



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

<b>Issue No:02</b>	<b>Rev. No: 00</b>	<b>Effective Date: 01.11.2019</b>	<b>SOP/Elect /050</b>
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<b>Issued By:</b>	<b>Approved By: HOD - ELECTRICAL</b>
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**SOP For Overhauling of Drum Motors**

**Scope** : This Procedure to establish and ensure safe method of Overhauling of Drum Motors.

**Responsibility** : Section Engineer – Electrical

**Accountability** : **Section Head-** Electrical

**PPE:**

1. Safety helmet,
2. Safety shoe,
3. Cotton gloves,
4. LT Rubber gloves.

**Tools:**

1. Insulated tools,
2. Lifting Equipment's.
3. Bearing Puller
4. Bearing Fitting Kit

**Hazard Analysis:**

**Risks associated**

Injury  
Electric shock

**Mitigating Measures**

Use of proper Handling equipments  
Use of Proper Testing procedure & Insulated tools

**Training needs:**

1. Usage of tools and Nature of Hazards
2. Usage of PPEs

**Procedure:**

1. Take the LOTO permit for the particular Drum Motor as per ELEC/SOP/003 and General Work permit.



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2. Clean the Drum Motor with Wire Brush, Hand Blower & Cloth, while cleaning use PPEs like Nose mask, goggles and hand Gloves.
3. Discharge the Motor terminals after opening the terminal box Cover while opening, handle cover firmly.
4. Disconnect the motor power and earth connections after proper marking of connection, while disconnecting, use proper tools.
5. Shift the Drum motor to dust free environment for overhauling. While shifting, handle the motor properly and avoid the fall of motor & tools. For shifting the motor use tested lifting equipment and other accessories.
6. Drain out the oil from Drum motor using proper tools such as trays and dispose the oil as per disposal process.
7. Remove the End cover with fixed shaft from the rotating drum. While removing, handle the end cover properly.
8. Remove the motor unit from the rotating drum and handle the motor properly.
9. Clean the oil from rotor and stator winding with winding cleaner, cloth and hand blower while cleaning use PPEs like Nose mask, goggles and hand Gloves.
10. Apply the varnish to the stator winding if required.
11. If varnish applied stator winding is to be dried out in the clean environment.
12. Remove / Change the bearings if required to replace with proper puller and tools. Before replace the new bearing, check the condition of bearing.
13. Check the condition of Electric brake if it is in the motor, found any abnormal change the brake.
14. Check the condition of power cable flexible leads, if required change the flexible leads.
15. Change the oil seals if required and use proper tools.
16. Assemble the motor unit with Rotating drum, while assembling, handle the motor firmly and avoid the stator winding damage.



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17. Fix the End cover with fixed shaft to the rotating drum.
18. Fill the Drum motor with required quantity of oil as per specification.
19. Check the Insulation Resistance, Winding Resistance and Inductance of the Motor winding.  
After checking the Insulation resistances again discharge the motor terminals.
20. Place the drum motor on its stand and give the motor power, earth connections with proper tools.
21. Take no load trial, and then disconnect the motor power & earth connection.
22. Shift the Motor to its location. While shifting, handle the motor properly and avoid the fall of motor & tools. For shifting the motor use tested lifting equipment and other accessories.
23. After mechanical alignment, connect the motor power and earth connections as per marking.  
While connecting, use proper tools.
24. Check the motor Direction. Change the phase sequence if required.
25. Close the Motor Terminal box cover and box up with Silicon Paste to restrict the dust entry.
26. Clear the LOTO permit as per ELEC/SOP/004.

Take Trial if Possible and record all Check point in the concern Check list

**Emergency / Emergency Shut OFF:**

- 1.** If electrical shock injury or body injury is there, give First aid and inform to the Safety department or Call Emergency number 3108/9865152222/9750963761.

**Records/Annexure:**

1. Refer LOTO permit.
2. JSA as enclosed below.



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## SOP For Overhauling of Drum Motors

### JOB SAFETY ANALYSIS: (JSA)

Job Safety Analysis	Job: Overhauling of Drum Motors	Date:	Analysis by:	Reviewed by:
Title of employee doing job: Electrician	Supervisor: Section Engineer	Department: Electrical	Section: Plant	Approved by:
Reqd./recommended PPE: Safety helmet, Safety shoe & Rubber Gloves, Cotton hand gloves.				
Sequence of Basic Job Steps	Potential Hazards	Recommended Safe Job Procedure	What Could Go Wrong	Corrective Action
Cleaning of Motors	Eye irritation of dust.	Wear goggles	Damaged goggles/non standard goggles/ Not wearing goggle	Periodic replacement / Proper training / Follow SOP
	Respiration problem due to dust	Wear Nose mask	Damaged nose mask/Not wearing Nose mask	Periodic replacement/ Proper training/ Follow SOP
	Oil spillage	Use oil tray	Oil tray may	Follow SOP
Open the motor terminal box cover to discharge	Electrical shock	Use Tested Electrical Rubber Hand gloves	Damaged Gloves/ Not checked before use	Periodic replacement/ To check for Damage before use
Cable disconnection and decoupling	Body injury	Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't perform the job/ Proper training / Follow SOP
Shifting of Motor	Fall of object	Proper shifting method	Slip during shifting	Double holding method
Dismantling & assembling of motor	Injury due to striking	Proper dismantling methods	Slip of tools during striking	Usage of proper tools Tool box Pep talk
Applying Varnish	Unconsciousness	Proper Varnishing method	Release of Toxic gases during varnishing	Usage of quality varnish & Proper Varnishing method
Heating of Winding	Electric Shock	Proper heating method	Open ended terminals	To be take extra precaution during heating
	Body injury	Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't perform the job/ Proper training / Follow SOP
Trial Run of Motor	Electric shock	Proper method for Trial run	Open ended terminals / Improper Earthing	Usage of proper trial methods & Ensuring