

Think like a number cruncher!



Justifying any kind of capital investment to your Chief Accountant or Finance Director is difficult enough. If the items in question are condition monitoring equipment, which may cost thousands of pounds, but don't actually produce anything tangible and saleable, the task is even more daunting.

As an engineer, the head of the Maintenance Department will understand perfectly the practical engineering benefits of condition monitoring, i.e. the prevention of bearing-related problems and the resulting breakdowns, delays and unplanned downtime. But senior management, or at least the ones who hold the company purse strings, often do not appreciate the impact and contribution of the Maintenance Department to the business as a whole; they may still see it as a necessary evil, an unavoidable cost. Citing 'prevention of bearing and vibration-related problems' as a justification for buying 'expensive' pieces of kit, will cut no ice with them.

To make your case successfully, you have to learn to think like them - consider and calculate the financial implications and how they will ultimately affect the business's bottom line, then present the figures in a form they will understand i.e. a spreadsheet.

The units of measurement used should include:

- a). Downtime hours.
- b). Costs of Increased spares usage
- c). Quality problems
- d). Speed losses
- e). Increased labour costs
- f). Environmental/social issues/costs
- g). Power Consumption

There are two main areas for consideration:

- a). Alignment
- b). Condition Monitoring

Laser/Belt Alignment - poor alignment means an increase in power consumption, as well as wear on bearings, couplings, shaft seals etc.

Recent practical tests on a plant with a secondary plant size of approx.2500 kW,

demonstrated that reduction in power consumption of 1.64%, due to correctly aligning their machines, could give savings of around £14 000 per annum on power alone. This calculation is based on the total secondary power consumption on the plant. Costs are estimated @ £0.04 per kW, which is fairly typical for British Industry.

Monitoring and correcting alignment-related problems could achieve consumption reductions of this order, and more. With a typical investment of approximately £3000, the payback period is less than three months. Not only does reduced energy consumption mean direct cost savings, it will also contribute to lower payments under the Climate Change Levy, which has hit many manufacturing industries hard in the last 18 months.

Condition Monitoring - Take an example from the maintenance history of a south of England manufacturing plant. Here, there are 15 fans, each expected to fail once over the next three years as they approach the end of their predicted life cycle. The impact on this business could be a cost of £166 000 per annum, created by not carrying out condition monitoring.

Unexpected breakdowns always take three times as long to put right as planned repairs, due to not having the right spares, equipment and people at hand and they always seem to occur at the most inconvenient time of the night or weekend! With many plants now being run 24/7, the impact of such unplanned downtime in terms of the cost of lost production is considerable.

To make the case for investing in condition monitoring equipment, the impact of catastrophic failure is compared to the costs when the repairs are carried out after being diagnosed by condition monitoring. Balancing the financial impact of unplanned downtime against the cost of investment in condition monitoring, demonstrates the very short payback period.

Expressing your arguments in these terms should convince your Finance Director that, far from being an expensive burden on the company, the Maintenance Department is capable of making a serious contribution to its profitability. **IME**

You may know exactly the good engineering reasons why your company should be investing in condition monitoring equipment, but to make your case, you must learn to think in financial terms, Stan Jackson explains to IME.*

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