

# HOW TO PERFORM A FAILURE MODE AND EFFECTS ANALYSIS (FMEA)?

Understand your failure modes

## PREPARATION STAGE



### Assemble a cross-functional FMEA team

Experts on design, manufacturing, reliability, maintenance, purchasing, sales, marketing, customer service, etc.



### Gather and review relevant information

Include past failures, work order history, drawing photos, manuals, etc.



### Recognise the function(s) and feature(s) of the FMEA scope

A thorough understanding of the fundamentals and procedures of FMEA

## DIAGNOSIS AND ANALYSIS STAGE



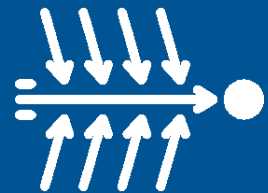
### Identify failure mode(s)

Analyse all the equipment or component(s), in which something might fail sooner or has the potential to fail in the future.



### Identify the Severity rating of different failure modes.

What effect(s) or consequence(s) will the failure mode have on the asset, process or product?



### Diagnose the potential cause(s) of the failure(s)

What are all possible causes for each failure mode? Requires a combination of tools and the FMEA team's knowledge base.



### Determine the Detection rating

When the failure occurs, is it obvious or invisible to the user?



### Identify the current control(s)

What tests, procedures or mechanisms that you now have in place to avoid failure mode(s) or cause(s) occurring?



### Identify the Occurrence rating for each potential cause

Make your best educated assumptions to the likelihood of failure happening because of that cause.



### Calculate FMEA Risk Priority Number (RPN)

Evaluate the risk through the RPN formula. Compare the FMEA RPN of each issue and prioritise problems for corrective actions.

$$\text{RPN} = \text{Severity} \times \text{Occurrence} \times \text{Detection}$$

## ACTION AND MAINTENANCE STAGE



**Perform corrective actions, assign tasks to the right people**



**Re-evaluate RPN rank once risk mitigation actions complete**



**Distribute, review and update the analysis as appropriate**