



LT Gas Mixer switch-over with redundant GasAnalysis

Double redundancy by gas mixer switch-over with double gas-analysis and backup system

A German automobile manufacturer requires special safety in the supply of welding gas. For this purpose, a redundant supply concept with two LT gas mixers and a bundle supply is used. In a weekly change, the two gas mixers are automatically switched over to ensure a uniform load and test the functionality of both gas mixers.

If the regular gas supply is interrupted, it is automatically switched over to an emergency supply (bottle station) with a ready mixture, installed in the mixing chamber.

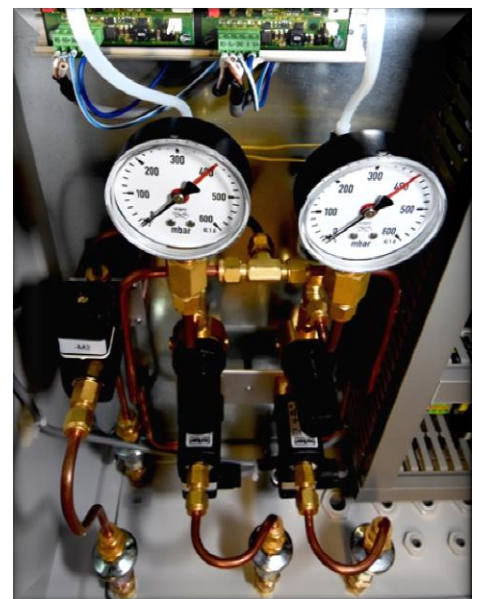


Furthermore, it is possible to operate both gas mixers in parallel, controlled by additional pressure signals, on a temporarily increased gas mixture requirement.

Extra Security in gas supply

Additionally, a redundant analysis system with double analysis, i.e. with two independent measuring cells, is installed. Two NDIR sensors continuously determine the CO₂ concentration in the Ar/CO₂ gas mixture. Each measuring cell is responsible for one gas mixer, thus an independent redundancy is ensured. The analysis results are displayed on the color display, integrated in the control unit. The gas analysis is monitored by means of solenoid valves with the measuring gas of the corresponding gas mixers and also has an automatic zero point and end point calibration.

During the switchover, the circumstance of a fault or of the automatic calibration is taken into account with priority circuit.





Switchover and gas analysis are controlled via a common PLC with touchscreen display. The display shows the operating state of the gas mixer one or two. For a quick overview, two indicators also show the currently activated gas mixer.

Messages such as

- Operating condition Mixer 1/2
- Failure mixer 1/2
- Limit values
- Analysis actual value mixer 1 and 2 of the continuous measurement as analog signal

are transmitted to the central control room via a cable connection.

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The analysis values are logged in the control system and can be read out via an USB slot on the front of the housing as a CSV file and processed using common software tools.

This ensures the required extra security in the welding gas supply and the continuous gas mixture analysis in order to meet the highest quality requirements.

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