GEMINI
CAD SYSTEMS

Thagora

Leather Scanning Machine
LS 3000AR

Thagora LS 3000 AR
proven technology for hides digitization

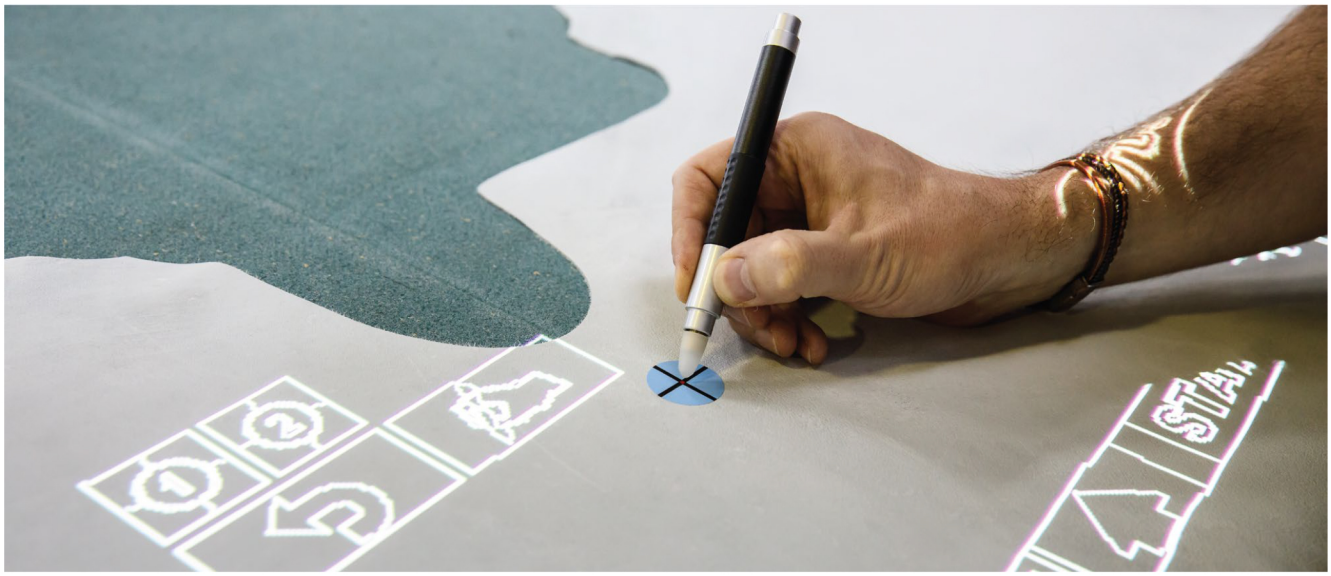
The scanning of the hides is a very important operation for the leather cutting room. A reliable machine that enables the precise defects' marking and rapid digitization of the hides is a boost for productivity and efficiency. Based on its extended experience in leather industry, Gemini CAD Systems has launched Thagora Leather Scanning Machine, a state-of-the-art equipment for this process. After several years of further improvements and deployments in multiple factories, this technology is a refined, mature solution, suitable for demanding industrial environments.

Key advantages

- **High productivity (3-6 minutes per hide)**
- **Use of "light" pen instead of chalk to mark defects**
- **High accuracy and stability of the detection**
- **Dedicated for mass production**
- **Exceptional ergonomics**
- **Up to 7 quality zones**

Extracting performance from every detail

Thagora Leather Scanning Machine is designed and built with a clear purpose: to extract performance from every single step of the scanning process. By using augmented reality, IR technology, modular and simple frame and software features, it is possible to obtain a higher productivity, more accurate and faster scanning. Thus, the machine is essential for the Off-Line Workflow, that brings other significant benefits for the leather cutting room.



Advanced scanning technology

The machine uses a scanning technology that allows high accuracy of hides inspection and stability of the detection. These are important advantages compared to the scanning solutions with static cameras.

Easy & accurate marking with IR pen tech

The machine uses an Infrared pen for marking the defects on the hide's surface. The IR technology is based on 6 cameras, developed by Gemini CAD Systems, that are not disturbed by the natural light from natural or artificial illumination from the factory. This technology brings several important advantages:

- **Real-time responsiveness**

Even if the operator moves the pen very fast on the hide's surface, there are no micro-delays in marking the defects.

- **Good precision of the pen**

The marking accuracy is less than 1 mm.

- **Reliable technology**

The IR cameras don't have any moving parts, so the technology is very reliable. Also, the maintenance is simple and inexpensive. If a camera is damaged, the replacement can be done in a few minutes.

- **IR Pen vs. chalk**

By using a pen, the marking of the defects is fast, clean and precise, unlike the use of chalk.

- **High ergonomics**

Almost all the operations are done on the surface of the conveyor. The virtual menu follows the hand of the operator, so he doesn't have to lean over the conveyor to use it.

Augmented Reality

Thagora Leather Scanning Machine uses video projectors that help the operator to see his marking on the hide in real time, and to quickly correct his mistakes.

Accurate detection

The machine features high-resolution photo cameras with high quality and stability of detection.

Multi-functional software

Thagora Leather Scanning Machine features an advanced software system that offers multiple advantages in terms of productivity and ergonomics.

Up to 7 Quality Zones (QZ's)

Thagora Leather Scanning Machine has up to 7 QZ's. This a big advantage compared to the use of chalk, when the operator needs a complicated system of colors or marking signs for each QZ.

Easy deletion of errors

The undo function allows the instant deletion of the errors when marking the defects. This is a big advantage comparing with chalk, when an operator tends to ignore his errors because he needs to manually remove the marking and redo the job.

Embedded ranking system

The software system automatically determines the hide's ranking once the scanning process is finished.

Analysis of operator's activity

The operator can see in real time, on the monitor, all the information regarding his activity: no. of scanned hides, the scanning time per each hide and so on. All this information is sent to the Analytics and LiveReports modules. Thus, the manager can supervise the performance of all the operators, from each shift.

Assistance for defects classification

The monitor can display a totem with a library of defects. This is helpful especially if the operator has no experience, or if the operator scans hides from different leather types.

Alerts for quality and quantity problems

The system reports when a hide is 2 to 3% smaller than the area declared by the supplier. Also, the system issues a notification if a hide has an inferior rank than the rank declared by the supplier. This information represents a useful tool to control the supplier.

Customizable lighting system

The lighting system is very important for leather scanning due to its impact on the inspection accuracy. If the operator does not see the defects, the nesting algorithm will place a part on a fault area, so the defect will be discovered only at the Quality Control, generating a recut. Also, if the operator marks the defect too loose, the nesting efficiency will decrease. Thus, the machine allows the customization of the lighting system:

Lighting calibration for defects detection

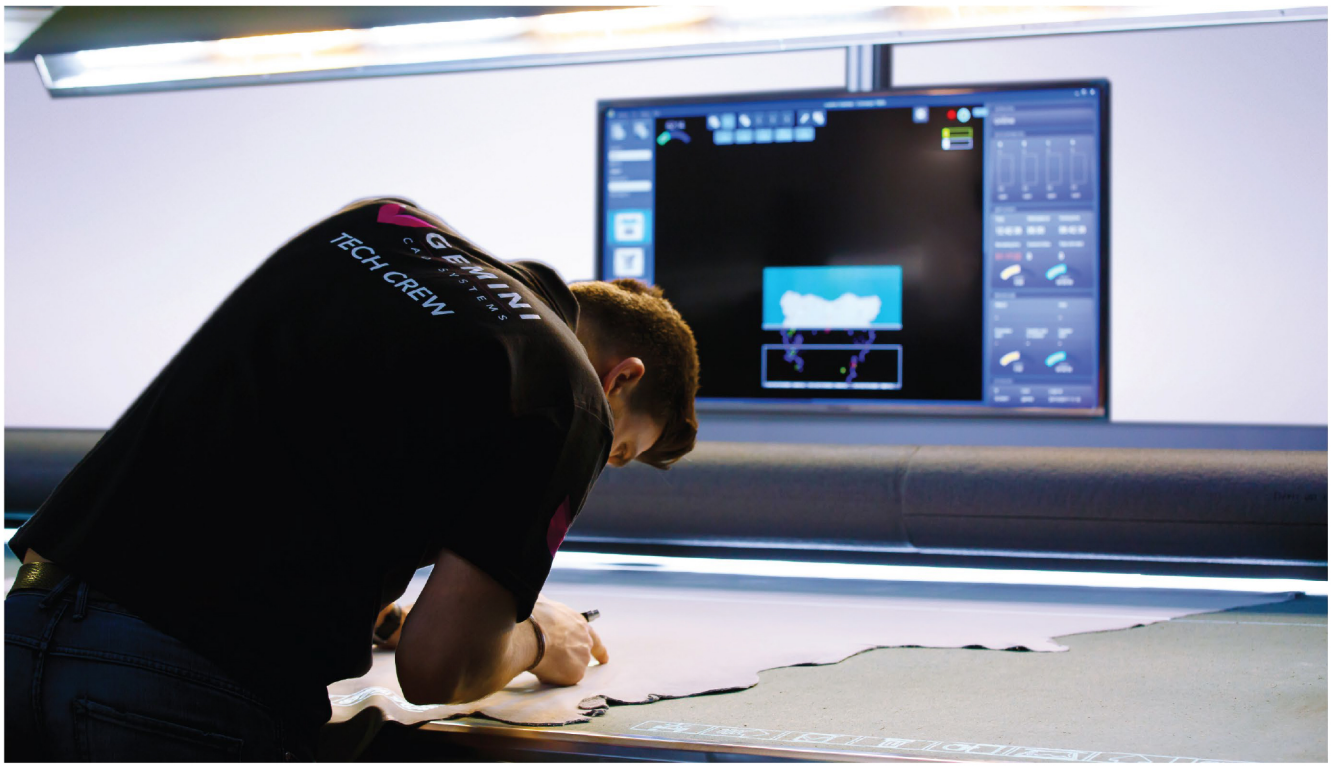
Thagora Leather Scanning Machine uses 2 types of adjustable lights: warm (yellow light, especially for white hides) and cold (white light, especially for darker hides). The operator can easily adjust these lights by pen, on the surface of the conveyor, to increase the chance of seeing the defects. A lighting profile can be preset for each type of leather.

Adjustable position of the lightst

For some types of leather, it can be better to use a sharp angle, while for others to use a 90-degree angle. Thus, the angle of the lighting can be adjusted, due to the modularity of the machines' frame.

Even light dissipation

The use of lenticular lens helps to evenly dissipate the light on the inspection surface. Also, the lighting system is shielded, so the eyes of the operator are not disturbed by the light of the machine.



Thagora Leather Scanning Machine presentation movie

Optimized mechanics of the machine

Thagora Leather Scanning Machine features an extensive set of technological highlights that have a positive impact for the leather cutting room. Every detail is designed to optimize the leather consumption, the efficiency of the operator and the machine.

Flexible platform

The machine is built on a Bosch aluminum frame, with many adjustable components. This allows flexibility for the architecture of the machine, meaning that it can be assembled and disassembled fast and easy. Also, is possible to modify the height of the scanning surface. Thus, the scanner can be operated by a tall or a short worker alike. The frame is light, so the machine can be easily transported.

Excellent ergonomics

Thagora Leather Scanning Machine has an architecture with 2 conveyors for loading and unloading the hides. The main conveyor is tilted, so it is more comfortable, and the operator avoids the back pain. Also, the worker operates the machine only from the front, without the need to go behind the machine, to collect the scanned hide. The second conveyor can move in both directions, being useful for a rapid loading and unloading of the hides.

Small footprint

Thagora Leather Scanning Machine has a lower footprint compared to other solutions on the market. Thus, it requires a smaller area in the leather cutting room.

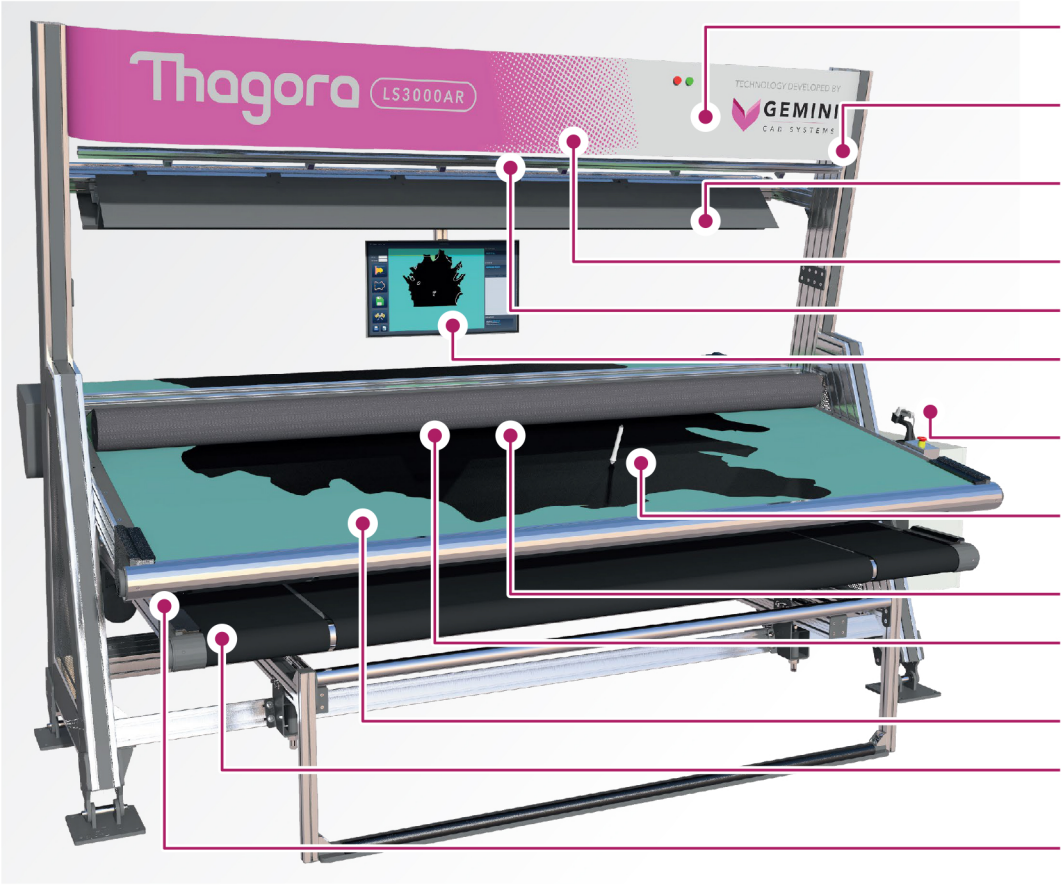
Easy identification of small defects

The machine has a stretching device that helps the operator to see the fine cuts on the hides.

Main features of LS 3000AR

- High precision for quality zones marking using Infrared technology
- Ergonomics and automation of the leather inspection process based on augmented reality
- A secondary conveyor for automatic hides unloading
- The LED inspection lights with glare free lenticular lens are adjustable in terms of intensity and color, ensuring the best condition for the hides inspection regardless of their color and structure
- Integrated software module for quick automatic ranking of hides
- Integrated stretching system that allows the identification of fine cuts on the hides
- Clean marking the hides defects with Infrared technology pen
- Easy correction of mistakes

Technical Specifications



- High brigthness video-projectors
- Vocal confirmation system
- Inspection lights system
- HD Scan cameras
- Infrared cameras
- Large frontal monitor
- Batch identification barcode reader
- Infrared technologypen
- Scan lights system
- Hides stretching system
- Main conveyor
- Hide return conveyor
- Wrinkle free feeding device

SCANNING WIDTH	3000 mm
SCANNING LENGTH	unlimited
ACTIVE AREA FOR QUALITY ZONES MARKING	3000 × 900 mm
PROJECTED LIGHT INTENSITY	3 × 3000 lumens
INSPECTION LIGHT INTENSITY	800-5500 lumens, adjustable
INSPECTION LIGHT TEMPERATURE	2800 – 6500 Kelvin, adjustable
INSPECTION LIGHTS TECHNOLOGY	LED, lenticular lens, glare free
QUALITY LEVELS	up to 7 levels
ONLY FRONT OPERATING REQUIRED	Yes
SCANNED CONTOUR ACCURACY	< 1 mm
QUALITY ZONES MARKING ACCURACY	< 2 mm
PROJECTION RESOLUTION	1000 pixels/m
POWER SUPPLY	110-220V, 50-60Hz
HIDE STRETCHING SYSTEM	Optional

About us

Gemini CAD Systems is a leading global supplier of technology for industries working with soft flexible materials such as textile, composites or leather. Our activity includes research, development and implementation of software, hardware and workflow solutions for apparel, furniture and automotive, with focus on computer aided design (CAD) and computer aided manufacturing (CAM) applied in the cutting room.

Gemini's business is based on cross-linked fields of expertise and a collection of proprietary, in-house developed software algorithms and hardware equipment, built over 15 years of activity and continuous investments in R&D.

Gemini's advanced technologies automate the manufacturing process from design to cutting for more than 16.000 customers across 38 countries, providing reliable services and technical support throughout all stages.

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