECHNICAL DATA

- Sheet materials: PVC, PC, ABS
- Overlay thickness: 40 – 300 μm
- Width of overlay reel: max. 720 mm
- Reel diameter / core diameter: max. 750 mm / 76 mm
- Center layers min. / max. sheet size: 290 x 290 mm / 720 x 720 mm
- Center layers min. / max. thickness: 45 - 600 μm
- Alignment accuracy: +/- 250 μm
- Throughput: up to 400 sheets per hour; depending on material & operator



HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



ASC 2900

AUTOMATIC SHEET COLLATING SYSTEM

Mühlbauer's ASC 2900 is a fully automatic, completely flexible sheet collating system. Due to its modular design the system can collate up to 5 core layers from sheet and 2 overlays from reel. Due to its high-precision optical collating process this machine is suitable for contactless, dual interface and other high-level cards, such as ID or EMV applications. This fully-automated system offers a throughput of up to 700 sheets per hour. Despite machine's complete automation the ASC 2900 still allows flexible usage for the producer. The easy change-over between different materials and the handling of up to five core layers, enable the programming of a variety of product configurations.



KEY MODULES

- | | |
|--|---|
|  Automatic sheet feeding system |  Ultrasonic foil welding |
|  Automatic overlay feeding system |  Cutting unit |
|  Movable control panel |  Sheet stacker |
|  Vision system for print mark alignment | |

FEATURES & TECHNICAL DATA

KEY FEATURES

- Automatic high-speed sheet collating system
- Feeding of overlay from reel
- High-precision alignment by vision systems
- Proven solution for high-end products like security documents or contactless cards
- Alignment programmable to print marks, antenna pads, security features or other individual shapes on the layers
- Sheet-to-sheet handling system for core layers
- Output of collated & pre-fixed sheet to stacker system
- Modular design for flexible configuration of individual collating-units (on-site upgrade / extension possible)
- Up to 8 layers possible
- MB INCAPE ready

PRODUCTIVITY / PROCESS UNITS

- Spooling system for two overlay foils on reels
- Continuous edge control system for magnetic stripe overlays
- Cleaning system for endless overlay and core sheets (optional)
- Double sheet detection by ultrasonic sensor
- Cutter unit after welding position
- Ultrasonic welding system
- Vision-controlled alignment system
- Thickness measurement unit (optional)
- Integrated register punch for lamination of CLI / MLI feature (optional)
- Availability: up to 95%
- Yield: up to 99.7%

TECHNICAL DATA

- Sheet materials: PVC, PC, PET; others on request
- Alignment accuracy: +/- 150 µm
- Width of overlay: max. 720 mm
- Reel diameter: max. 750 mm
- Sheet size max.: 720 x 720 mm
- Sheet thickness: overlay ≥ 50 µm / core ≥ 100 µm
- Throughput: up to 700 sheets per hour; depending on material & layout



HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



LP 5570/E

FULL SIZE SHEET LAMINATION SYSTEM – TWIN STACK

Mühlbauer's lamination system LP 5570/E is designed to laminate pre-lams, holderpages and similar products such as plastic cards, smartcards and contactless cards. The system complies with the latest demands regarding economics, eco-friendliness, as well as product and process quality. All important process parameters such as temperature, pressure and cycle time are continuously and individually controlled. Thus, it is possible to

laminate under optimal conditions with all current card materials such as ABS, PVC, PC, PET, PETG, PS, PE and PP. An available option is the weight compensation for the hot press, which allows for the lamination of plastic holderpages. The LP 5570/E can be configured with eight or ten openings and both systems are capable of holding between six and twelve layers per opening, depending on the production material.



KEY MODULES

- | | | |
|--|---|---|
|  Automatic loading and unloading basket |  Press force reduction |  Cooling unit |
|  Automatic loading and unloading table |  Freely programmable process parameter |  Weight compensation |
|  Lamination press |  Product temperature measurement |  Thermal oil heating |

FEATURES & ADVANTAGES

KEY FEATURES

- Automatic TWIN STACK sheet lamination system with the most accurate heating technology worldwide
- Suitable for PVC volume production & for PC
- Wide range of programmable process parameters
- Intuitive human interface ensuring easy & efficient system & process handling
- Optimized energy management system for environmentally friendly & cost-saving operation
- Uniquely designed heating plates for homogenous temperature conditions
- Fully modular system design
- MB INCAPE ready

PRODUCTIVITY / PROCESS UNITS

- Eight up to ten openings
- Weight compensation system
- Average heat variation on heating plates: +/- 1°C
- Average heat variation overall heating plates: +/- 3°C
- Special temperature management
- Programmable cycle time, lamination pressure, lamination temperature
- New product-parameter teach / set-up in just five minutes
- Heating & cooling in both presses possible
- Availability: up to 95%
- Yield: up to 99.7%
- Environmental conditions:
 - » Room temperature: 23°C; +/- 3°C
 - » Humidity: 50%; +/- 10%

TECHNICAL DATA

- Sheet materials: PVC, PC, ABS; others on request
- Sheet sizes: 530 x 680 mm (other sizes on request)
- Openings: 8 / 10
- Lamination force / hot press: 25 - 630 kN
- Lamination force / cooling press: 50 - 1,250 kN
- Repeat accuracy: +/- 0.5%
- Temperature tolerance: +/- 1°C
- Surface finish (ground): ≤ 1.2 µm
- Throughput: up to 350 sheets per hour; depending on material & layout



HOLDERPAGE PRODUCTION

eCOVER LAMINATION

BOOKLET ASSEMBLY

PASSPORT PRE-PERSONALIZATION



LP 5570

SHEET LAMINATION SYSTEM FOR COMPLEX CARD CONSTRUCTIONS

Mühlbauer's lamination system LP 5570 is perfectly suited for complex card constructions such as high security cards. It is designed to laminate pre-lams, plastic cards, Smart Cards and contactless cards. The system complies with the latest demands regarding economics, sustainability as well as product and process quality. All important process parameters such as temperature, pressure and cycle time are controlled continuously and individually controlled. These features make it possible to

laminate under optimal conditions with all current card materials such as ABS, PVC PC, PET, PETG, PS, PE, and PP. Available options are weight compensation and a vacuum chamber for the hot press, which allows for the lamination of more complex cards. The LP 5570 can be configured with four, six or eight openings and each system is capable of holding between six and twelve layers per opening depending on the production material.



KEY MODULES

-  Automatic loading and unloading basket
-  Semi or fully automatic handling of cassettes
-  Lamination press
-  Press force reduction
-  Freely programmable process parameter
-  Product temperature measurement
-  Vacuum
-  Cooling unit
-  Weight compensation
-  Thermal oil heating

FEATURES & TECHNICAL DATA

KEY FEATURES

- Automatic, full-size sheet lamination system
- Suitable for complex card constructions like ID & other high security cards
- Available as single or twin stack
- Fully modular system design
- Wide range of programmable process parameters
- Intuitive human interface ensuring easy & efficient system & process handling
- Optimized energy management system for environmentally friendly & cost-saving operation
- Uniquely designed heating plates for perfect homogenous temperature conditions
- MB INCAPE ready

PRODUCTIVITY / PROCESS UNITS

- Up to eight openings
- Vacuum system (optional)
- Weight compensation system (optional)
- Average heat variation on heating plates: +/- 1°C
- Average heat variation overall heating plates: +/- 3°C
- Special temperature management
- Programmable cycle-time, lamination pressure & temperature
- New product-parameter teach; set-up in just five minutes
- Heating & cooling in both presses possible (optional)
- Availability: up to 95%
- Yield: up to 99.7%

TECHNICAL DATA

- Sheet materials: PVC, PC, ABS; others on request
- Sheet sizes: 600 x 790 mm (other size on request)
- Openings: 4, 6 or 8
- Lamination force / pressure: 50 – 1,250 kN
- Repeat accuracy: +/- 0.5%
- Temperature tolerance: +/- 1°C
- Surface finish (ground): ≤ 1.2 µm
- Throughput: up to 144 (SINGLE STACK) / 288 (TWIN STACK) sheets per hour; depending on material & layout

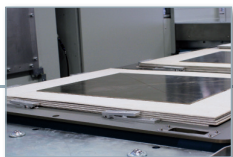
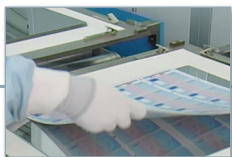
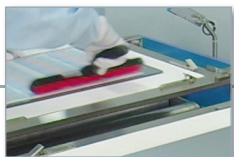


HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



HPP 2021/A - HPP 2021/M

HOLDERPAGE PUNCHING SYSTEMS

Mühlbauer's HPP 2021 A and HPP 2021M holderpage punching systems exceed all requirements for high-precision and reliable punching of holderpages in 2-up format. These systems are available in fully and semi-automatic versions, depending on production needs and the required level of automation. Mühlbauer's punching systems are well-proven around the globe. A powerful hydraulic system enables the processing of PC material while the easily accessible punching unit ensures a quick tool change, making this system robust and easy-to-op-

erate. The systems are designed for continuous quality production: Double sheet recognition and optical sheet alignment sensors ensure that only single sheets are processed and that the punching is done in accordance to the print marks. the handling of double sheet sizes is also possible by means of an integrated double sheet lift and cutting system. This allows even higher productivity and yield. Both systems, depending on configuration, are able to produce up to 5,000 holderpages per hour.



KEY MODULES

- | | | |
|--|---|---|
|  Sheet feeding |  Optical sheet alignment |  Automatic skeleton ejection |
|  Double sheet recognition |  Hydraulic punching unit |  Output module |

FEATURES & ADVANTAGES

KEY FEATURES

- Automatic punching system for polycarbonate & PVC passport holderpages
- Manual or automatic sheet feeding
- Highly accurate & precise hydraulic driven punching unit
- Easy-to-operate & to maintain
- Customized tool design, in-house tool manufacturing & regrinding services
- MB INCAPE ready

PRODUCTIVITY / PROCESS UNITS

- HPP 2021/M based on manual sheet feeding
- HPP 2021/A with automatic sheet feeding from sheet stacker
- Hydraulic driven punching system
- Programmable punching speed & punching distance
- Optical sensor system top & bottom for sheet positioning in punching position available
- 1- / 2-up punching tools
- Adjustable punching parameters for punching speed
- Automatic holderpage output to conveyor belt or to stack handling system
- Availability: up to 95%
- Yield: up to 99.7%
- Environmental conditions:
 - » Room temperature: 23°C; +/-3°C
 - » Humidity: 50%; +/-10%

TECHNICAL DATA

- Sheet materials: PC, PVC; other materials on request
- Sheet sizes: up to 405 x 510 mm
- Sheet thickness: 500 – 1,000 µm; other thickness on request
- Punching speed / pressure: 25 - 200 m/s / 100 kN
- Punching tools: 1- / 2-up
- Single tool size: up to 205 x 205 mm
- Punching accuracy: +/- 100 µm
- Throughput: up to 5,000 holderpages per hour; depending on material & layout



HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



HPI 3000

HOLDERPAGE INSPECTION

Mühlbauer's HPI 3000 is tailor-made for the inspection of PC holderpages. This high-volume system, which includes up to ten high-resolution cameras, inspects UV print, color print, surface, micro text and DOVID. It guarantees the highest inspection quality. Cutting edge client and server technology, as well as statistical error reporting, control the production pro-

cess and offer live online visualization of the inspection. This ensures 100% quality output. The system is controlled by our open universal personalization platform MB MCES and can be connected to various production management systems such as the integrated personalization and production management system MB INCAPE.



KEY MODULES

- | | | |
|---|--|--|
|  Input module |  Turning station |  Output module |
|  Cleaning station (front) |  Cleaning station (back) |  Reject |
|  Vision inspection (front) |  Vision inspection (back) |  Reject Marking |
|  Contactless test station | | |

FEATURES & ADVANTAGES

KEY FEATURES

- Fully-automatic optical inspection, testing & pre-personalization system for holderpages, inlays, pre-lams & eCovers
- Easy self-teach modus for optical systems
- 2-up, 2-up double, 3-up & 3-up double ID-3 formats possible
- Thickness measurement, print or hot stamp marking possible
- Easy to adjust, operate & maintain
- MB INCAPE & MB MCES ready

PRODUCTIVITY / PROCESS UNITS

- Automatic holderpage feeding & stacking from / to input / output stacker
- Individual surface & print inspection systems for front side & back side inspection, inspection features:
 - » UV-inspection
 - » Microtext inspection
 - » Format inspection
 - » CLI / MLI / relieve inspection (optional)
- Customized inspection features (optional)
- RFID / chip test / initialization unit
- Customized test procedures (optional)
- Reject marking by hot stamping or print mark
- Adjustable lamination temperature, speed & pressure
- MB MCES-based chip pre-personalization (optional)
- TCP/IP interface (optional)
- Environmental conditions:
 - » Room temperature: 23°C; +/-3°C
 - » Humidity: 50%; +/-10%

TECHNICAL DATA

- Holderpage format: 2-up, 3-up, 2- / 3-up double
- Holderpage thickness: 500 - 1,000 μm
- Resolution print inspection: 2,048 Pixel b/w – ca. 65 μm / Pixel
- Resolution surface inspection: 2,048 Pixel color – ca. 65 μm / Pixel
- Optical system surface inspection: Line-Scan color camera
- Optical system print inspection: Line-Scan b/w
- IC Module types: Contactless: ISO 14443 / 15693
- Throughput: up to 3,000 holderpages per hour; depending on process & chip coding time



HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION

HPM 300

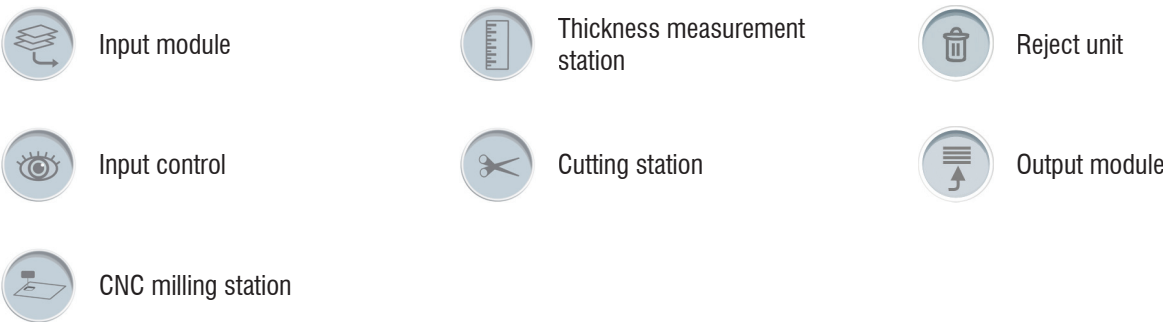
HOLDERPAGE MILLING SYSTEM

Mühlbauer's HPM 300 is designed to manufacture the holderpage Hinge, a thin and flexible, yet robust layer which is sewn into the passport. Mühlbauer's patented Hinge Technology offers fast and effective production of Hinges. Due to the adjustable and variable parameters, such as Hinge thickness or the flexibility in the composition of the material, it is adaptable to any kind of production.

Ultimate quality and reliable production are guaranteed by integrating various features such as input separation, thickness measurement control and output reject sorting. Processing of holderpages in 2-up format allows for the effortless integration of the machine into the existing and proven Mühlbauer passport production line which provides a throughput of up to 300 holderpages per hour.



KEY MODULES



FEATURES & ADVANTAGES

KEY FEATURES

- Designed for the unique Mühlbauer Hinge Technology
- Fast & easy-to-handle Hinge production by milling procedure
- Higher flexibility of the Hinge because of adjustable & variable parameters such as thickness
- The milling of the special composition material within the holder page results in a flexible & robust Hinge
- The high accuracy of the milling process leaves a smooth finish transition between holder page & the Hinge
- No more additional processes like attaching the hinge to the holder page

PRODUCTIVITY / PROCESS UNITS

- Suction units guarantee scratch free handling
- Input control ensures the processing of one holderpage at a time
- Milling head with adjustable rotation speed
- Integrated cleaning station for waste removal
- Thickness measurement & reject unit for holderpages outside the predefined tolerance
- Availability: up to 95%
- Yield: up to 99.7%
- Environmental conditions:
 - » Room temperature: 23°C; +/-3°C
 - » Humidity: 50%; +/-10%

TECHNICAL DATA

- CNC milling head: setup of Hinge thickness & size
- Movable axis: X, Y & Z
- Material: PC; others on request
- Holderpage dimensions: according to 2-up ID-3 format
- Y accuracy: ± 0.20 mm
- Z accuracy: ± 0.05 mm
- Throughput: up to 300 (2-up) holderpages per hour

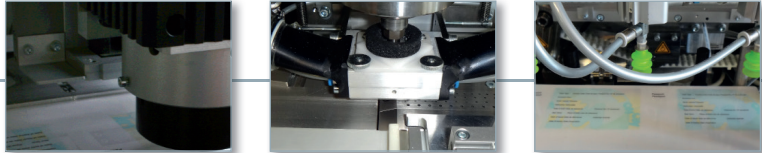


HOLDERPAGE PRODUCTION

eCOVER LAMINATION

BOOKLET ASSEMBLY

PASSPORT PRE-PERSONALIZATION



E-PLS 6001

eCOVER LAMINATION SYSTEM

The Mühlbauer E-PLS 6001 is a fully-automatic machine which produces the booklet eCover, used later in the state-of-the-art passport production.

In a gluing application assisted by mechanical and electronic processes, the cover which is provided by the cover input feeder, is joined together with the RFID Inlay provided by the Antenna Feeder on one side of the future eCover and with the Compensa-

tion Layer on the other side. The result of this process is a raw booklet eCover. The eCover will be collated later with the booklet paper set to form a state-of-the-art eCover Passport.

The required materials are handled through the E-PLS 6001 in a 2-up format, with a throughput of up to 1200 eCovers per hour, depending on used material variety and/or applied process parameters.



KEY MODULES

- | | | |
|---|--|---|
|  Input module |  Thickness measurement station |  Reject unit |
|  Input control |  eCover lamination |  Output module |
|  Glue applicator |  Chip & antenna functionality testing |  Movable control panel |

FEATURES & ADVANTAGES

KEY FEATURES

- Industrial, fully-automatic eCover lamination
- Latest technology for highly reliable & efficient eCover lamination
- Intuitive user interface for efficient & productive operation
- MB MCES / MB INCAPE / MB PALAMAX® ready

PRODUCTIVITY / PROCESS UNITS

- Input feeder cover material
- Input feeder system antenna Inlay
- Input feeder compensation layer
- Glue applicator
- Pressing unit
- Chip Testing unit
- Output unit
- Environment conditions:
 - » Room temperature: 23°C +/- 3°C

TECHNICAL DATA

- Passport types & formats: ID-3 MRP, ePassports according to ICAO 9303
- Processing format: 2-up
- Max pages: up to 96
- Glue type: hot melt glue
- Throughput: up to 1,200 eCovers per hour; depending on process parameters

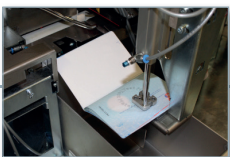
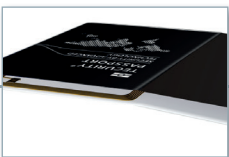
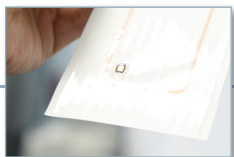


HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



SABL 100

SEMI-AUTOMATIC BOOKLET LINE

Mühlbauer's semi-automatic Booklet Line (SABL) provides highest flexibility in the production of passports and ePassports in terms of: product development, product evaluation and / or small to medium production volumes.
The standalone semi-automatic machines – SABL 100 RF, SABL 100 CS, SABL 100 LS, SABL 100 CF, SABL 100 BP, IDENTIFIER

60 PERSYS, SABL 100 IP – form a highly flexible production system for collating and sewing, laminating and bonding, booklet finishing and booklet pre personalization.
Booklets are handled through the SABL line in a 2-up format, with a throughput of up to 130 passports per hour, depending on used material variety and/or applied process parameters.

FEATURES & ADVANTAGES

KEY FEATURES

- Industrial semi-automatic booklet production & pre-personalization
- Perfectly suitable for product development, small & medium batch production
- Processes equipment identical with the Automatic Booklet Line, e.g. sewing, laser perforation, impact print numbering
- MB MCES / MB INCAPE / MB PALAMAX® ready

PRODUCTIVITY / PROCESS UNITS

- SABL 100 RF: Reinforcement tape application on flyleaf
- SABL 100 CS: Collating & sewing system of inner paper set of the booklets
- SABL 100 LS: Lamination system of the cover to the paper set & bonding system
- SABL 100 CF: Cutting & finishing system (2-up cutting, booklet folding, booklet spine forming)
- SABL 100 BP: Booklet punching to ICAO format
- IDENTIFIER 60 – PERSYS: Laser Perforation Numbering with chip pre-personalization (optional)
- SABL 100 IP: Booklet impact printing

TECHNICAL DATA

- Passport types & formats: ID-3 MRP, ePassports according to ICAO 9303
- Processing format: 2-up
- Max pages: up to 96
- Max booklet format: according ICAO 9303
- Glue type: water-based cold glue
- Throughput: up to 130 booklets per hour; depending on process parameters



SABL100 RF



SABL100 BP



IDENTIFIER 60 PERSYS



SABL100 LS



SABL100 CS



SABL100 CF



SABL100 IP

KEY MODULES



Passport collating & sewing



Laser number perforation



Passport number impact print



Final booklet punching



Lamination



Passport finishing

UPH

20 40 60 80 100 120

HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



BOOKLET LINE

PASSPORT BOOKLET PRODUCTION SYSTEMS

Mühlbauer's Booklet Line comprises the complete systems for the production of passports and ePassports. Four stand-alone machines – PCS 6000, PLS 6000, PBS 600 and PFS 6000 – form a highly effective production system for collating and sewing, laminating, embossing, binding and finishing different kinds of

passports. Separated processes allow for the highest production flexibility. Materials are handled through the Booklet Line in a 2-up format with up to 1,700 passports per hour (depending on material and process parameters).



PCS 6000



PLS 6000



PFS 6000



PBS 600

KEY MODULES



Cover embossing



Passport lamination



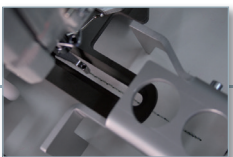
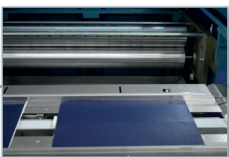
Passport finishing



Passport collating and sewing



Passport bonding



FEATURES & ADVANTAGES

KEY FEATURES

- Highly modular designed process modules & units for stand-alone & in-line production
- Latest technology for highly reliable & efficient ePassport production
- High-secure “interlock stitching” sewing process supported
- Most gentle & sensitive material handling for high-quality booklet production
- Intuitive user interface for efficient & productive operation
- MB MCES / MB INCAPE / MB PALAMAX® ready

PRODUCTIVITY / PROCESS UNITS

- PCS 6000 – Passport Collating System: collating & sewing of the inner set of booklets
- PLS 6000 – Passport Laminating System: lamination of the cover to the inner set; also suitable for eCover production
- PBS 600 – Passport Bonding System: pressing system for post pressing of glued covers
- PFS 6000 – Passport Finishing System: embossing, Cutting, folding & punching system to finalize the booklet
- Environmental conditions:
 - » Room temperature: 23°C; +/-3°C
 - » Humidity: 50%; +/-10%

TECHNICAL DATA

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- Processing format: 2-up
- Max. pages: up to 96
- Max. booklet format: Booklets according to ICAO 9303
- Glue type: cold / hot
- Throughput: up to 1,700 passports per hour; depending on process parameters

UPH

700 900 1100 1300 1500 1700

HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION

IDENTIFIER 6000 PERSYS

BOOKLET PERFORATION & NUMBERING SYSTEM

Mühlbauer's IDENTIFIER 6000 PERSYS is a state-of-the-art booklet perforation and numbering system for passports according to ICAO 9303. The IDENTIFIER 6000 PERSYS is designed to meet highest industrial demands regarding modularity, integration of process modules, as well as latest electronics and software technology. The machine covers all processes, necessary for high-class passport perforation and numbering requirements. In addition, the system can also be used for inkjet printing, impact print with sequent or random numbering, chip initialization

and / or encoding, as well as labeling. The highlight is the new numbering unit with a unique matrix minting process – a Mühlbauer development which is already well proven in the card personalization sector. The operator-friendliness was further enhanced with regard to the system's improved ergonomic design and a new graphical user interface (GUI). Due to its highly flexible design, the IDENTIFIER 6000 PERSYS can easily be configured according to customer and project demands, as well as extended to a fully-automatic passport personalization system, even on site.



KEY MODULES

- | | | |
|---|---|--|
|  Multi booklet input (stacker or magazine) |  Numbering station optionally |  Multi booklet output (stacker or magazine) |
|  Booklet opening / pageturning |  Inkjet printing (serial number / barcode) |  Booklet closing |
|  Passport identification module (e.g. serial number detection) |  Laser number perforation |  Labeling module |
|  Contactless chip encoding |  Laser engraving (serial numbers) |  Packaging module |
|  Quality assurance including reject & data verification | | |

FEATURES & ADVANTAGES

KEY FEATURES

- Combinable with IDENTIFIER 6000 process modules
- Fully-automatic high-speed passport perforation system
- Highly modular system design – upgradeable even on site
- Parallel process tracks to achieve max. speed & availability
- Multiple RFID / chip coding stations for pre-personalization (optional)
- Laser perforation technology
- Patented impact print technology (random numbering, mixed characters, special characters)
- Inkjet and / or laser printing technology (optional)
- Online support
- MB MCES / MB INCAPE / MB PALAMAX® ready

PRODUCTIVITY / PROCESS UNITS

- Automatic passport feeding & stacking
- Automatic page turning units
- 400 W laser perforation system with integrated exhaust system
- Unique matrix numbering system with highest embossing flexibility
- Fully flexible numbering e.g. sequence, random & position
- Up to 24 chip coding units (optional)
- Electrical and / or optical output quality control (optional)
- Packing module (optional)
- On-site upgradeable to complete passport personalization with laser systems, inkjet printing systems, lamination modules, packing modules, labeling modules, etc.
- Environmental conditions:
 - » Room temperature: 23°C; +/-3°C
 - » Humidity: 50%; +/-10%

TECHNICAL DATA

- Passport types & formats: ID-3 MRPs; ePassports according to ICAO 9303
- Perforation technology: 400W CO2 laser
- Inkjet printing system: max. continuous ink printer, DOD printing
- Interface: TCP / IP
- IC Module types: Contactless: ISO 14443 / 15693
- Throughput: up to 3,000 passports per hour; depending on process & chip coding time

UPH

500 1000 1500 2000 2500 3000

HOLDERPAGE
PRODUCTION

eCOVER
LAMINATION

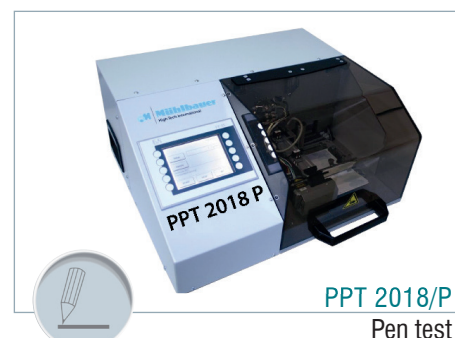
BOOKLET
ASSEMBLY

PASSPORT PRE-
PERSONALIZATION



BOOKLET QUALIFICATIONS

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 PERSONALIZATION
- LED Technology
- eMobility

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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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

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

MÜHLBAUER MALAYSIA

MB Automation (Malaysia) 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.muehlbauer.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@muehlbauer.sk, www.muehlbauer.com



Mühlbauer ID Services GmbH

Josef-Mühlbauer-Platz 1 | 93426 Roding | Germany
Tel.: +49 9461 952 0 | Fax: +49 9461 952 1101
Mail: info@muehlbauer.de | Web: www.muehlbauer.de