



# **Detection of Concealed Damages in Early Stages on Reciprocating Machinery**

by:

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**4<sup>th</sup> Conference of the EFRC  
June 9<sup>th</sup> / 10<sup>th</sup>, 2005, Antwerp**

## **Abstract:**

A key factor to reliable and safe machine operation is the detection of concealed damages providing an early detection of component failures. Results and efficiency of maintenance strategies such as preventive and predictive maintenance can be significantly improved by the early failure detection capabilities of monitoring equipment. This paper deals with two detected incidents occurred on different types of machines - an integral and a horizontal reciprocating compressor. In both cases the continuous online monitoring provided root cause information and pinpointed the damage; one on the bolted cylinder/crankcase connection and the other at the piston rod/crosshead connection. Both damages were not discovered during first inspections even after opening the machine and only the objective information from the monitoring initiated further inspections which finally revealed the failure. The early detection of the failures prevented catastrophic failures and minimized the damage and shutdown time to repair.