

Technical Bulletin 61

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Operating and Capital Cost Versus Moisture Content in Compressed Air Systems

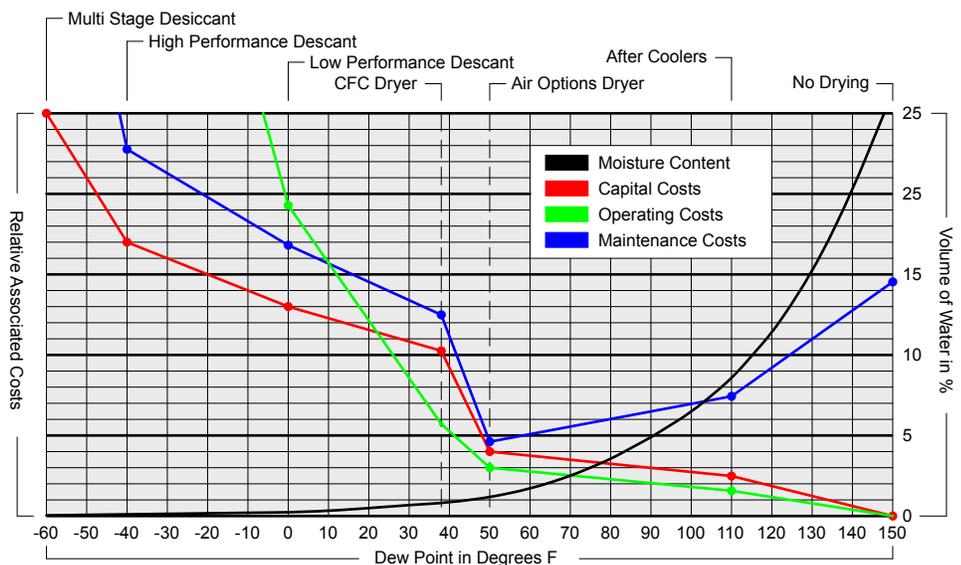
by Brian S. Elliott

When considering a dryer for the compressed air system, most professionals base their decision on two factors: dew point and cost of the dryer. These are the two parameters most often presented to the customer, so it makes sense that this is what he or she will focus on. The problem with using dew point, however, is that it's not an intuitive scale and can be rather deceptive to a customer who may not be familiar with this term. (A better understanding of this term can be gained from the technical bulletin titled "Dew Point Versus Actual Moisture Content in Compressed Air".)

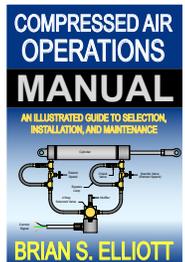
Basing your decision on cost can also be a little deceiving. In actuality, the operating cost of the dryer is, by far, the largest expense to consider when selecting compressed air drying equipment. Spending a little more on the initial equipment can provide substantial utility savings over the long term, which will more than off-set the higher capital costs.

The chart below shows water content (dew point) versus capital, operating and maintenance costs. The black line shows the actual moisture content in reference to dew point. As can be seen at around 50°F dew point, dryers reach a point of diminishing returns. The red line shows relative capital costs associated with achieving various dew points. The green line shows operating costs and the blue line shows maintenance costs. The chart clearly shows that capital, operating and maintenance costs associated with achieving dew points below 50°F rise dramatically as the temperature lowers. Also noted are the maintenance increases associated with dew points above 50°F (in the 60° to 150°F range). These maintenance costs are primarily generated by the damage excess water can do the pneumatic equipment on the plant floor.

It's important to understand that 95% of all compressed air applications are considered general purpose in nature and that a 50°F dew point is perfectly adequate for these applications. When considering your dew point requirement, remember, lower dew point is not necessary better.



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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