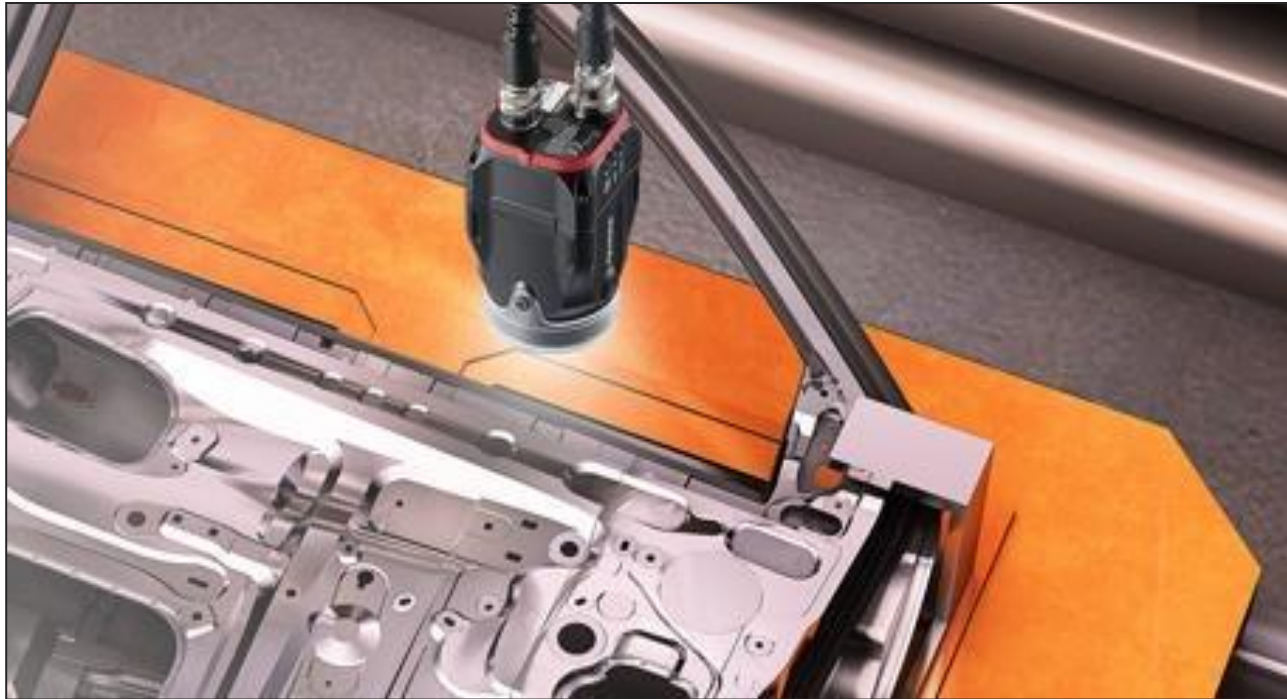


Complying with Honda MPRs by Automating Line-side Processes



A Vision Sensor Confirms a Part is Correct

Honda MPR* Functionality

SPEDE Honda MPR functionality includes:

- Poke Yoke error-proofing methods
- Component Traceability
- Real-time Verification of Part / Component
- Automated Line-side Labeling
- Pass thru Verification / Re-pack, Re-label Control
- Rework Control
- Small Lot / Partial Control
- Honda Batch
- Parts Traceability
- Operator Accountability



* Minimum Process Requirements

Component Traceability Functions

Component Traceability

Bill of Material by WIP/FG part number

- Set up is done using SPEDE Web app
- List of components / purchased items per part
- Quantity per operation

Receive Raw / Purchased components

- Use vendor supplied labels
- Optionally print SPEDE labels by unit of measure issued

Issue components to line/operation

- Scan component attributes -part number, vendor lot,
- Component part validated to BOM/Line

Optional Return to Stock

- Unused
- To be reissued
- Use prior serial or generate new



SPEDE Touchscreen PC



Traceability Inquiries

Poke Yoke Methods Prevent Labeling Errors

Label-printing is triggered by PLC, vision sensor, scale, camera

- Devices validate the correctness of a part or component
- Host ERP / EDI supplies label data
- Count good parts only toward a pack count
- Optional Conveyor interface can divert scrap or wrong parts
- Container label automatically prints when count/dunnage is correct
- Prevents packing errors: wrong or bad part / wrong quantity
- Prevents mis-labeling of parts /containers
- Collects data for part traceability

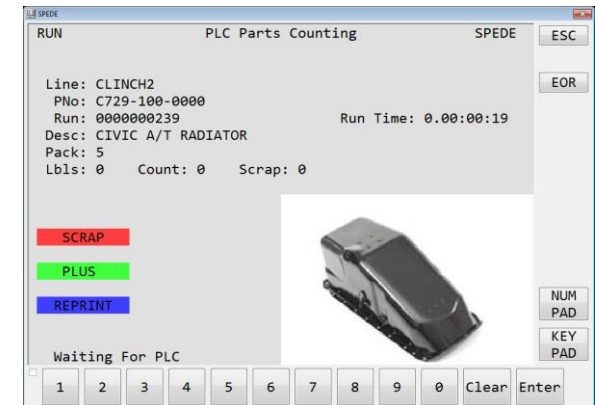


Prevents mis-identifying and mis-labeling of similar parts

PLCs for Labeling and More

PLC Labeling

- PLC supplies part number / run data / count
- Counts good and scrap parts
- Touchscreen PC at lineside displays production run data including part, label status, pack count, etc.
- Touchscreen allows operator to view count, adjust for scrap
- Serialized label prints automatically when pack count is correct
- Label data is supplied by Host ERP / EDI



Real-time Production Data

- Production data can be sent to host OEE, ERP systems to analyze efficiencies



Using Vision for Error-proof Labeling

Vision Sensors for Part Verification and Labeling

- Can be installed in packing and re-pack stations
- Can verify part is good and increment pack count quantity
- Can trigger a conveyor to divert wrong or bad parts
- Triggers a serialized label to print when pack count is correct

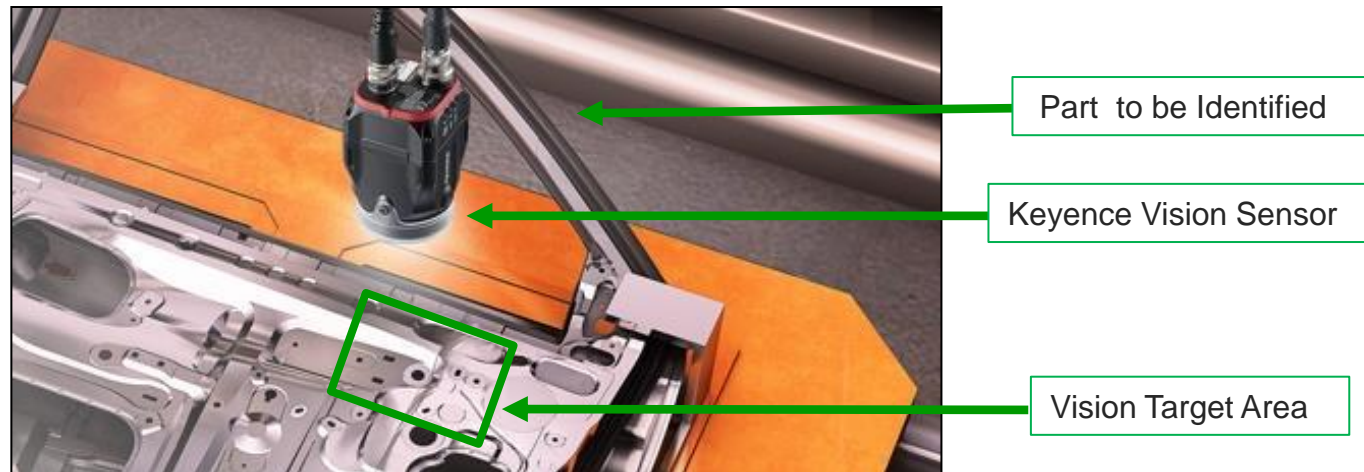


Keyence Vision Sensor

Using Vision for Error-proof Labeling

Vision Sensors for Part Verification and Labeling

- Vision Sensor is “trained” to recognize a part number by its unique attribute
- At Packing, the part is moved under the sensor
- Sensor uses image capture & pixel analysis to identify the part
- If part is correct, the running part count is incremented
- If part is wrong, an audio/visual alert prevents packing error
- When pack count is reached, SPEDE prints a container label



Using Weigh Scales to Automate Labeling

Weigh Scales for Container Labeling

- Weigh scale automatically triggers a label when count or weight is correct
- Existing weigh scale provides piece weight
- Weight can be used for piece counting / full pallet validation
- Adjustable tolerances to accommodate piece weight variances
- Actual weights are collected and stored with label data
- Label database provides traceability



Controlling WIP, Pass-thru, Re-pack

Production / WIP Labeling

- Prints serialized Internal (WIP) or Customer label
- Scan serial number on WIP label to create new Honda label

Pass-thru Verification / Re-pack / Re-label

- Scanning the serial number on container to be re-packed/re-labeled verifies part is correct
- Vision sensor can also be used to capture image of vendor's part / component
- SPEDE compares scanned image to stored image of correct part / component
- Prevents errors due to incorrect vendor labeling of part/component



Controlling Small Lots and Honda Batch

Small Lot Control

- Controls non-standard pack counts at End of Run / Shift
- Controls partial containers of Parts available for Re-pack / Re-work

Honda Batch Orders - Serialized Parts

- Serialized input from PLC/Inline/Handheld scanner
- Honda Batch EDI imported into SPEDE
- SPEDE displays Batch Order quantities list on touchscreen
- Operator selects batch, SPEDE verifies part number/quantity
- Prints Honda container/batch/mixed master label per EDI
- Batches are removed from list as completed
- Management view of all batches/completion status



Controlling Packing of Containers, Dunnage

Packing Control - Using Cameras to verify packaging

- Inexpensive USB camera(s) can be installed at Packing line
- Camera captures image of part being packed to verify accuracy
- SPEDE ensures that all slots in a segmented layer of package are filled before next layer can begin
- SPEDE ensures that all required components are in a Kit
- When container or kit is correctly filled, SPEDE prints a container label
- Video is preserved as proof of correct packaging in case of customer inquiry



Imaging Camera at Packing



A USB Camera can ensure all slots in a container or kit are correctly filled

Traceability of Parts & Containers

Part, Container Traceability

- Serial number is linked to each part's production data
- Traceability by part, lot, container, line, run date, associate, etc.
- Forward traceability from production to Customer
- Backward traceability from production to raw components to suppliers

Printed By: Dan Worthington
Report Date: 01/08/2013
Report Time: 08:35:00
Page: 1 of 1

Container Trace: 0319804-05088465

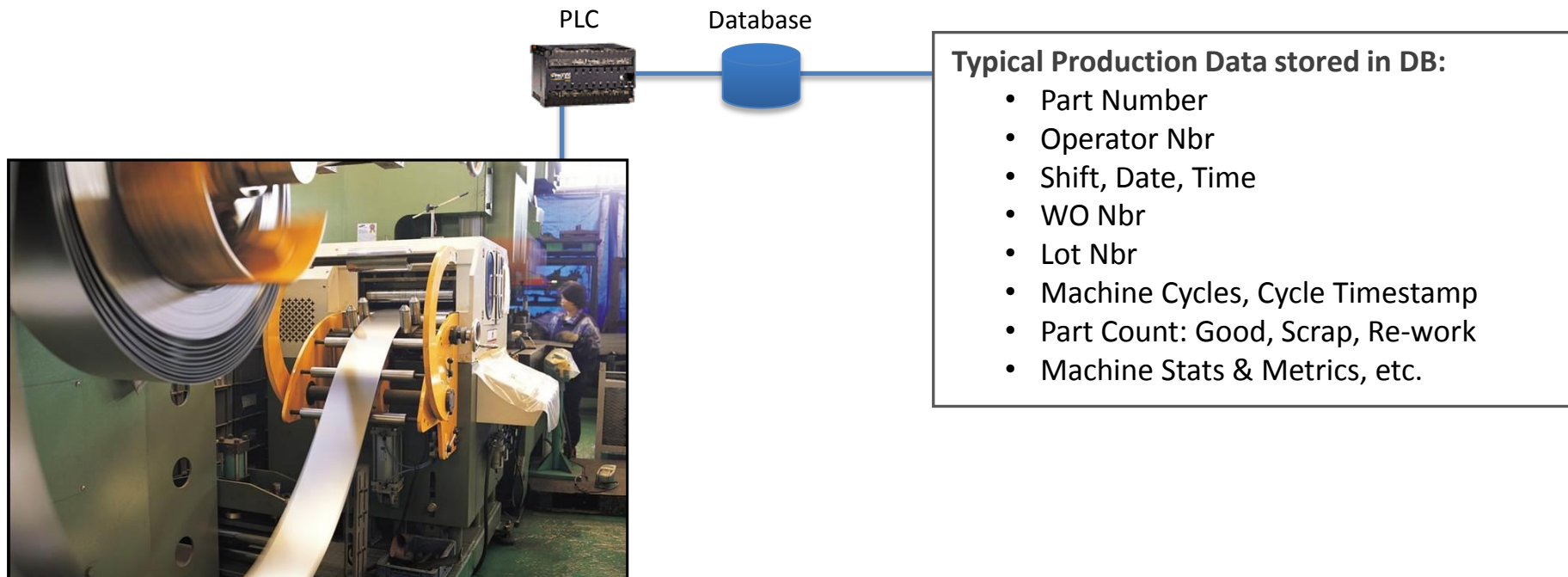
Part Nbr	Description	Run Nbr	Line Nbr	Create Date	Create By	Qty	Item S/N
C729-101-0000	CIVIC M/T RADIATOR	000012001	CLINCH2	11/05/2012	JSMITH	5	AB879762351 AB879762352 AB879762353 AB879762354 AB879762355



Transaction Database = Accountability

Operator Accountability

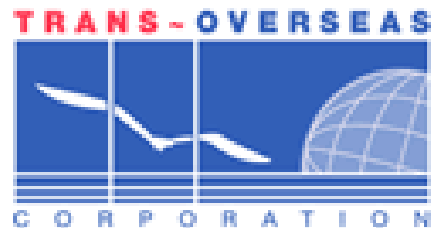
- Associate must sign-in to perform all SPEDE operations
- All scans, labels and events are linked to the current user
- All transactions are retained in SQL Txn database
- Tells you Who did What, Where, When
- Confirms that each Operator is following your processes



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To Discuss Your Line-side Project...

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About Us:

SPEDE Technologies is a software and systems company with 39 years of experience in the automotive industry. We specialize in Automated Line-side Solutions that control and standardize production area processes to ensure consistent accuracy, increase efficiency and provide 20/20 visibility into line-side operations.

Our Customers are mid-size to Fortune 500 auto suppliers with multiple plant sites throughout the U.S. and in Mexico. They rely on SPEDE Automated Line-side Solutions to keep their mission-critical processes running smoothly, 24/7.



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