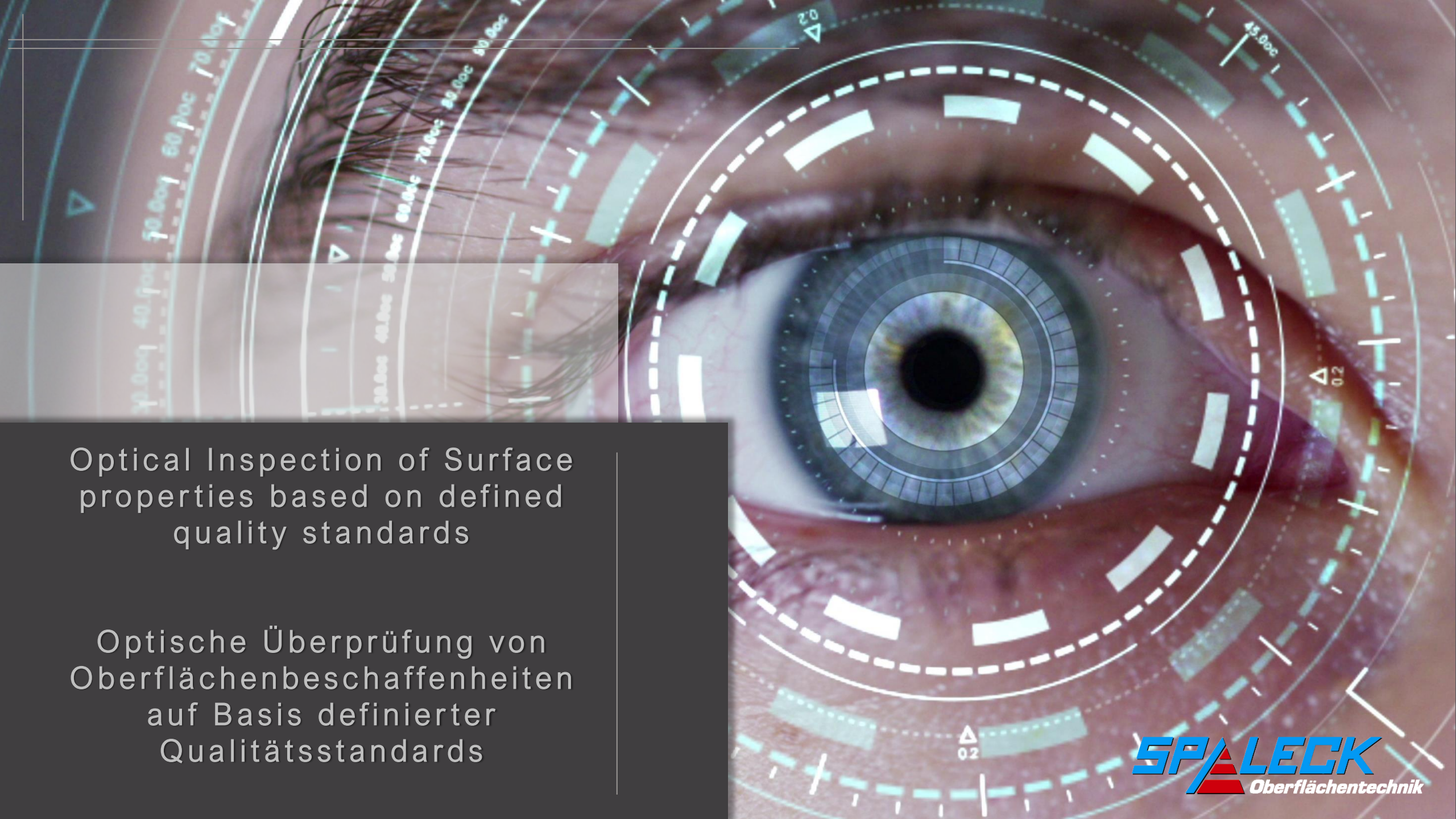


Optical Inspection of Surface properties based on defined quality standards

Optische Überprüfung von Oberflächenbeschaffenheiten auf Basis definierter Qualitätsstandards

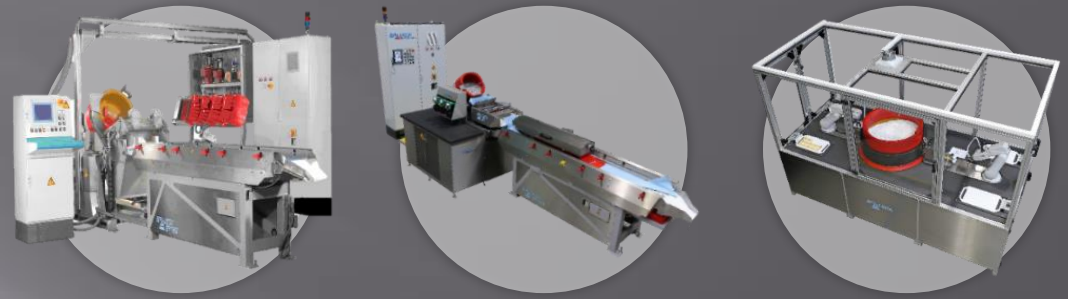
SPALECK Oberflächentechnik

SPALECK OBERFLÄCHTECHNIK GMBH & CO. KG

150 YEARS OF COMPANY HISTORY

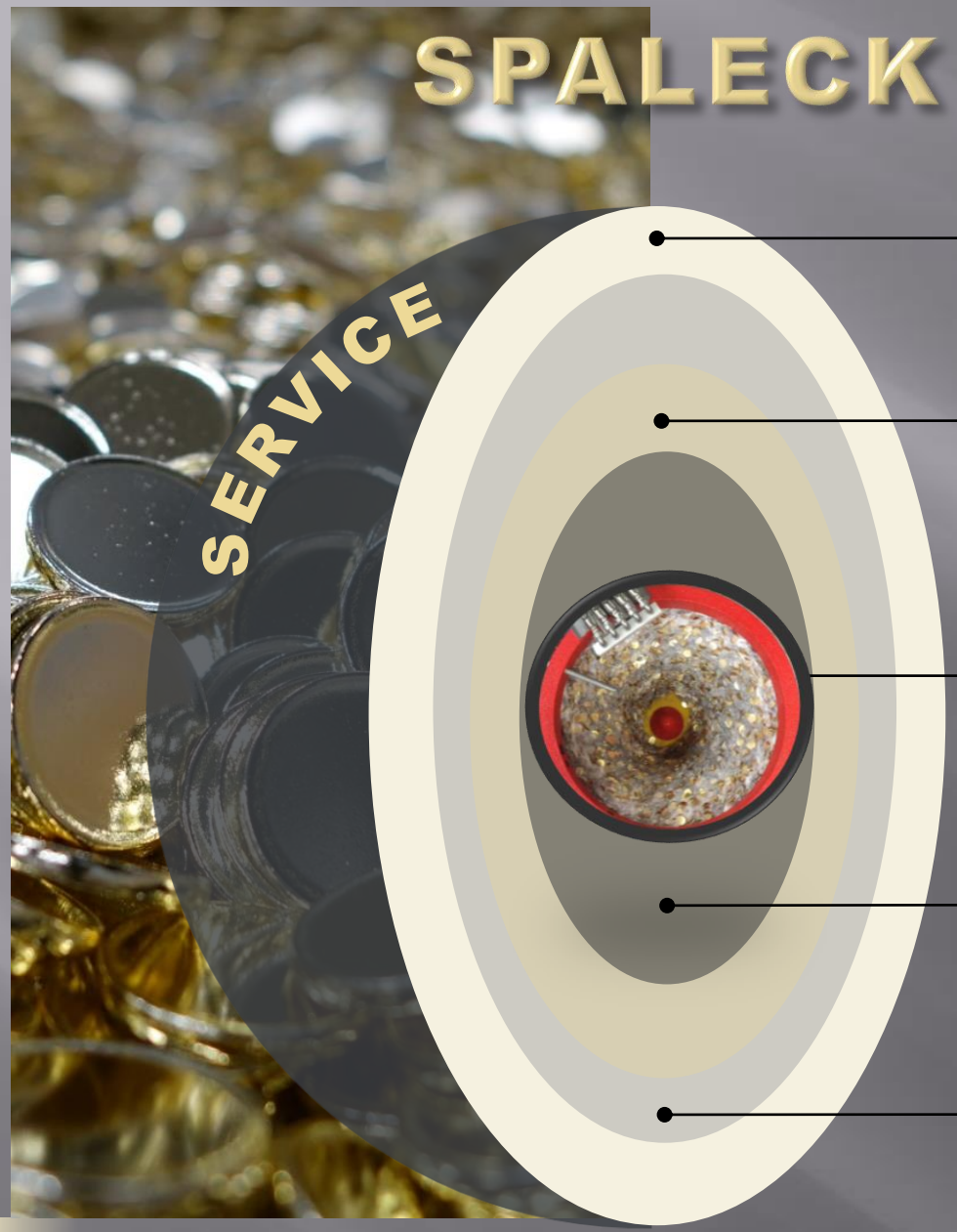
100 EMPLOYEES

90 YEARS OF EXPERIENCE IN SURFACE FINISHING



- Full-service providers for surface engineering
- Certified according to DIN EN ISO 9001 : 2008
- Certified specialists according to WHG§19 (German Water Law)

SPALECK PRODUCT RANGE



Automation

stacking unit – robots – Inspection – data capturing

Drying

VAT 33– SFT200 – TT – VAT540S

Media

Compound – Grinding media

Treatment

Z11 – Z33 – Z4 – Z44 – DL 1000/2000

Waste Water Recycling

ZMT4F , ZA3, Vacuum Distillation

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PRINCIPLE

INSPECTION

Basically all optical aspects can be inspected, which are visible with the human eye

HANDLING

Key question is the transport/exposure of objects to the camera

GENERATION OF PICTURE

Create the image via camera and illumination

ANALYSIS OF PICTURE

Software algorithm analyse the image accordingly

DECISION

Classification based on specified parameters

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SIT200R
COIN AND BLANK INSPECTION

Inspection regards to:

- Color
- Discoloration
- Stains
- Surface defects
- Contour
- Alignment head and tail
- Diameter
- Height
- Ovality
- Concentricity
- Relief quality
- Relief height

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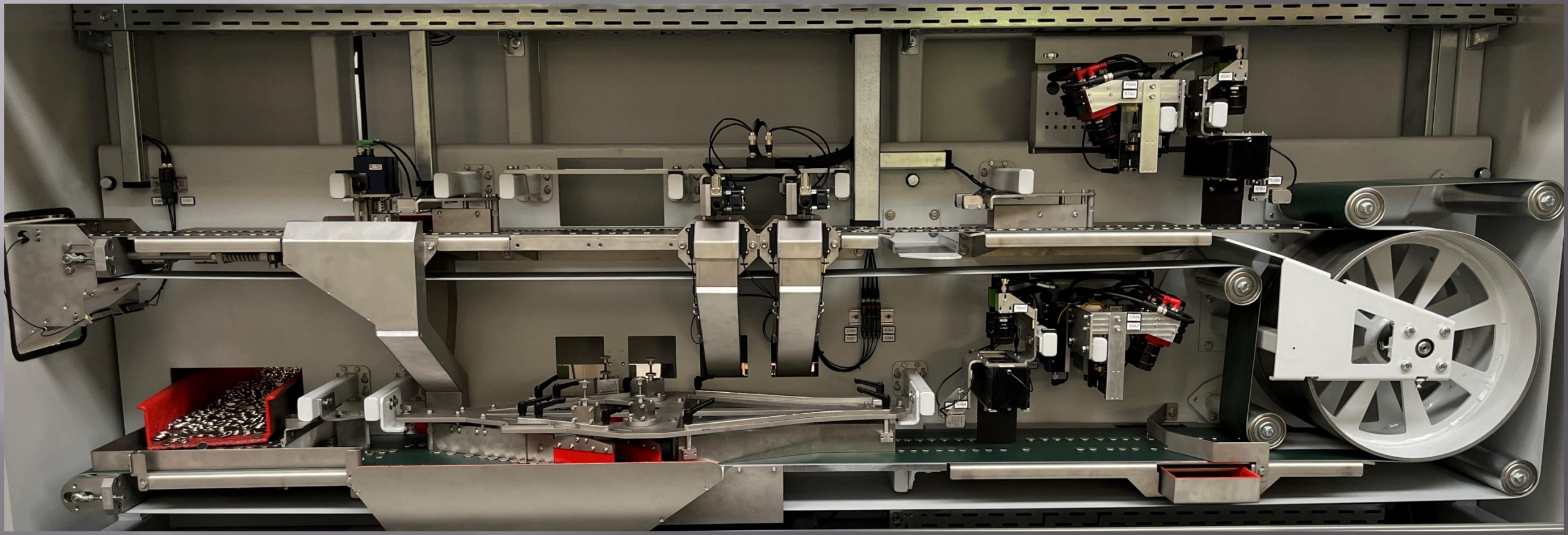
MATERIAL FLOW



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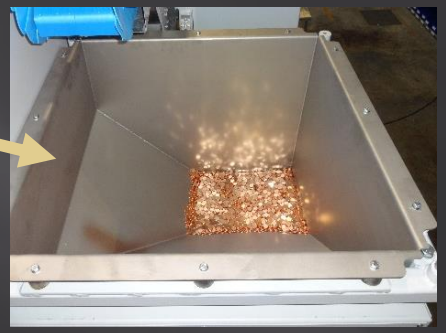
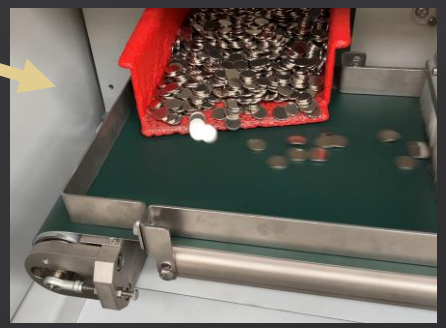
HOPPER

HOPPER



The coins, blanks or objects to be inspected are provided in the hopper for the inspection process. The filling can be done mechanically via a conveyor belt or manually, for example via bags.



The coins are conveyed via a vibration system to the main conveyor of the machine.

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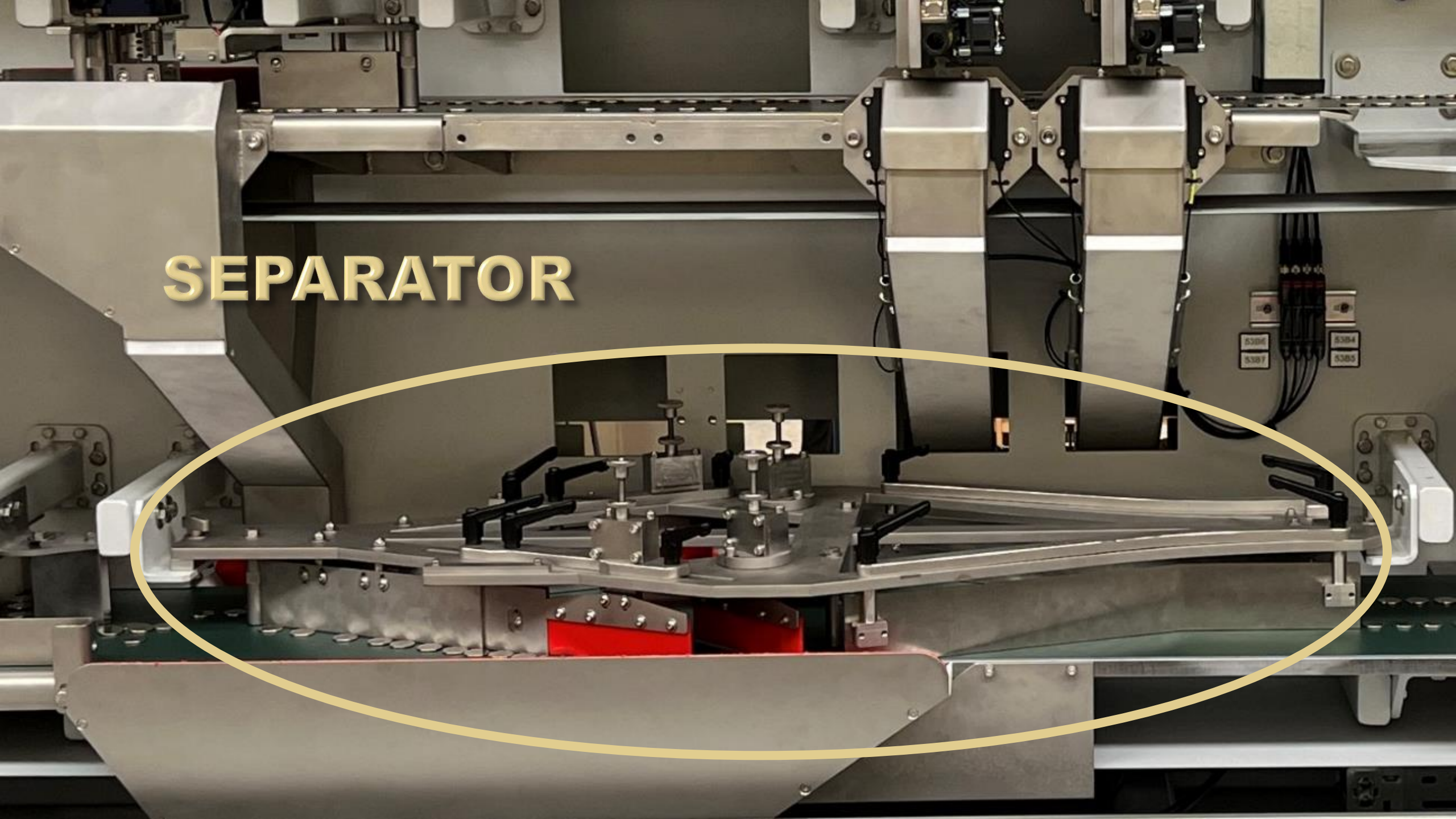
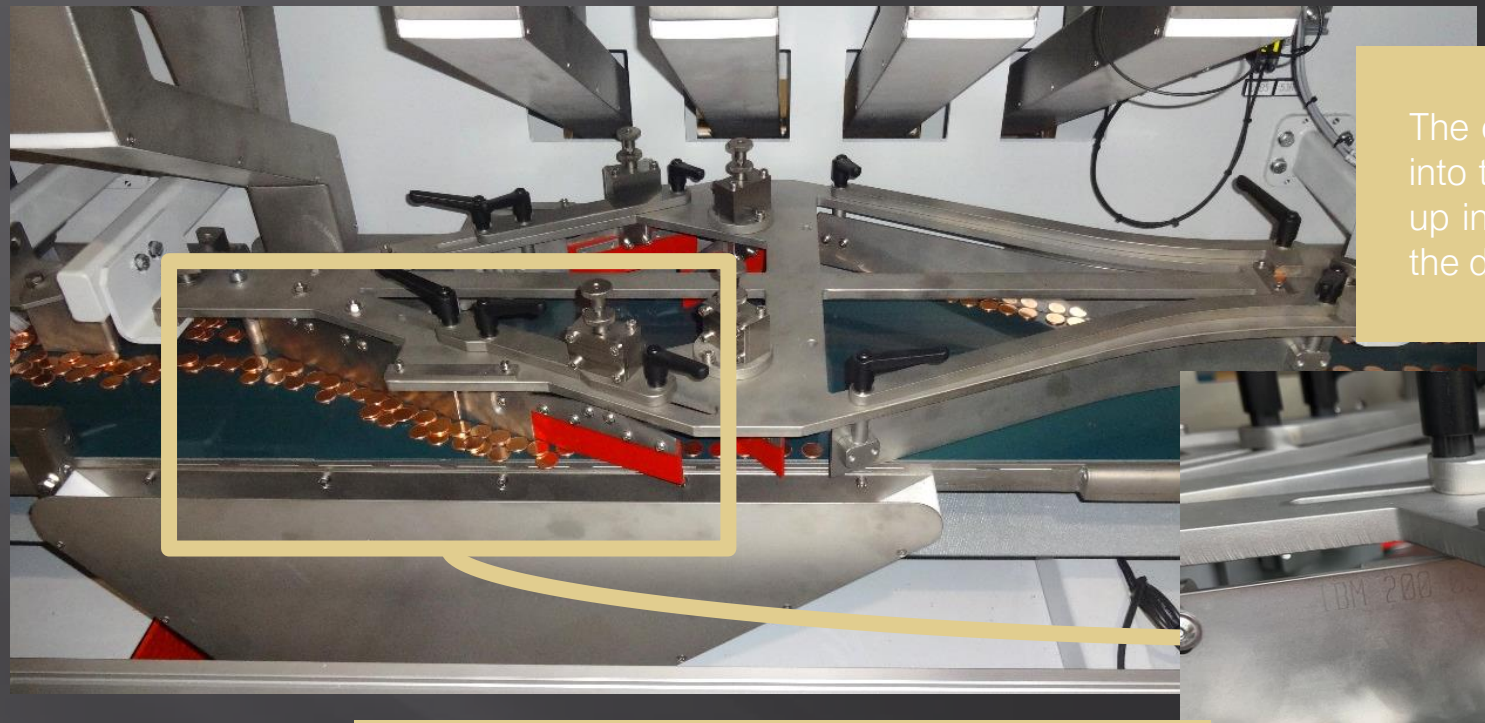
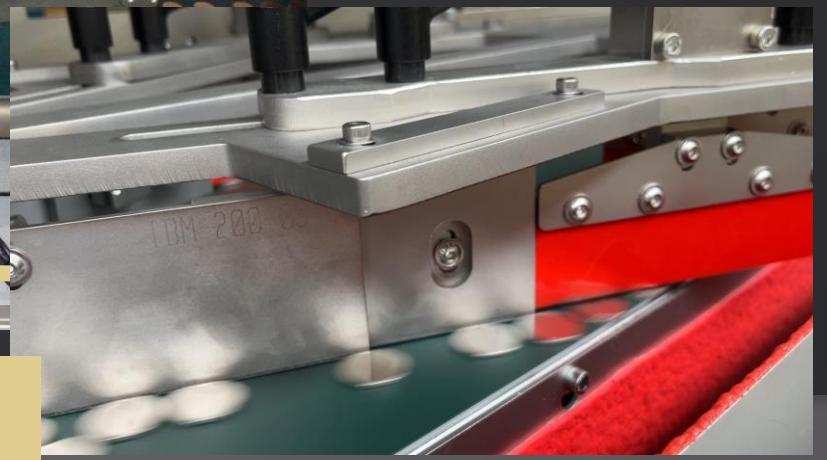
HOPPER


SEPARATOR

SEPARATOR



The coins coming from the hopper are split up into two tracks at the separator. They are lined up in a row with a gap at least half as wide as the diameter between the individual coins.



Coins lying above or next to each other are sorted out and transported back to the hopper via a slide and a conveyor belt.

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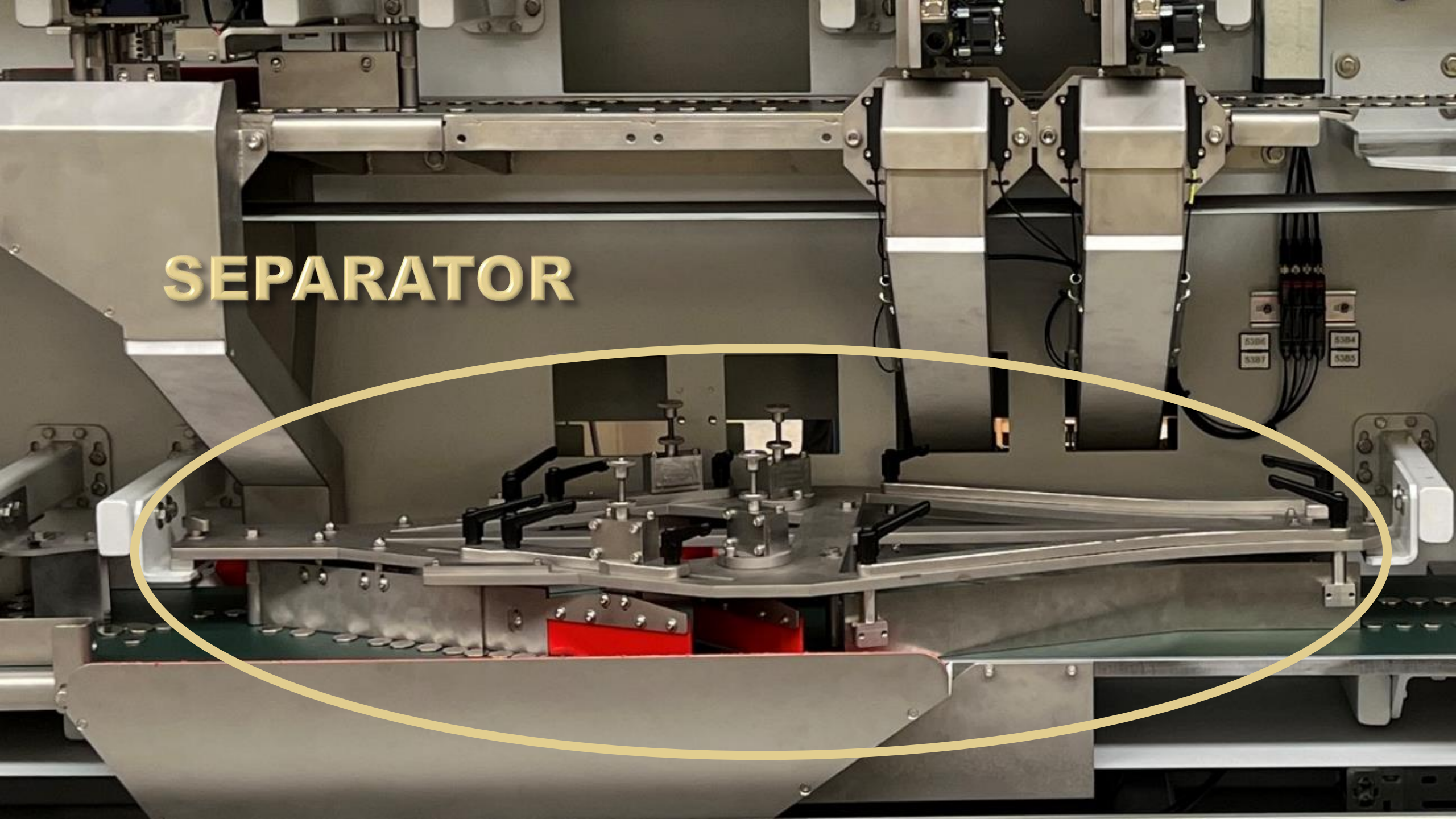
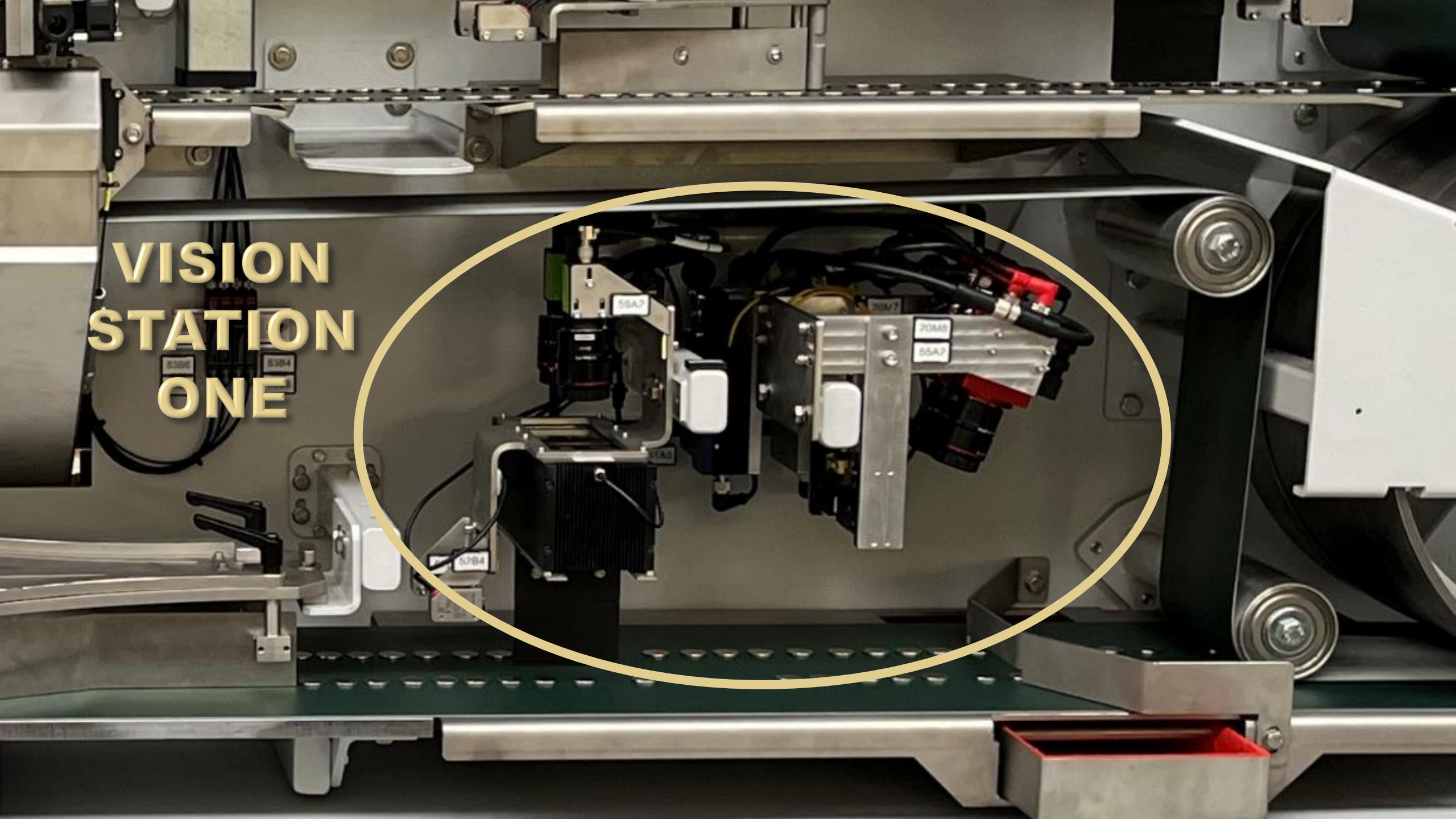
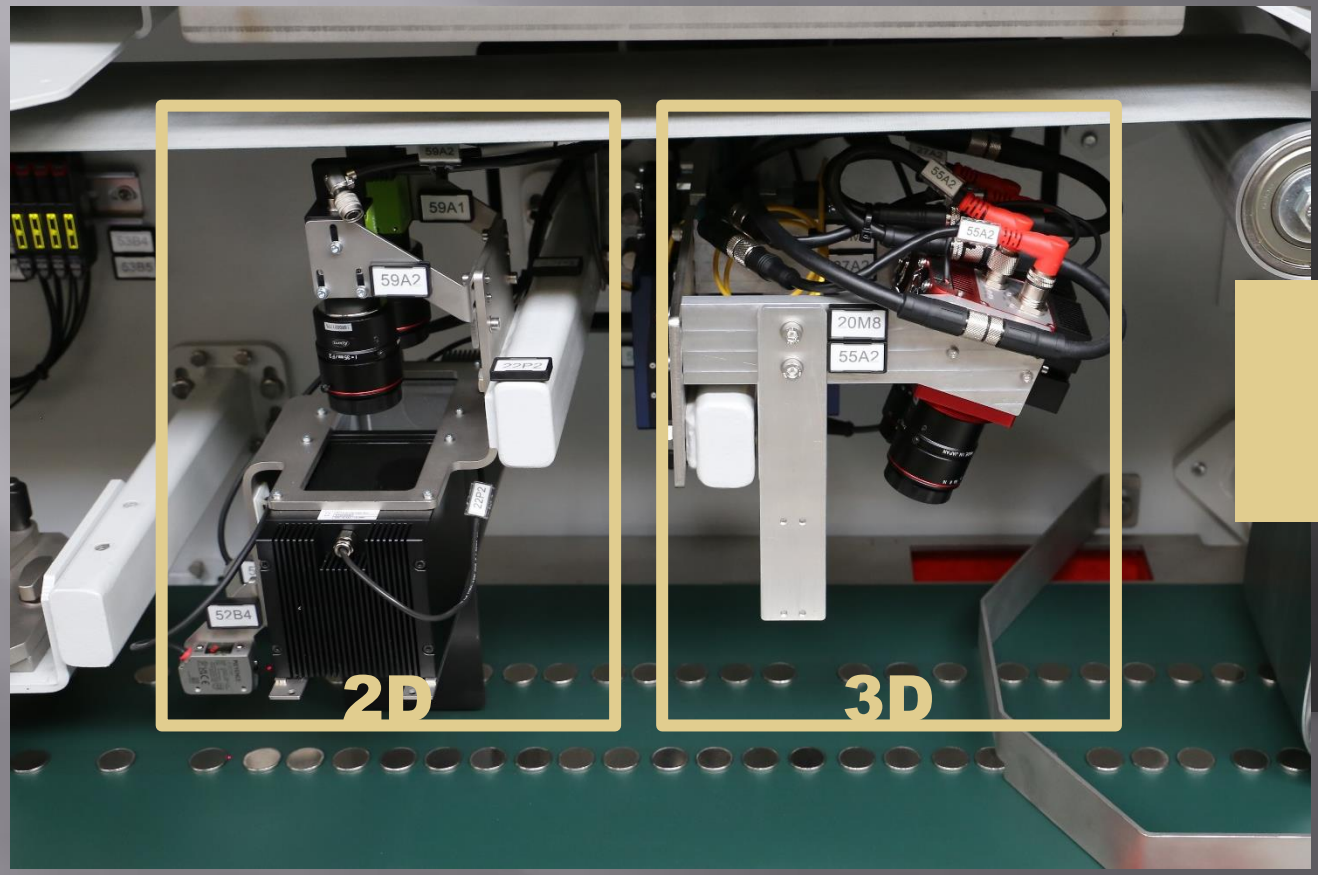

SEPARATOR


VISION
STATION
ONE

VISION STATION ONE



At vision station one the obverse of the coin gets inspected.
Each line uses its own 2D and 3D camera.

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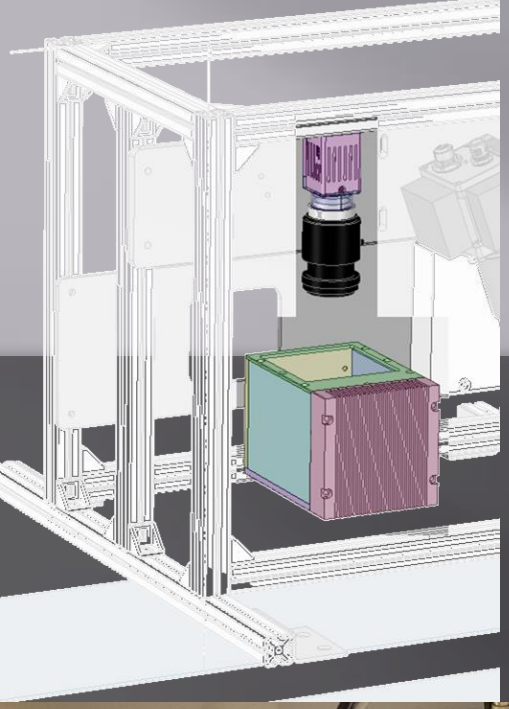

KEY FUNCTIONS OF 2D INSPECTION

Inspection regards to:

- Color
- Stains
- Surface defects e.g. scratches, impacts, impressions, bumps, bubbles, blisters
- Contour
- Alignment head and tail

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COMPARISON 2D IMAGES

REFERENCE

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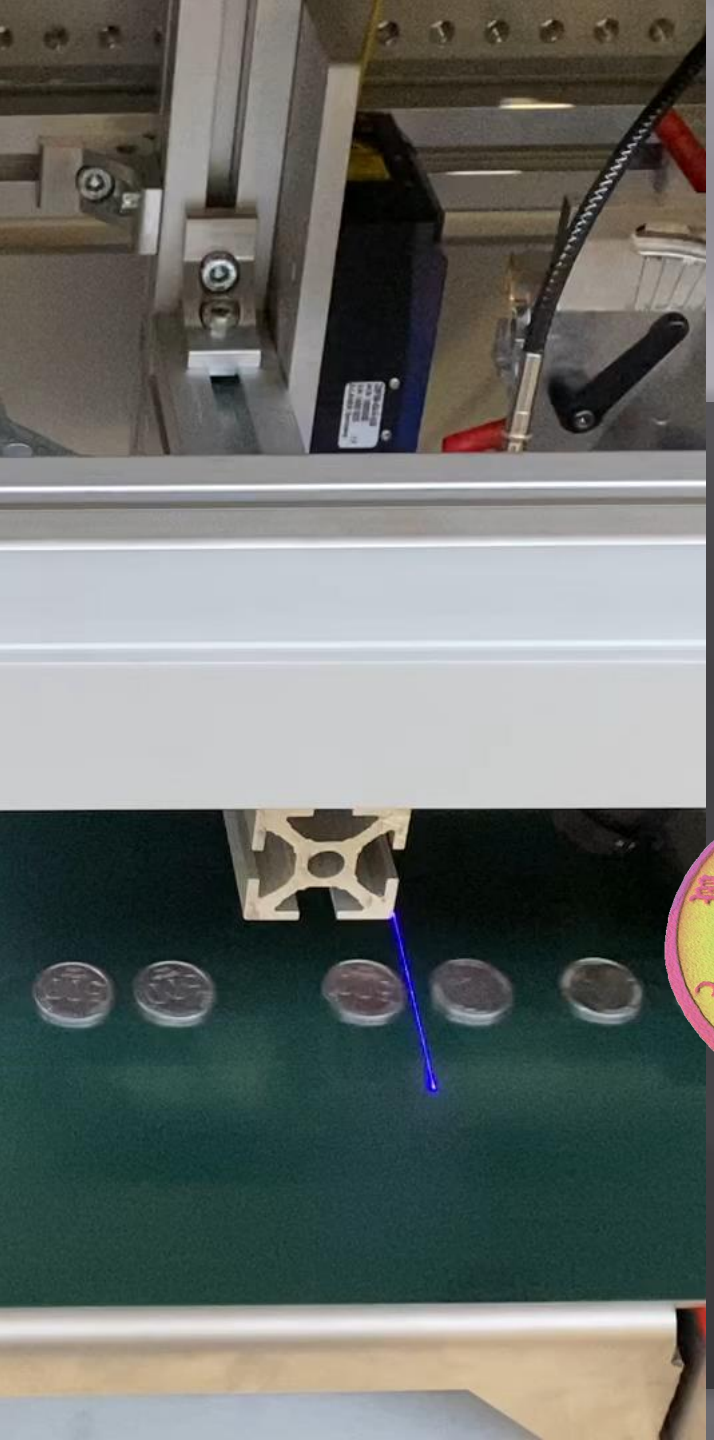
COMPARISON 2D IMAGES

REFERENCE **SAMPLE**

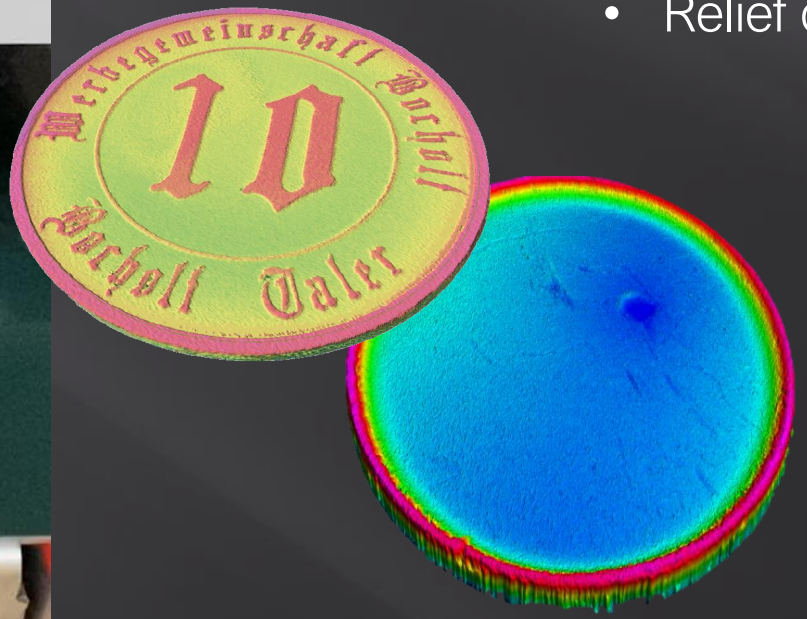
SPALECK Oberflächentechnik

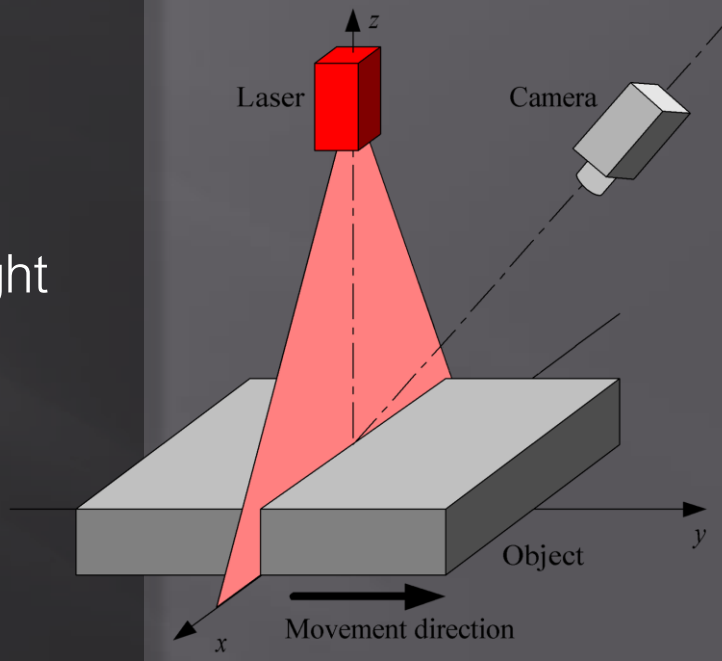


KEY FUNCTIONS OF 3D INSPECTION

Inspection regards to:

- Diameter
- Height
- Ovality
- Concentricity
- Relief quality/height





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COMPARISON 3D IMAGES

REFERENCE

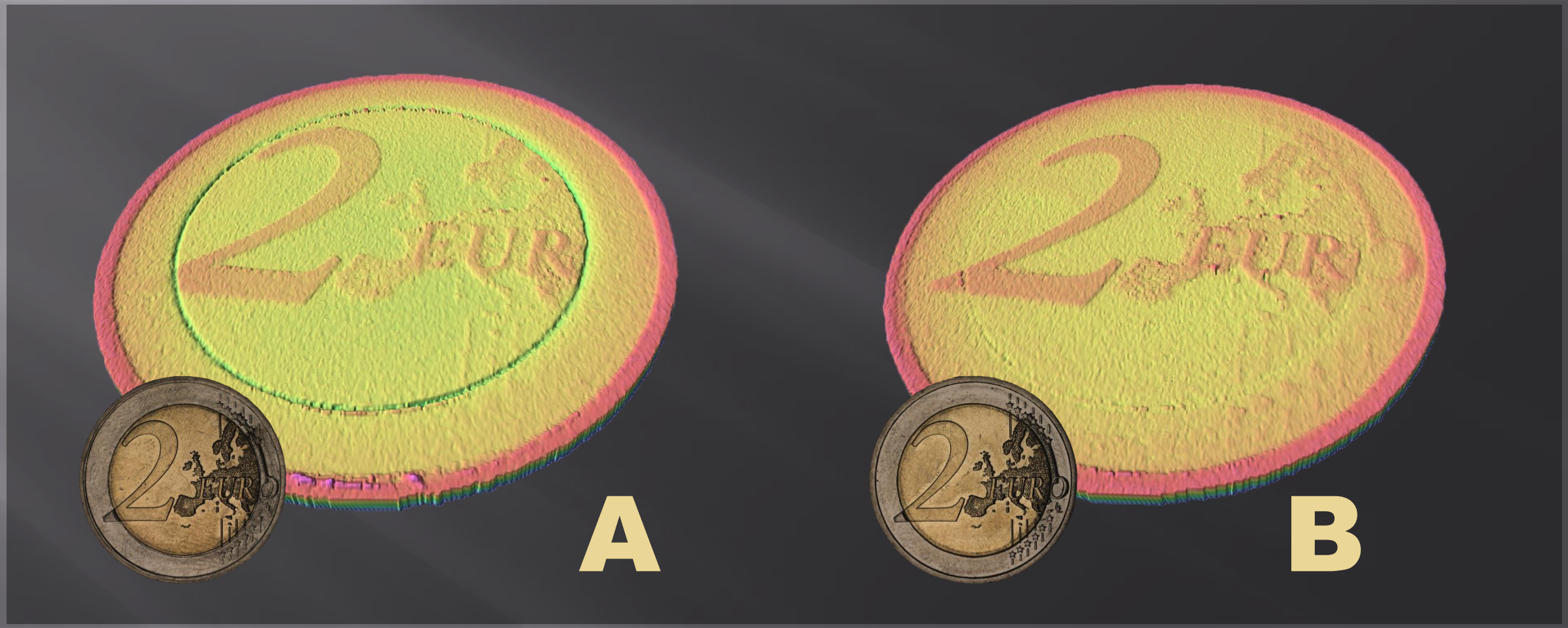
SAMPLE

SPALECK Oberflächentechnik

DO YOU SEE THE DIFFERENCE?

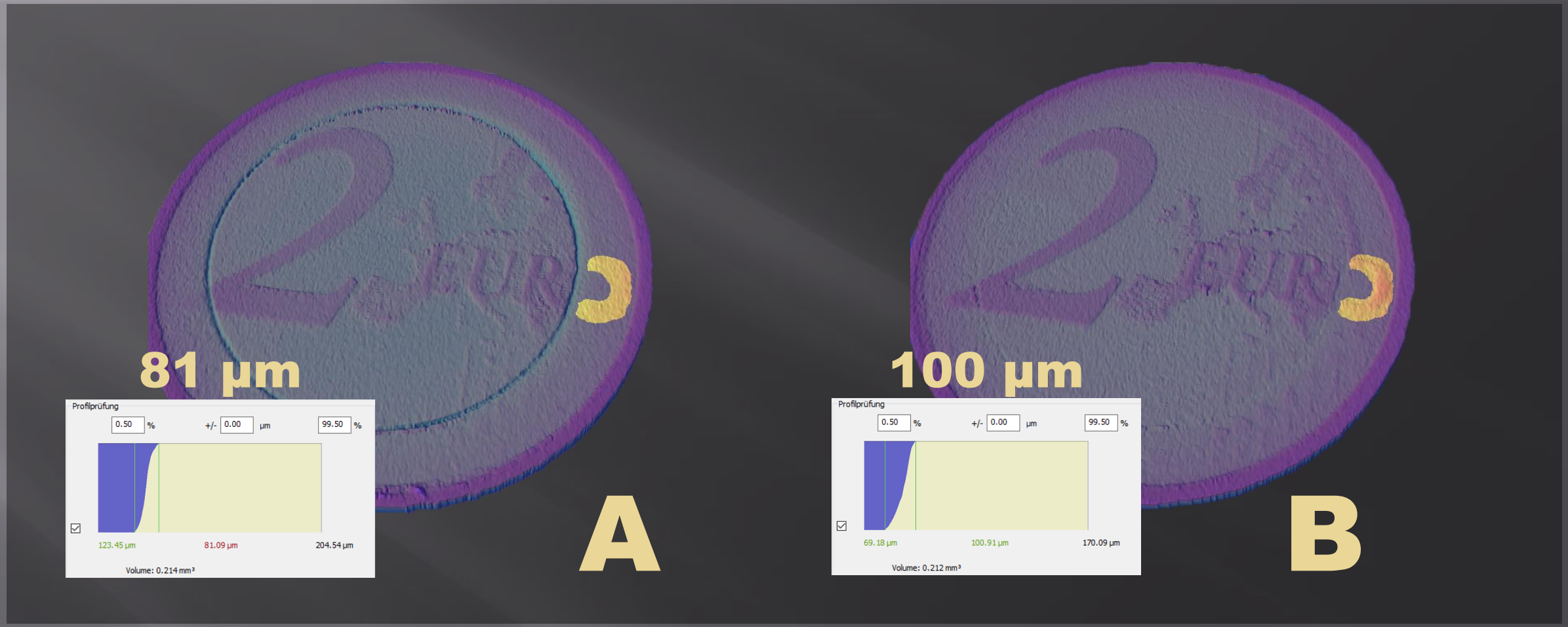
SPALECK Oberflächentechnik

DO YOU SEE THE DIFFERENCE?



SPALECK Oberflächentechnik

DO YOU SEE THE DIFFERENCE?



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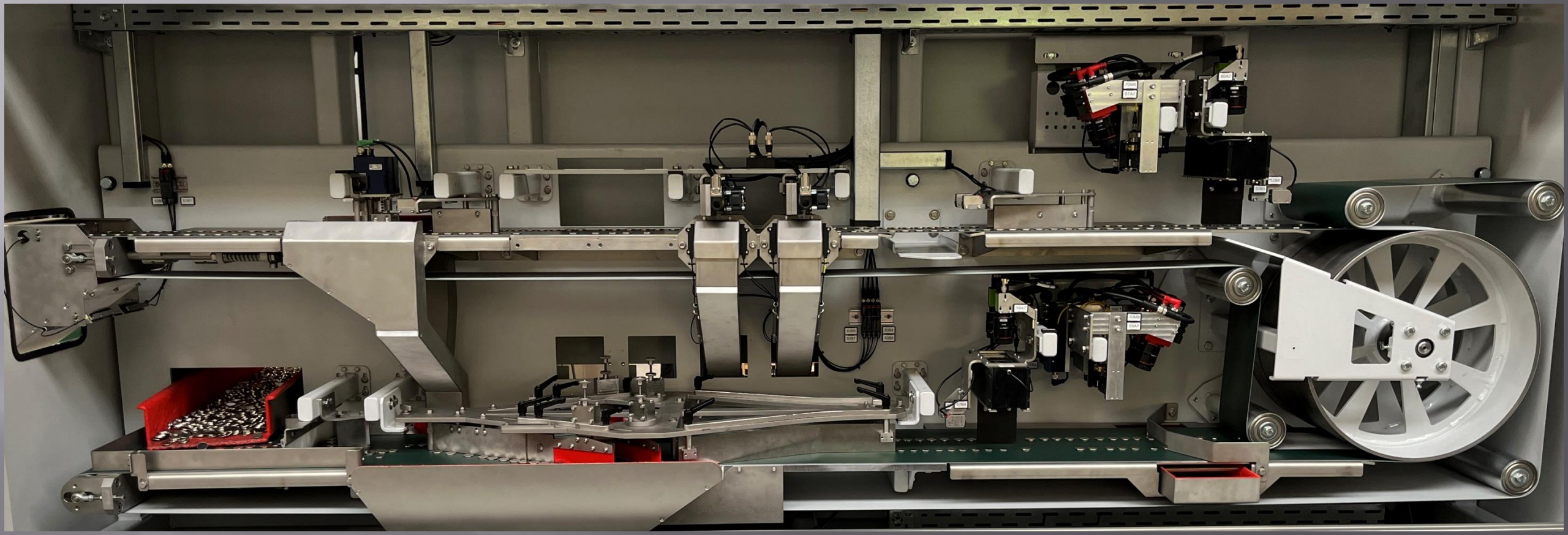
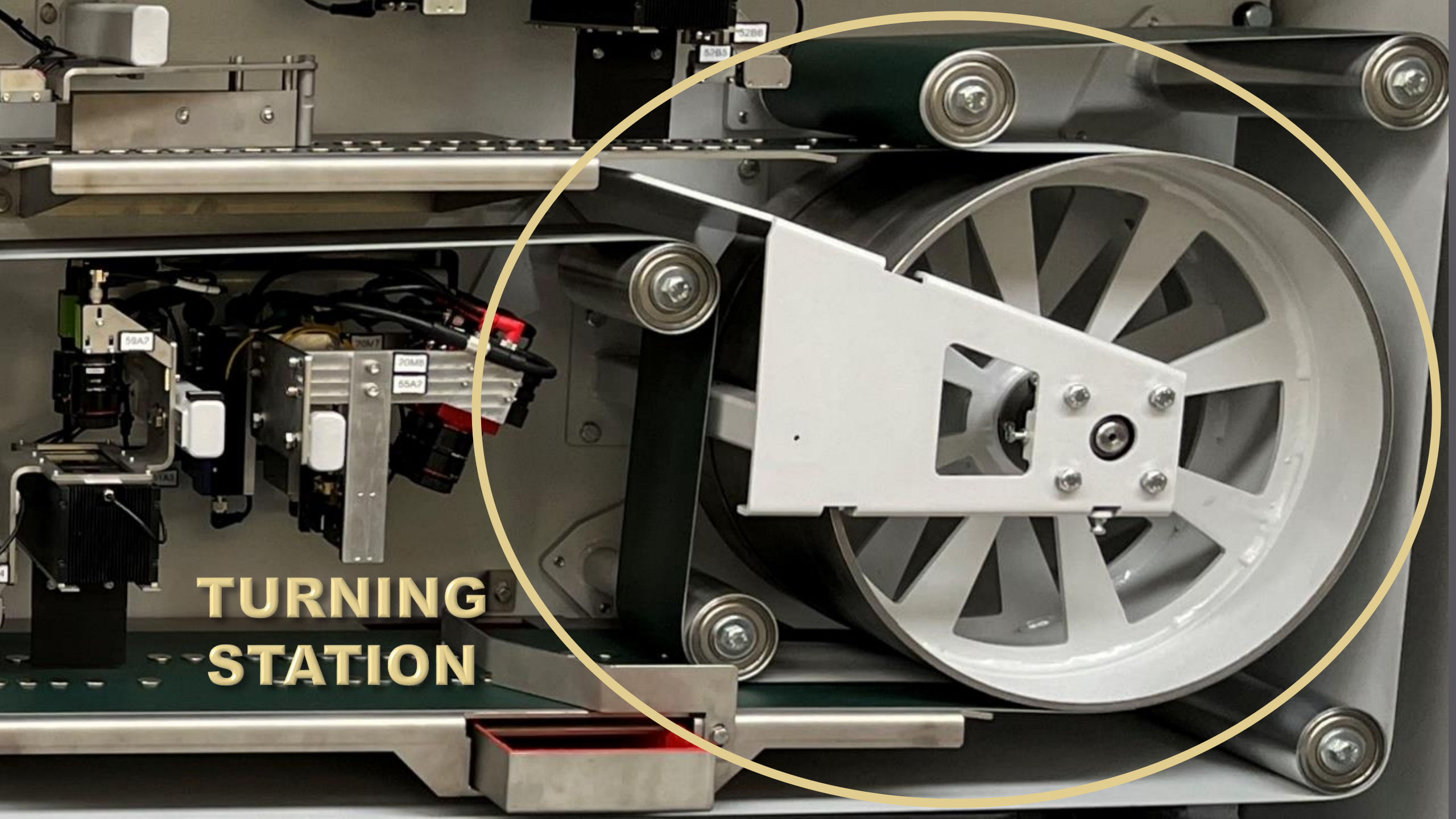
MATERIAL FLOW

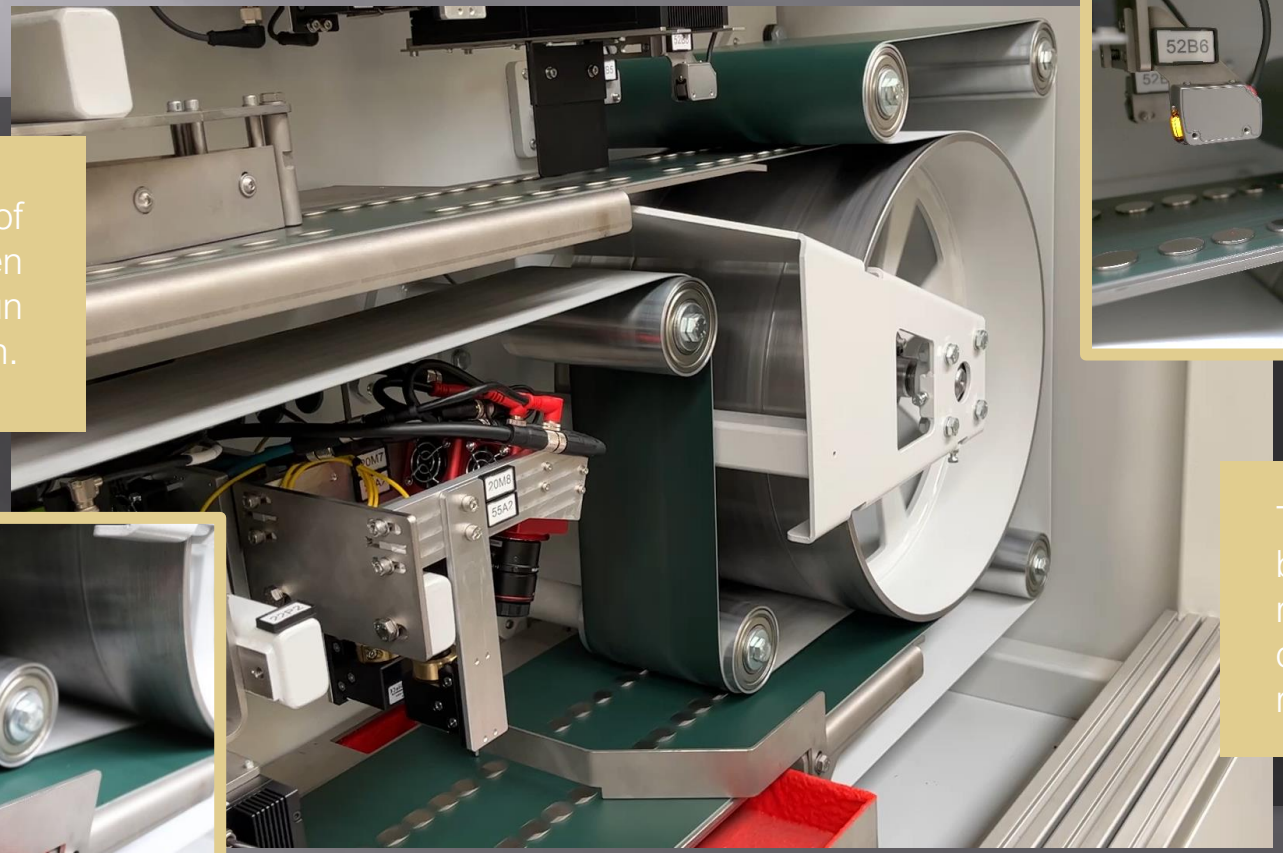


SPALECK Oberflächentechnik


TURNING
STATION

TURNING STATION

After the obverse of the coin has been inspected, they run into the turning station.



There they get clamped between two belts and rotate 180 degrees to carry out the inspection reverse.

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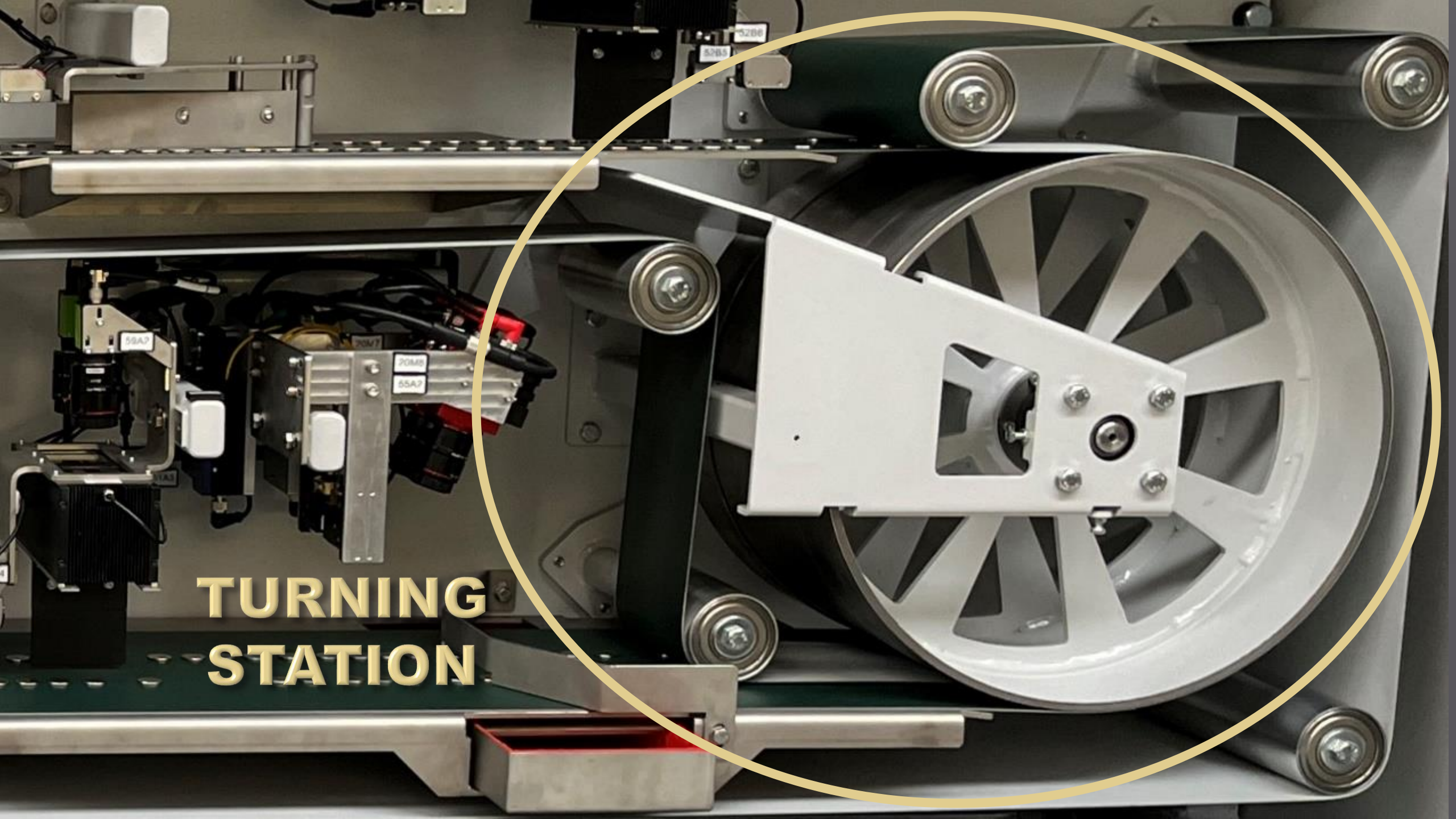
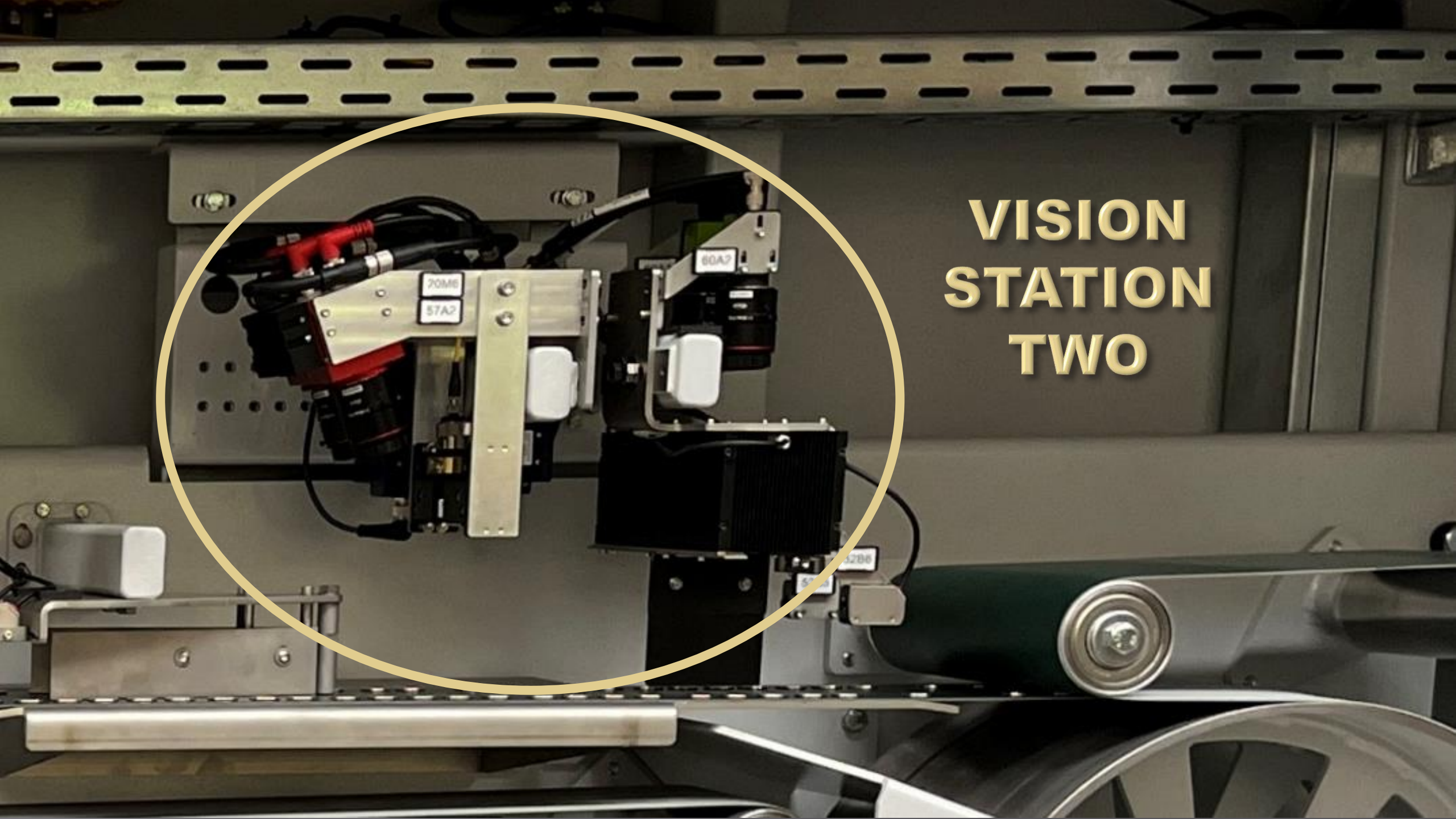
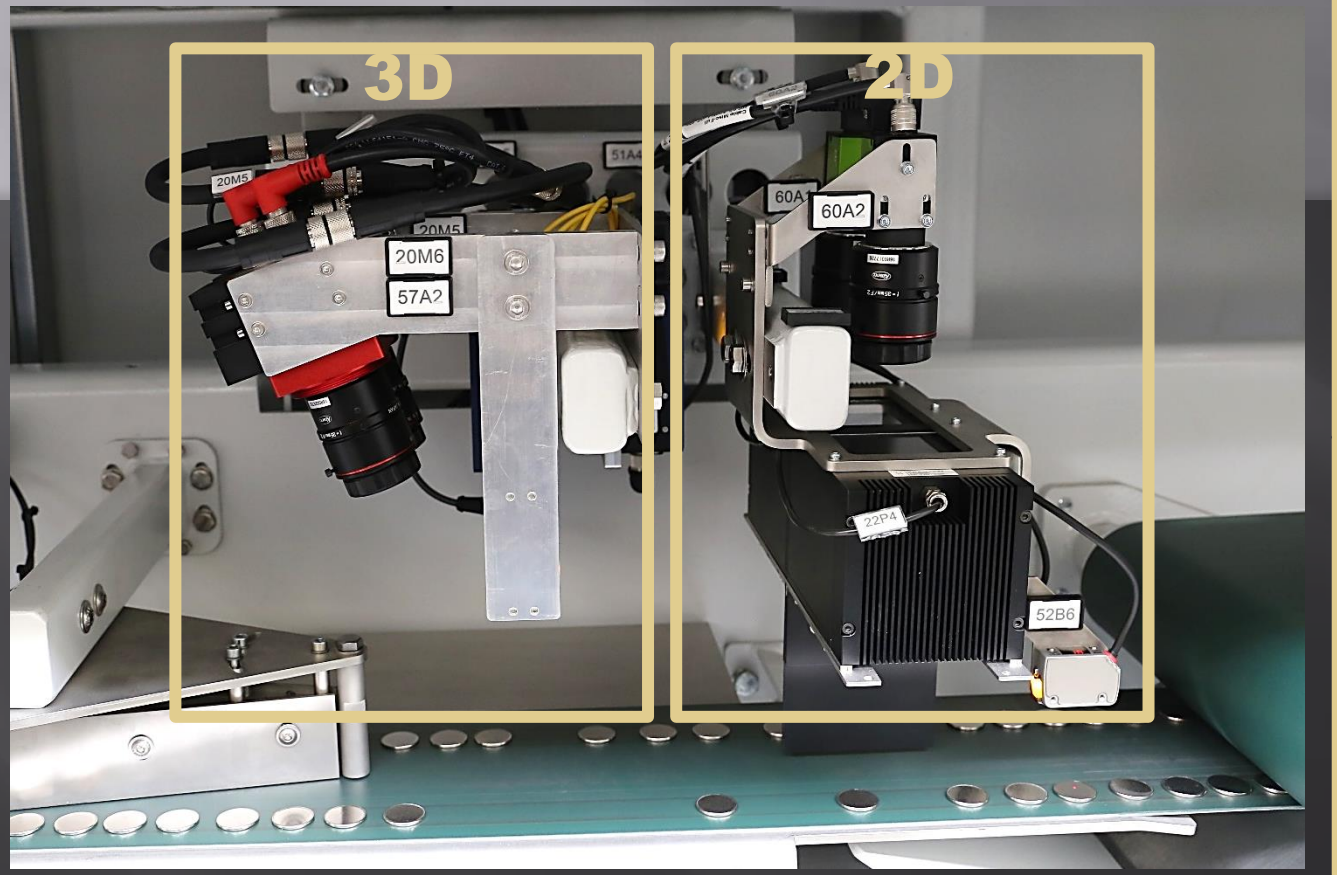
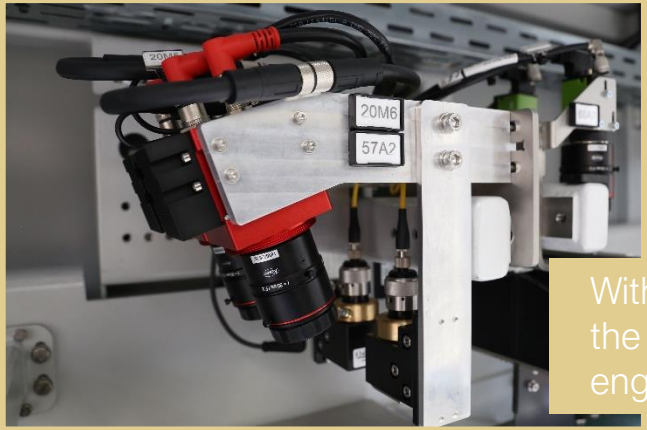

TURNING
STATION

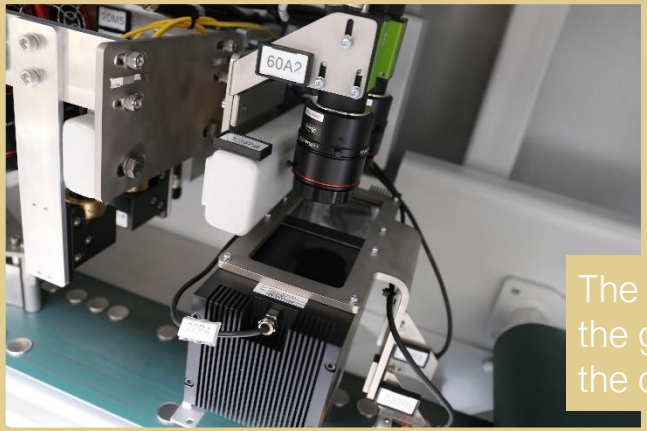

VISION
STATION
TWO

VISION STATION TWO





With the 3D camera, the height and the engraving is checked.



The 2D camera checks the geometric data and the color of the coins.

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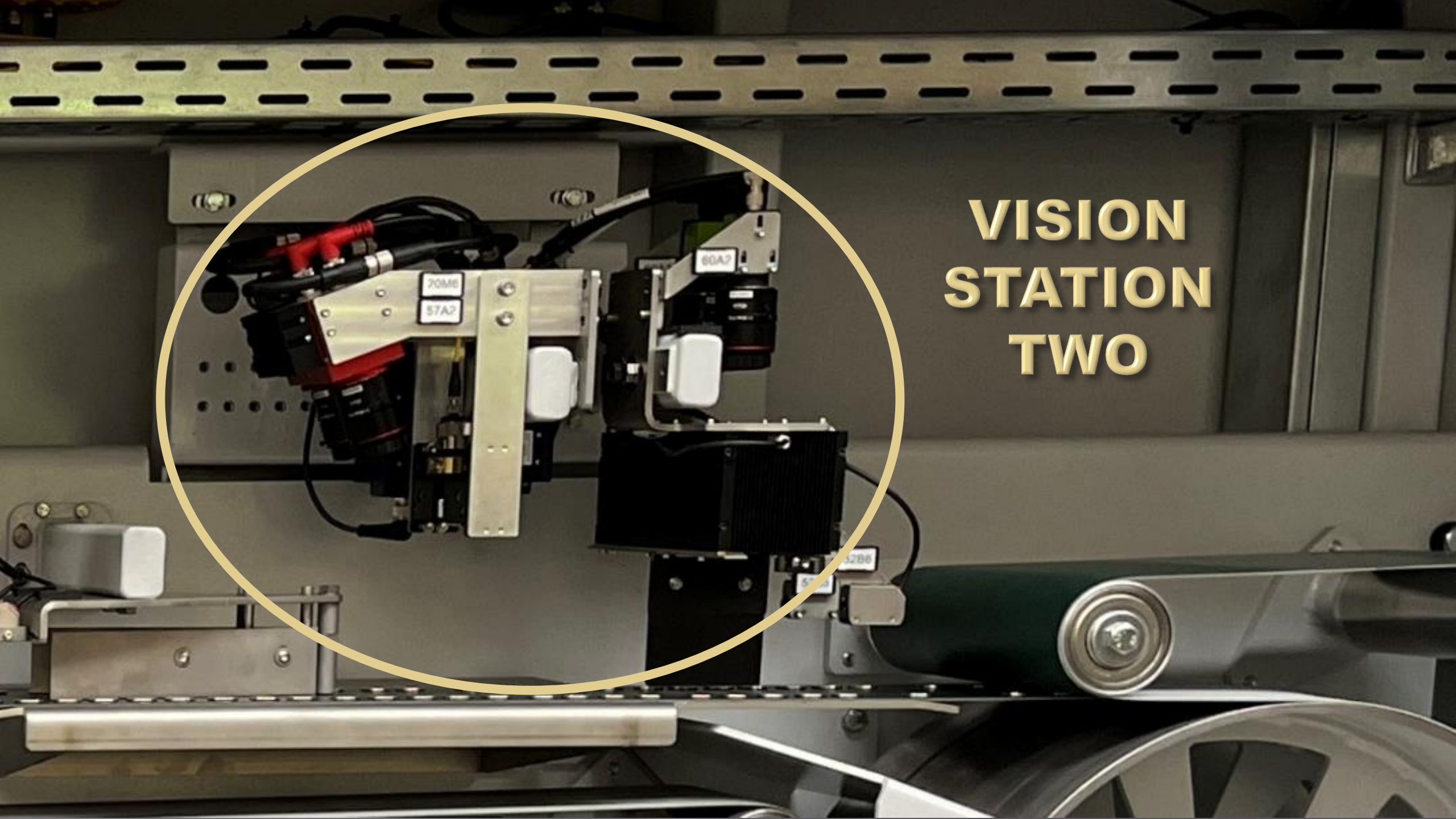
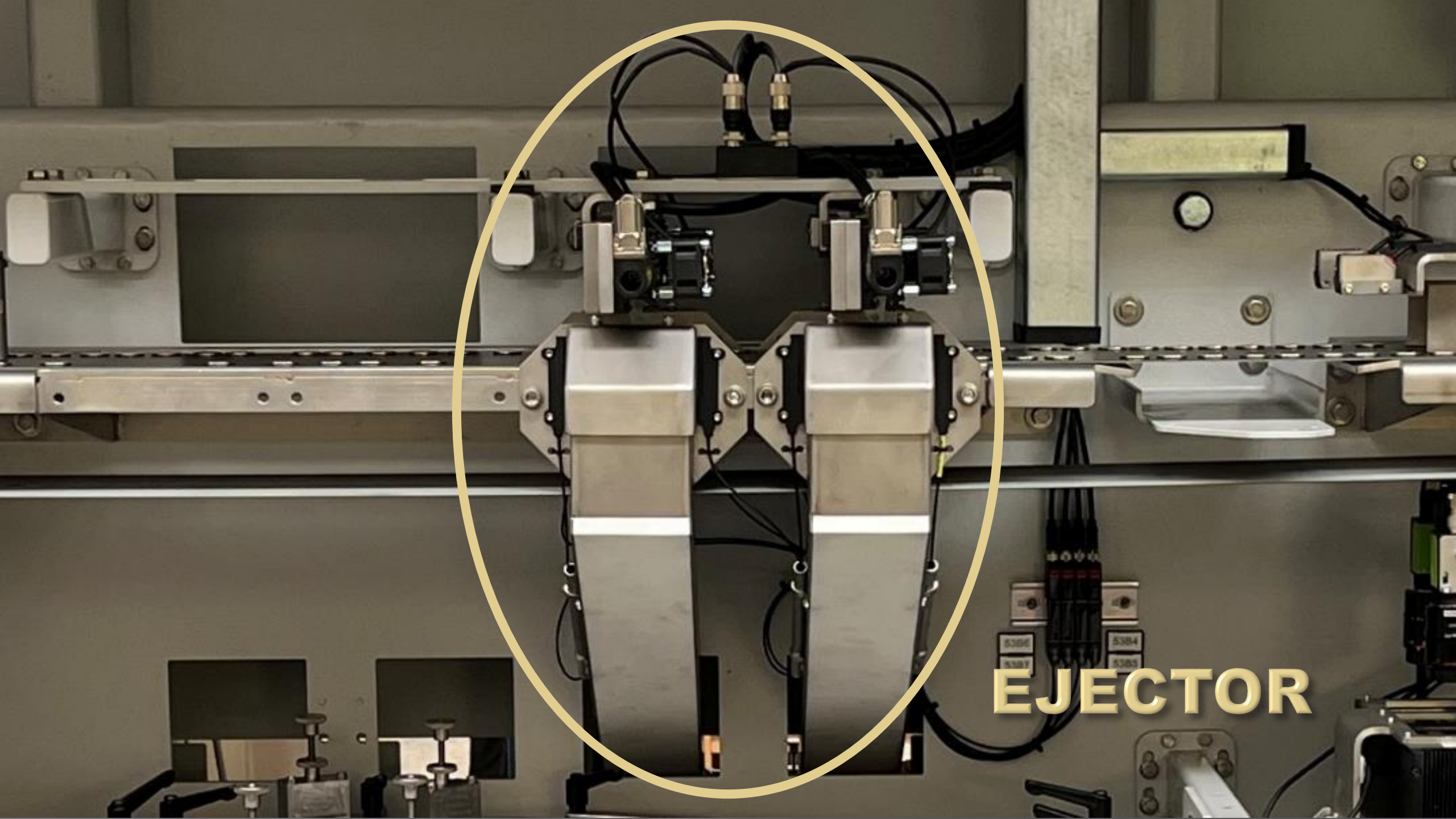
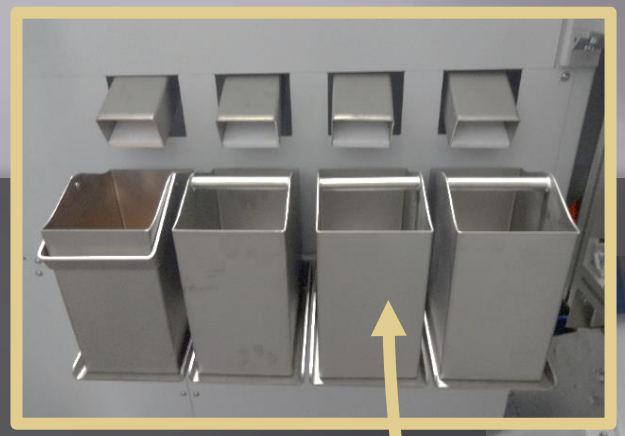
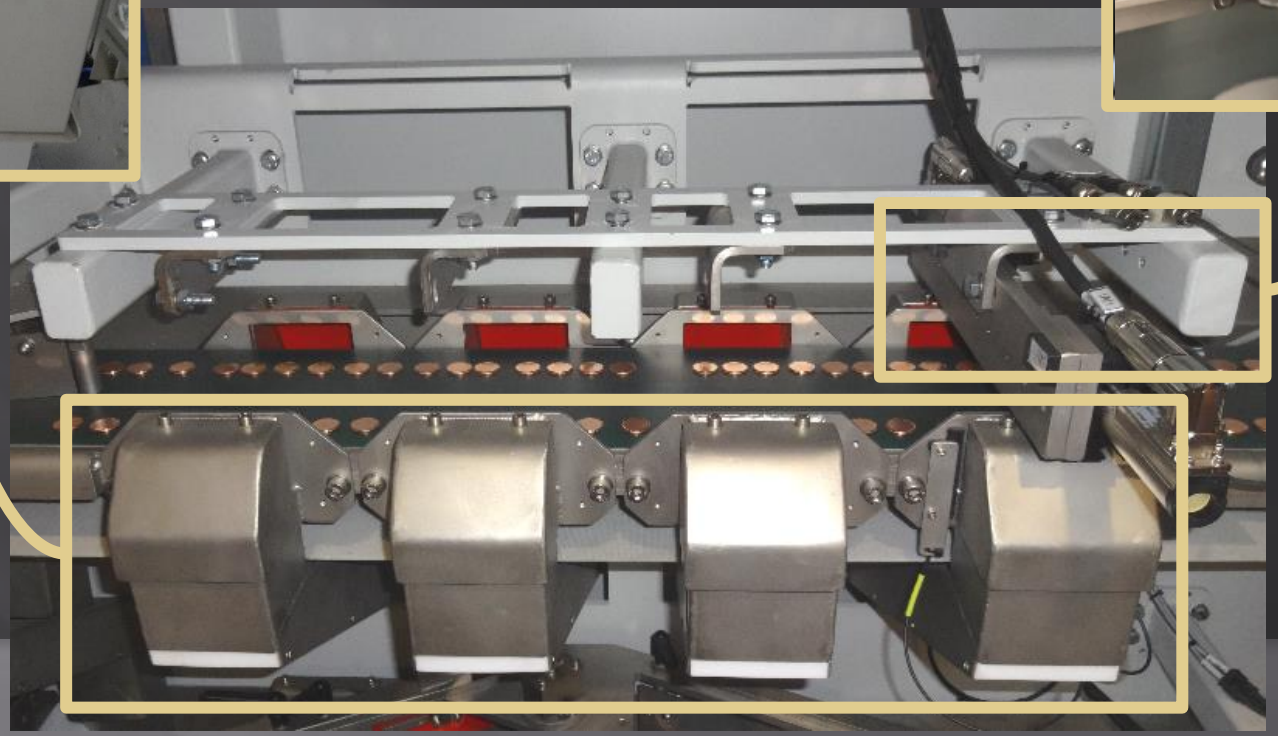

VISION
STATION
TWO


EJECTOR

EJECTOR





The ejectors sort out the “bad coins”. It is possible to sort the coins into different boxes depending on the reject reason.

During the ejection, the coins are counted – the exact number of coins ejected per box can be determined.

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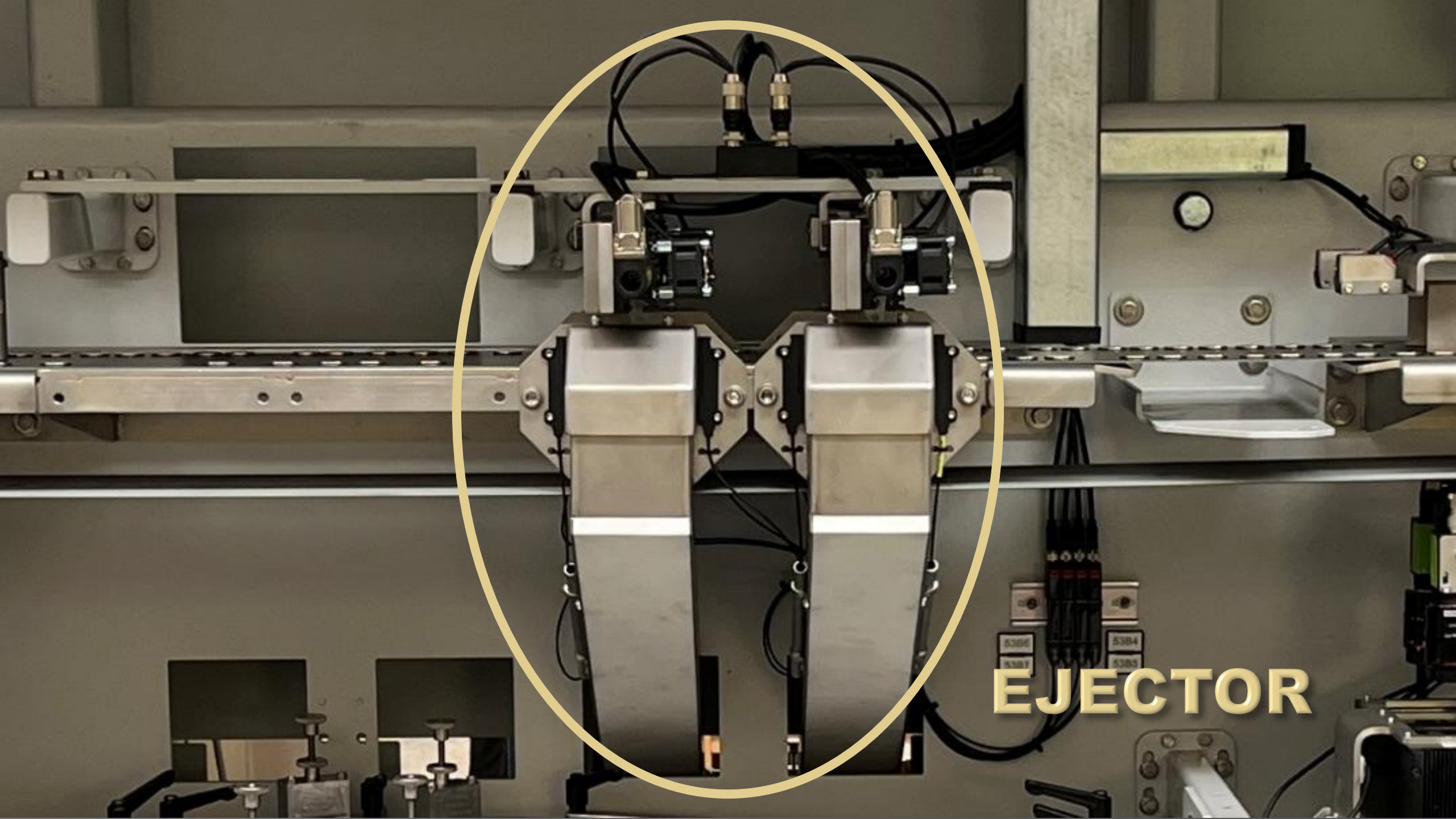
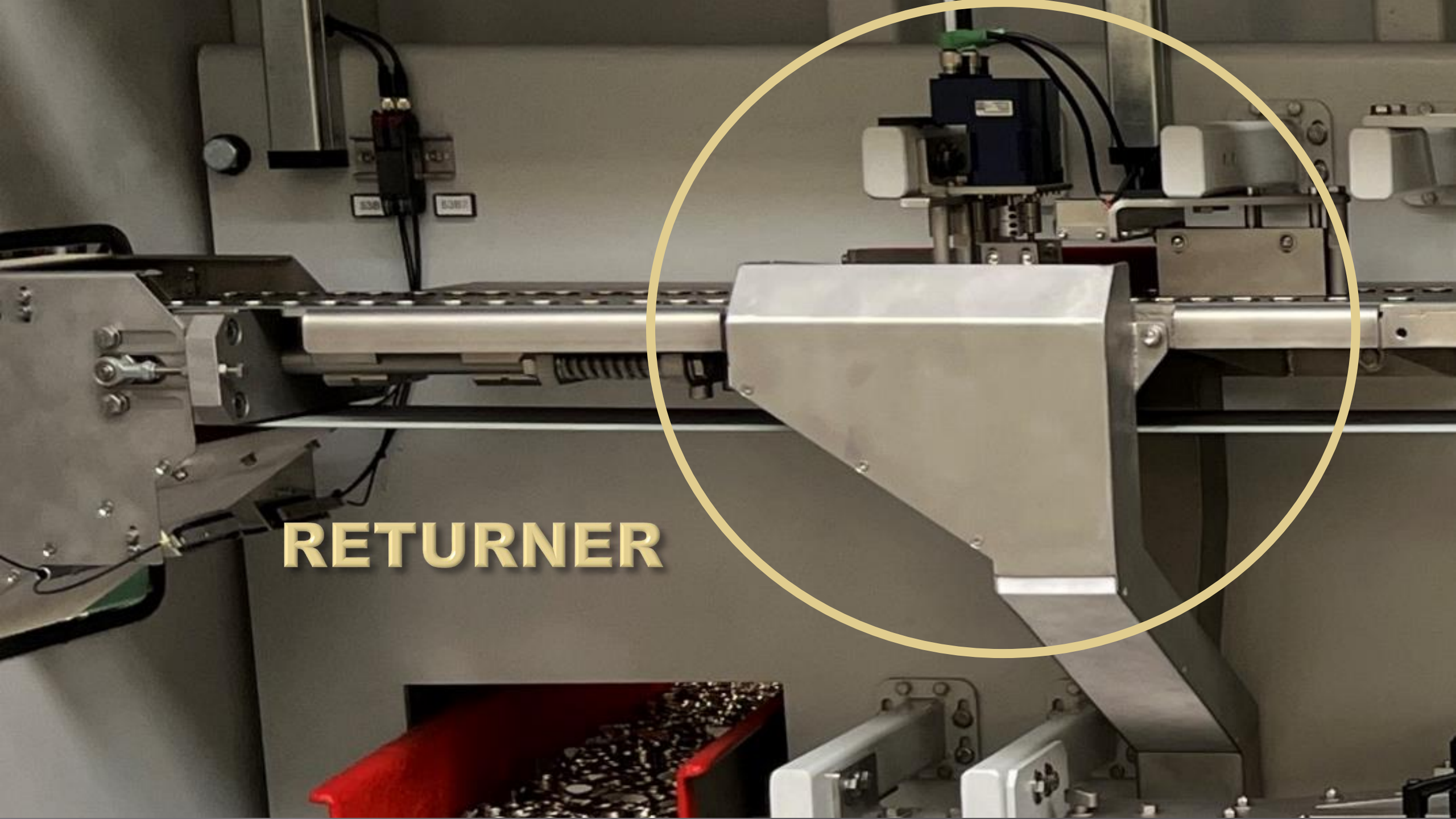

EJECTOR


RETURNER

RETURNER

The returner returns the coins to the hopper via a slide and a conveyor belt.

This is for example the case when a fault occurs in the machine and / or the coins can not be properly assigned.

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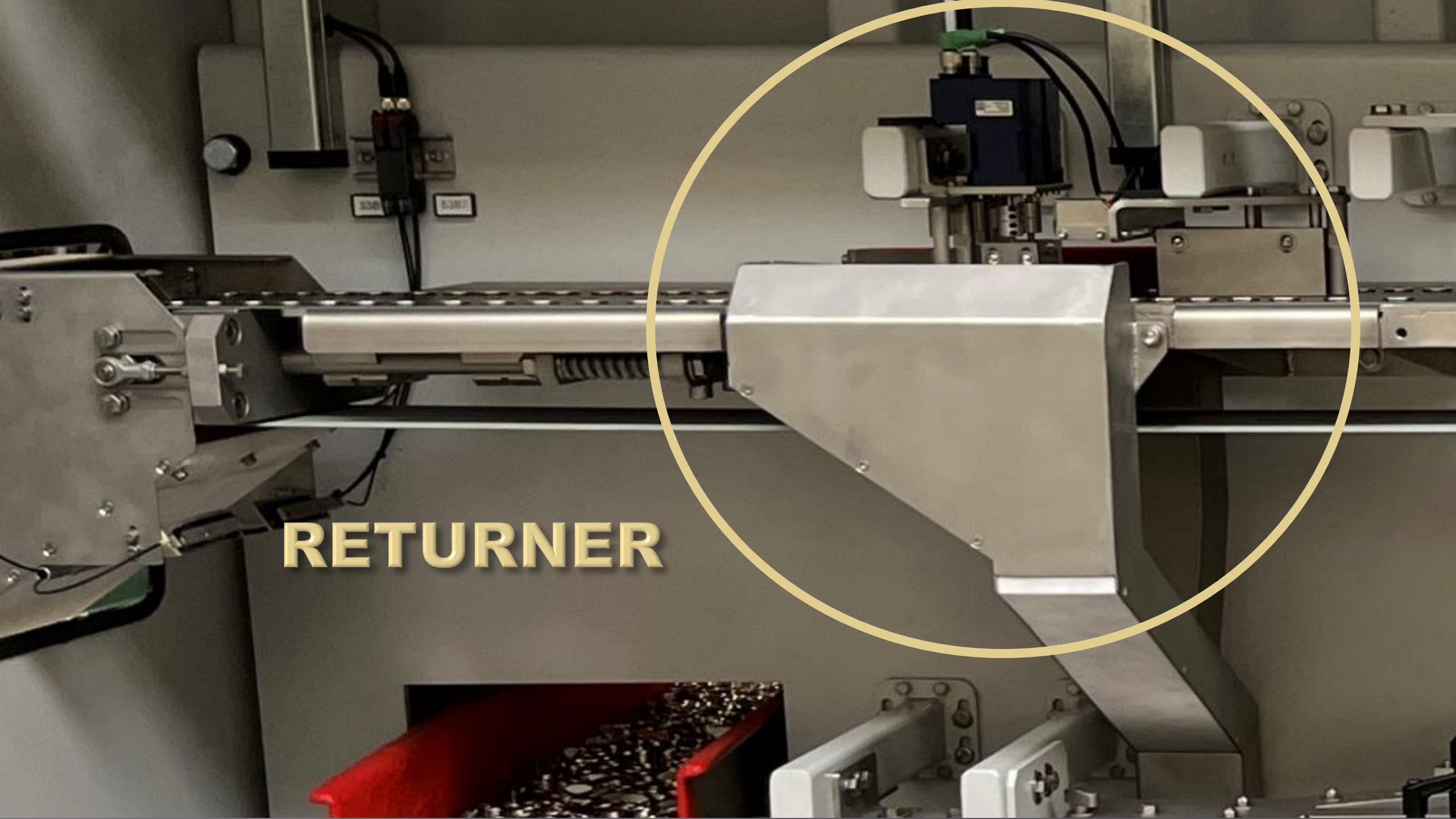
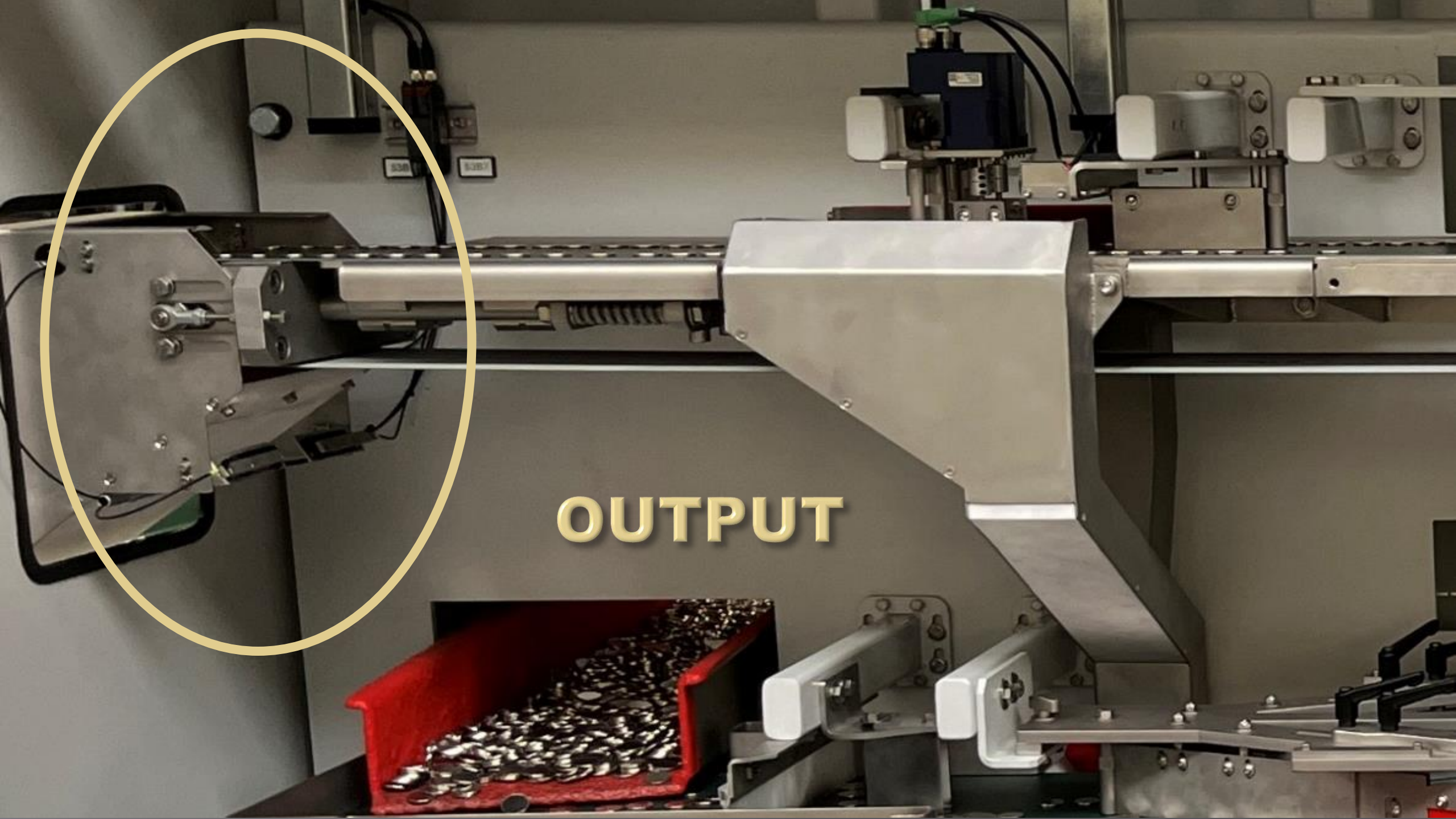

RETURNER


OUTPUT

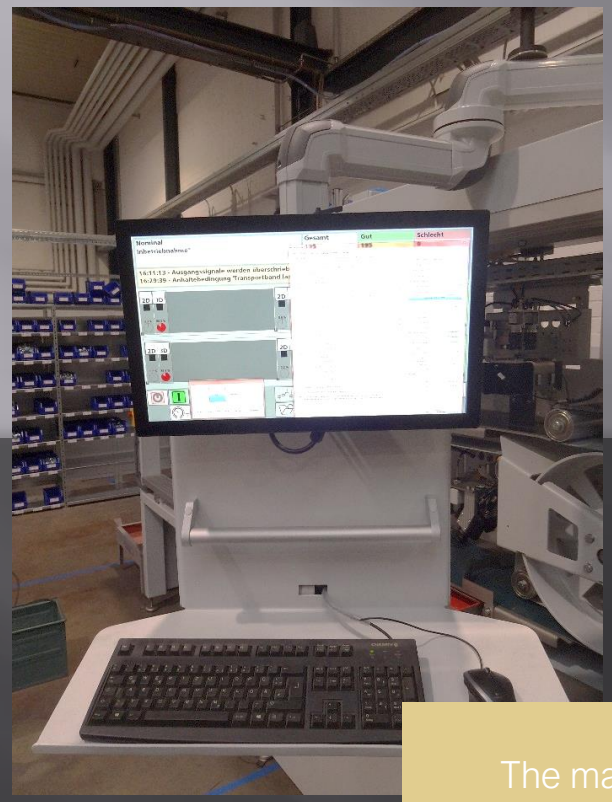
OUTPUT

After the coins have been checked, the “good coins” move through a slide into a container.

It doesn’t matter which type of containers are used. Barrels, boxes, sacks and many other containers can be provided to catch the inspected coins.

During the movement , the coins are counted and the machine can stop when a certain amount is reached. It can also be connected to a scale to stop at a certain weight.

CONTROL CABINET



The machine is operated via a control panel with keyboard, monitor and touch display. The Dashboard can be aligned and positioned as needed.

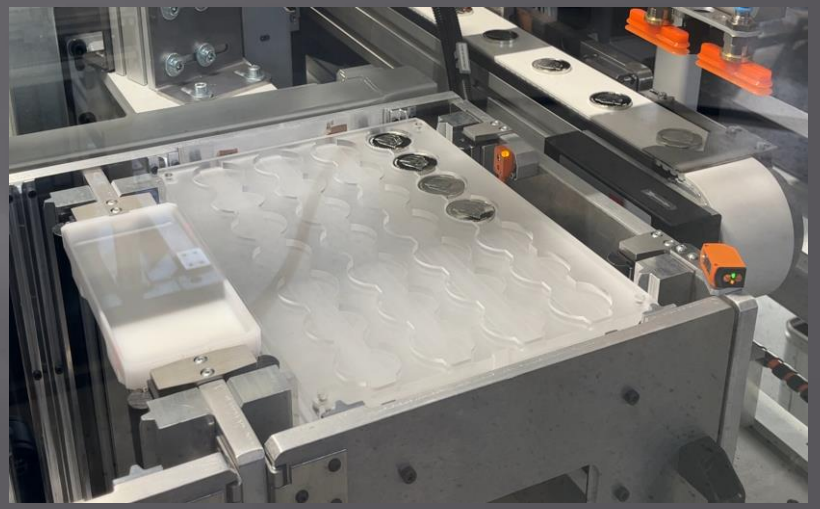
With our in-house developed software, all necessary parameters can be precisely matched to the object to be checked.

SIT Pure

Camera Integration into the serial production for high volume inspection with storage solution on S&K TMA-350.

SPALECK Inspection Technology
- Hardware-

SPALECK Inspection Technology
- Software -



automated packaging
end of line on the TMA-350

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LET US SHARE OUR EXPERIENCE !
THANK YOU FOR YOUR ATTENTION !
SPALECK
Oberflächentechnik