RUSSENBERGER PRÜFMASCHINEN AG

RUMUL FRACTOMAT

Crack length measuring system

Measuring the crack length is in a large number of tests in fatigue or in fracture mechanics an essential procedure. The test configuration requires a high accuracy to receive exact results.

The RUMUL FRACTOMAT works according to the indirect DC potential drop method and is used to measure crack lengths on specimens or suitable components in fracture mechanics and fatigue testing. This system can be used in combination with RUMUL KRAK GAGES, resistor foils, bonded to the test specimen, for crack propagation measurements on CT, SENB specimen or other suitable specimens or components.

RUMUL FRACTOMAT Specifications

- **Intuitive operation via a 5 inch touch screen**
- **Two channels, with independent configurable settings for KRAK GAGES**
- **High-resolution converter with 20-bit resolution**
- **Four configurable analogue outputs with 16-bit resolution**
- **Ethernet connection for UDP (User Datagram Protocol) data transfer to RUMUL TestLab**
- **VNC (Virtual Network Computing) viewer for remote operation**
- **Display of the average and differential value of the two channels**
- **Limit monitoring with support for up to three ranges**
- **Peak value memory to account for crack closure effects of the KRAK GAGE**
- **USB port for data logging and system updates**
- **Graphical representation of crack channels**
- **Two high-flexibility cables (1.5 meters) with LEMO connectors for the KRAK GAGES**
- **Power supply: 100 – 250 V, 50/ 60 Hz**

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RUMUL KRAK GAGES

The KRAK GAGES are bonded to the specimen in a similar manner like bonding strain gauges.
The high signal voltages guarantee a reliable and stable measurement system.

RUMUL KRAK GAGES Specifications

- **Resolution of KRAK GAGES: infinite**
- **Bonding: same as strain gages**
- **Temperature range –50° to +150°C**
- **Suitable in corrosive medium**
- **Linear relationship between crack length and potential drop**
- **No need of electrically insulated grips**
- **Independent of size, shape and materials characteristics of specimen or component**
- **Dimensions: see the standard size on the right side**

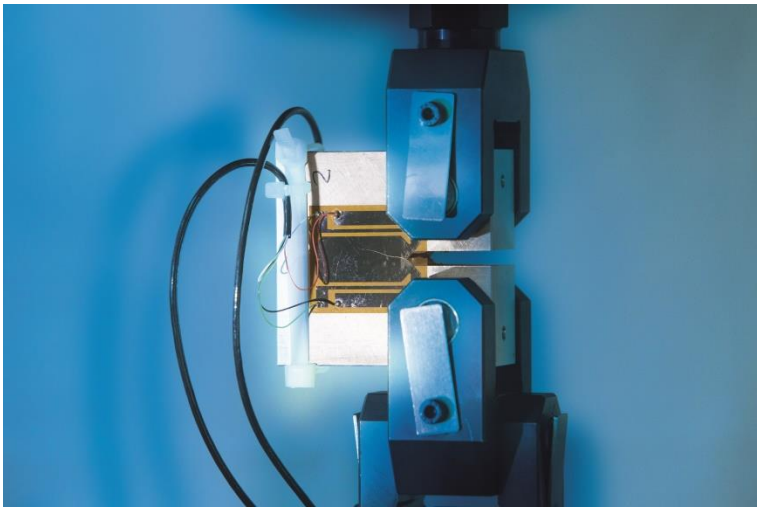
Through its analogue and digital outputs, the RUMUL FRACTOMAT can be used to control crack propagation on any fatigue testing machine.

Application on RUMUL Resonant Fatigue Testing Machines:

This system can be tied in with RUMUL resonance fatigue testing machines or other mechanical load frames for load or stress intensity controlled tests.

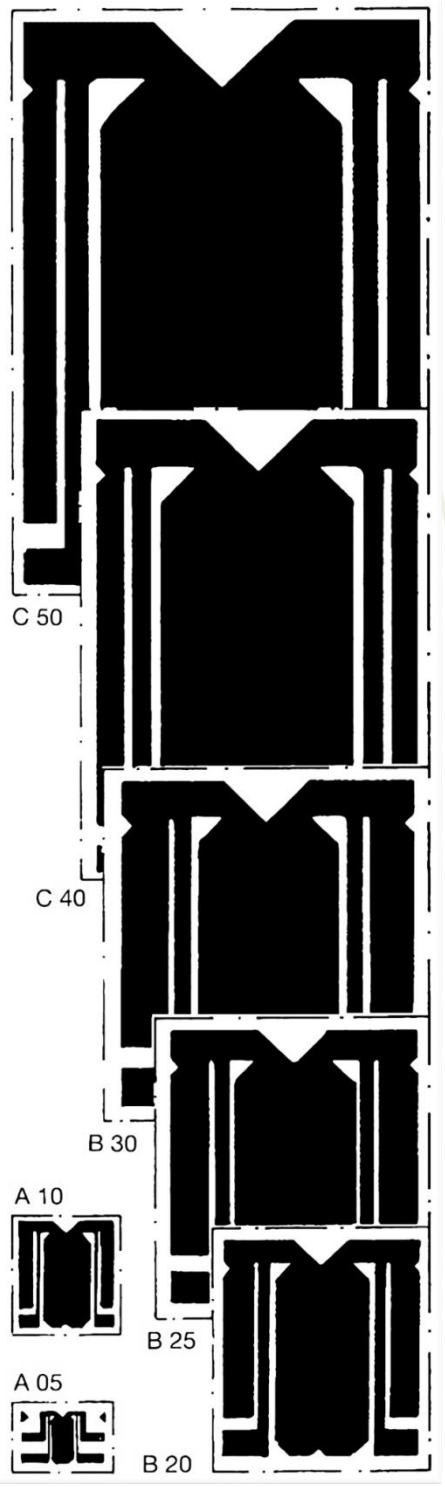
RUMUL resonant testing machines enable direct recording of the crack length and controlling of the load according to the cyclic stress intensity factor continuously calculated from the crack length.

In combination with the RUMUL controller unit TOPP/ TUTOS and the RUMUL TestLab software LabVIEW, the measurement data can be recorded digitally during the test.



Krak Gages bonded to a CT sample during fatigue crack propagation test

Krak Gages Standard version
Scale 1:1
Special versions on request



The number in the designation indicates the nominal crack length