IMA AI-Lab

Merging Human Intelligence with Artificial Intelligence

IMA's Vision for Industry 4.0

IMA at a glance

Established in 1961, IMA is world leader in the development and production of automatic machines for the processing and packaging of pharmaceutical, cosmetic, food, tea and coffee products, as well as in the automation of industrial processes.

A leadership acquired thanks to significant investments in research and development, a constant and constructive dialogue with end-users of the reference sectors, to the capability of the Group to internationalise and conquer new markets. Its history is in fact characterised by constant growth, also thanks to the work of highly skilled people working within it, and to a certified, reliable supply chain.

The IMA Group closed the year 2024 with consolidated revenues of around **2.3 billion euros** and an export share of around 87,6%.*

The Group chaired by Alberto Vacchi counts **more than 7,400 employees**, of which about 3,000* abroad, and it is **present in about 80 countries**, supported by a commercial network composed of **branches** with sales and support services in Europe, Middle East, North and Latin America, Asia and representative offices in Central and Eastern Europe and **more than 140 agencies.**

The Group relies on **56 production facilities** (between Italy, France, Germany, Switzerland, Spain, United Kingdom, Ireland, United States, India, Malaysia, China and Argentina) and it holds **more than 3,500 active patents and patent applications** worldwide.

IMA S.p.A. has been listed on the Milan stock exchange from 1995 until January 2021.

The main Group's shareholders are the heirs of the Vacchi family, which have preserved the majority of actions and the merchant bank BDT & MSD Partners.

In more than **60 years of activity**, IMA has built highly qualifying values, such as experience, reliability, the capillary presence in the global market and the proven ability to respond to end user's needs, which now allow the Company to offer several innovative solutions other than many high-quality products.

IMA considers its commitment **to sustainability to be of primary importance**, with particular reference to people's quality of life, fighting climate change, and reducing the environmental impact of packaging and industrial processes in general.

** As of December 31, 2024*

IMA mission & vision

IMA develops complete solutions for the automation of industrial and packaging processes, engineering them on the basis of the customer's needs.

We produce our machines adopting **the most advanced mechatronic and digital technologies.**

From the early stages of the project development, we assess the economic, social and environmental impact of both the production cycle of the machinery itself and the plant once it is in production.

The **strong connection with the communities in which we operate, the sense of belonging and the intellectual curiosity** are the sources of inspiration for our work and they identify our most important asset: the human resources.

IMA aims to be, worldwide, a reference point in the automation of industrial digital processes.

A company open to experimentation and **innovation** that proposes top-of-the-line products and that, thanks to this, grows and confirms itself as a market leader.

We believe it is necessary to know deeply the technologies we use for our products and the relapse they have on our **environment**.

We believe in **cross-sharing and synergetic work** between our production facilities spread around the world, because this strengthens our ability to challenge ourselves **with new, cutting-edge and sustainable solutions.**

IMA Group in Numbers

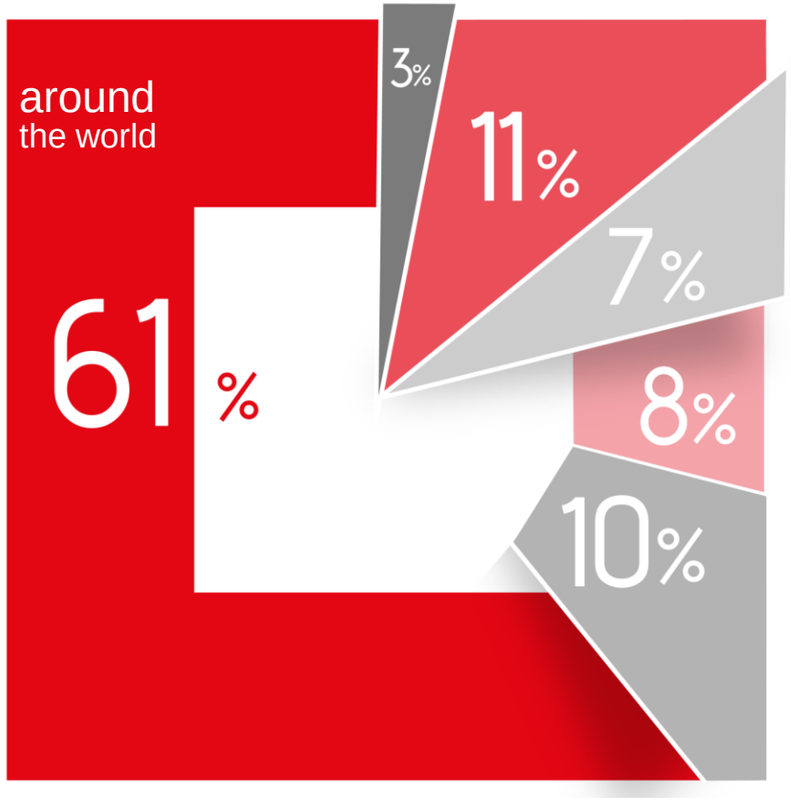
4,200+	21,709	111,288	3,500+
Machines delivered each year	**Customers** served	**Machines** in operation	**Patents** and **patent applications** worldwide

IMA People

Avarage as of December 31, 2024

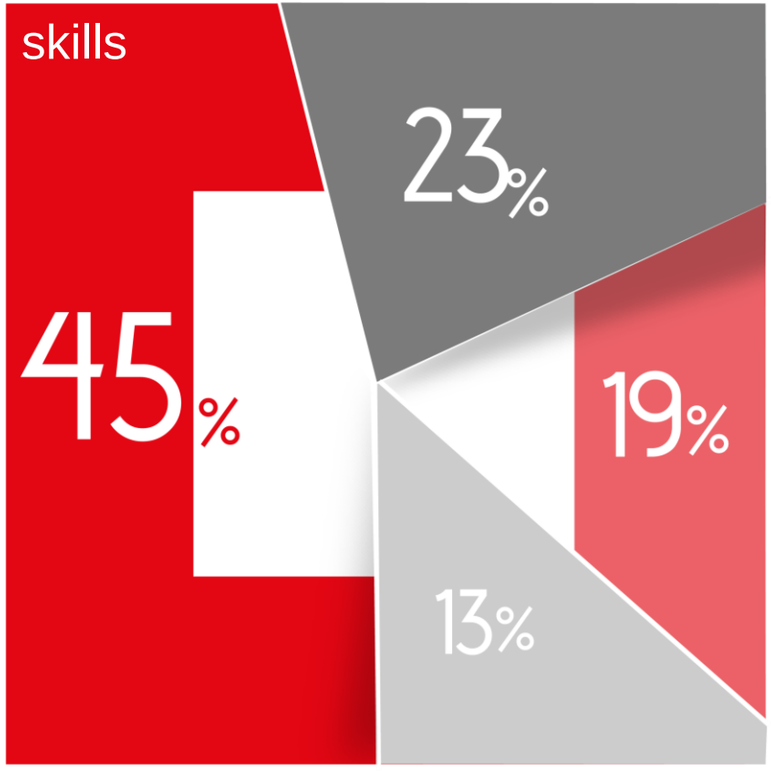
+7.400
employees

Work force around the world



- Italy 61%
- Latin America 3%
- E.U. 11%
- North America 7%
- Rest of Europe 8%
- Middle East & Asia Pacific 10%

Work force skills



- Manufacturing 45%
- R&D and Engineering 23%
- Commercial 19%
- Staff 13%

AI-SOOM Service Oriented Operational Model

Actions

Troubleshooting and knowledge management

- **Retrieve information based on formalized knowledge** to answer the specific needs of the user
- **Learning from human and experience-based knowledge** such as tickets, reports and direct, human experiences
- **Engage** -> Enable conversational mode to serve level-1 requests
- **Contestualize** -> Ability to contestualize and be aware of the context

Diagnostics and monitoring

- **Connecting, Monitoring & Reporting**
- **System/Line Audit**: performance and results
- **Components assessment**: health analysis & Predictive Maintenance
- **Reinforcement Learning** solutions

Data management and orchestration

- **Advanced Assistant** to deliver a co-pilot experiences
- **Sensing**: ability to assess asset operational conditions towards a production goal
- **MCP** Model Context Protocol: enable the market-place logic to orchestrate multiple services
- **Edge solutions**: deploy locally services

New researches

- **Model-based** Analysis and development (focus process)
- **Listening and integration with feedback and solutions based on operators expertise**
- **Self-optimizations** capabilities
- **Machine Control** & **Robots**

THE CHALLENGE in 2026: Intelligence Race

IMA machines shall become the most intelligent assets in the production environment: they cannot become a simple hardware!

STRATEGIC SHIFT: → Balance between **on-edge** and **online** services

Why Edge Intelligence?

- Real-time decisions require local processing power
- Data generation at the source enables immediate value

Connectivity remains priority #1 - with data we generate value-added products.

Implementing and validating **edge AI solutions** with **NVIDIA** embedded platforms

Intellecta EcoSystem: from troubleshooting to trouble-less

SENTRY

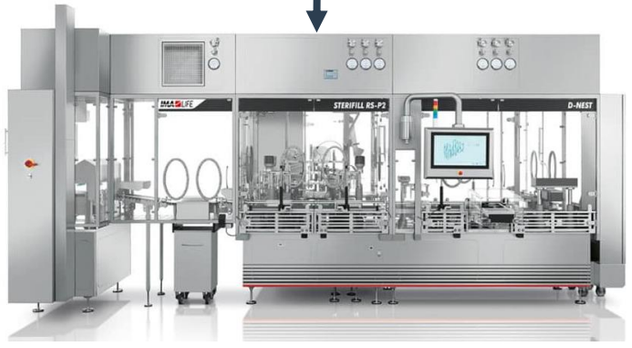
Autonomous Fleet Monitoring.
Sentry is a service designed to provide continuous performance monitoring of IMA's fleet of machines through the control of user-defined rules.

TROUBLE-SHOOTING

Generative AI-Powered Troubleshooting Tool Turning knowledge into action.
Collects data from manuals, technical document, service tickets, senior operator experience and company internal know-how

PREDICTIVE MAINTENANCE

Analyze real-time and historical equipment data to **identify patterns, detect anomalies**, and accurately forecast when machinery is likely to fail, minimize costly downtime



Asset Co-Piloting

Co-Piloting assistant that supports the user to optimize production and to solve operational challenges using **AI Agents**

The Core Philosophy

HUMAN INTELLIGENCE

- Creativity
- Ethical judgment
- Complex decision-making
- Contextual understanding
- Strategic vision

ARTIFICIAL INTELLIGENCE

- Advanced robotics
- Pattern recognition
- Tireless execution
- Data processing at scale
- Internet of Things integration

Not replacement, but synergy — embedding AI where it amplifies human capability

Four Modes of AI Integration

1. ELIMINATING REPETITION

AI handles repetitive, non-value-adding tasks to eliminate operator fatigue and boost productivity. Example: Automated quality checks that free operators from monotonous visual inspections.

2. MANAGING COMPLEXITY

AI serves as a decision support system in complex environments (e.g., pharmaceutical production), processing multiple variables to aid human judgment without replacing it.

3. ENSURING COMPLIANCE

AI safeguards formal processes and regulatory adherence while humans retain strategic judgment. Not about lacking creativity — about maintaining precision where protocols matter.

4. CLOSING THE LOOP

AI enables retroactive data collection and reporting that humans can't sustain during production. Information flows back to improve processes without interrupting operations.

The Path Forward

Embedding AI, Not Replacing Humans

- AI augments where repetition causes fatigue
- AI assists where complexity overwhelms
- AI ensures protocols are followed precisely
- AI closes information loops humans can't sustain

The result: operators focus on value creation, judgment, and strategic decisions while AI handles the mechanical and procedural —
a true cognitive partnership.