



Case Study

Italian Machine Builder uses EAO System Design. *For Glass Production Machinery.*

A glass manufacturing plant is a challenging workplace.
Designing a machinery control panel tough enough to withstand the environment requires an expert approach to HMI design.

Hollow-glass manufacturers run their equipment day and night to maximise productivity. *When machines run at 600 containers per minute, downtime can cause a significant loss.*

“The goal was to satisfy the customer’s needs while ensuring the interaction between operator and machine is made safer, easier, more intuitive and productive.”

Company Profile

Customer
Leader in production of hollow-glass I.S. machinery

Market
Machinery

Application
Operator interface for glass production I.S. machinery

EAO Series
Series 84
EAO CANbus module.



The complete control panel and enclosure.



The selection of components into ergonomic HMI systems like these are critical to the success of equipment designed for human operation.



Halo illuminated Series 84 buttons are wired to the PCB and connected to a CAN-open module.

Business Challenge

The glass-making industry is under pressure to reduce costs. Growing competition and the greater availability of substitutable products, particularly within the hollow-glass market, is leading companies to review their efficiency. The objective is to improve process yield and quality while lowering costs and environmental impacts.

Hollow-glass manufacturers run their equipment day and night to maximise productivity. Glass forming machines, like the I.S. Individual Section machinery shown here, can produce in excess of 600 containers per minute so equipment downtime can result in a significant loss of product. The target for defects is close to zero. Therefore, maximum quality is paramount at every step of production.

Glass works operate in a challenging environment. Like all highly concentrated industries, there are local environmental impacts. Noise is created by the machinery. Water is used to cool the furnace, compressor and unused molten glass, and emulsified oil cools and lubricate the gob-cutting blades. Several tonnes of dusty, raw materials might be delivered each day, all of which must enter by truck and leave as finished product. Only a small amount has to escape for there to be a dust problem.

Given these conditions, the quality of processes and equipment must be rigorously high to achieve the industry targets.

Process improvements can be gained from a variety of enhancements to the glass making machines and the production systems. Of critical importance is the way operators interact with the machinery and the ease with which they control it.

Solution

As an expert in the field of Human Machine Interfaces, EAO won the contract from a major Italian company to develop a new control panel for their existing I.S. machinery. The goal was to satisfy the customer’s needs while ensuring the interaction between operator and machine is made safer, easier, more intuitive and productive. Full consideration of the project’s technical requirements, the operating environment and the ergonomic and human factors were fundamental to the success, including:

- Environmental sealing to at least IP65
- High levels of interface personalisation
- Possibility to retrofit older machines

Our solution had to integrate seamlessly within the customer’s

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Bright halo illumination from EAO's Series 84 pushbuttons.

equipment. In this instance, an industrial computer provides the main operator interface for data programming. Manual controls and special cycles are controlled by EAO's interface which interacts with the computer through CAN-bus. EAO's proprietary CAN-open module and software was used in this instance.

Results

Stainless steel was specified for the front plate and protective enclosure of the HMI components and electronics. The selection of components into ergonomic HMI systems like these are critical to the success of equipment designed for human operation.

The solution features:

- Halo illuminated Series 84 buttons
- Coloured aluminium, raised actuators
- High-definition, laser engraved symbols
- Series 84 low-profile emergency-stop with protective shroud
- PCB with CANopen module
- Stainless steel, fully sealed housing

EAO's solution assures the end-user and the technology work in complete harmony. For the user, the benefit is clearly defined functionality and comfort of use, a critical key to reducing the likelihood of errors in operation and the dangers associated with poorly designed controls.

It's important to work with an HMI expert who can address all the human factors, technical and commercial considerations of a complex HMI development project.

EAO is a global partner and manufacturer of HMI Systems and HMI Components to a range of markets including machinery and automation, public transport, automotive design, special purpose and heavy-duty vehicles, as well as many others that involve an interaction between humans and machines. EAO is here to make this interaction innovative, intuitive and reliable.

EAO's components and systems undergo rigorous testing to assure reliability, repeatability, and long service life. EAO is ISO 9001, ISO 14001, IRIS, and ISO/TS 16949 certified for automotive and other industry requirements.