LEWIS
SYSTEMS & SERVICE COMPANY

Air Compressor Calculations & Efficiency Formulas

1. **CFM of compressed air required to raise a known system pressure to a desired system pressure:C2 =** Required CFM total
   C1 = Existing or known CFM
   P2 = Desired pressure
   P1 = Known Pressure $C2 = C1 \times \frac{P2 + 14.7}{P1 + 14.7}$ **EXAMPLE:** A 75 HP Compressor rated at 320 CFM t 125 PSIG will hold only 85 PSI and we desire 125 PSI.**C1 =** 320 CFM
   P2 = 125 + 14.7 (139.7)
   P1 = 85 + 14.7 (99.7)
   C2 = 448.39 Total CFM required. We need an additional 128.39 CFM to raise system pressure to the desired level.

2. **Simple Energy Formula: Motor Efficiency =** Cost per KW X .746 (Power Factor) X Hours of operation X Brake horsepower ***Note:** No electric motor is 100% efficient, most will average 92-95% efficient.

3. **PSI VS. BHP (Rule of thumb):** For every 1 PSIG pressure drop, BHP (Brake horsepower) goes down ½ %.

Contact Lewis if you need further information on Air Compressors or Services

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