RETINÆ



V-BOX

Simplicity and precision in a single system

V-BOX is the advanced solution developed by Retinae to automate the inspection and counting of vials arranged in trays. Featuring a high-resolution vision system, V-BOX eliminates manual counting errors and guarantees accurate, reliable inspection for every single tray.



Key Features

- **Automated counting and verification:** detection and counting of vials in the tray, with automatic comparison against the target quantity for the selected format and real-time alert for any discrepancies.
- **Seal presence verification:** automated inspection to verify the presence of the flip-off seal on each vial, flagging any missing seals.
- **Seal color inspection:** color verification of the flip-off seal against the reference color defined for the selected format, detecting vials with incorrect seal product mix-ups color.
- **Instant labeling:** direct printing of a label containing production batch data via an integrated Zebra (or equivalent) printer..

Complete vials-counting system

Ease of Use in 4 Steps

The user interface is engineered to ensure simple, intuitive operation.

1. **Setup:** the operator selects the production format on the 21" touchscreen monitor and enters the batch data.
2. **Loading:** when the signal tower light turns green and the HMI displays the "Machine Ready" message, the operator manually inserts the tray into the dedicated drawer.
3. **Inspection:** pressing the "Start Inspection" button triggers the system to acquire and process an overhead image of the entire tray.
4. **Results & Printing:**
   - **Compliant tray:** The operator confirms the data, and the system prints the label.
   - **Non-compliant vials detected:** V-BOX highlights on the HMI the exact position of vials with missing or incorrect-color flip-off seals. The operator opens the drawer, removes the flagged vials, and closes it. The system then automatically runs a re-inspection cycle before allowing the label to be printed.

Tray Traceability

V-BOX ensures clear tray identification by printing a label containing:

- Product code and description
- Batch/Lot number
- Processing date
- Number of counted vials
- Tray identification number within the batch

Electronic Inspection Records

The system records and stores the inspection results for each tray, linking them to the specific production batch for seamless traceability, audit verification, and future review.

Integrated Remote Support

V-BOX is preconfigured for secure remote access, allowing Retinae technicians to carry out diagnostics, software updates, and technical assistance without requiring an on-site visit to the customer's plant.

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Caratteristica	Specifica Standard
Maximum tray size	376 × 360 mm
Minimum ferrule diameter	8 mm
Vial height	From 40 mm to 170 mm
User Interface	21" HMI Touch-Screen monitor and signal tower
Frame	Stainless steel, mobile on castors
Regulatory compliance	21 CFR part 11
User authentication	Integration with the corporate Windows domain (Active Directory) for centralized operator authentication, with management of roles and system access permissions.
Backup	Automatic saving to a network drive of production formats, Audit Trails, and batch reports, to support data retention and recovery.
ERP integration	V-Box features a standard communication protocol that allows integration with corporate management systems for the automatic import of production orders and related batch data. The connection requires customization based on the Customer's ERP system.





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