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Dictionary of Mechanical Engineering

Fourth Edition

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peripheral speed The speed of any point on the *periphery* of a rotating wheel, cutter, etc.

peristaltic pump A *pump* producing a flow in a fluid within a flexible pipe using a series of rollers each of which in turn passes over the same given length of pipe. Each roller squeezes the tube progressively, forcing the fluid along the given length, but before a roller releases its hold the next one starts its traverse. Thus, the fluid is continuously pumped along the pipe.

With this type of low-pressure pump the fluid is in contact only with the interior wall of the flexible tube. This cleanliness feature makes it a popular type of pump for medical use, such as in dialysis.

permanent set (a) An extension remaining in a test-piece after the load has been removed, the *elastic limit* of the material having been exceeded. See also *stress-strain relationship* and *Figure S.26*. (b) A permanent deflection of any structure after being subjected to a load.

permanent-way crane A *gantry crane* used for accidents on, and repair of, the permanent way of a railway.

perpetual screw *Worm*.

Persian drill *Archimedean drill*.

pet cock (priming valve) A small *plug-cock* for draining condensed steam from steam engine cylinders on the starting of the engine, or for testing the water level in a boiler.

petrol engine An *internal-combustion engine* working on the *Otto* four-stroke or the *two-stroke cycle* using a petrol spray from a *carburetor* or direct petrol injection. Ignition of the combustible petrol-air mixture is effected by a *sparking plug*, operated either by coil and battery or by magneto or by a.c. and transistor system.

petrol pump (a) A small diaphragm-type pump operated either mechanically from the *camshaft* of the petrol engine, or electrically, for fuel delivery to the *carburetor*. (b) A pump at a petrol (U.S.: gas) station.

phase Two alternating quantities are said to be "in phase" when their maximum values occur at the same instant of time.

phase angle (a) The angle between two vectors representing two harmonically varying quantities which have the same frequency, that is, the difference in *phase* measured as an angle. (b) A quantity defining a particular stage of progress in a recurring operation.

phase difference The difference between the *phase angles* of two harmonically varying quantities.

phase reversal A general term for the process of obtaining a signal of identical waveform but of opposite phase to an original signal.

phase spectrum The values of the *phase angles* of the components of a