

Force Calibration Machine

CAPABILITY SHEET · LOAD IT STRAIGHT; HOLD IT STILL · A COMPARISON MACHINE WITH A REFERENCE TRANSDUCER

THE ONE IDEA

PRINCIPLE	Load it straight; hold it still.
WHY IT MATTERS	A force instrument reads well only when it is loaded along its axis, and a comparison is fair only when the force stands still while both instruments are read. The reference has to be known.

THE MACHINE

LOADING FRAME	A rigid frame with a base, columns and a crosshead that stay square under load, and room for the largest instrument.
ACTUATOR AND LOAD TRAIN	A hydraulic actuator and ram, with platens, spherical seats and centring adapters that put the force along the instrument's axis.
REFERENCE	A reference transducer in the same load line, calibrated to a higher standard, with its drift checked and its record kept.
HYDRAULICS AND CONTROL	A power unit and valves with fine control of the actuator, and controls that run the steps, holds and waits and write a record.
GUARD AND OVERLOAD STOP	A guard round the load train, an overload stop that acts independently of the controller, and a slow release of the force.

THE METHOD

ORDER	Specify, frame, align, control, calibrate and prove. The alignment and the hold are the two that a quick order skips.
LIMITS	Forces, pressures, classes, times and ratios come from the standard the customer names and from the instruments, and are not printed here.

CONFIGURATIONS

COMPRESSION MACHINE	A loading frame, an actuator, a reference transducer and a load train, for instruments that are used in compression.
TENSION-AND-COMPRESSION	Tension adapters and a frame arranged to pull as well as push, for instruments that are used in both directions.
MULTI-RANGE MACHINE	Two or more reference transducers of different capacity in one frame, so that each force is read on a reference in the comfortable part of its range.

STANDARDS & SCOPE

STANDARDS	Public references: ISO 376 for the calibration of force-proving instruments used to verify testing machines, and ASTM E74, a different procedure.
SCOPE BOUNDARY	It is the force calibration machine: not a compression testing machine, not a torque wrench calibrator and not a pressure calibration bench.
STATUS	Neometrix engineers force calibration machines to order, and no delivered force calibration machine is claimed.

DEFENCE PROGRAMMES DESK

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