



FIGURE 1 *Backpressure Application to Maintain Air Supply to Priority Systems*

A backpressure regulator can be used to monitor and direct the supply pressure. In normal operation, this regulator is wide-open allowing air supply to all systems. If the supply pressure drops below the backpressure regulator's setpoint, the backpressure regulator closes to block the air flow to non-priority systems and directs the remaining air supply to the priority systems.

INTRODUCTION

This Application Guide briefly explains the air products contained in this section.

TYPES OF REGULATORS

Instrument Supply Regulators

Instrument supply regulators are used to control air pressure to controllers, positioners, volume boosters, panel loaders, switching valves, and other control equipment. Many of these regulators have integral filters to help remove dust, dirt, and other particles from the air before it enters the instruments. These regulators can be nipple mounted, bolted to the actuator, or panel mounted.

Pressure Reducing Regulators

In some applications, the pipeline pressure may need to be reduced for a process or piece of equipment. Depending upon the accuracy required by the application, a direct-operated or pilot-operated regulator can be used to reduce the air pressure.

Direct-operated regulators are used for lower flow rates. Pilot-operated regulators are used for high flow rates or where precise pressure control is required.

Relief Valves/Backpressure Regulators

A relief valve or backpressure regulator opens when the upstream controlled

pressure increases above the setpoint. Relief valves and backpressure regulators are the same devices. The name is determined by the application.

Overpressure protection is provided by relieving pressure when it rises above the setpoint. When upstream pressure rises above the setpoint, the relief valve opens to allow excess upstream pressure to flow downstream into a pressurized system or to atmosphere.

PANEL LOADERS

Panel-mounted loading regulators are used for remote pressure adjustment of regulators or for manual control of actuators and control valves.

The manual loading regulators are available in four basic configurations: a stand alone regulator; a panel with one gauge and a pressure reducing regulator; a panel with two gauges and a pressure reducing regulator; and a panel with two gauges, a three-way changeover valve, and a pressure reducing regulator.

A panel with one gauge and a pressure reducing regulator contains a Type 67CR pressure reducing regulator with token internal relief and a gauge that indicates the regulator's outlet pressure. A two gauge

panel is similar to the single gauge panel with an additional gauge to monitor another pressure, up to 100 psig (6,9 bar).

A two gauge panel with a three-way changeover valve typically provides manual backup for pneumatic controllers. The changeover valve allows an operator to select either the manual loader output or an automatic controller output as the signal to an actuator and valve.

VOLUME BOOSTERS

Volume boosters are used on control valve actuators to increase the stroking speed of a control valve.

SWITCHING VALVES

Switching valves are used in pneumatic logic systems. These valves are for either two-way or three-way switching.

Two-way switching valves are used for on/off service in pneumatic systems.

Three-way switching valves divert inlet pressure from one outlet port to another whenever the sensed pressure exceeds or drops below a preset limit.