HELIX CC

the new age of code capturing during counting

köster

The Task

- Reading a code printed on the edge of a sheet.
- Simple, cost-effective system without having to destack the sheets.
- Small footprint for integration into existing production lines.
- Maximum performance to avoid slowing down the production process.

The Solution

- The new Helix CC system.
- Extending our counting technology to capture codes with a code reader during the counting process.
- The combination of physical counting of the sheets and optical recognition of the individual sheet code ensures maximum security.

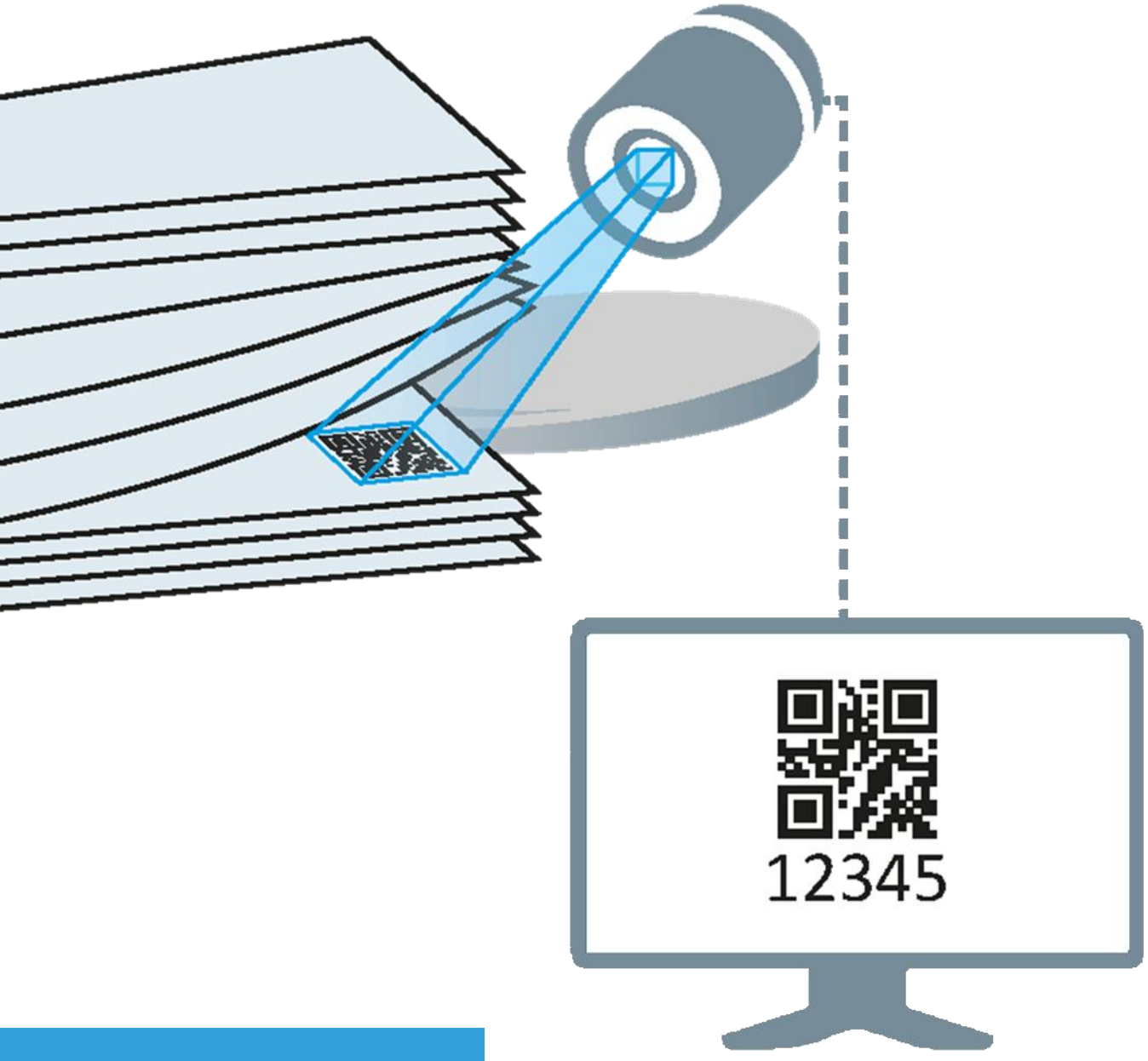
The Advantages

- High-efficiency - Simple operation
- High-durability - Solid, high-quality construction
- High-cost effectiveness - Low maintenance costs

The Flexibility

- All types of substrates used in the global security printing industry can be processed with the highest speed and accuracy.

HELIX CC



HELIX CC

www.Helix-CC.de

Machine Features

Helix CC

The Operation

- Working direction from top to bottom.
- Best ergonomics for the operator.
- Large working height adjustment range 790 – 1100 mm.
- Precise and fast product handling.
- No adapters required.
- Solid alignment stops at the counting heads.
- User-friendly HMI.

The Machine Design

- All installed components are high-quality products from global manufacturers.
- The machine design ensures easy maintenance and low upkeep costs as well as maximum machine availability.

The Substrates

- Cotton based products
- Coated products
- Hybrid products
- Laminated products
- And much more

Machine Features

Helix CC

The Counting Head

- Köster air suspension instead of the conventional mechanical weight compensation.
- Quick and easy adjustment of the weight of the counting head, the vacuum power and the pressing force of the press plates via independent pressure regulators.
- Drive motor with sufficient torque to fulfil all requirements.

The Helix

- The centrepiece of the machine.
- Developed to realise the idea of Helix CC.
- Allows the code reader a wide viewing angle into the layer.
- Physically counts the sheets.

The Options

- Code reader / scanner.
- Zeiser function module.
- Integrated compressor (only B22 Helix CC).
- Casters.
- Printer kit.
- Warranty extension 24 months except wear parts.

Machine Features

Helix CC

The Optionally Code Reader

- Interface developed to ensure correct data exchange between the code reader and the control unit.
- Optional on the left side of the counting head:
  - Reading from min. 100 mm distance from the right corner to the left corner of the sheet.
- Optional on the right side of the counting head:
  - Reading from min. 100 mm distance from the left corner to the right corner of the sheet.
- Optional on the left and right side of the counting head:
  - Reading over the entire length of the sheet edge.
- Fully integrated to prevent external influences.
- Attached to the counting head to maintain the position in relation to the code to be read regardless of the height of the ream.
- Markings are projected onto the ream during insertion for easy positioning of the code area.
- Wide range of supported 1D and 2D code types:
  - CODE39, ITF, 2of5 (Industrial 2of5), COOP 2of5, NW-7, CODE128, GS1-128, GS1 DataBar, CODE93, JAN / EAN / UPC, Trioptic CODE39, CODE39 Full, ASCII, Pharmacode, Postal (Japan Postal, IMB), QR, MicroQR, DataMatrix (ECC200, DMRE), GS1 DataMatrix, PDF417, MicroPDF417, GS1 Composite (CC-A / CC-B / CC-C), DotCode, MaxiCode, Aztec-Code.

Machine Features

Helix CC

The Standard Functions

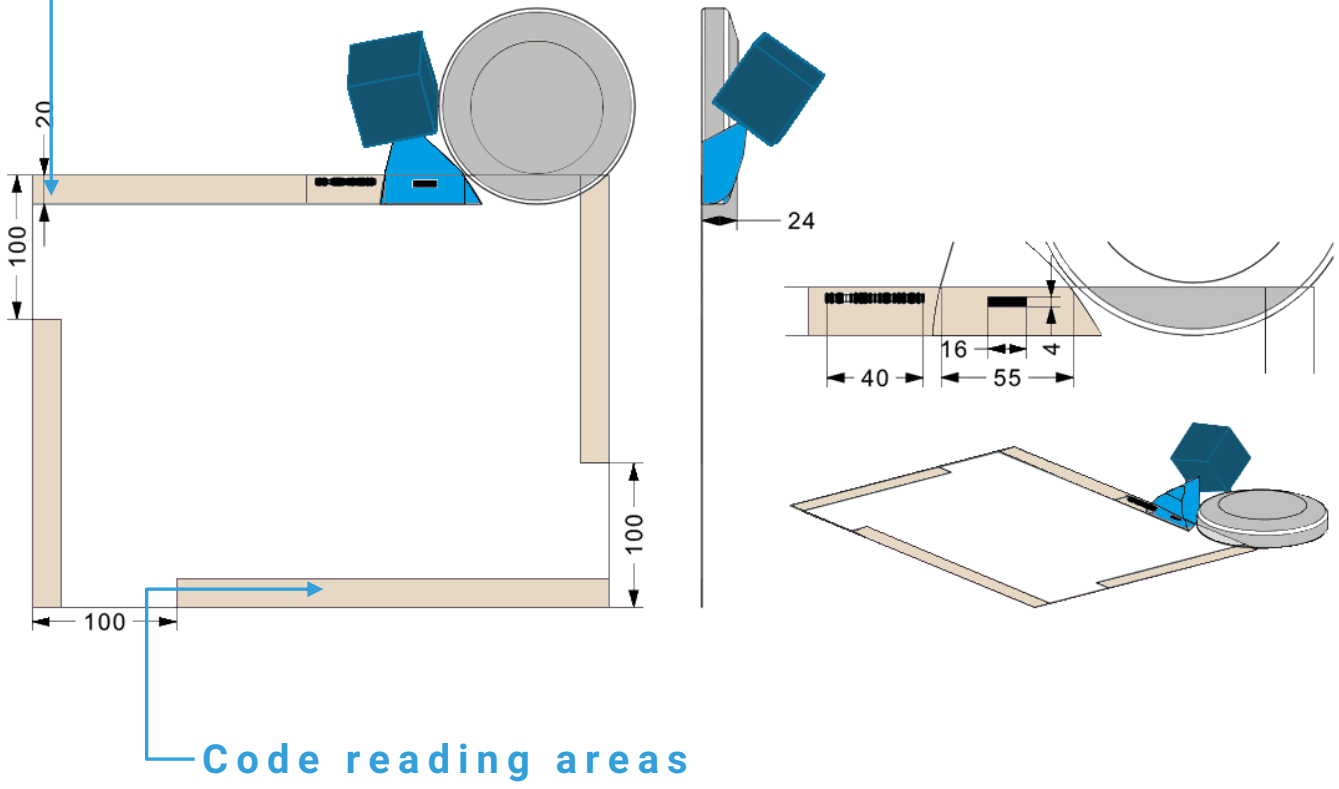
- Activation and deactivation of the code reader:
  Code reader deactivation enables utilisation as usual counting machine.
- Security Counting:
  The counting result is compared with the preset value. If the values do not match, the ream is not automatically released. A supervisor must release the ream.
- Batching:
  A pre-selected number of ups can easily be combined into one layer. The counting disc is used for separation, providing the operator with a gap so that he can easily tap the layers.
- Comparing:
  The counting result is compared with the preset value. If the values do not match, the ream is not automatically released.
- Difference Counting:
  The counting result is compared with the preset value. If the values do not match, the difference is displayed and counted out in the second process step.
- Immediate stop if code cannot be read:
  If a code cannot be read correctly, the process is stopped immediately, the layer that has not yet been processed is clamped by the disc and the unreadable sheet can be removed after manually taking off the layer that has already been processed.
- For a quick status check, unreadable codes can be ignored, and the stack examined.
- Firmware or Program Update:
  Updates are easily carried out using an USB memory stick.

The Code Reading Area

Helix CC

Code reader on the left side:

- One code reader on the left side of the counting disc.
- Reading from min. 100 mm distance from the right corner of the sheet.



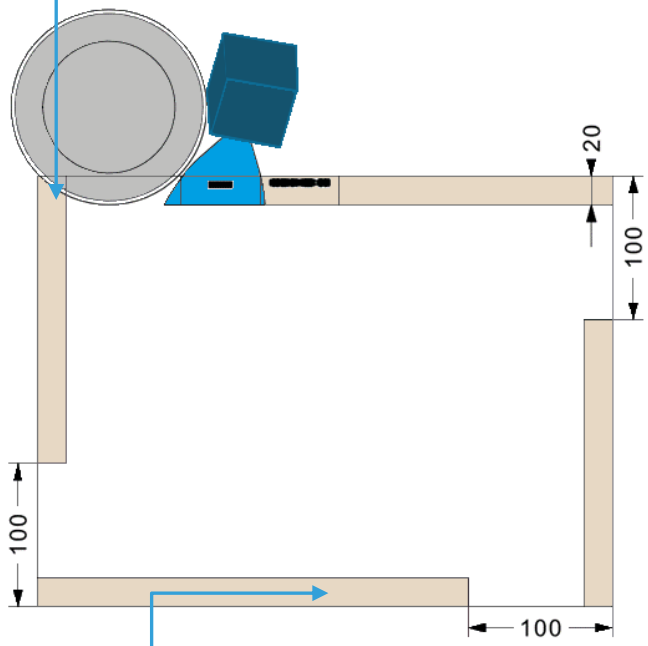
Code reading areas

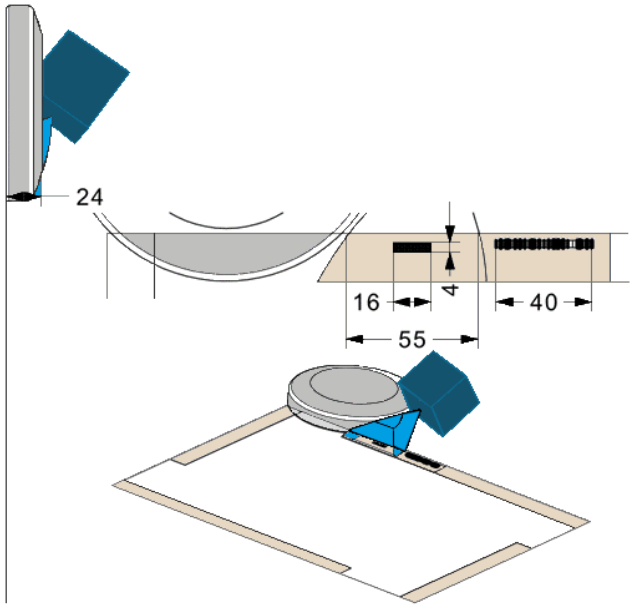
The Code Reading Area

Helix CC

Code reader on the right side:

- One code reader on the right side of the counting disc.
- Reading from min. 100 mm distance from the left corner of the sheet.





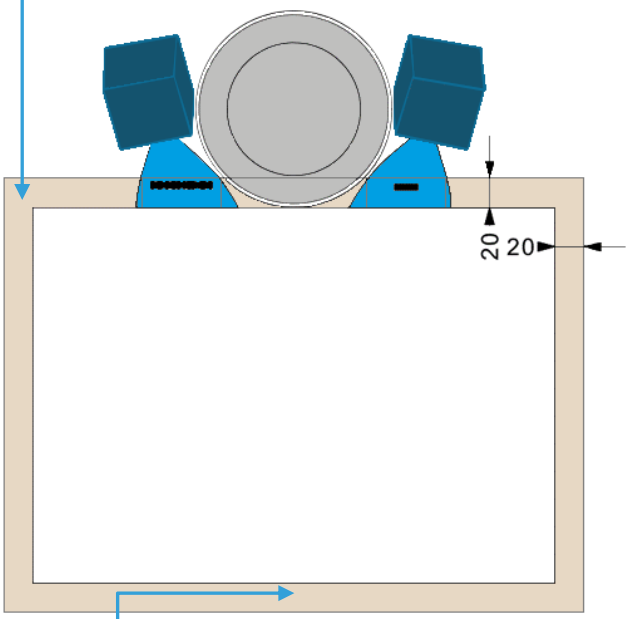
Code reading areas

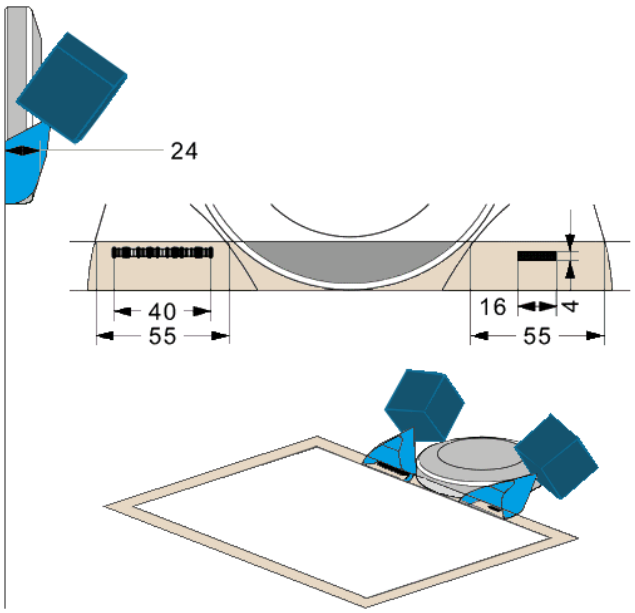
The Code Reading Area

Helix CC

Code reader on both sides:

- Two code readers on the right and left side of the counting disc.
- Reading over the entire length of the sheet edge.





Code reading area

The Machine Versions

B26 Helix CC

Small Footprint Version:

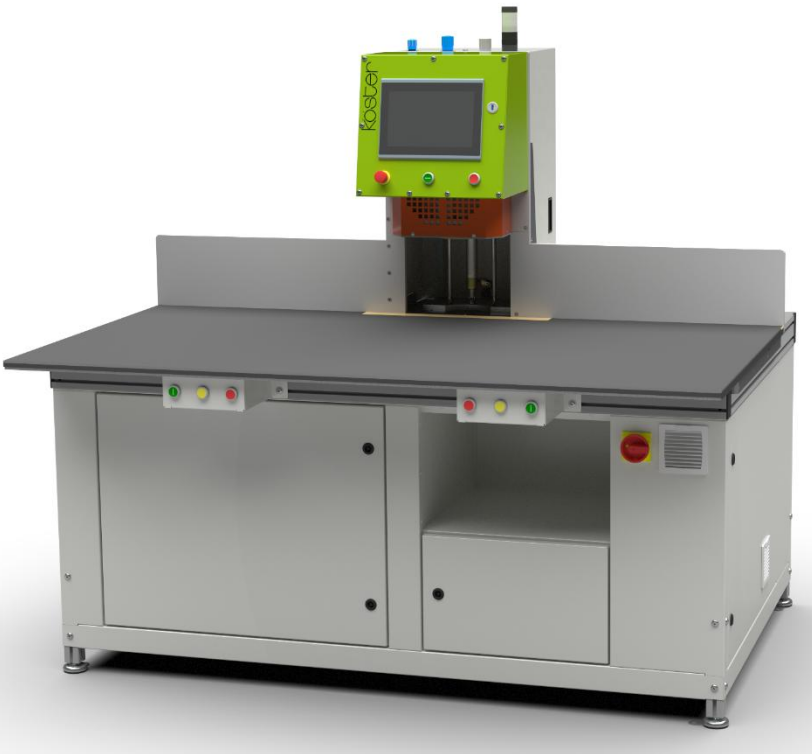
- Can be used as part of a production line.
- To process large formats from corner to corner, separate tables must be used alongside the machine.

The Machine Versions

B22 Helix CC

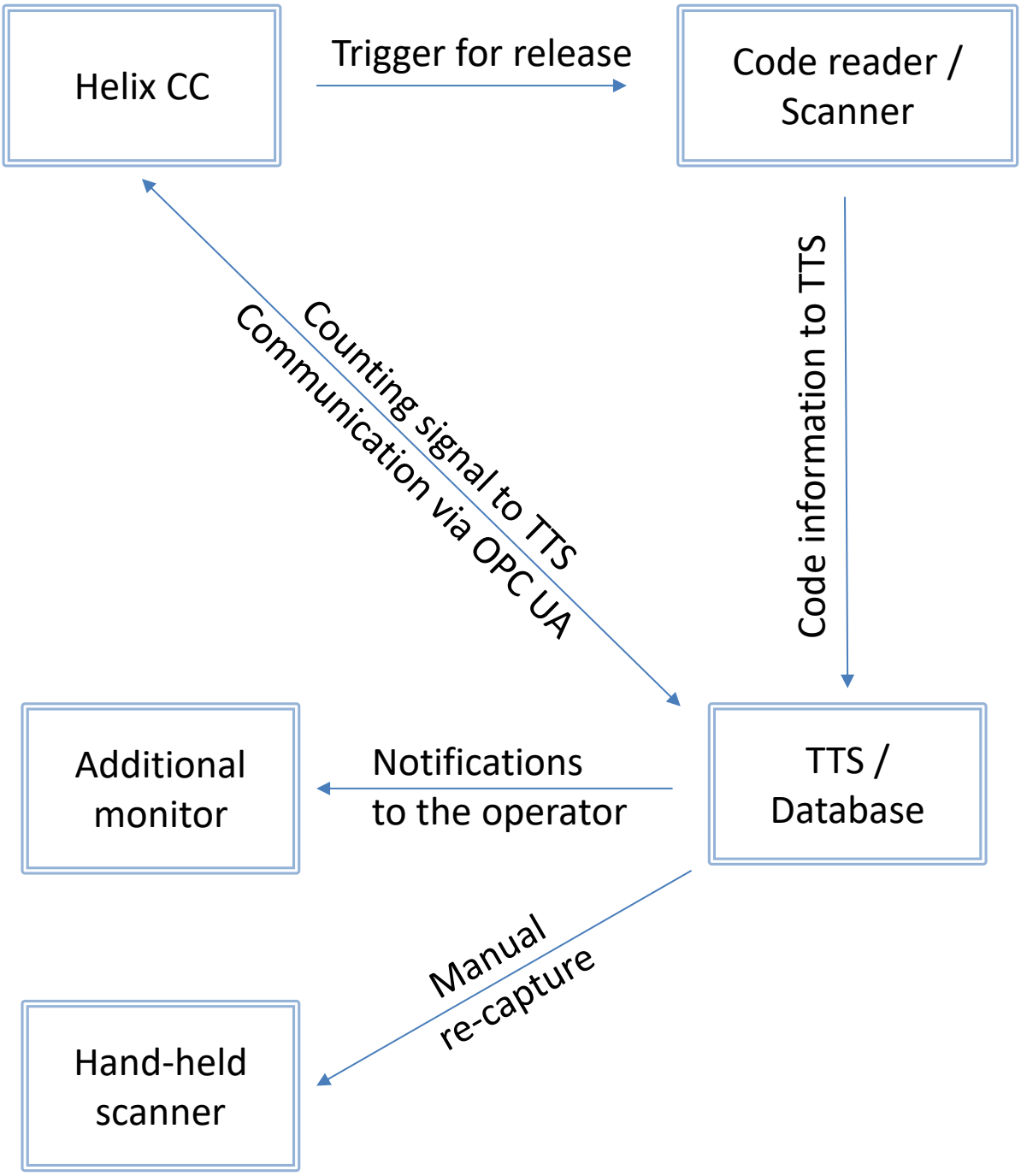
Standard Version:

- Wider base with larger work surface, recommended for use as an offline machine.
- Reading of codes from the corners up to a format size of 850 mm possible.



With existing track and trace system

Connection



With existing track and trace system

Process

With a direct connection of a Helix CC to an already existing TT system, the TTS directly accesses the camera or scanner. The data is captured and evaluated in the TT system. Communication between the Helix CC and TTS takes place via OPC UA.
To communicate with the machine operator, an additional monitor and possibly a handheld scanner are required on the customer side at the Helix CC.

The possible process :

- The operator registers the order/batch.
- The sheets are counted and the ID codes of each sheet from the loaded sheet stack are captured (1st pass counting and capturing ID codes).
- The reading results are logged and stored in the TTS.
- In the case of unreadable ID codes, the user is prompted to perform a recount and capture (2nd pass counting and capturing).
- The ID codes are captured again and compared with the results of the first run and consolidated.
- If not, all ID codes have been captured at least once after two runs, the user is prompted to reposition the sheet stack for counting and capturing. The system stops at the first sheet not previously captured (sheet number to Helix CC via OPC UA or manual input by the user) and the user is prompted to check it. The operator then has the option of manually registering the sheet as ‘good’ using the handheld scanner or marking the sheet as waste. The process is repeated until all sheets with previously unrecorded ID codes have been processed.

Integration:

- Numerous machine functions can be controlled remotely via OPC UA. The scope of integration should be defined as precisely as possible before the project begins. Depending on the desired scope, software adaptations may be subject to a surcharge.

Technical Specifications

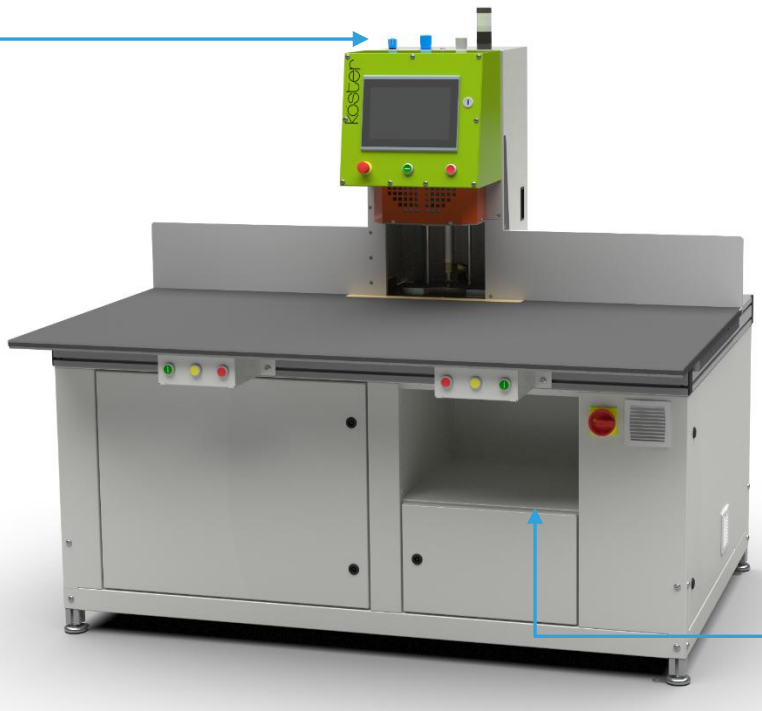
Helix CC

	B22 Helix CC			B26 Helix CC		
Dimensions	L	W	H	L	W	H
Overall (mm):	1680	1270	1644 - 1931	880	1208	1600-1900
Table (mm):	1680	900		880	900	
Working height (mm):			790 - 1100			790 - 1100
Machine weight (kg):	400 - 500			230		
Edge Counting						
	L	W		L	W	
Min. format size (mm):*	400	250		400	250	
Max. format size (mm):**	850	900		Depending on installation situation		
*Depending on the substrate/ ** With which the code can still be read over the entire edge length						
Supplies						
Electric:	Single-phase 230 V-AC / 50-60 Hz / max. back-up fuse 16 A / full load current 15 A					
Pneumatic:	Min. 6 bar / oil and water-free / consumption 300 l/h					
Layer height						
Min. (mm):	10					
Max. (mm):	90					
Max. sheets (pcs.):	600					
Processable Substrates						
Currency Industry:	Currency and documents paper, coated or uncoated, polymers, hybrids and much more.					
Consumer Industry:	Consumer paper, coated or uncoated, laminated, plastics, polymers, paperboards, cardboards and much more.					

The Unique Characteristics

B22 Helix CC

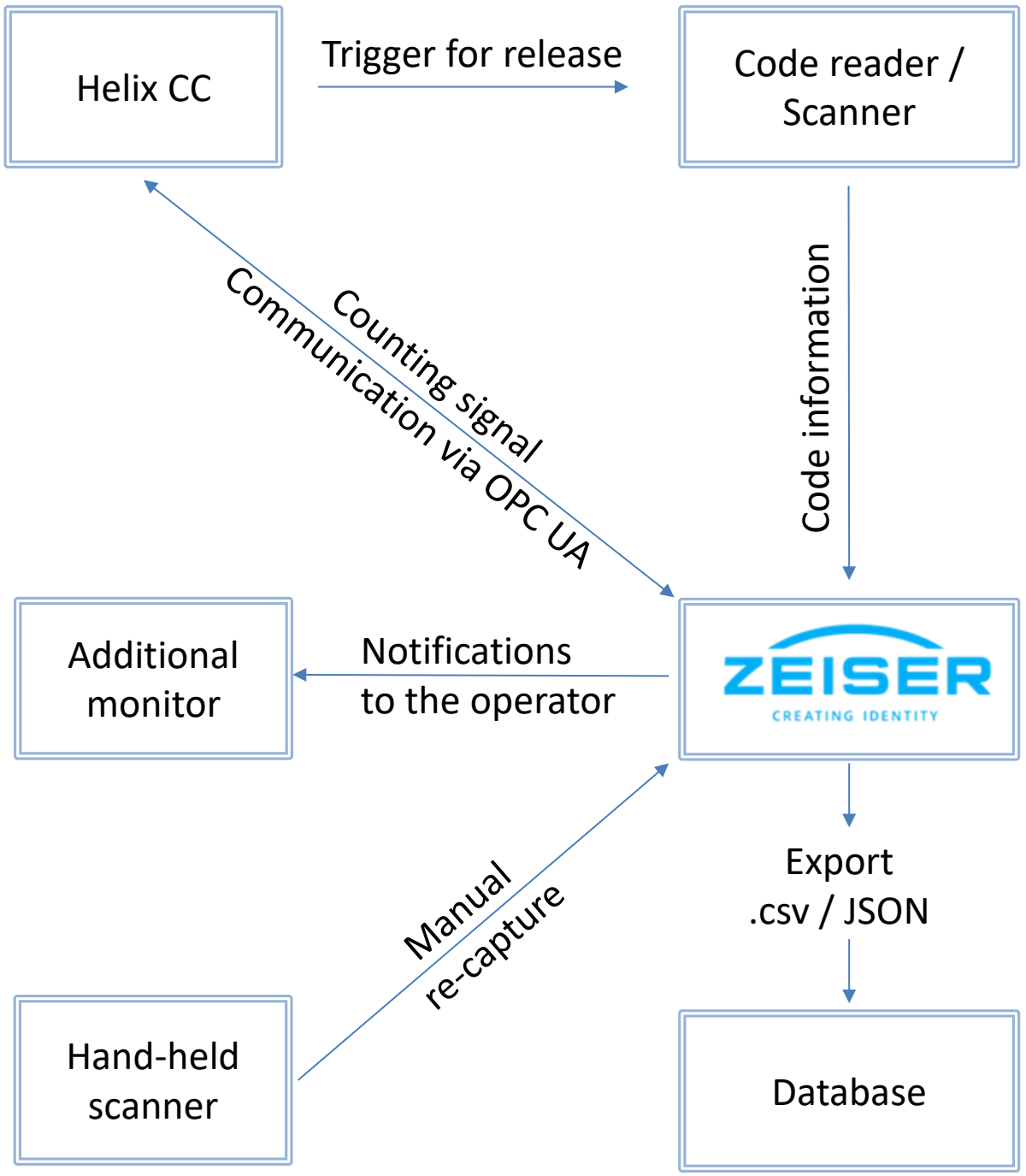
Adjustment of the weight of the counting head, the vacuum power and the pressing force of the press plates via pressure regulators.



Space in the machine frame for installing a printer.

Without an existing track and trace system

Connection



Without an existing track and trace system

Process

If the customer does not have a TT system installed, the optional **Zeiser Function Module** is required to evaluate and store the results. After a batch has been fully captured, the result is provided as a.csv file or in JSON format.
The function module consists of an additional IPC in the machine control cabinet with a Windows operating system, a separate touchscreen control monitor, an optional handheld scanner and the **Zeiser Harmony Application Software**.

The process :

- The operator registers the order/batch.
- The sheets are counted and the ID codes of each sheet from the loaded sheet stack are captured (1st pass counting and capturing ID code).
- The reading results are logged and stored.
- If the ID codes are not readable, the user is prompted to perform a recount and capture (2nd pass counting and capturing ID code).
- The ID codes are captured again and compared with the results of the first run and consolidated. The software stores the consolidated result in the local database.
- If, after two runs, not all ID codes have been captured at least once, the user is prompted to reposition the sheet stack for counting and capturing. The system stops at the first ID code that has not been previously captured, and the user is prompted to check the sheet. The operator then has the option of manually capturing the sheet as ‘good’ using the handheld scanner or marking the sheet as waste. The process is repeated until all sheets with previously unrecorded ID codes have been processed.
- Once all sheets have been captured/processed, the operator can export the result as a.csv file or in JSON format.
- The system allows up to a maximum of 10,000 consolidated reading results to be stored. The function module can be seamlessly connected to the **Harmony Sentinel Track & Trace Solution** to store all reading results in the central **Harmony Database**, ensuring seamless tracking of each captured sheet.

Integration:

- Numerous machine functions can be controlled remotely via OPC UA. The scope of integration should be defined as precisely as possible before the project begins. Depending on the desired scope, software adaptations may be subject to a surcharge.

The Unique Characteristics

B26 Helix CC

Adjustment of the weight of the counting head, the vacuum power and the pressing force of the press plates via pressure regulators.

Technical Specifications

Helix CC

Counting technology	Disc				
Counting direction:	Top to Bottom				
Helix Disc	Min.	Max.	Type	Position	Equipped
GSM (g/m²):	35	170	SO2	Edge	Standard
Counting discs to process higher GSM values available upon request. Depending on the stiffness and quality of the products, these values may deviate during processing.					
Counting Speed	RPM	Type	Segments	Sheets/Min.	Sheets/Sec.
Rated RPM:	1250	SO2	2	2500	~40
Depending on the stiffness and quality of the products, these values may deviate during processing.					
Code-Reader	Sheets/min.	Function			
Reading speed:	800	Without immediate stop in the event of an incorrect code.			
Reading speed:	60	With immediate stop in the event of an incorrect code.			
PLC Control					
Brand:	B&R				
Touchscreen:	10,1" colored multilingual, main HMI with pictograms				
Interfaces:	FTP (Client / Server)/USB/Profinet/Profibus/Ethernet-IP/EtherCat				
Operating Noise					
Max. dB(A) at 1400 RPM.:	72				
Environmental conditions		Min.	Max.		
Recommended temperature range (+°C):		15	35		
Recommended relative humidity range (%):		35	45		
Certification:	CE declaration, in accordance with all applicable European standards.				

Basic Information

Discs

- The details of the GSM values are based on experience and tests. Depending on the product rigidity, these values may differ.
- Older produced counting discs for corner position are designated by 1xx,x for the diameter in "mm" and / or "V8 - V15" depending on the type.
- Newly produced counting discs for corner position are designated by "C1-Cx“ depending on the type.
- Newly produced counting discs for edge position are designated by "S1-Sx" depending on the type.
- Warranty for the lifetime of the counting discs is not granted as the abrasive wear depends highly to the processed product.

Machines

- Maximum counting speed refers generally to the rated maximum rpm value and the machine design.
- It is not granted that maximum speed can be attended using all kind of substrates / materials.
- Warranty time 12 months upon issuing of the acceptance certificate.
- Warranty extension of 24 months optionally available.
- Warranty coverage except wear parts.

köster

Köster GmbH · Robert-Bosch-Straße 4 · D-74182 Obersulm-Willsbach
Telefon:+49(0)71344051·E-Mail:service@koester-gmbh.de·Internet:www.koester-gmbh.de