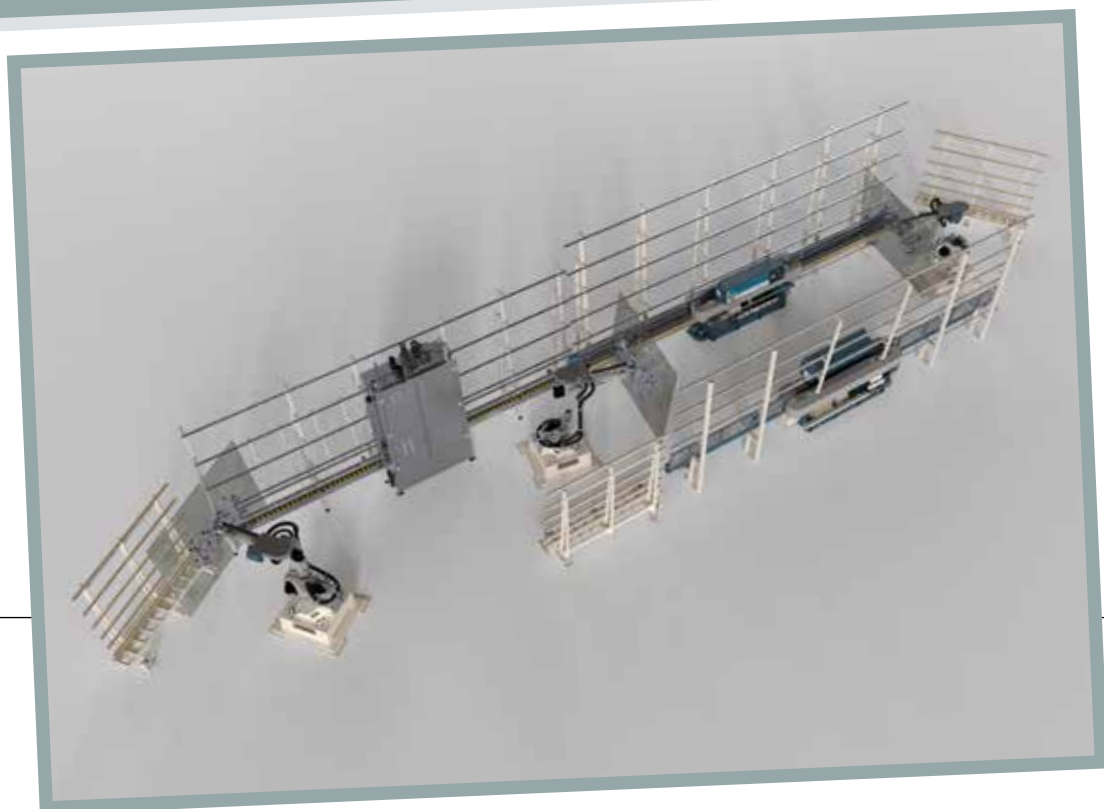


Advancing automation and quality with BOVONE's robotic integration

Enhancing automation in flat glass processing through the synergy of its Fully Automatic (FA) edging machines and BRS robotic systems, BOVONE's innovative integration delivers customizable layouts that boost productivity, precision and flexibility - aligning with Industry 4.0-5.0 principles of efficiency, digitalisation and sustainable, intelligent manufacturing.

BOVONE'S PROPOSAL FOR FA + ROBOT SYSTEMS

Always a benchmark in flat glass processing, Bovone is strengthening its technological automation offer by enhancing the variety of configurations available for integration between the ELB Fully Automatic edging machine range and BRS robotic systems. This wide range of solutions allows the company





time. Simplified grinding wheel replacement and immediate retrieval of stored recipes optimise batch management, while software supervision ensures consistent quality even for diversified production. All these elements integrate optimally into the logic of robotic systems - creating work cells with a high degree of automation, precision and traceability.

FA + BRS INTEGRATION: TAILOR-MADE PRODUCTIVITY

The combination of FA grinding machines and BRS robotic systems allows you to create customised production layouts based on space, level of automation and capacity requirements. Bovone offers a range of configu-

to respond in a targeted manner to the different production needs of the various segments of the glass industry - from small artisan businesses to large industrial plants - offering levels of automation, productivity and flexibility that can be tailored to the objectives and volumes of each customer. This approach aligns perfectly with the principles of Industry 4.0 and 5.0, where digitalisation, traceability and operational continuity all become concrete tools for improving efficiency and competitiveness.

SOLID MECHANICS AND INTELLIGENT CONTROL FOR ADVANCED AUTOMATION

The ELB Fully Automatic range represents

the ideal synthesis of mechanical sturdiness and integrated intelligence. The system automatically manages grinding wheel wear compensation, adjusting the spindles ac-

cording to configurable parameters (linear metres, power consumption or both) and anticipates tool replacement with an intelligent alert that prevents unscheduled down-



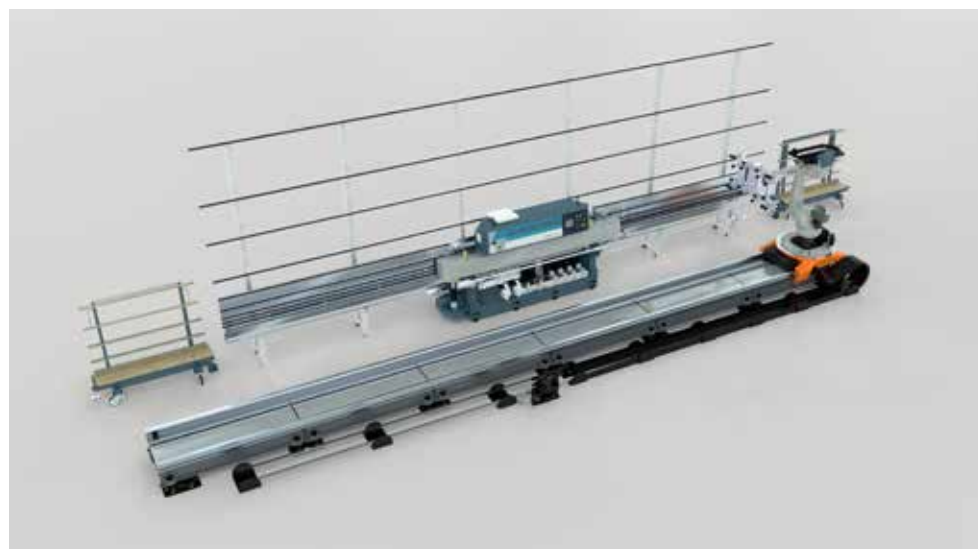
rations that can include:

- single or multiple robots;
- in-line or production island installations;
- integration with rotary tables and vertical BVR washing machines to complete the machining cycle.

In each configuration, the FA + BRS synergy allows you to automate the entire grinding process, reduce downtime, increase operator safety and ensure consistent precision over time.

LAYOUT AND PERFORMANCE: THE BOVONE APPROACH TO PRODUCTIVITY

Data processed by Bovone shows how different layouts offer performance tailored to various production needs:



Configuration	Production on 1000×1000×8 mm glass	Production on 2500×2000×8 mm glass
1 robot on track	284 m/day – 1136 pieces polished	198 m/day – 1782 pieces polished
2 robots	729 m/day – 2916 pieces polished	394 m/day – 3546 pieces polished
2 robots + rotating table	792 m/day – 3168 pieces polished	410 m/day – 3,690 pieces polished
3 robots + washing machine + rotary table	1,203 m/day – 4,812 pieces polished	642 m/day – 5,778 pieces polished

(Data calculated based on a grinding speed of 6 m/min)

The variety of configurations confirms Bovone's focus upon modular and flexible solutions capable of responding to the different production logics of the market: from high volume to customised processing, always with an emphasis on quality and continuity.

EFFICIENCY AS A REAL VALUE

Bovone's approach combines the practicality of mechanics with the vision of intelligent automation. The FA range, integrated into BRS systems, becomes the technological

basis for building more efficient, safer and more sustainable edging systems: a real step forward towards the connected and intelligent factory, where quality is constant, productivity is continuous and process management is totally under control.



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