FORCE AND TORQUE MEASURING DEVICE

NEOvario®

Your metrology tool

Your flexible precision measuring bench
for your laboratory needs

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For the most demanding micro torque and microforces measurements, the NEOvario is a highly accurate test bench because it guarantees optimum control and monitoring of the integrated sensors.

Laboratory apparatus	Extended speed range	Compact environment	Intuitive user interface
Overload protection and sensor tracking	Integrated control electronics	Integrated control electronics	Movement control studied with EPFL
High angular resolution	Traceability of measurements	Wide range of torque and force sensors	

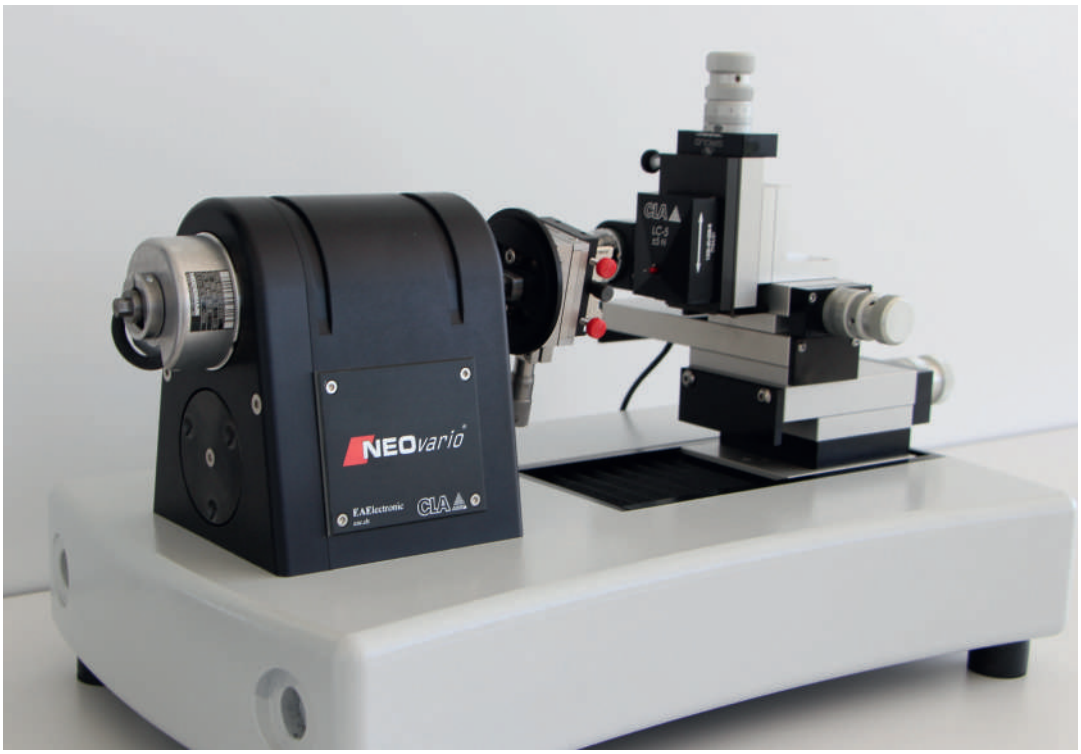
The NEOvario has state-of-the-art technology suitable for laboratory measurement. Completely integrated and compact, this device will meet demanding requirements in the field of force and torque measurements.

MEASURING PRINCIPLE

The workpiece to be measured is fixed on the spindle of the NEOvario 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 NEOvario is done with the help of a magnification camera placed in the measuring axis. The sensor 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 to the axis of a force sensor, or a torque sensor coaxially fixed to the workpiece to be evaluated. A servomotor with speeds from 0.01 to 60 rpm allows the instrument spindle to be driven with an angular resolution of 0.002°. During force or torque measurement, the software displays the measurement curve as a function of time directly on the screen.



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

Range of sensors

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SOME APPLICATION EXAMPLES

ENERGY ACCUMULATOR
Surges and sliding friction
Barrel torque
Number of turns and efficiencies
Abrasion

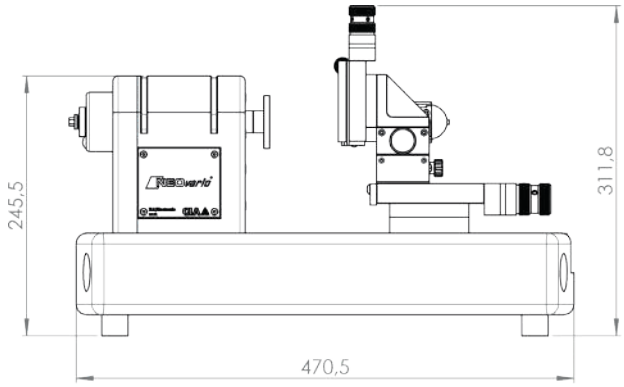
CALCULATION AND TRANSMISSION
Torque at the gear train
Performance
Frequency analysis
Determination of residual torques
Torque absorption through various functions

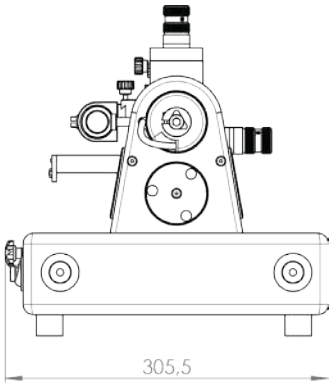
DISTRIBUTION AND REGULATION
Development of new escapements
Development of new spiral springs
Calculation of the spring stiffness

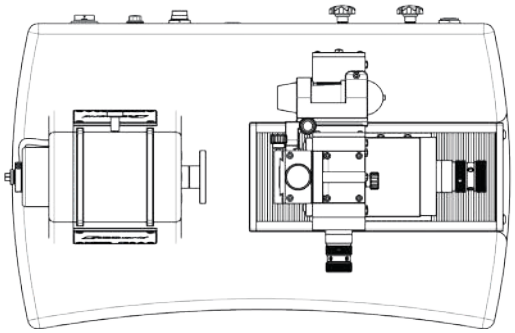
DISPLAY
Cannon-pinions, frictions
Torque from date system
Torque of the carrier disc

MANUAL AND AUTOMATIC WINDINGS
Winding the movement by the crown
Quality of the sliding bridle
Measurement of friction on the friction bearings
Torque of the winding by the mass
Static moment of the mass

SENSORS
The NEOvario 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.







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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