



August 2015

PRO TIP: Leak Index Feature in Windrock MD

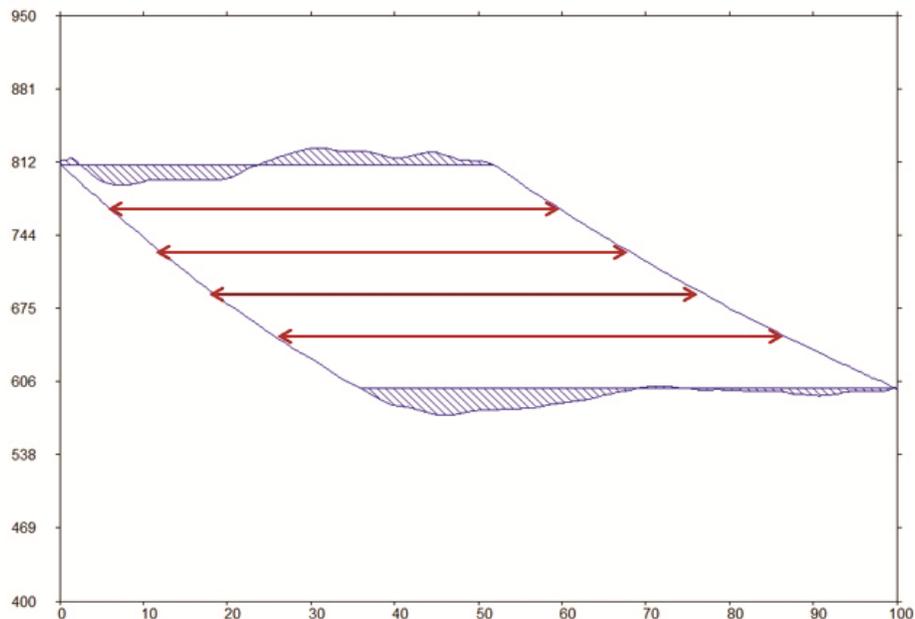
Have you ever noticed the “Leak Index” feature in Windrock MD software when pressing the “Calculate data” button?



The Leak Index is a proprietary feature of Windrock software that provides the user with an automated diagnosis of leakage within a compressor cylinder. The Leak Index is able to identify valve leakage, both suction and discharge, as well as packing and ring leakage. It is even able to identify multiple leak paths within a cylinder. In addition to finding the fault, Leak Index assigns a severity level to the problem and gives a visual reference of the leak path.

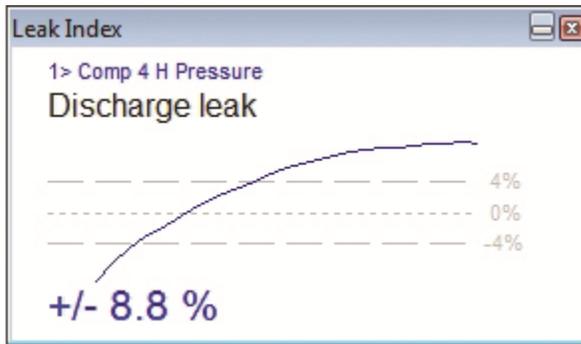
Interpreting the information that is given from the Leak Index is easy. First, remember that the mass quantity of gas is the amount of gas in the cylinder at any given time. During compression or expansion, the volume will change; however, the mass quantity of gas should remain constant.

Using Leak Index, we compare the gas mass quantity in the cylinder at multiple pressure points during compression and expansion. If there is no recirculation, the mass quantity will be the same. However, if there is a discharge leak, the mass quantity will increase as the gas is compressed. If there is a suction or packing leak, the mass quantity will decrease. By comparing the mass quantity at multiple pressure points along the PV curve, we can plot out and create a Leak Index percentage change.

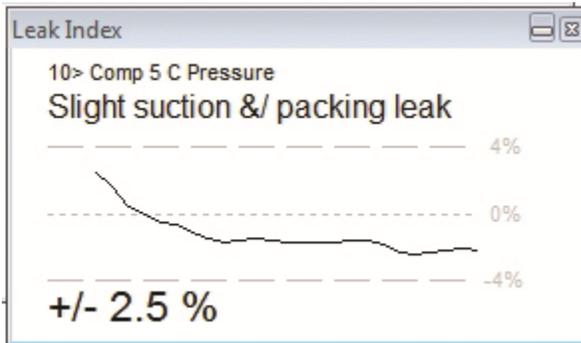




Here are some real-life examples:



In this discharge leak, notice the line is sloping upward, indicating the mass quantity of gas increasing during compression. In an ideal cylinder with no leaks, the mass would be constant throughout the cycle. But here, the mass quantity changes by 8.8% in each direction (17.6% total).



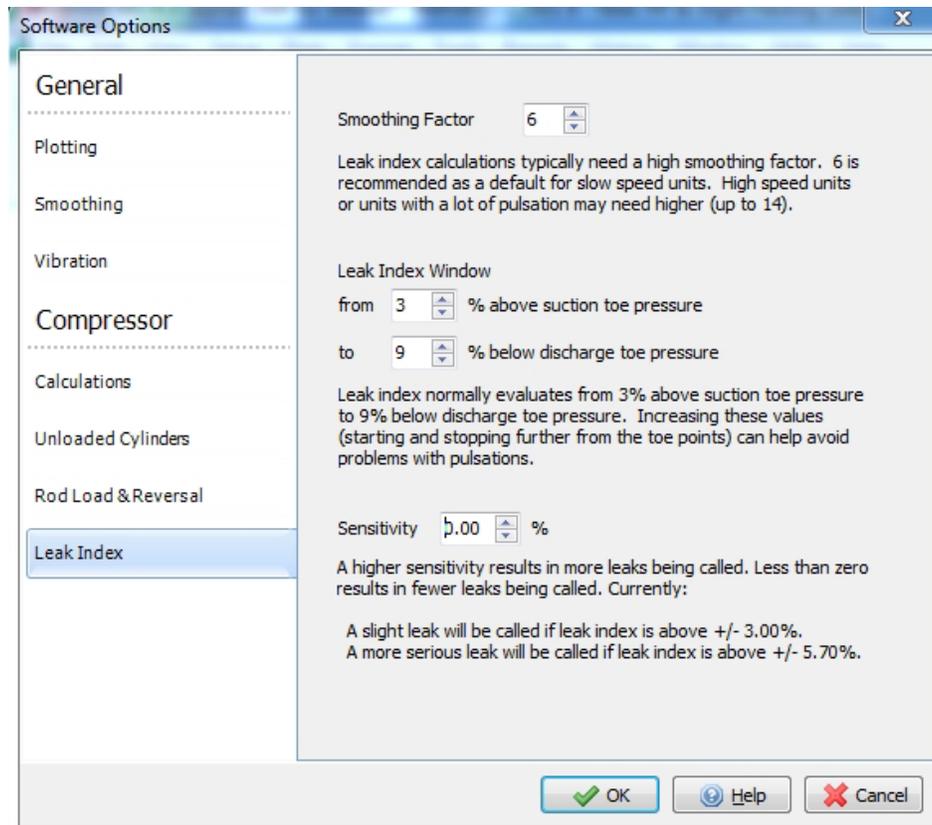
In this example of a slight suction and/or packing leak, notice the slope of this line is going down, indicating the mass quantity of gas is decreasing during compression. Since there is only a $\pm 2.5\%$ change, this is not as critical as if it were a higher percentage leak.



The final example has a line that is rounded, which is an indication of a ring leak. The mass quantity of gas is first increasing, but as the differential pressure changes between head-end and crank-end, the Leak Index curve begins to go down.



Keep in mind that a slight leak will be called if the Leak Index is above +/- 3.00%. A more serious leak will be called if the Leak Index is above +/- 5.70%. The sensitivity of this scale can be increased or decreased. To do this, go to Setup > Software Options > Leak Index.



The Leak Index is a proven feature that helps make Windrock MD software the most advanced reciprocating analysis software available. It is available for our portable analyzers, as well as our online systems. Our Technical Services Team always utilizes Leak Index when analyzing equipment.

If you have more questions about the Leak Index feature or would like information about another topic, please email sales@windrock.com.