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Valuing genuine leather: automatic inspection of a precious natural material

For many people the natural texture of leather adds elegance and sophistication to products they use in their daily lives. For example, to a vehicle's interior. Despite advancements in synthetic materials, genuine leather holds a special place in the hearts of many car enthusiasts in search of a premium driving experience. Apart from its exclusive look, it also offers comfort and a unique tactile experience. A leather seat adapts to the driver's body temperature and the feel of a leather-covered dash board is difficult to beat.

Naturally, this unique and costly material must be inspected to ensure that defects are caught. More importantly though to ensure that as little as possible is wasted. One way to achieve this is to automate the inspection process so that subsequent cutting of a hide according to its quality areas uses as much of the material as possible.

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Minimal waste

In the past (and in many production sites to this day), hides were inspected manually - a time-consuming and physically demanding process. The people who inspect a hide require approximately five minutes to evaluate the quality of every piece, whereas WetWhite inspection in a tannery is performed in about five seconds. Having to do this repetitive yet strenuous work several hours a day, they are prone to fatigue, which in turn can lead to inconsistent evaluation results and consequently wasted material, for example when flaws in the leather are not detected or are incorrectly classified as crucial.

The following points are some of the main benefits car manufacturers can capitalize on when automating this previously difficult, manual process.

■ *Increased efficiency*

Automation can significantly speed up the inspection process compared to manual methods. Inspection solutions equipped with computer vision and artificial intelligence can quickly analyze and identify marks in the hides, reducing the time required for inspection and increasing overall production efficiency.

■ *Consistency and accuracy*

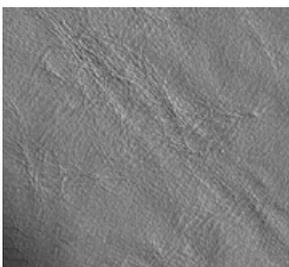
Automated systems provide consistent and precise evaluation of cow hides - 24/7. They are not subject to fatigue or biases, ensuring a higher level of accuracy in detecting defects and grading the hides.

■ *Cost savings*

While initial setup costs for automated inspection systems can be significant, they lead to cost savings in the long run. Automated processes reduce labor expenses and minimize waste by accurately categorizing hides based on their quality, preventing the use of subpar hides for premium applications.

■ *Improved quality control*

Automation enables real-time monitoring of the inspection process. Manufacturers can set specific quality thresholds, and hides failing to meet these standards can be removed from the production line right away, leaving only highest-quality hides for car interiors and enhancing their overall product quality.



Example: loose grain defect in a cow hide difficult to see with the naked eye (above), far easier to detect using high-speed cameras and dedicated illuminations (below)



■ *Data insights*

Automated systems generate valuable data on the quality and characteristics of cow hides. This can help identify trends, optimize tanning and finishing processes, and creates a basis for informed decisions to improve the overall leather production workflow.

■ *Faster turnaround*

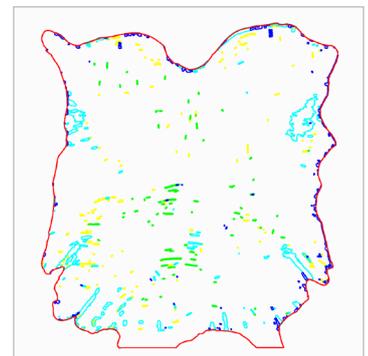
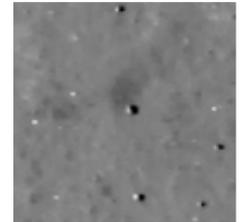
With automated inspection, manufacturers can rapidly process large volumes of cow hides, leading to faster turnaround times in the production of leather interiors for cars. Dr. Schenk's EasyInspect for leather inspection for example can process up to 80 hides an hour even as a stand-alone solution. This enables them to meet customer demands more efficiently and maintain a steady supply chain.

■ *Adaptability and scalability*

Automated inspection systems can be easily adapted and scaled to accommodate changes in production volumes and requirements. As production increases or new product lines are introduced, the automated process can adjust accordingly.

■ *Summary*

Automating the inspection process for cow hides brings about significant benefits, including increased efficiency, improved accuracy, cost savings and better quality control. It allows manufacturers to streamline their production processes, reduce errors, and deliver superior leather interiors for cars in a more cost-effective and timely manner.



Quality map of an inspected cow hide: different colors represent different quality zones

About Dr. Schenk GmbH

Dr. Schenk GmbH offers inspection and measurement solutions for automated quality assurance and production process control - e.g. plastics, textile materials, nonwovens, paper, metal, or glass, for a multitude of markets such as display glass, automotive, packaging, medical, renewable energy, and many more.

Throughout the world Dr. Schenk's 300+ employees continue to set new standards for the inspection of surfaces.

Over 18,000 m² of modern, cleanroom-capable production and testing facilities are available for research, development and production to apply cutting-edge optics and electronics to customer applications.

From modular standard units to highly customized systems – Dr. Schenk's solutions have your material in focus!





Further information and contact:

www.dr.schenk.com

Dr. Schenk GmbH Industriemesstechnik

Headquarters

Bussardstr. 2
82166 Graefelfing
GERMANY
Phone: +49-89-85695-0
Fax: +49-89-85695-200

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