

SOP No .	CRM/TS/SOP/SPM/20	Effective Date	13.08.18	REVISION No	05
SOP DESC	Rubber sleeve removal and insertion	Section	SPM		
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## Standard Operating Procedure

1. Purpose: This Standard Operating Procedure defines the steps involved in the Skin Pass Mill for changing rubber sleeve to improve the quality and ensure safety practices
2. Scope: Applicable to Skin Pass Mill.
3. Reference: Refer Skin Pass Mill
4. Definitions: TR– Tension Reel  
I/D – Inner diameter  
PPE – Personal Protective Equipment

5. Distribution List: Head (ECL BAF SPM)

DCI  
Shift In-charge, SPM  
Sr. Associate (Exit and Pulpit Operator)

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Step No.	Activity (WHAT)	Associated Requirements/Hazards/Impacts	Responsibility (WHO)	Process / tools / PPEs (HOW)	Remarks / Reference
1	Placement of rubber sleeve changing jig (Position- A) on coil car at spool loading position.	<p>Safety: Slip/trip/fall hazard. Falling of the jig during placement which may damage the coil car. Injury due to forklift movement.</p> <p>Environment: No issue Quality: Improper placement of the jig may lead to damage of the sleeve.</p>	SPM Operation Associates, Forklift operator & Contactor person	<ol style="list-style-type: none"> <li>1. Use proper PPE's (Safety helmet, safety shoes, Shin guard, Safety goggles &amp; Hand gloves, sleeve guard). <b>Ensure social distancing where ever applicable.</b></li> <li>2. Run the sequence#25 before start job so that position #1 on exit conveyor A is vacant</li> <li>3. Lock the conveyor A by pressing the emergency button and keep the key with the associate.</li> <li>4. Lock the banding m/c from the panel by pressing the emergency switch.</li> <li>5. Clean the floor surface of T/R area and remove unwanted materials</li> <li>6. Keep away from the coil car pit area and the forklift swing area.</li> <li>7. The activity to be carried out as per the instruction of SPM associate. The forklift operator should be guided accordingly to place the tool on the coil car slowly by lifting it with the forks.</li> <li>8. The operator should be guided to match the legs of the jig with that of the open space of the coil car first and then gently lower the jig into the coil car as instructed by the SPM associates.</li> <li>9. During placing operation concerned person to be remain in safe distance from hanging tool.</li> <li>10. Operation of exit coil car to be in maintenance mode only.</li> </ol>	Position A means projected edge towards tension reel.

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2	Move the coil car towards tension reel to remove the rubber sleeve	<p>Safety: Person may get entrapped in between the belt wrapper and the TR. The coil car may dash with adjoining equipment</p> <p>Environment: No issue Quality: No issue.</p>	SPM Operation Associates.	<p>1. Use proper PPE's (safety helmet, safety shoes, Shin guard, Safety goggles &amp; Hand gloves, sleeve guard). <b>Ensure social distancing where ever applicable.</b></p> <p>2. Operation of coil car to be done in maintenance mode and from exit pulpit by the exit operator.</p> <p>3. Lock the belt wrapper by pin and push the emergency button at exit pulpit. Open the Inspection platform.</p> <p>4. The sliding platform should be backward; OBBS, Threading table and Tail catcher roll to be in OUT condition and locked by safety pins. The Pusher plate to be in OUT position. The oiler roll should be OUT and locked with pins.</p> <p>5. Take the coil car out from the spool loading area, and lower it down to extreme down position. Then move the coil car towards TR and position it below the TR at the extreme bwd. position of the coil car traverse. The entire operation to be done in exit maintenance mode from OB#5 by Exit pulpit operator.</p>	No one should be allowed to move or to be near the coil car movement area. Also no one should be allowed in the area from where the visibility of the exit operator gets blocked.
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3	Removal of rubber sleeve from tension reel.	<p>Safety:</p> <p>Injury from slip/trip/fall hazard.</p> <p>Injury due to entrapment between belt wrapper and TR</p> <p>Injury due to entrapment in between moving coil car and TR.</p> <p>Injury due to hitting by the stand of the jig if standing very close to TR.</p> <p>Environment: Depletion of rubber</p> <p>Quality: Damage to the sleeve surface due to bad handling.</p>	SPM Operation Associates & Contactor person	<p>1. Use proper PPE's (Safety helmet, safety shoes, Shin guard, Safety goggles &amp; Hand gloves, sleeve guard). <b>Ensure social distancing where ever applicable.</b></p> <p>2. Lock the belt wrapper by pin and push the emergency button at exit pulpit. Open the Inspection platform.</p> <p>3. The sliding platform should be backward; OBBS, Threading table and Tail catcher roll to be in OUT condition and locked by safety pins. The Pusher plate to be in OUT position. The oiler roll should be OUT and locked with pins.</p> <p>4. Operation of coil car to be done in exit maintenance mode and from exit pulpit by the exit operator.</p> <p>5. Select Mill maintenance mode from main pulpit, make the mandrel full collapsed.</p> <p>6. Now lift the coil car in exit maintenance mode up to a height such that the protruded part of the jig gets in contact of the rubber sleeve edge and the jig gently touches the bottom surface of the sleeve. One person should be behind the TR on the inspection platform to guide the exit operator thru walkie-talkie.</p> <p>7. Now expand the mandrel. Then give fwd. command from OB#5 to move the coil car fwd. and simultaneously collapse the mandrel. This will facilitate the sleeve to come out.</p> <p>8. Continue this process and if required rotate the mandrel and repeat the process as described above until the sleeve is completely taken out.</p>	<p>Person standing behind the TR should be at a safe distance from the mandrel on the inspection platform such that if either during rotation of the mandrel, the jig gets rotate, the leg of the jig will not hit the person.</p> <p>During rotation the coil car should not touch the mandrel. Get the car down.</p>
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4.	Removal of the used sleeve and the jig from the coil car	<p>Safety: Slip/trip/fall hazard. Falling of the jig during placement which may damage the coil car. Injury due to forklift movement.</p> <p>Environment: No issue Quality: No issue.</p>	SPM Operation Associates, Forklift operator & Contactor person	<p>1. Once the sleeve gets out of the mandrel, operate the coil car fwd. from OB#5 and bring the car along with the jig with sleeve on it to the spool loading point.</p> <p>2. Remove the sleeve from the car with the help of forklift and keep it in designated place in vertical position.</p> <p>3. Now remove the jig with the help of forklift from the coil car. The activity to be carried out as per the instruction of SPM associate. The operator should be guided accordingly to slowly remove the jig using the forks from the coil car.</p>	<p>Ensure social distancing where ever applicable.</p> <p>Tool handling to be done by using forklift &amp; operation of forklift to be done by concerned &amp; Trained forklift operator. During lifting operation concerned person to be remain in safe distance from hanging tool and away from the forklift swing area.</p>
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5	Cleaning of Tension Reel	<p>Safety: Injury due to slip/trip/fall. Injury to hand due to entrapment in the mandrel grooves.</p> <p>Environment: No issue Quality: Improper cleaning may lead to slippage or cause dent in the strip from the sleeve.</p>	SPM Operation Associates & Contactor person	<p>1. Use proper PPE's (Safety helmet, safety shoes, Shin guard, Safety goggles &amp; Hand gloves, sleeve guard). <b>Ensure social distancing where ever applicable.</b></p> <p>2. The cleaning activity is to be done by the contract person under the supervision of SPM associate.</p> <p>3. Communicate clearly with the exit operator regarding the activity and ask him not to expand or rotate the mandrel.</p> <p>4. Clean the mandrel surface with clean markin/duck cloth by rotating the mandrel with the jog switch provided near the TR.</p> <p>5. Once it is cleaned in collapsed condition, ask the exit operator to expand the mandrel. Now clean the mandrel grooves for any dirt, grease or any unwanted rubber materials with the help of a screw driver. Do not use your hand. <b>Use a small wedge to lock the mandrel.</b></p> <p>6. Once the cleaning activity is complete , inform the exit operator to collapse the mandrel</p>	
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6	Placement of rubber sleeve changing jig (Position- B) on coil car at spool loading position.	<p>Safety: Slip/trip/fall hazard. Falling of the jig during placement which may damage the coil car. Injury due to forklift movement.</p> <p>Environment: No issue Quality: Improper placement of the jig may lead to damage of the sleeve.</p>	SPM Operation Associates, Forklift operator & Contactor person	<p>1. Use proper PPE's (Safety helmet, safety shoes, Shin guard, Safety goggles &amp; Hand gloves, sleeve guard) <b>Ensure social distancing where ever applicable.</b></p> <p>2. Ensure before start of the job that position #1 on exit conveyor A is vacant</p> <p>3. Lock the conveyor A by pressing the emergency button and keep the key with the associate.</p> <p>4. Lock the banding m/c from the panel by pressing the emergency switch.</p> <p>5. Clean the floor surface of T/R area and remove unwanted materials</p> <p>6. Keep away from the coil car pit area and the forklift swing area.</p> <p>7. The activity to be carried out as per the instruction of SPM associate. The forklift operator should be guided accordingly to place the tool on the coil car slowly by lifting it with the forks.</p> <p>8. The operator should be guided to match the legs of the jig with that of the open space of the coil car first and then gently lower the jig into the coil car as instructed by the SPM associates.</p> <p>9. During placing operation concerned person to be in safe distance from hanging tool and forklift moving area</p> <p>10. Operation of exit coil car to be in maintenance mode only.</p>	Position-B means projected edge towards SPM pulpit
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7	Put the Good conditioned or new rubber sleeve on the tool.	<p>Safety: Injury due to slip/trip/fall hazard. Injury from moving forklift.</p> <p>Environment: No issue Quality: Improper quality sleeve may affect the final product</p>	SPM Operation Associates, Forklift operator & Contactor person	<p>1. Use proper PPE's (including Safety helmet, safety shoes, Shin guard, Safety goggles &amp; Hand gloves, sleeve guard). <b>Ensure social distancing where ever applicable.</b></p> <p>2. Check the sleeve to be inserted for any unwanted marks on it which may affect the quality of strip. Also check the inside of the sleeve for any undesired bulging, abrasions and the pasted material condition. If required apply a bit layer of temper agent solution on the inside of the sleeve surface with the help of cloth fixed to a long rod.</p> <p>2. The new/conditioned rubber sleeve is to be placed on the jig with its chamfered edge facing towards pulpit side by using forklift &amp; operation of forklift to be done by concerned &amp; Trained forklift operator.</p> <p>3. During lifting operation concerned person to be remain in safe distance from hanging tool.</p>	
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8.	Insertion of new rubber sleeve on TR	<p>Safety: Person may get entrapped in between the belt wrapper and the TR. The coil car may dash with adjoining equipment</p> <p>Environment: No issue Quality: sleeve may get damaged or the final product may be affected..</p>	SPM Operation Associates, & Contactor person	<p>1. Use proper PPE's (safety helmet, safety shoes, Shin guard, Safety goggles &amp; Hand gloves, sleeve guard). <b>Ensure social distancing where ever applicable.</b></p> <p>2. Operation of coil car to be done in maintenance mode and from exit pulpit by the exit operator.</p> <p>3. Lock the belt wrapper by pin and push the emergency button at exit pulpit. Open the Inspection platform.</p> <p>4. The sliding platform should be backward; OBBS, Threading table and Tail catcher roll to be in OUT condition and locked by safety pins. The Pusher plate to be in OUT position. The oiler roll should be OUT and locked with pins.</p> <p>5. Take the coil car out from the spool loading area, and move it towards TR by giving bwd. command from OB#5 in exit maintenance mode.</p> <p>6. Match the sleeve ID with that of the mandrel by adjusting the height of the coil car by UP/DOWN command from OB#5. The exit operator may be guided by another associate to match the height. The person engaged in guiding should be at a safe distance from the moving coil car and the open pit. Proper communication to be done with the use of walkie-talkie</p> <p>7. Ensure the mandrel is at collapsed condition.</p> <p>8. Move the coil car backward from OB#5, towards the mandrel, such that the sleeve gets on to the mandrel. It is not possible to insert the sleeve at one shot. Hence, lower the coil car, match its height with that of the sleeve edge and again operate the coil car backward from OB#5 to push it on to the mandrel. This operation has to be carried out several times until the sleeve gets fully fitted on the mandrel. In this process the mandrel needs to be expanded and again collapsed several times which helps in loosening of the surface contact between mandrel and the sleeve.</p>	
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				Every time during pushing the sleeve, the instance of mandrel collapse should match with the push of the car to the edge. Also rotate the mandrel time to time to change the position of sleeve edge for proper result. Continue this activity until the sleeve is fully inserted into the mandrel.	
9.	Removal of the jig from the coil car	<p>Safety: Injury due to slip/trip/fall hazard. Injury from moving forklift. Falling of the jig during placement which may damage the coil car.</p> <p>Environment: No issue Quality: No issue.</p>	SPM Operation Associates, Forklift operator & Contactor person	<p>1. Once the sleeve gets out of the mandrel, operate the coil car fwd. from OB#5 and bring the car along with the jig with sleeve on it to the spool loading point.</p> <p>2. Remove the sleeve from the car with the help of forklift and keep it in designated place in vertical position.</p> <p>3. Now remove the jig with the help of forklift from the coil car. The activity to be carried out as per the instruction of SPM associate. The operator should be guided accordingly to slowly remove the jig using the forks from the coil car.</p>	<p><b>Ensure social distancing where ever applicable.</b></p> <p>Tool handling to be done by using forklift &amp; operation of forklift to be done by concerned &amp; Trained forklift operator. During lifting operation concerned person to be remain in safe distance from hanging tool and away from the forklift swing area.</p>

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