

## R - Dilatometer for simultaneous measuring of expansion and electrical resistance



Linseis Thermal Analysis has developed in cooperation with a US research laboratory a low temperature dilatometer from  $-150^{\circ}\text{C}$  up to  $+500^{\circ}\text{C}$ . This dilatometer can measure the expansion of length and simultaneously the electrical resistance of a sample in dependence of the temperature.

The temperature of  $-150^{\circ}\text{C}$  is reached with the controlled cryo option using liquid nitrogen.

We use a standard L75/500LT Linseis dilatometer. This dilatometer is supplied with a special measuring system (see picture), to measure  $\Delta L$  and resistance.

The measuring system itself consists of a conventional value LVDT expansion sensor and 4 additional metal contacts that built up a constant current loop, where the voltage over the resistor is measured with additional 2 points. The resistance is measured through OHM's Law ( $R = U/I$ ).

Controlling and data acquisition is done through a Windows compatible software package. For evaluation of the retrieved data there is an extensive package available.