



# Significant Savings Through Energy Centered Preventative Maintenance In Pharmaceutical Manufacturing. From Canada to India

A pharmaceutical manufacturer with Global operations turned to Nanoprecise to prevent costly shutdowns and realize significant energy savings.

A Nanoprecise solutions pilot project was launched with 141 sensors monitoring over 50 pieces of equipment across 3 international facilities.

Significant ROI has already been realized **preventing an estimated 136 hours of unplanned downtime** and identifying **\$42,800 in excess energy usage.**





## CASE STUDY

### THE CHALLENGE

The company has a large number of facilities, serving different functions across three continents. Pharmaceutical manufacturing requires strict tolerances to ensure product quality and compliance with regulatory standards, necessitating precise monitoring of various performance metrics. Critical equipment needed to maintain strict environmental conditions, are often remote or difficult to access.

Highly specific manufacturing equipment often require specialized expertise to correctly maintain, mitigating the risk of expensive downtime.

In addition, faults that often go undetected for years can have a massive negative effect on energy consumption.

### THE SOLUTION

In a pilot project, 6-in-1 wireless sensors were installed on critical assets in three facilities. Energy Centered Predictive Maintenance monitoring of the facilities was centralized, providing maintenance teams with a universal view of their assets. Teams now had a better understanding of their maintenance needs and insight into energy inefficiencies that would have otherwise gone unnoticed.

### EFFECTED APPLICATIONS

Cooling Tower Fan and Pump  
Refrigeration System  
Pump Motor  
Molten Salt Pump  
TFA Scrubber Motor  
Hot Water Pump  
Vacuum Pump

### OUTCOME



**EARLY FAULT DETECTION**



**OVER 136 HOURS OF DOWNTIME SAVED**



**\$42K IN EXCESS ENERGY USAGE IDENTIFIED**



 **CASE STUDY**

# PROJECT 1 – CANADA

## OBSERVATION & ANALYSIS

Nanoprecise alerted the facility of a Stage 3 fault for unbalance on the Motor Drive End of Pump P-5A. Recommendation was to check the base for looseness allowing for excessive movement. Maintenance was completed on December 1. During the investigation an isolator bolt was found to be loose, and was tightened. Motor bearings were greased, and pump oil was topped off. We observed a step change and reduction in vibration to acceptable levels.



**OVER 8 HOURS OF DOWNTIME SAVED**



**\$6,900 IN EXCESS ENERGY USAGE IDENTIFIED**

## OVERVIEW

76 Sensors Installed,  
September 16, 2023

52 Late Stage Notifications sent

5 Custom Reports from  
Nanoprecise

4 Confirmed with Feedback from  
the customer  
(1 under investigation)

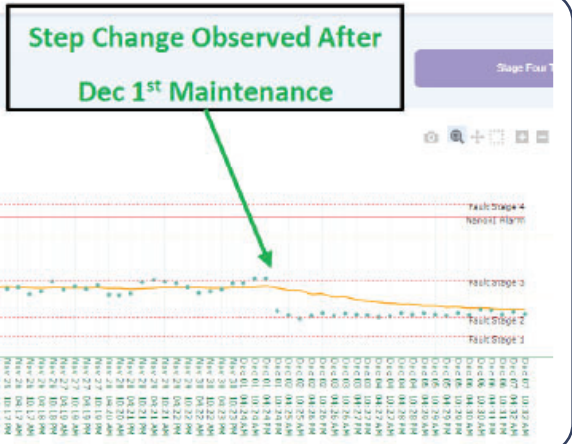
## PUMP P-5A MOTOR DE

## FAULT DETECTION

- STAGE 3
- UNBALANCE
- NEEDS ATTENTION

PUMP P-5A			
Plant	Aurora	Date of Fault	2023/10/09
Equipment	Pump P-5A	Fault Severity	Stage 3
Component	Motor DE	Fault Mode	Unbalance
RPM Range	1770rpm	Priority	Needs Attention
Bearing Series	6215/6211		

UNBALANCE







 **CASE STUDY**

# PROJECT 2 – INDIA

## COOLING TOWER FAN – MOTOR DE OBSERVATION & ANALYSIS

After a restart in August 2023, Nanoprecise alerted the facility of an unbalance fault on the Motor Drive End of the Cooling Tower Fan (RPM 1455). The company confirmed maintenance was completed and a step decrease in overall levels was observed.

**OVERVIEW**  
7 Machines / 22 Sensors  
Installed February 16, 2023

69 Late Stage Notifications sent

4 Custom Reports from Nanoprecise

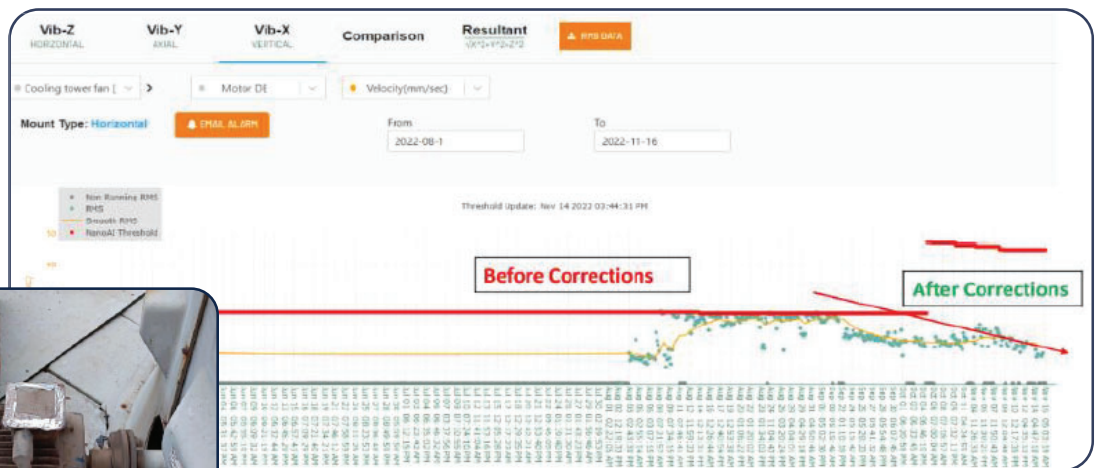
3 Confirmed with Feedback from the customer

 **OVER 24 HOURS OF DOWNTIME SAVED**

 **\$11,000 IN SAVINGS**

## FAULT DETECTION

- **STAGE 4**
- **IMMEDIATE ATTENTION**



**BOOK A DEMO**

**nanoprecise.io**



**CASE STUDY**

# PROJECT 3 – INDIA

## COOLING TOWER -1 PUMP – MOTOR DE OBSERVATION & ANALYSIS

Nanoprecise alerted the facility of an advanced bearing looseness fault on Cooling Tower Pump Motor DE. Teams were able to perform maintenance and confirmed the findings to Nanoprecise during our recurring Customer Connect Day.

**OVERVIEW**  
 40 Machines / 43 Sensors  
 Installed October 13, 2023

47 Late Stage Notifications sent

6 Custom Reports from Nanoprecise

4 Confirmed with Feedback from the customer



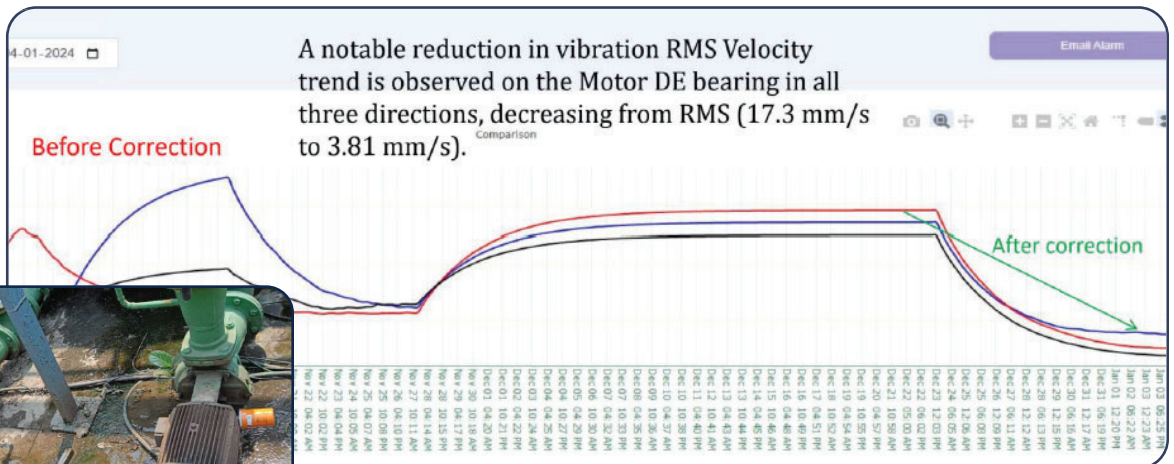
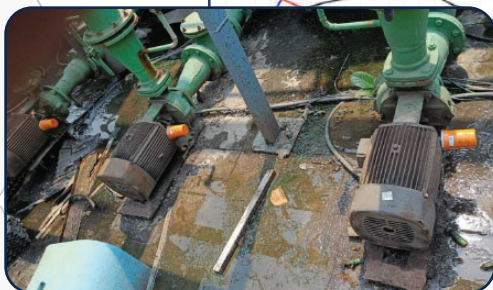
**OVER 24 HOURS OF DOWNTIME SAVED**



**\$2,200 IN ENERGY SAVINGS**

## FAULT DETECTION

- STAGE 4
- IMMEDIATE ATTENTION



**BOOK A DEMO**

**nanoprecise.io**



 **CASE STUDY**

## OTHER SIGNIFICANT DETECTIONS

These facilities experienced additional machine faults and excessive energy use that were identified and corrected by facility maintenance teams.

### PROJECT 2

CHILLED BRINE REFRIGERATION SYSTEM K-2010 C  
MOLTEN SALT PUMP – MOTOR DE

### PROJECT 3

TFA SCRUBBER MOTOR – MOTOR DE  
HOT WATER PUMP-01 (AHU) MOTOR DE  
VACUUM PUMP-01 – MOTOR DE & PUMP DE

### PROJECT 2

Total of 44 hours of prevented downtime

Estimated \$29,100 savings

### PROJECT 3

Total of 84 hours of prevented downtime

Estimated \$7,600 savings

## PROJECT EXPANSION

The success of the initial 3 pilot projects has resulted in the on-boarding of a fourth facility, in the United States, in early 2024.

