



**Reference name:** Line for the production of front headlights for cars  
**Supplier:** ELVAC a.s.  
**Customer:** Automotive Lighting Poland Sp. o.o., Marelli Poland  
**Market segment:** Automotive industry  
**Year of implementation:** 2023

#### Opening text:

We developed and implemented a new line for the production of headlights for cars for the automotive industry.

The line consists of a set of 2x11 separate workplaces that connect to each other during production. On each of them, other components are gradually assembled into the headlight assembly. The result is a finished functional light before the glass is glued.

#### Customer requirements:

The customer wanted to expand the production portfolio. He demanded the universality of fixtures for multiple types of headlights within these workplaces. The line includes lines for the production of right and left headlights. The preparations for the workplace are universal and can be used to produce more types of lights. To further increase the reliability and flexibility of production, it is possible to exchange preparations between individual workplaces.

The construction of the assembly tables is made of aluminum profiles, allowing for height adjustment of the worktop. All tables are equipped with a set of ionization devices for an ESD environment. Some tables are equipped with an XYZ gantry for easy handling of the screwdriver during assembly.

The assembly fixtures are equipped with a number of sensors and cameras to check the correct installation, compliance with the assembly procedure and test the functionality of the parts.

#### Implemented solution:

- Individual workplaces are controlled by the Simatic S7-1214 system.
- The operator interface is provided by the KTP700 basic touch HMI panel.
- Movements, fixation, etc. are handled by pneumatic cylinders. The individual mounting fixtures are deployed via the harthing system, which enables quick connection of compressed air, power supply and communication.
- DOGA screwdrivers are controlled using IO – from the point of view of the production process, the number of used screws is monitored, as well as the correctness of their screwing through the screwing time limits.
- FIAM screwdrivers – they communicate via the RS232 interface – the assembly process of screwing is also monitored here. These screwdrivers are also equipped with an automatic vibrating screw feeder.
- Gravity material feeders – workplaces are equipped with supply racks with parts for assembly. These feeders can accommodate the amount of material placed in the boxes required for quick and trouble-free assembly. The racks are equipped with a return branch for storing empty boxes.



Benefits for the customer:

Production of new model lines of headlights. Universality of integrated fixtures for 2 types of headlights. Modularity within recipe management.

Photo: