Foundry Industrial
Automation Solutions

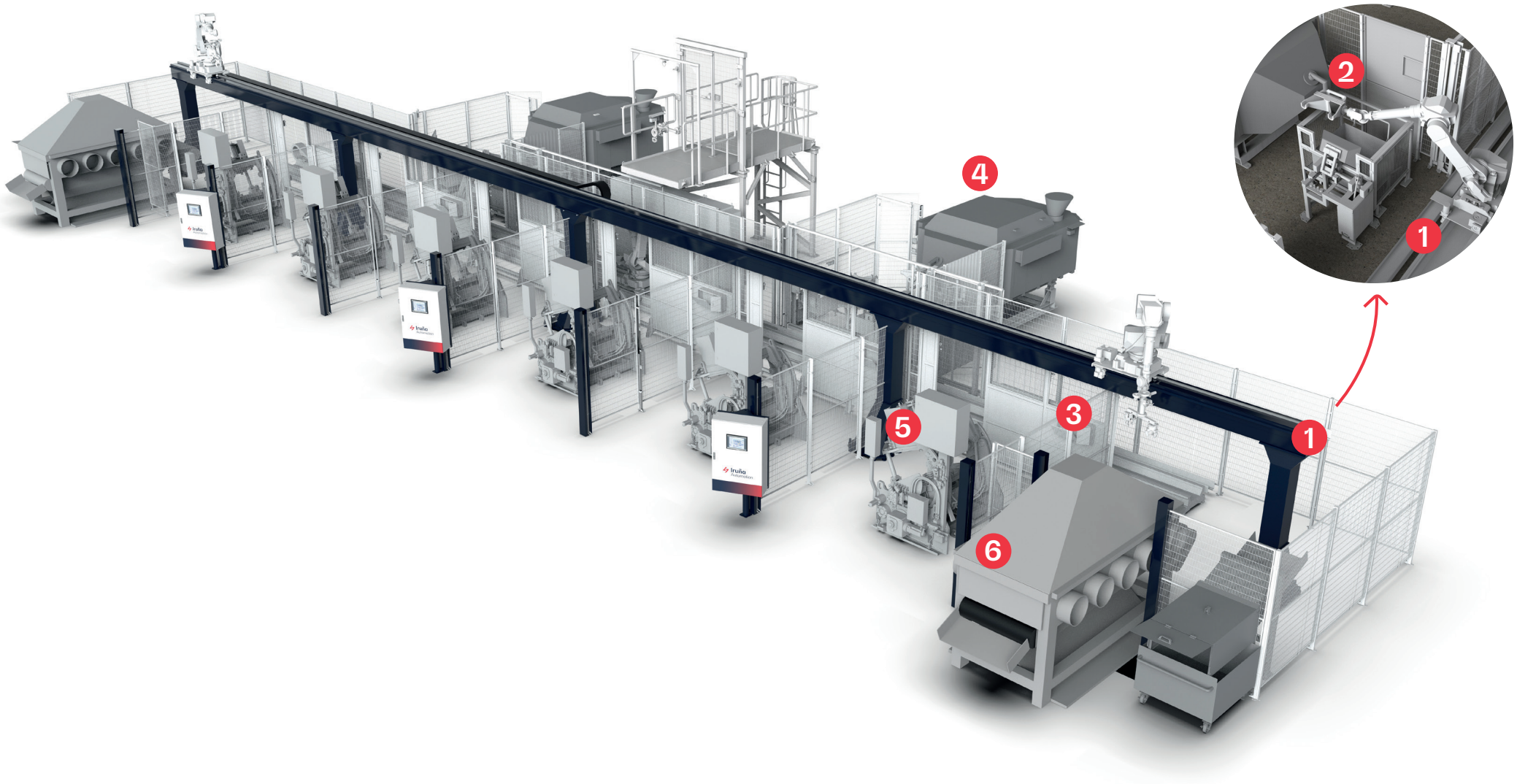
Iruña
Automation

Gravity casting lines

Gravity lines

Combined and modular solutions for robot management in aluminum casting processes. The system integrates robots mounted on linear systems both on the floor and on gantries, ensuring precise control of cycle times, optimal accessibility to all workstations, and enhanced plant safety. Thanks to its modular and scalable design, this solution can easily adapt to different plant configurations and sizes, allowing the addition or relocation of robots and linear systems as production needs grow or processes change.

	Furnances	Pouring Robots	Extraction Robots	Gravity Die Casting Machines	Total length gantry
L4	1	1	1	4	20m
L5	2	1	2	5	28m
L6	2	2	2	6	32m


2
1
4
5
3
1
6

1 Gantry + floor track

Linear systems offer a robust and stable structure, while ceiling-mounted systems help free up floor space in the plant. One of the great advantages of these systems is their scalability. They can be easily extended by adding more track length, adapting to production line expansions. Additionally, it is possible to integrate multiple robots within the same linear system, allowing for increased operational capacity and flexibility to perform different tasks simultaneously or sequentially.

2 Robotic casting gripper

Scoop adapted to handle the exact amount of molten aluminum required, adjusting to the necessary kilograms according to each production cycle. It is also designed to integrate perfectly with the molding machine's design, ensuring an optimal and efficient position during the pouring process.
Automated system that ensures precise and controlled pouring, reducing the risk of spills and defects in the molded parts. Additionally, it improves plant safety by minimizing manual handling of molten metal. The combination of the molding machine and robot optimizes productivity, ensures process repeatability, and facilitates integration into automated production lines.

3 Robotic extraction gripper

Manufactured with materials resistant to high temperatures and wear, it is designed to operate under the conditions and environment of the casting process. The design is adapted to the specific geometry of the parts, ensuring a firm grip that prevents damage or deformation during handling by employing sensor systems that allow adjustment of the gripping force and detection of the correct position of the part, ensuring efficient and safe extraction from the molding machine to the next stage of the process.

4 Dosing Furnace

Equipment designed to maintain molten aluminum at the optimal temperature and precisely dispense the exact amount of molten metal required in each production cycle. Its advanced control system allows for regulating the volume of liquid metal poured, ensuring accurate dosing that minimizes waste and optimizes process efficiency.

5 Gravity Die Casting Machine

On each station a Die Casting bench will be positioned, horizontal, vertical, tilting machine or portfolio. All the control can be integrated on the main control of the line working based on recipe.

6 Cooling station

System designed to efficiently and uniformly dissipate the residual heat from freshly cast parts, preventing deformations or internal stresses that could affect the final product quality. The station features fluid-based cooling systems with automated transport mechanisms that ensure a continuous and synchronized flow. Can be also be based on forced air if casting use sand cores. It helps increase plant safety by avoiding manual handling of hot parts.

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