

TERMINOLOGY

Ambient Temperature Range. The minimum and maximum temperature of the medium surrounding a device.

Back Pressure Regulator. A pressure regulator which controls an inlet (supply) pressure. Conceptually, back pressure regulators are similar to relief valves, since these devices relieve inlet pressure when a set point is reached. Unlike relief valves, a back pressure regulator setting is not proportional to the difference between inlet (upstream) and exhaust (downstream) pressure. Back pressure regulators are much more accurate than a relief valve since the pressure sensing element is considerably larger than the valving element within the device.

Balanced Valve. A valve design within a pressure reducing regulator which considerably reduces the supply pressure effect. Balanced valves use an additional seal within the regulator which offsets, or balances, the force due to the difference between inlet and outlet across the valve orifice area. Balanced valves are used when the flow required is greater than the capacity of a two stage regulator, yet frequent pressure adjustment is undesirable.

Bubble Tight. Leakage too low to be indicated with liquid leak detection solution. In relation to helium leakage, bubble tight is less than 10^{-6} atm cc/sec. when tested with a quality leak detection solution.

Burst Pressure. The maximum pressure above which the device may no longer withstand pressure. The device may leak, but will not rupture or release components at levels below burst pressure.

Capture Port. A feature of some regulators which permits the user to install a fluid connector into the regulator bonnet (control spring chamber) and pipe away any fluid which enters the bonnet. Capture ports are used when the user needs to contain the regulated media in case of catastrophic failure of the pressure sensing element, or when self-relieving is required. Capture ports may be user positionable, or fixed, depending on the model.

Control Kit. The component kit required to change the control range of a particular model pressure regulator.

CV. A Flow Coefficient Rating. The C_v is calculated at maximum flow conditions (beyond pressure regulation, i.e., wide open valve position) as follows: Flow of water per 1 PSI (0.0069 MPa) Pressure Drop.

Droop. The deviation of output from set point pressure as downstream flow requirements change. See figure 2.1.

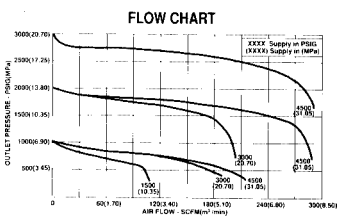


Figure 2.1. Typical curve for varying set points and supply pressures (HP300 Regulator).

Flow Chart. A set of regulator performance curves depicting droop under different inlet pressures, set points and flow rates.

GPM. Acronym for Gallons per Minute.

Leakage. Flow of gas or fluid past a seat or seal in the closed position.

Inboard Leakage. A measure of leakage into the regulator when the regulator is subjected to a purge vacuum.

Maintenance Kit. The component kit required to perform routine cleaning and maintenance of a particular model pressure regulator.

Maximum Signal Pressure. The maximum safe pressure that may be applied to the signal port of a device to create a predetermined signal at the output of the device.

Non-Relieving. A feature of some regulators which does not permit downstream fluid pressure from escaping or venting through the regulator. Non-relieving regulators are desirable when regulating corrosive, toxic or other hazardous gasses.

Operating Temperature Range. The minimum and maximum temperature at which a device will operate with defined specifications.

Overhaul Kit. The component kit required to perform cleaning, maintenance and repair of a particular model pressure regulator. An overhaul kit contains all the components of a maintenance kit, plus the components which wear or fatigue in continuous or severe service.

Pressure Reducing Regulator. A pressure regulator which controls an output (discharge) pressure from a higher supply (inlet) pressure.

Proof Pressure. The maximum pressure the device can be exposed to without damage, leakage or loss of flow function.

Relieving. A feature of some regulators which permit downstream pressure, in excess of the regulator setting, to escape from the downstream volume. Relieving regulators can be user adjustable or non-adjustable. Relieving regulators vent downstream pressure when the downstream pressure is greater than the set point as the set point is reduced, such as the user decreasing the set point. For this reason, self relieving regulators are necessary when no other means are available to bleed off the downstream pressure.

SCFH. Acronym for Standard Cubic Feet per Hour.

SCFM. Acronym for Standard Cubic Feet per Minute.

Set Point. (Control setting ranges/Control back pressure ranges) The output or control pressure under non-flowing conditions.

Single Stage Regulator. A pressure reducing regulator which reduces supply (inlet) pressure to output (controlled) pressure with a single pressure sensing element and control valve. Single stage regulators are typically used when supply pressure is constant (such as a pipeline regulator), or where frequent adjustment is not a problem.

Steady-State. A characteristic of a condition, such as value, rate, periodicity, or amplitude, exhibiting only negligible change over an arbitrary long period of time.

Supply Pressure Effect. The effect of supply pressure variations relative to output pressure at a constant set point.

Two Stage Regulator. A pressure reducing regulator which reduces supply (inlet) pressure to output (controlled) pressure in two steps or stages. Conceptually, two stage regulators are two single stage regulators in series, with the first stage being factory preset. The first stage feeds regulated pressure to the final (second) stage, which is generally user adjustable. Two stage regulators are primarily used when the supply pressure can change dramatically (such as bottled gas cylinders), and frequent pressure adjustment to compensate for changing supply pressure is unacceptable.

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