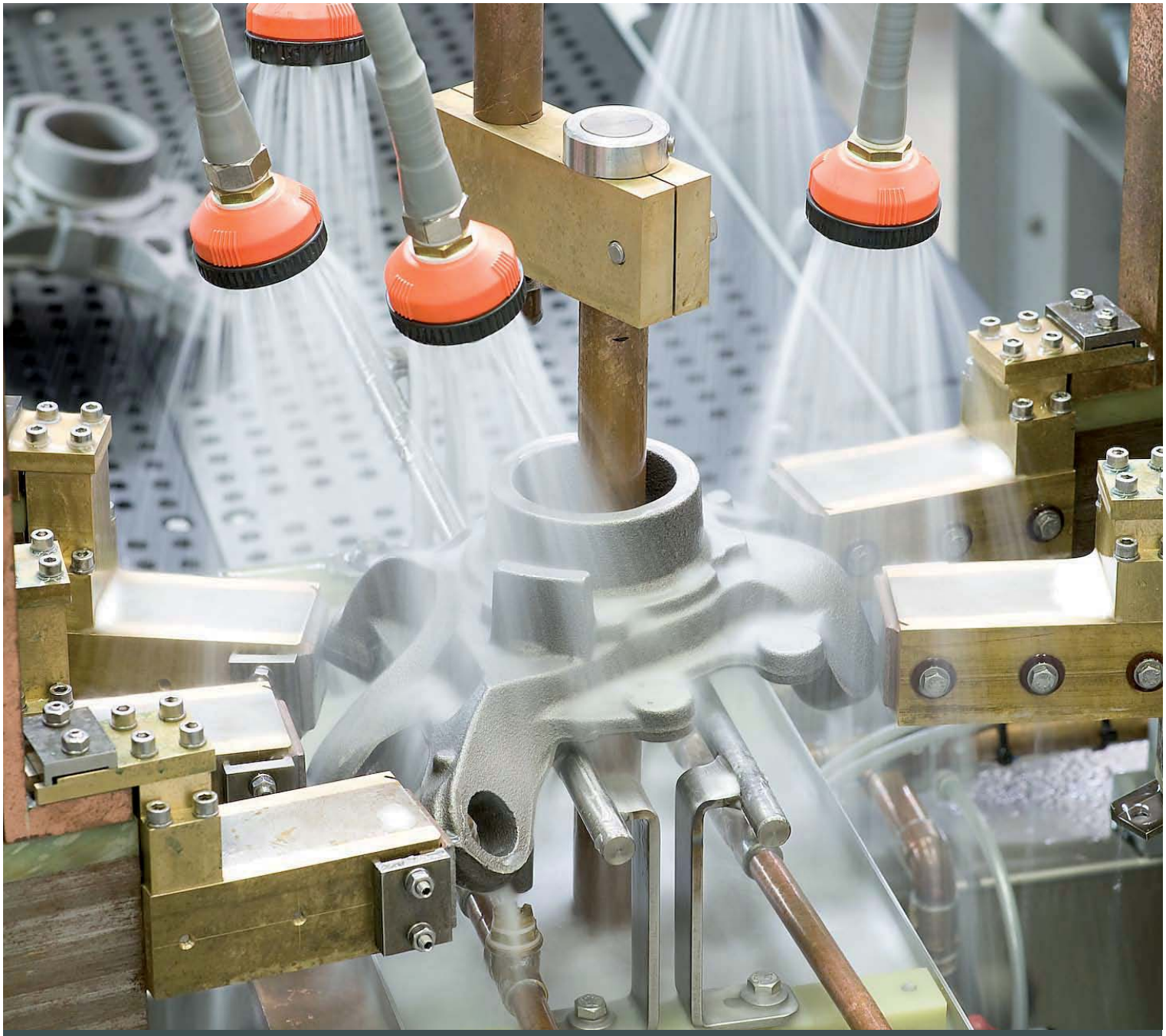


DEUTROMAT Multi-Contact

Magnetic Particle Test Machines with Multiple Magnetization Units

KARL DEUTSCH

DEUTROMAT Multi-Contact
Magnetic Particle Test Machines with Multiple Magnetization Units

For more than 50 years now the company KARL DEUTSCH is involved in development and production of equipment and systems for magnetic particle testing (MT). Our engineering department in combination with in-house PLC programming and control panel production provide single source solutions and quick response to customer specific demands. State of the art MT systems offer modular machine concepts with 2 AC circuits and usually operate with water-based magnetic particle fluids. Since 1993 our quality management system is certified by TÜV NORD CERT and was successfully re-certified in 2013 with respect to the most recent revision of the standard DIN EN ISO 9001:2008.

DEUTROMAT Multi-Contact: Customized solutions for magnetic particle testing

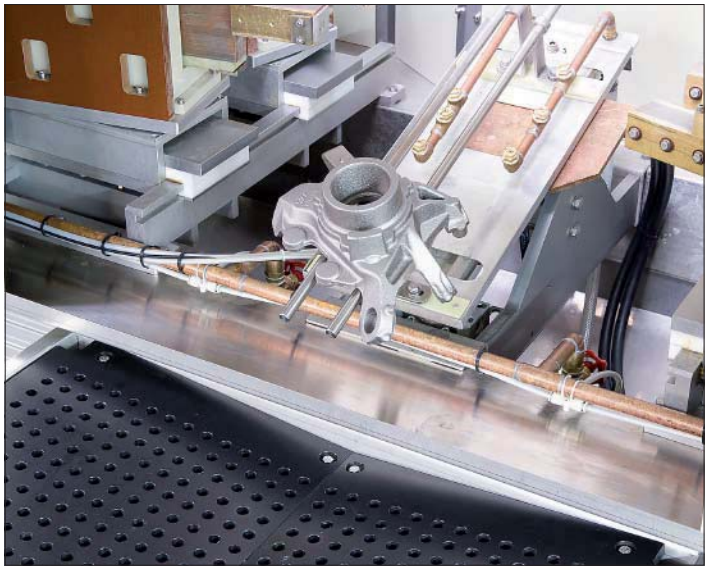
These multi-contact machines are able to cope with the complete magnetization of complex-shaped components, where standard two-contact machines cannot provide a suitable solution. Typical examples of complex-shaped safety relevant components comprise steering knuckles, transverse control arms, gear shift fork, and pistons.

General view of a DEUTROMAT Multi-Contact machine. A close-up of the test part is shown on the front page of this leaflet. Visual inspection of the test parts can be done directly in the machine. If necessary, a darkening cabin can be mounted.

DEUTROMAT Multi-Contact
Individual System Design

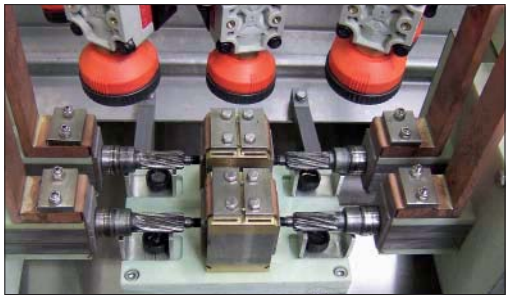
The entire surface of the test component should be magnetized as evenly as possible and the magnetic field strength has to comply with international standards (2 – 6 kA/m). Thus layout and final design of an efficient multi-contact machine require a great deal of know-how and expertise. All magnetization contacts have to be individually adjustable. Verification of the test sensitivity can be carried out on test components with real or artificial defects. Depending on the part geometry, a pneumatic ejector can be integrated for automatic unloading: In this case the test parts will glide directly or via a conveyor belt to a separated evaluation cabin (darkening cabin).

Magnetization of a transverse control arm with three contacts



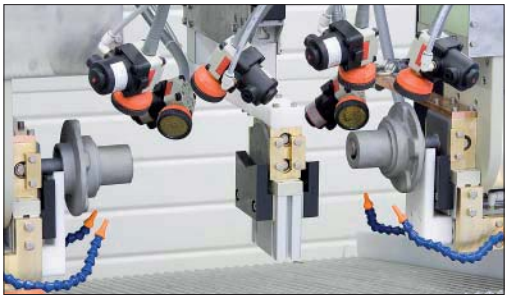
Unloading the test machine with a pneumatic ejector

Higher throughput demands can increase the number of magnetization contacts, so that more than one component can be magnetized in parallel within the same test cycle. Shorter components can be magnetized simultaneously within the same magnetization station if they are aligned for magnetization, e.g. in combination with middle contacts.

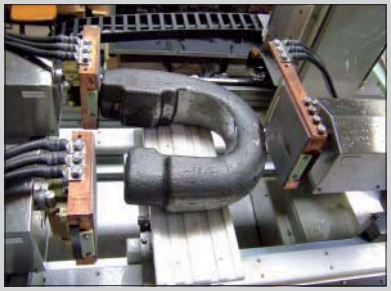


Magnetization of four steering shafts with four outer and two middle contacts.

Magnetization of two housings with two vertical magnetization stations



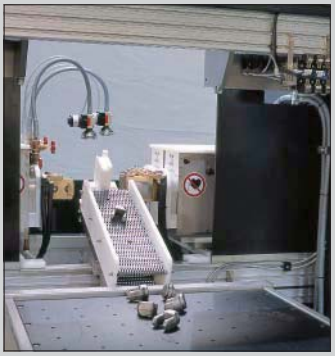
Simultaneous magnetization of two wheel hubs in the same magnetization station with the help of a middle contact



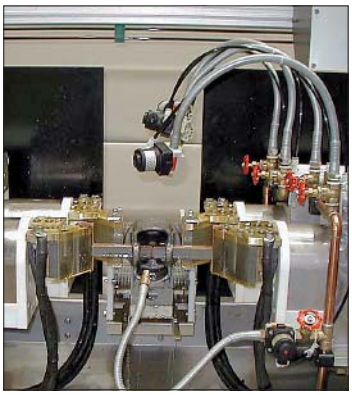
Test machine with moving coil and three current contacts for magnetization of large hooks

DEUTROMAT Multi-Contact System Examples

By now, the KARL DEUTSCH multi-contact concept is approved and established worldwide. Correspondingly high is the variety of components tested with DEUTROMAT Multi-Contact machines. Below are some examples of this successful machine concept.



Left: Magnetization of forks with three contacts; right: ejector and examination table



Piston magnetization with four contacts

Test piece holder, special magnetizing bar

Left: Testing of truck steering knuckles; right: close-up, four contacts

Flexible retooling for different component geometries

Summary of Technical Data	
Weight of test piece	typically up to 15 kg
Cycle of test machine	8 - 10 seconds
Maximal clamping length	typically 600 mm
Number of contacts	typically 3 to 8, according to project specification
Positioning of contacts	universally adaptable to test a big variety of components
Test piece holder	universally adaptable for quick changeover (quick release)
Magnetization technology	AC, all contacts individually controlled, optionally with automatic demagnetization
Power consumption	depending on component size
Machine layout / dimension	typically 2 m x 4 m, depending on project
Options	ejector, MEMORY parameter storage module, FLUXA-CONTROL for monitoring of inspection media, automatic demagnetization

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