



## DALMIA CEMENT (B) LIMITED



### ARIYALUR

### MECHANICAL

Issue No. 01	Rev. No: 00	Effective Date: 01-11-2019	SOP/MECH/197
Issued By: M.R		Approved By: HOD (Mech)	
SOP-JSA FOR PUMP SPIDER REPLACING			

**Scope** : This SOP is applicable to Safe working for PUMP SPIDER replacing .

**Responsibility** : **Section Engineer – Mech.**

**Accountability** : **Section Manager – Mech.**

**PPE:**

1. Helmet,
2. Safety shoe,
3. Ear plug,
4. Safety goggles.
5. Rubber hand Gloves.
6. Hand Gloves.
7. Nose mask.

**Tools:**

1. Box Spanner set
2. Ring Spanner set
3. Hammer.
4. Chain block.
5. Belt sling.
6. Steel rod.
7. Nylon rope.
8. Right angle.



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9. Dial gauge with stand.

10. SS Shim.

### Hazards:

#### Risks associated

Electrical shock

Pressurized water release

Fall of objects

#### Mitigating Measures

1.Safe and tested tools and tackles

2. on job training

3. LOTO for motor.

1. Mechanical LOTO for inlet and outlet valves.

2. Safe pressure release on pump.

1. Usage of certified lifting tools.

### Training needs:

1. Fire fighting

2. Emergency preparedness

3. Electrical prevention training

4. Assembly procedure

5. Lifting of heavy objects.



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### Procedure:

1. Take the Mechanical LOTO for pump or valves
2. The LOTO and permit paper should be with the person who is working in the site.
3. Depressurized the water or liquids in the pump.
4. Loosen the base bolts in a cycle manner.
5. Fix the chain block above the pump motor for sliding it.
6. Slide the motor backwards till getting a clearance on the coupling area.
7. Remove the damaged spider and clean the coupling.
8. Replace with new spider .
9. Slide back the motor to original position.
10. Place the base bolt and shim back on its position.



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11. Make a rough alignment.
12. Check with dial gauge for final alignment.
13. If required change the shim and base bolt on damage basis.
14. Put back the coupling guard.
15. Clear the electrical and mechanical LOTO.
16. Take the trial note the current of motor and vibration reading.

### Emergency / Emergency Shut OFF:

1. If body injury is there, First aid will be given and inform to the Safety department or Call Emergency number 3108/ 9865152222

### Records/Annexure:

1. JSA is enclosed below.
2. Isolation Matrix.

### JOB SAFETY ANALYSIS :( JSA)



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<b>Job Safety Analysis</b>	Job: PUMP SPIDER replacing.	Date: 04– 05 - 2020	Analysis by: Section Engineer	Reviewed by: Section Head
Title of employee doing job: Section Engineer	Supervisor: Section Engineer	Department: Mech.	Section: UTILITY	Approved by: HOD Mechanical
Req'd/recommended PPE: Safety helmet, Safety shoe, Safety goggles, Ear plug, nose mask & Rubber hand Gloves.				
<b>Sequence of Basic Job Steps</b>	<b>Potential Hazards</b>	<b>Recommended Safe Job Procedure</b>	<b>What Could Go Wrong</b>	<b>Corrective Action</b>
Valve operation	Hand injury / Fatal	Closed the out let valve and open the drain (manual) valve	System will be pressure raised it will blasting the system	Ensure valve condition before start the work
Chain block fixing	Major injury/Fatal	Proper holding of the chain block and proper tie on the safe location	May be fall down Tools will be slip	Maintaining a distance on the below while placing
Sliding of motor	Electrical shock/Fall on leg	Electrical LOTO and proper support while moving.	May be fall down on the leg	Proper lifting and certification on lifting tools
Shim usage	Resource usage/hand injury	Hand glove while shim cutting ans waste has to be scraped.	May be a injury	Proper shim cutting tool and hand glove.



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## Isolation Matrix:

SL No	Activity			Isolation Matrix for Utility & General Equipment.							
				Isolation Type							
				Electrical Energy				Other Energy			
1	PUMP SPIDER replacing	Fire water pump-700-FYP-6A & 6B Process water pump-700-PFP-5A - 5E Domestic water pump and cement mill cooling pump-700-DWP-1A, 1C & 560 WP1 -3 Soft water preparation pump-700-FWP-1A - 1C	Isolate the Related other energy isolation					Isolate or closed the valves			