CARD BODY PRODUCTION TECHNOLOGY

PRODUCT OVERVIEW

MÜHLBAUER GROUP

State-of-the-Art Technologies and Solutions

Cutting-Edge Technologies and Solutions

The Mühlbauer Group is the only single-source technology partner for the production and personalization of cards, passports and RFID applications worldwide. With around 3,500 employees, technology centers in Germany, Malaysia, Slovakia, the USA and Serbia, and a global sales and service network, we are the world's market leader in innovative systems and software solutions, supporting our customers in project planning, technology transfer including system integration and production support.

Exclusive Manufacturer Service

35 production and service facilities on five continents, worldwide spare parts repositories and individual service and financing concepts enable us to provide a unique service quality, allowing us to react and bring solutions within two hours.

Seeing is Believing

In our global technology centers, for example in Germany, Malaysia, South Africa and the USA, we exhibit our complete range of smart card and ePassport production and personalization products, as well as RFID inlay production and converting processes. Almost every system is available and ready for demonstrations. Additionally, the company's know-how can be experienced in the TECURITY EXPRESS show truck, an unrivaled mobile high-security production center on wheels. Convince yourself of the superiority of Mühlbauer technologies.

Technology and Market Leadership

To ensure and expand the technology and market leadership, Mühlbauer continuously invests in innovative products and processes. Our research and development centers with over 400 highly-qualified engineers and technicians collaborate closely with customers and research institutions in order to efficiently launch reliable solutions in increasingly shorter development and production cycles.

Open Communication

While aiming to extend our current leading market position in the emerging areas of government security and biometric applications, we ensure strict privacy in all projects and serve as a reliable partner for sophisticated industries. We are committed to provide the highest speed, best quality and strict customer-oriented services.

Business Unit TECURITY®

Mühlbauer specializes in innovative one-stop solutions encompassing the production, personalization and issuance of ePassports, ID cards and other card-related security documents and fully automatic border control systems. The business unit TECURITY® bundles the extensive know-how of the development of tailor-made security solutions. In the last 30 years, we have been intensively involved in over 300 government related ID projects across the globe.

Business Unit Automation

More than 100 different standard and customized products and intelligent software solutions for data enrollment, border control, as well as personalization and production management are the core of the business unit Automation. The division is responsible for the development and manufacturing of Mühlbauer technologies. In addition to systems used for high-quality document production and personalization in high-end security products, we manufacture one-stop turnkey solutions for industrial image processing of cards, coins and bank notes, tubes and other products. Moreover we develop and produce innovative systems such as microchip die sorting, flexible solar cells or carrier tape equipment for specific niche applications in the semiconductor back-end area (semiconductor related products), as well as labeling and marking systems for traceability of electronic components (traceability).

Business Unit Parts & Systems

Mühlbauer's Parts & Systems segment produces high-precision components – both for the manufacturing of Mühlbauer products and as a supplier to security-sensitive industries such as aerospace, motorsports, semiconductor and medical engineering.

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Sheet Hot Stamping

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Inlay Production & Testing

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Card Inspection

Card Hot Stamping

One-Stop Shop Technology Partner

## Comprehensive Competence in End-to-End Systems

The Mühlbauer Group provides a complete one-stop shop for end-to-end production of solutions and systems for the smart card, ePassport, semiconductor industry and inspection technology. We incorporate significant competence in providing optimized and state-of-the-art technology, as well as customized equipment.
Our products merge the main three factors for our customers' success story:

- In-house development and research
- In-house production and assembly
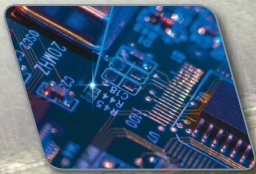- In-house training and technology transfer

GLOBAL SERVICE & SUPPORT
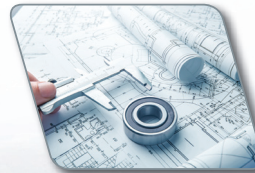
MECHANICAL ENGINEERING

SOFTWARE & ELECTRICAL ENGINEERING

GLOBAL HEADQUARTERS

SYSTEM ASSEMBLY

I

H

E

G

DII

DIII

F

DIV

DV

N

LARGE & SPECIAL PARTS MANUFACTURING

STORAGE

PACKAGING & DISPATCHING

RESEARCH & PROCESS ENGINEERING

SEMICONDUCTOR BACKEND & RFID COMPETENCE CENTER

QUALITY ASSURANCE & PROCESS CONTROL

CARRIER TAPE PRODUCTION

A

BI

BII

BIII

CIII

CII

CIV

CI

K

L

M

DI

SHOWROOMS & DEMOCENTERS

TRAINING CENTER & KNOW-HOW TRANSFER CENTER

PRECISION PARTS MANUFACTURING

The Mühlbauer Group's core competences in delivering perfected machine products are the manufacturing of the precision parts, the development and constant enhancement of mechanics and electronics, the process and the software solutions. Due to constant investments and a well-trained R&D team, Mühlbauer has grown to be the most innovative technology partner that guarantees optimized systems. We excel in perfectly coordinating every single step of the process, thus ensuring the most efficient and reliable products for our customers.
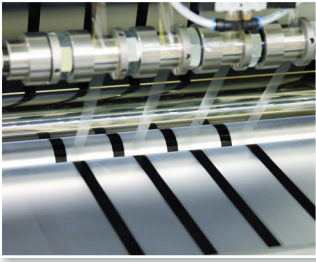
MAE 12

Tape Layering System

KEY MODULES

 Reel input

 Foil alignment

 Tape application

 Thermal processing

 Reel output
(optional sheet output)

UPH

| 40,000 | 50,000 | 60,000 | 70,000 | 80,000 | 90,000 |

FEATURES & TECHNICAL DATA

Key Features

- Automatic application of signature stripes and magnetic stripes for bank cards, ID cards, loyalty cards etc.
- High flexibility in terms of sheet size, tape materials, positioning and quantity of tracks
- Cost-efficient solution especially for high-volume production
- Sensor controlled alignment system for overlay referenced to edge
- INCAPE ready
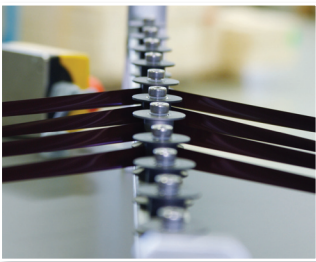
Productivity / Process Units

- Reel-to-reel or reel-to-sheet (can be modified)
- Integrated spooling systems for different stripe-substrate
- Continuously adjustable processing speed and temperature
- Operator friendly and fast adjustment of track positions
- Material buffer for high autonomy
- Availability: Up to 95%
- Yield: Up to 99.7%

Technical Data

- Sheet materials: PVC, PC, ABS; others on request
- Thickness of layers: 40 – 400 µm
- Max. width of foil: 780 mm
- Max. reel diameter: 750 mm
- Height of output stack: 200 mm
- Application pressure / temperature: 30 – 55 N / max. 200°C
- Max. widths of stripes: min 6 mm to max 16 mm
- Number of application tracks: up to 12
- Application accuracy: +/- 0.15 mm in y-axis
- Distance of tracks: ≥ 57 mm
- Sheet cutting accuracy: +/- 0.5 mm
- Speed: Max. 10 m / min (12-fold format)
- Throughput: 72,000 cards / hour

The MAE 12 tape layer is a flexible solution for applying magnetic and signature stripes as well as security stripes onto sheets. This additional process step completes the card and smart card production from one source series. In the tape layering process, magnetic stripes are transferred onto overlay foils. In one step up to 12 magnetic stripes. Using 12 tracks, this machine can produce up to 72,000 cards / hour via processing from reel-to-reel and optionally from reel-to-sheet. This is based on an overlay thickness range of 40 to 400 microns and a width of 780 mm. The magnetic stripes are pressed, using their full width, onto the overlay material. The MAE 12 provides full adhesion to the stripes for safe handling of the sheets and the elimination of any variation of the stripe location during lamination. The MAE 12 is designed to accommodate different stripe widths and spacing. Intuitive operational handling and easy maintenance also maximize the efficiency.

SSH 2008/2

Sheet Hot Stamping

KEY MODULES

 x/y sheet table

 Hot stamping unit (1 head)

 DOVID application

UPH

|					
500	750	1,000	1,250	1,500	1,750

FEATURES & TECHNICAL DATA
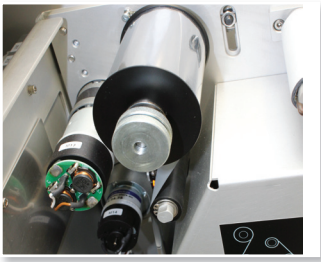
Key Features

- Semiautomatic sheet hot stamping system for applying holograms or KINEGRAMs® on overlay or core sheets
- The system configuration matched flexibly to the particular production surroundings
- All necessary parameters, like temperature, pressure and time set according to the different materials
- Highest security due to hologram / KINEGRAM® under the overlay
- Highest flexibility for various applications and customization like Vision, barcode reader, OCR, etc.
- Highest accuracy for hologram / KINEGRAM® applications
- Very operator friendly handling system
- Flexibility adjustable and storable process parameters
- No offset between hologram / KINEGRAM® and card layout
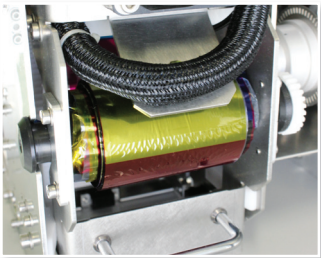
Productivity / Process Units

- Vacuum table for moving a sheet from a loading position to all application positions in sequence and aligning the sheet (optional) to a reference edge and clamping the sheet by vacuum
- Feeding and positioning the tape under the application head by tape spooler
- Special sensor placed in the stamping position for hologram positioning to print mark
- Pneumatic driven application head allowing a programmable adjustment of the press force, stamp temperature and dwell time
- Sharp edges of the applied holograms withoiut flakes offered by special foil stripper
- Stamping Tool for standard geometriy for simple standard shapes (circle, rectangle with rounded corner, oval, ...), for customized dimensions or for special geometry on request
- DOVID tape destruction before rewinding (optional) with cutter to slit stamped hologram foil before rewinding

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

The SSH 2008/2 is the 2nd generation of our proven semiautomatic 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. This makes it possible to hide the hologram inside the material structure as a forgery-proof security element.

The preferred use is the production of embedded holograms for security documents like ID cards or passports.

ASH 10000

Sheet Hot Stamping

KEY MODULES

- Reel or sheet input
- DOVID application
- Hot stamping unit (4-8 heads)
- Vision control system (optional)
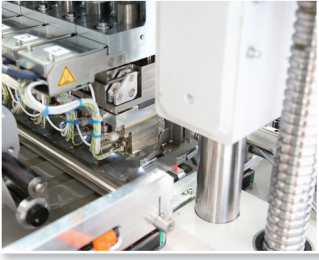- Cutting unit - reel to sheet
- Reel or sheet output

UPH

| 7,000 | 8,000 | 9,000 | 10,000 | 11,000 | 12,000 |

Key Features

- Fully automatic sheet hot stamping system for hot-stamping of DOVID and serucity foils in defined position and pitch onto plastic sheets
- Hologram / KINEGRAM® applied under the overlay realizable to achieve a highly durable security feature up to level 3
- Temperature and pressure controlled and set for each pplication head individually
- DOVID hologram carrier tape applied to the overlay foil by pressure and temperature
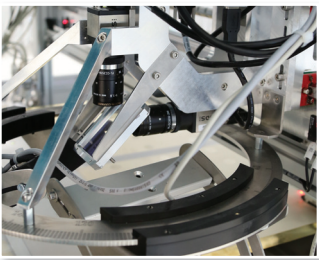
Productivity / Process Units

- Input material supplied in reel (R2R, R2S) or sheet form (S2S)
- Reel slit into sheet size by sheet cutting unit (R2S)
- Aligned foil transported under the hot stamping unit with the stamp processing heads
- Applying hologram from holo foil to sheet
- Standard - 4 hot-stamp heads, optional up to 8 hot-stamp-heads (sheet layout)
- Process quality of print mark application on foil checked by a Vision system (optional)
- Bad holograms marked by a bad unit marker
- Collecting incorrect sheets in reject box
- Foil reqound onto the output foil spooler (R2R) or sheets are transported to output stacker (R2R, S2S)

Technical Data

Input from reel (R2S, R2S) output to reel (R2R)
- Reel diameter: max. 500 mm
- Reel width: max. 600 mm
- Core diameter: on customer request
- Application temperature: RT -170°C
- Stamp size: up to 10.000 uph

Input Stacker and Alignment Unit (S2S):
- Max hight of sheet stacks: 700 mm
- Sheet Size: min. 270mm x 194mm
- Sheet Size: max. 630mm x 630mm
- Stamp size: PVC, ABS, PC, Paper: ≥ 0.075mm

Hologram Size:
- Typical stamping tool size: max. ǿ 20mm for standard thermal hologram foils

The ASH 10000 is designed for hot stamping of DOVIDs and security foils in defined position and pitch 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. For the processes it doesn`t matter if the foil is an overlay or a core material. Main application stays on cards (ID1 / PolyCarbonat).

FP 201

Foil Punching System
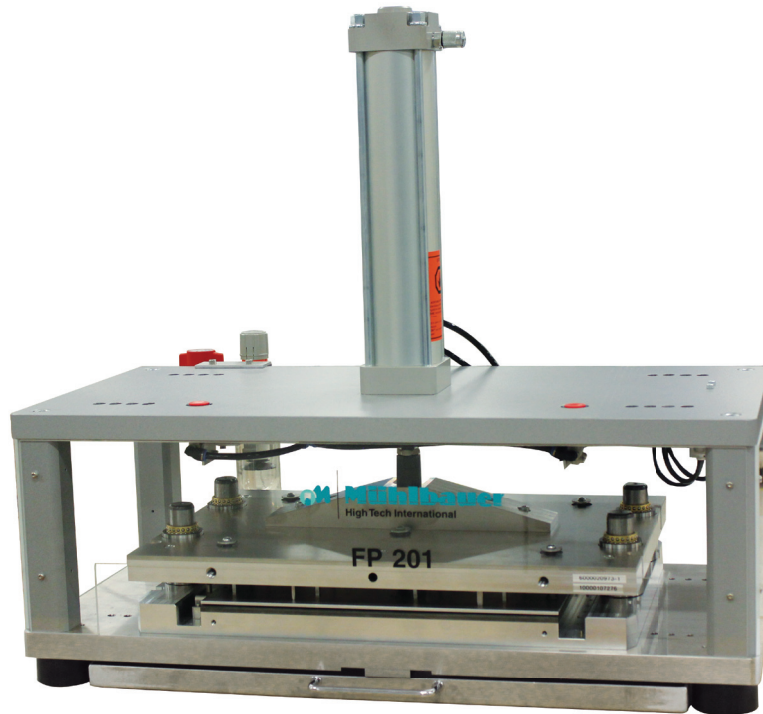
KEY MODULES

 Manual foil input

 Foil punching unit

 Automatic waste output

 Manual foil output

UPH

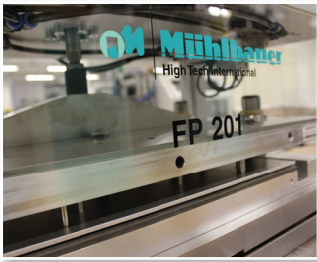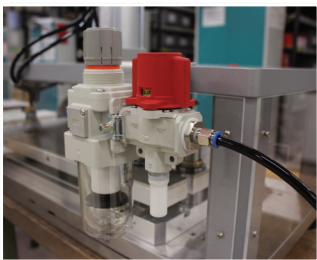| 50	100	150	200	250	300	350

FEATURES & TECHNICAL DATA

Key Features

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

Productivity / Process Units

- Pneumatic driven punching system (direct drive)
- No electronic, easiest operation and maintenance
- Availability: Up to 95%
- Yield: Up to 99.7%
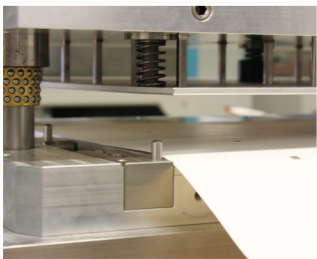
Technical Data

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

Mühlbauer´s FP 201 is a semiautomatic 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 e-cover inlays.
As you can place more foils in one cycle, a throughput up to 300 foils / hour can be achieved.

MTT 2462

Wire Embedding and RFID Inlay Production System

KEY MODULES

- Automatic sheet feeding
- Reject module detection by vision
- Chip module punching
- Chip module implanting

- Ultrasonic wire embedding
- Thermo-compression chip welding
- Contactless test

- Optical quality check and bad unit marking
- Automatic sheet unloading
- Sorting of good/rejected sheets

UPH

CONTACTLESS ▽   DUAL INTERFACE ▽

| 1,200 | 1,800 | 2,400 | 3,000 | 3,400 |
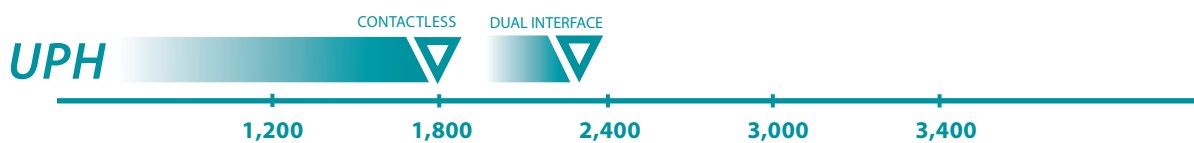
FEATURES & ADVANTAGES

Key Features

- All-in-one solution for wire embedding and RFID inlay production
- Keeps your Know-How regarding antenna design and sheet layout completely in-house
- Easy and simple 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
- Testing: electrical and optical incl. bad unit marking
- Rejected sheets can easily be reworked by MTT's "rework mode"
- INCAPE ready

Productivity / Process Units

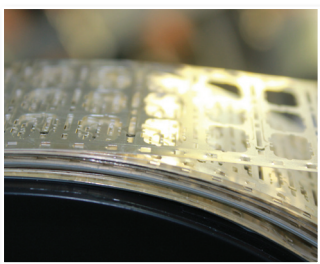- Sheet placement Automatic line +/- 0,1 mm
- Fully automatic sheet feeding with vacuum tables
- Pick and place unit capable of handling any chip size on the market; direct removal of bad chips detected by vision; pneumatic shuttle system for smooth transport
- Chip module implanting without adhesive instead vacuum process for higher stability, longer lifetime; IC modules can be placed in mold-up and 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 (no wearing of drive units)
- 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 8 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

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 / hour; up to 2,300 dual interface inlays / hour; depending on antenna design and material

Tape Layering

Sheet Hot Stamping

Foil Punching

Inlay Production & Testing

Sheet Collating

Sheet Lamination

Card Punching

Card Inspection

Card Hot Stamping

The 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.

*The real repeatability of linear motors is on +/- 6 mm

ITH 540 & IT 50

Inlay Test Handling & Inlay Testing Systems

ITH 540

IT 50

KEY MODULES

Y-axis sheet table

Reject marking

Contactless test station

UPH

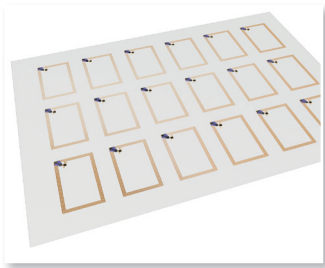| 500 | 750 | 1,000 | 1,250 | 1,500 | 1,750 |

FEATURES & ADVANTAGES

Key Features

- ITH 540
  - Realization of testing and pre-personalization
  - High flexibility regarding materials and different sheet layouts
  - Operator friendly easy operation
  - Automatic reject marking
  - Automatic counting of functional and 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 14443 A or ISO 14443 B

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 / hour; depending on material and test parameters as well as on operator speed

The inlay test handler ITH 540 is a semiautomatic machine for the testing of transponders integrated in sheets. The system is well-proven, easy to operate and has 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 never been so simple. The integrated ETS-surface for ergonomic operations guarantees convenient functionality for operators and the maintenance friendly, long lifetime construction reduces running costs.

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 faulty. Two LEDs indicate the test results; green indicating a functional antenna and red indicating a fault. Faulty antennas can then be marked to ensure all antennas used in production are fully functional.

ITH 550

Automatic Inlay Test Handling

KEY MODULES

- Input feeder
- Contactless test station
- Vision inspection
- Reject marking
- Output stacker

UPH

| 8,000 | 9,000 | 10,000 | 11,000 | 12,000 | 13,000 |

FEATURES & ADVANTAGES

Key Features

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

Productivity / Process Units

- Input stack and sheet feeder
- Automatic sheet transport
- Contactless testing station
- Optical antenna and hologram inspection optionally
- Reject marking
- Output stacker and reject box
- Availability: Up to 95%
- Yield: Up to 99.7%
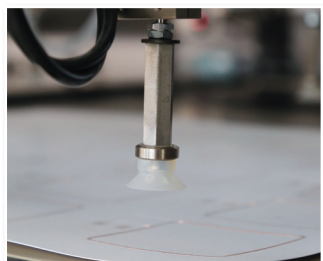
Technical Data

- 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 / hour; depending on material and test parameters as well as on operator speed

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. Testing and pre-personalization of RFID pre-laminated sheets or finalized sheets has never been so simple. The integrated ETS-surface for ergonomic operations guarantees convenient functionality for operators and the maintenance friendly, long lifetime construction reduces running costs.

IAL10000

Inlay Assembly Line
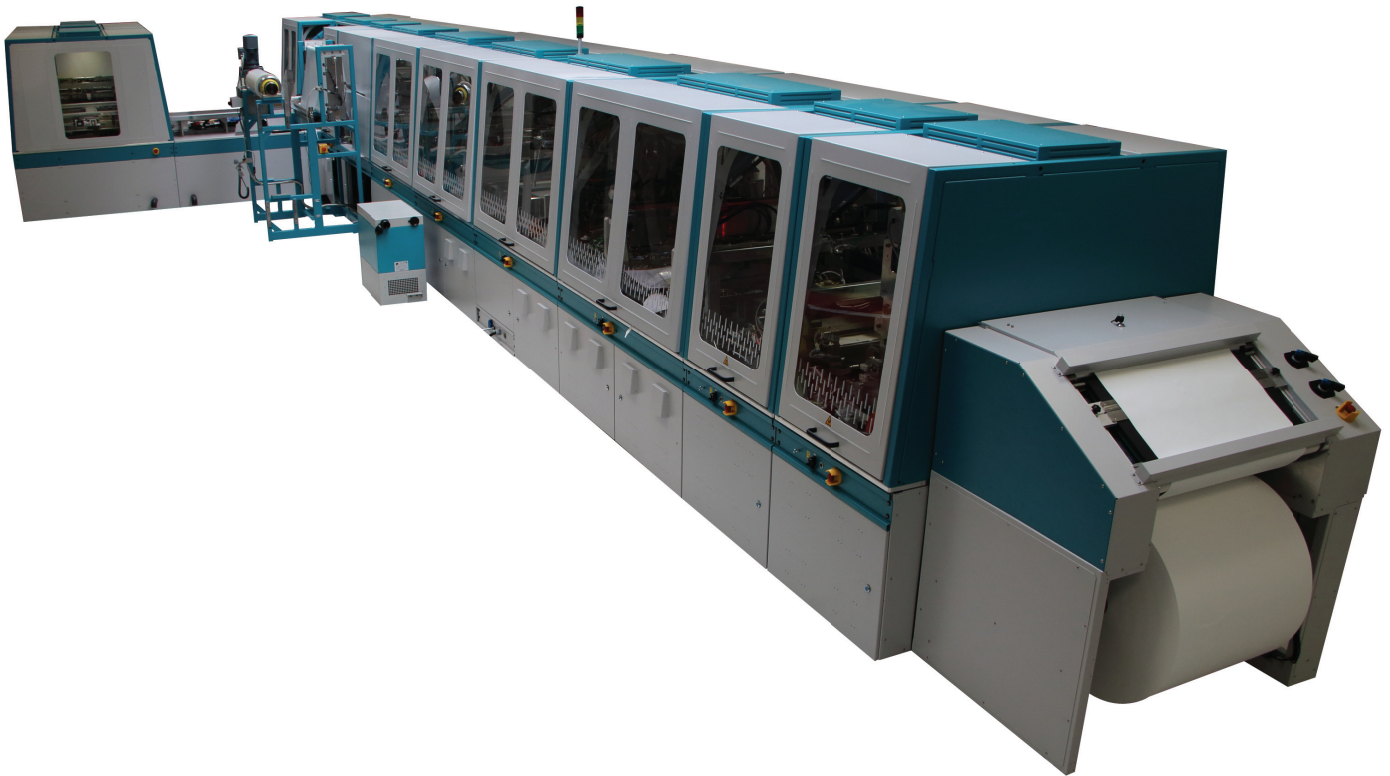
Foil Input	Welding wire to chip
Cutting and Punching	Electronic test
Glue Dispensing	Vision Inspection
Chip Application	Collating unit
Wire Embedding	Unlam output

UPH

| 8,000	9,000	10,000	11,000	12,000	13,000

FEATURES & ADVANTAGES

Key Features

- Roll-to-Sheet, Sheet-to-Sheet, Roll-to-Roll form factors possible
- 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 like Cutter, Glue application, Chip placement, Wire embedding, Wire bonding
- Inlay quality Assurance: Vision inspection and/or Electrical Test (ATS or RFM), Bad Mark printer, Reject Tray
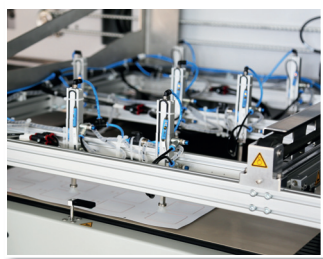
Process

- Raw material is unwinded from roll or sheets inserted into Input Stacker
- Reference holes and Chip cavities are punched and then the foil is cut to sheets
- Glue is applied beside the Chip cavities for Chip fixation
- Chips are tested electrically before punching and placing them into cavities (optional)
- Vision system for detection of reject module, tape position and 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)
- Antennas wire is 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. Alternative is MTT 2462
- UNLAM production top and/or bottom compensation/overlay layers can be applied from reel (or as separated sheets). This includes necessary Punching & Cutting. After Collating, the sandwich is bonded together with the Inlay sheet.
- Collating, the sandwich is bonded together with the Inlay sheet
- After Collating, the sandwich is spot welded together with the Inlay sheet
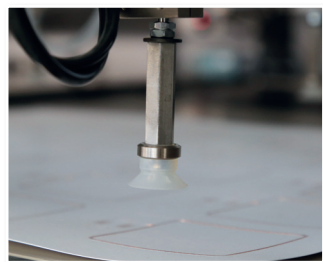
Technical Data

- 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

IAL 10000 is Mühlbauer's Inlay Assembly Line for UNLAM production and first UNLAM line on the market. IAL supports ID1, ID3 or customized form factors document. IAL 10000 includes Mühlbauer's new graphical user interface for highest operator and maintenance convenience. The machine is operated by Touch screen terminal. The inlay production process includes antenna creation, chip placement and necessary Electrical and/or Vision test with Bad marking and Reject station. This is followed by sandwich collating consisting from various layers (number, material and thickness vary) and welding. IAL 10000 is highly modular machine to meet the customer needs, so final UNLAM sandwich is not strictly defined by IAL design.

SSC 2502 & SSC 2502/1

Semiautomatic Sheet Collating Systems

SSC 2502

SSC 2502/1

KEY MODULES

Ultrasonic welding unit
(SSC 2502/1)

Illumination
(SSC 2502/1)

Thermal welding unit
(SSC 2502)

Swivel mounted table

Adjustable stop pins

Parameter control
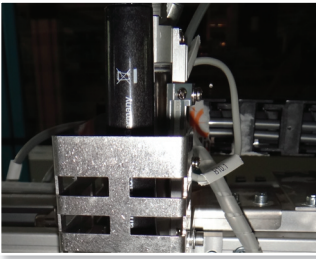(SSC 2502)

UPH

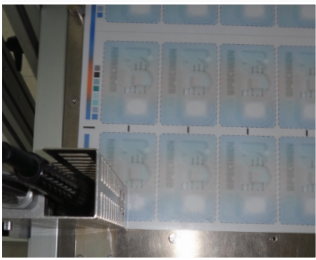| 50 | 100 | 150 | 200 | 250 | 300 | 350 |

FEATURES & TECHNICAL DATA

Key Features

- Semiautomatic operated collating system for individual sheet layers and security layers
- Suitable for standard collating tasks as well as for security applications
- Smallest footprint requirements and most easy operation
- Easy set-up and maintenance
- 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%
- Environment conditions: Room temperature: 23°C; +/-3°C
                          Humidity: 50%; +/-10%
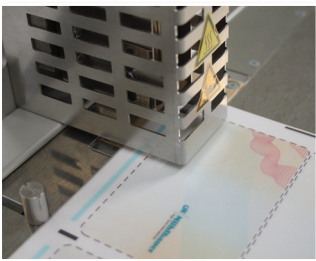
Technical Data

- 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 / hour; depending on material and operator

The semiautomatic 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 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 for operator friendliness. The layers are manually aligned to reference edges and prefixed manually with an ultrasonic welding unit. This allows prefixing of a complete set simultaneously in less than one second and setting a random number of spots. After the collating process the prefixed sheets are removed manually by the operator.

SSC 200

Semiautomatic Sheet Collating System

KEY MODULES

- Manual sheet alignment table
- Automatic overlay spooling unit
- Ultrasonic welding unit

- Parameter control
- Cutting unit
- Sheet stacker

UPH

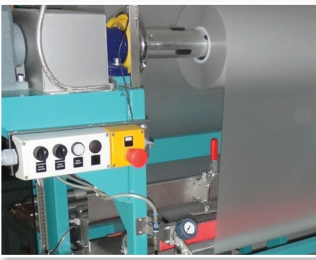| | 100 | 150 | 200 | 250 | 300 | 350 | 400 |

FEATURES & TECHNICAL DATA

Key Features

- Semiautomatic collating system for high throughput
- Automatic feeding and positioning for overlay from reel
- Automatic transport and cutting system
- Automatic welding parameter control
- Manual feeding and alignment to reference edges of core layers in sheet format
- Easy set-up and maintenance
- INCAPE ready
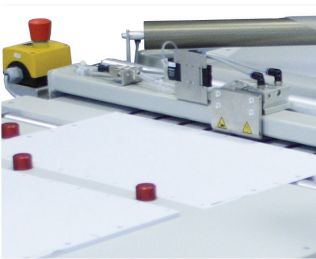
Productivity / Process Units

- 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 optionally
- Thickness measurement system optionally available to avoid double sheets
- 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 / 70 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 / hour; depending on material and operator

The SSC 200 machine concept is as simple as it is ingenious. Only one operator gathers the core sheets before aligning them manually at the adjustable stop pins. The machine works completely 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.

SSC 2700

Semiautomatic Sheet Collating System

- Sheet storage
- Vision
- Two welding units

- Vacuum table
- Parameter control

UPH

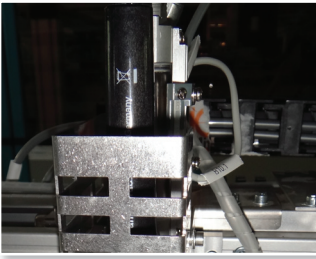| 50 | 100 | 150 | 200 | 250 | 300 | 350 |

FEATURES & TECHNICAL DATA

Key Features

- Semiautomatic collating system for individual sheet layers and security layers
- Suitable for standard collating tasks as well as for security applications required of the vision controlled positioning process
- Most precise vision controlled alignment of the sheet layers
- Smallest footprint requirements and easy operation
- Each single layer parameter is individually programmable (correct sequence)
- Material shelf for ergonomic supply of sheets (optional)
- Programmable welding position, time and temperature
- Up to 7 different welding positions programmable
- INCAPE ready
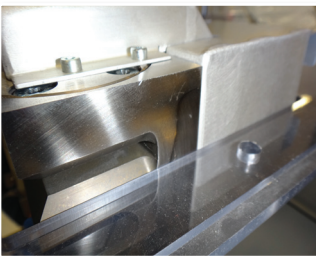
Productivity / Process Units

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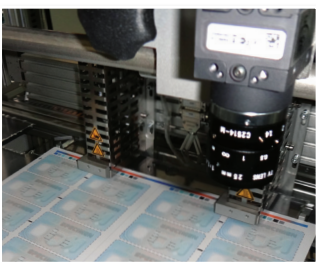
Technical Data

- 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 µm
- 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 / hour; depending on material and operator

The semiautomatic 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 is distinguished 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.

ASC 2900

Automatic Sheet Collating System

KEY MODULES

- Automatic sheet feeding system
- Automatic overlay feeding system
- Movable control panel
- Vision system for print mark alignment

- Ultrasonic foil welding
- Cutting unit
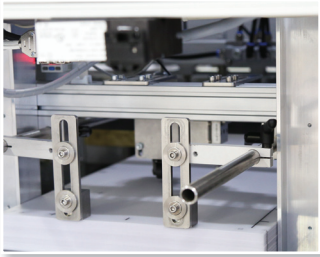- Sheet stacker

UPH

| 300 | 400 | 500 | 600 | 700 | 800 |

FEATURES & TECHNICAL DATA

Key Features

- Automatic high-speed sheet collating system
- Sheet-to-sheet and reel-to-sheet handling system available
- High-precision alignment by camera 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 and pre-fixed sheet to stacker system
- Modular design for flexible configuration of individual collating-units, on-site upgrade / extension possible
- Up to 7 layers possible
- INCAPE ready

Productivity / Process Units

- Spooling system for two overlay foils on reels
- Continuous edge control system for magnetic stripe overlays
- Double sheet detection by ultrasonic sensor
- Ultrasonic welding system
- Vision controlled alignment system
- Thickness measurement unit optionally available
- Integrated register punch for lamination of CLI / MLI feature (optional)
- Availability: Up to 95%
- Yield: Up to 99.7%
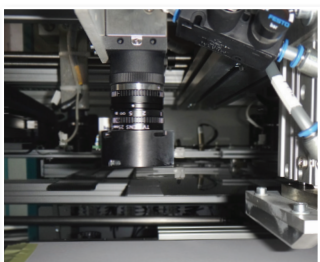
Technical Data

- 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 / hour;
                            depending on material and layout

The ASC 2900 is a fully automatic, completely flexible sheet collating system. Due to it's 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 / hour. Despite the complete automation it still allows flexible usage for the producer. The easy change-over between different materials and the handling of up to five core layers enable a variety of product configurations.

ASC 3000

Automatic Sheet Collating System
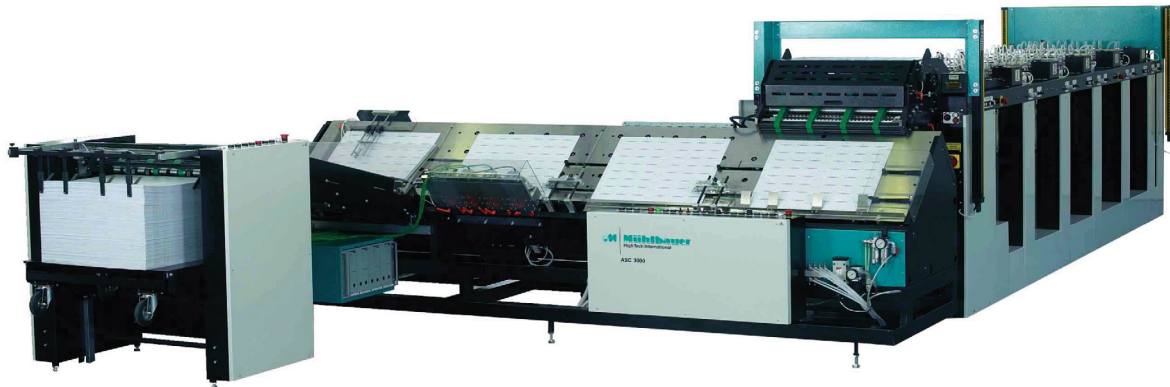
KEY MODULES

Automatic sheet feeding system

Ultrasonic foil welding

Alignment to edge

Output sheet stacker
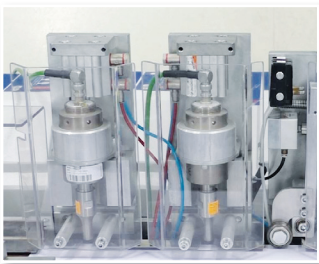
UPH

1000   1100   1200   1300   1400   1500

# FEATURES & TECHNICAL DATA

Key Features

- Automatic high-speed sheet collating system
- High-precision alignment to edge
- Sheet-to-sheet handling system for all layers
- Output of collated and pre-fixed sheet to stacker system
- Input feeding and collating unit (up to 9 stack possible)
- INCAPE ready

Productivity / Process Units

- Sliced sheets placed on stacking units and placed by a lift to the separation position
- Suction cups and blast air are used to separate the sheets
- Control for double or missing sheets
- Alignment system in X and Y direction referenced to edge
- Ultrasonic welding of set
- Thickness measurement unit optionally available
- Right or left machine configuration available
- Availability: Up to 95%
- Yield: Up to 99.7%
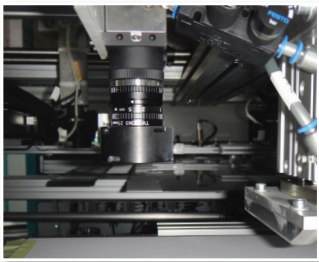
Technical Data

- Foil materials: PVC, PC, ABS, Teslin, others on request
- Thickness: 100 – 400 µm
- Stacking level input: up to 450 mm each
- Stacking level output: up to 600 mm
- Collating accuracy: +/- 0,15 mm
- Welding process: ultrasonic
- Welding time: up to 5 sec.
- Number of spots   2 or 4 (optionally)
- Throughput: Up to 1300 sets / hour; depending on material and layout

The ASC 3000 is a fully automatic sheet-to-sheet handling system and can be adjusted to different sheet sizes or number of layers within a short time. Depending on your needs, the machine can be offered with a left or right orientated delivery device. Due to its high-precision 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 1300 sets / hour. The easy change-over between different materials and the handling of up to nine core layers enable a variety of product configurations.

LP 5570

Sheet Lamination System for Complex Card Constructions

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

UPH

SINGLE STACK
TWIN STACK

50   100   150   200   250   300   350
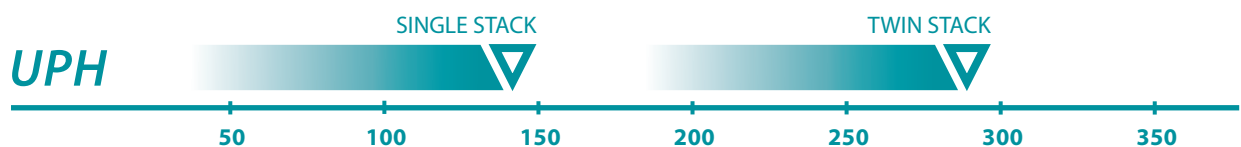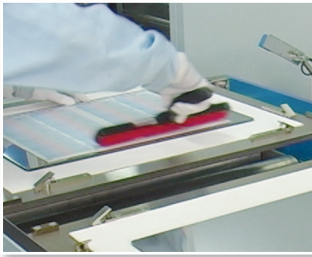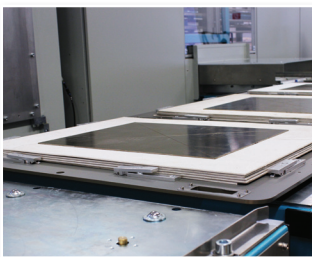
FEATURES & TECHNICAL DATA

Key Features

- Automatic full size sheet lamination system
- Suitable for complex card constructions like ID and 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 and efficient system and process handling
- Optimized energy management system for environment friendly and cost-saving operation
- Uniquely designed heating plates for perfect homogenous temperature conditions
- INCAPE ready
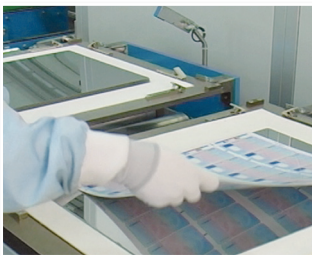
Productivity / Process Units

- Up to eight openings
- Vacuum system optionally available
- Weight compensation system optional
- Average heat variation on heating plates +/- 1℃
- Average heat variation overall heating plates +/- 3℃
- Special temperature management
- Programmable cycle-time, lamination pressure, lamination temperature
- New product-parameter teach / set-up in just five minutes
- Heating and cooling in both presses possible (Option)
- 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 / hour; depending on material and layout

The Mühlbauer 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 is in compliance with the latest demands regarding economics, environment as well as product and process quality. All important process parameters such as temperature, pressure and cycle time are controlled continuously and individually. 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 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 production material.

LP 5570/E

Sheet Lamination System for PVC & PC Volume Production

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
- Cooling unit
- Weight compensation
- Thermal oil heating

UPH

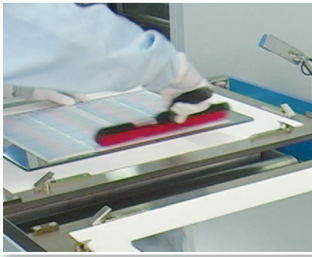|	50	100	150	200	250	300	350

FEATURES & ADVANTAGES

Key Features

- Automatic full size sheet lamination system
- Available as twin stack
- Features the most accurate heating technology worldwide
- Suitable for PVC volume production
- Wide range of PC programmable process parameters
- Intuitive human interface ensuring easy and efficient system and process handling
- Optimized energy management system for environment friendly and cost-saving operation
- Uniquely designed heating plates for perfect homogenous temperature conditions
- Modular system design
- INCAPE ready
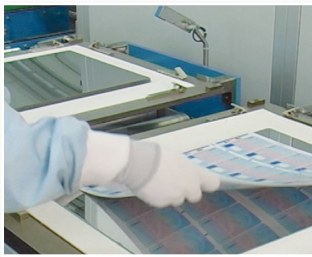
Productivity / Process Units

- Eight or ten openings
- 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, lamination temperature
- New product-parameter teach / set-up in just five minutes
- Heating and cooling in both presses possible (Option)
- Availability: Up to 95%
- Yield: Up to 99.7%
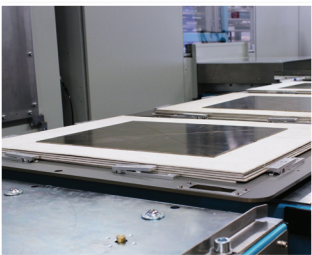
Technical data

- Sheet materials: PVC, PC, ABS;
                                        others on request
- Sheet sizes: 620 x 720 mm (other size 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 / hour;
                                        depending on material and layout

The Mühlbauer lamination system LP 5570/E is perfectly suited for PVC & PC volume production tasks. It is designed to laminate pre-lams, holderpages and similar products such as plastic cards, smart cards and contactless cards. The system is in compliance with the latest demands regarding economics, environment as well as product and process quality. All important process parameters such as temperature, pressure and cycle time are controlled continuously and individually. 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. An available option ist the weight compensation for the hot press, which allows for the lamination of plastic cards. 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 production material.

CP 202

Card Punching System

KEY MODULES

- Sheet input
- Sheet alignment
- Punching unit

- Automatic skeleton ejection
- Magazine card output
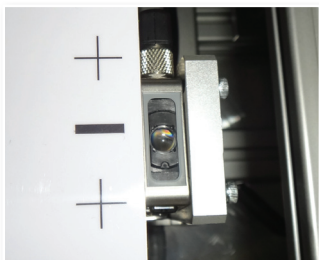
UPH

| 10,000 | 15,000 | 20,000 | 25,000 | 30,000 | 35,000 |

FEATURES & TECHNICAL DATA

Key Features

- Automatic card punching system
- Automatic sheet feeding system
- Optical sheet alignment and positioning system ensuring highest punching accuracy
- In-house tool manufacturing assuring highest life-cycle of tools
- Fast in-house regrinding service
- Intuitive user interface for easiest operation
- Lowest footprint for limited production area

Productivity / Process Units

- Automatic sheet feeding from sheet stacker
- Electric driven punching system
- Adjustable punching speed
- Optical sensor system from bottom for sheet alignment and positioning in punching position
- 3- / 4-up punching tools
- Automatic card stacking system to standard Mühlbauer card magazines
- Availability: Up to 95%
- Yield: Up to 99.7%
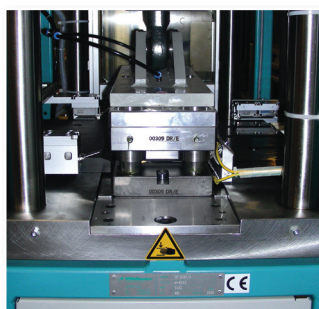
Technical Data

- Sheet materials: PVC, ABS; others on request
- Sheet size min. / max.:   295 x 360 mm / 405 x 640 mm
- Sheet thickness: 500 – 1,000 µm
- Punching speed: Programmable, max. 0.4 s / cycle
- Punching tools: 3- / 4-up
- Product size: ID-1
- Punching accuracy (position): +/- 100 µm
- Throughput: Up to 16,000 cards / hour with layout 4 x 8

Mühlbauer's fully-automatic card punching system CP 202 is designed for the punching of plastic cards from sheets. The system is designed for medium to high-volume production of standard ID-1 cards. The electric driven punching system ensures continuous precision with alignment to print mark and the tools are well proven with an extremely long life cycle. The possibility of 3-up or 4-up punching layouts offers flexibility while the optimized design allows for a quick and easy change over time. Depending on configuration and material this system is able to reach a throughput of up to16,000 cards / hour.

CP 2007/A – CP 2007/M

Card Punching Systems

CP 2007/A

CP 2007/M

KEY MODULES

Sheet input

Sheet cutter (optional)

Sheet alignment

Punching unit
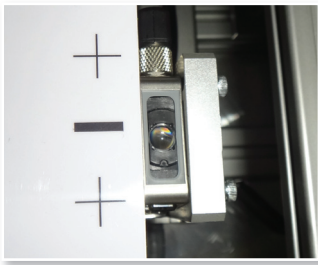
Automatic skeleton ejection

Magazine card output

UPH

5,000 | 10,000 | 15,000 | 20,000 | 25,000 | 30,000 | 35,000

FEATURES & TECHNICAL DATA

Key Features

- Automatic card punching system
- Manual / automatic sheet feeding system
- Optical sheet alignment and positioning system ensuring highest punching accuracy
- In-house tool manufacturing assuring highest life-cycle of tools
- Special / customized tool designs
- Fast in-house regrinding service
- Upgradeable modular system design – on-site upgrade to automatic system
- Special shape tools available including 2-step punching and cutting

Productivity / Process Units

- CP 2007/M based on manual sheet feeding
- CP 2007/A with automatic sheet feeding from sheet stacker
- Hydraulic driven punching system (direct drive)
- Adjustable punching speed
- Optical sensor system top / bottom for sheet positioning in punching position
- 1- to 6-up punching tools
- Automatic card stacking system to standard Mühlbauer card magazines
- Magazine changer / buffers: CH 2007/3; CH 2007/B; CH 2007/LS for highest autonomy time and layout sorting
- Conveyor belt for special cards (shape, size and perforation)
- Availability: Up to 95%
- Yield: Up to 99.7%
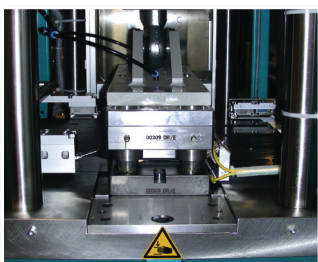
Technical Data

- Sheet materials: PVC, ABS, Paper; others on request
- Sheet size min. / max.:   290 x 360 mm / 810 x 760 mm
- Sheet thickness: 300 – 1,000 µm
- Punching speed / pressure: Manually adjustable / 30 kN
- Punching tools: 1- to 6-up for ID-1 cards
- Product size: Up to 205 x 260 mm
- Punching accuracy (position): +/- 150 µm
- Throughput: Up to 35,000 cards / hour; depending on material and layout (with 6-up tool)

Mühlbauer's fully- and semiautomatic card punching systems CP 2007/A and CP2007/M are designed for punching of plastic cards from sheets. The systems enable high-quality and high-volume production of standard material ID-1 cards or special shaped cards (depending on tool design). The powerful hydraulic punching systems ensure continuous precision with alignment to print mark and the tools are well proven with an extremely long life-cycle. The possibility of up to 6-fold punching layouts offer flexibility and the optimized design allows for a quick and easy change over times. Depending on configuration and material these systems are able to reach a throughput of up to 35,000 cards / hour.

CP 2021/A - CP 2021/M

Card Punching Systems

CP 2021/A

CP 2021/M

KEY MODULES

Sheet input	Punching unit
Sheet cutter (optional)	Automatic skeleton ejection
Sheet alignment	Magazine card output

UPH

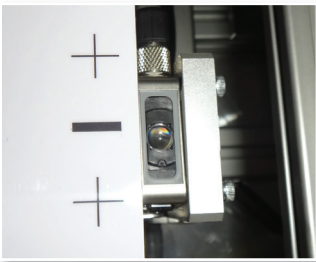|					
10,000	15,000	20,000	25,000	30,000	35,000

FEATURES & TECHNICAL DATA

Key Features

- Solid machine design for high speed and high precision
- Optical sheet alignment and positioning system ensuring highest punching accuracy
- In-house tool manufacturing assuring highest life-cycle of tools
- Special / customized tool designs
- Fast in-house regrinding service
- Upgradeable modular system design – on-site upgrade to automatic system
- Most proven punching system for polycarbonate cards in the market

Productivity / Process Units

- CP 2021/M based on manual sheet feeding
- CP 2021/A with automatic sheet feeding from sheet stacker
- Hydraulic driven punching system (direct drive)
- Programmable punching speed
- Optical sensor system top / bottom for sheet alignment and positioning in punching position
- 1- to 5-up punching tools for ID-1 cards
- Automatic card stacking system to standard Mühlbauer card magazines
- Magazine changer / buffers: CH 2021/3; CH 2021/B; CH 2021/LS
- Availability: Up to 95%
- Yield: Up to 99.7%
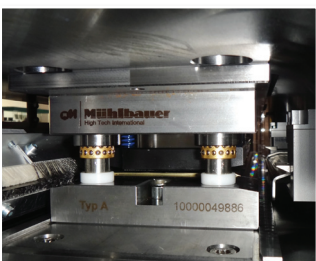
Technical Data

- Sheet materials: PVC, PC, ABS, paper; others on request
- Sheet size min. / max.:   210 x 330 mm / 810 x 760 mm
- Sheet thickness: 500 – 1,000 µm
- Punching speed / pressure: 25 – 200 mm/s / 100 kN (programmable)
- Punching tools: 1- to 5-up
- Product size: ID-1; others on request
- Punching accuracy: +/- 100 µm
- Throughput: Up to 31,000 cards / hour; depending on material and layout (with 5-up tool)

Mühlbauer's fully- and semiautomatic card punching systems CP 2021/A and CP 2021/M are designed for punching of smart cards from sheets. The systems enable high-quality and high-volume production of ID-1 cards with capability of punching a wide range of materials, including polycarbonate (PC).

The powerful hydraulic punching systems ensures continuous precision with alignment to print mark and the tools are well proven with an extremely long life time. The possibility of 1-, 2-, 3-, 4- or 5-fold punching layouts offer flexibility and the optimized design allows for a quick and easy change over times. Depending on configuration and material these systems are able to reach a throughput of up to 31,000 cards / hour.

CI 100

Card Inspection System

KEY MODULES

- Card input magazine
- Cleaning module
- Card turning
- Reject sorting

- Print inspection
- Surface inspection
- Card output magazine

UPH

| 4,000 | 5,000 | 6,000 | 7,000 | 8,000 | 9,000 |

FEATURES & TECHNICAL DATA

Key Features

- Automatic card inspection system
- Wide range adjustable and programmable optical inspection parameters
- Independent optical systems for print inspection and surface inspection
- Software allowing visualization of each individual inspection station
- Statistic and reporting features; counting and sorting
- Customized extended statistic features optional
- Customized inspection algorithm development possible
- Advanced teach mode by reference card (golden template)
- INCAPE ready

Productivity / Process Units

- Input card magazine with automatic card separation
- Surface inspection system for card front side / back side system optional
- Print inspection system for card front side / back side system optional
- Optional inspection features
  - UV inspection
  - Microtext inspection
- Magazine output changer
- Availability: Up to 95%
- Yield: Up to 99.7%
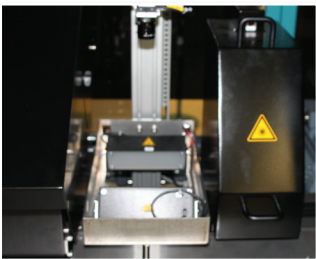
Technical Data

- Card materials: PVC, PC, ABS;
                                         others on request
- Card size / thickness: ID-1 / 350 – 1,000 μm
- Resolution print inspection: 75 μm / Pixel
- Resolution surface inspection: 75 μm / Pixel
- Optical system surface inspection: Greyscale matrix camera
- Optical system print inspection: Color matrix camera
- Throughput: Up to 5,000 cards / hour;
                                         depending on process parameters

The CI 100 is an economic automatic inspection system for plastic cards according to format ID-1 in compact design. The basic system inspects the surface and prints on one side of the card. It provides automated 100% inspection of every card with a throughput of up to 5,000 cards / hour. The system is able to detect print and surface deviations of plastic cards on the fly. This inspection system is extremely versatile with a variety of options allowing for customer specific configurations. These include double sided print and surface inspection as well as one additional inspection station per side, for example UV or micro text.

CI 200

Card Inspection System

- Card input feeder
- Cleaning module
- Card turning
- Card sorting

- Print inspection
- Surface inspection
- Output trays

UPH

| 15,000 | 20,000 | 25,000 | 30,000 | 35,000 | 40,000 |

FEATURES & TECHNICAL DATA

Key Features

- Automatic card inspection system
- Card feeding from input-card stacker / card output to multiple card output conveyor
- Wide range adjustable and programmable optical inspection parameters
- Independent optical systems for print inspection and surface inspection
- Software allowing visualization of each individual inspection station
- Statistic and reporting features; counting and sorting
- Customized extended statistic features optional
- Customized inspection algorithm development possible
- Advanced teach mode by reference card (golden template)
- INCAPE ready

Productivity / Process Units

- Input card stacker with automatic card separation
- Surface inspection system for card front side / back side system optional
- Print inspection system for card front side / back side system optional
- Optional inspection features
  - UV inspection
  - Microtext inspection
- Sorting system 2- / 4- / 6-fold optionally available
- Magazine based card feeding optionally available
- Availability: Up to 95%
- Yield: Up to 99.7%

Technical Data

- Card materials: PVC, PC, ABS; others on request
- Card size / thickness: ID-1 / 350 – 1,000 µm
- Resolution print inspection: 75 µm / Pixel
- Resolution surface inspection: 75 µm / Pixel
- Optical system surface inspection: Greyscale matrix camera
- Optical system print inspection: Color matrix camera
- Throughput: Up to 20,000 cards / hour; depending on process parameters

The CI 200 is an economic automatic inspection system for plastic cards according to format ID-1 in compact design. The basic system inspects the surface and prints on one side of the card. It provides automated 100% inspection of every card with a throughput of up to 20,000 cards / hour. The system is able to detect print and surface deviations of plastic cards on the fly. This inspection system is extremely versatile with a variety of options allowing for customer specific configurations. These include double sided print and surface inspection as well as one additional inspection station per side, for example UV or micro text. Furthermore output sorting is available in 2-fold, 4-fold or 6-fold with free definable tray allocations.

CI 36050

Card Inspection System
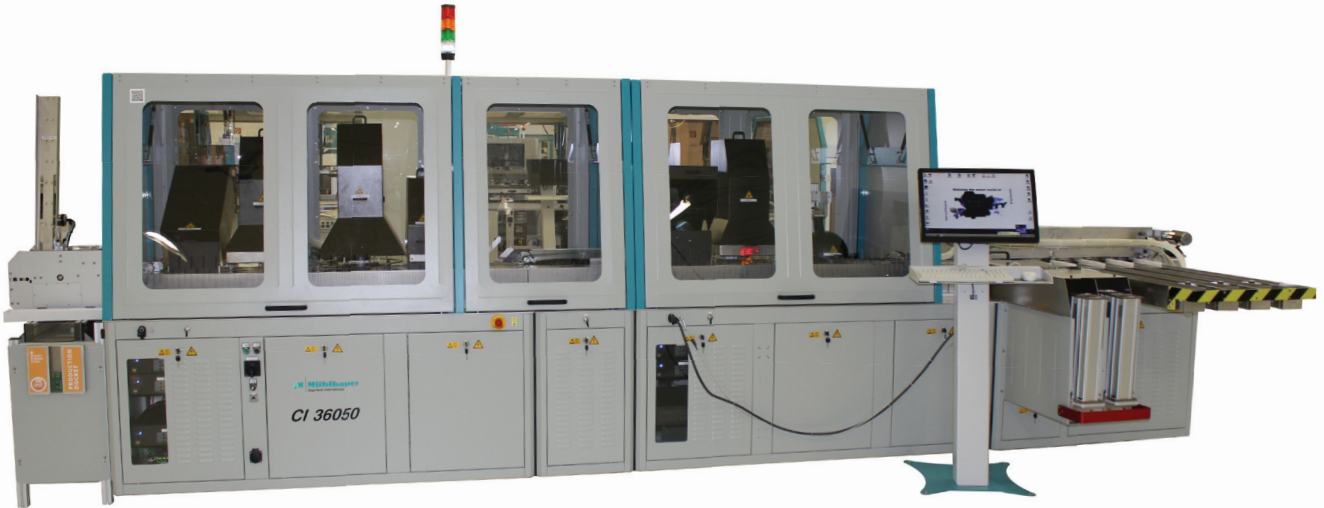
KEY MODULES

- Card input feeder
- Cleaning module
- Card turning
- Card sorting

- Print inspection
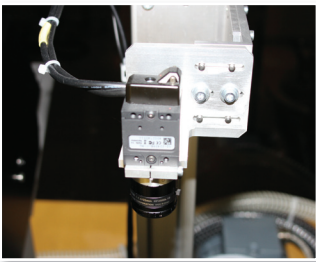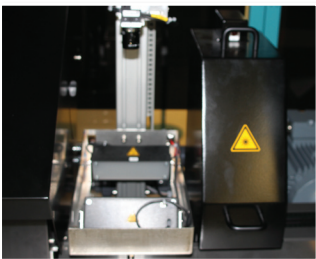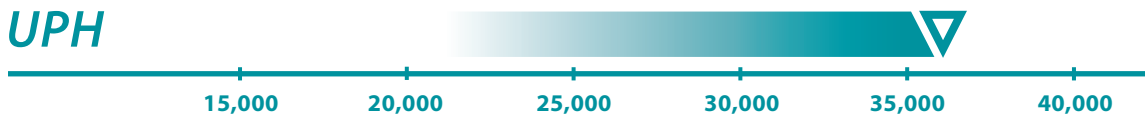- Surface inspection
- Output trays
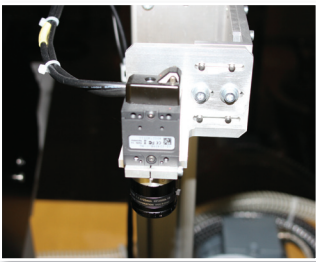
UPH

| 15,000 | 20,000 | 25,000 | 30,000 | 35,000 | 40,000 |

FEATURES & TECHNICAL DATA

Key Features

- Automatic card inspection system
- Adjustable and programmable optical inspection parameters
- Precise optical systems for print inspection and surface inspection
- Software allowing visualization of each individual inspection station
- Statistic and reporting features; counting and sorting
- Customized extended statistic features optional
- Customized inspection algorithm development possible
- Advanced teach mode by reference card (golden template)
- INCAPE ready
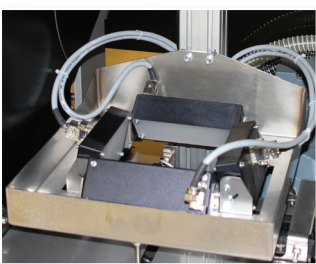
Productivity / Process Units

- Input card stacker with automatic card separation
- Surface inspection of card front side; back side system optional
- Print inspection of card front side; back side system optional
- Optional inspection features
  - UV / microtext / DOVID inspection
  - Format inspection
  - Foil card inspection (highly reflective)
  - Transparent card inspection
  - Customized inspection features
- Sorting system 2- / 4- / 6-fold optionally available
- Auto-teach function
- Magazine based card feeding and output optionally available
- Availability: Up to 95%
- Yield: Up to 99.7%

Technical Data

- Card materials: PVC, PC, ABS; others on request
- Card size / thickness: ID-1 / 350 – 1,000 μm
- Resolution print inspection: 75 μm / pixel
- Resolution surface inspection: 75 μm / pixel
- Optical system surface inspection: Greyscale matrix camera
- Optical system print inspection: Color matrix camera
- Throughput: 36,000 cards / hour

The CI 36050 is a fully automatic high-speed inspection system for plastic cards according to format ID-1. The base system provides automated 100% inspection of every card with a throughput of 36,000 cards / hour for almost all inspection applications. The system is able to detect print and surface deviations of plastic cards on the fly. This inspection system is extremely versatile with a variety of options allowing for customer specific configurations. These include double sided print and surface inspection and up to 3 additional inspection stations per side, for example UV, micro text, DOVID, foil card or transparent card inspection. Furthermore output sorting is available in 2-fold, 4-fold or 6-fold with free definable tray allocations.

CHS 6001

Card Hot Stamping System

KEY MODULES

- Magazine card input

- Test stations
  (card orientation, input thickness measurement)

- Hot stamping
  (position 1)

- Card turning

- Hot stamping
  (position 2 - optional)

- Card output

- Reject bin

UPH

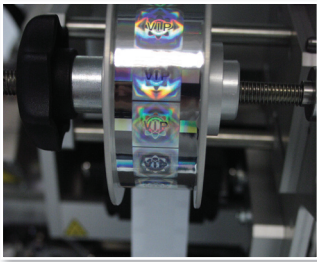| 3,000	3,500	4,000	4,500	5,000	5,500

FEATURES & TECHNICAL DATA

Key Features

- Automatic card hot stamping system for holograms, signature panels, scratch-off panels, positive / negative lettering etc.
- Quick change tools
- Card front side / back side processing
- Adjustable stamping position
- 100 % inline quality check
- In-house tool manufacturing and customization
- Highly accurate stamping positioning system
- Operator friendly teaching and operation
- INCAPE ready
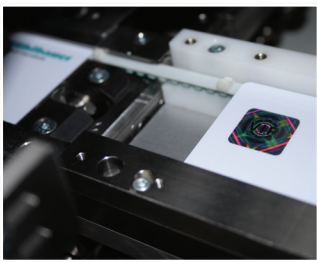
Productivity / Process Units

- Automatic card feeding / stacking from magazine to magazine
- Adjustable stamping position in x/y
- Adjustable stamping pressure
- Programmable stamping temperature
- Card flipping unit (optional)
- One hot stamping unit, extension to two stamping units on request
- Vision system for in-line quality check (optional)
- Magazine buffer for high autonomy time (optional)
- Availability: Up to 95%
- Yield: Up to 99.7%
- Environment conditions: Room temperature: 23°C; +/-3°C
                          Humidity: 50%; +/-10%
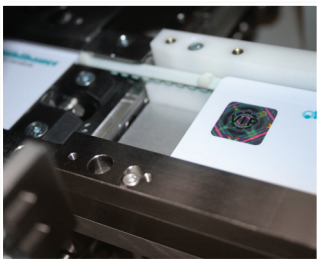
Technical Data

- Card format / materials: ID-1 / PVC, PC, ABS; others on request
- Foil specification
  - Core diameter: 1", 3"
  - Max. outer diameter: 200 mm
  - Width: 10 – 85 mm
- Hologram positioning: Adjustable pitch or printmark registration
- Stamping temperature: Up to 230 °C; programmable
- Stamping pressure: Manually adjustable
- Standard stamps: MiniVisa; Visa; MasterCard; signature panels, other shapes are possible on request
- Throughput: Up to 5,500 cards / hour; depending on material and process

The CHS 6001 can be easily integrated into any existing production environment, attaching security foils such as holograms, signature panels and / or other security features on the card front and / or back side with a maximum of two stamping units. Both sides of the card can be processed in one production cycle with the integration of the card turning station.

By using two stamping heads, the CHS 6001 reaches the market-wide best cost-per-card value. The CHS 6001 is a highly sophisticated card hot stamping solution for a wide application field, as well as for special applications. With a throughput of up to 5,500 cards / hour and in combination with the magazine buffer system, it is suitable for high-volume production tasks.

QUALITY ASSURANCE

Testing Equipment

CSG 100 / 200	CTG 100 / 200	DLT 500
Card size gauge	Card thickness / cavity depth gauge	Peel force tester

Card Body Testing Equipment

SCF 2300	TWT 2500	SCT 2400	MAT 1230
Flexion test system	Three wheel testing system	Torsion test system	Module adhesion testing system

Smart Card Testing Equipment

Measuring Microscope	Color Densitometer	UV-Light Cabinet
Measuring of embossing distances	Measuring of color density	Inspection of various printing processes

Card Personalization Testing Equipment

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

Traceability

- Marking
- Process Automation & Board Handling

Semiconductor Backend

- IC Module Production
- Carrier Tape Production & Forming
- Die Sorting
- Flip Chip LED

Vision Inspection Systems

- Industrial Inspection Systems
- Security Inspection Systems

Flexible Solar Technology

- Flexible Solar Cell Technology

TECURITY®

- Document Issuance Solutions for eID, ePassport, Driver's License, Vehicle Registration
- Border Managment Solutions
- Production Facilities

Parts & Systems

- Precision Engineering
- 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
- Training & Support on Different Levels
- Production & Administration Support

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