AUTOMATIC WINDING MACHINE
-- For Metallized Film Capacitor

URM Series
-Single Pressure Roller-

With Cover Film

Standard Type

For Dual Side Metallized Film

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Auto Winding M/C (Single Pressure Roller Type) - For Metallized Film Cap.  

**Feature**

- Two or three mandrels rotating to assure short cycle time.
- Tension controlled by DC servomotor; main winding by AC servomotor.
- The outside seal uses the digit display PID control (PID control ±1%). The products have good appearance.
- Process control system by IPC 586 computer, with hard disk to memorize 600 sets of specification, easy to change production specification.
- It has 3.5" disk driver, which is able to correct process and backup them.
- Automatic indication function for self-examining breakdown. When machine breakdown, it can self-testing to find reason and show the situation on the screen. It's able to indicate the inspection and repairable methods.
- Speed up/down rate setting functions, excellent for high current, high voltage and interference suppressors class X2 capacitor.
- With electronic burn off control system, speed adjustable and suitable for Al. or Zinc/Al. metallized layer, the de-metallizing effect is very good.
- Main winding up to 9000 RPM.

**New Design**

- When the film thickness less than 3µm, to use machine with cover film to avoid the main winding element burnt out.
- For the high capacitance and low voltage specification to use machine with cover film to save the film cost.

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**Screen of Control Display**

![Screen of Control Display](image)

- **(F1)** file: 1  Cap: 0.47 uf  +10%  -10.0%  Mate: MPE 14.0x4.8x1.5_1.0mm

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![Diagram](image)

- **(F2)** Inside Burn
- **(F3)** Tension Speed
- **(F4)** Tension
- **(F5)** Clear Count
- **(F6)** Calculate Turn
- **(F7)** Printer Data
- **(F8)** Set Parameter

- **Burn voltage short !**
- **In. temperature alarm !**
- **O. temperature alarm !**
- **Tension 1 strip !**
- **Tension 2 strip !**
- **Tension 3 strip !**
- **Tension 4 strip !**
- **In. Burn strip !**
- **Out. Burn strip !**
- **Com. Burn strip !**
- **Produce over Preset !**
- **Capacity not at range !**

- **Bad** 1000  **T.Good Rate** 30664  96.73%
- **1000** 30664  96.73%

- **Hour :** 760  **PCS**
- **Per PCS :** 9.45  **SEC**

- **C a p 1 Capacity :** 3,276.75  **nf**
- **C a p 2 Capacity :** 3,276.75  **nf**

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<table>
<thead>
<tr>
<th>Model</th>
<th>URM-30 Series</th>
<th>URM-50 Series</th>
<th>URM-60 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandrel Size</td>
<td>φ1.5, 2, 2.5, 3 mm</td>
<td>φ2.5, 3, 4, 5, 6 mm</td>
<td>φ2.5, 3, 4, 5, 6 mm</td>
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<tr>
<td>Metal Film</td>
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<tr>
<td>Thickness</td>
<td>Min. 2µm</td>
<td>Min. 3µm</td>
<td>Min. 3µm</td>
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<tr>
<td>OD</td>
<td>φ180mm</td>
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<tr>
<td>ID</td>
<td>φ75mm</td>
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<tr>
<td>Dual Winding</td>
<td>5~15mm</td>
<td>8~22mm</td>
<td>8~27mm</td>
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<tr>
<td>Single Winding</td>
<td>15~27mm</td>
<td>22~46mm</td>
<td>27~50mm</td>
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<td>Al. Foil Burn Off</td>
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<tr>
<td>Thickness</td>
<td>20µm×40mm</td>
<td>20µm×55mm</td>
<td>20µm×60mm</td>
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<tr>
<td>OD</td>
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<td>ID</td>
<td>φ38~40mm</td>
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<td>Quantity</td>
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<td>Effective Mandrel</td>
<td>35mm</td>
<td>50mm</td>
<td>60mm</td>
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<td>Element Size (OD)</td>
<td>Max. φ18mm</td>
<td>Max. φ28mm</td>
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<td>Capacitance Control</td>
<td>Turns Controlled</td>
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<td>Memory Store</td>
<td>600 sets</td>
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<td>Sequential Control</td>
<td>I.P.C. Controlled</td>
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<td>Tension Control</td>
<td>DC Servo Motor Controlled</td>
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<tr>
<td>Seal Winding</td>
<td>Digit Display, PID Controlled</td>
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<tr>
<td>Power Source</td>
<td>AC220V 1φ 50/60Hz 1.5KVA</td>
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<tr>
<td>Air Pressure</td>
<td>5 kg/cm²</td>
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<td>Winding Speed</td>
<td>Max. 9000 R.P.M.</td>
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<tr>
<td>Machine Dimension</td>
<td>W1000mm × D950mm × H1780mm</td>
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<td>Machine Weight</td>
<td>About 400 kgs</td>
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</table>

**Optional**

**Item A:**
LCR Meter Function (With one set LCR meter)

- **Capacitor Control and Test Function:** This machine can be set up as capacitance control mode (to replace turns control) and the capacitance can be tested simultaneously, the computer could adjust the winding length automatically to produce high precision capacitors. But after this function was started, the production speed would become slower, and the inner and outer burn off process should be set up separately.
- **Capacitance Distributive Curve Display Function:** Available in displaying the capacitance distributive curve. It has the statistics analysis and memory function to match the request of ISO 9000 on record of quality control system standard, which is non-laborious.
- **Automatic Examination and Analysis Function:** When the capacitance tolerance is over standard, there will be a warning issued in order to avoid any wrong usage or defect material to guarantee the product’s qualified rate.
- **Automatic Winding Analysis Function:** The internal measurement system can sort out the over-size element automatically to avoid any defect goods flow to the next procedure.

**Item B:**
Printer Interface (Without Printer)

Connected with printer to print out the internal data or repair indication.
### Flow Chart

START

1. Seal Inside
2. Pressure Roller ON/OFF
3. Inside Burn-Off
4. Seal Outside
5. Hi-Speed Winding
6. Lo-Speed Winding
7. Burn off Out-Winding
8. Fixed Mandrel
9. Turn 180°
10. Mandrel OFF
11. Turn on set
STOP

### Winding Scheme

- Burn Off Material
- Split Mandrel
- Cutter
- Metallized Plastic Film
- Aluminum Foil
- Adjustable Length of Burn Off Film For Sealing of Outer Turns
- Wound Element
- Out-Seal Iron

### Production Chart

- (pcs/hour)
- (Turns)

- 1: URM-30 Series
- 2: URM-50 Series
- 3: URM-60 Series