

# CANNED PUMPS

MACHINE HEALTH SOLUTION FOR CHEMICAL APPLICATIONS



## THE PROBLEM:

Canned Pumps are a necessity in the Chemical & Petrochemical industry as they move flammable, corrosive, and harmful liquids. Since the bearings are enclosed and don't require traditional lubrication, ensuring consistent flow through the pump is crucial to healthy pump operation. Monthly routes traditionally can't capture a complete view of machine health; continuous monitoring becomes even more crucial with Canned Pumps because Mean Time to Failure is around 48 hours once the journal bearings begin to wear.



Figure 1: Canned Pump internal view

### COST IMPACT **WITHOUT** CONTINUOUS MONITORING

(Failure Occurred):

Capital Expenditure (parts):  
**\$90,000**  
on average

**Labor:**  
**\$10,000**  
16-24 Hours Downtime



### COST IMPACT **WITH** CONTINUOUS MONITORING

(Failure Caught Ahead of Time):

Capital Expenditure (parts):  
**\$25,000**  
on average

**Labor:**  
**\$5,000**  
4-6 Hours Downtime

## ASSET BLIND SPOTS:

There are several inherent challenges related to monitoring Canned Pumps.



**Challenge #1: Route-based maintenance on Canned Pumps are time-consuming and therefore expensive; due to the quick progression to failure of Canned Pumps, route-based maintenance is almost completely obsolete**



**Challenge #2: Infrequent equipment breakdown or maintenance allow for minor failures to escalate into catastrophic failures.**



**Challenge #3: Throughput demand causes difficulty in physical failure assessment as downtime is so costly.**

# A NEW APPROACH TO CANNED PUMP FAILURE PREVENTION

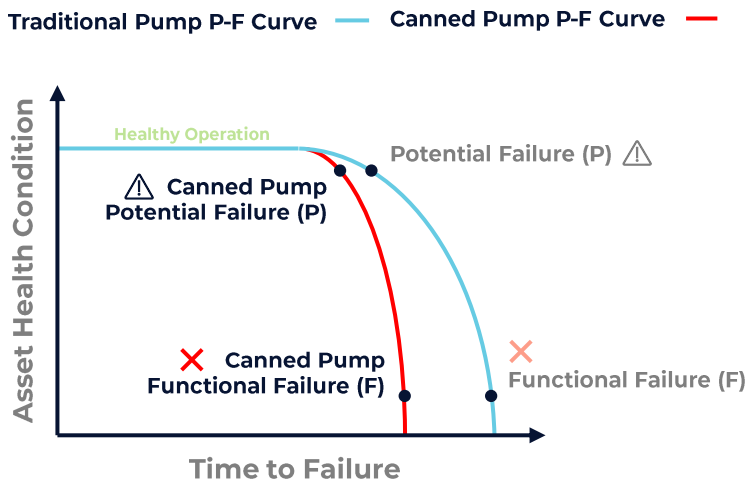


Figure 2: Traditional Pump vs. Canned Pump P-F Curve

Traditional pumps follow a P-F curve highlighted by the blue trend in Figure 2. Once they reach a point of Potential Failure (P), or when one notices an issue, they have an allotted amount of time to address the issue before Functional Failure (F), or when the pump can no longer operate.

Canned Pumps have a shorter amount of time from Potential Failure to Functional Failure, so catching and diagnosing faults efficiently is crucial. By applying continuous monitoring, catching Potential Failures well in advance of the dreaded Functional (or catastrophic) Failures becomes standard practice.



## HARDWARE

- It is recommended to have 2 sensors covering these Canned Pumps:
  - Pump Inboard
  - Pump Outboard
- It is acceptable to have 1 sensor covering:
  - Pump



## SOFTWARE

- Custom Threshold Settings
- Velocity, Acceleration, and Temperature
- Sensor Configurations
- Individualized Dashboards
- Realtime Technical Reporting



## REAL-TIME DATA

- A comprehensive machine health package includes:
  - Vibration sensors (outlined above)
  - Flow
  - Inlet & Outlet Pressure
  - Motor Current
- Any other relevant plant process data that is telling of pump performance/discrepancies



## TRAINING

- Sentry
  - Site visit for site assessment and installation
  - In-person training
- KCF Academy
- Customer training/handbooks
- Asset playbook

**CONTACT US!**

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