seeing what matters

ViDi Suite

APPLICATION NOTE

Pad Printing Aesthetic Inspection

CHALLENGES IN PAD PRINTING INSPECTION

- Multi-step tampography can lead to considerable but tolerable relative shifts (registration problem)
- Varying quantities of ink applied results in fonts or lines that are thicker/thinner in appearance
- Random texture of substrate, like brushed or otherwise decorated metal

ViDi SUITE

Deep learning based industrial image analysis software for automated inspection and classification

Human-like: Outperforms the best quality inspectors

Self-Learning: No software development required

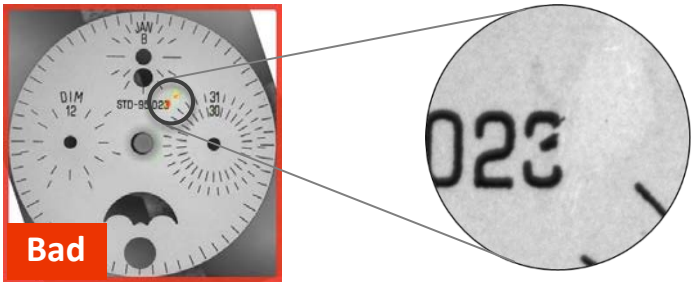
Powerful: Tackles the impossible to program inspection challenges

HOW DOES IT WORK?

It is as simple as 1-2-3:
1- Collect images of “known good parts”
2- Let ViDi Suite train on those samples and create its reference model
3- Proceed with testing

With ViDi Suite, the automated aesthetic inspection of complex pad printing is now extremely simple.

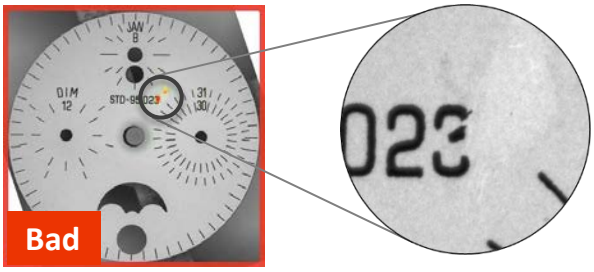
The software algorithm trains itself on a set of known good samples and creates its reference model.



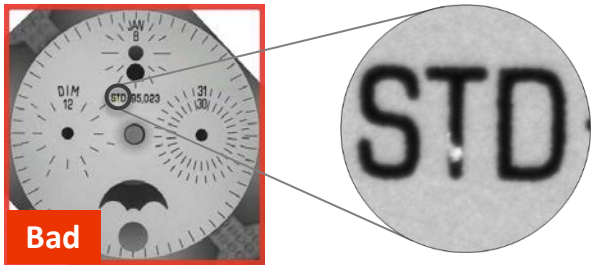
Once this training phase is completed, the inspection is ready to go.
Defective areas of the printing can quickly be identified and reported.
ViDi suite does not limit itself to checking ink transfer but complements it with a detailed aesthetic inspection of the substrate.
And best of all, there is no need for extensive defects libraries !

WATCH DIALS

For this initial pad printing example, we provide our ViDi red tool with a representative set of good samples to train on the complexity of the watch dials and their tolerable imperfections.



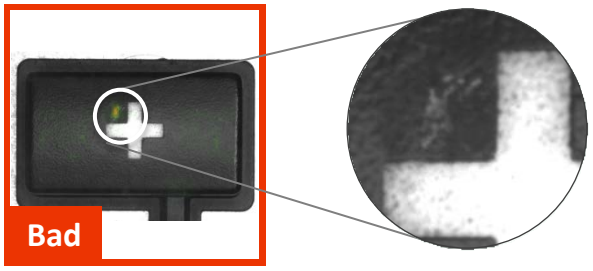
After the training phase is completed, the inspection process reliably identifies defects like the ones shown to the right.
Top: misprint on uneven surface
Bottom: incorrect ink transfer

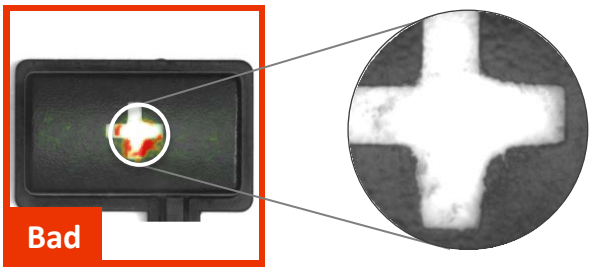


KEY BUTTONS

On this second set of printed parts ViDi red learns a model of the '+' sign appearance at the center of a button. This model is based on a collection of randomly selected good samples and also incorporates acceptable variations of the substrate texture.

During the inspection phase, the ViDi red tool reports defective areas of the print like the ones shown to the right.





RESULTS & PERFORMANCES

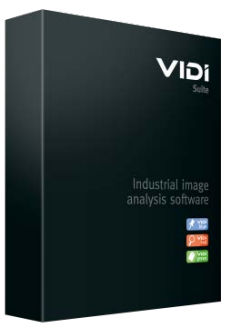
Powerful Detection: Most types of pad printing defects can be identified even when located on complex textured backgrounds.

Self-Learning: Pad printed inspections were conducted without any complex defect library but instead relied on a human-like approach - Learn and apply – supplemented with an improved testing consistency and repeatability.

Quick & Easy: In both cases, learning from the known good samples was achieved in less than 10 minutes.

INTEGRATION

Due to its self-learning abilities, ViDi Suite can be deployed quickly and easily on new applications without the need for any specific development



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