



**DALMIA CEMENT (B) LIMITED – CEMENT PLANT  
ARIYALUR  
INSTRUMENTATION MANUAL**

Issue No. 02	Rev. No: 00	Effective Date: 01.11.2019	INST/SOP/031
Issued By: M.R		Approved By: HOD - INSTRUMENTATION	
SOP for Start / Stop the Centralized Air conditioning System			

**START UP PROCEDURE:**

- 1 Check the water level in cooling tower makeup water and chiller line make up water tank.
- 2 If the water level is low open the inlet valve of the respective tank and fill the water up to high level.
- 3 Once Water is filled close the inlet valve of the respective water tank.
- 4 For CCR two cooling tower fan will be required (2 out of 3).
- 5 Open the inlet and outlet valve of cooling tower which is going to start.
- 6 Open the cooling tower make up water valve.
- 7 Check the water level in cooling tower.
- 8 If the cooling tower water level is low open the makeup water bypass valve and fill the water up to high level. After filled the water close the bypass valve.
- 9 Start the required cooling tower fan one by one.
- 10 Open the inlet and outlet valve of condenser water pumps which is going to start.
- 11 For CCR load center minimum three condenser water pump (3 out of 4) will be required. For RMBH & CMBH load center minimum two condenser water pump (2 out of 3) will be required.
- 12 Start the first condenser water pump
- 13 Check the pump outlet pressure in pressure gauge and the outlet pressure shall be min 1.5 Kg/Cm<sup>2</sup>
- 14 If the pressure is not buildup check the possibility to build up the pressure.
- 15 Check the water leakage in pump. If the water leakage is more than drops stop the pump and do the tightening of pump gland rope. If it is required replace the gland rope by following maintenance procedure.



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- 16 Again start the water pump and repeat the point no 12 to 15.
- 17 If it is everything normal go to next pump and repeat the Point no 11 to 15 for required pumps.
- 18 Open the inlet and outlet valve of chiller water pumps which is going to start.
- 19 For CCR load center minimum three chiller water pump (3 out of 4) will be required. For RMBH & CMBH load center minimum two chiller water pump (2 out of three) will be required.
- 20 Start the first chiller water pump
- 21 Check the pump outlet pressure in pressure gauge and the outlet pressure shall be min 1.5 Kg/Cm<sup>2</sup>
- 22 If the pressure is not buildup check the possibility to build up the pressure.
- 23 Check the water leakage in pump. If the water leakage is more than drops stop the pump and do the tightening of pump gland rope. If it is required replace the gland rope by following maintenance procedure.
- 24 Again start the water pump and repeat the point no 20 to 23.
- 25 If it is everything normal go to next pump and repeat the Point no 19 to 23 for required pumps.
- 26 Check the sprinkler rotation in required cooling towers.
- 27 Open the inlet and outlet valve of condenser water line in chiller which is going to start.
- 28 Open the inlet and outlet valve of chiller water line in chiller which is going to start.
- 29 Check the condenser and chiller water flow OK indication in by seeing green color LED indication at IO board.
- 30 If the indication is not OK check the water valve and water pump running status.



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- 31 If the water flow is OK wait 2 minutes for water circulation at all lines.
- 32 Start the chiller by pressing the Start / Stop button at Main controller.
- 33 Chiller Compressor will start one by one at every 10 sec gap.
- 34 Check all the compressors running indication by seeing green color indication at Main controller.
- 35 When compressor starts, a flow liquid will be noted in the liquid Indicator. After several minutes of operation, the bubbles disappear and full flow of liquid occurs when the unit is operating normally.
- 36 If any alarm in main controller, check the possibilities to solve the alarms.
- 37 If it is not possible to reset at short time. Stop the chiller and go to start next chiller and repeat the Point no. 27 to 36.
- 38 Once chiller was started wait up to Chiller leaving water temp less than 10 Deg.C
- 39 Open the inlet and outlet valve of AHUs which is going to start.
- 40 After that start the required AHUs one by one with span of 5 Min.
- 41 Observe the working area room temperature. If the room temperature is greater than set point repeat the point no. 27 to 35 for start one more chiller.



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**STOP PROCEDURE:**

- 1 Stop the running AHUs and Close the inlet and outlet valve of AHUs
- 2 Stop the Running Chillers and Close the inlet and outlet valve of chiller and condenser water line and ensure crankcase heater power supply is ON after stopped the chiller unit.
- 3 Stop the running chiller water pump and close the inlet and outlet valve.
- 4 Stop the running condenser water pumps and close the inlet and outlet valve.
- 5 Stop the running cooling tower fans and close the inlet and outlet valve.