## Sensonics Technical Note – DS1129

### *Reduce down time and operating costs on your reciprocating compressors*

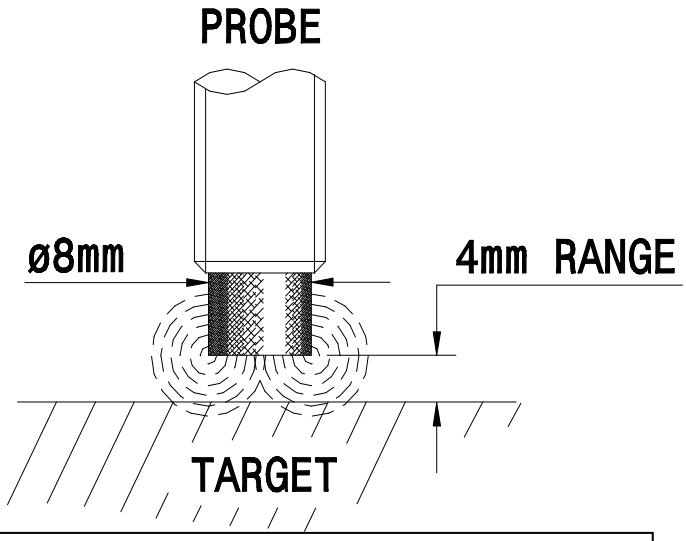
**An ingenious new product is increasing the productivity of numerous industrial plants by providing a reliable and accurate warning of rider band wear on reciprocating compressors thus eliminating the need to shutdown the machine for inspection.**

**Compressors can be retrofitted with the new system with minimal disruption to operations**

The new system consists of a Special type of eddy current probe (non-contacting displacement Sensor) and a real time monitor module that measures the vertical position of the rod and calculates the wear on the rider bands.

This measuring method is a well-proven technique; equipment to do this has been available for many years. The new system is different in that the probe used has a dramatically increased measurement range, which allows a different monitoring philosophy to be utilised.

Traditionally rod drop monitoring systems have been confined to using standard eddy current probes with a measuring range of just 2.5mm, that is often not sufficient to cover the full range of the lateral (or radial ) movement of the connecting rod on most types of machine.




**The new probe gives a longer ( 4 mm ) measuring range than traditional probes without an increase in tip diameter ( 8 mm ).**

This has meant that monitoring system designers have had to utilise a 'Snap shot' measuring technique where the vertical position of the rod is measured instantaneously at the same point on each cycle of the machine.
This measurement is usually triggered by a pulse from a second eddy current probe looking at a single 'phase reference' slot on the crankshaft.

This measuring method relies on the assumption that the rods position is identical from one stroke to the next except for the gradual change in position caused by rider band wear.

Research has shown that this is often not the case and in fact each rod stroke cannot always be guaranteed to be repeatable, which is often a cause of inaccuracy in the calculated rod drop reading.

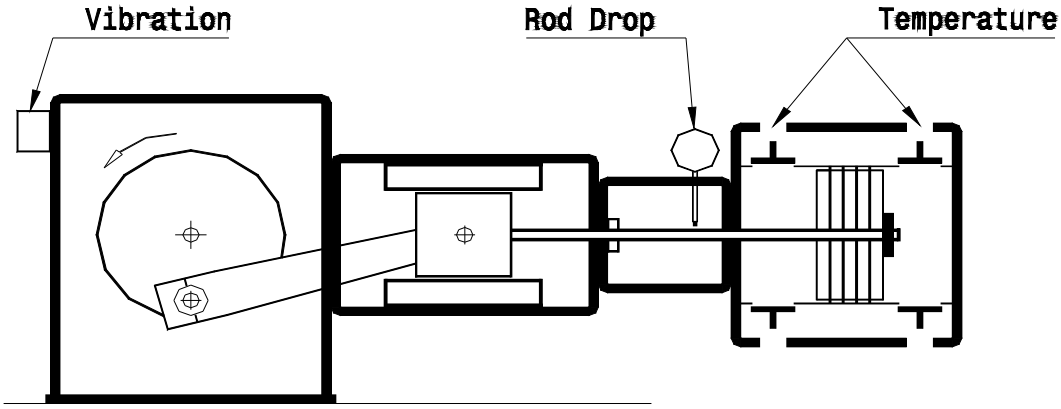
Because the new system from Sensonics uses a 4mm range probe (with a standard ∅8mm probe tip), it is able to measure the position of the rod throughout its 360$^{o}$ stroke (even where the rod is coated with ceramic). This in turn enables the monitor to calculate the true mean position of the rod more accurately and give a truly reliable measurement of the rider band wear.

After lengthy trials at Peter Brotherhoods factory, the system was first installed at a chemical plant in Scotland, alongside numerous 'traditional' rod drop monitoring systems. Twelve months later the operating staff reported that the new system was 100% reliable and a vast improvement on previously installed equipment. They replaced the remainder of the old equipment with the new Sensonics System.

The system is not just for monitoring rod drop, but casing vibration and valve temperature can also be incorporated for early warning of other types of mechanical fault.

Fitted through the distance box of the compressor, the small size of the probe means that the Sentry System can be economically retrofitted to installed machines of any make in the field with minimal modification.

The whole system can be installed and commissioned from scratch in less time than it takes to strip the machine to take a traditional rider band wear measurement.




**In addition to rod drop, the system can also incorporate frame vibration and valve temperature to provide complete condition monitoring of compressors.**

For further information and a quotation for supply and installation please contact Sensonics Sales Office on Tel: - +44 (0) 1442 876833, Fax - +44 (0) 1442 876477 or e-mail: - sales@sensonics.co.uk