

COMPLETE GUIDE: PREVENTIVE MAINTENANCE

by FreeMaint

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1. WHAT IS PREVENTIVE MAINTENANCE?

Preventive maintenance involves performing planned interventions on equipment **BEFORE** a failure occurs, unlike corrective maintenance which intervenes **AFTER** the breakdown.

Objectives:

- Reduce unexpected breakdowns (up to 70% reduction)
- Extend equipment lifespan
- Optimize maintenance costs
- Improve safety
- Increase machine availability

2. TYPES OF PREVENTIVE MAINTENANCE

A. TIME-BASED MAINTENANCE

Interventions at regular intervals (time or cycles). Example: Oil change every 10,000 km or 1 year

B. CONDITION-BASED MAINTENANCE

Interventions based on the actual condition of the equipment. Example: Replacing a bearing when vibrations exceed a threshold

C. PREDICTIVE MAINTENANCE

Using sensors and data analysis to predict failures. Example: Oil analysis, thermography, vibration analysis

3. BENEFITS OF PREVENTIVE MAINTENANCE

CORRECTIVE MAINTENANCE	PREVENTIVE MAINTENANCE
Emergency interventions	Planned interventions
Unexpected production stops	Scheduled, controlled stops
High costs (parts + emergency)	Optimized costs
Increased safety risks	Improved safety
Short equipment lifespan	Extended lifespan
No visibility	Planning and forecasting

Typical ROI: 3 to 10 times the cost of the preventive maintenance program

4. HOW TO SET UP A PROGRAM

STEP 1: INVENTORY YOUR EQUIPMENT

- List all critical equipment
- Collect technical specifications
- Identify wear-prone components
- Define criticality (impact of failure on production)

STEP 2: DEFINE INTERVENTION FREQUENCIES

- Consult manufacturer recommendations
- Analyze breakdown history
- Consider operating conditions
- Adjust based on field experience

STEP 3: CREATE MAINTENANCE ROUTINES

- Describe each task in detail
- Specify required tools and parts
- Estimate intervention time
- Define required skills

STEP 4: PLAN AND MONITOR

- Use a CMMS to plan interventions
- Generate work orders automatically
- Track execution in real time
- Analyze results and adjust

5. INDUSTRY-SPECIFIC PLAN EXAMPLES

MANUFACTURING

Equipment: Hydraulic press

- Daily: Check oil level, visual inspection
- Weekly: Clean filters, check pressures
- Monthly: Lubrication, check alignment
- Annual: Change hydraulic oil, check seals

FACILITY MANAGEMENT

Equipment: HVAC unit

- Monthly: Clean filters, check temperatures
- Quarterly: Check seals, clean evaporator
- Annual: Refrigerant check, electrical inspection

HOSPITALITY

Equipment: Elevator

- Daily: Check general operation
- Monthly: Clean cabin, check lighting
- Annual: Mandatory regulatory inspection

6. KEY PERFORMANCE INDICATORS (KPIs)

MTBF - Mean Time Between Failures The higher, the better.

MTTR - Mean Time To Repair The lower, the better.

Availability Rate = (Operating Time / Total Time) x 100 Target: > 95%

Preventive/Corrective Ratio = (Preventive Interventions / Total) x 100 Target: > 70% preventive

Maintenance Cost per Equipment Track to optimize investments.

7. RECOMMENDED TOOLS

For effective preventive maintenance management, a CMMS is essential. It allows you to:

- Automatically schedule interventions
- Generate work orders
- Track execution in real time
- Manage spare parts
- Analyze KPIs
- Record all intervention history

FREEMAIN - 100% FREE CMMS

FreeMaint offers all these features for free:

- Automated preventive maintenance
- Mobile app for technicians
- Dashboards and reports
- Unlimited users
- No credit card required

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