



Hydraulic Engineering Geotechnics Geothermics Measuring Technology

#### **Divisions**

# GTC Kappelmeyer<sup>®</sup> – A Solexperts GmbH brand

# The Brand GTC Kappelmeyer®

In January 2017 the company GTC Kappelmeyer<sup>®</sup> was integrated into the Solexperts group. As the independent brand GTC Kappelmeyer® we offer from the location in Karlsruhe besides the previous measuring technology in the field of thermal leakage detection, all services of the Solexperts group. They include distributed fibre optic temperature measurements and distributed fibre optic strain measurements. Our therefore patented Temperature Sounding Method is used worldwide for hydraulic engineering, civil and underground engineering, landfill construction and pipeline construction.





## **Our Services**

More than 30 years of competence within the special fields hydraulic engineering, geotechnics, geothermics and measuring technology:

- Thermal leakage detection with the Temperature Sounding Method and distributed fibre optic temperature measurements
- Temperature and strain measurements
- Temperature monitoring of pipelines and ground freezing for shaft constructions and tunnelling works
- Monitoring of the development of hydration heat in concrete
- Spatial and temporal highly resolved temperature measurements within deep boreholes
- Determination of thermal parameters of materials in the laboratory and in situ
- Determination of effective thermal conductivity depth profiles
- Quality control on geothermal probes
- Cost-benefit analysis in deep geothermics

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# Hydraulic Engineering

Temperature measurements are used to detect potential problem zones of dams or damages of sealing elements during early stages.

- Thermal leakage detection: temperature anomalies as evidence for seepage water flow in the underground
- Fibre optic temperature measurements: Gradient- and Heat-Pulse-Method (HPM)
- Monitoring of the hydration heat development in concrete: Determination of thermal material parameters (thermal conductivity, heat capacity), recording of the heat distribution within a structure, identification of thermal stresses and of crack formations in concrete



## Geotechnics

- Thermal leakage detection in excavation pits, landfills, diaphragm walls, sealing systems (e.g. geomembranes)
- Thermal leakage detection on pipelines (e.g. district heating pipelines, ammonia and gas pipelines, penstocks and water mains)
- Monitoring of the development of hydration heat in concrete
- Fibre optic temperature monitoring of ground freezing (e.g. for shaft construction and tunneling works)
- Determination of effective thermal conductivity (via Heat- and Frost-Pulse-Method)



# Geothermics

Determination of geothermal parameters: thermal ground parameters, thermal conductivity, borehole resistance.

- EGRT
- EGRT-Mobile
- Short-EGRT
- Temperature monitoring
- Calculations of profitability for deep geothermics



# Measuring Technology

Distributed fibre optic measurements, point sensor based measurements with:

- Electrical temperature sensors
- Inclinometer chains
- Data loggers (SD-Logger, SDL2-Logger)
- Geo-DTS, DTS, DTSS
- Heat-Pulse-Control-Units (HPCUs)
- Reference units for the calibration of absolute temperatures for fibre optic applications
- Fibre optic sensor cables with multimode (MM) and singlemode (SM) fibres
- Measuring cables with optical fibres and copper wires (hybrid cable)
- Individual software