

MÜHLBAUER'S INSPECTION SOLUTION

FOR ALL QUALITY ASPECTS OF YOUR COIN

Mühlbauer's inspection solution COIN INSPECT FLEX has been designed to cover all quality aspects of blank, minted and used coins. Its modular concept gives you the full flexibility to exactly configure the inspection machine according to your specific application.

Based on long-term experience, field proven methods, and state of the art technologies COIN INSPECT FLEX offers the highest performance available on the market for a full-area, double-sided inspection and measurement of

- Disks, rings, polygons, assembled / bi-metal, colored coins
- Steel, copper, aluminum, nickel, brass, alloyed & coated coins
- Diameter 10.0 – 35.0 mm, thickness 0.8 – 4.0 mm, weight 1.5 – 30.0 gr.

at a throughput rate of max. 3,000 upm in a three-shift-operation.

The smooth coin flow on two lanes is maintained through the whole inspection process by the perfect interplay of coin feed, separation / alignment unit, and transport incl. turning station. Up to four active eject channels are available for coin sorting according to the inspection results. Due to the certified reject process mixing of defective coins with good quality coins is excluded. COIN INSPECT FLEX generates a detailed job / batch report.

The standardized cassette system enables individual configurations and easy upgrades of the COIN INSPECT FLEX up to its full equipment configuration which includes:

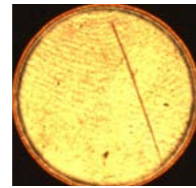
- Co-axial lighting unit
- Dark field lighting unit
- Dark field lighting unit with mirror
- Dome lighting unit
- Transmitted lighting unit
- EMS sensor unit

Full equipment is recommended for used coins (fitness check and counterfeit detection).

The windows-based inspection software has a well-structured graphical user interface and comes with a user administration for access control. The operator is granted easy access to all mechanical parts of the machine. Maintenance and changeover are quick and simple.

We provide our customers with local support – worldwide and without any external partners.

ACCURACY



CO-AXIAL LIGHTING UNIT

Resolution ratio:
0.030 – 0.035 mm/pixel



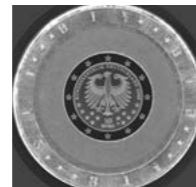
DARK-FIELD LIGHTING UNIT

Resolution ratio:
0.030 – 0.035 mm/pixel



DARK-FIELD LIGHTING UNIT

MIRROR
Resolution ratio:
0.065 – mm/pixel



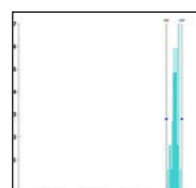
DOMELIGHTING UNIT

Resolution ratio:
0.030 – 0.035 mm/pixel



TRANSMITTED LIGHTING UNIT

Resolution ratio:
Diameter / Thickness
± 0.025 mm / ± 0.040 mm



EMS SENSOR

Transmissive & reflective

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COIN INSPECT FLEX

MODULAR INSPECTION SOLUTION FOR BLANKS & COINS



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COIN INSPECT FLEX

THE INSPECTION SOLUTION FOR THE WHOLE LIFETIME OF YOUR COIN

Without swivel-mounted user terminal:
Width: 2,700 mm
Depth: 2,250 mm
Height: 2,200 mm



KEY MODULES

- | | | |
|---------------------------------------|-------------------------------------|--------------------------|
| Coin feed & coin separation | Vision unit: co-axial | Vision unit: transmitted |
| High speed double lane coin transport | Vision unit: dark-field | EM-Sensor |
| Coin turning unit | Vision unit: dome | |
| Coin sorting | Vision unit: dark-field with mirror | |



FEATURES & ADVANTAGES



CAPACITY

- Usable for blanks, new coins, & used coins
- Up to 180,000 UPH; up to 3,000 UPM
- Coin diameter: 10.0 - 35.0 mm
- Coin thickness: 0.8 - 4.0 mm
- Coin weight: 1.5 - 30.0 gr.



COIN FEED

- Loading hopper capacity: 400 liters
- Vibrating extraction tray with guillotine door
- Continuous feed through additional container
- Output controlled by level sensors



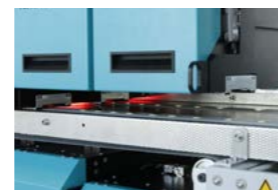
COIN HANDLING

- Separation & alignment unit
- Recirculation of coin overflow to the hopper unit
- Two parallel transport lanes constantly maintained
- Smooth transport on semi-transparent, seamless conveyer belts
- No coin jamming between belt & alignment rails
- Sensor system for continuous coin tracking
- Practice approved turning wheel for double-sided inspection
- Easy changeover to new coin type in less than two minutes



SORTING

- Up to 4 active eject channels per lane for detailed sorting (patent pending WO2018050427A1)
- One passive eject channel per lane
- 100% reliable sorting technology
- Good parts are actively removed from the belt
- Output channel as an open interface to local material transport



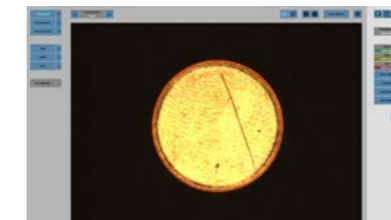
VISION

- Straightforward GUI for easy operation
- Detection of surface, coinage, and edge defects
- Detection of offset obverse/reverse
- Verification of year (OCR)
- Fitness check/Counterfeit detection
- Different types of job/batch reports
- User management with different user levels



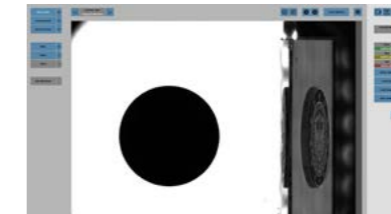
CONFIGURATION

- Inspection units housed in standardized cassette system
- 7 configurable inspection units for both lanes
- Quick & easy upgrades, retooling, & maintenance



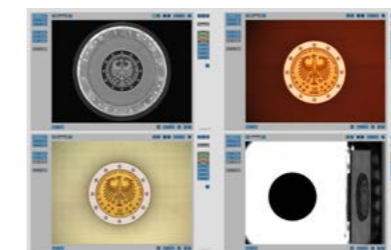
INSPECTION OF BLANKS

- Precise & reliable detection of
 - » Surface defects
 - » Color defects
 - » Rim defects
 - » Dimensional deviations
- Bright, long-life, flashed LED co-axial lighting
- Ultra-flat ring lighting for optimal rim illumination
- Transmitted light for measurement
- High resolution color matrix cameras
- Camera-prism technology for precise determination of coin diameter & thickness on the conveyor belt
- Diameter verified at various measurement points



INSPECTION OF NEW MINTED COINS

- High precision inspection of minted coins
 - » Coinage defects
 - » Rim defects
 - » Edge defects
 - » Surface defects
 - » Color defects
- Bright, long-life, dark-field LED lighting
- Mirror optic for edge inspection on the belt
- High resolution monochrome matrix cameras
- Bright, long-life flashed dome lighting
- High-resolution color matrix cameras



INSPECTION OF USED COINS

- Coin fitness check
- Counterfeit detection
- Integration in cash centers
- Dark-field lighting with mirror optic
- Transmitted lighting with camera-prism technology
- Co-axial lighting and dome lighting
- Determination of electrical inductivity
 - » Contactless sensor
 - » Several frequencies
- Correlation of all inspection results for optimal reliability of quality determination

