

Technical Bulletin

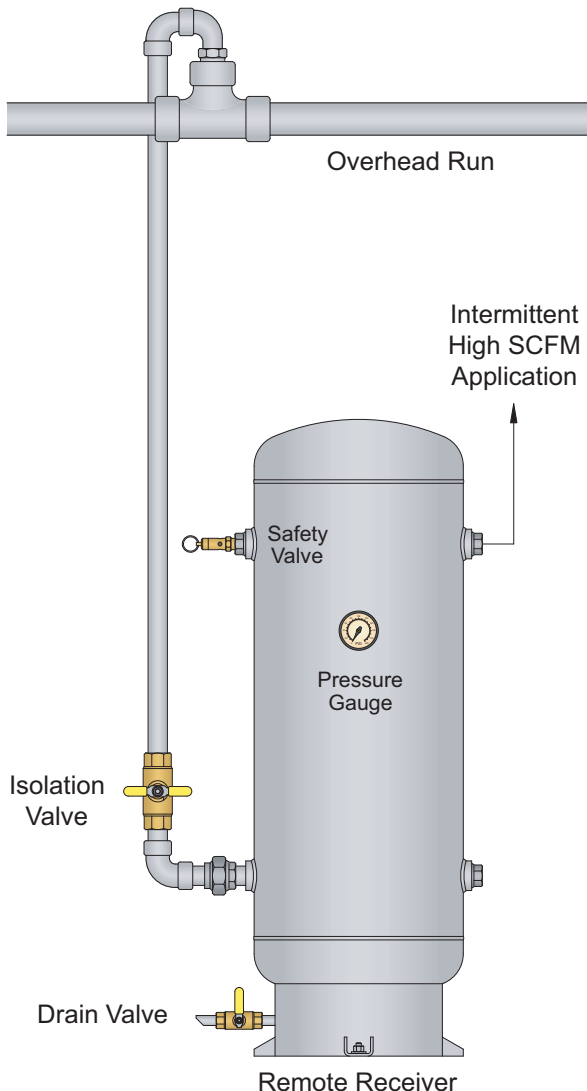
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Sizing Remote Compressed Air Receivers

Remote receivers are typically used to feed intermittent high flow applications. It can be a little daunting determining the size requirements for one of these applications. There really isn't a cut-and-dry method for this problem. Each application must be assessed on its own merits. The size of a remote receiver feeding an intermittent high SCFM load can be determined using the formula below:

$$[T \times (C-S) \times 14.7] \div (P1 - P2) = V$$

Where: V = Receiver volume. (cubic feet)
 T = Time of intermittent demand (minutes)
 P1 = Start pressure
 P2 = Ending pressure
 C = Intermittent flow requirement. (SCFM)
 S = Air Supply Flow (SCFM)



Suppose we have a compressor that is capable of delivering a flow of 80 SCFM at 90 PSI. We must operate an air wrench that requires 96 SCFM for 1 minute and the delivery pressure can't drop below 65 PSI. After the operation, the wrench is turned off for 30 seconds. What size receiver would we require to operate the wrench within the above parameters?

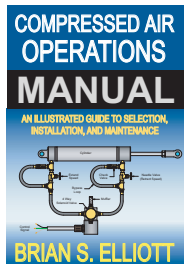
$$[1 \times (96 - 80) \times 14.7] \div (90 - 65) = 9.41 \text{ Cubic Feet or } 70.3 \text{ Gallons (std. size: 80 gal., 10.70 cu. ft.)}$$

Next we need to determine if the system can recover in the 30 second "off" period. The formula below can be used to calculate the recovery time:

$$[V \times (P1 - P2)] \div (14.7 \times S) = T$$

$$[10.70 \times (90 - 65)] \div (14.7 \times 80) = .23 \text{ Minutes or } 13.8 \text{ Seconds}$$

Comprehensive information on compressed air systems is provided in the book "**Compressed Air Operations Manual**" by Brian S. Elliott, ISBN: 0-07-147526-5 Published by the McGraw-Hill Book Co.



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