

# Pressure Override with Regulator Valves



Regulator and relief valves are used to set and maintain system pressure, which requires bypassing a portion of pump flow.

When a downstream device or shut-off gun is closed, a regulator maintains full system pressure, diverting full pump flow maintaining system pressure on the discharge of the pump.

It is important to properly size regulators and relief valves to minimize pressure override in full bypass. Operating on the low end of the pressure regulator rating will lead to higher pressure override.

Higher pressures create more load and amp draw on the motor. This could result in premature motor failure, especially with fractional horsepower motors.

## **Example: 0.75 gpm unit, operating pressure set to 500 psi (motor efficiency of 85%)**

With model 7084 regulator, maximum pressure rating of 600 psi:

- With shut off gun closed, system pressure increases to 550 psi.
  - This equates to 50 psi override pressure.
  - 0.75 gpm at 500 psi = .26 hp
  - 0.75 gpm at 550 psi = .28 hp for a 7.7% increase

Pressure regulator with a 2,000 psi maximum pressure rating

- With the shut off gun closed, system pressure increases to 600 psi
  - This equates to 100 psi override pressure
  - 0.75 gpm at 500 psi = .26 hp
  - 0.75 gpm at 600 psi = .31 hp or a 19.2% increase