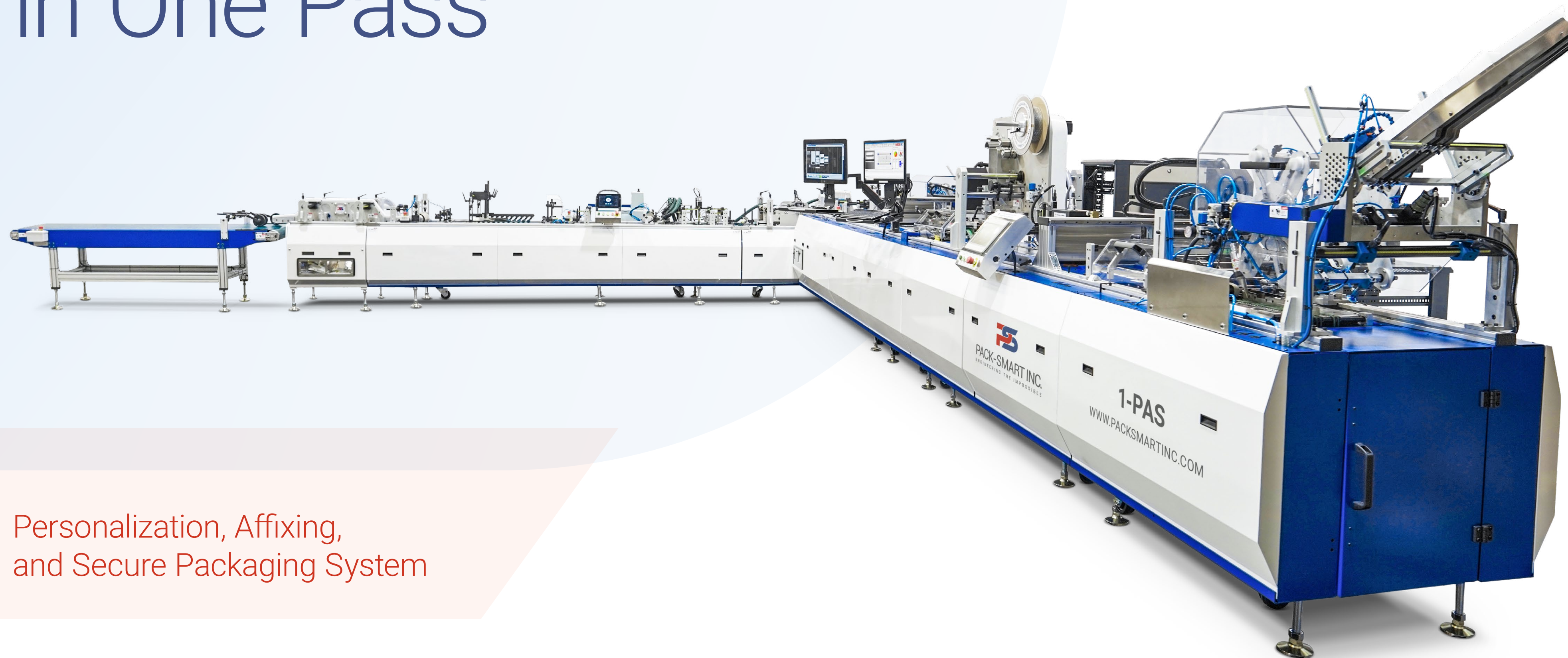
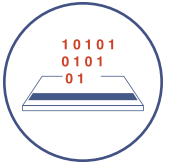
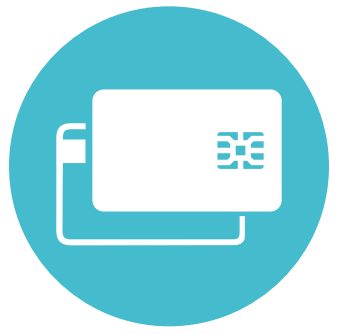


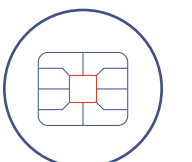
1-PAS: Card to Bundle in One Pass



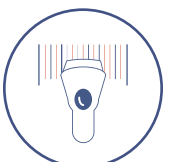
Personalization, Affixing,
and Secure Packaging System



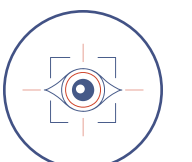
Data Read and Write



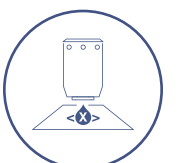
EMV/NFC Chip Encoding



Barcode Grading



Vision System



Variable Printing



Affixing



Security Packaging



Batching and Bundling

System Overview

The 1-PAS is the world's first inline solution to seamlessly integrate card personalization, affixing, secure packaging, and pack-out processes.

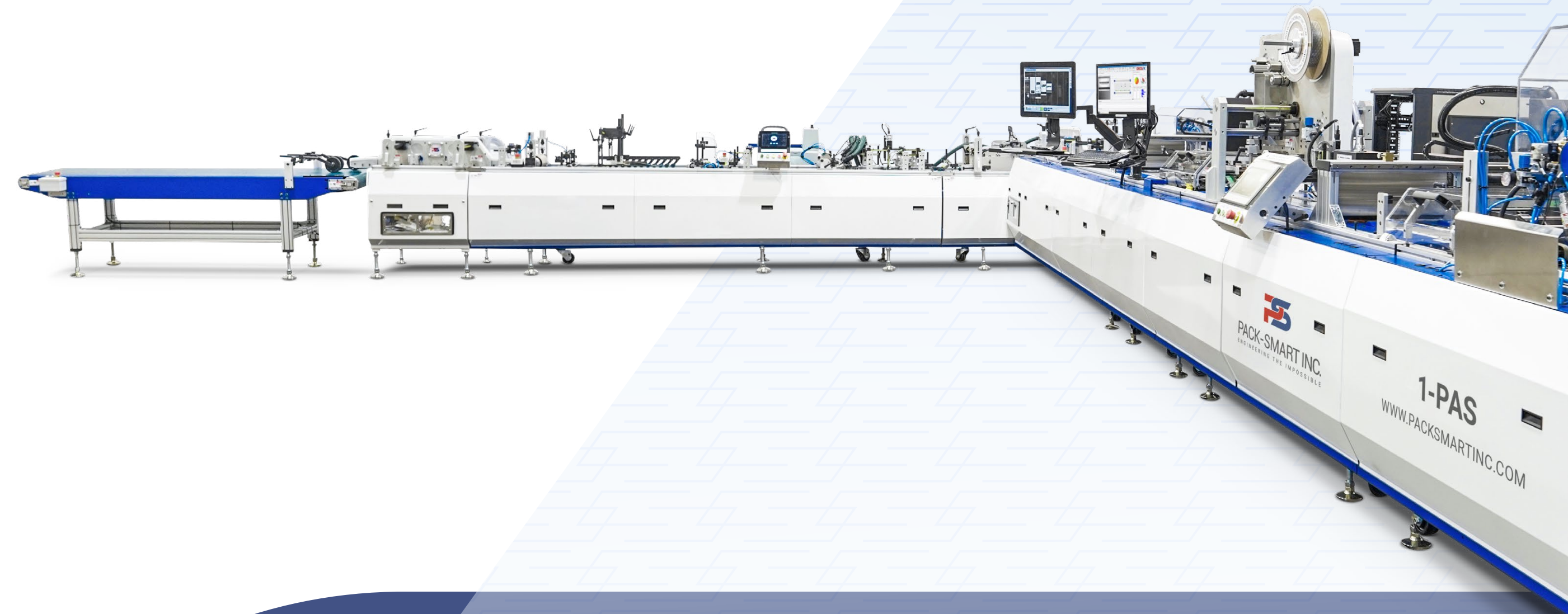
The system caters to the industry's pressing need for a solution that combines speed, security, and efficiency in one package. The 1-PAS introduction promises to transform the card packaging sector, offering businesses a competitive edge in producing secure cards with unprecedented precision and reliability.

Redefining Throughput with Advanced Technology

At the core of the 1-PAS system's unmatched efficiency is its ability to create 100% tamper-proof packaging at unprecedented speeds. Leveraging advanced compression technology, the system significantly enhances throughput, ensuring rapid seal times and the highest levels of security. This innovative approach not only simplifies the packaging process but also elevates product integrity to new heights.

Delta-X Software: The Heart of Precision and Control

Central to the 1-PAS system's operation is the Delta-X software, a sophisticated platform that provides real-time control over production data. This powerful software minimizes quality assurance risks with its comprehensive End-to-End Reporting, offering a transparent view of the entire production process. With Delta-X, businesses can achieve a perfect balance of speed, security, and efficiency, transforming the way secure cards are processed and delivered.



Operational Advantages

THE 1-PAS SYSTEM INTRODUCES A SUITE OF OPERATIONAL ADVANTAGES THAT REDEFINE PRODUCTION STANDARDS AND EMPHASIZE ENVIRONMENTAL RESPONSIBILITY:

Reduced Labour Costs

By optimizing the card packaging process, the 1-PAS system significantly lowers the need for manual labour, resulting in substantial cost savings.

Innovative Sealing Technology

The system's unique sealing technology replaces traditional heat seal methods, reducing seal time and energy consumption. This not only leads to cost savings but also contributes to a reduced environmental footprint.

Comprehensive Tracking and Reporting

Equipped with advanced tracking capabilities, the 1-PAS system ensures a transparent and detailed view of the production process. Its sophisticated reporting features support ongoing improvement, consistent quality, and operational excellence.

Industries Served

The 1-PAS system by Pack-Smart Inc. stands at the forefront of card production and packaging technology, offering tailored solutions across a wide range of industries. Designed to meet the unique challenges of each sector, the 1-PAS system ensures high-volume production, unmatched security, and personalization at unparalleled speeds.



Financial Services

Banks and financial institutions benefit from the 1-PAS system's ability to efficiently produce credit, debit, and gift cards, combining high-speed production with rigorous security measures.



Telecommunications

The 1-PAS system streamlines SIM card packaging for telecom operators, optimizing the production line while safeguarding sensitive data with precision.



Retail

Enhancing the consumer experience, the 1-PAS system adeptly manages the packaging of loyalty and membership cards, delivering products that resonate with quality and security.



Healthcare

For healthcare providers, the 1-PAS system is instrumental in creating patient ID cards and informational brochures, ensuring each piece is produced with the utmost precision and security to protect sensitive patient information.



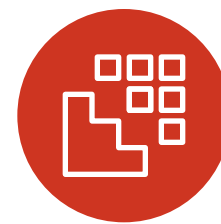
Features

The 1-PAS system distinguishes itself with a host of advanced features and technical specifications designed to meet the high standards of the card packaging industry.



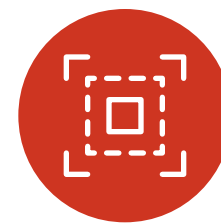
Advanced Inline Personalization and Speed

Engineered for high-volume operations, it achieves speeds of up to 20,000 products per hour for card personalization and packaging. For projects requiring even greater efficiency, duplex personalization processes reach speeds up to 35,000 products per hour, making the 1-PAS system the epitome of productivity in the card packaging sector.



Exceptional Printing Resolution

With high-resolution drop-on-demand UV printing at 600 DPI, the 1-PAS system excels in delivering fine detail and complex graphics. This superior printing capability ensures that every card meets the highest quality standards, with vibrant colors and sharp images that enhance brand perception and customer engagement.



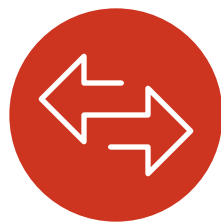
Precision Affixing Accuracy

The 1-PAS system boasts an edge-to-edge affixing accuracy of ± 0.5 mm, a testament to its precision engineering. This unparalleled accuracy ensures precise card placement within packages, critical for maintaining the aesthetic and functional integrity of the final product.



Tamper-Evident Package Security

Employing advanced hybrid adhesive seal and extended compression technology, the 1-PAS system guarantees that each package is secure and tamper-evident. This feature is essential for industries requiring the highest levels of security, providing peace of mind that each card reaches its destination intact and unaltered.



Real-Time Data-Matching with Delta-X Software

At the heart of the 1-PAS system's operational excellence is the Delta-X software, which matches data in real-time between personalization and affixing lines. This sophisticated software ensures accuracy and sequence integrity, eliminating errors and maintaining the highest standards of quality control.



Servo-Driven Precision for Unmatched Reliability

Equipped with digital brushless servo motors, the 1-PAS system offers high precision and reliability in card placement and packaging. This servo-driven precision is a cornerstone of the system's performance, ensuring consistent operation and long-term reliability.



Efficient Inline Remake Process

The 1-PAS system introduces an innovative on-the-fly remake process, addressing a common efficiency challenge in serialized card manufacturing. This feature allows for the immediate recreation of a damaged product without disrupting the production flow, significantly enhancing operational efficiency and reducing waste.



Scalability and Customization

The 1-PAS system's modular design allows for easy scalability and customization to meet specific production needs. This flexibility ensures that businesses can adapt to changing market demands without significant re-investment in new equipment.

Integration and Support

We understand the importance of a smooth transition and integration into your existing production lines. Our 1-PAS system is designed with flexibility in mind, allowing for easy integration and customization to meet your specific operational needs.

Ease of Integration

Our team works closely with you to ensure the 1-PAS system integrates seamlessly with your current operations, enhancing your production capabilities without disrupting existing processes.

Comprehensive Support & Services

From initial consultation to ongoing maintenance, our dedicated support team is here to ensure your 1-PAS system operates at peak efficiency. We offer training, technical support, and maintenance services to keep your operations running smoothly.



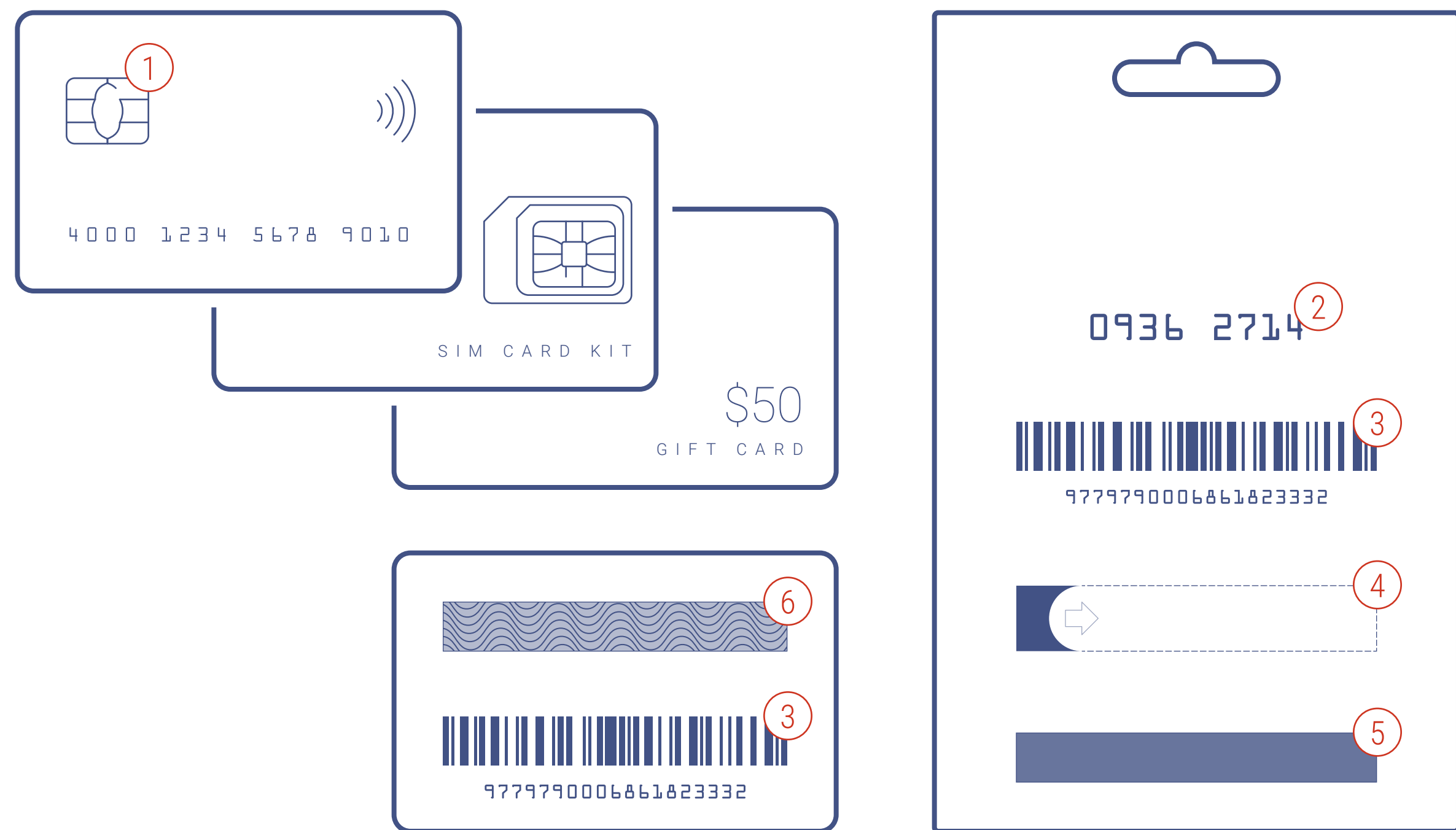
Elevate Your Operational Efficiency

Embrace the next level of card packaging innovation with the 1-PAS system. Discover how our tailored solutions can transform your production processes, enhance product security, and reduce operational costs.



Secure Card Technology

The Pack-Smart 1-PAS system integrates cutting-edge technologies to ensure robust security and streamlined processes in identity verification and transactions for both open and closed-loop cards.



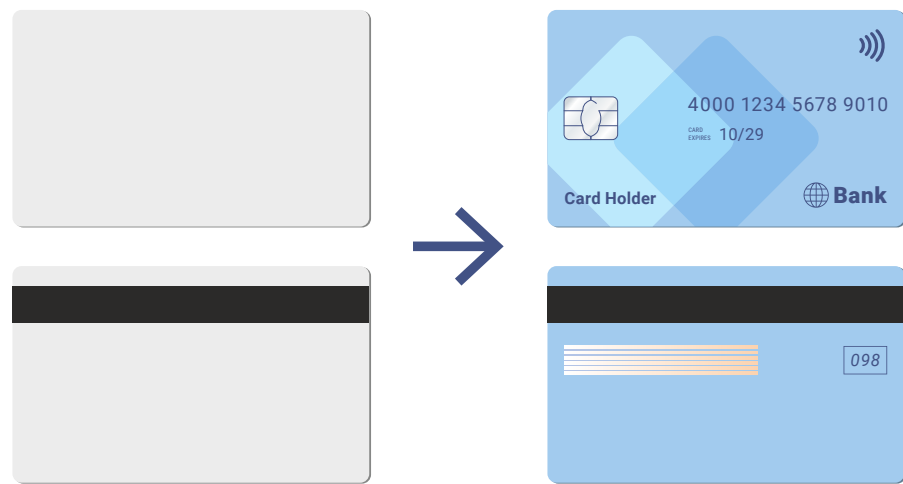
- 1 EMV/NFC Chip**
Wireless data transmission for quick authentication
- 2 Pin Code**
Personalized security layer to safeguard access
- 3 Activation Barcode**
Streamlines product activation with one scan
- 4 Tear-Away Tab**
Ensures product integrity by showing tamper evidence
- 5 Magstripe**
Facilitates efficient data reading for payment processing
- 6 Scratch-Off Panel**
Protects hidden data until its intended use

To ensure the security and integrity of each packaged card, the 1-PAS leverages advanced Delta-X software, which provides real-time control over production data.

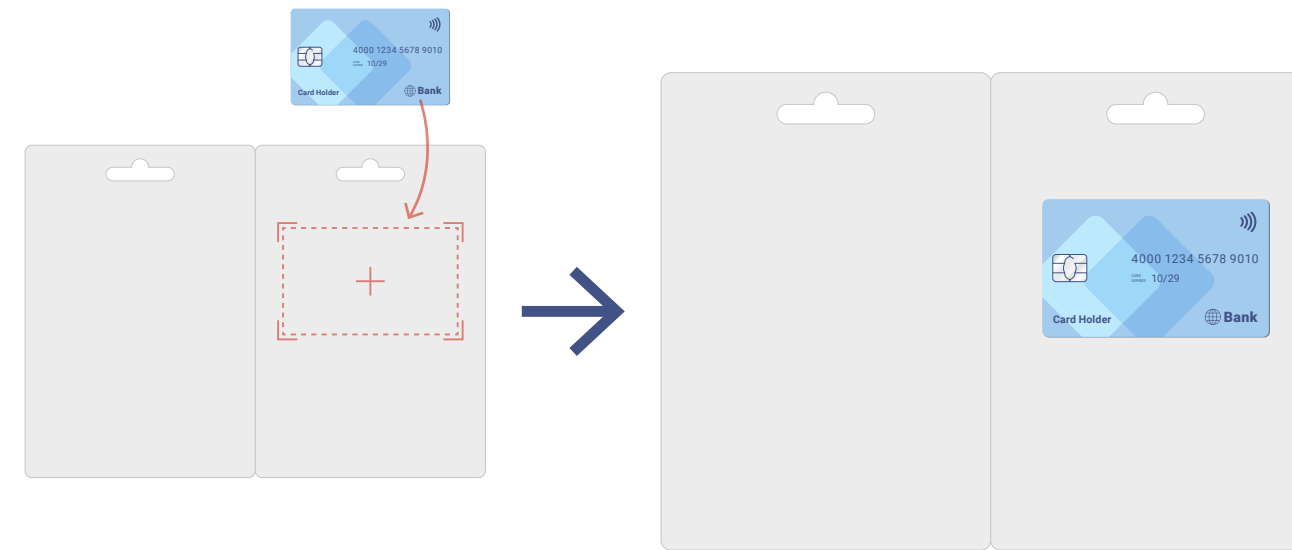
With end-to-end reporting, this approach mitigates quality assurance risks, ensuring each card is accurately tracked and validated throughout the packaging process.

Product Process Flow

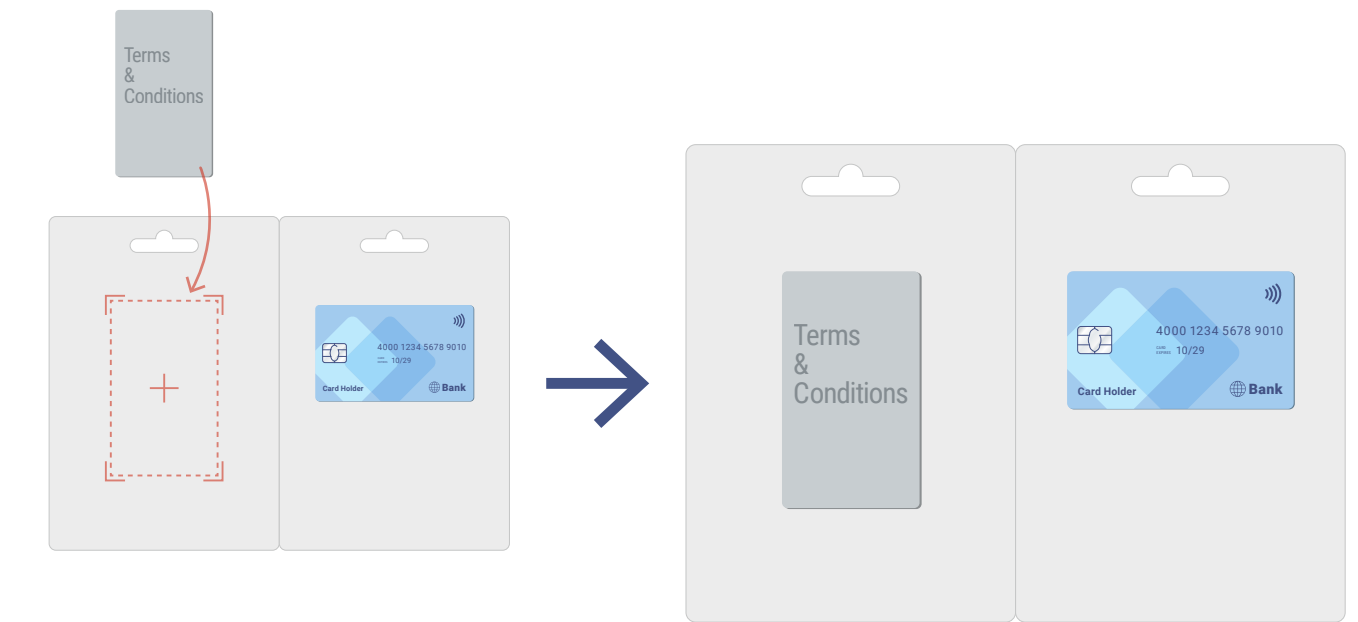
1 Duplex Card Personalization with optional EMV/NFC Chip Encoding



2 Edge to Edge Card Affixing



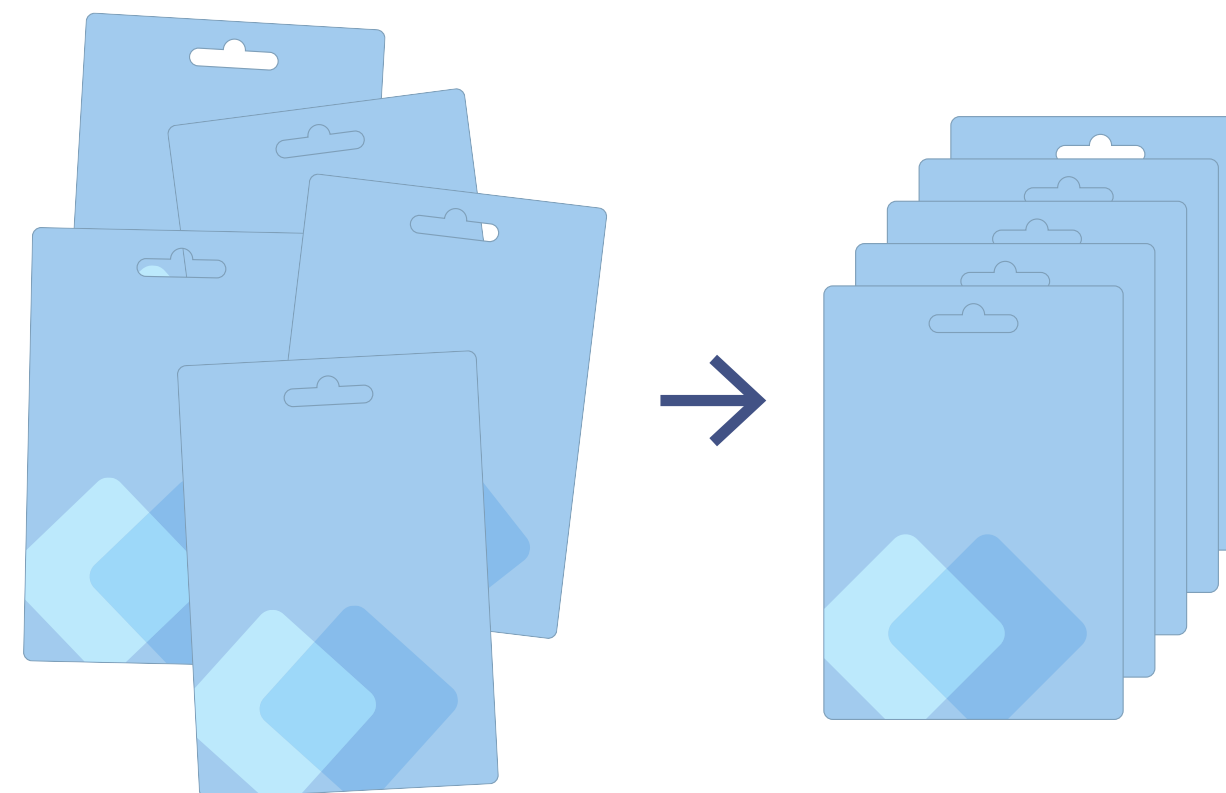
3 Inserts and Terms & Conditions Affixing



4 Secure Gluing and Folding



5 Sequential Batching and Bundling



6 Pack-Out and Labelling



Final Products

Financial Cards

Secure, personalized, and ready for transaction.



- Pack-Smart seamlessly integrates with courier and mailing services to reduce delivery costs, produce personalized cards across various customer segments, and expedite activation processes through digital codes.
- Our PCI-compliant Delta-X software ensures complete data integrity and security, protects your data, maintains product authenticity, and enhances your competitive advantage in the financial sector.

Telecom SIM Cards

Equipped and encoded, bridging connections worldwide.



- Pack-Smart's capabilities allow for producing large volumes of cards while maintaining 100% product integrity, ensuring timely delivery, and expanding market reach.
- Our Delta-X platform centralizes product data management, facilitating affordable data plans and accelerating customer activation, enhancing operational efficiency and customer satisfaction in the telecom sector.

Retail & Loyalty Cards

Engaging designs that elevate brand loyalty and customer experience.



- Pack-Smart enhances customer experience by developing innovative product designs with unique form factors, ensuring adherence to the highest quality standards for a standout presence in the regulated retail and loyalty card market.
- Our advanced Delta-X platform delivers consistent product quality while maintaining the lowest cost of ownership, offering advanced data capture, tracking, and reporting capabilities.

Healthcare ID Cards

Protecting patient information with secure, reliable ID solutions.



- Pack-Smart enhances operational efficiency by automating the high-speed personalization and encoding of ID cards, significantly reducing wait times for delivery to healthcare providers and patients.
- Our systems feature advanced security protocols with integrated encryption, ensuring the confidentiality of sensitive patient information and compliance with standards like HIPAA.

Delta-X Software

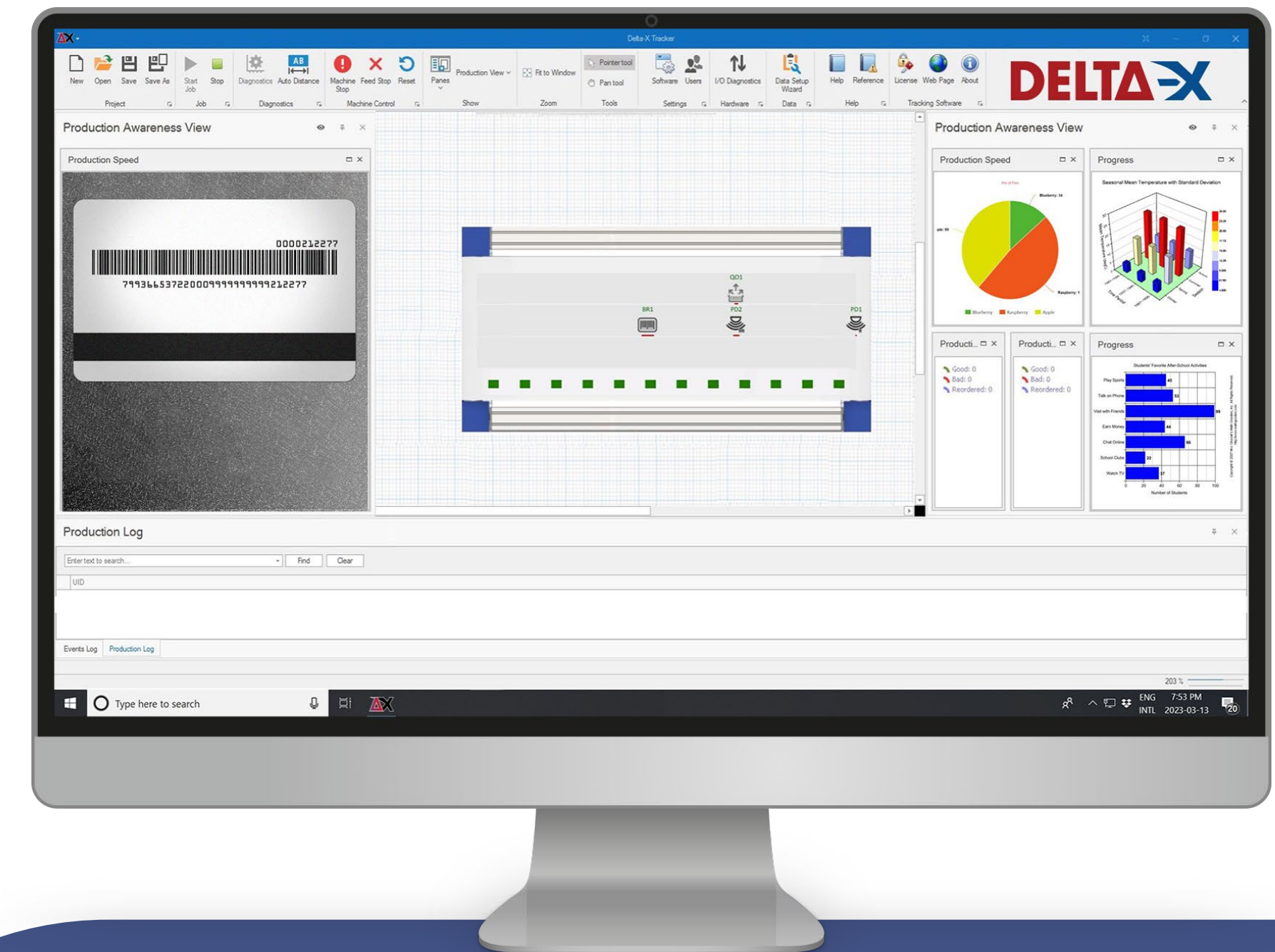
In the fast-paced world of manufacturing, the Delta-X™ Tracker emerges as a groundbreaking inline solution, setting new standards for variable data embedding, tracking, validating, and reporting.

Integration with the 1-PAS System

When paired with the 1-PAS, the Delta-X™ Tracker elevates the card packaging process to new heights. This synergy enhances the 1-PAS system's capabilities, offering real-time control over card personalization, affixing, and secure packaging processes. The integration ensures that each card is processed with the utmost precision and security, from personalization to final packaging, making it an ideal solution for financial, telecom, retail, and healthcare industries requiring secure and efficient card packaging solutions.

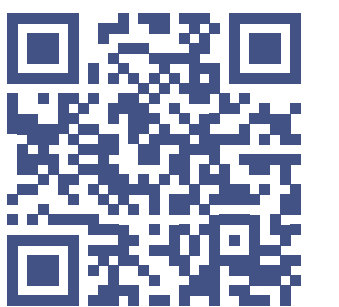
Software Features & Benefits

- **Reproduction Capability:** The system's ability to quickly reproduce rejected products on-the-fly or post-job ensures continuous production flow and minimizes waste, enhancing overall operational efficiency.
- **Real-Time Track and Trace:** With world-leading speed and accuracy, Delta-X™ Tracker provides instant data reading, validating, reconciling, and reporting, ensuring every product's integrity throughout the production line.
- **Web-Based Application:** Accessible globally, its user-friendly interface supports seamless user engagement and operator efficiency from day one, backed by comprehensive tutorials and documentation.
- **Role-Based Access Control:** Administrators can specify access privileges at various levels, ensuring granular control over operations and safeguarding sensitive production data.
- **Operator-Friendly Design:** Featuring a modern, windows-themed GUI, the system is designed for quick onboarding, engaging users with intuitive navigation and support resources.
- **Disaster Recovery:** Every product's data is securely logged, enabling rapid production resumption after outages to minimize impact and losses.
- **Powerful Reporting Capability:** Users can search, filter, export, and print reports from customizable report generation points, offering insights into post-production data or live production reports from any machine location.
- **API Connector:** Ensures seamless integration with ERP, MES, EPCIS systems, and major RDBMS like SQL, MySQL, Postgres SQL, and Oracle, eliminating duplication risks and streamlining data management.



The Delta-X™ Tracker, especially when integrated with the 1-PAS system, represents a significant leap forward in manufacturing technology. It not only ensures the highest standards of product integrity and operational efficiency but also redefines what's possible in real-time product tracking and traceability.

With its advanced features, robust reporting capabilities, and seamless system integration, it stands as a testament to Pack-Smart Inc.'s commitment to innovation and excellence in the packaging and manufacturing industries.



Applications

CARD PERSONALIZATION

Chip Encoding

The 1-PAS system's chip encoding feature integrates advanced technology for embedding and programming microchips into cards, enhancing security and functionality. This process is crucial for financial, telecom, and access control applications, ensuring each card meets stringent data integrity and security industry standards. With high-speed precision, the 1-PAS facilitates seamless, efficient production of smart cards, supporting a wide range of chip technologies and applications.



CARD PERSONALIZATION, AFFIXING AND SECURE PACKAGING, PACK-OUT

Vision System

The 1-PAS incorporates cutting-edge Vision Systems for flawless in-line inspection, ensuring every card meets stringent quality standards. It can process up to 120 FPS and excels in OCR, barcode verification, and print quality checks. With up to 12 cameras, it supports comprehensive defect detection and placement accuracy, essential for high-speed, secure card packaging operations.


CARD PERSONALIZATION

Mag Stripe Encoding

The 1-PAS leverages the MSE1 for magnetic stripe encoding, offering unparalleled precision and speed. With industrial-grade heads supporting over 100 million cycles and speeds up to 35,000 PPH, it encodes payment, loyalty, transit, and ID cards with both HiCo and LoCo options. Its integration ensures seamless, high-quality card personalization, meeting ISO standards with advanced software for quick set-ups and custom encoding capabilities.



Applications



A close-up photograph of a barcode grading machine. A white card with a red barcode is positioned on a dark, perforated metal surface. A black sensor arm is visible above the card, and a green light is visible on the left side of the machine.

CARD PERSONALIZATION

Barcode Grading

The 1-PAS integrates the BSG1000 for barcode grading, ensuring every barcode meets ISO standards with a speed of 60,000 PPH. It accurately grades and captures data from a variety of barcodes, including linear and 2D types, on products like cartons, blister packs, and plastic cards. Non-conforming items are automatically diverted, maintaining product integrity and accuracy. This high-speed system is essential for applications requiring 100% version accuracy, from pharmaceutical packaging to retail products.



A photograph of a printing machine. A white card is being printed with a red barcode. The machine has a blue base and a silver top. The text "EST. 1999" and "ENGINEERING THE IMPOSSIBLE" are visible on the machine.

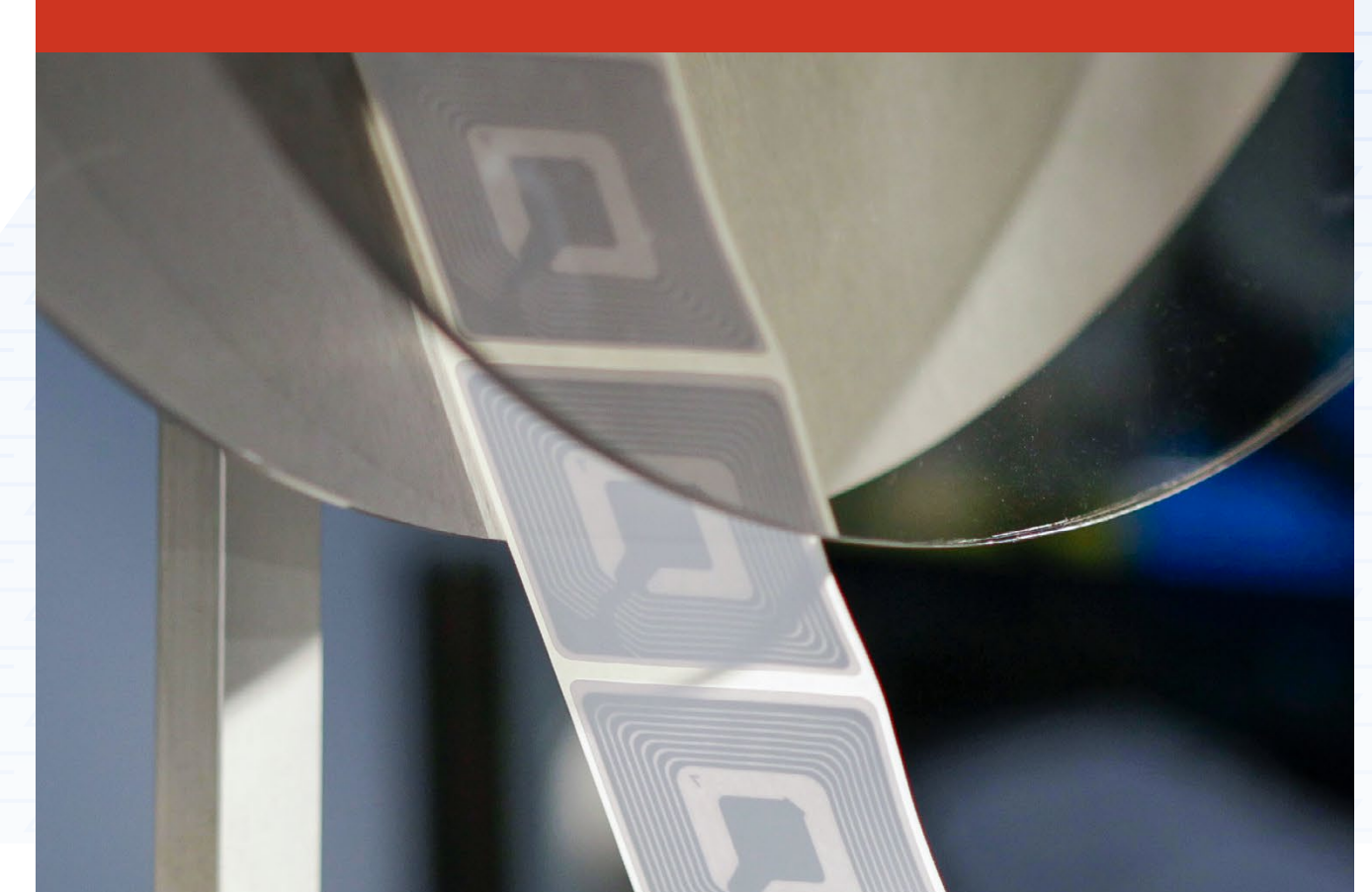
CARD PERSONALIZATION

Printing

The 1-PAS leverages the SJ Series for DOD Inkjet printing, offering laser-quality print at 600 DPI with low ink usage and maintenance. Capable of printing on plastic cards and non-porous substrates at speeds up to 600 ft/min, it supports full web personalization and serialization. The system accommodates various print areas with models like SJ75 for small products, SJ150 for documents, and SJ365 for web personalization, ensuring versatility and high efficiency in card production processes.



A photograph of a printing machine. A white card is being printed with a red barcode. The machine has a blue base and a silver top. The text "EST. 1999" and "ENGINEERING THE IMPOSSIBLE" are visible on the machine.



A photograph of a labelling machine. A white card is being printed with a red barcode. The machine has a blue base and a silver top. The text "EST. 1999" and "ENGINEERING THE IMPOSSIBLE" are visible on the machine.

CARD PERSONALIZATION

Labelling

The 1-PAS system integrates the HSL-60 for high-speed pressure-sensitive label application. With the ability to apply all varieties of pressure-sensitive labels at line speeds up to 200 m/min (660 ft./min), the HSL-60 can apply 400 labels per minute, with a best-in-class placement accuracy of ± 0.4 mm. Depending on material and label size, Pack-Smart HSL-60 Labeler will accurately apply labels to any product in line with any printing, converting and packaging production lines. When operating in a "Zero Downtime" configuration, the HSL-60 Tandem system allows for safe "on the fly" roll changes, eliminating the downtime required.

Applications

AFFIXING AND SECURE PACKAGING

Affixing

Precision affixing that seamlessly integrates cards with carriers at speeds up to 20,000 PPH. Utilizing advanced servo technology, it ensures edge-to-edge accuracy of ± 0.5 mm. This system is ideal for various card types, from financial to loyalty, providing secure and accurate placement.

AFFIXING AND SECURE PACKAGING

Tamper Evident Sealing

The 1-PAS system revolutionizes secure packaging with its ability to create tamper-evident seals at unparalleled speeds. Employing hybrid adhesive technology and continuous compression guarantees the integrity of each package. Capable of processing up to 20,000 units per hour, the 1-PAS ensures each card is securely enclosed, meeting the highest security and consumer trust standards. This system makes it an essential asset for industries requiring the highest level of packaging security, from financial cards to sensitive telecom SIMs.

PACK-OUT

Batching & Bundling

The 1-PAS system's batching & bundling feature streamlines the final stages of card packaging by efficiently grouping products into precise, numbered batches. High-speed pneumatics and fibre optic sensors ensure accurate count and placement onto conveyors for further processing. This system can handle various product sizes, from payment and loyalty cards to pharma leaflets. This feature maximizes throughput and enhances the packaging process's efficiency and reliability, making it ideal for high-volume operations.

Operational Flow

The 1-PAS system by Pack-Smart Inc. revolutionizes the card packaging industry with its comprehensive, inline operational flow.

This system is engineered to handle every phase of card packaging, from initial personalization to the final pack-out, with unmatched speed, precision, and efficiency. Here's an expanded look at the key operational stages and the innovative technologies that make the 1-PAS a standout solution.

Card Personalization

At the heart of the 1-PAS system lies its advanced card personalization capabilities. This stage leverages state-of-the-art duplex printing and encoding technologies to process up to 35,000 cards per hour. High Coercivity (HiCo) and Low Coercivity (LoCo) magnetic stripe encoding options are available, alongside reverse, condensed, and JIS encoding formats. The system utilizes Drop-On-Demand (DOD) inkjet printing technology capable of delivering 600 DPI resolution with a minimal 3.5 pL drop size. This ensures the precise application of alphanumeric characters, pin codes, and intricate graphics, all cured to perfection with an integrated LED UV dryer. The result is a thermal-like print quality at significantly reduced costs, setting new standards in card personalization.

Affixing and Secure Packaging

Following personalization, cards are affixed onto carriers using advanced adhesive technologies. The 1-PAS system employs both fugitive and cold glue solutions to ensure cards are securely attached, complemented by extended compression technology for rapid curing. This stage is critical for maintaining the integrity of the packaging,

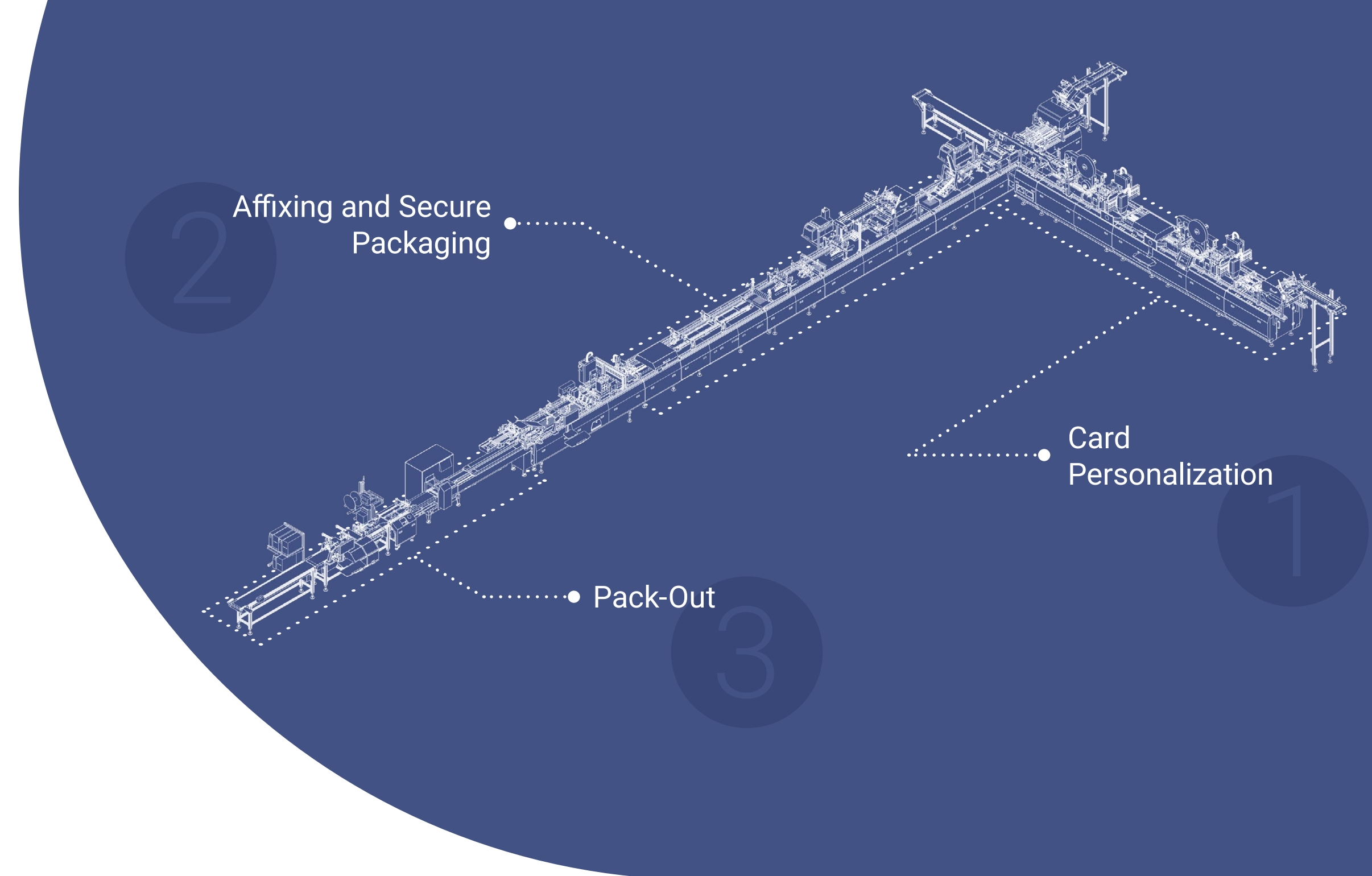
with precise edge-to-edge affixing and versatile folding options providing the flexibility needed to meet diverse packaging requirements. The secure, tamper-evident sealing guarantees the safety and security of the packaged cards, readying them for the final pack-out phase.

Pack-Out

The final stage in the 1-PAS operational flow is the pack-out, where cards are prepared for distribution. This process includes dynamic batching and bundling, along with options for shrink or flow wrapping and precise labeling. Detailed pallet manifest reporting is a key feature here, ensuring that all products are packaged according to customer specifications and ready for distribution. This stage exemplifies the system's ability to streamline the end-of-line process, ensuring efficiency and accuracy in meeting distribution requirements.

Software Integration

Underpinning the entire 1-PAS system is the Delta-X software platform, a powerful tool that enhances every stage of the operational flow. With features like recipe saving for quick changeovers, multi-level user access, and comprehensive data logging, the software ensures operational efficiency and product integrity. It facilitates batching control, data mapping, and seamless integration with databases or ERP systems. Additionally, precise product registration and integrity checks are supported, guaranteeing the highest quality assurance and seamless operation throughout the packaging process.



Together, these components of the 1-PAS system illustrate Pack-Smart Inc.'s commitment to innovation, efficiency, and quality in the card packaging industry. By integrating these advanced technologies and processes, the 1-PAS system sets a new benchmark for operational excellence, ensuring that clients can meet the evolving demands of the market with confidence.

Technologies Used

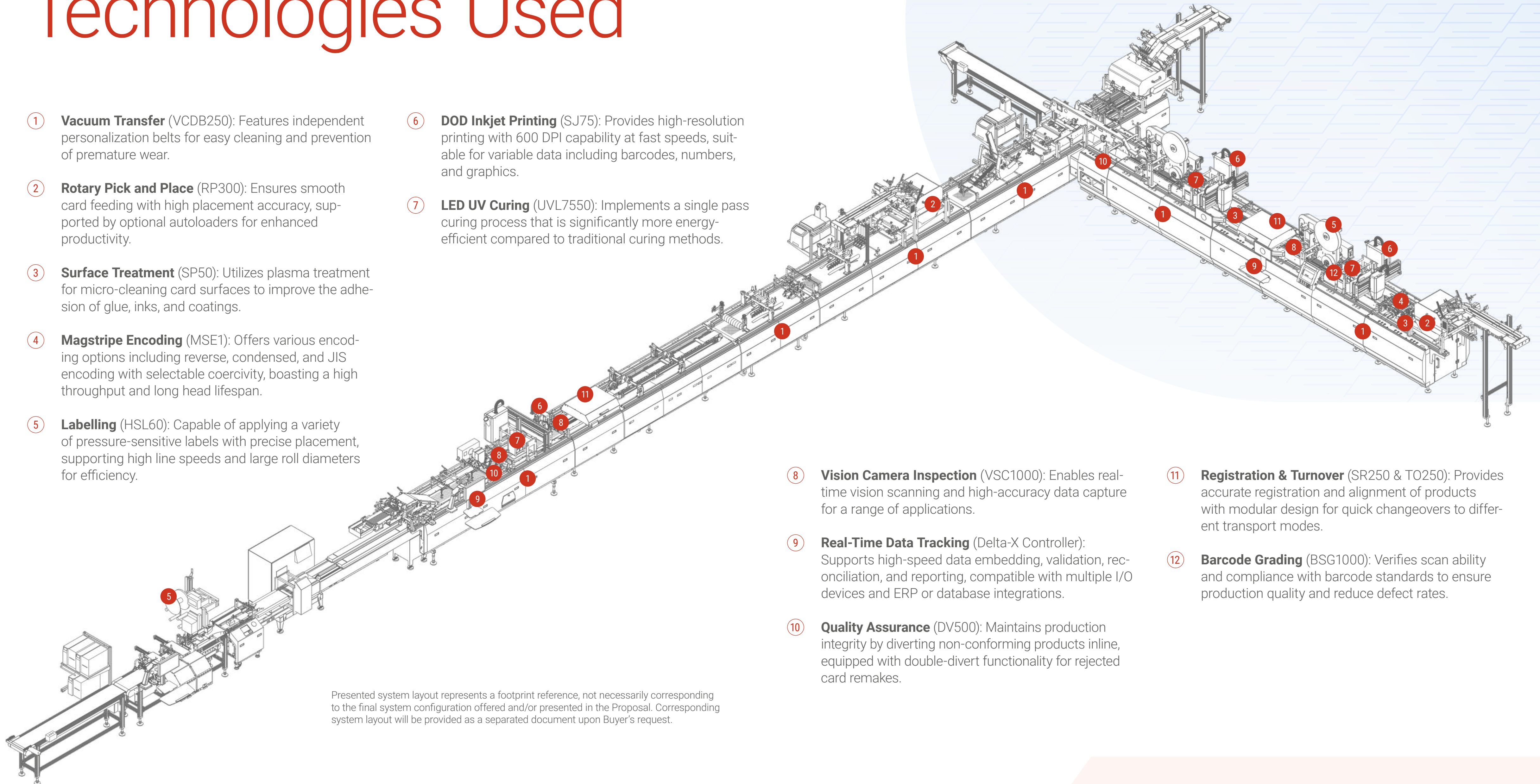
- ① **Vacuum Transfer** (VCDB250): Features independent personalization belts for easy cleaning and prevention of premature wear.
- ② **Rotary Pick and Place** (RP300): Ensures smooth card feeding with high placement accuracy, supported by optional autoloaders for enhanced productivity.
- ③ **Surface Treatment** (SP50): Utilizes plasma treatment for micro-cleaning card surfaces to improve the adhesion of glue, inks, and coatings.
- ④ **Magstripe Encoding** (MSE1): Offers various encoding options including reverse, condensed, and JIS encoding with selectable coercivity, boasting a high throughput and long head lifespan.
- ⑤ **Labelling** (HSL60): Capable of applying a variety of pressure-sensitive labels with precise placement, supporting high line speeds and large roll diameters for efficiency.

- ⑥ **DOD Inkjet Printing** (SJ75): Provides high-resolution printing with 600 DPI capability at fast speeds, suitable for variable data including barcodes, numbers, and graphics.
- ⑦ **LED UV Curing** (UVL7550): Implements a single pass curing process that is significantly more energy-efficient compared to traditional curing methods.

- ⑧ **Vision Camera Inspection** (VSC1000): Enables real-time vision scanning and high-accuracy data capture for a range of applications.
- ⑨ **Real-Time Data Tracking** (Delta-X Controller): Supports high-speed data embedding, validation, reconciliation, and reporting, compatible with multiple I/O devices and ERP or database integrations.
- ⑩ **Quality Assurance** (DV500): Maintains production integrity by diverting non-conforming products inline, equipped with double-divert functionality for rejected card remakes.

- ⑪ **Registration & Turnover** (SR250 & TO250): Provides accurate registration and alignment of products with modular design for quick changeovers to different transport modes.
- ⑫ **Barcode Grading** (BSG1000): Verifies scan ability and compliance with barcode standards to ensure production quality and reduce defect rates.

Presented system layout represents a footprint reference, not necessarily corresponding to the final system configuration offered and/or presented in the Proposal. Corresponding system layout will be provided as a separated document upon Buyer's request.



Specifications

Maximum Speed*		
Card only		35,000 PPH
Card on carrier		20,000 PPH
Physical*		
Required floor length		90'
Required floor width		45'
Product: Card		
Min. length (<i>in travel direction</i>)	85 mm	3.35"
Max. length (<i>in travel direction</i>)	125 mm	4.92"
Min. width	54 mm	2.13"
Max. width	88 mm	3.46"
Min. thickness	0.2 mm	0.01"
Max. thickness	3 mm	0.12"
Product: Carrier		
Min. length (<i>in travel direction</i>)	30 mm	1.18"
Max. length (<i>in travel direction</i>)	500 mm	19.69"
Min. width	25 mm	0.98"
Max. width	450 mm	17.72"
Min. thickness	0.25 mm	0.010"
Max. thickness	0.41 mm	0.016"
Utility Requirements*		
Electrical cabinet	230 V AC, 3φ, 50/60 Hz, 125 A max.	
Fugitive glue	230 V AC, 3φ, 50/60 Hz, 30 A max.	
Secure glue	230 V AC, 3φ, 50/60 Hz, 30 A max.	
Data/Inkjet server rack	110 V AC, 1φ, 50/60 Hz, 20 A max.	
Plasma	230 V AC, 1φ, 50/60 Hz, 30 A max.	
Wrapper & weight scale	230 V AC, 3φ, 50/60 Hz, 30 A max.	
Pack-out conveyor	230 V AC, 3φ, 50/60 Hz, 15 A max.	
Air drop	100 CFM @ 100 PSI	

* For reference only, application dependant.

Frequently Asked Questions

Question: What sets the 1-PAS system apart in the card packaging industry?

Answer: The 1-PAS system is the world’s first inline solution capable of handling high-volume personalization, affixing and secure packaging of both open and closed loop cards at speeds up to 20,000 products per hour. Its unique design offers unparalleled flexibility, creating innovative workflows and adding new capabilities.

Question: How does the 1-PAS system enhance card packaging operations?

Answer: The 1-PAS system streamlines operations by reducing the number of required operators, eliminating the need for heat seal processes, and offering unique product workflow flexibility. It sets high quality standards with 600 DPI UV DOD printing and ±0.4 mm accuracy, alongside quick product changeovers, making it a precious asset.

Question: What are the main Key Performance Indicators (KPIs) of the 1-PAS system?

Answer: The 1-PAS system boasts critical performance indicators such as tamper-evident packaging, operational speeds of up to 20,000 products per hour, and comprehensive end-to-end reporting, ensuring high efficiency and security throughout the card packaging process.

Question: What materials can the 1-PAS process?

Answer: It processes open-loop cards (e.g., Visa and MasterCard gift cards) and closed-loop cards (e.g., Amazon, Google, iTunes, and Starbucks gift cards), showcasing its versatility in card packaging solutions.

Question: Can the 1-PAS be integrated with existing systems?

Answer: Its modular design facilitates easy integration into existing production lines, allowing for customization to meet specific operational needs and compatibility with various card packaging technologies.

Question: What are the benefits of using the 1-PAS system?

Answer: Benefits include operational efficiency with reduced labour costs, high-speed and accurate card packaging, flexibility in handling different card types, enhanced security features for tamper-evident packaging, and comprehensive data tracking and reporting for quality assurance.

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