Pressure Regulator Glossary

This glossary describes some of the common terms used when referring to pressure regulators.

Droop
Droop is the amount that outlet pressure (P2) falls (offset) from the SET (static) pressure when flow increases. Dome regulators can often minimise this, along with longer spring assemblies.

Lock-Up
The pressure at which the regulator shuts-off. At this point, the pressure on the outlet side will be slightly higher than the SET pressure.

Creep
Creep is any increase in the outlet pressure over time. If the poppet does not fully seat in the orifice, inlet pressure may continue to bleed through the orifice. Over time, this leakage can increase the outlet pressure until it equals inlet pressure. Creep could be caused by contamination of the seat, damage to the poppet or the seat, or misalignment of these.

An upstream filter is always suggested and will provide adequate protection against creep whilst a relief valve protects an overpressure due to creep. Please note: a gas purity certificate does not guarantee cleanliness - gas bottles are inherently dirty.

Choke Flow
Choke flow is when a regulator is in the fully open position, and it is no longer regulating pressure. It is acting as a restricting orifice.

Optimal Flow Range
This is the ideal working range between lock-up and choke flow. Regulators operate better when they are closer to the maximum control pressure (P2).

Supply Pressure Effect (SPE)
SPE is the effect on the set pressure of a regulator as a result of an inlet pressure change; normally an increase in outlet pressure due to a decrease in inlet pressure (i.e. depletion of the gas bottle). This can be rectified during the selection process by selecting a design with a low SPE percentage or selecting two regulators in series (or an integral 2-stage regulator).

Joule-Thomson Effect
Joule-Thomson effect occurs when the temperature of a gas or liquid changes when it is forced through the regulator whilst no heat is exchanged with the environment (adiabatic expansion). If there is a large pressure drop, it can cause a large drop in temperature and can be identified by icing or freezing of the regulator and adjoining pipework. (Natural gas average temperature will drop 1°C for every 2 Bar drop in pressure). One solution may be to heat the gas and/or use a 2-stage regulator (not close together) to reduce the drastic drop in pressure.

Further Information
If you would like further information regarding pressure regulators or to speak to a member of our team, call **+44 (0)1224 759900** or email or visit our website.