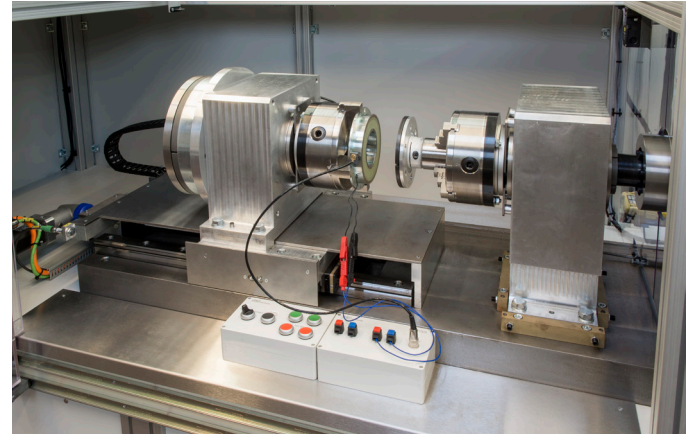


# CUSTOMIZED

Industry: Electrical industry

## Test system for electrical brakes and connector sockets



### Task

Electrical brakes and connector sockets are essential components for the automation technology. Particularly high requirements are made in the medical field on surgical robots. Electrical brakes and connector sockets with torque up to 400 Nm are to be function-tested. As the brakes are also in part used in surgical robots with several arms lying one behind the other, these must hold the position very precisely. Therefore the requirement for the angular resolution is very high especially in the static test.

The following parameters must be acquired:

- Torque test including inlet of the DUT
- Switching time measurement
- Air range measurement
- Air gap measurement
- Housing temperature measurement
- Winding temperature calculation
- Winding resistance measurement
- Static test

### Solution

To ensure a flexible DUT pick-up, with which all possible designs and sizes can be picked up, two 4-jaw chucks have been used. Depending on the type of DUT the customer can use his own adapters or clamp the DUT directly. The output side can be adjusted with a linear unit. This way the system can be adapted to the width of the DUT. In addition a simple insertion of the DUT is ensured. When testing series the first DUT can be positioned by hand respectively. In the case of further DUT these positioning are carried out automatically and thus very quickly. In addition the air gap can be adjusted fully automatically. Depending on the type of DUT the rotation of the output side can be allowed or blocked. To ensure a high angular resolution rotary encoders with 19 bit resolution (524288 increments) each were used on the drive and on the output side.

### Advantages

- + Future-oriented solution by using a standard PC
- + Highest precision of the measuring technique for medical use
- + Programmable, electronic supply 0 – 300 V AC / DC
- + Turnkey solution including workplace design
- + Simple, intuitive operation for trained personnel
- + In network mode all test data are automatically stored in the desired location / database
- + Long service life and service friendly setup
- + All values and settings are possible via software
- + Workplace safety according to EN 50191

### Specifications

- Various flexibly adjustable test steps and evaluation options
- Testing of different sizes and DUT types
- Supply voltage from 0 – 300 V AC and DC
- Test parameter:
  - Torque measurement via torque measurement shaft up to 500 Nm
  - Angular resolution with 524288 increments
  - Switching times
  - Air gap measurement
  - Housing temperature measurement
  - Winding temperature measurement
  - Resistance measurement of windings