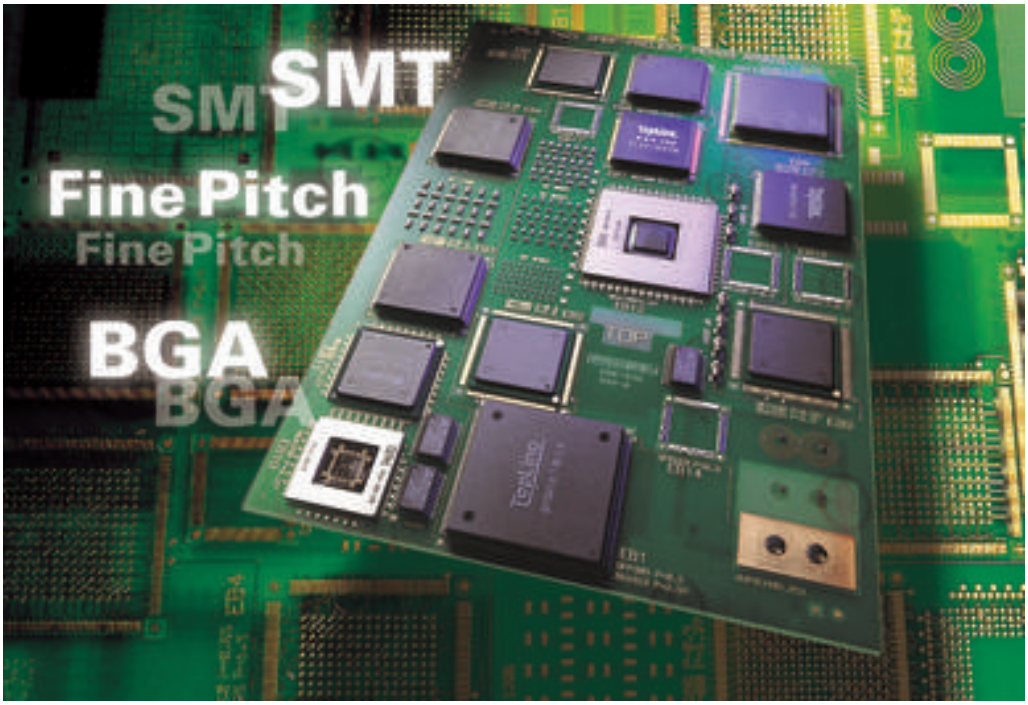
Your connection to optimum service

Gases and technology for electronics production

Industrial gases
and application technology service



Modern components such as BGAs require modern production methods. Industrial gases and the associated application technology service significantly increase productivity.

With over 120 locations and roughly 4,400 employees worldwide, Messer is a leading supplier of industrial gases. Our comprehensive product range covers the entire spectrum of technical gases, specialty gases and gas supply systems. Our specialized customer-oriented departments support applications of these gases.

We have a consulting team for circuit board assembly, offering services far beyond gas supply. We are working with leading electronics companies to develop new technologies covering the entire production process from semiconductor manufacture to circuit board assembly.

All-round service

The use of gases in electronics, such as nitrogen for soldering, has been standard practice for a long time. Messer offers a service package exactly tailored to this specific application.

Economic efficiency

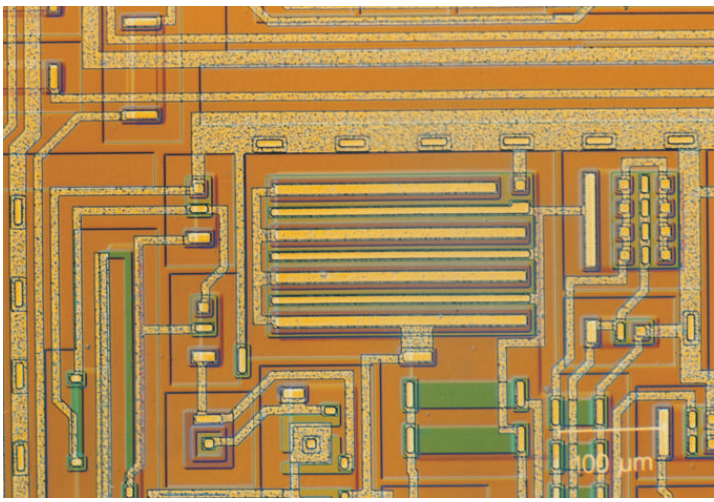
Every process application is supported by a precise economic study in advance. This includes, for example, the selection of a suitable soldering atmosphere (residual oxygen content), and the consequent minimisation of the gas consumption.

Messer can also advise you appropriate of the best suited gas supply system (e.g. local nitrogen production or supply via liquid gas delivery). If necessary, we can conduct on site tests in order to provide the optimum process window.

Modern gas-separation technologies such as our membrane systems in compact cabinet allow cost-effective and user-oriented in-house nitrogen production.

Soldering process analysis

Despite all the care taken, problems can occur in production. For this reason, Messer offers, together with acknowledged experts, analysis services:
In co-operation with the Fraunhofer Institute for silicon technology in Itzehoe (ISIT), we analyse assemblies and soldering processes. Specialists are also able to provide valuable advice and assistance in process optimization locally. Together with our partners, we can also analyse printed circuit board and component surfaces employing a wide range of modern measuring techniques: For example, metallographic finishes are assessed using scanning electron microscopy, the surface occupancy (e.g. contamination, oxidation) can be accurately determined using AES and the mechanical properties of the surface measured by AFM (Atomic Force Microscopy).

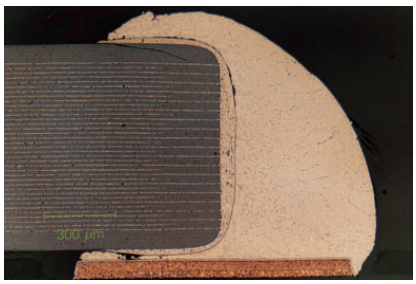


Extract showing the analog integrated circuit on a chip surface with conductor path, transistors, resistances, continuous bonding. There is a capacity in the middle.

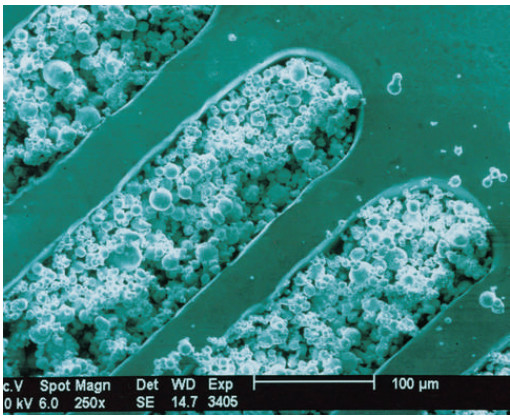
Development projects

In addition to the large number of services they provide, our development department is also closely involved in the conversion of printed circuit board production to "lead-free" technology. This has meant initiating numerous cooperation projects with well-respected partners and customers. The practical implementation of our employees' technological know-how and the utilization of the findings from our fundamental studies are in the forefront of these projects. The surface tension and binding behavior of lead-free solders in inert-gas atmospheres with various residual oxygen contents has been of particular interest. Such information represents a vital basis for pcb manufacturers' decisions regarding the choice of solder materials to use.

A small selection of our activities demonstrates that the development of solutions in collaboration with our customers is an essential part of our philosophy. We offer our customers individual solutions, tailored to their needs and based on our knowledge as well as that of our partners and independent institutes. If you would also like to benefit from our extensive contact network and technological expertise, please do not hesitate to contact us!



Section through a test setup of a ceramic multi-layer capacitor soldered on a FR-4 testboard.



Fine cutting of a SMD-mesh printer stencil with a copper-vapour laser (CVL): CuZn37-foil, pitch < 100 µm.