

PP\FM\024  
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[illegible]

**NOTE:**

Q1 → 66 → Thickness Variance Before Burning (Radial) →  $\frac{0.1}{0.1}$   
 Thickness Variance Circumferential →  $\frac{0.1}{0.05}$   
 Before Burning  
 Tilt on X face  
 Q3 → - → ROUGHNESS X Face before Burning  
 Runout on  $\phi 132$  Face

$\frac{0.08 \text{ MAX}}{\sqrt{15}} \times 2.5$   
 $\frac{0.08}{\text{Max}}$

|       |          |                       |       |              |                                                                     |         |         |         |        |
|-------|----------|-----------------------|-------|--------------|---------------------------------------------------------------------|---------|---------|---------|--------|
| ③     |          |                       |       | PROCESS No   | 05                                                                  | APPR by | CHKD by | CHKD by | DWG by |
| ②     |          |                       |       |              |                                                                     |         |         |         |        |
| ①     |          |                       |       |              |                                                                     |         |         |         |        |
| ISSUE | 15-03-25 | NEW WRITE             | 00    | PROCESS NAME | CNC 2nd Side Machining<br>with 08 Holes Drilling & 02 Holes Counter |         |         |         |        |
|       | D.M.Y    |                       | ISSUE |              |                                                                     |         |         |         |        |
|       |          | CORRECT REVISE REASON |       |              |                                                                     |         |         |         |        |

| MACHINE NAME / No                                                                                                                                                                                                                                                                        |                                                      | CNC VERTICAL TURNING CENTER                                                            |                                         |     |                                 |                             |                            |            |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------|-----|---------------------------------|-----------------------------|----------------------------|------------|--|
| CUTTING OIL                                                                                                                                                                                                                                                                              |                                                      | WATER SOLUBLE Ratio (1:30)                                                             |                                         |     |                                 | ST                          |                            |            |  |
| No                                                                                                                                                                                                                                                                                       | CUTTING TOOL NAME                                    | SPECIFICATION                                                                          | ACTIVITY NAME                           | Qty | Ins.or Dr. per edge consumption | N (rpm)                     | V (m/min)                  | f (mm/rev) |  |
| 1                                                                                                                                                                                                                                                                                        | WTXNL                                                | (TNMG 0.8)                                                                             | Rough Turning & Facing                  | 1   | 10pieces/Edge                   | 510~1252                    | -                          | 0.2        |  |
| 2                                                                                                                                                                                                                                                                                        | SVVBM                                                | (VVBMT) 0.8                                                                            | Finish Turning & Facing                 | 1   | 12 pieces/Edge                  | 1252~84                     | -                          | 0.15~0.3   |  |
| 3                                                                                                                                                                                                                                                                                        | DRILL                                                | GCMT 0.4 (Ø12.5)                                                                       | Drilling                                | 1   | 110pieces/drill                 | 1454                        | -                          | 105        |  |
| 4                                                                                                                                                                                                                                                                                        | DRILL                                                | GCMT 0.4 (Ø6.5)                                                                        | Drilling                                | 1   | 110pieces/drill                 | 1212                        | -                          | 90         |  |
| 5                                                                                                                                                                                                                                                                                        | DRILL                                                | GCMT 0.4 (Ø6.7)                                                                        | Drilling                                | 1   | 110pieces/drill                 | 1212                        | -                          | 90         |  |
| 6                                                                                                                                                                                                                                                                                        | SDUCR                                                | (DCMT) 0.8                                                                             | Finish Boring                           | 1   | 80 pieces/Edge                  | 1241                        | -                          | 0.23       |  |
| 7                                                                                                                                                                                                                                                                                        | ROSE BIT                                             | 45°                                                                                    | Chamfer & Counter                       | 1   | 200pieces/Rose                  | 1212                        | -                          | 105        |  |
| INS.& JIGS & FIXTURES                                                                                                                                                                                                                                                                    |                                                      |                                                                                        |                                         |     |                                 |                             |                            |            |  |
| No                                                                                                                                                                                                                                                                                       | ITEM NAME                                            |                                                                                        | SPECIFICATION                           |     |                                 | ACTIVITY No.                |                            |            |  |
| 1                                                                                                                                                                                                                                                                                        | 4 Jaws Chuck                                         |                                                                                        | HYDRAULIC JIG                           |     |                                 |                             |                            |            |  |
| 2                                                                                                                                                                                                                                                                                        | Go/No Go Gauge                                       |                                                                                        | ø12.5                                   |     |                                 |                             |                            |            |  |
| 3                                                                                                                                                                                                                                                                                        | Go/No Go Gauge                                       |                                                                                        | ø6.7 & 6.5                              |     |                                 |                             |                            |            |  |
| 4                                                                                                                                                                                                                                                                                        | Go/No Go Gauge                                       |                                                                                        | ø61.0                                   |     |                                 |                             |                            |            |  |
| 5                                                                                                                                                                                                                                                                                        | Vernier Caliper                                      |                                                                                        | 0~300 mm                                |     |                                 |                             |                            |            |  |
| 6                                                                                                                                                                                                                                                                                        | Micro Meter                                          |                                                                                        | 0~25 mm                                 |     |                                 |                             |                            |            |  |
| 7                                                                                                                                                                                                                                                                                        | Depth Vernier Caliper                                |                                                                                        | 0~200 mm                                |     |                                 |                             |                            |            |  |
| No                                                                                                                                                                                                                                                                                       | CHECK POINT                                          | STANDARD                                                                               | INSPECTION TOOL                         |     | INSPECTED BY OPERATOR           | INSPECTED BY LINE INSPECTOR | INSPECTED BY QC INSPECTOR  |            |  |
| -                                                                                                                                                                                                                                                                                        | APPEARANCE                                           | Dent or Damage ,Bur, Rust Depressions, Blow Holes M/C Area or Non M/C Area Not Allowed | Visual/Pictorial sheet                  |     | 100%                            | -                           | -                          |            |  |
| 14                                                                                                                                                                                                                                                                                       | 2-HOLES DRILLING                                     | ø6.5 <sup>+0.2-0.0</sup>                                                               | Vernier Caliper / Go/No-go Gauge        |     | 100%                            | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 57                                                                                                                                                                                                                                                                                       | P.D. Ø6.5                                            | 104 <sup>±0.1</sup>                                                                    | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 70                                                                                                                                                                                                                                                                                       | ROUGHNESS ON SURF "X"                                | RZmax 15                                                                               | Roughness Tester                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 12                                                                                                                                                                                                                                                                                       | ★ 4-HOLES DRILLING                                   | ø12.5 <sup>+0.4-0.0</sup>                                                              | Vernier Caliper / Go/No-go Gauge(CPK)   |     | 100%                            | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| -                                                                                                                                                                                                                                                                                        | Angle B/W Rib to Rib                                 | 7.8°                                                                                   | Checking Fixture / Rib Ref. Jig         |     | Every New Setting               | -                           | -                          |            |  |
| 13                                                                                                                                                                                                                                                                                       | 4-HOLES P.D. Ø12.5                                   | ø100 <sup>±0.1</sup>                                                                   | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 50                                                                                                                                                                                                                                                                                       | RADIUS                                               | R 2.0 <sup>±0.2</sup>                                                                  | Radius Gauge                            |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 64                                                                                                                                                                                                                                                                                       | RUNOUT SURF Y                                        | 0.1                                                                                    | Checking Fixture                        |     | Every New Setting               | -                           | -                          |            |  |
| 71                                                                                                                                                                                                                                                                                       | ANGLE                                                | 45° <sup>±0.17°</sup>                                                                  | Checking Fixture                        |     | Every New Setting               | -                           | -                          |            |  |
| -                                                                                                                                                                                                                                                                                        | 2-HOLES DRILLING                                     | ø6.70 <sup>+0.2-0.0</sup>                                                              | Vernier Caliper / Go/No-go Gauge        |     | 100%                            | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 58                                                                                                                                                                                                                                                                                       | P.D. Ø6.7 (M8 HOLES)                                 | ø87 <sup>±0.5</sup>                                                                    | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 11                                                                                                                                                                                                                                                                                       | ★ DIAMETER                                           | ø134.0 <sup>±0.25</sup>                                                                | Vernier Caliper / (CPK)                 |     | 100%                            | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 13                                                                                                                                                                                                                                                                                       | DIMENSION (Height)                                   | 0.5 MAX                                                                                | Height Gauge                            |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 49                                                                                                                                                                                                                                                                                       | RADIUS                                               | R 1.2 <sup>±0.4</sup>                                                                  | Radius Gauge                            |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 38                                                                                                                                                                                                                                                                                       | CHAMFER                                              | C 0.5 MAX                                                                              | Bevel Protector+Height Gauge            |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 24                                                                                                                                                                                                                                                                                       | HEIGHT BEFORE BURNISHING                             | 2.0 MAX                                                                                | Height Gauge                            |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 8                                                                                                                                                                                                                                                                                        | ★ BORING DIA                                         | ø61.0 <sup>+0.076+0.03</sup>                                                           | Vernier Caliper / Go/No-go Gauge/ (CPK) |     | 100%                            | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 72                                                                                                                                                                                                                                                                                       | ROUGHNESS ON Ø61                                     | RZmax 25                                                                               | Roughness Tester                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 17                                                                                                                                                                                                                                                                                       | ★ WALL THICKNESS "X"                                 | 7.3 <sup>±0.7</sup>                                                                    | Vernier Caliper (CPK)                   |     | 100%                            | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 22                                                                                                                                                                                                                                                                                       | ★ THICKNESS BEFORE BURNISHING                        | 21.6 <sup>+0.2-0.0</sup>                                                               | Micro Meter/ (CPK)                      |     | 100%                            | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 18                                                                                                                                                                                                                                                                                       | ★ DIMENSION                                          | 6.0 <sup>+0.3-0.0</sup>                                                                | Micro Meter (CPK)                       |     | 100%                            | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 23                                                                                                                                                                                                                                                                                       | ROUGHNESS ON Ø134 FACE                               | RZmax 25                                                                               | Roughness Tester                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 34                                                                                                                                                                                                                                                                                       | CHAMFER ON SURF "X"                                  | C 0.6 <sup>+0.2-0.0</sup>                                                              | Bevel Protector+ Depth Micro meter      |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 65                                                                                                                                                                                                                                                                                       | Thickness Variation in radial Before Burnishing      | 3 Equal Sides 0.1                                                                      | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 37                                                                                                                                                                                                                                                                                       | 4-HOLES CHAMFER                                      | C 0.5 <sup>+0.2-0.0</sup>                                                              | Bevel Protector+Height Gauge            |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 25                                                                                                                                                                                                                                                                                       | STRIGHTNESS X FACE                                   | - 0.05                                                                                 | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 65                                                                                                                                                                                                                                                                                       | THICKNESS VARIANCE BEFORE BURNISHING                 | 0.1                                                                                    | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 66                                                                                                                                                                                                                                                                                       | THICKNESS VARIANCE CIRCUMFERENTIAL BEFORE BURNISHING | 0.05                                                                                   | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| -                                                                                                                                                                                                                                                                                        | TILT ON X FACE                                       | 0.08 MAX                                                                               | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| -                                                                                                                                                                                                                                                                                        | RUN-OUT ON Ø132 FACE                                 | 0.08 MAX                                                                               | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| -                                                                                                                                                                                                                                                                                        | ROUGHNESS ON Ø 134                                   | Rz100 x 8.0                                                                            | Roughness Tester                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| -                                                                                                                                                                                                                                                                                        | ROUGHNESS ON 4-HOLES Ø12.5                           | Rz100 x 0.25                                                                           | Roughness Tester                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 16                                                                                                                                                                                                                                                                                       | COUNTER DEPTH                                        | 3.5 <sup>+0.4-0.0</sup>                                                                | Depth Vernier Caliper                   |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 40                                                                                                                                                                                                                                                                                       | COUNTER ANGLE                                        | 90° <sup>±1°30'</sup>                                                                  | Bevel Protector                         |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 60                                                                                                                                                                                                                                                                                       | ANGLE                                                | 45° <sup>±2'</sup>                                                                     | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| 59                                                                                                                                                                                                                                                                                       | ANGLE                                                | 90° <sup>±0.17°</sup>                                                                  | Checking Fixture                        |     | Every New Setting               | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
| -                                                                                                                                                                                                                                                                                        | DIAMETER                                             | ø155 <sup>±0.5</sup>                                                                   | Vernier Caliper                         |     | 100%                            | -                           | 5 Pcs/Shift 1 Pcs / 1.5 Hr |            |  |
|                                                                                                                                                                                                                                                                                          |                                                      |                                                                                        |                                         |     |                                 |                             |                            |            |  |
|                                                                                                                                                                                                                                                                                          |                                                      |                                                                                        |                                         |     |                                 |                             |                            |            |  |
| <div><div></div><div>Legend Show Jaws Clamping</div><div></div><div>Legend Show Critical Dimension</div></div> |                                                      |                                                                                        |                                         |     |                                 |                             |                            |            |  |
| MATERIAL                                                                                                                                                                                                                                                                                 |                                                      | FC220P                                                                                 |                                         |     |                                 |                             |                            |            |  |
| PART NAME                                                                                                                                                                                                                                                                                |                                                      | DISK FR BRAKE (262mm Painting)                                                         |                                         |     |                                 |                             |                            |            |  |
| PART No                                                                                                                                                                                                                                                                                  |                                                      | 45251-3S6-T000                                                                         |                                         |     |                                 |                             |                            |            |  |
| MODEL                                                                                                                                                                                                                                                                                    |                                                      | 3AM                                                                                    |                                         |     |                                 |                             |                            |            |  |