Pressure Regulators

Principle of Operation

Compressed gases are generally not useable until a pressure regulator is incorporated into the delivery system to reduce the gas pressure to a workable level that can be safely utilized in equipment and instruments. The basic design and construction materials differ according to the composition and pressure of the gas as well as the specific application requirements.

Single Stage Design

Single stage pressure regulators reduce the cylinder gas pressure to the delivery pressure in one (1) step. This one step pressure reduction results in a slight change in delivery gas pressure as the cylinder pressure decays. (In most cases, the delivery pressure will rise.) The single stage regulator is a satisfactory and cost effective selection if slight variations in delivery pressure and/or periodic adjustments are not detrimental to the application. In the case of liquefied gases the cylinder pressure is constant and single stage regulators are recommended.

Double Stage Design

Double stage pressure regulators reduce the cylinder gas pressure to a working level in two (2) steps. The cylinder gas pressure is reduced by the first stage to a preset, intermediate level which becomes the gas pressure at the second stage inlet. This allows the second stage to fine-tune the final delivery pressure. Thus, double stage regulators provide a constant delivery pressure unaffected by cylinder pressure decay.

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Regulators for Criteria Pollutant Analysis

All of the regulators offered by Spectra’s Environmental Division are engineered and manufactured to provide you with the optimum unit for your application. Thus deciding which regulator to order for criteria pollutant analysis is a simple three step process. You choose
1. Single or double stage?
2. Brass or stainless steel?
Is there any helium or hydrogen in the cylinder?

You then select your desired delivery pressure (2-50 psig or 1-125 psig), outlet connection (¼” compression fitting or ¼” NPTM), and the proper CGA connection.

Regulators for VOC Analysis

Spectra’s Model 7621 is the regulator of choice for VOC analysis standards. This compact, regulator is designed and manufactured to provide optimum performance as a VOC Regulator. The 7621 is a low volume single stage regulator with a low flow rate and accurate pressure control. The regulator is constructed with a metal diaphragm and a PCTFE* seat then after cleaning of all components the regulator is assembled without any hydrocarbon greases. Prior to shipment each regulator is then tested to insure that there is no hydrocarbon bleed.

The Model 7621 has delivery pressure ranges of 0-30 psig, 0-60 psig, or 0-100 psig and outlet connections of 0.0625”, 0.125, 0.25 or 6.0 mm compression fitting.

Regulators for Mercury Analysis

Spectra’s Model 7622 regulator is preconditioned for use with mercury calibration standards. The regulator is constructed with a metal diaphragm and a PCTFE* seat. After assembly and cleaning the unit is conditioned with mercury to insure trouble free mercury analysis in the field.

The Model 7622 has delivery pressure ranges of 0-30 psig, 0-60 psig, or 0-100 psig and outlet connections of 0.0625”, 0.125, 0.25 or 6.0 mm compression fitting.

*PCTFE (PolyChloroTriFluoroEthylene) is a Fluoroelastomer formerly known as Kel-F