

Inspiring ideas for passenger protection



*ZF TRW uses fiber lasers
to encode gas generators*

We are at the company grounds in Aschau nearby the river Inn. Here, **ZF TRW** develops and produces gas and micro gas generators. In case an explosive matter, as the needed fuel and lighters supply the gas for filling airbags and seat belt tensioners in motorcars. Our host Thomas Reisbeck (pictured left, with cab consultant Dieter Kehret) is working at the fabrication in Aschau for 28 years. On our tour through 14 hectare floor space we have a look at the work stations at which cab marking lasers of the FL series and LSG100 laser marking systems are in use.



>> In 19" rack enclosures the FL marking lasers easily integrate in fully automatic production lines. <<

FL series marking lasers consist of a control unit with an integrated laser source and a scan head. The latter is connected via a fiber with the laser source. For bundling the laser beam the scan head is equipped with a plano-spherical lense to cover a specific marking field. As a rule of thumb one can say the smaller the marking field of the lense the higher is the resolution of the marking (300 to 1,000 dpi).

In ZF TRW's fully automated production lines the control unit and laser source with 10 to 50 watt laser output power are mounted in 19" enclosures. The space saving rack construction easily integrates the laser in the production lines.

A strong component within the process chain

When a gas generator gets to the laser marking, it has already passed through dozens of processes within the line. As a part of this process chain the FL laser encodes the metal body of the generator. An ID card, so-to-say. At this, the laser communicates with the master controller based on digital input and output signals. By means of their support encoding is started and monitored.

Benefits especially if quantities are large

Using marking lasers is economic for ZF TRW as large quantities of metal components have to be precisely and

durably marked. At the Aschau site the production lines are running non-stop in three shifts a day. Five days a week, sometimes at weekends when it comes to peak hours. According to Mr. Reisbeck, "the annual output is several million components".

Stand-alone solutions associated with low-volume series

In addition to the fully automated mass production single parts or low-volume series are manufactured and marked in manual assembly lines. Here the tasks are constantly changing.

To mark such components with FL fiber lasers according to laser safety class 1 laser marking systems LSG100 are in use. The generators are inserted by the ZF TRW employees via a pneumatic driven opening and reclosing operation door and automatically focused. The robust metal design besides a large working area provides space to assemble laser source and an industrial PC. The computer's keyboard and display are solidly mounted on a pivot arm.





>> Continuous workflow for traceability: direct marking of components with the LSG100, parts inspection, labeling with cab printers <<

Quality assured

Producing gas generators means high requirements. All data collected in the quality assurance must be assessed and provided for later documentation. Based on the encodings it must become obvious where the gas generator had been manufactured and through which value-added resp. logistics chain it has been processed.



Likewise high are the requirements ZF TRW defines on cab devices: They have to be resistant and available at any time. In case of any default a device must be close at hand

for replacement. We like to know from Mr. Reisbeck what his experiences with cab have been so far - and receive praise in response: "We co-operate with cab for more than ten years now. The diode-pumped FL marking lasers feature a high level of technical maturity and beam quality. The good cab support completes the positive picture."

Taking care of passenger safety

ZF TRW is a global leader in designing and developing gas generators for driver, co-driver, side and head airbag modules. 230 locations in some 40 countries represent the combined company. At the fabrication in Aschau nearby Inn, more than 1,000 employees work in international co-operation. Adjustments with the airbag modules are made for automotive manufacturers all over the world.

*) Video partly in German with English subtitles

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