

## Glossary of Quick Coupling Terms

**Absolute Pressure:** A measure of pressure having its zero point at atmospheric pressure. For example, the sum of atmospheric and gauge pressure would be absolute pressure (PSIG). For vacuum, it is expressed in inches of mercury.

**Accidental Disconnection:** Disconnection of a coupling while in operation due to failure of the locking mechanism (a.k.a. unintentional disconnection).

**Accumulator:** A container in which fluid is stored under pressure as a source of reserve fluid power.

**Aeration:** Air in a fluid

**Air Inclusion:** The ambient atmosphere forced into the system during the connection of quick disconnect halves.

**Atmospheric Pressure:** Pressure exerted by the atmosphere at any specific location. Sea level pressure is approximately 14.7 PSI.

**Backpressure:** Refers to pressure existing on the discharge side of a load.

**Bar:** An international standard unit of pressure equal to 100,000 Pascals, approximately 14.5 PSI.

**Blind-Mate:** A coupling that can be automatically connected without human intervention and without visibility.

**Break-Away:** Automatic disconnection of a coupling when an axial separation force is applied.

**Brinelling:** Dimples or grooves worn into the shoulder of a male half by locking balls in the female half. This is terminology stemming from a test that is done to evaluate the hardness of metals. Swedish metallurgist, Johan August Brinell (1849-1925), developed a hardness test that measures the relative hardness of metals and alloys by forcing a 10 mm hard steel ball into a test piece with a 3000 kg load for 30 seconds. After completion of the test, the surface area of the resulting indentation was measured.

**Burst Pressure:** The pressure at which a device loses the capability to retain pressure.

**Case Hardening:** Hardening the entire surface of a low carbon steel to a specific depth.

**Cavitation:** A localized gaseous condition within a liquid stream which occurs where the pressure is reduced to the vapor pressure.

**Charge Pressure:** The pressure at which replenishing fluid is forced into the hydraulic system (above atmospheric pressure).

**Check Valve:** A valve which permits flow of media in one direction only.

**Cold Flow:** Continued deformation under load.

**Connect Under Pressure:** The ability to connect coupling halves with internal line pressure applied to either both sides or one side.

**Contamination:** Any material foreign to a media that has a harmful effect on its performance in a system.

**Coupling, Female Half:** a.k.a. coupler, socket, receiver

**Coupling, Male Half:** a.k.a. nipple, plug, adapter

**Coupling Quick Disconnect:** A component which can quickly join or separate a fluid line without the use of tools or special devices.

**Differential Pressure:** ( $\Delta P$ ) The difference in pressure between any two points of a system or a component, also known as Delta-P or pressure drop.

**Drybreak Coupling:** A coupling that allows connection and disconnection without spillage or air inclusion (a.k.a. flush face, flat face, no-spill)

**Double-Acting Sleeve:** Permits push-to-connect and pull-to-connect convenience when female half is mounted on the sleeve.

**Dust Cap:** Dust or dirt repelling enclosure for the nipple.

**Dust Plug:** Dust or dirt repelling enclosure for the coupler.

**Dynamic Pressure:** Pressure that is not at rest and once it is released, it is immediately replenished.

**Flow Checking:** Occurs when a nipple valve closes during flow conditions, such as when quickly lowering a heavy implement (a.k.a. check off, back checking, lock-up).

**Flush Position (valve):** A no-spill valve that allows connection and disconnection without spillage or air inclusion. (a.k.a. flush face, drybreak, no-spill).

**Force to Connect:** Axial and/or rotational force required to make a complete connection.

**Force to Disconnect:** The reverse of the above.

**GPM:** Acronym for Gallons Per Minute, a measure of flow.

**Leakage:** The media that is intentionally released from a coupling due to component failure or retention weaknesses.

**LPM:** Acronym for Liters Per Minute, a measure of flow.

**Induction Hardening:** Hardening of a localized area of medium or high carbon steel.

**Operating Pressure:** The pressure at which a system is operated (a.k.a. working pressure).

**Peak Pressure:** Maximum momentary pressure encountered in the operation of a component (a.k.a. pressure spike, surge pressure)

**Pressure Cap:** A cap which incorporates a seal capable of withstanding the rated pressures on the male half.

**Pressure Impulse Test:** Subjecting a component to a specified pressure at a specific rate of increase or decrease for a specified time limit.

**Proof Pressure:** The nondestructive test pressure in excess of the maximum rated operating pressure, generally 1.5 times the standard operating pressure.

**PSI:** Acronym for Pounds Per Square Inch, a measure of pressure.

**Push to Connect:** Locking arrangement which permits one handed connection by pushing the nipple into the coupler (a.k.a. automatic sleeve, automatic collar, automatic connection).

**Rotation:** The act of spinning the coupler and nipple in opposite directions in a continuous manner beyond 360°.

**Single Acting Sleeve:** Making connection requires manually pulling female sleeve back, inserting the male tip (a.k.a. semi-auto sleeve, manual sleeve)

**Sleeve Lock:** A coupling arrangement that provides an additional lock which must be actuated before locking sleeve can be retracted (a.k.a. pin-lock, locking sleeve).

**Spillage:** The fluid released from the system due to disconnection of a coupling assembly. This is the fluid trapped between the mating seal and the valve seal of the coupling halves.

**Static Pressure:** Pressure at rest that, once released, is not immediately replenished.

**Surge Flow:** A rapid increase in fluid flow.

**Swivel:** The act of spinning the coupler and nipple in opposite directions to a degree that is less than 360°.

**Thermal Build-Up:** Pressure caused by expansion of a media due to heat from an external source such as sunlight (a.k.a. thermal expansion).

**Trapped Pressure:** Pressurized hydraulic fluid trapped behind a closed coupling valve.

**Turbulence:** Is the condition where the particles do not move smoothly parallel to the flow direction. Turbulent flow is caused by abrupt changes in direction, changes of cross-section, or by high velocity. The result is increased friction, which generates heat, decreases operating pressure and wastes power.

**Twist Lock:** A locking arrangement which requires a rotational actuation to unlock the mating halves.

**Vacuum:** Partially or completely exhausted of air, gas or other media to create a negative pressure. Theoretically, a perfect vacuum would be measured as 30 inches of mercury, but that is unattainable. The true perfect vacuum is 29.7 inches of mercury.