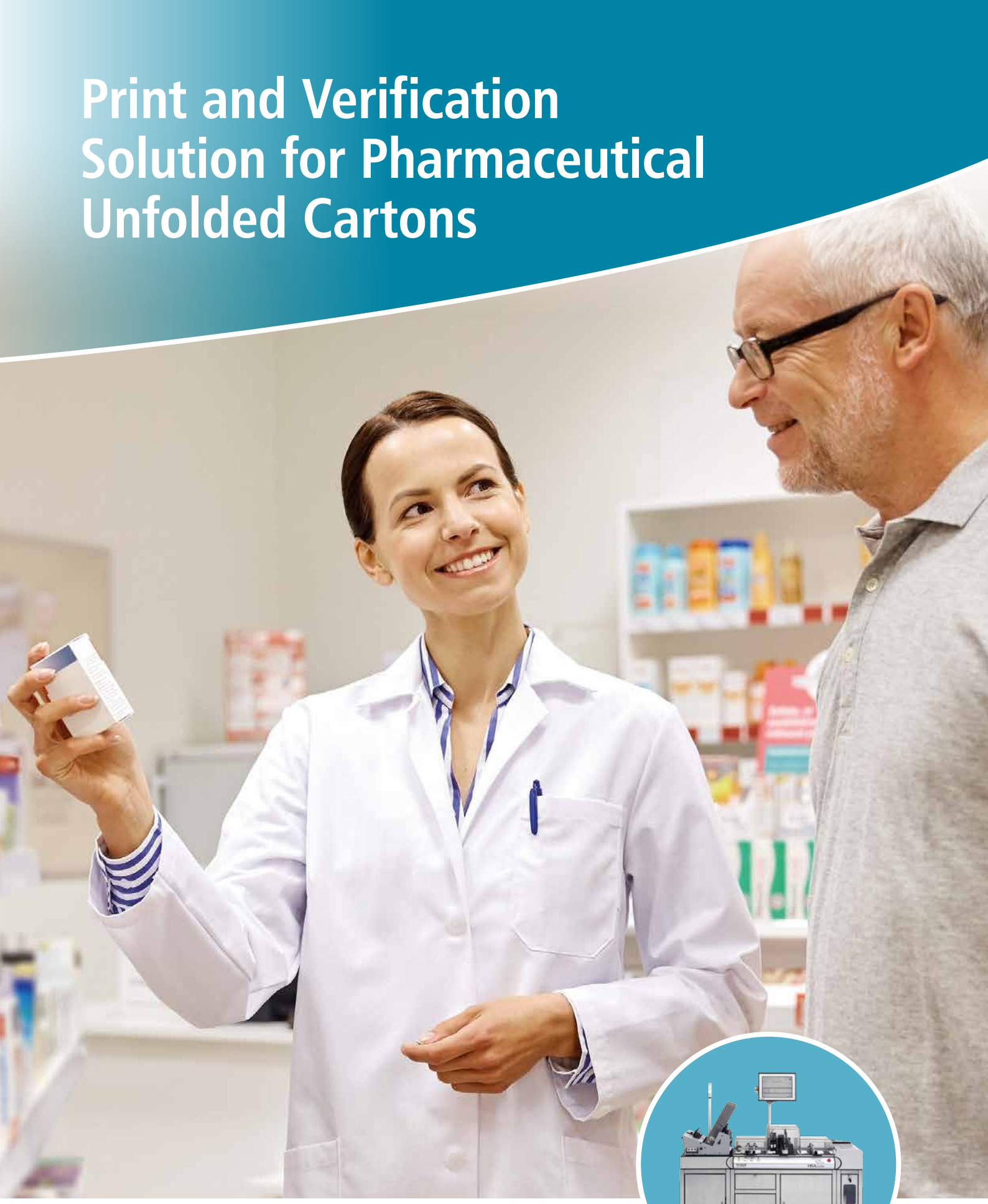
Print and Verification Solution for Pharmaceutical Unfolded Cartons



HSA SYSTEMS
A UNIQUE IMPRINT

Flat Carton Handling Unit

PV950F

Highlights

PV950F

Key Benefits
PV950F Flat Carton Handling Unit

- Smooth and stable carton handling system
- High quality printing ensured by vacuum chambers and built-in encoder
- The unit can print up to 38 mm high and 145 mm long imprints
- 55 x 45 mm vision camera reading area (standard)
- Adjustable conveyor speed
- Integrated ejection control system
- Tool and format-free batch change
- The unit is made from anodised aluminium, stainless steel and transparent polycarbonate
- Easy maintenance access to all machine parts via large top covers and removable back cover

Design, print, verify and control the machine from one interface

HSAJET® Carton Handling Unit

HSAJET® is a stand-alone solution for the handling and printing of unfolded cartons.
The design of the vacuum supported conveyance system ensures accurate transport of products, providing optimal conditions for high quality printing.
The modular design features three modules – a feeder, printer and diverter. This allows a combination of feeder and printer, or printer and diverter for integration into existing line equipment.

Turnkey Solution

The combination of the HSAJET® software and the carton handling unit results in a compact overall solution for trouble-free printing and verification of unfolded cartons in a pharmaceutical production line.

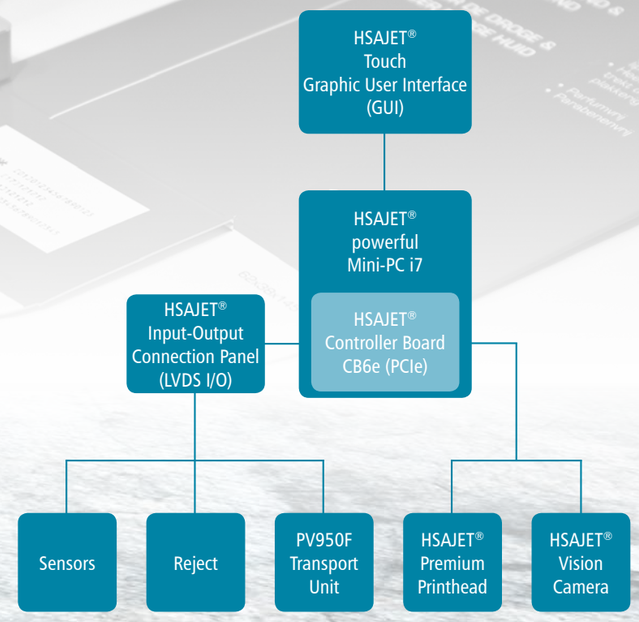
HSAJET® Printing and Verification

The HSAJET® Printing and Verification system is the control centre of the unit, utilising a touchscreen, allowing job design, printing control, verification and ejection, and interfacing to other associated equipment.

Key Benefits
HSAJET® Print & Verify System

- Complete machine controlled by HSAJET® software and hardware
- The unit enables the pharma-ceutical company to comply with GAMP and 21 CFR part 11 or other present regulatory demands
- Print and verification in accordance with ISO15415 and ISO15416 and other industrial standards
- The most compact and main-tenance friendly concept in the market

"...Unlike other systems on the market, HSAJET® controls everything using a single interface."



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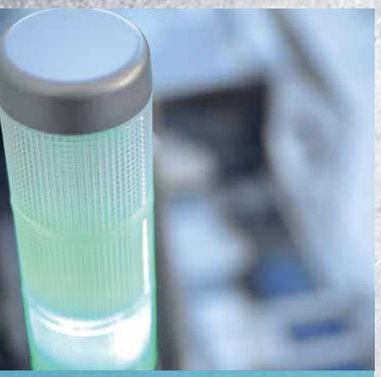
Exterior Features

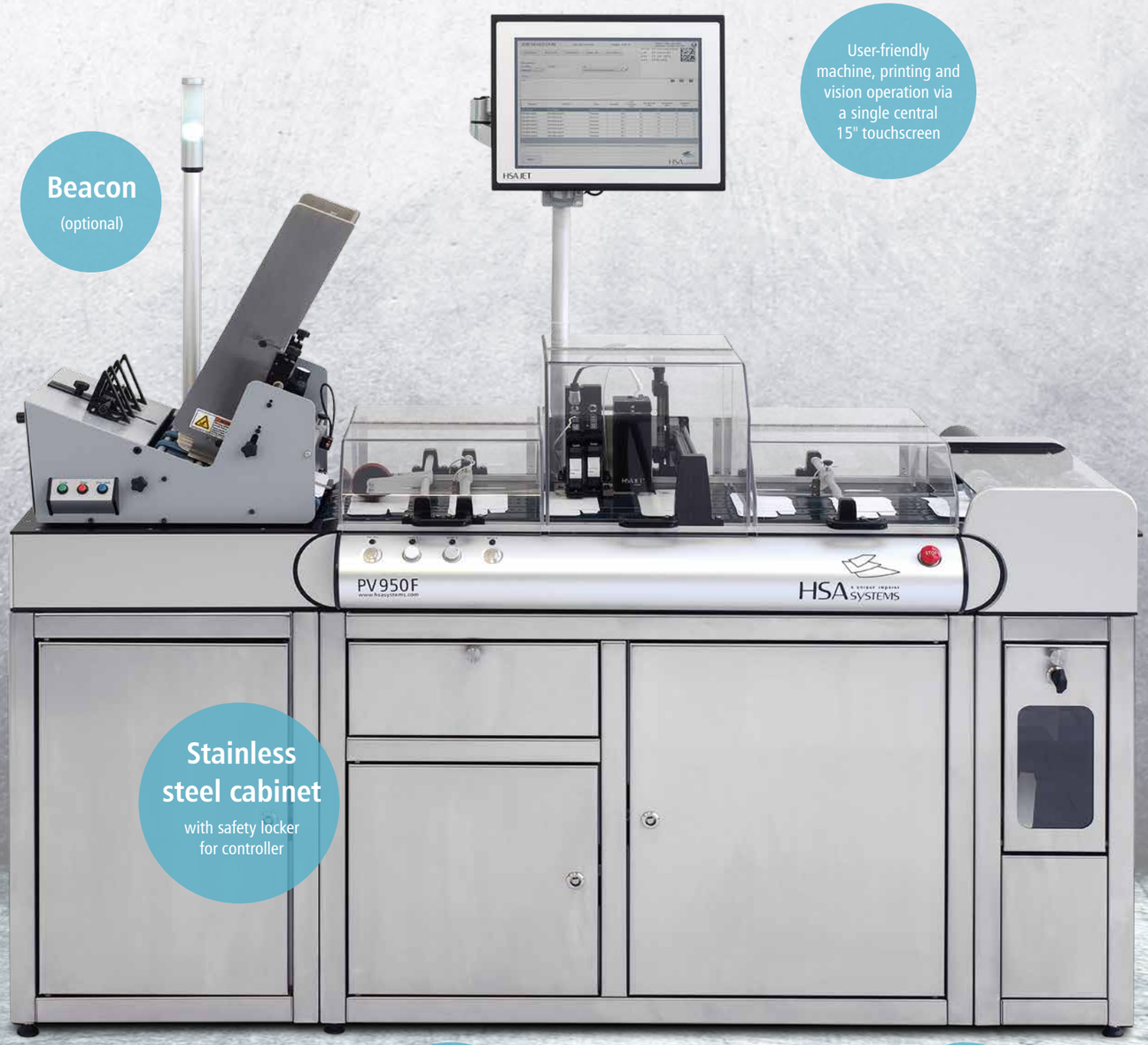
PV950F



Beacon.

HSA control panel on feeder.

PC On, Emergency Stop, Reset and Fan buttons are placed on front of the machine.



Beacon
(optional)

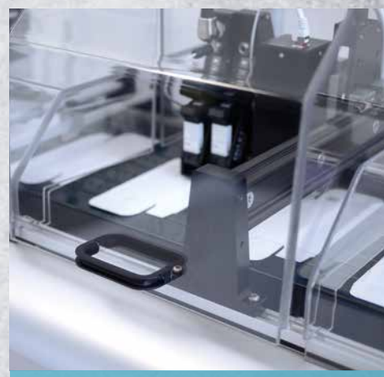
User-friendly machine, printing and vision operation via a single central 15" touchscreen

Fuse and main power connections are found on left side of the unit.

Stainless steel cabinet
with safety locker for controller

Height adjustable supports

Small footprint



Transparent top cover and safety guard.

Reject bin, with lock, for rejected items.

Emergency Stop is located on the front right side of the unit.

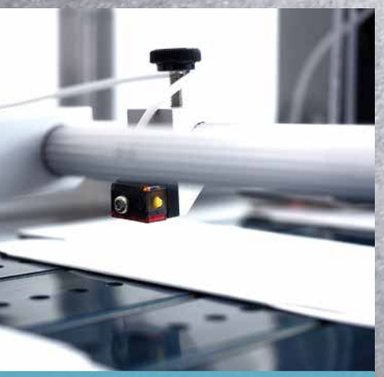
HSA SYSTEMS

HSA SYSTEMS

Interior Features

PV950F

Camera and printhead on same bracket, adjustable in height and across conveyor.



Flight sensor activates next cycle run.

Vision Inspection Camera featuring code verification and grading.

Conveyor speed up to 90 m/min.*

Throughput 300 cartons/min.

Throughput is calculated based on 5 gradings per second *

Flight sensor

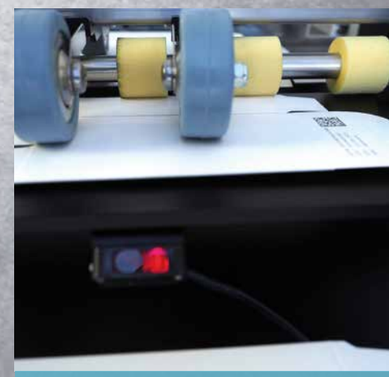
activates next cycle start

Vacuum control

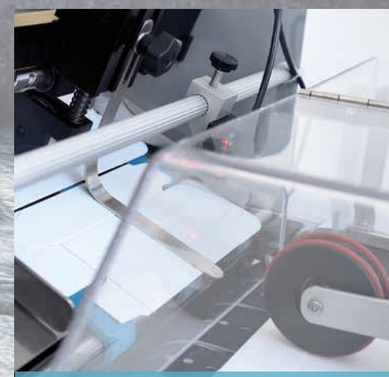
Ensures precise transport of items

Robust mounting base

Integrated ejection control system with eject verification sensor.



Accept verification sensor.



Guide wheel keeps the product in place on conveyor.

*) Product dependent

HSA A UNIQUE IMPRINT SYSTEMS

Software

The software design is well thought out, taking the hassle out of handling a complete printing and verification system

SOFTWARE

A number of features have been included to provide a self-explanatory user interface

- Easy and intuitive system operation with wizard based job creation.
- Automatic creation of human readable application identifiers.
- Visual level of information kept to “what is necessary” for the operator.
- Automatic preparation of vision control. No teaching needed.
- Process control function for system proof.

Machine control

The speed synchronisation between the top and bottom conveyors is done through the software and no manual settings are required.

Access control

The software is protected by a customisable user level access control, preventing unauthorised access.
Double password protects sensitive functionalities.

Extensive access and logging for added security

Multi-level access control of unlimited number of users.
System shut-down upon consecutive failed access attempts.

Job wizard

The wizard provides trouble-free creation of datamatrix codes that follow the GS1 structure.
Even complex jobs with multiple application identifiers are easily created.
Human readable text is automatically created and positioned on the layout.

Job selection and execution

Print jobs are stored in a job library featuring a folder structure and "quick search" function for easy access.
In production mode information on current status is provided by the software regularly.

Remote controlling via XML

Connection of databases for serialisation is an intuitive and trouble-free task.
Our XML-based remote controlling protocol provides added flexibility for integration purposes, such as connection for track and trace solutions.

USER INTERFACE

Display

15” touchscreen, adjustable in X-Y-Z positions.

Software

HSAJET® multi-lingual software for Printing, Grading and HMI (PGH).

Machine, printing and vision operation via a single central touchscreen interface

Multilingual interface

Wizard-based job creation

Real-time production and verification status

EXTENSIVE LOG

Full Audit Trail

The software features a full audit trail, which is provided for all events.
All data related to the actual printing and verification is logged and time stamped.

- System events, like emergency stop activation and opened safety doors are logged and time stamped.
- All printed information is provided with quality grade and verification status.
- Images of all rejected items are stored for later review.
- Creation of jobs, operator intervention and any changes made in the software are logged and time stamped.

SQL database

The logs are stored using the built-in SQL database for later review or proof.
The data can be exported or printed.
Access to all functions is protected by user level control.

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Printing

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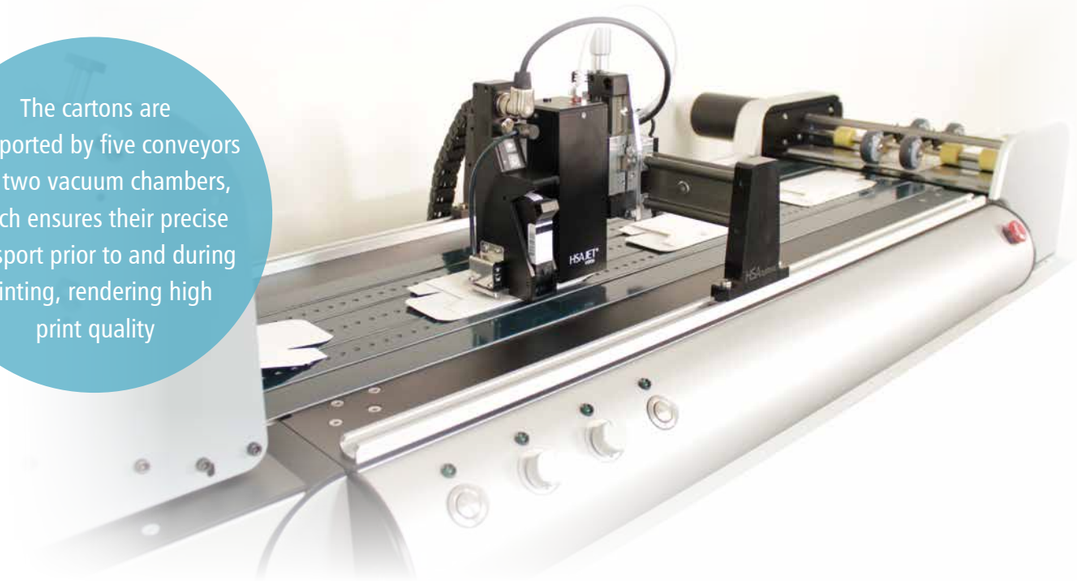
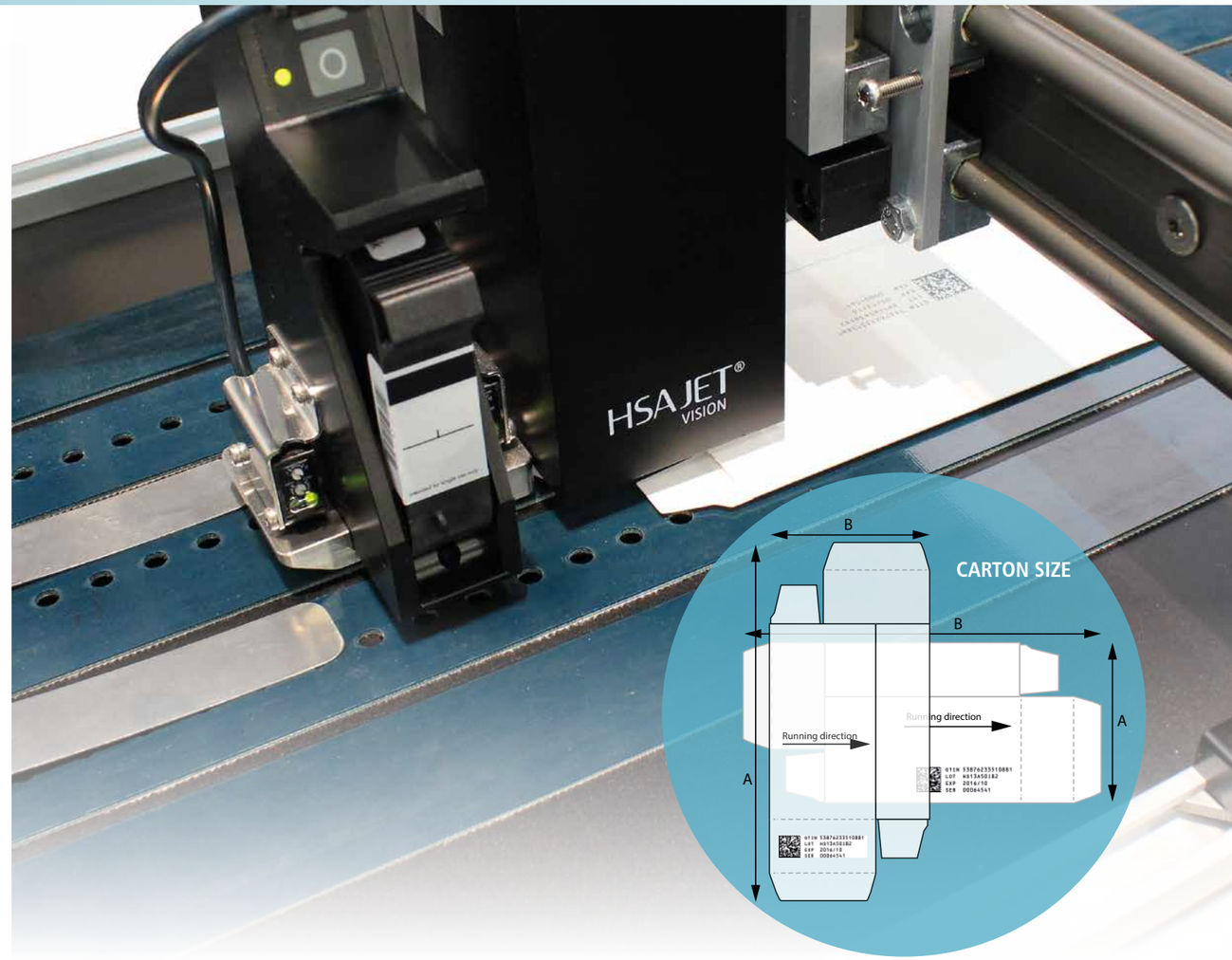


The cartons are transported by five conveyors and two vacuum chambers, which ensures their precise transport prior to and during printing, rendering high print quality



IMPRINT

Technology
HSAJET® Premium printheads
HP TIJ 2.5 technology

Print dimension
Height up to 38.1 mm (1½")
Length up to 145 mm (5.7"), standard

Print features
1D code
2D code
Human readable
Date
Time
Counter
Bitmaps
Freely created text
Serialisation (via database connectivity)

PRINTING SYSTEM

Technology
HSAJET® Premium printheads
HP TIJ 2.5 technology

Print height
Choose between 12.7, 25.4 or 38.1 mm (½"-1"-1½") 1, 2 or 3 pens

Resolution
Up to 600 dpi

Print distance
0.5-5.0 mm dependent on ink and speed, typically 0.5-2.0 mm (nozzle to print surface).

Ink supply
HP45 ink cartridges, dye and pigmented, water or solvent based inks.

Printhead features, e.g.
Purge and ink reset buttons.

LED indication for cartridge detection and low ink.

Cartridge detect switch.

System controller
Mini-PC cabinet
Intel® Core i7 processor
SSD hard drive for maximum processing power and reliability
I/O LVDS connection panel

The printing features of the controller are provided by the HSAJET®, PCI Express based, CB6e card which acts as the interface between the controller, printhead, camera and the I/O connection panel.

PRODUCTION

Carton size (min. – max.)
A: 75–285 mm (leading edge)
B: 75–275 mm (height)

Throughput
200[1] units/min. (average sized product).
250[2] units/min. (special product size and machine configuration).

Carton orientation
Cartons can be placed with longest side either parallel to or perpendicular to running direction.

1) Printing and verifying 1 Datamatrix and 4 lines of text (150 mm long product)
2) The actual throughput is dependent on size, shape and quality of the product

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Inkjet Technology

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Verification & Control

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VERIFICATION & GRADING

Verification
Verification of printed text, 1D, 2D code.

Grading
Quality of 1D/2D code is determined with grade level between F and A (0-4).

Quality of Unicode text is determined with a font-based reference scheme and grade level between 0 and 100.

Qualification of printed items
In accordance with industrial standards, ISO/IEC 15415 and 15416.

Datamatrix standard
According to GS1 and ISO/IEC 16022

Barcode standard
PIATS code based on Code 128C according to ISO/IEC 15417

Text standard
OCR-B font (possible to use other fonts)

COMPLIANCE

GAMP
The system is made in accordance with the guidelines, enabling the customer to comply with GAMP.

21 CFR Part 11
The system is made in accordance with the guidelines, enabling the customer to comply with 21 CFR Part 11.

CONTROLS & SYSTEM MONITORING

System management
All settings and control of printing, vision and machine interface are managed by HSAJET® software.

Access control
User level access control with six user groups.

Unlimited number of users can be created.

Access definition managed by administrator.

Time-limited access definition with automatic expiry.

Interlocking
Queue control management with four sensors for carton location tracking.

Carton length verification.

Rejection verification.

Up-stream/down-stream verification (like cartonator and bundler).

Cartridge absent/present verification.

No-gap between boxes detection.

Warnings in software
A message will notify the user when an error or other incidents occurs such as:

Low ink level in cartridge(s).

Device not ready.

Cartridge not inserted.

Up-stream/down-stream not ready.

Top cover open.

Air pressure below required level (optional).

The system will automatically stop after multiple consecutive errors.

VISION SYSTEM

Camera
HSAJET® VS2

Resolution
1280 x 1024 pixels

Inspection area
55 x 45 mm standard

Light
Integrated light.
Shielding against stray light with diffuser for glossy substrates.

VALIDATION PACKAGE (optional)

DQ, IQ and OQ validation package available.
The validation package is a generic series of documents and templates, which can be edited to meet specific customer requirements in accordance with the GAMP guidelines.

The validation pack includes

- Design Qualification (DQ) with functional specification
- Installation Qualification (IQ)
- Operational Qualification (OQ) with template test schematics

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Technical Details

MAIN MODULE

Conveyor
Weight 33.5 kg (conveyor only)

Drives
DC motors

Conveyor dimensions
Length: 2213 mm
1 conveyor 50 mm wide, punched
2 conveyors 35 mm wide, punched
2 conveyors 35 mm wide, unpunched

Conveyor speed
5–90 m/min.

Running direction
Left to right

Conveyor finish
Anodised aluminium

Top cover
Transparent polycarbonate.
Cover equipped with safety switch to stop the machine if opened during production.

Brackets and Supports
Stainless steel
Anodised aluminium

Printhead & Camera mountings
Integrated common adjustable bracket for printhead and camera for correct positioning in height and across.

Format adjustment
Tool free adjustment

Connection panel
In-/output panel built in cabinet

Cabinet for conveyor
1 drawer and 2 doors with key locked space for controller and connection panel.

MAIN MODULE

ELECTRICAL

Electrical connection
Main switch (lockable)
Industrial power cable

Voltage (1 phase):	115 / 230 VAC
Frequency:	50 Hz / 60 Hz
Power consumption:	180 W
Fuse:	1.6 A / 0.8 A

Power backup
Uninterruptible Power Supply (UPS) for shutting down system properly in case of unexpected power disruption (optional).

Electrical panel
PC On, Emergency Stop, Reset and Fan control buttons.

Emergency operation
Emergency Stop on front panel.
Hardware controlled emergency stop function.

CONNECTIONS

External connections
Main power
Air pressure

Upstream/Downstream machine control signals for interaction with other machines.

Product position sensors
For printing, camera, rejection and acceptance, Baumer FHCK 07P6901 (4 pcs)

Input / Output
I/O Connection Panel (LVDS) with 40 inputs and 32 outputs.

Verification log file
Error log file
System log file

FEEDER MODULE

Feeder
Streamfeeder model 710BC
(product dependent)

Technical Data 710BC

Product size (min)	95 x 95 mm
Product size (max)	305 x 305 mm
optional product size available	
Product thickness	0.076 –19 mm
Conveyor speed	101.6 m/min.
Batch size	1–50 pieces
Electrical requirements	115/230 VAC, 50/60 Hz, 3 A
Dimensions (LxWxH)	407 x 373 x 673 mm
Weight	19.5 kg

Feeder extension table

Dimensions (LxWxH)	467 x 386 x 140 mm
Weight	6.4 kg

Cabinet for feeder
One door with key locked space
Dimensions: Drawing overleaf

EXIT MODULE

Diverter unit
Electro mechanical gate
Controlled automatically via main module

Cabinet for diverter
Reject bin, one door with key locked space

COMPLIANCE

Protection class
IP54

Complies to
CE directives

Technical Drawing

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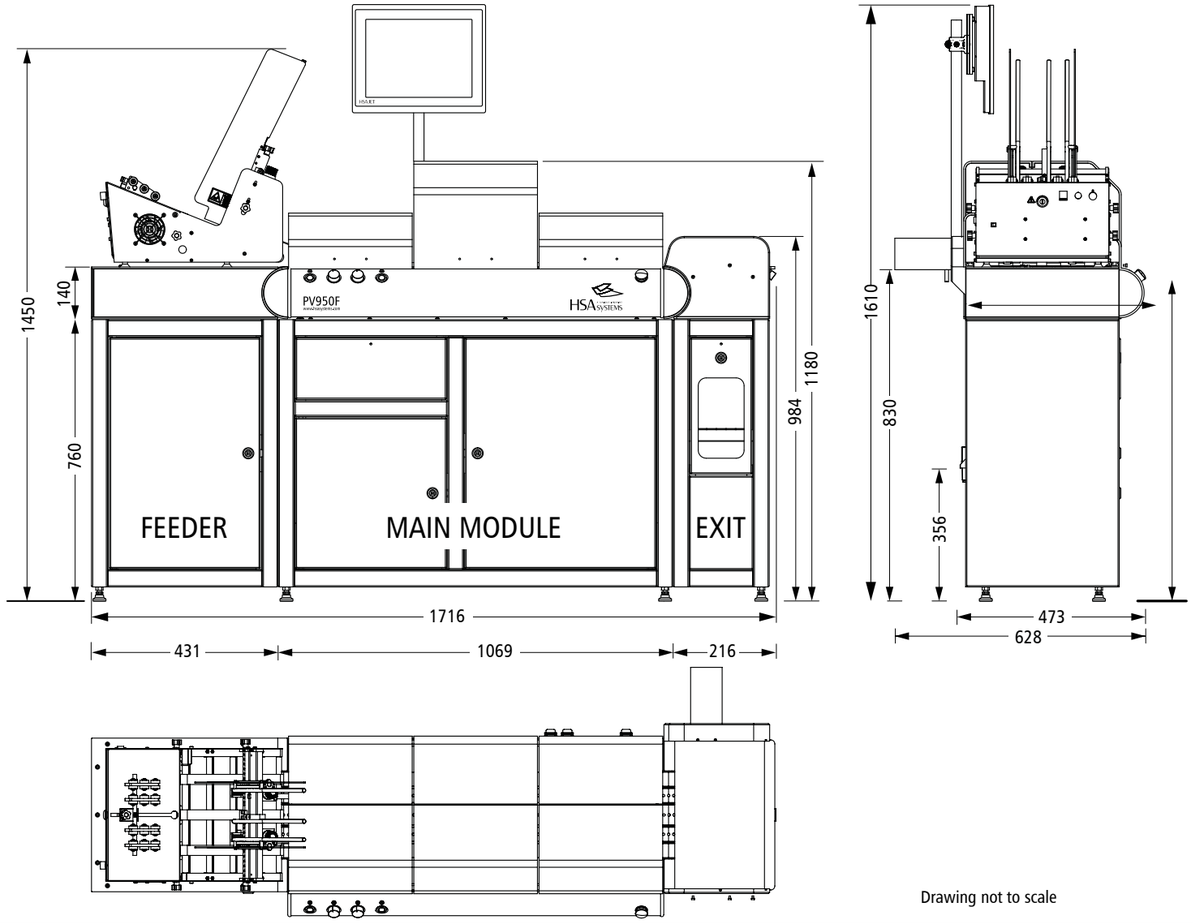

Drawing not to scale

OVERALL DIMENSIONS

Dimensions

Length:	1716 mm
Width:	628 mm
Height:	1383 mm
Height adjust:	+50 mm

Working height
840 mm +50 mm

Weight
Cabinet stainless steel 77 kg
Anodised aluminium 14 kg (optional)

ACCESSORIES & OPTIONS

Beacon
3-colour beacon for display of current status.

Exit conveyor
Standard dimension 300 mm wide, 1200 mm long for end-to-end or angled position

HSA A UNIQUE IMPRINT SYSTEMS

Solution for Pharmaceutical unfolded Cartons

DISTRIBUTOR:

HSA SYSTEMS A UNIQUE IMPRINT

HSA Systems (head offices)
Denmark | Skovlunde +45 4494 0222 | Odense +45 6610 3401

HSA Systems (subsidiary offices)
France +33 1 4815 5050 | Germany +49 5257 938 6777

www.hsasystems.com | mail@hsasystems.com

105-03EN 01/2017