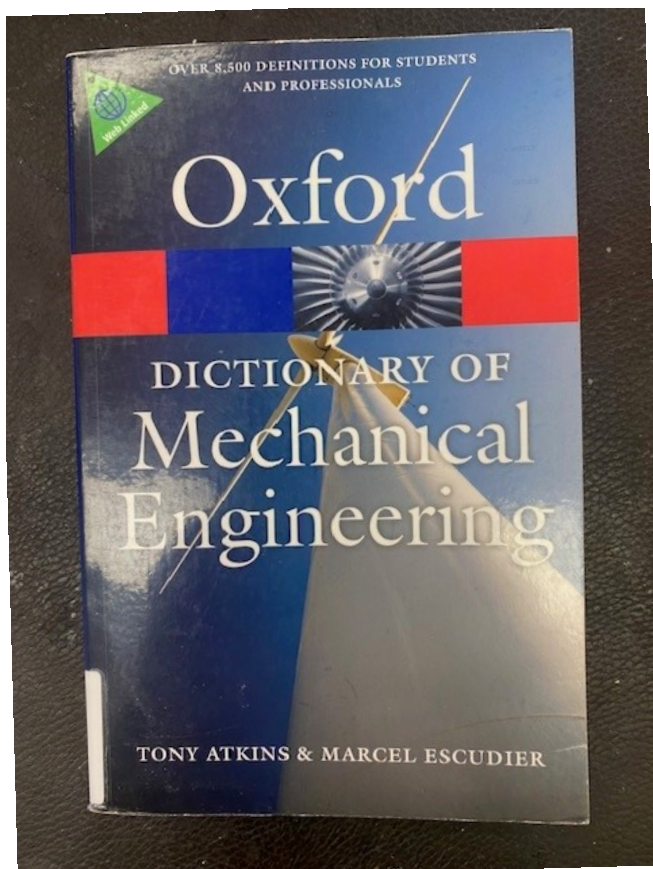




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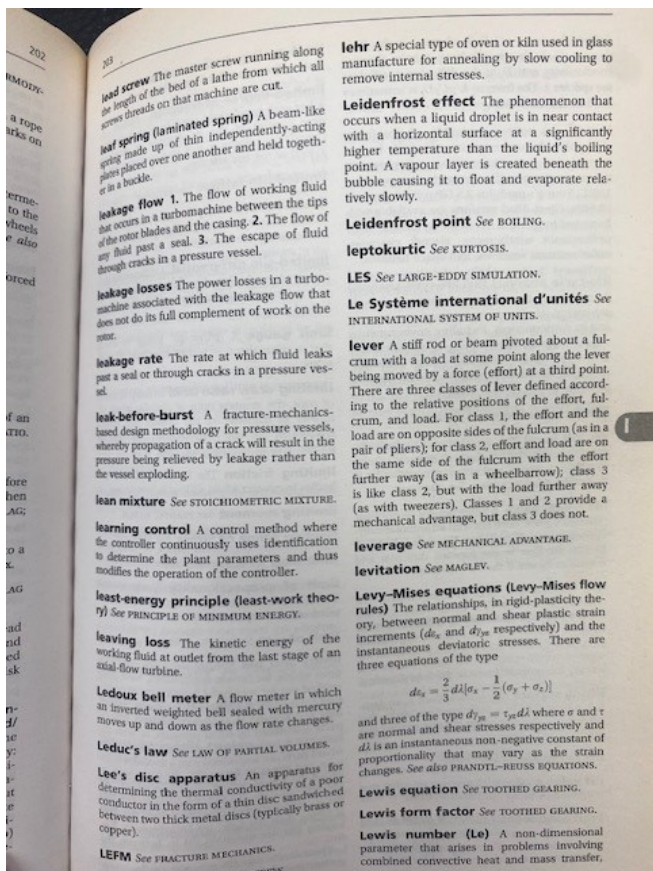
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lead screw The master screw running along the length of the bed of a lathe from which all screw threads on that machine are cut.

leaf spring (laminated spring) A beam-like spring made up of thin independently-acting plates placed over one another and held together in a buckle.

leakage flow 1. The flow of working fluid that occurs in a turbomachine between the tips of the rotor blades and the casing. 2. The flow of any fluid past a seal. 3. The escape of fluid through cracks in a pressure vessel.

leakage losses The power losses in a turbomachine associated with the leakage flow that does not do its full complement of work on the rotor.

leakage rate The rate at which fluid leaks past a seal or through cracks in a pressure vessel.

leak-before-burst A fracture-mechanics-based design methodology for pressure vessels, whereby propagation of a crack will result in the pressure being relieved by leakage rather than the vessel exploding.

lean mixture See STOICHIOMETRIC MIXTURE.

learning control A control method where the controller continuously uses identification to determine the plant parameters and thus modifies the operation of the controller.

least-energy principle (least-work theory) See PRINCIPLE OF MINIMUM ENERGY.

leaving loss The kinetic energy of the working fluid at outlet from the last stage of an axial-flow turbine.

Ledoux bell meter A flow meter in which an inverted weighted bell sealed with mercury moves up and down as the flow rate changes.

Leduc's law See LAW OF PARTIAL VOLUMES.

Lee's disc apparatus An apparatus for determining the thermal conductivity of a poor conductor in the form of a thin disc sandwiched between two thick metal discs (typically brass or copper).

LEFM See FRACTURE MECHANICS.

lehr A special type of oven or kiln used in glass manufacture for annealing by slow cooling to remove internal stresses.

Leidenfrost effect The phenomenon that occurs when a liquid droplet is in near contact with a horizontal surface at a significantly higher temperature than the liquid's boiling point. A vapour layer is created beneath the bubble causing it to float and evaporate relatively slowly.

Leidenfrost point See BOILING.

leptokurtic See KURTOSIS.

LES See LARGE-EDDY SIMULATION.

Le Système international d'unités See INTERNATIONAL SYSTEM OF UNITS.

lever A stiff rod or beam pivoted about a fulcrum with a load at some point along the lever being moved by a force (effort) at a third point. There are three classes of lever defined according to the relative positions of the effort, fulcrum, and load. For class 1, the effort and the load are on opposite sides of the fulcrum (as in a pair of pliers); for class 2, effort and load are on the same side of the fulcrum with the effort further away (as in a wheelbarrow); class 3 is like class 2, but with the load further away (as with tweezers). Classes 1 and 2 provide a mechanical advantage, but class 3 does not.

leverage See MECHANICAL ADVANTAGE.

levitation See MAGLEV.

Levy-Mises equations (Levy-Mises flow rules) The relationships, in rigid-plasticity theory, between normal and shear plastic strain increments ($d\epsilon_x$ and $d\gamma_{xy}$ respectively) and the instantaneous deviatoric stresses. There are three equations of the type

$$d\epsilon_x = \frac{2}{3} d\lambda \left[\sigma_x - \frac{1}{2} (\sigma_y + \sigma_z) \right]$$

and three of the type $d\gamma_{xy} = \tau_{xy} d\lambda$ where ϵ and τ are normal and shear stresses respectively and $d\lambda$ is an instantaneous non-negative constant of proportionality that may vary as the strain changes. See also PRANDTL-REUSS EQUATIONS.

Lewis equation See TOOTHED GEARING.

Lewis form factor See TOOTHED GEARING.

Lewis number (Le) A non-dimensional parameter that arises in problems involving combined convective heat and mass transfer,