Glossary of Key Tube Fittings, Fluid Power and Other Engineering Terms

Alloy: A substance having metallic properties and composed of two or more chemical elements of which at least one is a metal.

Annealing: Heat treating process used primarily to soften metals or to stabilize their structures.

Boss: A relatively short protrusion or projection from the surface of a forging or casting, often cylindrical in shape.

Brass: An alloy consisting mainly of copper (over 50%) and zinc, to which smaller amounts of other elements may be added.

Braze 505: Braze 505 is a trademark of the Handy & Harman Company.

Brazing: The joining of metals through the use of heat and capillary flow of a filler metal. The filler metal having a melting temperature above 840 degrees Fahrenheit, but below the melting point of the metals being joined.

Bright Annealing: Annealing in a protective atmosphere to prevent discoloration of the bright surface.

Brinell Hardness Test: A test for determining the hardness of a material by forcing a hard steel or carbide ball of specified diameter into it under a specified load.

Brittle Fracture: A fracture which is accompanied by little or no plastic deformation.

Brittleness: The quality of a material that leads to crack propagation without appreciable plastic deformation.

Bulk Modulus: The measure of resistance to compressibility of a fluid. It is the reciprocal of the compressibility.

Burnishing: Smoothing surfaces of a work piece through frictional contact between it and some hardened tooling.

Carbonitriding: A case hardening process of suitable ferrous material that is effected by the simultaneous absorption of nitrogen and carbon into the surface of the work piece, by heating above the lower transformation temperature in a suitable gaseous atmosphere.

Cavitation: A localized gaseous condition within a liquid stream which occurs when the pressure is reduced to the vapor pressure. Generally occurs in pumps and suction lines where fluid velocity is too high due to poorly sized (too small) line size.

Chatter: The undesirable wavy surface on a machined surface, produced by vibration of the tool, grinding wheel or work piece itself during machining or grinding.

Chromate Treatment: A treatment of metal in a solution of a hexavalent chromium compound to produce a conversion coating of chromium compounds on the surface of the metal, thus improving the resistance to corrosion.

Cold Heading: Working metal at room temperature in such a manner that the cross-sectional area of a portion or all of the stock is increased.

Cold Working (Cold Forming): Permanently deforming metal, usually at room temperature, by the application of an external force in order to produce a near net shape component.

Compressibility: The change in volume of a unit volume of a fluid when subjected to a unit change in pressure.

Corrosion: The deterioration of a metal by chemical or electrochemical reaction with its environment.

Creep: Time dependent strain occuring under stress. This phenomenon may result in relaxation i.e.the relief of pre-load/pre-stress in assembled components.

Crimping: A swaging and squeezing operation usually used to secure components, such as, nuts and shells to their mating parts.

Deburring: Removing burrs, sharp edges or fins from metal parts usually by filing, grinding or tumbling the work in a barrel containing suitable liquid medium and abrasives.

Density: Ratio of the mass of an object (including fluids) to its volume.

Diamond Pyramid Hardness Test (DPH): An indentation hardness test employing a 136° diamond pyramid indenter and variable loads.

Ductility: The ability of a metal to deform plastically (permanently) without fracturing.

Dynamic Pressure Rating: See PRESSURE, RATED DYNAMIC.

Easy Flo 45: Easy Flo 45 is a trademark of the Handy & Harman Company.

Elastic Deformation: Change of dimensions accompanying stress in the elastic range, original dimensions being restored upon release of stress.

Elastomer: Often referred to as rubber, is a high polymer that can be, or has been modified to a state exhibiting little plastic flow and quick recovery from an extending force.

Erosion: Destruction of metals or other materials by the abrasive action of moving fluids, or particles.

Extrusion: Conversion of an ingot slug or billet into lengths of uniform cross section by plastically forcing the metal through a die orifice having the desired cross sectional profile.

Fatigue/Endurance Limit: The maximum stress below which a material can presumably endure an infinite number of stress cycles.

Fatigue Fracture: The initiation of minute cracks, propagating into ultimate fracture under the application of repeated or fluctuating stresses having a maximum value less than the tensile strength of the material.

Ferrous Metal: A metal in which the major constituent is iron.

Fire Point: The temperature to which a fluid must be heated to *ignite* and *burn* for at least five seconds in the presence of air when a small flame is applied.