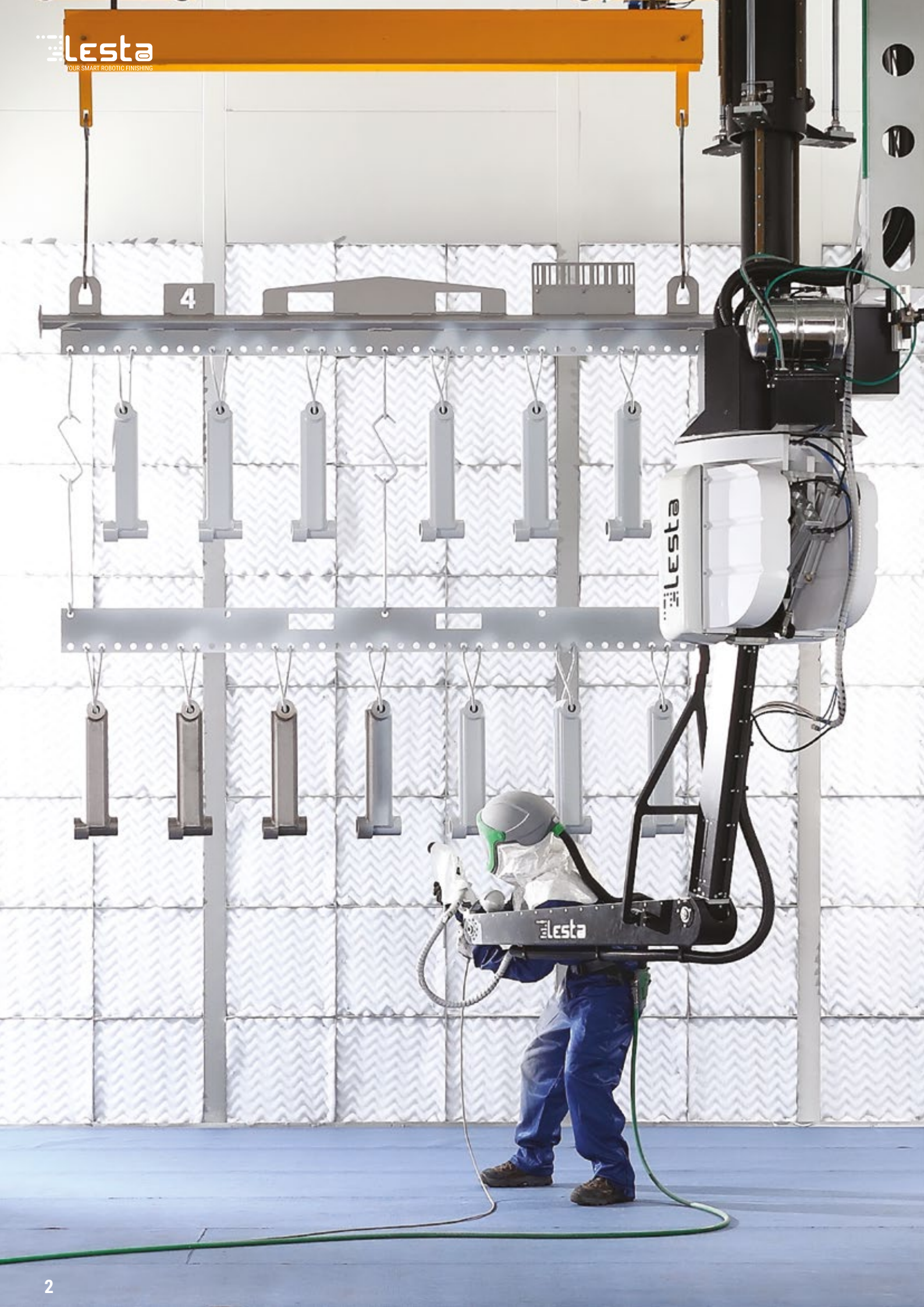
Lesta

YOUR SMART ROBOTIC FINISHING

ROBOTIC SOLUTIONS FOR YOUR FINISHING PLANT

COMMERCIAL CATALOGUE

Made in Italy
CERTIFICATE
IT01.IT/2380.051.V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WHAT WE MEAN BY

SELF-LEARNING ROBOTS

The self-learning concept is based on the "teach" function. The robot, during the learning phase records real time movements of the axes piloted by the operator. The operator uses the handle attached to the robot's arm during the teaching phase. When the teaching phase is completed, the robot can reproduce the same movements in "auto play" mode.

The "teach" process consists of 4 phases:

01

NAMING

Each course must have a unique name. The teachings can be aggregated into "programs" so that they can be carried out in sequence.

02

"CONFIRM "READY" AND "GO OFF THE HOOK"

The robot needs a confirmation to proceed and to release its arm so that the operator can move it without any effort.

03

TEACHING

The paint gun is connected to the robot's wrist and is used to paint a sample piece allowing the robot to record the movements.

04

SAVING

The teaching can be saved or aggregated with other teachings to create one program, it can be deleted or immediately reproduced.

BENEFITS OF
A **SELF-LEARNING** ROBOT

PROGRAMMING TIME EQUAL TO THE TIME OF THE FIRST PAINTING

USER-FRIENDLY SOFTWARE EASY TO USE

TEACHING

AUTOMATIC PLAYBACK

WHAT WE MEAN BY

INDUSTRIAL ROBOTS

For each use, where a robot does not have to learn the program through a "self-learning method", Lesta integrates industrial robots into its own advanced systems. The purpose of this integration is to simplify the use of the industrial robot and the controller through Lesta's innovative software.

Unlike Lesta's self-learning robots, industrial robots have very heavy arms that cannot be 'unlocked' and moved directly by manipulating the spray gun.

KUKA | Official System Partner

INDUSTRIAL ROBOTS IN SELF-LEARNING

Some industrial robots commonly known as "collaborative" can be moved by the operator (with the motors always switched on) to record programs through self-learning method.

However, this does not register painting in real time as it happens with the self-learning Lesta models.

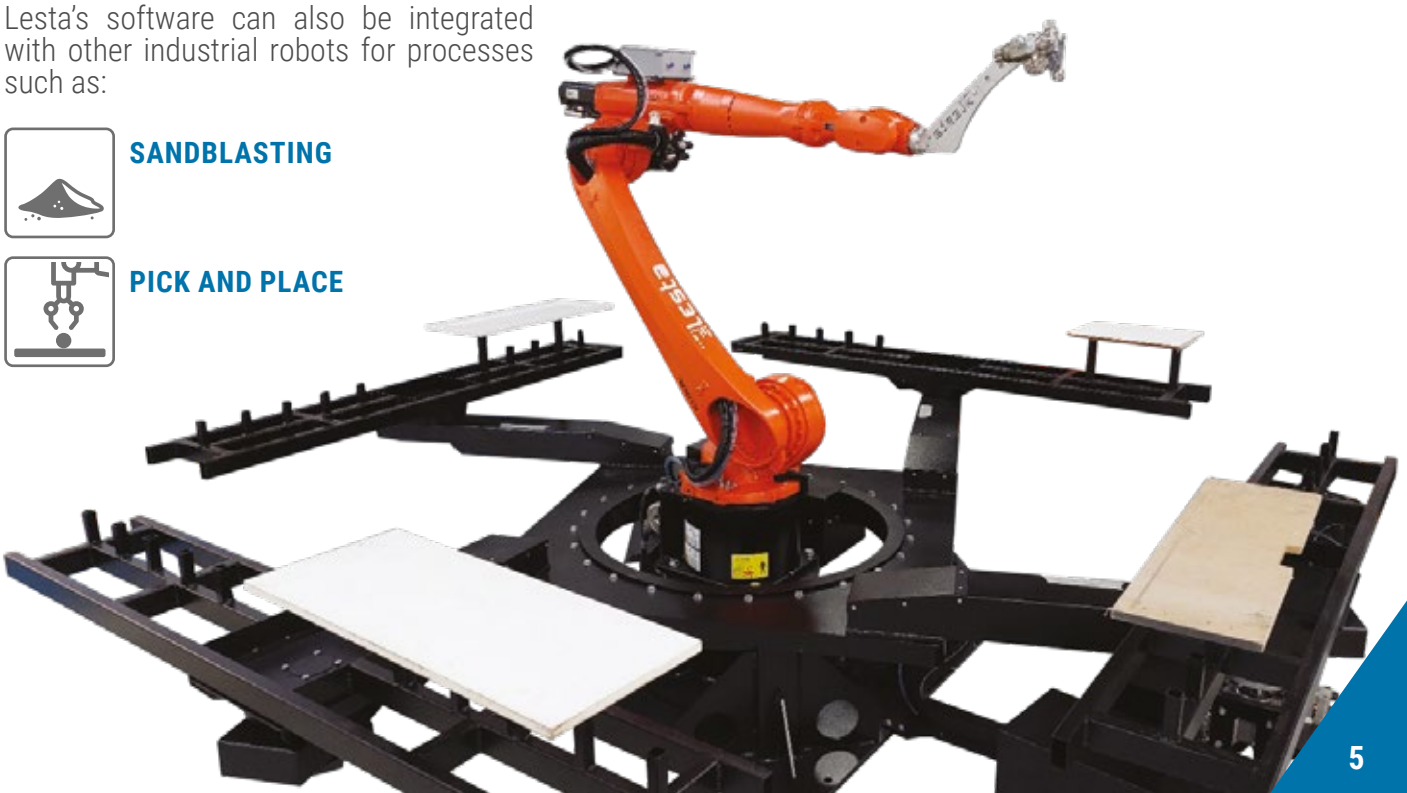
Industrial robots are therefore generally integrated by Lesta with 2D / 3D vision systems and automation generating painting paths.

BENEFITS OF A **INDUSTRIAL** ROBOT

- **LARGE ACCESSIBILITY OF THE WORKING AREA**
- **MORE CAPACITY ON THE WRIST**
- **MORE ACCURACY (REPEATABILTY)**

Lesta's software can also be integrated with other industrial robots for processes such as:

- **SANDBLASTING**
- **PICK AND PLACE**



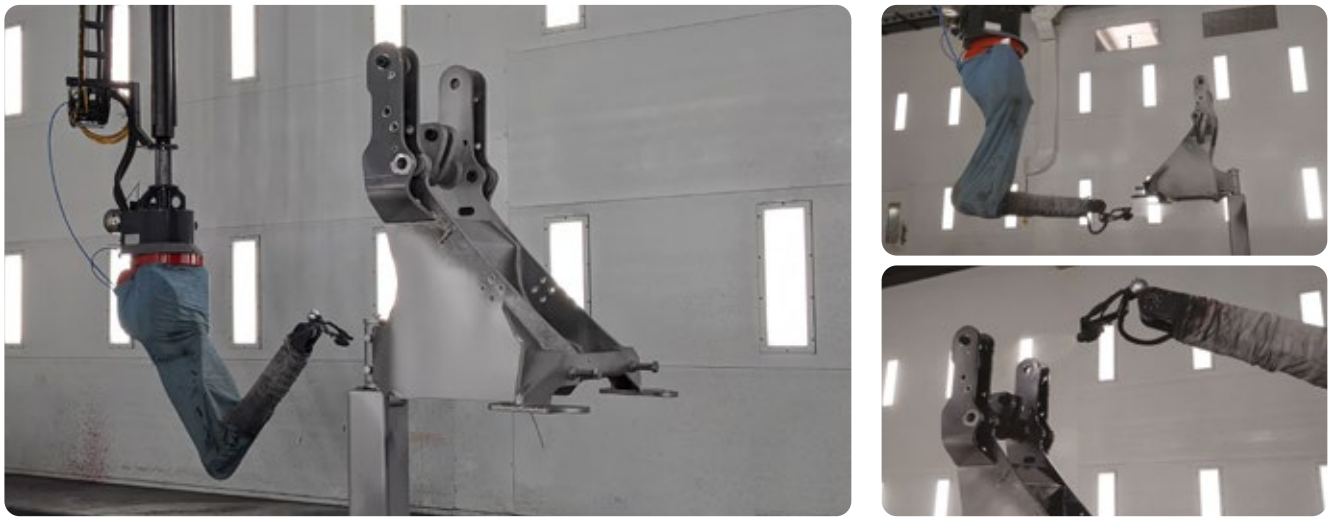
ROBOT

Lesta LEBOT **MV A6**

6-axis anthropomorphic robot
for self-learning finishing

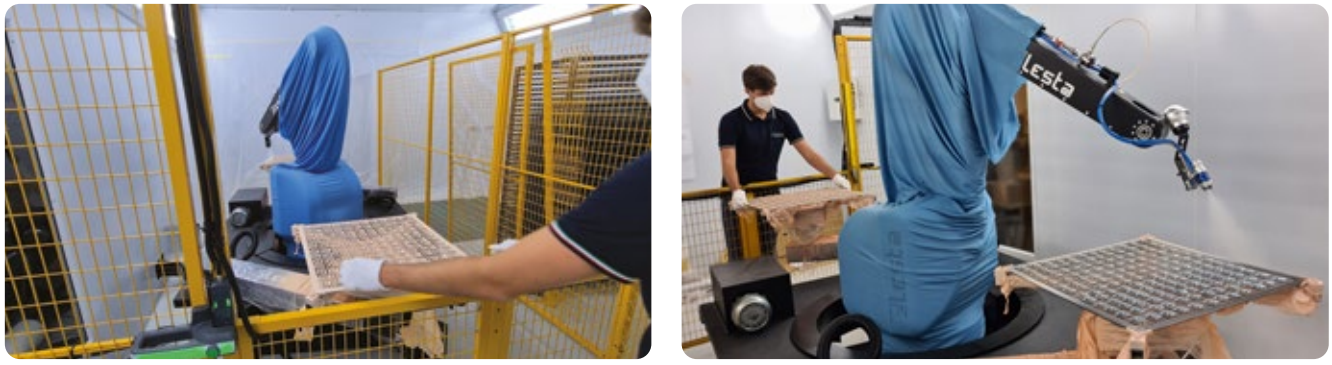
Protection class: **ATEX zone 2/22 Cat. 3G**
Arm material: **Aluminum**
Wrist payload: **4 Kg**
Total weight: **380 Kg**
Repeatability: **±3 mm at the wrist**
Full speed: **1000 mm/s**
Possible configurations: **Upside down, floor, carriage, carousel**
Power supply: **3x400 VAC**
Programming: **Self-learning, Point to point lite, offline, 2D and 3D vision systems**

Lesta LEBOT MV A6 ON CHARIOT
LIQUID APPLICATION FOR METAL



Plant with **Lesta LEBOT MV A6** on XYZA overhead wagon suitable for painting large components.

Lesta LEBOT MV A6 ON CAROUSEL WITH EasyPROG 2D
LIQUID OR POWDER APPLICATION FOR SMALL PLASTIC AND METAL COMPONENTS



A system with Lesta LEBOT MV A6 on carousel with 2 variable geometry arms for painting fashion accessories.

ROBOT

Lesta LEBOT **MV A5**

5-axis anthropomorphic robot
for self-learning finishing

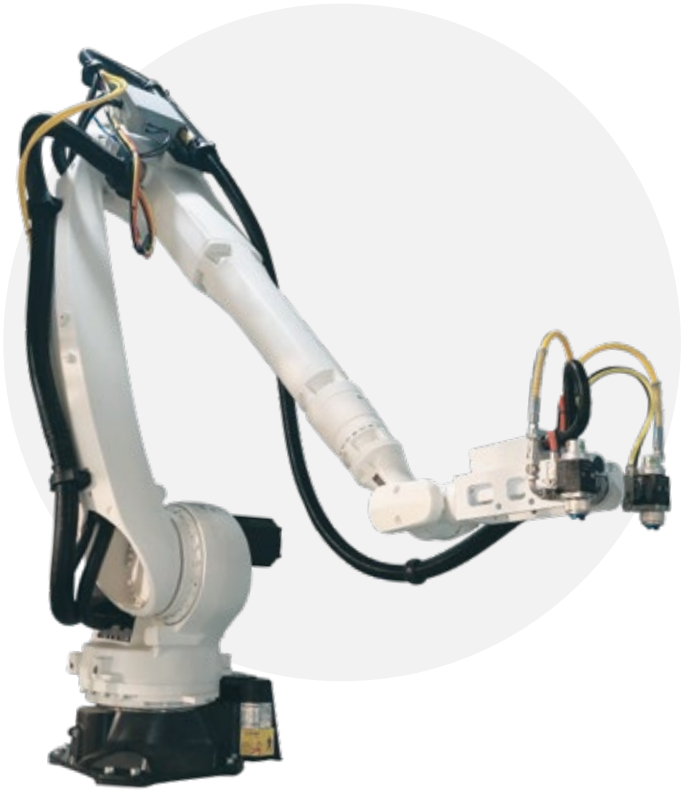
Protection class: **ATEX zone 2/22 Cat. 3G**
Arm material: **Aluminum**
Wrist payload: **4 Kg**
Total weight: **320 Kg**
Repeatability: **±3 mm at the wrist**
Full speed: **1000 mm/s**
Possible configurations: **Upside down, floor, carriage, carousel**
Power supply: **3x400 VAC**
Programming: **Self-learning, Point to point lite, offline, 2D and 3D vision systems**

Lesta LEBOT MV A5 ON A CAROUSEL
LIQUID APPLICATION FOR WOODEN CHAIRS

ROBOT

Lesta LEBOT **I A6**

Industrial-type 6-axes anthropomorphic robot



Available models: **Lesta LEBOT I A6 / W**
Protection class: **IP65**
Arm material: **Casting of light alloys**
Repeatability: **±0,05 mm at the wrist**
Full speed: **1500 mm/s**
Possible configurations: **Floor, carriage, carousel**
Power supply: **3x400 VAC**
Programming: **Lesta PAINT STUDIO, 2D and 3D vision systems**

Lesta LEBOT I A6 W
When we refer to a **Lesta LEBOT I A6 W** we are talking about a specific configuration for painting windows and frames. Generally the **Lesta LEBOT I A6 W** robot is installed with vision systems such as **Image MATCH 2D / 3D** or **EasyPROG 3D Scan**.

Lesta LEBOT I A6 ON CAROUSEL WITH EASYPROG 3D SCAN
LIQUID APPLICATION FOR WOOD

ROBOT

Lesta LEBOT **WP**

Small 3-axis robot, minimum footprint and minimum investment

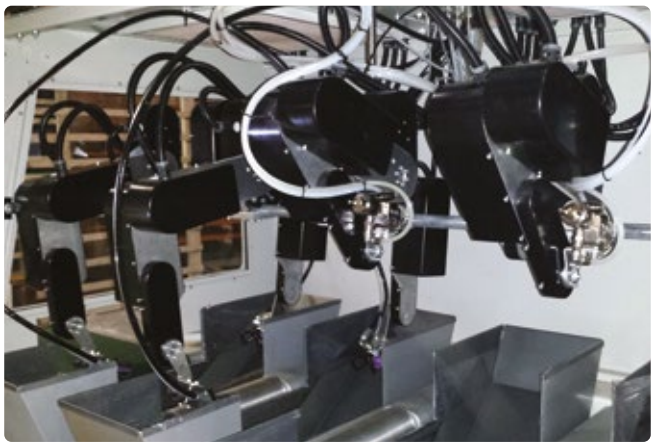
Number of axles: **3**
Protection class: **ATEX zona 2/22 Cat. 3G**
Arm material: **Aluminum**
Wrist payload: **2 Kg**
Total weight: **72 Kg**
Repeatability: **±1,5 mm at the wrist**
Full speed: **600 mm/s**
Possible configurations: **Upside down, floor, carriage, carousel**
Power supply: **3x400 VAC**
Programming: **Offline, Point to point lite**

COMPACT
it takes relatively small space

ECONOMIC
It is the cheapest investment from the entire Lesta line

2 FUNCTIONS
It can be used as a positioner or it can repeat painting paths with its 3 axes

Lesta LEBOT WP as a spray gun positioner
LIQUID APPLICATION FOR WOODEN PROFILES



System with 8 **Lesta LEBOT WP** mounted as positioners for automatic guns on a continuous line.

Lesta LEBOT WP SU MOBILE CONVEYOR
LIQUID APPLICATION FOR PLASTIC HELMETS

Plant with **Lesta LEBOT WP** mounted on a small mobile conveyor with integrated panel. The robot is configurated to repeat a continuous movement

ROBOT

Lesta LEBOT **C5**

5-axis cartesian robot

Protection class: **ATEX zona 2/22 Cat. 3G**
Wrist payload: **4 Kg**
Repeatability: **±3 mm at the wrist**
Full speed: **700 mm/s**
Power supply: **3x400 VAC**
Programming: **Offline, 2D and 3D vision systems**

USE
Commonly for painting windows and frames

SOLIDITY
Chain is used to handle the wagon

SPEED
The wrist is applied to a **linear belt guide**

ADAPTABILITY
Length, **height** and **depth** of the structure **can be customized**

Maximum window sizes and bespoke options
The structure, as illustrated, can paint windows up to **5 meters wide and 3 meters high**. The structure also requires our technical team to adapt the system.

Lesta LEBOT C5 FOR CLASSIC WINDOWS
LIQUID APPLICATION FOR WOODEN WINDOW FRAMES

Plant with **Lesta LEBOT C5** for painting fixtures with the **Lesta Image MATCH 2D**, recognition system and self-generation of the painting path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CONTROL CABINET

Lesta LECROB **Robot Controller**

Robot interface and control pulpit equipped with 15” touchscreen and **Lesta LECROB Robot Manager** management software.

CONTROL CABINET SOFTWARE

Lesta LECROB **Robot Manager**

Lesta LECROB Robot Manager is software for the control and management of **MV series robots**. In addition to the standard management of a self-learning robot for painting, it provides the following functions

MODULAR ROBOT SPEED
With perfect reproduction, 70% to 130% of teaching speed

ARCHIVING OF PROGRAMS
On local memory, on USB key or on a network path

PICTURES AND NOTES FOR THE PROGRAMS
Each program can be associated with an image and/or a “various annotations” file

5 LEVELS OF ACCESS AND USE
Access to specific machine functions, only for authorized personnel

MAINTENANCE STATISTICS
Graphic indicators divided by activity (lubrication, greasing, routine maintenance, chain change)

ROBOT CALIBRATION
Quick and easy verification of machine zeros (encoder zeros) and with guided and intuitive encoder calibration

CUT OF DOWNTIME
The time in which the robot is not moved and the gun does not dispense paint can be eliminated through an optimization

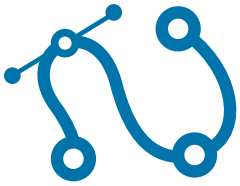
ARCHIVING OF PRODUCTION DATA
Microsoft Excel .csv files or MySQL database

REMOTE UPDATES
Remotely upgradeable software

Lesta LECROB **Robot K Manager**

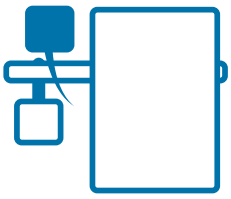
Lesta LECROB Robot K Manager is a software dedicated to the control of the **Lesta LECROB I A6** and **Lesta LECROB I A6 W** robot series and was created to simplify the use.

Plug-in



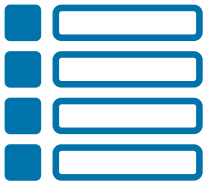
POINT TO POINT LITE

This plug-in optional feature allows the generation and processing of a virtual painting path by **physically directing the spray gun to the desired points and confirming chosen locations with a click on the joystick**. Through the plug-in interface, available with the Lesta LECROB Robot Controller, it is possible to use selected points and generate the path via software. This is done by setting different parameters such as speed, acceleration, distance from the piece, gun parameters (atomization, flow rate and fan)), and more.



VIRTUAL START CYCLE

Where systems have a conveyor, **the cycle start sensor** is mounted to allow the start of the painting program. When it is not possible to install the cycle sensor in the cabin due to dirt, ATEX or other reasons, it is fitted outside the cabin along the conveyor and the **virtual limit switch plug-in** will calculate the exact moment for the robot to start reproducing the program.

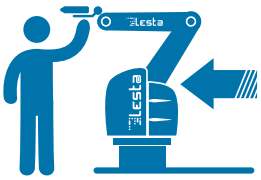


INTERNAL QUEUE

This plug-in optional feature allows you to define, from a list of programs, the order in which they will be executed. The operator can always step in and control programs by setting the order on the screen of the **Lesta LECROB Robot Controller**.
This plug-in is widely used in configurations with a carousel or a conveyor.

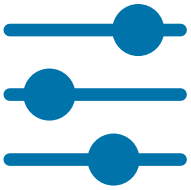
QUICK START

This plug-in allows you to record a program and, as soon as the recording is finished, to start the automatic cycle with 1 click.
This plug-in is widely used on solid lines



FOLLOW ME

Is a systems where the robot is mounted on a carriage. When the operator has to perform movements that are larger than the usual working area of the robot, the carriage will allow the robot to reach larger spaces without the need of using the external push-button The robot will physically move on the cart independently following the movements of the operator. All these movements, in the “teaching” stage, will be recorded and will be repeated in the “automatic repeat” stage



ADVANCED EDITING PAINTING PARAMETERS

Allows you to modify the 3 main paint dispensing parameters:
1. SCOPE
2. ATOMIZATION
3. FAN
for time intervals chosen within a program after it has been created.

The gun that is mounted on the robot’s arm must be equipped with a predisposition for this function.

Lesta LECROB ROBOT MANAGER

Plug-in

POWDER PACK

Software option dedicated to powder systems:

1. SAVE PAINT
The powder is dosed only when the element reaches the operator and the registration of movements begins

2. CLEANING FROM THE OUTSIDE
It allows you to start and manage washing activities from external devices.

3. MANAGEMENT OF THE ELECTROSTATIC GUN
A special holder is installed which isolates the spray gun.

LIQUID PACK

Software options dedicated to liquid systems:

1. MANAGEMENT INTERFACE WITH EXTERNAL COLOR CHANGING SYSTEMS
2. AUTOMATIC CLEANING
3. MANAGEMENT OF THE ELECTROSTATIC GUN

FIBERGLASS PACK

Software options dedicated to fiberglass, gelcoat, and resin systems:

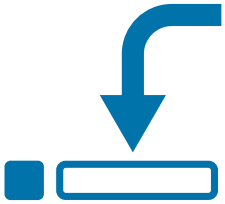
1. AUTOMATIC WASHING POSITION AFTER EACH CYCLE
2. GLASS FIBER DISPENSING DOSAGE BY MANAGING THE CHOPPER
3. MANAGEMENT OF GELCOAT AND RESIN VALVES

SMART APP

The **smart app** plug-in allows you to monitor the status of Lesta robots on any device (PC, tablet, smartphone)

INDUSTRY CONNECTOR

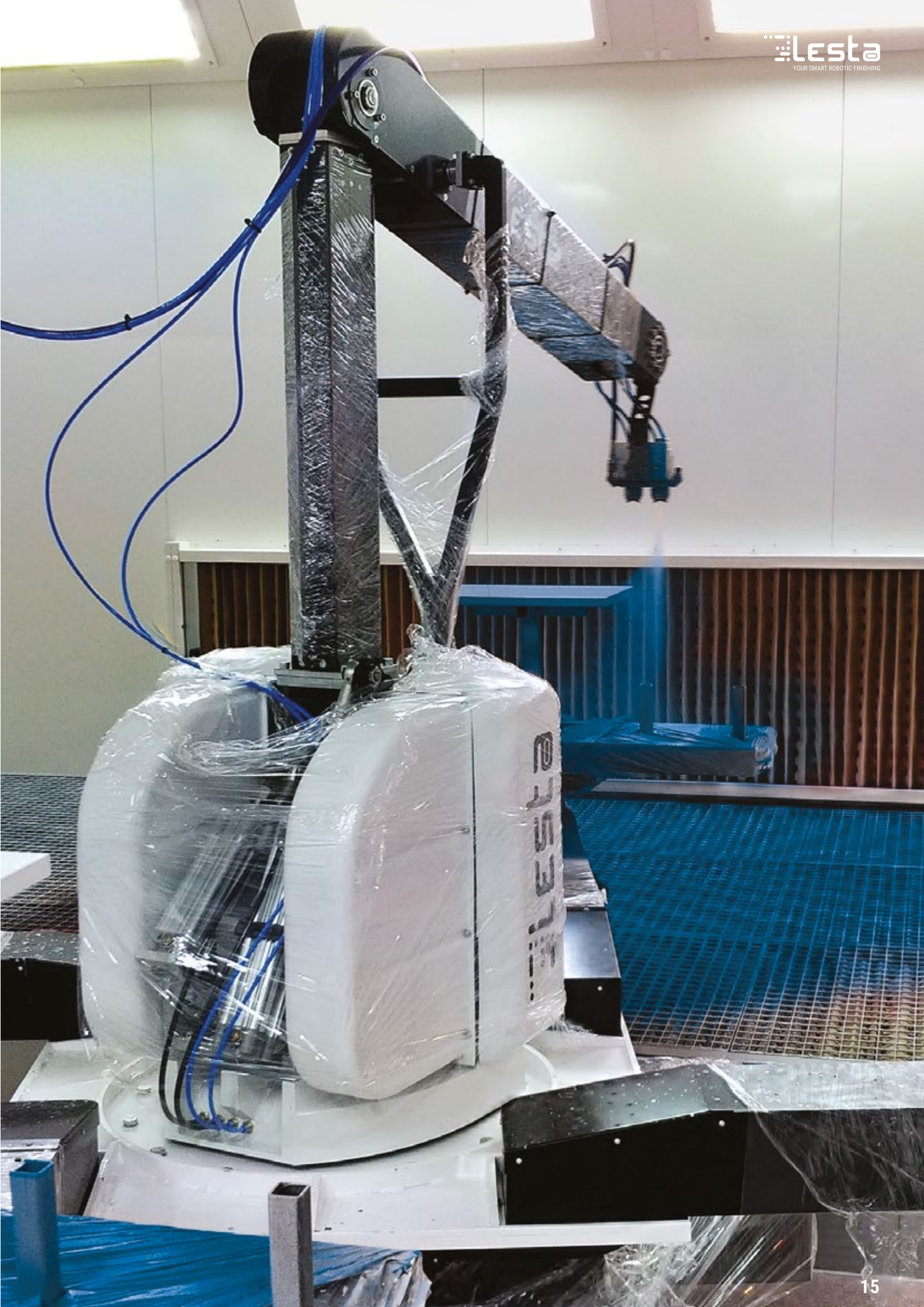
Connects the robot to factory computer systems for the exchange of production data.



EXTERNAL PROGRAM SELECTION

This plug-in enables the selection and launch of paint programs by an external system, e.g. a PLC controller.

The robot can receive program code via hardware signals or different fieldbuses.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INTEGRATED ACCESSORIES

Easy PROG 2D

EasyPROG 2D is software able to **autonomously generate the painting path of panels**, boxes and drawers. It requires the insertion of the height of the drawer in the recipe.

Directly from the Robot Controller screen it will be possible to create specific recipes for each type of product to be painted, which can then be recalled by reading a barcode or directly from the touch-screen.

HOW TO USE IT

01 Load the piece

02 Select your chosen program or scan the barcode which loads the program associted to it.

03 The software automatically generates the painting path

THIS SYSTEM ONLY MANAGES PANELS AND BOX-SHAPED OBJECTS

THE MINIMUM THICKNESS MANAGEABLE BY THE SYSTEM IS 15 MM

EASY PROG 2D LASER

This system is synchronised with **a pair of laser pointers**, mounted to correspond with the robot, with a carousel, and with dedicated software that **automatically compensates the position** of the piece if it is not

INTEGRATED ACCESSORIES

Easy PROG 3D Scan

Easy PROG 3D Scan is **software** associated with a **3D scanner** used with the **carousel** system. This scanner is able to identify the surface load of three-dimensional objects and **generate a painting path autonomously**.

Directly from the Robot Controller screen it is possible to create specific recipes for each type of product that needs painting. Each program can then be recalled by reading the barcode though a scanner or directly from the touch screen.

HOW TO USE IT

01 Load the piece

02 Select your chosen program or scan the barcode which loads the program associted to it.

03 The software automatically generates the painting path

CAN BE USED FOR PAINTING PANELS, BOXES AND DRAWERS, WITHOUT THICKNESS LIMITS

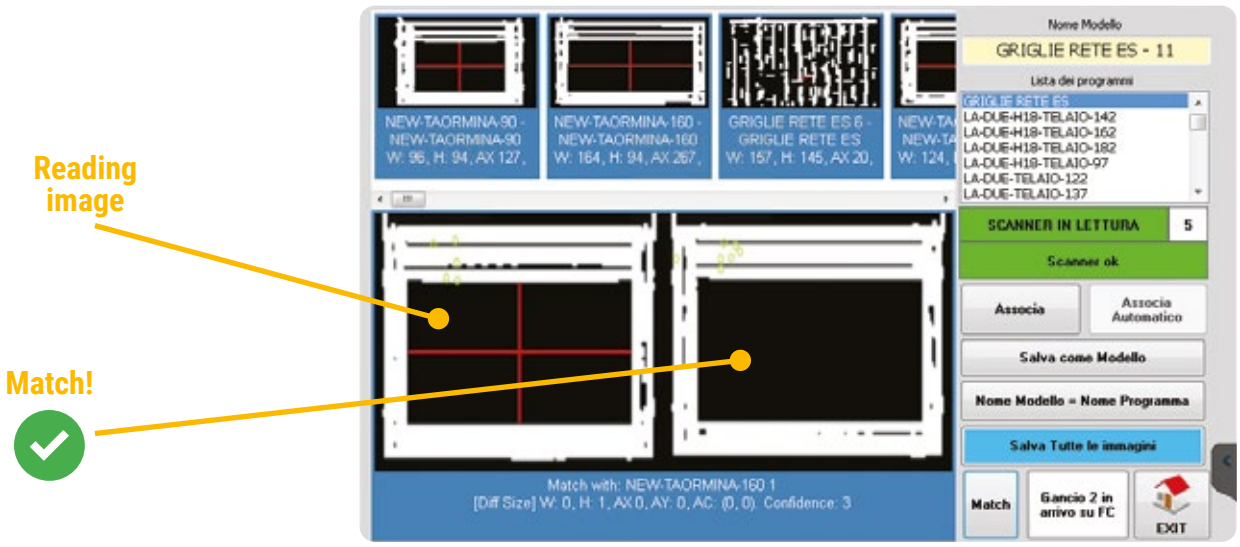
IT CAN ALSO BE USED FOR PAINTING CURVED AND SHAPED PANELS THAT ARE NOT OF STANDARD SHAPE

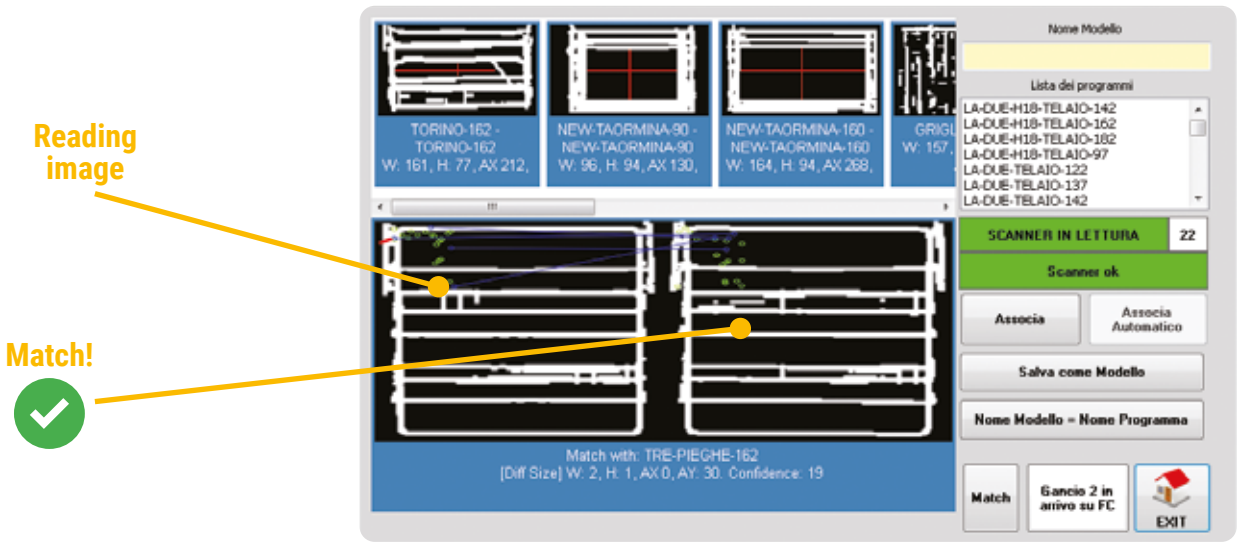
INTEGRATED ACCESSORIES

Image MATCH 2D

Image MATCH 2D is a system composed of dedicated **software** and **a pair of photoelectric barriers**. This system can identify 2D surfaces of the pieces and associating it with the corresponding painting program.

During first phase of work, template programs are created for each type of piece. The pieces are hung and ready for the painting. **Image MATCH 2D** recognises the pieces one by one by associating them with the corresponding templates and loading the correct painting program.





It can distinguish between objects of different thickness	✗
It recognises the real position and adjusts the painting path	✗

Image MATCH 3D PRO

Image MATCH 3D PRO is a system consisting of management **software** and one or more **3D scanners mounted on a line** capable of recognising the size of three-dimensional objects and associating the corresponding painting program.

In a first phase of work the programs for each type of piece are created, after which it is simply necessary to load the supply line with the pieces to be painted. **Image MATCH 3D PRO** will take care of recognising the pieces through its 3D scanners and applying the relative painting program.

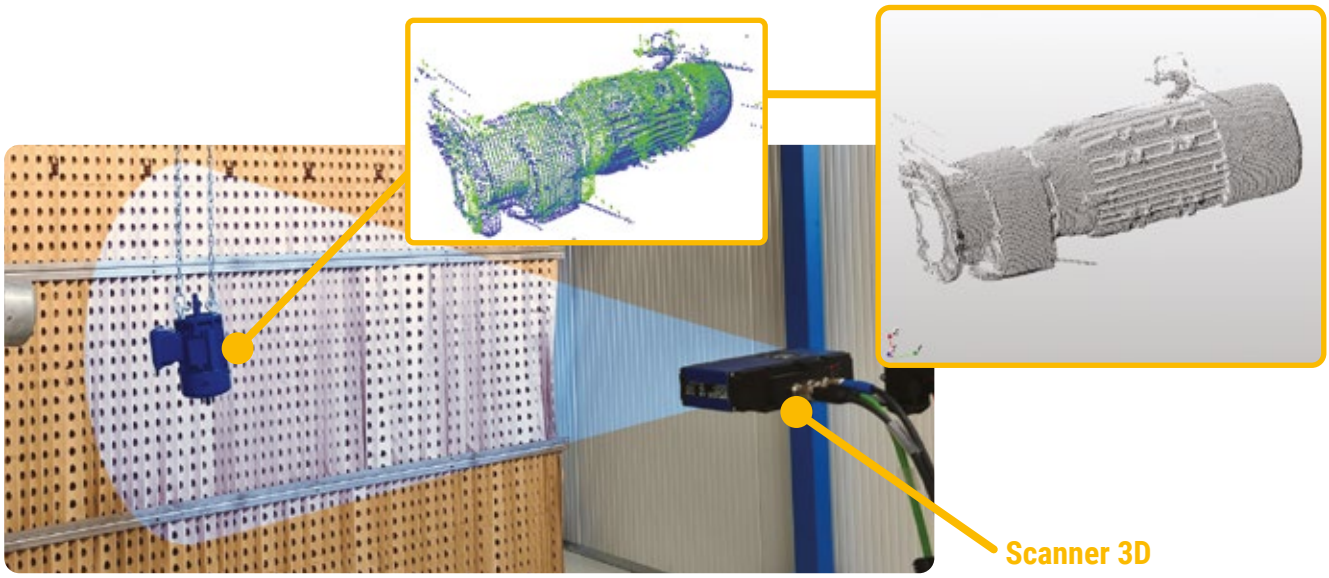
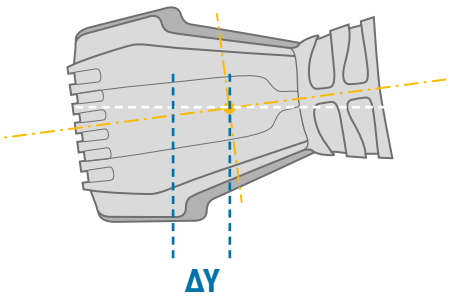
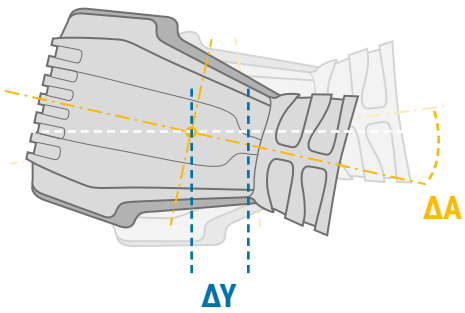


Image MATCH 3D PRO recognises the inclination and position of the pieces and **automatically adjusts the painting path**

Position **taught**



Position **detected**



It can distinguish between objects of different thickness	✓
It recognises the real position and adjusts the painting path	✓

INTEGRATED ACCESSORIES

SUCTION AND BLOW-OFF TOOLS

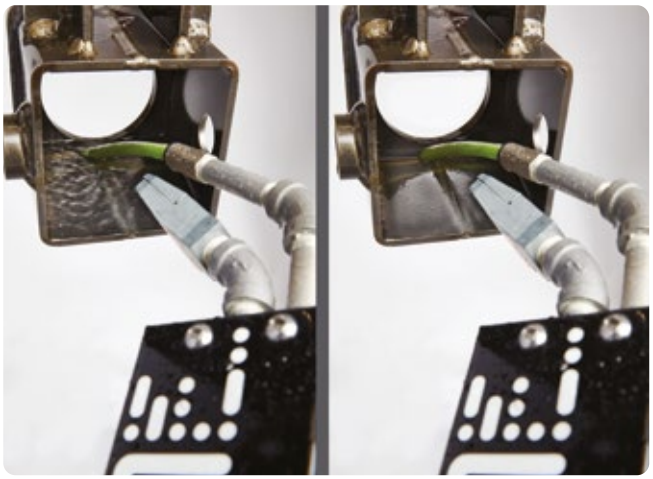
This accessory consists of a special gun that is capable of blowing or sucking excess water and moisture from the surface of the piece.

Main benefits:

AVOIDS THE FORMATION OF WATER POCKETS AFTER APPLYING THE PAINT

ALLOWS THE MAINTENANCE OF LOWER TEMPERATURES INSIDE THE OVEN

SUCTION



BLOW-OFF

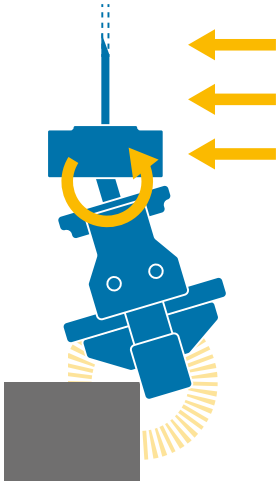
ANTICOLLISION

The **Lesta anti-collision system** is a special pneumatic device mounted between the gun and its support. It is designed to protect both from overloads and shocks.

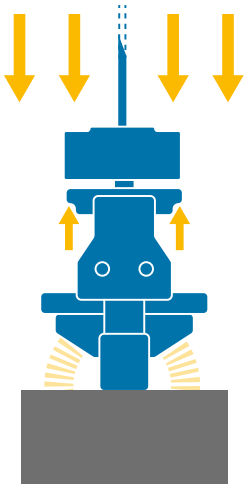
If the gun collides with an object, a mechanical overload is generated which leads to a displacement of the sensor and release of pressurized air. Once the pressure drop is detected, the system sends a signal to the control PLC which stops the robot.

There are three types of overloads that can occur:

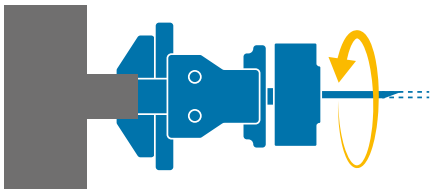
TANGENTIAL:
Occurs if the gun collides **sideways** with an obstacle



AXIAL:
Occurs if the **compressive** force in the Z direction towards the system exceeds the overload threshold value

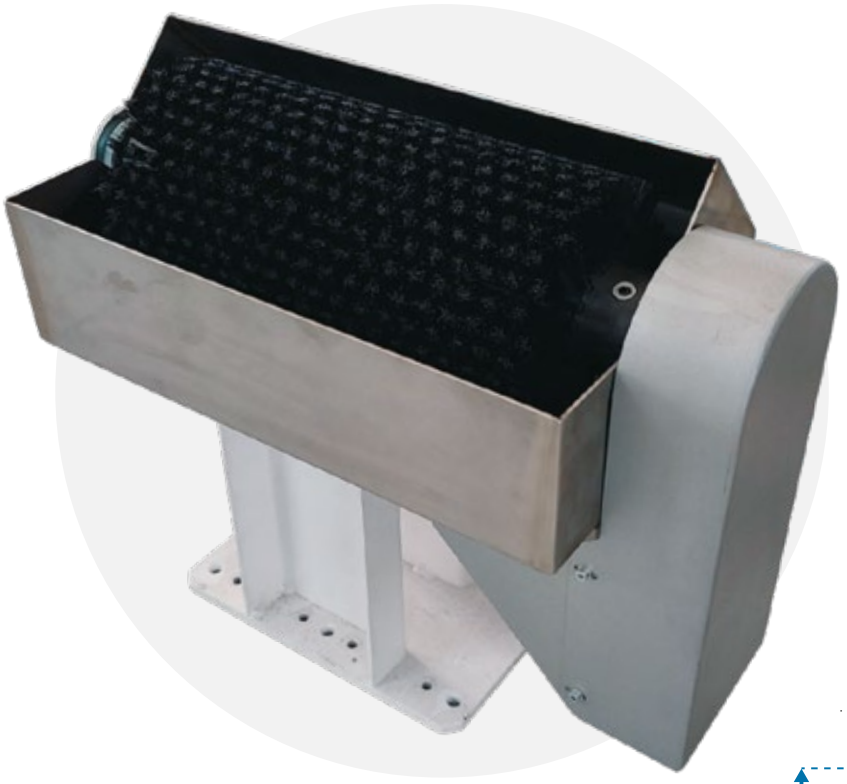


TWISTING:
It occurs in the case of a rotation around the z axis when the **maximum torque** is exceeded



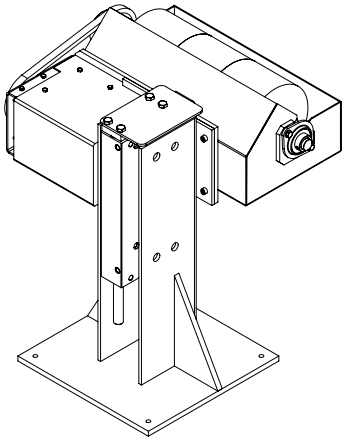
Lesta CLEANING STATION

Lesta CLEANING STATION is a system that integrates with spray booths and it is developed for automatic cleaning of spray nozzles.

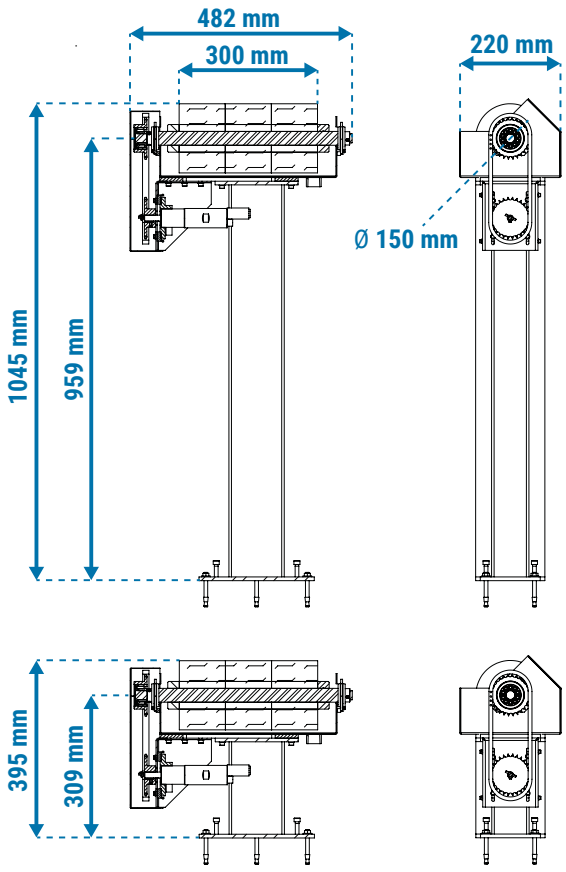


MODULAR BRUSH (CUSTOM WIDTH)

2 HEIGHTS AVAILABLE



Lesta CLEANING STATION can be delivered in a mobile version Its height is changeable thanks to the compressed air piston.



Lesta RECIPE MANAGER

Lesta RECIPE MANAGER is a system for managing **painting parameters**, organized in recipes and easily recalled. It interfaces with any painting system with guns or reciprocators.

The mounted gun must be equipped with a predisposition for this function.

The parameters that Lesta RECIPE MANAGER can control are:

- **FLOW RATE**
- **ATOMIZATION**
- **FOLDING FAN**
- **DELAY AND ADVANCE OPENING**
- **CYCLE TIME**

Lesta RECIPE MANAGER and it's dedicated software can be integrated into all Lesta robots with or without the panel that consists of a case and a screen.

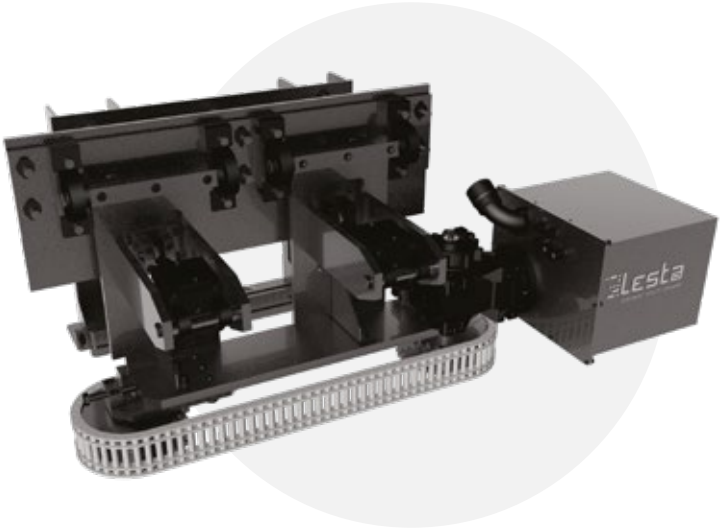
The user interface is integrated into the **Lesta LECROB Robot Manager** software.

Lesta ROTATION UNIT **RA / RT / RHT**

RA: AERIAL ROTATION GROUP

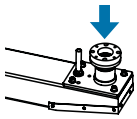
Lesta ROTATION UNIT RA is a device that allows you to rotate the pieces on an overhead conveyor.

On the gauge conveyor, **it can work with 2 different pitches**



RT: ROTATION GROUP ON THE GROUND

Lesta ROTATION UNIT RT is a floor-standing device that allows the pieces to be painted to be hooked and rotated **perpendicular to the floor**.

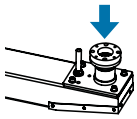


It can be integrated into **the arms of the carousels** or a **conveyor**

On conveyor in pitch it can work **with 2 different pitches on the same plant**.

RHT: HORIZONTAL ROTATION GROUP

Lesta ROTATION UNIT RHT is a floor-standing device, which allows the pieces to be painted to be hooked and rotated **parallel to the floor**.

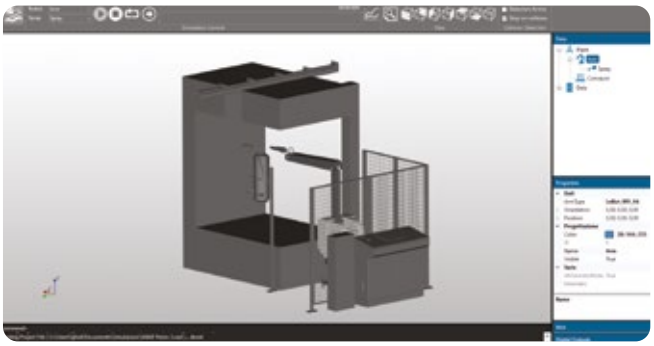


It can be integrated at the **arms of the carousels**.

Lesta PAINT STUDIO

Lesta PAINT STUDIO is software designed for programming painting robots. Thanks to this software, offline painting paths can be created.

For each created painting path there is a possibility to modify various parameters including
- Speed
- Acceleration
- Distance from the piece
- Gun parameters
- Painting corner



How to import the pieces:

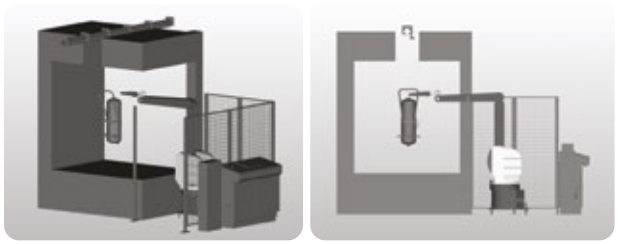
IMPORT OF 3D MODELS OF OBJECTS AND OF THE CABIN

ACQUISITION OF KEY POINTS BY USING THE ROBOT OR THROUGH THE SOFTWARE

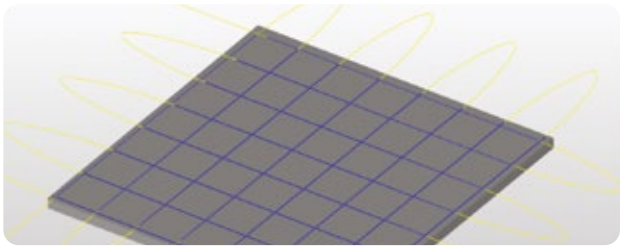
GEOMETRY CONSTRUCTION IN THE SOFTWARE

Import of 3D models in STL and STEP format

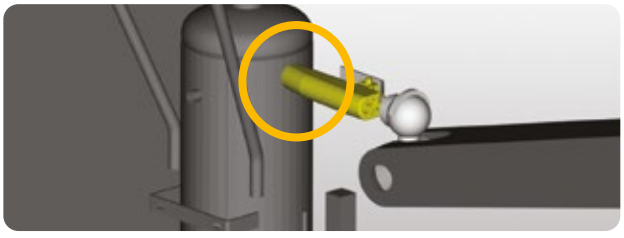
360 ° view of the environment surrounding the robot (even during simulation)



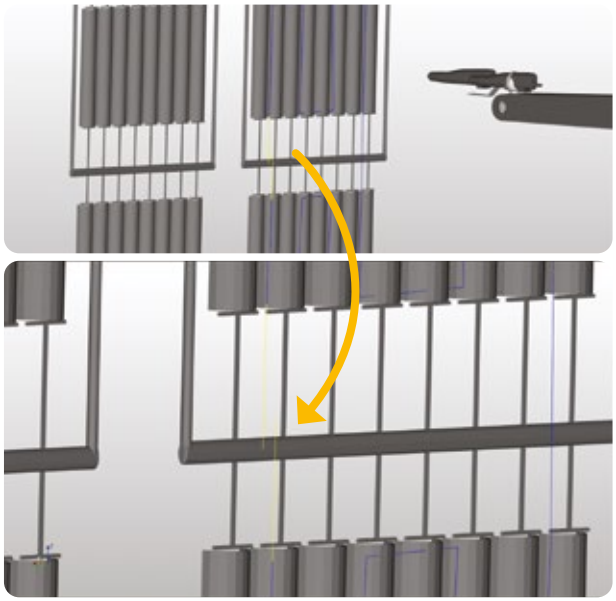
Creation of automatic grids on surfaces to help generate the paths



Robot cycle simulation, with verification of reach limits and cycle times

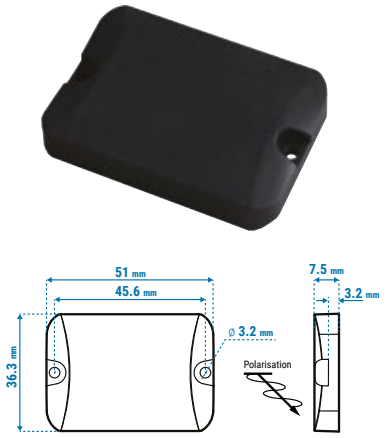


Creation of automatic grids on surfaces to facilitate the generation of paths

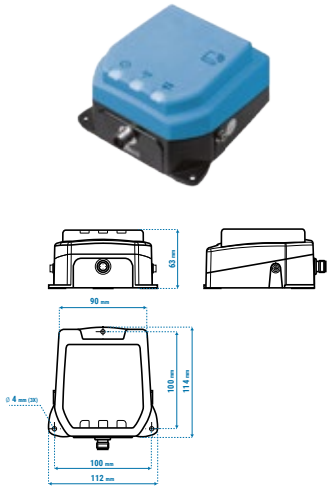


Lesta PRODUCTION MANAGER TAG WEB

TAG RFID



RFID ANTENNA



CONTROL PANEL

The **Lesta PRODUCTION MANAGER TAG WEB** system is generally used on in-line systems when the need is to paint a large number of different pieces, each associated with a different painting program.

How to use it
At the time of loading, a tag is physically placed on the hanger and when it arrives near the robot, the tag is identified by the antenna which automatically allows the robot to run the corresponding painting program.

The digitized process can provide these parameters:
- Position of the piece in line
- Setting oven temperature, washing cycle and painting recipes (when reciprocators are present)
- Total cycle time
- Ability to catalog all products by code, object, or macro-family
- Possibility to send production orders from your office directly to Lesta PRODUCTION MANAGER TAG WEB

Features:
- Synoptic plan of your plant available on the rear panel with a display of various processing stations and component positions.
- Management, storage, and record of production stops and alarm.
- Monitors various IO signals
- Instructions (text or PDF / JPG images) for correct uploading, downloading and masking on the touch panel (optionally on smart TV)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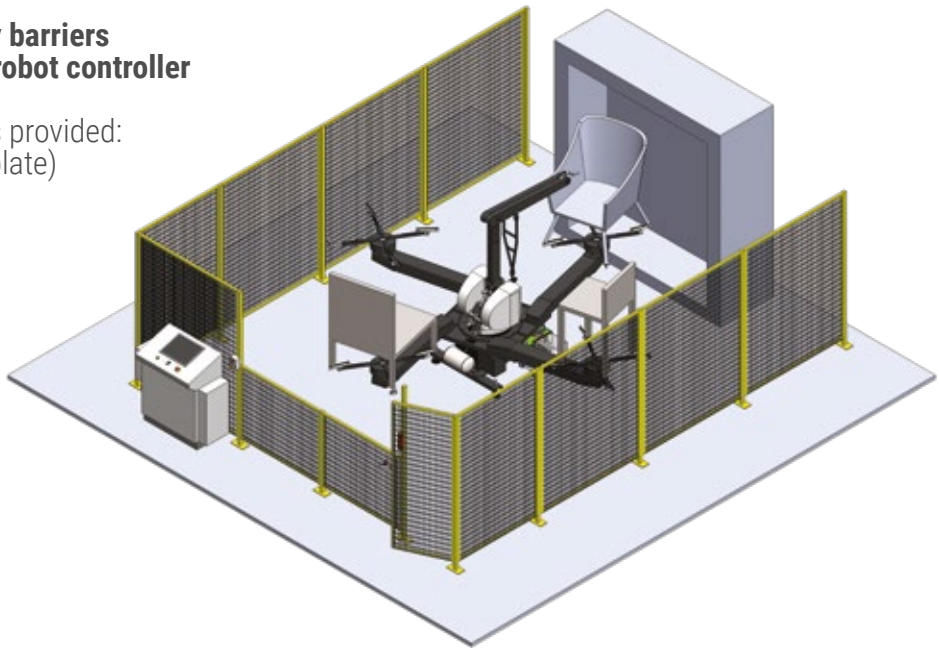
CERTIFICATIONS

EC declaration of conformity of the machinery
according to Annex II.1.A of Directive 2006/42 / EC

Equipment, including safety devices, once assembled/installed according to the manufacturer's instructions can be used safely.

Ex. The robot, including safety barriers and commands related to the robot controller

The following documentation is provided:
- CE marking on the machine (plate)
- Use and maintenance manual
- EU declaration of conformity



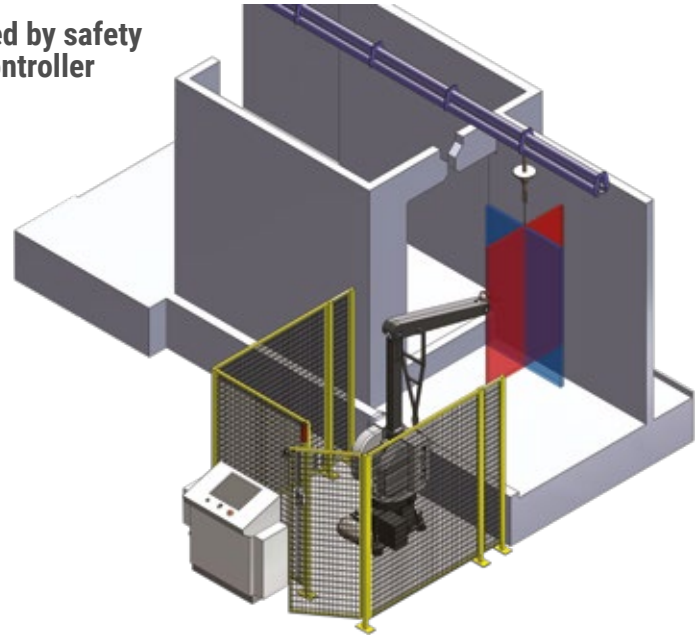
CERTIFICATIONS

Declaration of incorporation of partly completed machinery
according to Annex II.1.B of Directive 2006/42 / EC

Equipment, in order to be used safely, must be completed or assembled with other machinery or partly completed machinery.

Ex. The robot, to be used safely, must be protected by safety barriers and by commands related to the robot controller

The following material is provided:
- Integration manual
- EU declaration of conformity

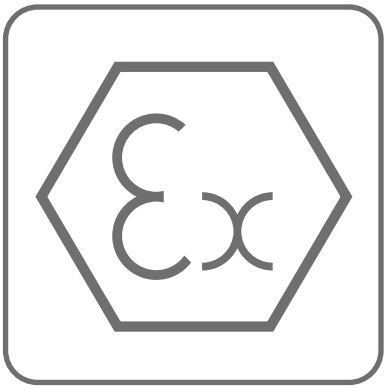


SET-UP

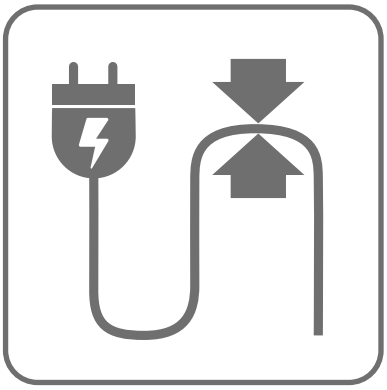
ATEX (EU)

If the area where the robot is to be installed is categorized as ATEX, it will be our duty to provide customers with ATEX equipment.

There are 3 characteristics that make an ATEX system:



The robot must be built in an explosion-proof version.



The robot must be delivered with all pressurized electrical parts in the machine as well as with the covers for the connections between the panel and the robot.

The pressure system is controlled by a safe PLC that stops the machine from running by cutting all voltages in cases where:
- The initial wash cycle is not completed correctly
- There is a loss of pressure in the crankcases

SET-UP

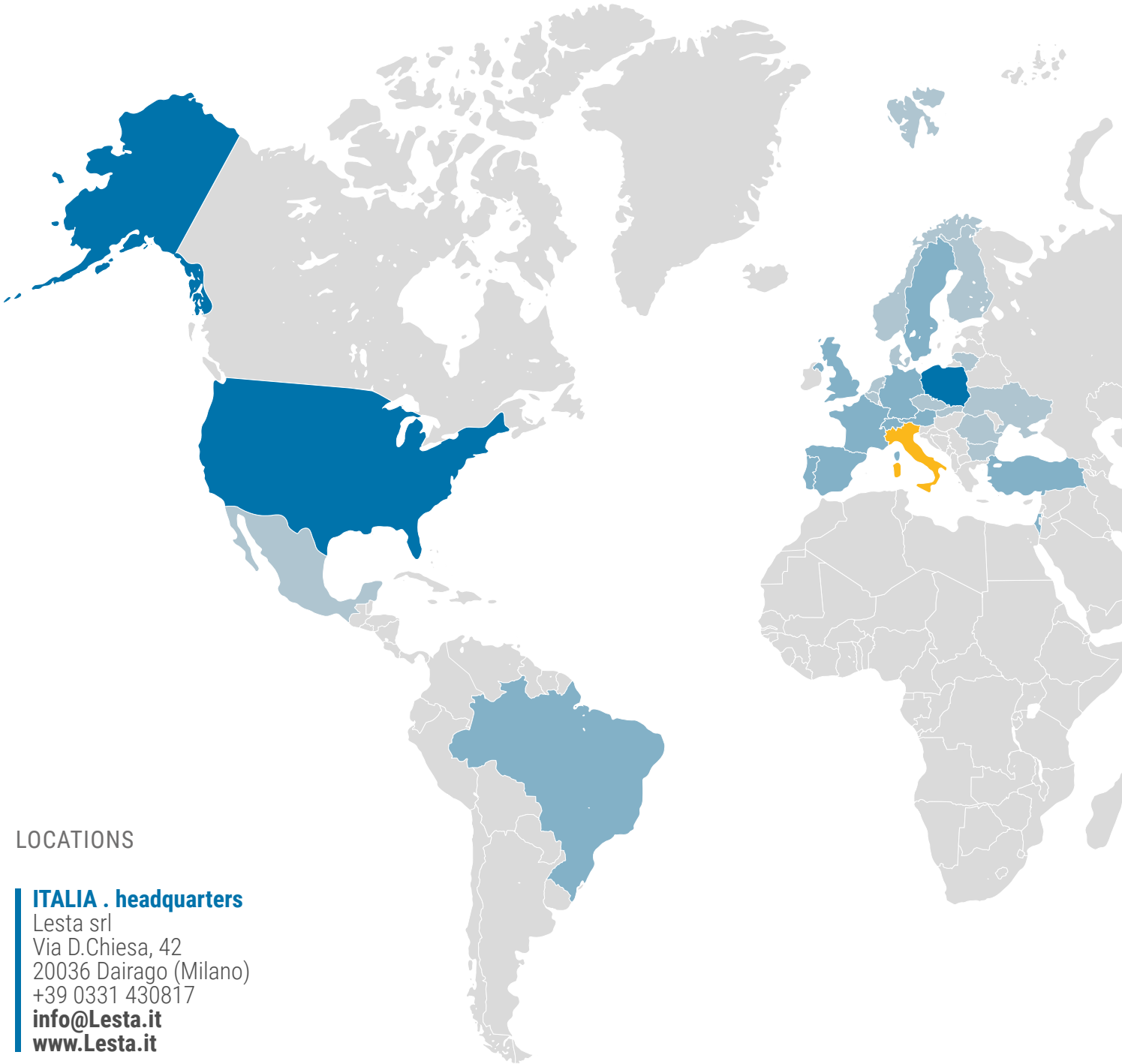
HAZLOC (UL)

Preparation necessary for the US market.

A dedicated pressure unit and specific components are implemented for the American market

LESTA SRL

LESTA IN THE WORLD



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Tea, SD 57064
1-888-546-2800
robotics@Lestausa.com
www.Lestausa.com

Made in Italy

CERTIFICATE

IT01.IT/2380.051.V

Lesta has totally European quality in both design and production.

The headquarters is spread over an industrial site of about 1000 square meters, divided into offices, laboratories, workshops, and warehouses, and **is located near Milan, an area of excellence for the industry**.

This feature, together with the strong will of the company's ownership to bring Italian excellence to the world, has allowed Lesta to obtain **100% Made In Italy certification (Registration No. R.N.P.I. IT01.IT/2380.051.V.**

Lesta

YOUR SMART ROBOTIC FINISHING

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