Instruction Manual

Automatic Bun Divider & Rounder

Feature With

“Sunflower” plate as position indexer
More control features and memories
# INDEX

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1.0 General

The Automatic Dough Divider & Rounder Machine (DDR) is designed for dividing soft and mixed wheat dough, and the divided pieces are rounded with a plastic plate in circular motion. The rounding mechanism is furthered improved with a 2\textsuperscript{nd} Stage Rounder. In general, this machine has (5) main parts.

(i) The Feeding Portion
(ii) The Dough Dividing Drum
(iii) Horizontal Rounding Plate
(iv) 2\textsuperscript{nd} Stage Rounder
(v) Discharge Conveyor Belt
**Technical Specification:**

Machine Type: CONTINUOUS AUTOMATIC DOUGH DIVIDER & ROUNDER

DOUBLE STAGE Rounding

<table>
<thead>
<tr>
<th>Technical Data</th>
<th>DDR 5PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension (W x L x H) mm</td>
<td>1120 x 1910 x 1446</td>
</tr>
<tr>
<td>Capacity (Approx….pcs/hour)</td>
<td>5500</td>
</tr>
<tr>
<td>Dough Weight (Approx….GMS) *selective based to customer requirement; only 1 weight range (either Size A or Size B) will be set for each machine.</td>
<td>*Size A : 30 – 80 *Size B : 50 – 120</td>
</tr>
<tr>
<td>Machine Weight (Approx….Kg)</td>
<td>900</td>
</tr>
<tr>
<td>Motor HP Kw</td>
<td>Overall 2 Overall 1.5</td>
</tr>
<tr>
<td>Electric Power</td>
<td>230V</td>
</tr>
<tr>
<td>Current Ampere (Approx….Amp)</td>
<td>12Amp</td>
</tr>
<tr>
<td>Air Pressure (Approx….MPA) [For optional rounder only]</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Machine design & specification are subject to change without prior notice.
1.2 Features
The system exhibits a few features or functions as indicated below:

- **Product control recipes**: there are six designed “Product Number” namely 1 to 6, of which subsets are “Dough Size”, “Rounding Height” and “Rounding Time”.
- **Output Conveyor firing point**, corresponding with the drum action, can be adjusted. This feature enables the user to adjust the firing point of the output conveyor for a variety type of dough.
- “2nd Rounder” active selection.
- **Alarm**: display of pre-defined alarms in the HMI.
- **Message and help at critical page**: This message and help do provide text information to the user.
2.0 **Operation**

This chapter describes basic operating principle of automatic dough divider and rounder machine.

2.1 **Operating Principle:**

This machine incorporates a touch screen operator panel that makes the machine operation easy and simple to use. The weight of divided dough can be adjusted by ways of buttons in touch screen. Numerical value is displayed for many parameters like dough size, rounding height, rounding time and product number.

The mixed dough is fed in bulk into the feeding bowl. Below the feeding bowl, there is a pusher block that pushes dough into dough dividing drum. The amount of dough that travels into the pusher block is controlled with a dough cutter. When enough dough has fallen down into the pusher block area, the dough cutter will stop its motion.

As dough is fallen down into the pusher block area, the pusher block will press the dough into the dough-dividing drum. After that, the drum rotates 90 degrees to vertical position. (See figure 2, below)

![Horizontal Rounding Plate](image)

**Figure 2**

At this position, the rounding plate will round the dough in piston hole.

When this process is complete, the drum will rotates 90 degree towards discharge conveyor belt.

At this position, the dough pieces will be pushed out to conveyor and discharge. At discharge conveyor, the dough pieces are further rounded with 2\textsuperscript{nd} Stage Rounder. The second rounder incorporates five (optional) rounding cups that encircle the dough in the same row on conveyor belt, then round the dough until the preset value is reached. After this stage, the dough pieces are traveled out of discharge conveyor and the above cycle continue. The detail description of 2\textsuperscript{nd} Stage Rounder can be referred at section 2.3.16 in this manual.
3.0 Human Machine Interface (HMI)

At power on, the default page is page zero, where company addresses and contact numbers are listed. Press to continue to “Main Page” as below.

The “Main Page” lists main categories of control pages. There are:

- **Category: Operation**
  - “START” & “STOP”: Momentary buttons to start and stop the operation. No operation is allowed when alarm is triggered.

- **Category: Alarm**
  - “SYSTEM NORMAL”: Page Switch. Refer to “ALARM”. Further detail below.

- **Category: Memory Storage & Retrieval**
  - ”Product Number”: Page switch. Call saved parameters from memory bank to be default. Further detail below.
  - “MEMORY”: Page switch. Save and edit parameters of memory bank. Further detail below.

- **Category: 3 subsets of Product number**
  - “Rounding Height”: Page switch. 1st rounder height setting. Further detail below.
3.1 Category: Store & Retrieval of Key Parameter From Memory Bank

There are totally six sets of designed memories, namely “PRODUCT NUMBER”. Entering a new number and press the key to confirm selection. The default settings will be altered as selection. Setting ranges from 1 to 6. If there is an incomplete cycle due to alarm, no “PRODUCT NUMBER” call is allowed. Product No. 11 means “Non-Memory” call, of which either one out of five subsets parameters is different from “PRODUCT NUMBER” call.

Each sets of “PRODUCT NUMBER” consist of three subsets of parameters as shown below. These subsets of parameters are:

- **Dough Size**: Unit in grams. The maximum and minimum of dough weight depend on the teaching parameters during dough size setup.
- **Rounding Height**: Unit in counts. The height of 1st rounder can be set from number 3 to 7. Height is determined by “16 Keys Sunflower”. (See “16 Keys Sunflower”)
- **Rounding Time**: Unit in counts & 0.1 second. This parameter determines the rounding count at 2nd Rounder as well as the rounding time at 1st Rounder in 0.1 second per unit. The parameter ranges from 1 to 99.

These three subsets of parameter of “PRODUCT NUMBER” can be saved and edited in “Memory Bank” page. Changing “PRODUCT NUMBER” would display saved subset parameters in P.V column. Press “Download” to save all subset parameters referred to a “PRODUCT NUMBER”.
3.2 Category: 3 Subsets of The Product Number

- **DOUGH SIZE ADJUSTMENT**

The size can only be altered in between the 1 to 85. The dough size can be manually changed regardless of the current Product Number, and any adjustment would changed Product Number to number “11”, indicating Non-Memory product call.

- **Rounding Height**

The 1st Rounder Height can be manually altered regardless of current default setting. Any adjustment would changed “Product Number” to number “11”, meaning Non-Memory product call. Setting ranges from 3 to 7. The rounding speed can be adjusted manually by turning a speed dial on the inverter control panel.
- **Rounding Time**

The 2\textsuperscript{nd} Rounder turning counts and 1\textsuperscript{st} Rounder rounding time in 0.1sec per unit. Any adjustment would changed “Product Number” to number “11”, meaning Non-Memory product call. Setting ranges from 1 to 99. The rounding speed can be adjusted manually by turning a speed dial on the inverter control panel.

- **Output C/V Pitch**

The Output C/V Pitch can be manually altered regardless of current default setting. Any adjustment would changed “Product Number” to number “11”, meaning Non-Memory product call. Setting ranges from 50 to 250. Press “Firing Point” to switch HMI page to alter the firing timing corresponding with the drum action.
System must be fully stopped to set a new firing position. The “Sunflower” is the heart of the system operation, where the drum stopping position (1st Rounder Height) and the output conveyor firing point are indexed. The “Sunflower” has 16 keys; Key 1 and 2 is dummy, keys 3 to 7 for the drum-stopping index, keys 8 to 16 for the output conveyor firing position. Remember: Always set “1st RD Height” at the minimum while at this page.
3.3 Category: Alarm
There are 2 defined alarms.
- Safety Door Opened: Fatal. All operation stops. Except at Setup: I/O Test

In order to clear PLC internal sequence memory, press Emergency Switch then press “Clear Internal Sequence” to clear PLC action flags. Release Emergency Switch, and re-start.
4.0 2nd Stage Rounder

For DDR with 2nd Stage Rounder, if it is found that the dough is hard and dry and does not need additional rounding, press Rounder In-Active to turn to the following page:

There is an option to choose the 2nd Stage Rounder to work or the DDR can be set to run without using the 2nd Stage Rounder. However, the air supply to the machine should not be dismantled as the 2nd Stage Rounder needs stay at its extended position to let the dough discharge out from discharge conveyor.
The 2nd Stage Rounder is used to round the dough to further improve the output dough quality. This part consists of:

i) Rounding Cup.

ii) Release Knob.

iii) Rounding Cup Height Adjuster.

(Refer Figure 4)

The basic operation principles of this portion are as follows:

When the dough comes out from dough dividing drum, they will travel on the discharge conveyor. The distance of travel depends on the speed regulator / speed controller setting (as shown in Figure 5). Initially, the speed regulator is adjusted to make the dough stop at a position below the rounding cup. With the dough stops at this position, the rounding cup will move downwards to encircle the dough and rounds. The number of rounds is controlled by parameter “Rounding Time” in Touch Screen operator panel. A proximity sensor is used to count the rounding cycle in this case.

After that, when the rounder has completed its rounding process, it will move upwards and stop its rotation.
4.1 Adjustment of Rounding Height for 2\textsuperscript{nd} stage Rounder

Due to the fact that the size of output dough might vary, it is necessary to adjust the rounding height to get optimum result. The bigger the dough size, the greater rounding height is required. The adjustment of rounding height is gained through a rack and pinion system as shown in the picture below. (Figure 6)

The procedure of adjustment is:

i. Turn the Release Knob into anti-clockwise direction to loose the rack and pinion.

ii. Adjust the ‘Rounding Cup Height Adjuster’ (Figure 7);
   -- turn into clockwise direction to decrease the height,
   -- turn in anti clockwise direction to increase the height.

iii. Tighten the Release knob after the adjustment.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure6.png}
\caption{Figure 6}
\end{figure}
**Option: The optional 2\textsuperscript{nd} Rounder Set**

If it is found that the rounding cup is oversized, it is possible to change the whole 2\textsuperscript{nd} rounder set simply by dismantle two hex screws and replace with a new Rounder set.

*Please refer to Figure.4 and Figure.7 Hex Screw.*

*Remarks: The new complete 2\textsuperscript{nd} Rounder set is an optional part only.*

FIGURE 7
5.0 Dough Filling Cover

The Dough Filling Cover (Top) – Close Inner Cutter is in Operation.

Magnetic Switch

The Dough Filling Cover (Top) – Open Magnetic Switch detect motion, the inner cutter automatically turn “OFF”.

6.0 DAILY CLEANING

It is required that at the end of each working day, the machine has to be completely emptied of dough or small dough portions that could have got stuck into the detachable elements of machine.

Please follow the instruction below

1. Open the back cover of the machine (i).
2. Pull up the dough-feeding portion (ii) by release the side hook and hold it with stopper bar (iii).
3. Turn down the lock handle (iv).
4. Pull up the portion (v) and hook up it (vi)
5. Take out the pusher block (vii)
6. Clean all portion and install back.

Turn the knob Anti-clockwise To open.
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3. Turn down the lock handle (iv).
4. Pull up the portion (v) and hook up it (vi)
5. Take out the pusher block (vii)
6. Clean all portion and install back.
Turn the knob
Anti-clockwise To open.
6.1 Lubrication

Apart from the daily cleaning, it is important that the pusher block is well-lubricated to maintain the main pusher shaft in good condition.

Pull up the pusher block (A)

To apply or spread with edible oil or edible grease on bottom surface (A) & upper surface (B).
6.0 Maintenance and Inspection

6.1 Cleaning
Daily cleaning on the pusher block, as described on section 3, is very important. The cleaning prevents dough remnants in the pusher block area. It is recommended to apply vegetable oil on the plate under the pusher block.

6.2 Daily Check

Certain points are worth noted before we start to run the machine. The machine should be stopped in the event of an abnormality. Take the necessary measures, with reference to the “Causes of trouble and Troubleshooting”, section 6.

<table>
<thead>
<tr>
<th>No</th>
<th>Check Point</th>
<th>Details</th>
<th>How to Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Conveyor Belt</td>
<td>Conveyor belt is at center position while machine runs.</td>
<td>Visual</td>
</tr>
<tr>
<td>2</td>
<td>Touch Screen</td>
<td>The touch screen operator panel is clear and the backlight on touch screen is lit on.</td>
<td>Visual</td>
</tr>
<tr>
<td>3</td>
<td>Emergency stop switch</td>
<td>E/Stop switch is fixed properly and can stop machine operation immediately.</td>
<td>Visual + Hands-on</td>
</tr>
<tr>
<td>4</td>
<td>Abnormal Sound</td>
<td>Run the machine. Check if there is any abnormal sound.</td>
<td>Audio</td>
</tr>
<tr>
<td>5</td>
<td>Incoming air supply</td>
<td>Check if the air pressure is around 4 to 7 MPA</td>
<td>Visual</td>
</tr>
</tbody>
</table>
6.3 Periodic Check

As preventive measure, a maintenance check should be carried out in an interval of six (6) months. All maintenance work shall be carried out only when the machine is unplugged from power supply.

<table>
<thead>
<tr>
<th>No</th>
<th>Check Items</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chains</td>
<td>Open the side cover lid. Inspect the main transmission chain tension. Clean residual grease around the chain area. Apply grease on the chain.</td>
</tr>
<tr>
<td>2</td>
<td>Main motor V-belt</td>
<td>Main motor V-belt is located at the right bottom of the machine. Inspect the V-belt tension, and tighten if the belt is too loose by adjust the motor position.</td>
</tr>
<tr>
<td>3</td>
<td>Electric Switch box</td>
<td>Housekeeping the electric switch box using air spray gun. Clean the waste flour or dough around the switch box and inside the switch box.</td>
</tr>
<tr>
<td>4</td>
<td>Magnetic Clutch and Brake</td>
<td>Inspect the gap between clutch pad and clutch. The optimum gap should be 0.5mm to 1mm only. Rotate the clutch with belts, make sure there is no friction between clutch/brake pad and clutch/brake.</td>
</tr>
<tr>
<td>5</td>
<td>Proximity Sensor</td>
<td>Inspect the proximity sensor. Clean the sensor head.</td>
</tr>
<tr>
<td>6</td>
<td>Motor</td>
<td>Inspect if there is any squeaking sound comes from motor shaft.</td>
</tr>
<tr>
<td>7</td>
<td>Inverter</td>
<td>Inspect if the inverter speed (Hertz) can be varied according as described in section 2.2.1.</td>
</tr>
<tr>
<td>8</td>
<td>Pneumatic Cylinder and air tubing (for optional rounder only)</td>
<td>Inspect for any leakage in air tubing. Clean any oil residue on cylinder shaft. Use air spray gun, housekeeping the cylinder area.</td>
</tr>
</tbody>
</table>
8.0 Inverter Parameter Setting and Alarm

Inverter Type : Mitsubishi FR-S500

When a new inverter is installed, the below parameters need changed / verified before the machine can get in operation;

**PARAMETER SETTING:-**

Main Inverter (INV 1)

<table>
<thead>
<tr>
<th>Parameter No</th>
<th>Name</th>
<th>Setup</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Maximum Frequency</td>
<td>50</td>
<td>Hz</td>
</tr>
<tr>
<td>P2</td>
<td>Minimum Frequency</td>
<td>0</td>
<td>Hz</td>
</tr>
<tr>
<td>P3</td>
<td>Base Frequency</td>
<td>50</td>
<td>Hz</td>
</tr>
<tr>
<td>P7</td>
<td>Acceleration Time</td>
<td>1.0</td>
<td>Second</td>
</tr>
<tr>
<td>P8</td>
<td>Deceleration Time</td>
<td>0.5</td>
<td>Second</td>
</tr>
<tr>
<td>P30</td>
<td>Extended Function Display Selection</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>P38</td>
<td>Frequency Setting Voltage Gain Frequency</td>
<td>50</td>
<td>Hz</td>
</tr>
<tr>
<td>P73</td>
<td>0: For 0<del>5VDC input  1: For 0</del>10VDC input</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>P79</td>
<td>Operation Mode</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

1st Rounder (INV 2) & 2nd Rounder (INV 3)

<table>
<thead>
<tr>
<th>Parameter No</th>
<th>Name</th>
<th>Setup</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Maximum Frequency</td>
<td>50</td>
<td>Hz</td>
</tr>
<tr>
<td>P2</td>
<td>Minimum Frequency</td>
<td>0</td>
<td>Hz</td>
</tr>
<tr>
<td>P3</td>
<td>Base Frequency</td>
<td>50</td>
<td>Hz</td>
</tr>
<tr>
<td>P7</td>
<td>Acceleration Time</td>
<td>1.0</td>
<td>Second</td>
</tr>
<tr>
<td>P8</td>
<td>Deceleration Time</td>
<td>0.5</td>
<td>Second</td>
</tr>
<tr>
<td>P30</td>
<td>Extended Function Display Selection</td>
<td>1</td>
<td></td>
</tr>
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<td>P38</td>
<td>Frequency Setting Voltage Gain Frequency</td>
<td>50</td>
<td>Hz</td>
</tr>
<tr>
<td>P79</td>
<td>Operation Mode</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**WARNING !!!**

ANY ADJUSTMENT / CHANGES MADE ON THE STANDARD SETTING & EXCEED MACHINE LIMITATION ; THE WARRANTY WILL AUTOMATICALLY VOID !!
To Change Parameter:

1) Confirm the “RUN” indication and operation mode indication.
   - The inverter must be at a stop.
   - The inverter must be in the PU operation mode.

2) Press the “MODE” key to choose the parameter setting mode.
3) Turn the setting dial until the parameter number P1, P2, P3 ……… appears.
4) Pressing the “SET” key shows the currently set value.
5) Turn the setting dial to change the set value.
6) Press the “SET” key to set the value.
   - By turning the setting dial, you can read another parameter.
   - Press the “SET” key to show the setting again.
   - Press the “SET” key twice to show the next parameter.

To Change The Speed:

- Turn right the setting dial to change motor speed faster
- Turn left the setting dial to change motor speed slower.
- Press “SET” key to set value.

WARNING !!!
ANY ADJUSTMENT / CHANGES MADE ON THE STANDARD SETTING & EXCEED MACHINE LIMITATION ; THE WARRANTY WILL AUTOMATICALLY VOID !!
## INVERTER DISPLAY ALARM

<table>
<thead>
<tr>
<th>Panel Indication</th>
<th>Check Point</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OC1</strong> Overcurrent cut-off during acceleration</td>
<td>Check for sudden acceleration. Check for output short circuit / ground fault.</td>
<td>Increase the acceleration time.</td>
</tr>
<tr>
<td><strong>OC2</strong> Overcurrent cut-off during constant speed</td>
<td>Check for sudden load change. Check for output short-circuit / ground fault.</td>
<td>Keep load stable.</td>
</tr>
<tr>
<td><strong>Ou1</strong> Regenerative overvoltage cut-off during acceleration.</td>
<td>Check for slow acceleration.</td>
<td>Decrease the acceleration time.</td>
</tr>
<tr>
<td><strong>Ou3</strong> Regenerative overvoltage cut-off during deceleration or stop.</td>
<td>Check for sudden speed reduction.</td>
<td>Increase the deceleration time. Decrease the braking duty. Install a power factor improving reactor.</td>
</tr>
<tr>
<td><strong>THN</strong> Motor overload cut-off.</td>
<td>Check the motor for use overload.</td>
<td>Reduce the load weight. Change the Pr.71.</td>
</tr>
<tr>
<td><strong>THT</strong> Inverter overload cut-off.</td>
<td>Check the motor for use under load.</td>
<td>Reduce the load weight.</td>
</tr>
<tr>
<td><strong>Fin</strong> Fin Overheat</td>
<td>Check for too high ambient temperature. Check for cooling fin clogging.</td>
<td>Set the ambient temperature to within the specification.</td>
</tr>
<tr>
<td><strong>GF</strong> Ground fault overcurrent protection.</td>
<td>Check for fault in the motor and connection cable.</td>
<td>Remedy the ground fault portion.</td>
</tr>
<tr>
<td><strong>OHT</strong> External thermal relay (*2)</td>
<td>Check for motor overheating. Check that the value of 7 (OH signal) is set correctly in any of Pr. 60 to Pr. 63 (input terminal function selection).</td>
<td>Reduce the load and operating duty.</td>
</tr>
<tr>
<td><strong>OLT</strong> Stall prevention</td>
<td>Check the motor for use under overload.</td>
<td>Reduce the load weight.</td>
</tr>
</tbody>
</table>
**OPT**  
Communication error.  
Check that the connector is plugged securely.  
Make connection securely. Please contact your sales representative.

## INVERTER DISPLAY ALARM

<table>
<thead>
<tr>
<th>Panel Indication</th>
<th>Check Point</th>
<th>Corrective Action</th>
</tr>
</thead>
</table>
| **PE**  
Parameter storage device alarm. | Check for too many number of parameter write times. | Please contact your sales representative. |
| **PUE**  
Parameter unit disconnection. | Check that the FR-PU04 is fitted securely.  
Check the setting of the communication parameter n17 “disconnected PU detection”. | Fit the FR-PU04 securely.0 |
| **TET**  
Retry count over. | Find the cause of alarm occurrence. | Eliminate the cause of the error preceding this error indication. |
| **CPU**  
CPU error. | - | Please contact your sales representative. |
9.0 Spare Part List

*Instructions – Automatic Dough Divider & Rounder*
NOTE: Please specify in details the measurement for Cir-clip & Spring.

For Bearing, please let us know the details on the bearing itself.
**DDR 081.00.2**
Sprocket
06B x 1R x 41T
Hole: 74mm

**DDR 085.00.1**
Sprocket
06B x 1R x 15T
Hole: 15mm
Key: 5mm

**DDR 087.00.1**
Sprocket
06B x 1R x 17T
Hole: 8mm

**DDR 090.00.1**
Sprocket
06B x 1R x 20T
Hole:
6004 Bearing

**DDR 092.02.1**
Sprocket
06B x 13T -
06B x 20T x 2
Hole: 6003-2RS Bearing

**DDR126.00.1**
Sprocket
10B x 1R x 14T
Hole: 6004-2RS Bearing

**DDR145.00.1**
Sprocket
10B x 1R x 24T
Hole: 51mm
Key: 14mm

**DDR146.00.1**
Sprocket
10B x 1R x 24T
Hole: 45mm
Key: 14mm

**DDR 308.00.1**
Sprocket
06B x 1R x 15T
Hole: 15mm
Key: 5mm
**Note:** Please specify in details the measurement (sprocket) and let us know the details on the sprocket itself.
DDR 012.00.1
Ball Bearing A: 6201-2RS

DDR038.05.1
Ball Bearing B: 6201-2RS
Ball Bearing C: UCP205/MM

DDR 019.00.1
Ball Bearing D: NKI 20/16

DDR 040.00.1
Ball Bearing F: CSK 25

DDR 044.00.1
Bearing G: CF-12

DDR 045.00.1
Ball Bearing G: 6002-2RS
Bearing H: CF10-1uu
DDR 055.00.1
Ball Bearing I: 6207-2RS
Ball Bearing J: 6205-2RS
Ball Bearing K: RPNA 20/35

DDR 057.00.1
Ball Bearing L: RPNA 20/35
Ball Bearing M: 6205-2RS
.E-I-203 On / Off Main Switch
.E-R14/24DC Relay 14 Pins, DC24V
.E-SR-G3NA SSR G3NA-D210B -DC5-24
.E-EC-J200 Koyo Rotary Encoder JRZ-200
.E-LS15GK55 Limit Switch (Safety Back Cover)
.S-NBN5-F7 P + F Proximity Sensor NBN5-F7
.E-PLC-C32T Nais PLC transistor output
.INV-MIT-/FR-S520SE MITSUBISHI Inv. 1HP
.MB-5/520.200.0 Mayr Magnetic Brake
.MC-5/500.200.0 DC24V Mayr Clutch
.E-LS1704 Limit Switch & Safety Back Cover
.MC-08.03.110 DC24V KEB Clutch
.E-TP-GT-30M Programmable Touch Panel (Nais)

.E-R8/24DC Relay 8 Pins DC24V

.M-2RK6GN-CWE Motor

.GH-2GN36K Gear Head

.M-US540-402E Motor

.GH-5GN15K Gear Head
DAILY CLEANING

Blow Air Through Hole A & B Regularly.
Apply grease daily at pointed area in picture 1 & 2
DAILY CLEANING

Apply grease daily at pointed area in picture 3 & 4
Apply Anti-Rust Spray (i.e. WD 40) daily at circled area in picture 5 & 6
DAILY CLEANING

Apply Anti-Rust Spray (i.e. WD40) daily at circled area in picture 7 & 8