# RLTIMRK



# M-300 USER'S MANUAL

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# **1. SECURITY INSTRUCTIONS**

#### 1.1. ACCORDING PRINCIPLE OF UTILIZATION

The design of the adaptation of the equipment it was made by following the minimum-security formalities required in the RD.1215/97. However, it may produce dangers because of the bad use, suffering damages to the machine and other stuff, and in the worst case, personal damages.

The utilization on the machine has to be allowed only in the perfect technical conditions. The operator has to know the conditions before the use, the security instructions and the possible risks. It is very important to delete the possible ambient perturbations that may harm the security.

It is absolutely banned using the machine in non-defined normal tasks. It has to be used to the use it was designed for.

The operation with the lateral doors opened or not properly closed, it is also banned. Those can only be opened when the machine is unpowered and with no pression.

The observation and knowledge of the service instructions, maintenance and inspection are part of the normal utilization.

#### **1.2. SECURITY ORGANIZATION MEASURES**

- Take care and storage the user's manual in an accessible place for the machine workers.
- As a complement of this security instructions, workers should have a good knowledge of the basic protection rules against accidents and to protect the environment, fixed by law.
- The machine workers have to read the user's manual, specially the security instructions. Those are also valid for workers who work eventually with the machine in maintenance, reparation...
- Operators must wear the clothes properly tied, in order to avoid accidental entrapments with the mobile elements of the machine. Do not wear rings, watches, bracelets, chains or

other elements that may get entrapped with the machine. Workers with long hair, must wear the hair collected.

- When necessary, use Personal Protective Equipment. Read the "Personal Protective Equipment" section in *7.2, page 23.*
- In case of detecting anomalies that could affect the security or the service, Disconnect the machine and notify immediately to the responsible.
- Do not realize modifications, additional constructions nor add accessories to machine that may affect the security functions.

#### **1.3. STAFF QUALIFICATION**

- Only the properly qualified staff can work with the machine. Pay attention to the minimum age allowed by law, and take care of workers, they must be object of special attention, as the preventive occupational hazards law dictates.
- Guarantee that only authorized personnel works with or manipulates the machine.
- Establish clearly the attributions and the tasks of the workers, in order to do the preparation, operation, maintenance or reparation of the machine
- The Works and manipulations in pneumatic equipment it only can be made by a specialist or a qualified worker under a specialist supervision.

#### **1.4. SECURITY AND OPERATION**

#### Before the start up:

- Take the appropriate measures with the purpose of the machine Works only in safe conditions. It can only operate, when security and protection items work properly.
- Verify once a work shift if there are visible deficiencies or anomalies that may affect the security of the machines or the workplace. In case of detecting someone, notify immediately to the responsible. If this affect the essential security requisites, stop the machine right away.
- Check that there is nobody exposed to danger or too close to a dangerous zone.

#### Start up:

- It will be done as it is explained in the section 4, page 10 called "Installation and starting up".
- Stop immediately the machine in case of detecting anomalies in the operation and disconnect the tension and the compressed air intake before manipulating it.
- Never disconnect any security item in order to manipulate the machine while is working.

#### 1.5. SPECIAL WORKS AND MAINTENANCE

- Follow the maintenance established program, and those can only be done by authorized specialized staff.
- Notice the operator of the beginning and the end of those works.
- Signpost and block the working zone with a sign and a security band (red and white).

- Instructions of connecting and disconnecting must be followed as it is explained in sections 3 and 4. The works who may require this are those which affect the service, production adaptation, modification or adjust of machine and security items and the reparations.
- The machine has to be disconnected in the maintenance or repair operations. It is also necessary to protect the machine against accidental connection.
- Only allowed staff can manipulate and subject loads. The supervisor or the one who gives orders, must keep the operator visible all the time. If there are pieces difficult to manipulate, it will be done with two operators.
- Keep the equipment clean, specially the connections and fixations. Use suitable products.
- Once the cleaning is completed, check all the connections and conductions in order to detect a scape, loose joints, or damaged points. Repair all the observed damages.
- If the machine maintenance requires to disassemble security items, then the maintenance worker will have to verify the correct operation once it be assembled again.
- The damaged parts and other elements that were replaced, will be scraped without affecting the environment.

#### 1.6. SPECIAL WORKS AND MAINTENANCE

#### Pneumatic maintenance

- Only experienced and knowledgeable personnel can perform work in such facilities
- Check lines, ducts and fixings regularly, if leaks or damage are found, they should be repaired immediately
- Release the pressure from the components before starting a repair

 Assemble the pipes correctly, check the length and quality of the replaced pipes and check that the circuit does not have any leaks.

#### Welding maintenance

- All repairs and maintenance that require welding work will be carried out in the workshop area authorized for said work
- Exceptionally, if you need to carry out welding work at the workplace follow the following safety instructions:
  - Clean the machine of dust, oil or combustible materials.
  - Protect easily damaged areas (rubber, plastics, etc.)
  - Pay special attention to keeping flammable substances away.
  - If the place where you are welding is cleaned with solvent, wash the area with water before doing it, to remove any residual solvent that may have remained.

#### 1.7. SECURITY ELEMENTS AND CORRECTIVE MEASURES

Security elements have the objective of avoiding accidents due to hits, cuts and entrapments with mobile components of the machine. All the protections are designed and installed to avoid this kind of accidents in normal operation.

Security elements cannot be manipulated neither disassembled for the purpose of annul the security functions whereby are designed.

# 2. TECHNICAL FEATURES

Electric and pneumatic features:

Supply voltage: monophasic phase + neuter + land, 50Hz a 240V ( $\pm$ 3%) C.A. Installed power: 1,5 Kw Working pressure: 6 bar

#### General Features:

Height: 1.200 mm Width: 800 mm Length: 3950 mm

Weight: 450 Kg

Capacity production: 600 cycles / hour

# 3. - GENERAL DESCRIPTION

#### 3.1. - APPLICATION DESCRIPTION

The machine M-300, is a linear machine to fold and package child and adults T-Shirt automatically.

It has a system with 4 folders at the machine entrance to fold the T-Shirt and a folder at the end of the belt to make the last fold.

With a mobile blade introduce the T-shirt in the bag. It has a charger for bags with openers shovel for open the bag and a cutting and sealing for the bag.

#### 3.2. - SECURITY SYSTEM

The machine is totally closed with a polycarbonate doors. These doors have a magnetic security sensor, if someone opens the doors with the machine in operation, it stops immediately.

There is an emergency stop button in the entrance of machine, in the operator place.

When you push the emergency stop button, the machine stop immediately and all the folders are without pressure.

To switch on the machine after an emergency stop (for open door or pushing the emergency bottom), you have to close the door or disarm the emergency bottom and then you have to push reset bottom and again the start bottom.

In the machine there are some dangerous labels to show the dangerous area.

# It is absolutely forbidden to use the machine without the safety devices properly installed and working properly.

**IMPORTANT:** If you use the machine manually without tension, the safety devices installed will be void because the system won't work.

#### 4. - INSTALLATION AND IMPLEMENTATION

Assemble of the system at the desired location and in accordance with optimal ergonomics for its operation.

Checkout the safety features (fairing, doors, etc.)

Make out the relevant electrical and pneumatic connections.

Connect the electrical protection, magneto-thermal, etc.

Connect the compressed air connection of the machine

For the operation of the machine, the procedure is as follows:

#### AUTOMATIC:

- 1. Activate the general switch.
- 2. Fill the charger with bags and leave the first bag inflated.
- 3. Adjust the temperature of cut-soldier with the temperature controller. (Work temperature: 180 195 °C)
- 4. Push reset bottom with the security door closed.
- 5. Put a T-Shirt on the folding area and fold the sleeves inward.
- 6. Simultaneously press the 2-start button.
- 7. Stars the fold of the t-shirt.
- 8. When the fold is finished the t-shirt goes to the package area.
- 9. Start the advance of the clamp, it grabs the shirt and inserts it into the bag.
- 10. When the garment is inside the bag, the clamp goes to discharge zone.
- 11. When the discharge is ready the clamp goes back to charge another garment.
- 12. With the clamp back, the cut-solder, cut and seal the bag.
- 13. When the seal is finished, the starting platform go down to eject the garment.

#### Notes:

The manipulation of any part of the system by a person, must always be done with the machine stopped and an emergency button pressed.

Maintenance operations shall be conducted by the head of maintenance with the machine stopped, and disconnecting previously pneumatic and electrical power.

# ¡Any manipulation or modification not made by the manufacturer is responsibility of machine's user!



#### **5.- OPERATION OF THE CONTROLS**

Under special requirement by the client, a pedal is supplied to replace the conventional start buttons.

With the switch indicated on the image with number 1, one can use the two start buttons or the pedal (number 10).

CAUTION: For safety reasons, when using the pedal, it must be placed at a distance of at least 80 centimetres from the machine. Nothing or anybody shall be close to the folders when folding process is initiated.



## **TEMPERATURE CONTROLER**



FILTER PRESSURE REGULATOR



Work pressure 6 bars

Filter pressure Regulator

# FOLDING VALVES



Air valve to folders



# ENTRANCE FOLDER



Folder cycle: 1) queue folder 2) left folder 3) right folder 4) Last folder

# INTRODUCER CLAMP





Last folder in clamp

<u>BAG'S AREA</u>





CUT AND SOLDER AREA



# DISCHARGE AREA



Lower discharge cylinder

<u>OUT</u>



# ELECTRIC AND PNEUMATIC PANEL



## FORMAT CHANGE



You can change the size of fold with the wheels to move the side folders



You can change the size of fold moving the screw of in front folder

**Back folder** 



Screw for adjusting folder

You can change the size of fold moving the screw of back

# SENSOR ON THE DOORS



# **CHANGE CLAMP**



Cylinder to open the mobile clamp



The position for the sensor is ON: Close Clamp and OFF: Open clamp

# HOW TO ADJUST THE SENSORS FOR MOBILE CLAMP



Without T-shirt the lamps led must be: Green: ON Red: ON



With T-Shirt the lamps led must be: Green: ON Red: OFF

#### 6.- MAINTENANCE PLAN

6.1.- Parts list

#### ELECTRIC PARTS:

- Inverter GENERAL ELEC. 75Kw-220V (5 un) (2 un)
- Motor TERCESA MRT 28 F relation 1/7 potency 0,18 Kw (2 un)
- Power Supplay WEIDMULLER 24V DC 3A (1 un)
- PLC DELTA DVP-14SS (1 un.)
- Relay MOELLER 9A 24V (2 un)
- Security Relay PILZ PNOZX7 24VAC/VDC (1 un.)
- Automatic Switch 1p + N 10A (4 un)
- Photocell SIK SICHMHL 15P3336 (2 un)
- Inductive SIK SIC6011983 M12 PNP (5 un)
- Yellow Push-button Mooler (1 un)
- Green Push-button MOOLER (2 un)
- Push-button emergency stop with inerlock MOOLER (1 un)
- Selector 0-1 MOOLER (1 un))
- Red Push-button MOOLER (1 un)
- Motorized Guide COTRANSA UTIL 2000 mm (1 un)
- Resistance 400W, Ø10mm, 220V
- Temperature prove (1 un)
- Temperature controller OSAKA 48 (1 un)
- Photocell M-18 (2 un)

#### 6.2.- PNEUMATIC EQUIPAMENT METALL WORK

- Cylinders ACM Ø25mm x 100mm (4 un)
- Cylinders ACM Ø16mm x 25mm (1 un)
- Cylinders ACM Ø25mm x 60mm (1 un)
- Cylinders ACM Ø25mm x 50mm (1 un)
- Cylinders CRX Ø90mm 90 degree (2 un)
- Cylinders Ø25mm x 80mm (1 un)
- Cylinders ACM Ø20mm x 70mm (2 un)
- Cylinders ACM Ø20mm x 60mm (2 un)
- Cylinders Ø25mm x 150mm (1 un)
- Solenoid EW52 1/8" (15 un)
- Filter regulator VESTA (1 un)
- Base Plate 4 elements 1/8" (1 un)
- Base Plate 8 element 1/8" (1 un)
- Bearings UCFL 204 (2 un)
- Tapes 88 GP X16mm
- Cylinders ACM Ø16 x 25mm

#### 6.3. - Maintenance preventive

To perform maintenance, switch off the compressed air and the tension of the machine.

The maintenance operations must be performed by the responsible for maintenance.

If operations or maintenance are done in the electric voltage of the machine, there will always be emergency stop button pressed.

#### Every week:

- Revise tapes
- Lubricate moving parts
- Clean the machine

#### Every month:

- Check tension tapes
- Check transmission belt
- Check fan and clean if it's necessary

#### Every year:

- Open side covers and make a general clean of machine
- General clean on Electric panel

## 7.- RISK ASSESSMENT and PPE

7.1.- Other possible risk:

Never invade work's area of machine when is working.

Not invade folder area when machine is working, neither the operator or other person.

# Never handle any part of the machine while is performing some movement in the machine. Neither the operator nor anybody else in the work area!

7.2.- Personal protective equipment

Gloves for work approved industrial handling.

Footwear with protection structure for industrial work.

#### IMPORTANT

Any modification in this machine needs approval from the manufacturer with revision of documentation. If it's not in that way, the warranty will lose its effect and in case of accident, malfunction or breakdown of any part of the machine, the manufacturer shall not be liable.

# PRODUCCTION PROCESS STEP BY STEP



fold





Go to 4 fold



3 fold





sensor stop sensor reduce speed



Sensor stop belts

ajust long t-shirt



Stop t-shirt point 4 fold



Closed clamp



sensor reduce speed belts



fold 4



Go to introduce bag



Finish 4 fold



Packaging



Stop T-shirt whit photocell detection



Bag solder



Discharge



Out t-shirt

# <u>8.- ANNEX</u>

ElectricSchemes





















