



Water-Cooled Chiller Maintenance Checklist

17 planned preventive maintenance tasks · Free PDF from PM Assist

A practical starting point for planned preventive maintenance. Always refer to the manufacturer's O&M manual and site-specific requirements.

Visual Checks

- ☐ Inspect condenser tubes internally for scale, biofilm, silt and mud deposits at the tube ends
- ☐ Check tube ends for erosion, grooving and inlet-end wear caused by excessive water velocity or entrained solids
- ☐ Inspect condenser waterboxes, end covers, gaskets and any sacrificial anodes for corrosion and wastage

Functional Checks

- ☐ Record condenser approach temperature — the difference between leaving condenser water temperature and saturated condensing temperature — and trend it against commissioning data
- ☐ Record evaporator approach temperature and chilled water delta-T against design
- ☐ Arrange eddy current testing of the condenser tube bundle to detect wall thinning and pitting before a tube fails
- ☐ Verify condenser water flow rate against design and confirm condenser water pump duty and standby operation
- ☐ Check water treatment chemistry — conductivity, pH, inhibitor residual and biocide levels against the written control scheme
- ☐ Record refrigerant suction and discharge pressures and verify superheat and subcooling against the manufacturer's target range
- ☐ Check compressor oil level, colour and acidity, and take an oil sample for analysis on large machines

Cleaning & Housekeeping

- ☐ Brush-clean condenser tubes with correctly sized nylon or brass brushes appropriate to the tube material — never steel brushes in copper tubes
- ☐ Clean condenser water strainers and check the differential pressure across them

Safety Checks

- ☐ Confirm cooling tower cleaning and disinfection is in date and recorded, and that the tower condition supports the chiller's design condenser water temperature
- ☐ Test safety controls including high pressure cutout, low pressure cutout, condenser and chilled water flow switches and the freeze stat

Record Keeping

- ☐ Review microbiological monitoring results including dip slide or total viable count sampling and legionella sampling as set out in the control scheme
- ☐ Confirm the cooling tower or evaporative condenser is notified to the local authority and that the notification details remain current
- ☐ Update the F-Gas logbook with charge, any top-up, leak test result and the engineer's certificate number

Maintenance Frequency

Weekly

- Cooling tower checks required by the written control scheme, including visual condition and any automatic dosing confirmation

Monthly

- Log condenser and evaporator approach temperatures, pressures and compressor currents
- Water treatment chemistry checks against the control scheme parameters
- Check condenser water strainer differential and clean where required

Quarterly

- Full performance check under load with approach temperatures compared against commissioning data
- Test safety controls and flow switches
- Review microbiological monitoring trends and act on any adverse results

Every 6 Months

- Cooling tower clean and disinfect in line with HSG274 Part 1 and the site's written control scheme
- Condenser tube inspection at the tube ends and waterbox condition check
- F-Gas leak check where the charge places the unit on a six-monthly interval

Annually

- Comprehensive service including condenser tube brush cleaning
- Eddy current test of the condenser tube bundle
- Compressor oil and filter change with oil analysis
- Electrical thermography of panel, starter and motor terminations
- Review of the legionella risk assessment and written control scheme
- F-Gas leak check and logbook update at the interval set by the CO2e charge