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Technical Bulletin

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TB-001

Subject: Air Receiver Volume Calculations For Short Term Demands

The following equation enables one to calculate the air receiver volume in terms of gallons necessary to power an air caster system for a specified length of time, given an undersized compressor:

$$V = \frac{T(C-S)P_0}{(P_1-P_2)}$$

- Where:
- V** is the receiver capacity in cubic feet
 - T** is time in minutes
 - C** is the air requirement of the air casters (scfm)
 - S** is the air being delivered to the receiver from a compressor (scfm)
 - P₀** is the atmospheric pressure, psia (refer to table 1 below)
 - P₁** is the initial receiver pressure, psig
 - P₂** is the final receiver pressure, psig

Table 1

Altitude above sea level, ft	Atmospheric pressure psia	Altitude above sea level, ft	Atmospheric pressure psia
0	14.69	7,500	11.12
500	14.42	8,000	10.91
1,000	14.16	8,500	10.70
1,500	13.91	9,000	10.50
2,000	13.66	9,500	10.30
2,500	13.41	10,000	10.10
3,000	13.16	10,500	9.90
3,500	12.92	11,000	9.71
4,000	12.68	11,500	9.52
4,500	12.45	12,000	9.34
5,000	12.22	12,500	9.15
5,500	11.99	13,000	8.97
6,000	11.77	13,500	8.80
6,500	11.55	14,000	8.62
7,000	11.33	14,500	8.45