

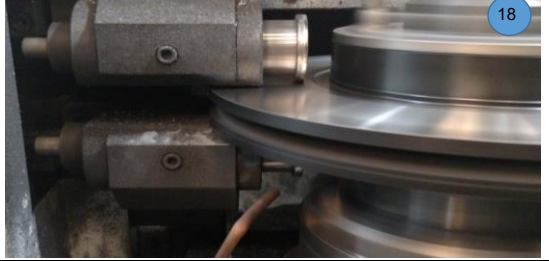
Manufacturing Operation Standard

|       |     |                          |                                                  |
|-------|-----|--------------------------|--------------------------------------------------|
| Model | 3AM | Process / Operation Name | CNC Facing & Burnishing With Mandril Thick. 21mm |
|-------|-----|--------------------------|--------------------------------------------------|

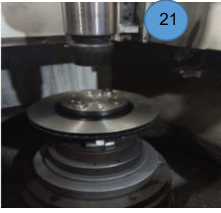
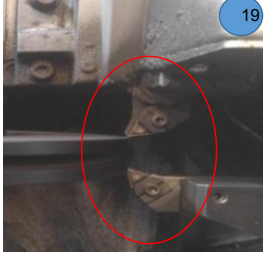
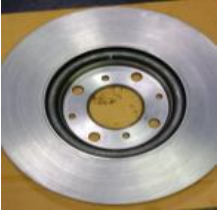
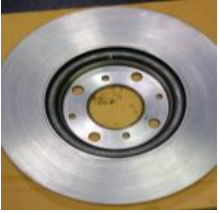
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| Preparing Department |             |
| NES                  |             |
| Confirmed by         | Prepared by |
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| Control No.                            |
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Job Setting

| PICTORIAL VIEW                                                                                                                                                          | No. | OPERATION                                                | QUALITY STANDARD                                                                                                                                            | WORKING POINT                                                                                                                                                                                                                                                                                                                                                                                                                        | TOOL & MATERIAL                          | COMMENTS                                                                                                                                                                 | SAFETY POINTS |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
|        | 1   | Main breaker ON & machine power on.                      | -                                                                                                                                                           | 1- Rotate selector Red mark to Green mark.<br>2- Press Switch ON Button.                                                                                                                                                                                                                                                                                                                                                             | Selector & Button                        | If operator doesn't press button or move selector to its position then machine will no start.                                                                            | Shoes, Gloves |
|       | 2   | Machine Reference                                        | Before starting machine make sure your axis in reference point.                                                                                             | Press Both X & Z axis button                                                                                                                                                                                                                                                                                                                                                                                                         | X & Z Axis button & Selector             | If operator starts machine without sending reference point then it can cause accidents of machine.                                                                       | Shoes, Gloves |
|       | 3   | Checking of Oil levels.                                  | Check level gauge every day before starting machine.                                                                                                        | Check oil level on level gauge.                                                                                                                                                                                                                                                                                                                                                                                                      | Level Gauge.                             | If level gauge is below than its standard level then machine will be alarming & it can effect on your production.                                                        | Shoes, Gloves |
|     | 4   | Set clamping Pressure.                                   | Chuck Clamping pressure should be 15~20 Kg/cm2<br>Tail Stock clamping pressure should be 08~10 Kg/cm2                                                       | Clamping Jaws.                                                                                                                                                                                                                                                                                                                                                                                                                       | Pressure gauge                           | Always set Chuck Clamping pressure should be 15~20 Kg/cm2<br>Tail Stock clamping pressure should be 08~10 Kg/cm2 clamping on can cause rejection & accident on machine.  | Shoes, Gloves |
|                                                                                      | 5   | Greasing                                                 | -                                                                                                                                                           | Grease with the help of greasing Gun                                                                                                                                                                                                                                                                                                                                                                                                 | Greasing Gun                             | -                                                                                                                                                                        | Shoes, Gloves |
|   | 6   | Checking of Tools & Inserts                              | Make sure all tools mount on Turret & don't damaged.                                                                                                        | Mount all tools in turret with respect to Facing & Burnishing with DISK machining.                                                                                                                                                                                                                                                                                                                                                   | Tools ,Roller & Inserts.                 | -                                                                                                                                                                        | Shoes, Gloves |
|                                                                                      | 7   | Clamp the mandrel                                        | Make sure jaws & mandrel should be free from Bur.                                                                                                           | Before clamping jaws on mandrel Clean jaws & mandrel with the help of Air Gun then place the mandrel in jaws pressing the pedal. And Tight With L-NKEY Bolt                                                                                                                                                                                                                                                                          | Mandrel & L-N KEY Bolt                   | If bur found on Jaws then mandrel is not properly clamp.                                                                                                                 | Shoes, Gloves |
|                                                                                      | 8   | Dialing                                                  | 1- Dialing should be with in 0.005 mm.<br>2- Before dialing make sure lever stand should be on clean surface & dial gauge nib touch inside mandrel profile. | Dialing with the help of lever gauge                                                                                                                                                                                                                                                                                                                                                                                                 | Lever Gauge                              | 1- If dialing is above then 0.005mm then make cut on it.                                                                                                                 | Shoes, Gloves |
|                                                                                      | 9   | Call program                                             | Before start machining make sure program #0002 & Name '3AM Disk Burnishing' call on screen                                                                  | Type program #0002 & press Program search Button on screen.                                                                                                                                                                                                                                                                                                                                                                          | Button                                   | If operator call wrong program # then it can cause accidents in machine                                                                                                  | Shoes, Gloves |
|                                                                                      | 10  | Mode Setting                                             | Make sure mode set on X1 & Single block and optional block ON                                                                                               | set selector position on X1 & optional block & Single block ON then On cycle start button when tool is near to part then press free hold button to hold process & then press reset button & after pressing reset button manually touch tool with part with the help of Handle then go to offset & select geometry option, in geometry option select whose tool which is working in process then give '0' offset value in X & Z axis. | Selector & Button                        | If this process will not proper follow then it can cause accident in machine. If you press dry run button, So Machine running rapidly its Cause of Part NG after process | Shoes, Gloves |
|                                                                                      | 11  | (1) Clamp the disk on mandrel & Check appearance of Disk | Make sure mandrel should be free from Bur & also Disk should be free from Bur.                                                                              | (1) Before clamping DISK & disk on mandrel . clean a mandrel with the help of Air gun then place disk & tight spacer & Nut with the help of spanner.                                                                                                                                                                                                                                                                                 | Air Gun<br>Spanner<br>Button L-NKEY BOLT | If bur found on mandrel & then Disk/Disk will not properly clamp & Run out found on disk.                                                                                | Shoes, Gloves |
|                                                                                      | 12  | N1 Finishing X ,Y Faces.                                 | After completing N1 process Inspect the part & check the thickness.                                                                                         | Cycle start baton Press & Inspect the part with the help of Micro Meter.                                                                                                                                                                                                                                                                                                                                                             | Instrument ( Micro Meter )               | If sizes don't according to tolerance then repeat process & give offset value & check again .                                                                            | Shoes, Gloves |
|                                                                                      | 13  | N2 Finishing X & Y Face.                                 | After completing N2 process Inspect the part & check the thickness<br><br>PP\FM\024<br>ISSUE 00<br>PAGE 14 of 16                                            | Cycle start baton Press & Inspect the part with the help of Micro Meter.                                                                                                                                                                                                                                                                                                                                                             | Instrument ( Micro Meter )               | If sizes don't according to tolerance then repeat process & give offset value & check again .                                                                            | Shoes, Gloves |

| Job Setting |  |
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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                          | 14 | Inspection in Machine             | <p>Before unclamping the part Thickness must be checked.</p> <p>PP\FM\024<br/>ISSUE 00<br/>PAGE 14 of16</p>                                                                                                                                                                                    | Check Dimension with the help of Micro meter Check the disk in 3 equal Space i-e- Approx. 120 °                                                                                                                                                                                                                                                                                                                                                                                                                             | Micro meter                 | Without gloves don't touch disk<br><br>Gloves / Shoes                                                                                                                                     |
|                                                                                         | 15 | Unclamp the disk                  | <p>Before unclamping the disk make sure all work done on disk.</p> <p>PP\FM\024<br/>ISSUE 00<br/>PAGE 14 of16</p>                                                                                                                                                                              | (1) Before Unclamp disk on mandrel. Lose a spacer & Nut with the help of spanner                                                                                                                                                                                                                                                                                                                                                                                                                                            | L-N KEY                     | Note: Without gloves don't touch a disk<br><br>Shoes, Gloves                                                                                                                              |
|    | 16 | Inspection                        | <p>1) Every 12 Pieces of Disk so Change Insert<br/>2) After Change Insert Must be check 1st Disk Roughness and Roughness Should As per OPS Standard<br/>3) every 12th number of Disk Roughness should be checked<br/>Reference Documents is</p> <p>PP\FM\024<br/>ISSUE 00<br/>PAGE 14 of16</p> | <p>1) Insert Change after every 12 Disk processed.<br/>2)After Change insert , check the roughness of the 1st Disk.<br/>3)The roughness must meet OPS standard requirements.<br/>4)Check the roughness of every 12th Disk to ensure consistency in quality (Roughness).</p> <p>Note: If the roughness of the 12th Disk is not within the standard, then the roughness of each Disk produced in that batch must be checked individually until an OK Roughness piece is found. &amp; Checking Sequence Example (12,11,10)</p> | Insert , Tool & Disk        | If sizes don't according to tolerance then repeat process & give offset value & check again .Without gloves don't touch disk<br><br>Shoes, Gloves                                         |
|                                                                                     | 17 | QC inspection                     | Before starting production go to QC window and check 1st part & receive OK slip .                                                                                                                                                                                                              | Go to QC Window                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | QC Slip                     | If part is NG then go and come until QC didn't give you OK slip.<br>Note: Without gloves don't touch a disk<br><br>Shoes, Gloves                                                          |
|                                                                                                                                                                        | 18 | Storage & Handling Of Finish Part | Finish Disk Properly set in Storage Location                                                                                                                                                                                                                                                   | Place the Disk properly in the Disk Racks, so it doesn't hit or collide with Other Disk.                                                                                                                                                                                                                                                                                                                                                                                                                                    | Finish Disk , Storage Racks | If Disk needs to repair then place into Repairing rack if reject then place into Rejection rack. And follow the OK ,Rej. & REPAIRING Treatment Flow as Mention Below<br><br>Shoes, Gloves |

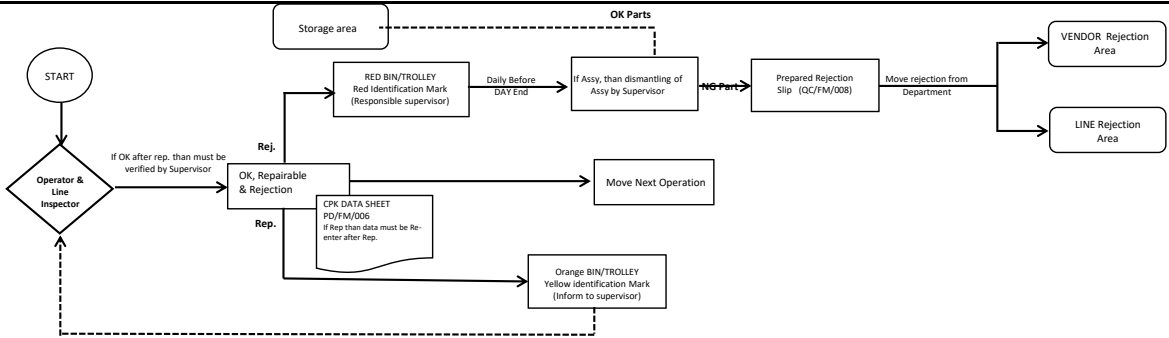
## Day First Part Manufacturing

\* For first part manufacturing Operator must follow these process: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17 &18 in Process # operator should follow these Quality standards: Give offset X Face 0.2 Z Value Then -0.2 In Y Face offset in wear option not try to insert in the Geometry option.

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| 93                         | 93.00  |
| 94                         | 94.00  |
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| 96                         | 96.00  |
| 97                         | 97.00  |
| 98                         | 98.00  |
| 99                         | 99.00  |
| 100                        | 100.00 |

\* For Routine part manufacturing Operator must follow these process: 11,12,13,14,15 & 16.

### OK ,Rej. & REPAIRING PART RULES & ROUTE

[illegible]