



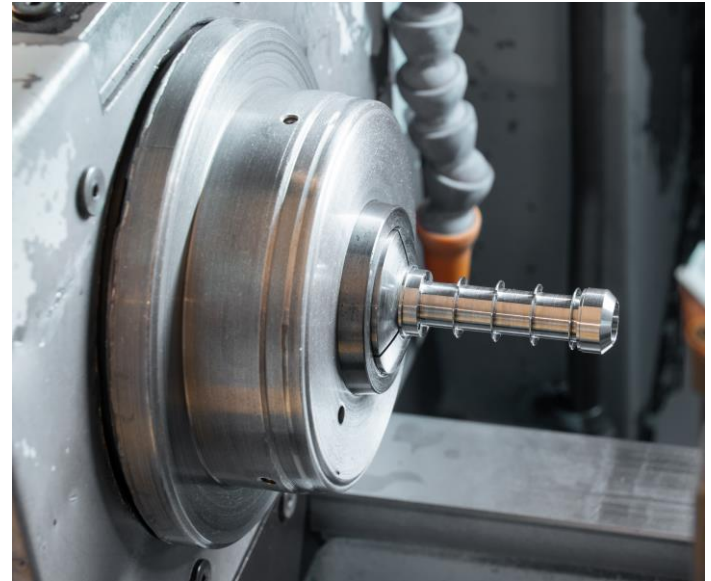
SensorLab

SensorLab is the continuation of a strong legacy from the time it was known as the Instrument Workshop in connection with the Halden Boiling Water Reactor (HBWR).

The SensorLab is equipped with highly advanced workshop facilities run by excellent, multi-disciplinary, highly skilled and experienced staff.

All this gives us a great advantage working with design, development and production of custom applications.

Don't hesitate to contact us!



Our services:

- We design, fabricate and deliver instrumentation and irradiation test equipment to different nuclear research facilities
- Special expertise in the installation of instrumentation and experimental equipment for HWBR
- Design and development of instruments to match different types of reactors and tests
- Re-instrumentation equipment
- High precision deliveries for various non-nuclear customers

High Performance Machine Park:

- Laser welder, Trumph TruPulse 124
- 5-axis milling machine, Fehlmann P75
- 2.5-axis milling machine, Fehlmann P54
- Lathe, Schaublin 125-CCN
- CNC wire cutter, GF-P550 with A-axis
- CNC spark erosion, GF-Form 20



Test and Qualification Capabilities

- Pressure testing with autoclaves, typical 350 °C and 168 Bar
- Instrument calibration with Across International VTF 1200 Tube Furnace
- Seal weld chambers from 0 – 100 Bar
- Helium leak testing with Adixen ASM 340
- Heat treatment
 - Laboratory furnace 1300 °C (Carbolight)
 - Tempering oven 600 °C (Carbolight)

Linear Variable Differential Transformer (LVDT)

- Developed for measuring fuel rod pressure, fuel stack elongation and cladding elongation.
- Primary coil with two secondary coils connected in opposition. Moveable magnetic core concentrically located inside coil system.
- Core movement affects the balance of the secondary coils and generates the signal output.
- Radiation resistant
- Designed for <500 °C, 100 bar,
- High temperature variants, up to 700°C available
- Precision: $\pm 2 \mu\text{m}$
- Operates typically with 400 Hz, 50 mA (constant current primary coil)
- Can be operated in liquid metal (NaK and Lead <700°C)

Examples of LVDT usage

- Position indicators
- Fuel rod pressure indicator
- Fuel stack elongation detector
- Diameter gauge
- Gamma thermometer
- Creep and stress relaxation tests

