



»»» *Using New Technologies at
Line-side to Improve QC*



The **Catalyst** for Peak Performance



Presentation Outline

- QC Opportunities at Line-side and Packing
- Technologies to Consider
- Case Studies
- Bottom Line Benefits

What Are the QC Opportunities?

At Line-side and Packing Stations...

- Part Verification (is Part correct?)
- Part Validation (Good Part?)
- Part Counting of Good Parts
- Serialization of each Part
- Packing Parts to the correct pack count
- Labeling the Parts Container correctly for Customer
- Collecting data for Traceability
- Collecting PLC data for OEE analysis
- Other Opportunities (Re-pack, Re-work, etc.)

New Technologies to Consider

1. Marking Parts with a 2D serial / Reading 2D serial
2. Identifying Parts with a Vision Sensor



New Technologies to Consider:

1. Marking and Reading Parts with a Laser and 2D Reader:

- Serializing each Part with unique Serial Nbr
- Serial number is read and associated with all later events
- Enables detailed Traceability & Accountability



2D parts mark



Newer Technologies to Consider:

2. Reading Parts with a Vision Sensor

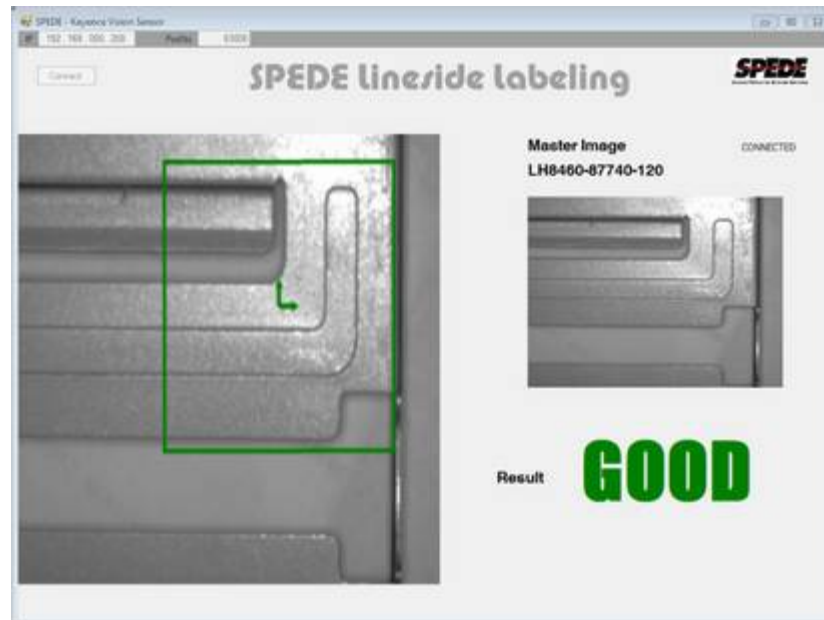
- Detects physical attribute(s)
- Correctly identifies Part
- Standalone solution
 - relies on Image Capture and Pixel Analysis
 - no PLC integration needed



Opportunities for Vision Sensors at Line-side:

1. Part Verification

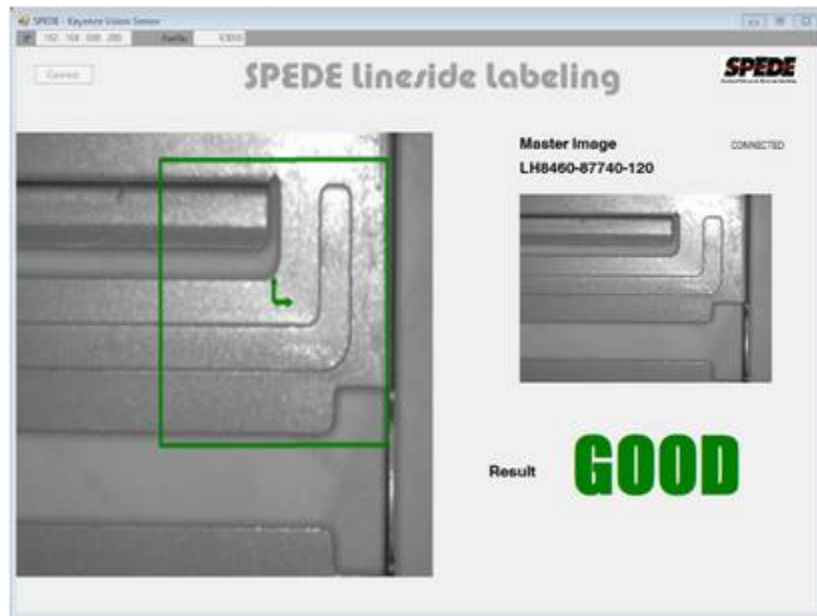
- Correct part?
- Right vs left?



Opportunities for Vision Sensors at Line-side:

2. Part Validation

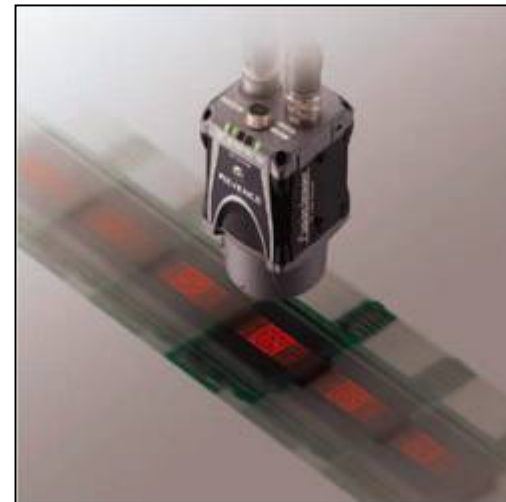
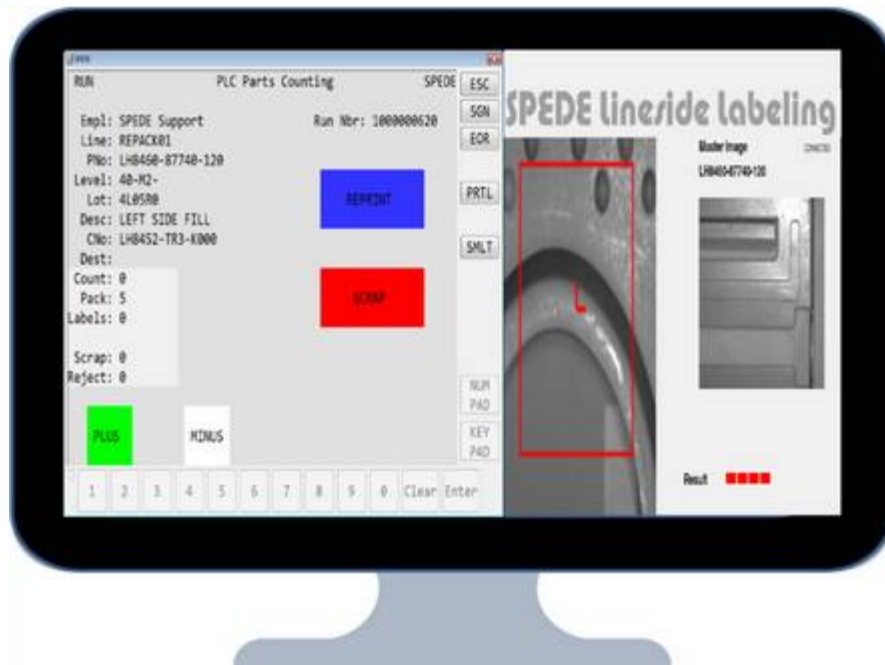
- Good vs Re-work/Scrap?
- Sensor checks for attributes of a good part



Opportunities for Vision Sensors at Line-side:

3. Part Counting up to Pack Count

- Automatic label print when Pack Count reached



Opportunities for Vision Sensors at Line-side:

4. Kit Validation

- Detecting missing components
- Ensuring components are correct



Jack Kit with open slots



Opportunities for Vision Sensors at Line-side:

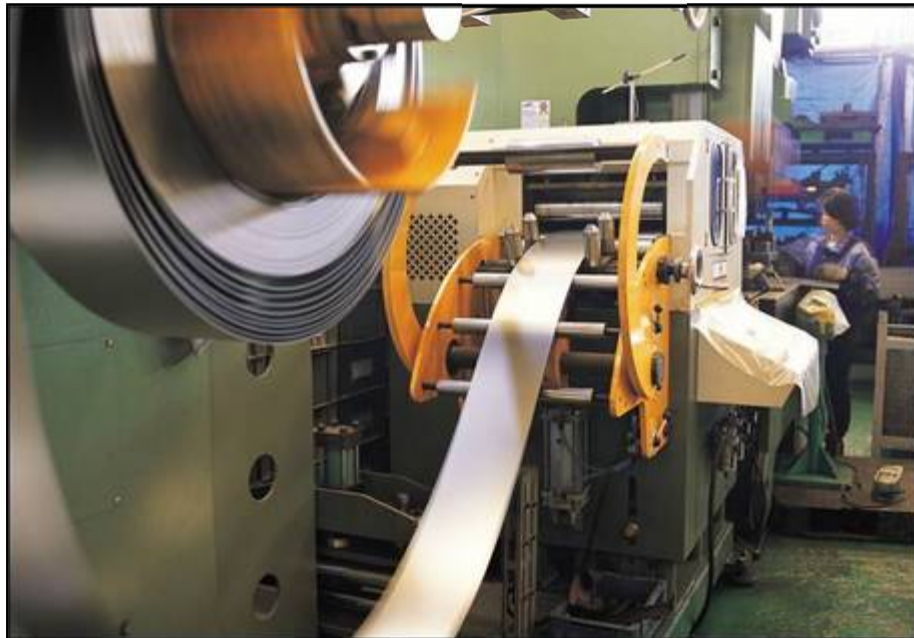
5. Dunnage layer validation

- All slots filled?
- No slots overpacked?



Other QC Opportunities at Line-side:

6. Collecting PLC Data for Traceability



Production Data:

- Part Number
- Operator Nbr
- Shift, Date
- WO Nbr
- Lot Nbr
- Machine Cycles, Cycle Timestamp
- Part Count
- Good Count
- Scrap Count
- Re-work Count
- Machine Stats & Metrics, etc.

Part Nbr	Description	Run Nbr	Start	Stop	Elapsed	Scrap	Good	Containers
C729-103-0000	ACCORD M/T RADIATOR	000012001	08:03:22	12:01:10	03:57:48	11	200	40
C729-103-0000	ACCORD M/T RADIATOR	000012004	13:01:08	17:38:57	04:37:51	19	240	48
C729-103-0000	ACCORD M/T RADIATOR	000012007	18:20:07	23:30:45	05:10:38	9	280	52
					13:46:17	39	700	140
C729-101-0000	CIVIC M/T RADIATOR	000012012	07:58:28	12:10:00	04:11:34	13	180	36
C729-101-0000	CIVIC M/T RADIATOR	000012016	13:12:35	17:28:20	04:15:45	8	160	32
C729-101-0000	CIVIC M/T RADIATOR	000012017	19:00:05	23:40:10	04:40:05	11	205	41
					13:07:24	32	545	109

Other QC Opportunities at Line-side:

7. Combine Weigh Scale validation with Vision

- Verification that all layers are filled
- No missing or extra parts in dunnage



Other QC Opportunities at Line-side:

8. Labeling each WIP container correctly

- With correct part number, quantity, lot
- Labeling is controlled by Vision Sensor or PLC



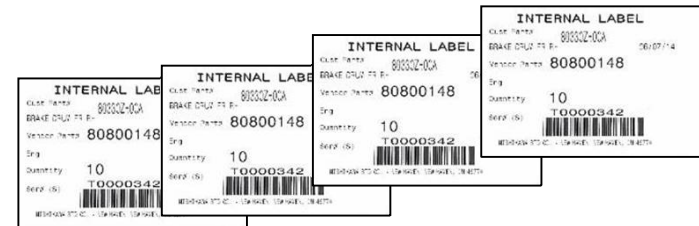
Internal WIP Label



Other QC Opportunities at Line-side:

9. Controlling Re-pack / Re-work part containers

- Use Serialized Internal Label to locate Part, Lot, etc.
- Then use Vision Sensor to Verify Part at Re-pack



Case Studies

Nisco: 2D Serialization and Reading

Nissin Brake: Vision set-up on fixed table

Sonoco: Vision setup on mobile cart



In Summary -

Vision Enables 100% Accuracy:

- Verifies the Part Number to the physical part
 - Ensures the Part is correct
 - Uses visual inspection (no PLC connection needed)
- Accurately counts Good Parts
 - By reading the 2D serial number
 - By visually matching the Part's physical attributes
- Verifies all Components in a Kit
 - Are Correct
 - Are Present



In Summary -

Vision enables Traceability by:

- Associating Part data to a serialized container label
- Associating production run data to the serialized container
- Enabling focused recalls to a Lot or Serial Nbr



Vision Benefits your Bottom Line...

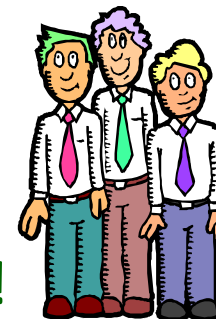
- Every container has the Correct Part
- Every container has the Correct Count
- Every container has the Correct Label
- Every label has the Correct Data
- Meets “MPR” for an Accurate Labeling Process
- Real-time Traceability and Auditability
- OEE information to improve production efficiencies and profitability.



Bottom Line:

Everybody's Happy ...

QC, Management and Your Customer!



Thank You...



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