Do You Know Your Ex "Zones" From Your "Classes" And "Divisions"?

Worldwide, Dangerous Substances and Explosive Atmospheres Regulations require employers to control the risks to safety from fire and explosions. This entails compliance with international standards, which in turn requires that any electrical equipment used in a hazardous area must be certified intrinsically safe. The likely existence of an explosive atmosphere is dealt with in the various standards by the definition of "Zones". Importantly, it is the responsibility of the plant operator to decide which parts of their plant are in which Zones.

For the IECEx (Worldwide) & ATEX (European) standards the following Zones are defined:

Zone 0 - an area in which an explosive atmosphere is present constantly or for long periods or frequently.

Zone 1 - an area in which an explosive atmosphere is likely to occur in normal operation occasionally.

Zone 2 - an area in which an explosive atmosphere is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

However, in North America, a system of "Classes" and "Divisions" is used:

Class 1: Relates to gases and vapours.

Division 1: The hazard can exist under normal conditions, or could be caused by maintenance work, leakage, or breakdown.

Division 2: Gases or vapours are confined and only escape due to accidental rupture or breakdown.

This can lead to confusion when an instrument is likely to be used in different world regions. The simplest solution is to go for a Zone 0/Class 1, Div 1 dual certified instrument, which then covers all eventualities worldwide.

Typically, Zone 0 intrinsically safe instruments are expensive. However, Test Products International (TPI) believes it has achieved a significant cost breakthrough with its very affordable TPI 9085Ex vibration analyser.

Combining on-meter diagnostics with the all-important ability to TREND readings over time to simplify condition-based maintenance (CBM), the "go anywhere" TPI 9085Ex is certified for IECEx/ATEX Zone 0 with North American Class 1, Div 1 approval. This means the 9085Ex is certified intrinsically safe for ANY atmosphere WORLDWIDE.

The 9085Ex detects unbalance, misalignment and looseness. It also measures "bearing noise" and displays it in bearing damage units (BDU), which is roughly equivalent to "percentage bearing wear". In addition, the 9085Ex uniquely incorporates a directly contacting temperature sensor within its vibration probe. This gives a highly accurate, virtually instantaneous, surface temperature reading for the bearing, simultaneously as the vibration reading is taken. With a high BDU reading and high temperature, you know that what you are seeing really is a worn bearing and not some other source of vibration such as pump cavitation.

The compact handheld TPI 9085Ex is extremely affordable and simple to use. It can, and indeed should, be included in every maintenance tool kit. Using the FREE TPI Bridge App, "routes" and readings can be transferred to and from the 9085Ex anywhere in the world using mobile devices (e.g. smart phone or tablet PC) and then via Bluetooth to and from the 9085Ex.

"Routes" are simply lists of machines showing exactly what readings need to be taken and where to take them. The readings are then automatically time and date stamped by the 9085Ex and saved in the route for automatic transfer to computer-based trending software.

"Trending" is the mainstay of condition-based maintenance. By looking at the trend of bearing noise and temperature readings, you can determine well in advance when a bearing will likely need replacing. The TPI 9085Ex comes with powerful, yet simple to use, subscription free trending software, which includes automatic email notification of alarms and report generation, giving you everything you need for a full CBM strategy.

For more information please contact TPI Europe's head office on +44 1293 530196 or take a look on the website at www.tpieurope.com or email sales@tpieurope.com