

# DFMEA Checklist

---

This DFMEA checklist is designed to guide product design and engineering teams through a structured process for identifying and mitigating risks in product development.

The template includes key steps in the DFMEA process, along with checkboxes to ensure all aspects are considered, and risk management is aligned with best practices.

## DFMEA Checklist

### 1. Planning & Preparation:

- ☐ Define the product/system scope (e.g., design boundaries, functions, and expected performance).
- ☐ Assemble the DFMEA team with cross-functional expertise (e.g., design, engineering, quality, etc.).
- ☐ Identify the timing of the DFMEA process in the design stage and related activities.
- ☐ Gather all necessary documents, including system diagrams, CAD files, and specifications.
- ☐ Set objectives for the DFMEA (e.g., risk reduction, compliance, reliability).

### 2. Structure Analysis

- ☐ Break down the system/product into major components/subsystems.
- ☐ Create a clear structure map of the design (e.g., block diagrams, BOM).
- ☐ Identify system interactions and potential failure points between components.

### **3. Function Analysis**

- [ ] Define the intended function of each component/subsystem (e.g., 'maintains seal integrity').
- [ ] List performance requirements (e.g., pressure tolerance, operating temperature range).
- [ ] Ensure all functions are measurable and linked to clear criteria.

### **4. Failure Mode Analysis**

- [ ] Identify potential failure modes for each function (e.g., snap-fit fracture, seal degradation).
- [ ] Consider different failure scenarios (e.g., misuse, environmental factors, material defects).
- [ ] Describe the consequences of each failure mode on system performance.

### **5. Risk Analysis**

- [ ] Assign Severity (S), Occurrence (O), and Detection (D) ratings for each failure mode.
- [ ] Calculate the Risk Priority Number ( $RPN = S \times O \times D$ ) for each failure.
- [ ] Identify failure modes with high RPN and prioritize them for action.

### **6. Optimization**

- [ ] Propose corrective actions for high-priority failure modes (e.g., material change, design modifications).
- [ ] Evaluate the effectiveness of each proposed action in reducing risk.
- [ ] Re-assess Severity, Occurrence, and Detection ratings post-action, updating the RPN.
- [ ] Assign responsibility and timelines for each action.

## **7. Results Documentation & Review**

- [ ] Document all findings and actions taken in a structured DFMEA report.
- [ ] Include clear references to relevant tests, verifications, and design revisions.
- [ ] Ensure the DFMEA is reviewed periodically, especially after significant design changes.
- [ ] Store the DFMEA for future audits and continuous improvement.

This template serves as a practical guide for systematically identifying and addressing design risks in various industries. Adapt it as needed for specific organizational needs and product types. Regular updates and reviews are recommended to ensure ongoing reliability and compliance.