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**contraction joint** [CIV ENG] A break designed in a structure to allow for drying and temperature shrinkage of concrete, brickwork, or masonry, thereby preventing the formation of cracks. {kən'træk-shən ,jɔɪnt}

**contraflexure point** [CIV ENG] The point in a structure where bending occurs in opposite directions. {kən'trə'flek-shən ,pɔɪnt}

**contrapropagating ultrasonic flowmeter** [ENG] An instrument for determining the velocity of a fluid flow from the difference between the times required for high-frequency sound to travel between two transducers in opposite directions along a path having a component parallel to the flow. {kən'trə'prə'pə,gəd-ɪŋ 'æl-trə'sən-ɪk 'flɔːmɛd-ər}

**contrarotating propellers** [MECH ENG] A pair of propellers on concentric shafts, turning in opposite directions. {kən'trə'rɔːtɪŋ prə'pel-ərz}

**contrarotation** [ENG] Rotation in the direction opposite to another rotation. {kən'trə'rɔːtə'shən}

**control** [CONT SYS] A means or device to direct and regulate a process or sequence of events. [ELECTR] An input element of a cryotron. {kən'trɒl}

**control accuracy** [CONT SYS] The degree of correspondence between the ultimately controlled variable and the ideal value in a feedback control system. {kən'trɒl ,æk-jə-rə-si}

**control agent** [CHEM ENG] In process automatic-control work, material or energy within a process system of which the manipulated (controlled) variable is a condition or characteristic. {kən'trɒl ,æ-jənt}

**control board** [ELEC] A panel at which one can make circuit changes, as in lighting a theater. [ENG] A panel in which meters and other indicating instruments display the condition of a system, and dials, switches, and other devices are used to modify circuits to control the system. Also known as control panel; panel board. {kən'trɒl ,bɔːd}

**control chart** [IND ENG] A statistical tool used to detect excessive process variability due to specific assignable causes that can be corrected. It serves to determine whether a process is in a state of statistical control, that is, the extent of variation of the output of the process does not exceed that which is expected based on the natural statistical variability of the process. {kən'trɒl ,tʃɑːt}

**control circuit** [ELEC] A circuit that controls some function of a machine, device, or piece of equipment. [ELECTR] The circuit that feeds the control winding of a magnetic amplifier. {kən'trɒl ,sɜːk-ɪt}

**control diagram** See flow chart. {kən'trɒl ,di-ə,grəm}

**control echo** [ENG] In an ultrasonic inspection system, consistent reflection from a surface, such as a back reflection, which provides a reference signal. {kən'trɒl ,ek-ə}

**control element** [CONT SYS] The portion of a feedback control system that acts on the process

or machine being controlled. {kən'trɒl ,el-ə-mənt}

**control hierarchy** See hierarchical control. {kən'trɒl 'hiː-ər-ki}

**control joint** [CIV ENG] An expansion joint in masonry to allow movement due to expansion and contraction. {kən'trɒl ,jɔɪnt}

**controllability** [CONT SYS] Property of a system for which, given any initial state and any desired state, there exists a time interval and an input signal which brings the system from the initial state to the desired state during the time interval. {kən'trɒl-ə'bɪl-əd-ɪ}

**controllable-pitch propeller** [MECH ENG] An aircraft or ship propeller in which the pitch of the blades can be changed while the propeller is in motion; five types used for aircraft are two-position, variable-pitch, constant-speed, feathering, and reversible-pitch. Abbreviated CP propeller. {kən'trɒl-ə'bəl 'pɪtʃ prə'pel-ər}

**controlled avalanche device** [ELECTR] A semiconductor device that has rigidly specified maximum and minimum avalanche voltage characteristics and is able to operate and absorb momentary power surges in this avalanche region indefinitely without damage. {kən'trɒld 'æv-ə-ləntʃ dɪ'vɪs}

**controlled avalanche rectifier** [ELECTR] A silicon rectifier in which carefully controlled, nondestructive internal avalanche breakdown across the entire junction area protects the junction surface, thereby eliminating local heating that would impair or destroy the reverse blocking ability of the rectifier. {kən'trɒld 'æv-ə-ləntʃ 'rek-tə-faɪ-ər}

**controlled avalanche transit-time triode** [ELECTR] A solid-state microwave device that uses a combination of IMPATT diode and  $\mu$ pn bipolar transistor technologies; avalanche and drift zones are located between the base and collector regions. Abbreviated CATT. {kən'trɒld 'æv-ə-ləntʃ træn-zɪt ,tɪm 'tri-ɔːd}

**controlled medium** [CHEM ENG] In process automatic-control work, material within a process system in which a variable (for example, concentration) is controlled. {kən'trɒld 'mɛd-ɪ-əm}

**controlled parameter** [ENG] In the formulation of an optimization problem, one of the parameters whose values determine the value of the criterion parameter. {kən'trɒld pə'ræm-əd-ər}

**controlled variable** [CONT SYS] In process automatic-control work, that quantity or condition of a controlled system that is directly measured or controlled. {kən'trɒld 'ver-ɪ-ə-bəl}

**controller** See automatic controller. {kən'trɒl-ər}

**controller-structure interaction** [CONT SYS] Feedback of an active control algorithm in the process of model reduction; this occurs through observation spillover and control spillover. {kən'trɒl-ər ,strʌk-ʃər-ɪn-tər-æk-shən}

**control limits** [ELECTR] In radar evaluation, upper and lower control limits are established at those performance figures within which it is expected that 95% of quality-control samples will fall when the radar is performing normally.

[IND ENG] In statistical quality control, the limits of acceptability placed on control charts; parts outside the limits are defective. {kən'trɒl 'lɪm-ɪts}

**controlling magnet** [ENG] An auxiliary magnet used with a galvanometer to cancel the effect of the earth's magnetic field. {kən'trɒl-ɪŋ ,magneɪt}

**control panel** [ENG] See control board; panel. {kən'trɒl ,pan-əl}

**control room** [ENG] A room from which space flights are directed. {kən'trɒl ,rʊm}

**control signal** [CONT SYS] The signal applied to the device that makes corrective changes in a controlled process or machine. {kən'trɒl ,sɪg-nəl}

**control spillover** [CONT SYS] The excitation by an active control system of modes of motion that have been omitted from the control algorithm in the process of model reduction. {kən'trɒl 'spɪl-ə-vər}

**control spring** [DES ENG] A spring designed so that its torque cancels that of the instrument of which it is a part, for all deflections of the pointer. {kən'trɒl ,sprɪŋ}

**control system** [ENG] A system in which one or more outputs are forced to change in a desired manner as time progresses. {kən'trɒl ,sɪs-təm}

**control-system feedback** [CONT SYS] A signal obtained by comparing the output of a control system with the input, which is used to diminish the difference between them. {kən'trɒl ,sɪs-təm 'fed-bæk}

**control track** [ENG ACOUS] A supplementary sound track, usually containing tone signals that control the reproduction of the sound track, such as by changing feed levels to loudspeakers in a theater to achieve stereophonic effects. {kən'trɒl ,træk}

**control valve** [ENG] A valve which controls pressure, volume, or flow direction in a fluid transmission system. {kən'trɒl ,vælv}

**control variable** [CONT SYS] One of the input variables of a control system, such as motor torque or the opening of a valve, which can be varied directly by the operator to maximize some measure of performance of the system. {kən'trɒl ,ver-ɪ-ə-bəl}

**convection coefficient** See film coefficient. {kən'vek-shən ,kə-ɪ'fɪʃ-ənt}

**convection cooling** [ENG] Heat transfer by natural, upward flow of hot air from the device being cooled. {kən'vek-shən ,kʊl-ɪŋ}

**convection current** [ELECTR] The time rate at which the electric charges of an electron stream are transported through a given surface. {kən'vek-shən ,kə-rənt}

**convection oven** [ENG] An oven containing a fan that continuously circulates hot air around the food being prepared. {kən'vek-shən ,əv-ən}

**convection section** [ENG] That portion of the furnace in which tubes receive heat from the flue

gases by convection. {kən'vek-shən ,sek-shən}

**convective current** See convection current. {kən'vek-div ,kə-rənt}

**convector** [ENG] A heat-emitting unit for the heating of room air; it has a heating element surrounded by a cabinet-type enclosure with openings below and above for entrance and egress of air. {kən'vek-tər}

**convectron** [ENG] An instrument for indicating deviation from the vertical which is based on the principle that the convection from a heated wire depends strongly on its inclination; it consists of a Y-shaped tube, each of whose arms contains a wire forming part of a bridge circuit. {kən'vek-trən}

**conventional current** [ELEC] The concept of current as the transfer of positive charge, so that its direction of flow is opposite to that of electrons which are negatively charged. {kən'ven-ʃən-əl ,kə-rənt}

**convergent die** [ENG] A die having internal channels which converge. {kən'ver-jənt ,di}

**convergent-divergent nozzle** [DES ENG] A nozzle in which supersonic velocities are attained; has a divergent portion downstream of the contracting section. Also known as supersonic nozzle. {kən'ver-jənt dʒ'ver-jənt 'nəz-əl}

**conversion** [CHEM ENG] The chemical change from reactants to products in an industrial chemical process. Also known as chemical conversion. {kən'ver-zən}

**converted water** See product water. {kən'verd-əd 'wɔːd-ər}

**conveyor** [MECH ENG] Any materials-handling machine designed to move individual articles such as solids or free-flowing bulk materials over a horizontal, inclined, declined, or vertical path of travel with continuous motion. {kən've-ər}

**conveyor belt balance** [ENG] A balance used for weighing unpackaged, loose, continuously transported material on a conveyor belt by weighing the load being moved and measuring the belt speed. {kən've-ər ,belt ,bal-əns}

**cooled-tube pyrometer** [ENG] A thermometer for high-temperature flowing gases that uses a liquid-cooled tube inserted in the flowing gas; gas temperature is deduced from the law of convective heat transfer to the outside of the tube and from measurement of the mass flow rate and temperature rise of the cooling liquid. {'kʊld ,tʊb pi'rəm-əd-ər}

**cooler nail** [DES ENG] A thin, cement-coated wire nail. {'kʊl-ər ,næɪl}

**cooling channel** [ENG] A channel in the body of mold through which a cooling liquid is circulated. {'kʊl-ɪŋ ,tʃæn-əl}

**cooling coil** [MECH ENG] A coiled arrangement of pipe or tubing for the transfer of heat between two fluids. {'kʊl-ɪŋ ,kɔɪl}

**cooling correction** [THERMO] A correction that must be employed in calorimetry to allow for heat transfer between a body and its surroundings. Also known as radiation correction. {'kʊl-ɪŋ kə'rek-shən}