Renold has once again raised the bar of technological achievement with the development of a new generation of wear monitoring devices.

The Renold Chain Monitor is designed for use on any number of chain driven systems including escalators in Metro or retail environments and conveyor machinery.

By using this technology, maintenance schedules can now be carried out based on need and not simply routine inspections that may or may not be required.

The Renold Chain Monitor includes sensors which, when placed at strategic points and on the chain itself, can relay information about the running of a chain drive to a central point. On-site maintenance engineers can have accurate data illustrating the wear levels and extension of a chain, making it possible to estimate its remaining working life.

In the past, the chain has often been neglected until it was too late and replacement was the only viable option. Now, Renold has produced a solution to the prediction of chain wear rates and working life.

This development is an extension of the technology used in Renold Smartlink, which was designed and developed for data logging and the detection of stresses and strains within chain drives systems such as leisure rides and other large conveying systems and has been used successfully all over the world.

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METHOD OF OPERATION

Two probes are positioned near to the chain at a predetermined distance from each other (probe spacing).

Two markers are attached to the chain at a predetermined distance from each other and at a distance greater than the probe spacing, e.g. 1.1 times the probe spacing.

The markers must be placed so that they pass the probes.

The Chain Monitor detects the moment that marker 1 passes probe 1, and then awaits marker 1 to pass probe 2. Since the distance between the probes is known the velocity of the markers can be calculated. The time at which marker 2 passes probe 1 is then determined and by knowing the velocity, the current length of the chain can be calculated.

The Chain Monitor can then display this calculation as a length, a stretch (since the nominal length has been set as a configured parameter) or as a percentage stretch. The velocity of the chain can also be displayed.

This same procedure could be used to assess a second chain running in tandem with chain 1, and the results of either set of calculations can be displayed by changing the operating mode. Alarm indicators applicable to either chain can be set up. This analysis means that any extension in the chain’s length will be identified by the increasing time taken for Marker 2 to pass Probe 1.

This information gives maintenance engineers an opportunity to predict when the recommended maximum chain extension will be achieved, and therefore when replacement will be required. The necessary repair work can then be scheduled exactly when required.

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