



Client:	Project Name:	Project No:	
Area:	Drawing No's:	Date:	Sheet: 1 of 2
Check Conducted By:	Signature:	Check Approved By:	Signature:

## INTRODUCTION

The test procedure guideline has been prepared to explain the minimum standard for verifying the performance of a cooling tower.

### Procedure recommended general checks

1. Visibly check installation against approved shop drawings
2. Check that general construction and standard of finish is acceptable
3. Check levelling and alignment of towers are correct and acceptable
4. Check that adequate access for maintenance is provided
5. Record name plate information and compare against the approved specification
6. Confirm all transit bolts, wedges, motor packing and vibration packing and the like are removed
7. Check fan is secure on shaft and free to rotate
8. Check that adequate DCW is available and is correctly isolated
9. Check that the condenser water pipe work systems connected to the towers are ready for use and have adequate measuring facilities for flow, pressure and temperature
10. Confirm no damage to the electric components
11. Confirm all electrical terminations are correctly tightened
12. Check power supply is isolated, has the correct power source, voltage, circuit breaker sizing
13. Bump spin fans to confirm correct rotation and operation of the VSD

### Procedure recommended for testing operation

1. Fill condenser water system and sump of cooling towers
2. Verify that the sump of the cooling tower does not leak water, drain and make good and refill as required
3. Set calibration of float ball valve for makeup water
4. Ensure equalizing line between towers is open
5. Verify the air flow failure on each cooling tower fan
6. Measure fan and motor speeds and amps

### Procedure recommended system performance test

1. Confirm set points for leaving water temperature are correct
2. Confirm correct water flow into the cooling tower at peak conditions
3. Confirm chemical dosing system operating correctly and provide water sample for external testing
4. Check for fan vibration
5. Check system for water spillage
6. Confirm and calibrate ON/OFF, bypass valve operation, water temperature sensors accuracy EWT and LWT, water temperature set points, fan fault/trip, pump fault/trip

### Procedure recommended verifying tower operation

1. Run condenser water system in AUTO mode
2. Record all test results including condenser water flow, ambient temperature °C DB and °C WB, condenser water entering water and leaving water temperatures, make up water usage
3. Check operation of all components including bypass valve
4. Record sound levels under peak load operation at nearest openable window or at the property boundary
5. Undertake failure/changeover tests if multiple towers confirming water balance and equalizing lines are functioning correctly



**REFERENCE STANDARDS**

CIBSE Commissioning Code W – Water Distribution Systems

BS 4485 Part 2 – Water Cooling Towers Methods for Performance Testing

**CHECKLIST**

Cooling Tower Reference					
Drawing Number					
	ITEM	VERIFICATION METHOD	RESULT	RESULT	RESULT
1	Check installation against approved shop drawings	Site Inspection			
2	Check installation and finish is acceptable	Site Inspection			
3	Check tower leveling and alignment is acceptable	Site Inspection			
4	Check access for maintenance is acceptable	Site Inspection			
5	Confirm all transit bolts, wedges etc have been removed	Site Inspection			
6	Check fan is secure on shaft and free to rotate	Site Inspection			
7	Check all pipe work connection DCW makeup, condenser water pipe work complete	Site Inspection			
8	Check all electrical connections and confirm acceptable	Site Inspection			
9	Bump spin fan and check correct rotation and VSD operation	Site Inspection			
9	Fill condenser water system and cooling tower sump with water and verify sumps do not leak, set calibration of makeup water float valve, check equalizing line is open between towers	Site Inspection			
10	Verify air flow failure on each cooling tower	Site Inspection			
11	Verify fan and motor speeds and amps at full flow	Site Inspection			
12	Confirm correct water flow, fan vibration, water spillage from the towers	Site Inspection			
13	Check LWT set point, ON/OFF, bypass operation, water temperature sensors accuracy, fan fault/trips, pumps fault/trips	Site Inspection			
14	Confirm bypass valve operation	Site Inspection			
15	Run system in AUTO mode and verify EWT, LWT, EAT (°CDB and °CWB)	Site Inspection			



16	Check operation of the chemical water treatment system	Site Inspection			
17	Record fan noise levels at nearest openable window or at building boundary	Site Inspection			
18	Check failure/changeover tests for multiple towers	Site Inspection			
Certified By Sub Contractor (initial): Date:					
Confirmed By (Head Contractor / Client) (initial): Date:					