



Case Study

## Moulded Stainless Steel Control Panel. *For Deep Drawing process.*

Behind the simple appearance of a small control panel is a complex story – and a process that exemplifies EAO's approach to HMIS projects and high-level customer support.

# The deep drawing process is executed in stages, with each one requiring an additional tooling cost. The art is to reduce them to a minimum.

*“The project typifies our experience within the Machinery industry: the best HMIs are custom-built for a specific application after analysis of the functional and operational requirements.”*

## Company Profile

Customer  
KRONES AG

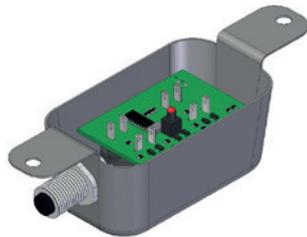
Market  
Food processing

Application  
Bottling machine

EAO Series  
Series 84  
AS-i interface  
HMI System



The control panel is moulded using a deep-drawing process.



Within the sealed unit is an AS-i interface for connecting to the main system.

## Business Challenge

The food processing industry is highly regulated by health and safety. Production environments are frequently subjected to rigorous anti-bacterial cleaning using hot, high-pressure water sprays and caustic, acid-based detergents. Machinery has to be tough enough to withstand these routines and potential exposure to spillage and raw materials.

EAO was commissioned by KRONES AG, a leading bottling and filling equipment builder to design a control box to operate the safety doors of a production line bottling machine. The brief specified the control box had to be supplied as a sealed, water-tight, heat resistant, stainless steel unit with built-in mounting brackets and AS-i serial bus connection.

Additional considerations included:

- Fully-customisable for use in other machinery
- Customised engraving
- Spare part planning and handling
- Strict quality control

## Solution

The result is illustrated here. Behind the simple appearance is a complex story that exemplifies EAO's approach to HMIS projects and the high levels of support offered to customers. The project typifies our experience within the machinery industry: the best HMIs are custom-built for a specific application after analysis of the functional and operational requirements.

We first evaluated the operating requirement and the requirements for a sealed, heat and moisture resistant unit. We proposed a control panel made from a single piece of stainless steel that houses two Series 84 pushbuttons and an AS-i interface. AS-i (abbreviation for Actuator-Sensor Interface) is a bus system for low level field applications in industrial automation. Using the AS-i bus, a cost efficient and quick connection of actuators and sensors is provided for connecting the door controls to the system.

For the housing, we recommended using a technique called 'deep drawing' – the pressing, or stamping of a 3D shape into metal from a single blank plate. This creates metal containers without seams or joins. No bacteria can grow in the crevices and water and chemical cleaning agents cannot penetrate – critical for hygienic environments found in food and beverage production.

It's helpful to understand the process to appreciate the levels of customer support we were able to provide. The deep drawing

# Deep drawing creates metal containers without seams or joins. *No bacteria can grow in the crevices and water and chemical cleaning agents cannot penetrate.*

## Contact

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EAO also supplies KRONES AG with HMI Components, including pushbuttons and emergency stop switches.

HMI Components to a range of markets including Machinery, Transportation, Automotive and Heavy Duty & Special 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.

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EAO's team used its knowledge of the process to reduce the customer's cost and explain all the technical issues. We guided them towards a simplified design with fewer stages of production while answering all their questions about the process.

## Results

EAO added significant value throughout the supply chain by:

- Simplifying the information path between the subcontractors and the customer
- Dealing with all issues relating to specification and prototyping
- Providing extra levels of quality control
- Negotiating pricing

EAO won this project through our

- Very good reputation
- Ability to satisfy the customer's need
- Excellent customer support during the design phase
- Quality design and tactile feeling of the S84
- Overall suitability of the proposal

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