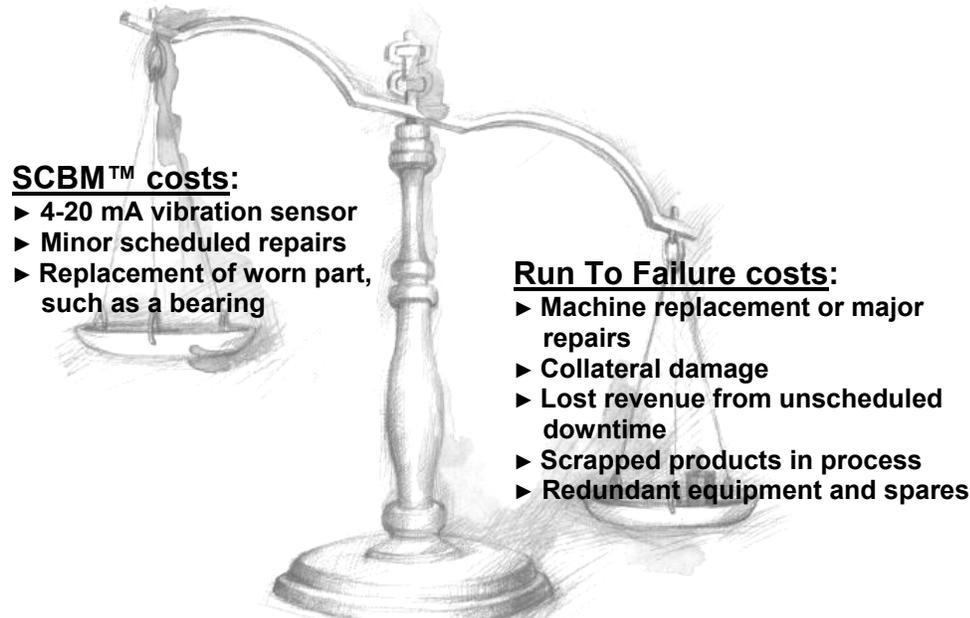


## Which side are you on?

A Run To Failure (RTF) approach to maintenance consumes your budget with hidden costs that eat away profits



### **SCBM™ costs:**

- ▶ 4-20 mA vibration sensor
- ▶ Minor scheduled repairs
- ▶ Replacement of worn part, such as a bearing

### **Run To Failure costs:**

- ▶ Machine replacement or major repairs
- ▶ Collateral damage
- ▶ Lost revenue from unscheduled downtime
- ▶ Scrapped products in process
- ▶ Redundant equipment and spares

### **Perform maintenance, not costly repairs**

- ▶ Condition based maintenance corrects developing faults such as looseness and worn bearings before a catastrophic failure
- ▶ Maintenance performed during scheduled downtime does not effect production
- ▶ Condition based maintenance reduces the need for redundant equipment

### **Simplified Condition Based Maintenance (SCBM™)**

Vibration monitoring can provide the first warning sign that a machine is developing faults and may fail. Using 4-20 mA vibration sensors simplifies CBM by connecting directly with your facility's existing plant control system, such as a PLC, DCS, or SCADA system. Best of all, you don't have to be a vibration expert to get actionable data!

### **Depending on your SCBM™ needs, Wilcoxon offers the following product options**

#1: 4-20 mA vibration sensor → relay alarm

#2: 4-20 mA vibration sensor → PLC/DCS/SCADA\*

#3: Accelerometer → vibration transmitter → PLC/DCS/SCADA\*

#4: Accelerometer → vibration transmitter → relay alarm → PLC/DCS/SCADA\*

\*Wilcoxon provides all of these products except the PLC/DCS/SCADA

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### RTF example: pump misalignment

If the boiler feed pump had been monitored with four vibration sensors, the misalignment could have been detected and realigned during scheduled downtime. However, the plant did not perform condition based maintenance. Instead, the pump failed without warning for the second time in eight years. The effect of the undetected misalignment was to overload the bearings, resulting in premature failure and collateral damage to the pump and motor. The pump was not spared, therefore the boiler was inoperable until the pump could be repaired and new bearings installed. Due to inventory reduction, no replacement bearings were on-hand. Instead a frantic scramble began to locate a supplier who had the hard-to-find replacement bearings in stock and overnight them at a substantial cost on top of the cost of the bearings. Replacement bearings arrived the next morning, at which time the pump was repaired, realigned, and put back in service. The boiler, which usually operated 24/7 was down for 32 hours, from 10am until 6pm the next day, resulting in lost production and revenues of \$6,000 per hour. At the time the pump failed, \$18,000 worth of products in process were ruined and had to be scrapped.

### SCBM™ cost = Expense of monitoring + Expense of repairs

\$1300 for four 4-20 mA vibration sensors and cables

\$280 for laser alignment utilizing 4 hours of labor

**\$1,580 = Total SCBM™ cost**

### RTF cost = Expense of a failure x Probability of a failure

\$0 for a replacement pump, which was not necessary because the failure could be repaired

\$2,000 for bearings and labor to repair the pump (collateral damage)

\$10,000 for spared motor swap out and repair to original motor (collateral damage)

\$280 for laser alignment which still had to be performed after the pump bearings were repaired

\$1,000 for expediting fees and air shipment to get the replacement bearings the next day

\$192,000 for lost revenue from 32 hours of unscheduled production downtime

\$18,000 to scrap products in process

\$223,280, *Total cost of failure*

X 0.25, *probability of failure (once every 4 years)*

**\$55,820 = Total RTF cost**

### How much does RTF cost you? Fill out all that apply:

#### RTF costs

\$ \_\_\_\_\_ machine replacement

\$ \_\_\_\_\_ collateral damage

\$ \_\_\_\_\_ machine repair labor

\$ \_\_\_\_\_ replacement parts

\$ \_\_\_\_\_ expediting fees on parts delivery or rush services

\$ \_\_\_\_\_ lost revenue from production downtime

\$ \_\_\_\_\_ scraped products in process

\$ \_\_\_\_\_ spared or redundant equipment

\_\_\_\_\_  
\$ \_\_\_\_\_ RTF subtotal

X \_\_\_\_\_ probability of failure (a number between 0 and 1.0)

\_\_\_\_\_  
\$ \_\_\_\_\_ Total RTF cost

### Ready to switch sides?

Call 1-800-WILCOXON, email [wilcoxon@meggitt.com](mailto:wilcoxon@meggitt.com) or go to [www.wilcoxon.com](http://www.wilcoxon.com) for more information.

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