

ITALIAN MACHINE TOOLS, ROBOTICS & AUTOMATION INDUSTRY ~ NEWS

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PIATTAFORMA INDIA PROJECT

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UCIMU-SISTEMI PER PRODURRE



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GREEN FACTORY LIFE

Designing the green factory of the future

PILOT PLANT

CONTINUOUS MONITORING – ENERGY SAVINGS – PREDICTIVE MAINTENANCE

To provide an integrated environmental sanitation system that constantly monitors the pollution parameters of the entire production site through air quality detectors distributed throughout the plant. In short, this is the main objective of the Green Factory Life project, the result of the Losma Spa technical and design partnership with Fae Technology and Ma-El.

The goal is to minimise Co2 levels and eliminate spores, moulds, odours, carcinogens, bacterial and viral loads in the air during processing cycles. Integration with IoT sensors and the predictive models developed ensure greater plant efficiency, high levels of energy savings, and fully predictive and automated maintenance.

Research on suitable materials and technologies conducted in 2022 led the team to create a pilot plant green factory. The entire air purification system fitted with detectors was installed at Ma-El Srl in Presezzo, near Bergamo. Ma-El Srl manufactures moulds and equipment for the cold working of metals.

OVERALL SYSTEM PERFORMANCE

20,000 m³ of Purified Air

13 Air re-entry points into the work environment

40% Energy Savings*

*(*data measured in the autumn/winter 2022 season)*



PLANT MANAGEMENT INTERFACE

A programmable control interface remotely manages the various suction areas along the plant. The control interface can self-calibrate the system based on the air data. Moreover, end-users can keep track of the system's warnings and notifications and remotely manage the plant's predictive maintenance.

Can also be managed and programmed remotely.



ARGOS PRO – FILTRATION UNIT

Argos Pro is the core of the technology revolving around the Green Factory project. It consists of a cartridge filtration unit that purifies the oil mists, vapours and fumes of various mechanical processes. It is fitted with a digital display for viewing the main functions and the exclusive "LED Up" system, which can indicate the clogging status of the filter elements via three colours.

F9 Filtration Efficiency (Standard EN ISO 16890 ePM₁₀ 95%).

H13 FILTRATION UNIT

After the mechanical filtration of the Argos Pro, the air is also conveyed to an absolute filtration unit, further increasing the degree of filtration.

H13 Filtration Efficiency (Standard EN1822 99.95%).

CENTRIFUGAL FAN

The Green Factory LIFE system is equipped with an inverter-controlled fan to optimise energy consumption.

Pilot Plant: maximum flow rate 25,000 m³/h.

Can be sized as required

AEREAULIC SYSTEM

It was possible to size the system, optimising the fluid dynamics, using a sophisticated calculation code.

2,000 m² of factory surface area.

600 m of aeraulic ducts.

Can be sized as required.

COLLECTION POINTS

On the basis of plant sizing, it was possible to customise the localised collection of the pollutant, generated by the production process.

19 filter points

6 flexible collection arms

Can be sized as required



PCO PURIFICATION SYSTEM

Through the PCO - Photocatalytic Oxidation - filtration system, air is treated by radiating A-band ultraviolet light (at 365 nm) directly onto the special Titanium Oxide filter. This treatment is also effective against viruses, bacteria, and pollutants in plants producing processing waste. A special driver controls and adjusts the power supply of the UVA LEDs in the circuit, switching them off for example when their temperature reaches or exceeds 70 °C.

After 8 hours of treatment, reduction efficiency:

- ✓ **92% Total Dusts and Oily Mists**
- ✓ **99% VOCs (Volatile Organic Compounds)**
- ✓ **99.9% Bacteria and Viruses (also tested on SARS-Cov-2)**



AIR QUALITY MONITOR

IoT sensors collect various information in real time from the production environment. The air quality sensors and an IoT (Internet of Things) gateway are part of the sensor network of the Green Factory project and help improve the air quality in work settings. The number of sensors is commensurate with the structure and size of the production plant.

IOT PLATFORM

The plant's dashboard displays the data, fully readable by the end user of the system, collected by the IoT Air Quality Monitor sensors to allow users to monitor air pollutant parameters at all times.

Data storage and processing:

- ✓ **Filtration Performance**
- ✓ **Environmental comfort**
- ✓ **PM_s, VOCs, CO₂**

The Green Factory LIFE project LIFE19 ENV/IT/000185 has received co-funding from the European Union's LIFE program for reducing the effects of climate change and aims to improve air quality inside and outside industrial environments.

www.losma.com

The project Piattaforma India has been promoted by UCIMU – Association of Italian Machine Tools Manufacturers and AMAPLAST – Italian Plastics and Rubber Processing Machinery and Moulds Manufacturers Association. The two associations agreed on the idea that promoting a network of associations and entrepreneurs who have developed knowledge and experience on the Indian market, can be useful in favoring of new paths of development for business. The Indian companies who are interested to form JV, cooperation, technical tie up, purchase machinery etc from/with Italian companies can contact below mentioned address for any assistance:

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