

# Condence monitoring concept: Pump package

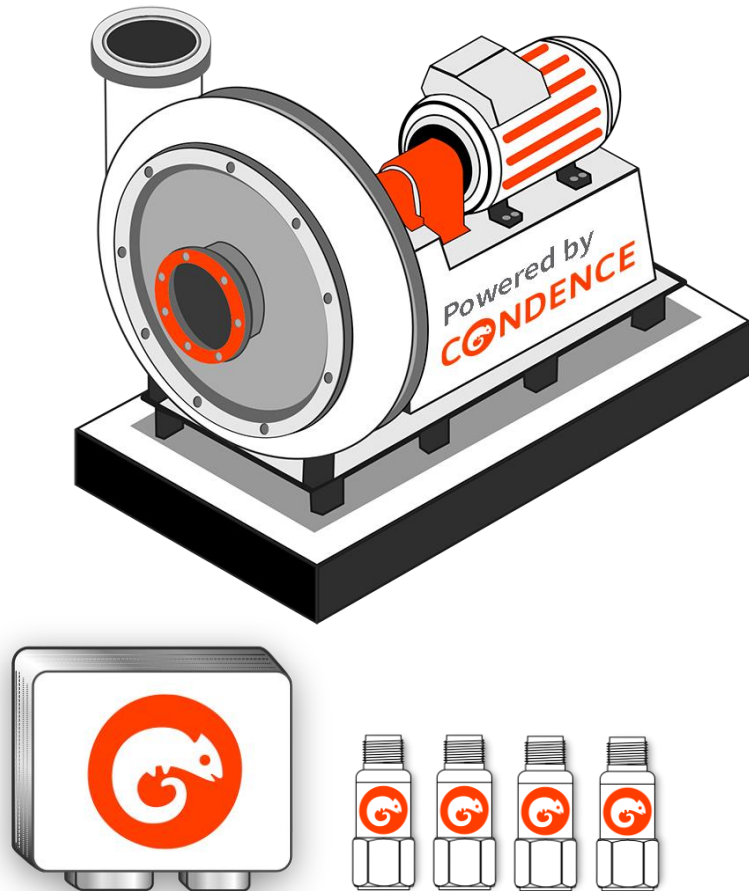


**CONDENCE**



# Condence monitoring concept: Pump package

## Holistic view of Pump monitoring metrics



### Examples of monitored metrics in a pump

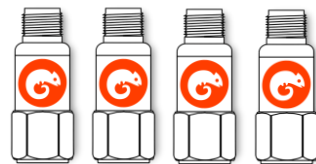
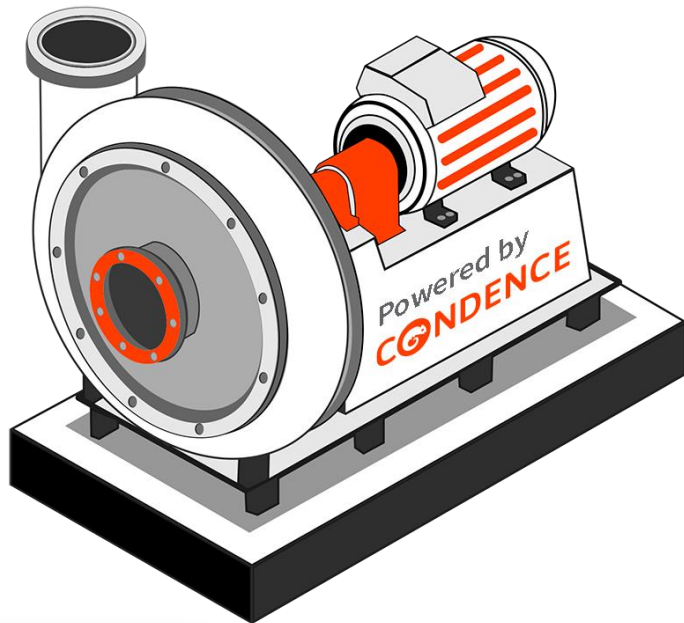
- Vibration
- RPM
- Temperature(s)
- Pressure / flow
- Peak current
- Activity reporting (running times & periods)

### What can we detect by monitoring these metrics?

- Bearing failures
- Mechanical
  - Imbalance, Misalignment and looseness
- Impeller pass frequencies
  - Debris build up / gradual fouling
  - Impeller damage
- Cavitation
- Temperature changes
  - Overheating
- Performance decrease
- Changes in power consumption
- Running times, optimization of asset use

# Condence monitoring concept: Pump package

Richest health metric: Vibration



## Accuracy = time

Uses IEPE sensing technology to capture high frequency vibration  
Wide frequency bandwidth translates into time, **time to react**



## Continuous & online

Based on continuous sampling ( e.g. every 5 min) and edge computing technology  
Maximised **time to react** even with fast evolving failures



## Eliminating surprise / risk

- Unplanned work is more expensive
- Unplanned downtime is expensive



## Enable condition based maintenance

Decisions and maintenance based on actual asset condition

- Know if the impeller gets damaged or the pump is clogging
- Know when you need to add lubricant to bearings
- Remove unnecessary manual work (inspection & repairs)
- Eliminate human error via automatic alarms and data availability

# Monitoring view: Default dashboard structure

## Condence components

### Status Map

Image of what is being monitored, e.g. sensor placement and direction

### Notifications Display

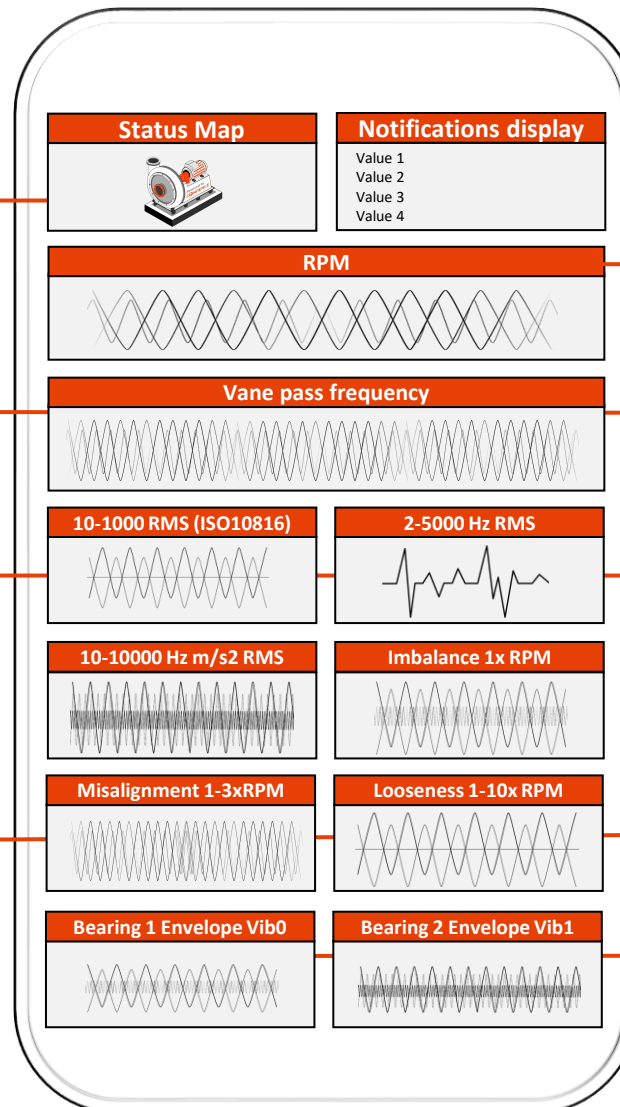
Displays what has happened / triggered thresholds during the selected time period. Easy configuration and adjustment of notifications in the cloud UI

### Trend view widgets

Trend widget displays the calculated / sourced data as a line chart (one or more). Trend widget has plenty of tools available for further analysis and exports.

### Other widgets

There are also other options to visualise sourced data in Condence such as period widget which can be used to monitor running hours of assets.



## Default concept metrics

### RPM

Mandatory and important information in variable speed assets.

### Vane pass frequency

Monitoring the changes in the vibration each time the impeller blade passes.

### General vibration analyses

- Various frequency ranges
- Acceleration and velocity (e.g. ISO10816)

With Condence you can easily build your preferred measurements and analyses in the cloud UI

### Mechanical

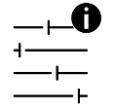
Multiples of RPM to detect mechanical phenomena's like imbalance, misalignment and looseness


### Bearing failures


Early detection of bearing failures via enveloping high frequency vibration. Failure stages 1-4

# Condition based maintenance

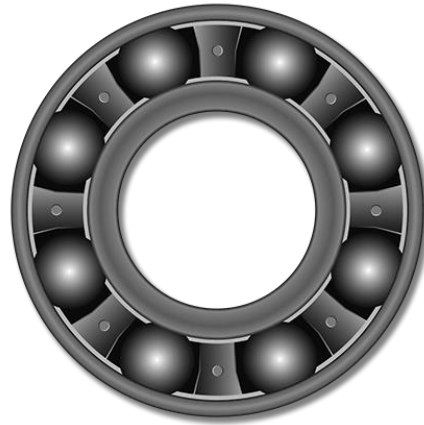
## Create suggestive notifications





1   
Set suggestive severities and thresholds for them

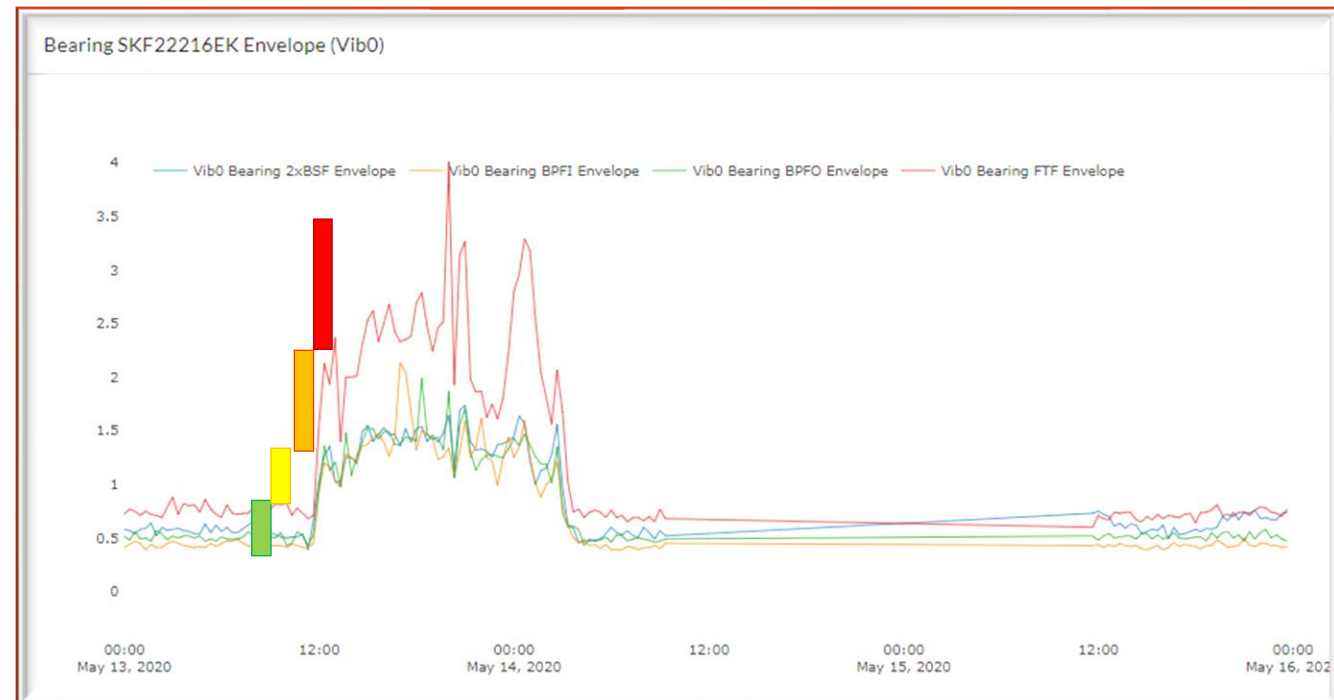
2   
Automatic system notifications to trigger workflows

3   
Notifications based on actual asset condition

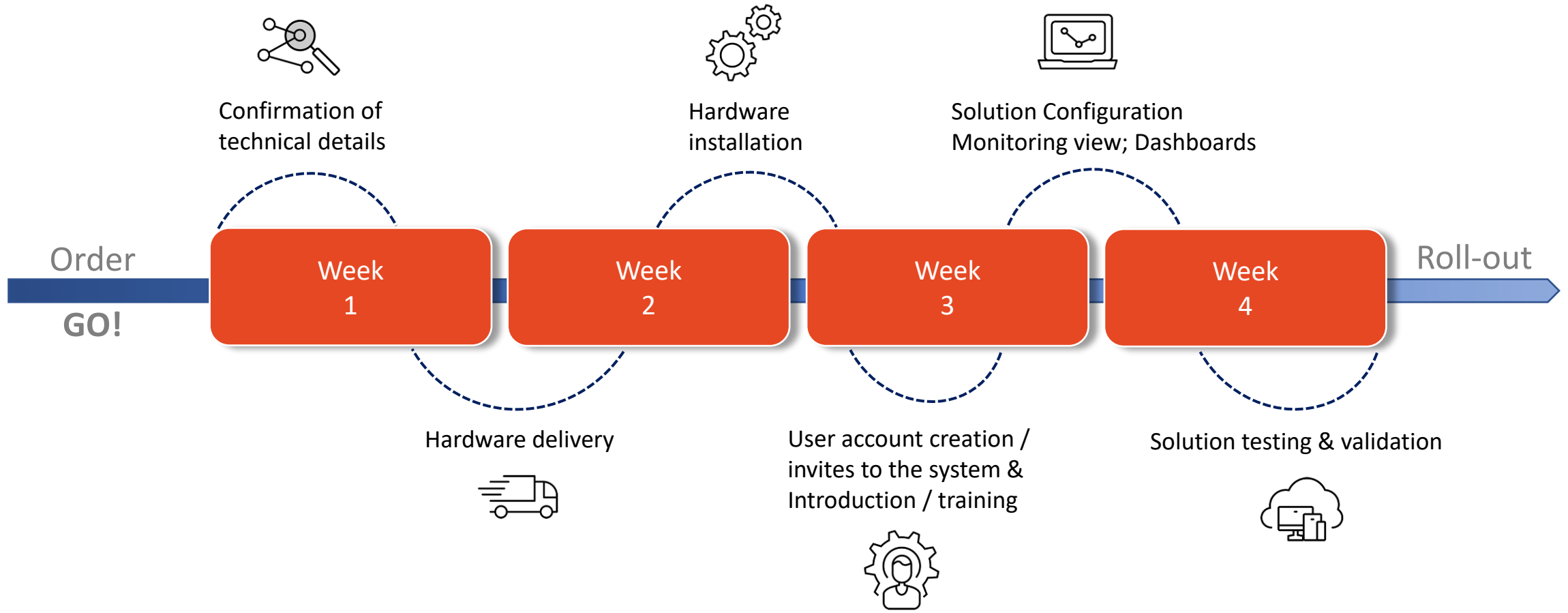
4   
Condition based maintenance (CBM)

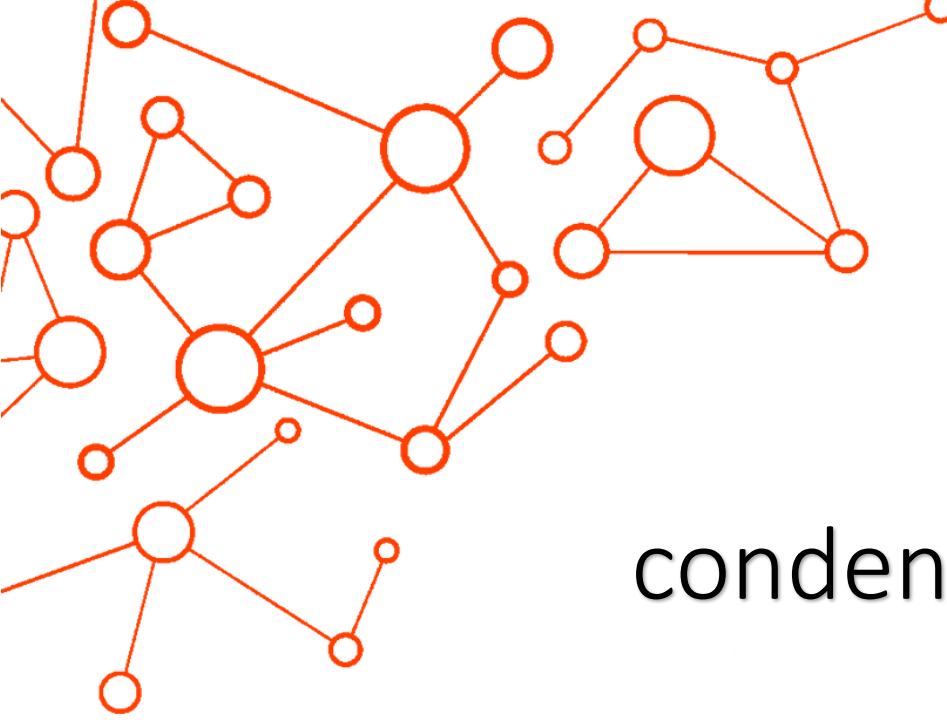


-  Maintenance action needed
-  Plan for bearing check and lubrication
-  Follow elevated vibration levels
-  Normal vibration range



# Delivery timeline





Read more at:  
[condence.io/condence-pump/](https://condence.io/condence-pump/)

**Condence is a product of Distence Oy**  
**Sinikalliontie 18 B, FI-02630 Espoo, Finland**  
**[sales@distence.fi](mailto:sales@distence.fi)**

