

Reduce Pressure Drop and Reduce Your Cost Of Operation

What is pressure drop?

Pressure drop results from air line system components restricting the flow of compressed air. Filters are the cause of the largest pressure drop, because their function is to trap contaminant and screen it out of the system, thereby causing a restriction in flow. Some key terms to know are as follows:

Initial pressure drop - measured when element is clean and dry, usually only 1 psi or less.

Wetted pressure drop - when the element is saturated with oil (but no dirt), typically 3 - 4 psi.

Change out pressure drop - the point at which the element is routinely changed, typically 7 - 10 psi.

Average pressure drop - determined over the life of the element. This number should be used for the cost analysis.

The cost of pressure drop can best be measured by adding ½% to the compressor operating cost for each psi of pressure drop. Since a 75 HP compressor running 8,000 hours at \$0.07/kWh, would cost approximately \$38,000 per year to operate, every pound of lost pressure results in an additional \$190 per year.

Typically refrigerated dryers with proper filtration (prefilter-coalescer-charcoal) will operate with an average pressure drop of 14 - 23 psid. Using 20 psid, this can add up to \$3,800 per year to the operating cost of the system.

Why use Pyramid 2000®

Through the use of Deltech's unique 810 Series Filter, installed as an integral part of the Pyramid 2000® package, average pressure drop is reduced to 4 - 7 psid. Using 6 psid this results in an additional cost of only \$1140 or a possible cost savings of \$2,660 using the 20 psid cost. This is accomplished because of the unique flow pattern through the 810 filter, outside to inside, with the element located in the center of the centrifugal separator. The centrifuge removes 99% of the contaminant, leaving only super fine oil mist for the element to handle. Not only is pressure drop greatly reduced, but element life is extended.

Other considerations include the overall compressed air system efficiency. With a Pyramid 2000 system, the supply pressure will often be higher than it would be with competitive equipment. And, since the 810 filter is actually used in place of the separator normally installed in a refrigerated dryer, the filtration is done at the coldest point in the entire compressed air system. The colder the air when it is being filtered, the more efficiently the filter works. This means higher quality air at the discharge of the unit.

When all things are considered and cost are properly evaluated, the best choice is Pyramid 2000 Evolution².

