



Large scale laser cutting of plastics

Solution brings significant savings to production and increases efficiency

How does it all work?

The laser workstation consists of two sections, each operated by one 6-axis industrial robot. In the first phase, the part (door frame) is picked up by the robot from the input conveyor. Then it moves the part under a static laser head where a 200 W CO₂ laser cuts off the excess foil, which extends around the perimeter of the part, with the required accuracy of ± 0.2 mm.

The part is then handed over to a second robot, which moves it in front of a 3D scanning laser head with a unique 792 x 718 mm field of view, where all circular cutting of the foil is processed to access mounting holes and holes for audio or airbag wiring. In total, 27 holes are cut in just 15 seconds by using a 400 W CO₂ laser. The final part is transferred to the output conveyor of the line for further subsequent application.



Solution

After the installation of laser technology, the customer appreciates the stabilization of quality, especially the repeatability of the production process and the significant improvement in production efficiency. Thanks to the fully automated robotic workstation, the error rate and total time of all operations have been significantly reduced. The customer has also gained a major competitive advantage by saving considerable costs in manpower and consumables that could be used in other parts of the production. In addition, thanks to the multi-functional concept, the entire workstation can be additionally programmed to produce parts for other car models and thus expand the possibilities of its use in the future.



Key benefits

- > Acceleration of the production cycle
- > Non-contact process
- > Automatic correction of the robot's path in relation to the laser beam
- > Fully automated solution connected to downstream applications
- > Without the accumulation of excessive heat and undesirable impact on the processed part
- > Process repeatability with an accuracy of ± 0.2 mm for the entire part up to a size of 1200 x 1200 mm
- > Competent replacement for traditional cutting, punching and milling processes
- > Significant reduction of employees required to operate the workstation
- > Multi-functional concept allowing easy re-programming for other parts
- > Reduction in workstation area compared to manual machining