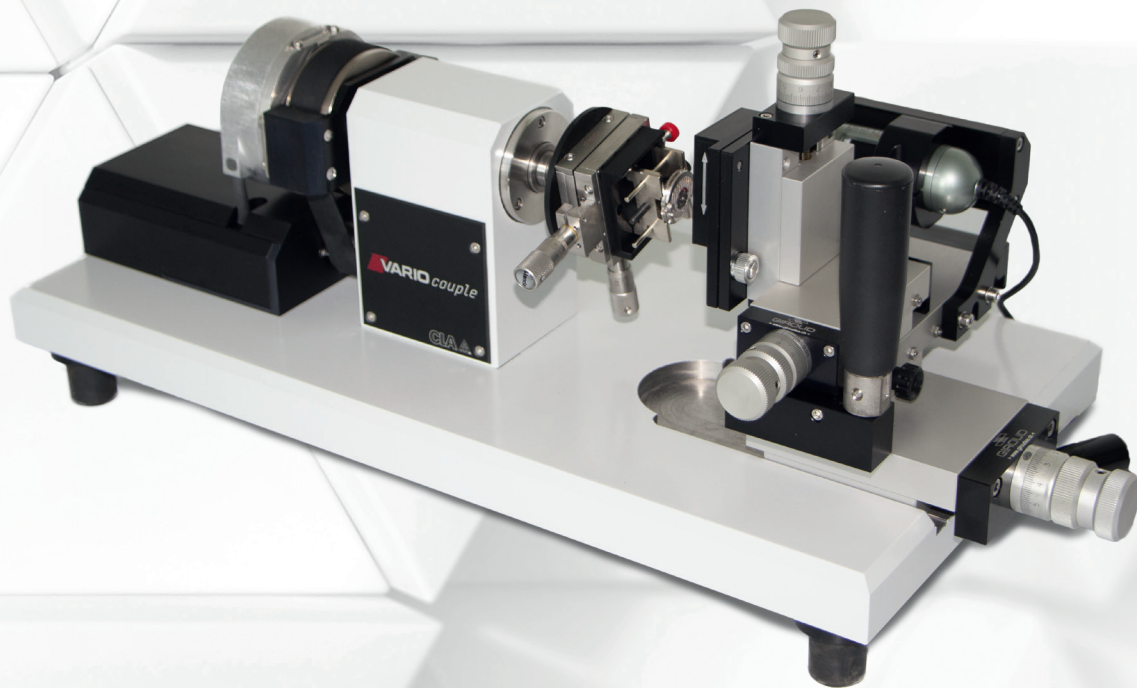


VARIOcouple[®]

Your metrology tool



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Your flexible metrology tool for
your laboratory needs



For the measurement of microcouples and microforces, the VARIOcouple is a reference measuring bench because it has accompanied the most demanding watchmaking laboratories for more than 40 years

Laboratory apparatus	Centring by camera	Real-time force curve display	Traceability of measurements
Data Interconnection	Flexible and modular apparatus	Customization of measurement reports	Wide range of torque and force sensors from 1µNm up to 1Nm
Torque, friction and load measurement			

Over the years, the VARIOcouple has become a reference in the field of force and torque analysis of low-tension systems. Used in Research & Development, quality and production laboratories, the VARIOcouple is mainly used in the watch industry but also in stepping motors, torque test benches, flowmeters and watch barrels.

PRINCIPLE OF MEASUREMENT

The workpiece to be measured is fixed on the spindle of the VARIOcouple by means of the available fixing tools (plate, clamps, chucks or universal support). The centring of the axis of rotation of the workpiece to be evaluated and that of the VARIOcouple is done with the help of a magnification camera coupled to the sensor. The latter is then positioned in relation to the workpiece by means of a micro meter shifting table that allows three axes of movement: X, Y and Z. The measurement is then carried out by contact with an arm, needle or pulley mounted on the axis of a force sensor, or a torque sensor coaxially fixed to the workpiece to be evaluated. A servomotor with speeds from 0.02 to 10 rpm or 60 rpm allows the instrument spindle to be driven with an angular resolution of 0.09°. During force or torque measurement, the software displays the measurement curve as a function of time directly on the screen.

COMPLETE SOFTWARE

The instrument is fully computerized and controlled by software dedicated to the acquisition and analysis of torque and force measurements and has, among others, the following functions:

- Continuous control of the load applied to the sensor as a function of positioning
- Working in angular or time mode
- Automatic sensor calibration
- Sensor or sample protection by limit value
- Manual or automatic barrel mode (arming/disarming)
- Barrel yield
- Fatigue mode
- Possibility of filtering curves
- High angular accuracy
- Reciprocal mode (toggle)
- Frequency analysis (FFT)
- Direct integration of images or text in the multimedia file



SENSORS

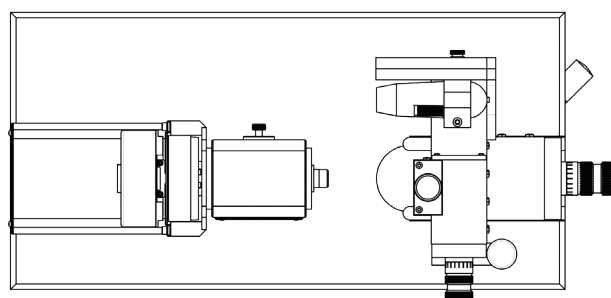
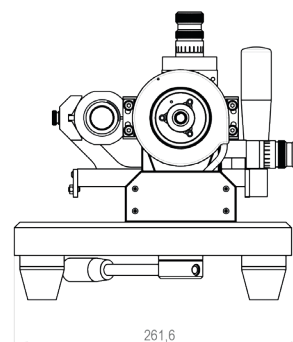
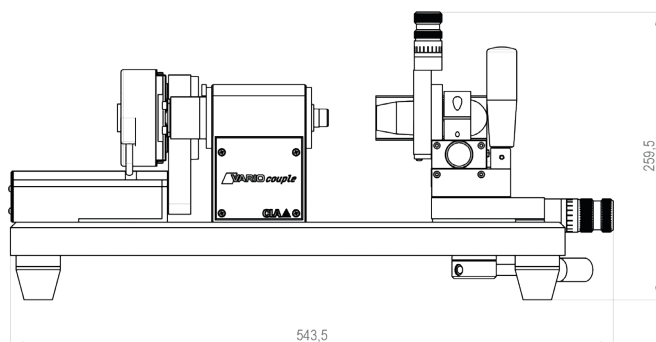
The VARIOcouple is complemented by a wide range of torque or force sensors for measuring torques from 1μNm up to 1Nm. All these sensors are bi-directional, of inductive or resistive type allowing a good linearity and an almost negligible hysteresis. Our sensors are delivered with a calibration certificate and a regular verification guarantees you an optimal accuracy.

Range of sensors



Torque sensors	
TSF-000	±100 μN.m
TSF-005	±500 μN.m
TSF-01	±1 mN.m
TSF-05	±5 mN.m
TSF-1	±10 mN.m
TSF-2	±20 mN.m
TSF-5	±50 mN.m
TSF-10	±100 mN.m
TSF-30	±300 mN.m
TSF-100	±1 N.m

Force sensors	
SC-002	±20 mN
LC-01	±0.1 N
LC-1	±1 N
LC-5	±5 N
LC-10	±10 N



For companies in the watchmaking, medical and micro engineering fields, CLA is a supplier of solutions for complex part assembly and advanced micro-couple measurement because it produces Swiss made, flexible, scalable and connected equipment that ensures complete traceability of production data.

More info on our website www.cla.ch

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