

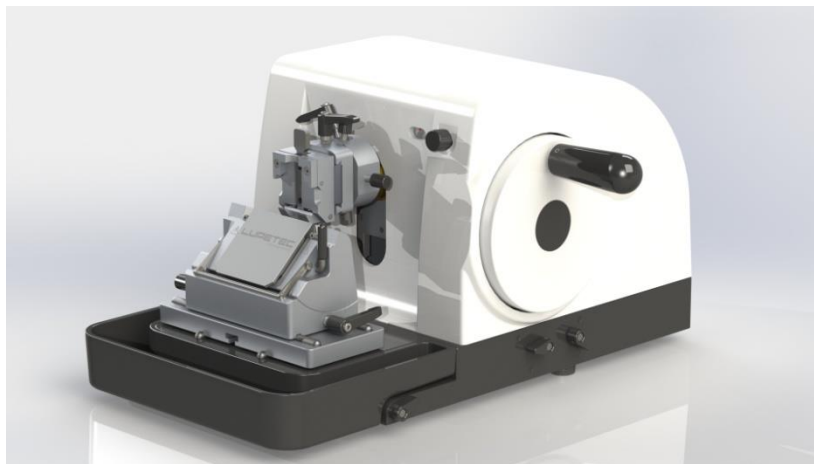
# LUPETEC<sup>®</sup>

TECNOLOGIA APLICADA



**ROTARY MICROTOME**

**MODEL MRP 2015**



**PROCEEDING MANUAL**

*Lupe Indústria Tecnológica de Produtos para Laboratório LTDA – ME*

*BRAZILIAN INDUSTRY – NATIONAL PRODUCT*

*WebSite: [www.lupetec.ind.br](http://www.lupetec.ind.br)*

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Congratulations!

You have just acquired a Product with Total Brazilian National Technology.

This product is the result of many years of research and development so that you have a product with excellent quality.

We are glad for your appreciation of the Brazilian National Industry that throughout the years has been gradually dedicating itself to deliver trustworthy products and which care for the expectations of our Customers.



**It is indispensable to read this manual before switching on any product operation.**

### **1-) Product description:**

ROTARY MICROTOME – MODEL MRP 2015 was developed for use in Pathological Anatomy Laboratory. Intended to produce cuts in paraffin embedded samples and other laboratorial, industrial and research segment materials.

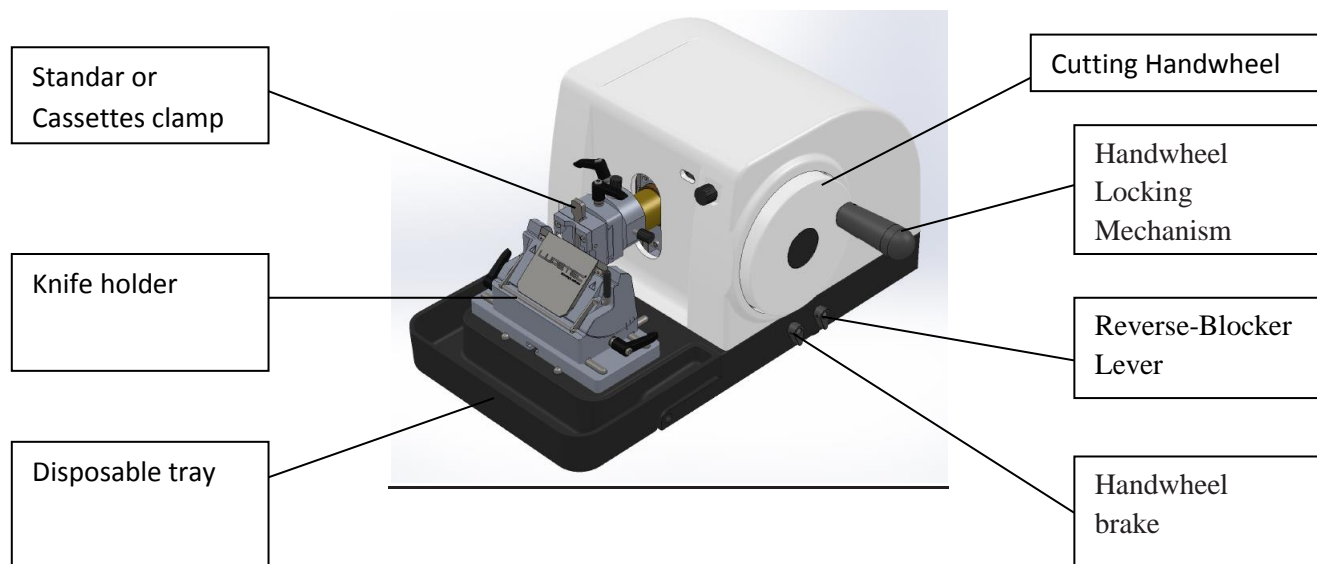
The product provides:

- Procedure Manual
- Warranty
- Disposable tray
- Knife holder for disposable blades
- Standard specimen clamp or Universal cassettes clamp
- 01 box of high profile disposable blade

## 2-) Techniques specifications of the product:

- **Proteção Contra Penetração Nociva de Água: IPX0**
- **Faixa de Temperatura : 10 a 40 ° C**
- **Retração da Amostra : 220 Micra**
- **Espessura de corte:**
  - 0 a 2 Mícrons em passos de 0,5 em 0,5 mícrons
  - 02 a 10 Mícrons em passos de 1 em 1 micron
  - 10 a 20 Mícrons em passos de 2 em 2 micron
  - 20 a 60 Mícrons em passos de 5 em 5 micron
- **Deslocamento das guias horizontais até: 40mm**
- **Deslocamento das guias verticais até: 70mm**
- **Intervalo de espessura dos cortes: 0,5 a 60 micra**
- **Coletor de Detritos**
- **Travamento em 12 horas**
- **Sistema de Trim**
- **Navalha Descartavel : Alto ou Baixo Perfil**
- **Comprimento do Equipamento: 550 mm**
- **Largura do Equipamento: 400 mm**
- **Altura total do Equipamento: 295 mm**
- **Peso Líquido: 26 Kg**
- **Peso Bruto: 31 Kg**
- **Dimensões externas da embalagem: 600mmx500mmx360mm**
- **Produto atende a Diretiva 98/37.**

## 3-) Product parts:



## 4-) Product use instructions:

Read the instructions for using the equipment in the best possible way for greater durability of the equipment. Pay attention to the precautions that need to be taken while handling the equipment.  
Read the Warranty Terms.

## **1. Application**

Lupe Microtome model MRP 2015 is a Rotational Microtome operated manually, used to produce thin cuts in specimens with different degrees of hardness, as much for routine applications, as for research in biology, medicine and industry.

It has been projected for the cutting of soft paraffin-embedded specimens, as well as harder specimens, as long as such specimens are still suitable for manual sectioning.

Any other use of this equipment is considered improper.

An identification plate indicating the equipment serial number is affixed to its side part.

You must not remove or modify the protection devices from the equipment as well as its accessories. Only the Authorized and qualified Service Center employees will be able to perform repairs and to access the internal components of the equipment.

## **2. Warnings**

The safety devices installed in this equipment only constitute the basis for injuries prevention.

Operating the equipment safely is, despite everything else, the responsibility of the owner, as well as the designated personnel who operate, fix or clean the equipment.

To ensure trouble-free operation of the equipment, make sure to comply with the following instructions and warnings.

Warnings - Transport and installation

After removing the crate, the equipment must only be carried in vertical position. Never hold the equipment by handles of the handwheels or by the horizontal advance wheel, nor by the adjustment button of the selected section thickness when transport.

The protective devices located on the equipment and its accessories must not be removed or modified.

Be extremely careful when handling the microtomes knives or blades. The cutting edge is extremely sharp and can cause serious injuries!

Always remove the knife or the blade before detaching the knife holder from the equipment.

Always put the knives back into the knife case when not in use!

Never place a knife anywhere with its cutting edge facing up and never try to grab a falling knife!

Always clamp the specimen block before clamping the knife.

Lock the handwheel and cover the knife edge with the knife protecting case before any handling of knife or specimen, before changing the specimen block and during all work breaks!

Always use safety goggles when sectioning brittle specimens! Specimens may splinter!

No Liquid must enter the inside of the equipment during the work!

Only Authorized and Qualified Service Personnel may access the internal components of the equipment for service and repair.

Lock the handwheel before starting the equipment cleaning!

Do not use any solvents containing acetone or xylene for cleaning!

No Liquid must enter the inside the interior of the equipment during the cleaning!

When using cleaning products, please comply with the manufacturer safety instructions and the laboratory labor safety regulations!

## **3. Installation place requirements**

The laboratory workstation must be Stable, vibration-free with horizontal and uniform top part; the floor must also be practically vibrations-free.

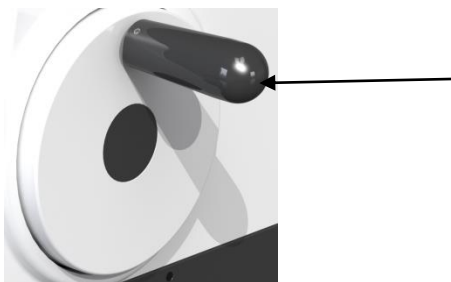
There must be no other instruments nearby which might cause vibrations.

The Room temperature must be kept between + 50 °F and 104 °F (+10 °C and +35 °C).

The handwheel must be easily accessible and non-obstructed, as well as the horizontal advancing wheel.

## 4. Integrated Safety Devices

### 4.1. Handwheel Locking Mechanism



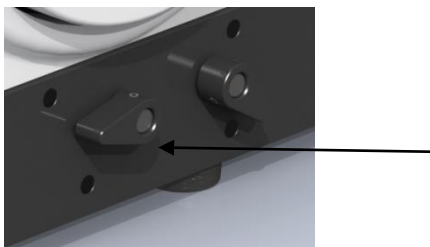
Do not change the cutting knives without locking the handwheel

The handwheel can be locked into the 13 hours position.

When pressuring the handwheel to inside (to the left), the handwheel will be locked when it reaches the next position of 13 hours.

To unlock the handwheel pull it out (to the right) and the handwheel will be unlocked.

#### 4.1.1. Handwheel brake

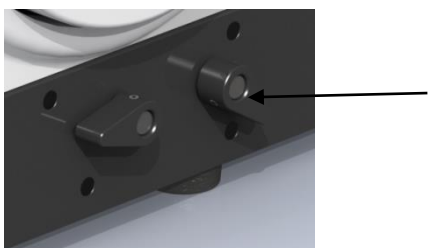


Do not change the cutting knives without locking the handwheel

It is possible to activate the handwheel brake using the lever located on the left side of the microtome basis plate regardless to the position of the handwheel lock lever. When the lever is pushed for the 9 hours position, the handwheel is unlocked.

Place the lever to the 6 hours position to unlock the handwheel brake.

#### 4.1.2 Reverse-Blocker Lever



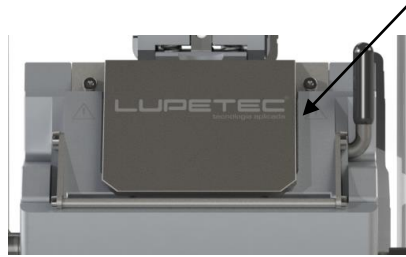
It is possible to activate the cannon backward movement so that the cassette will not scrape the back of the knife holder in the cutting movement.

The lever is located on the right side of the microtome basis plate. When the lever is in the 12 hours position, the [RECUO] will be drive. When the lever will be in the 6 hours position, the [RECUO] will not be activated.

## 5. Knife holder for disposable blades

Do not change the cutting knives without locking the handwheel.

The knife protecting case for disposable blades can be easily positioned with the cover levers of the knife protecting case. Move the protecting case upward and the protecting case will cover the knife edge, so that the knife will be protected and prevent accidents.

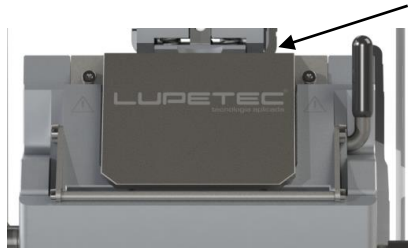


### 6. Clamping the specimen

Always clamp the specimen block BEFORE clamping the knife.  
Lock the handwheel and cover the knife edge with the knife guard before any manipulation of knife or specimen, before changing the specimen block and during all work interruptions!  
Turn the handwheel until the specimen clamp is in the highest possible position.  
Use the lever to lock the handwheel in the 12 hours position.  
Insert the specimen block in the specimen clamp.

### 7. Insertions of knife or the disposal blade

Take care when handling the microtomes knives or blades. The cutting edge is extremely sharp and can cause serious injuries!  
Insert the knife or the disposal blade with care in the knife holder and clamp it through the side lever.



### 8. Trim Angle Adjustment

To release it, turn the lever counterclockwise.  
Move the knife holder until the index mark for adjustment of the clearance angle matches the reference point in the basis of the knife holder.  
The index marks for adjustment of the clearance angle are located on the right side of the knife holder.



Figure 1

### 9. Specimen orientation

Raise the accessory stationary for specimens holder to the highest position (turning the handwheel) and lock the handwheel in the 12 hours position.  
Turn the elliptical lever (Figure 1) counterclockwise to release the subsection mechanism.

Turn the adjustment screw to guide the specimen in the North-South direction (Figure 2). Turn the adjustment screw to guide the specimen in the East-West direction (Figure 2). Turn the elliptical lever clockwise to lock the subsection mechanism.

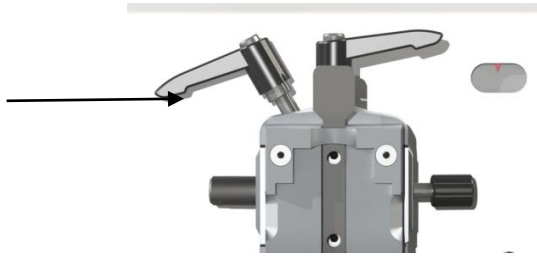


Figure 1

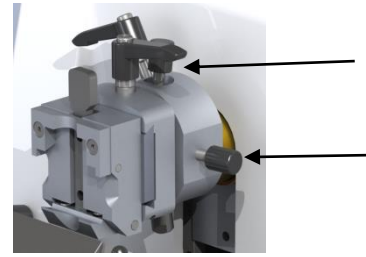


Figure 2

### 10. Specimen trimming with the horizontal advance

To unlock the handwheel: pull the lever (Figure 1) to the right and use the lever to release the break mechanism (Figure 2).

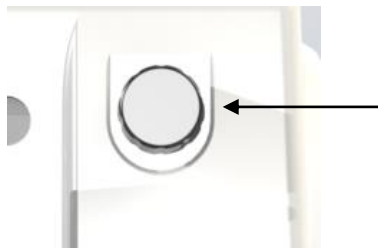


Figure 1



Figure 2

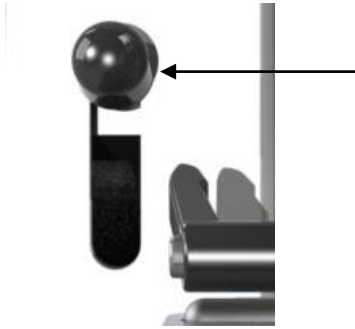
Turn the horizontal advance wheel to move the specimen gradually to the blade. At the same time, turn the handwheel to trim the specimen until the desired plan to start the sectioning. To trim the specimen, choose an appropriate sectioning thickness by using sectioning thickness selection button.



The selected thickness appears in the window.

Turn the handwheel until the specimen has been trimmed as desired.

It is possible to make a mechanical trimming that is activated by the trimming trigger.



The trimming trigger can be locked in three positions: 0  $\mu\text{m}$ , 10  $\mu\text{m}$  and 50  $\mu\text{m}$ . These points mark the two trimmings positions:

- = 10  $\mu\text{m}$
- = 50  $\mu\text{m}$

To activate the trimming function, push down the trimming trigger until the desired position and hold.

The specimen advances 10  $\mu\text{m}$  or 50  $\mu\text{m}$  every handwheel, respectively.

When the driver is released, the trimming is turned off (the driver returns to zero position).

The sectioning thickness value selected is not added to the trimming.

However, if the selected sectioning thickness is greater than the trimming value, the specimen will advance in the sectioning thickness distance without adding to the thickness value.

Turn the horizontal advance wheel to approximate the specimen gradually to the blade.

Select the desired trimming value.

Trim the specimen by turning the handwheel (until the desired plan is reached).

Release the trimming driving.

## 11. Sectioning



Always turn the handwheel in a uniform and compatible speed with the hardness of the specimen under sectioning.

The hardest specimens must be cut in lower speed.

Use the adjustment button located on the right side of the microtome front panel to select the sectioning thickness desired, unless the appropriate value is already being shown in the window.

The graduated scale line that matches the red mark corresponds to the thickness selected value.

Do the histological sectioning using a different part of the blade edge from the one used for trimming.

## 12. Specimen substitution

Lock the handwheel and cover the knife edge with the knife protecting case before any manipulation of knife or specimen, before changing the specimen block and during all work interruptions!

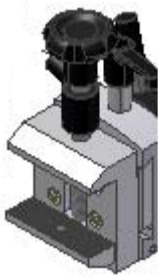
Raise the specimen to the highest position (with the handwheel) and lock the handwheel in the 12 hours position.

Cover the blade edge with the knife protecting case.



Remove the specimen of the specimen clamp and inserts the new specimen block.  
With the horizontal advancing wheel, move the specimen clamp backwards, far enough to start the trimming of new specimen block.  
Thus, if you work with a knife holder with the option of side adjustment, move the knife holder basis or the knife holder until the desired position or if the knife holder basis does not have side adjustment, move the knife or the blade.  
Start the sectioning turning the handwheel in a uniform way and in the clockwise direction.  
Pick up the sections and put them together on microscope slides.

### 13. Standard specimen clamp (to cut with blocks)



Open the clamp by turning the handle counter-clockwise  
Place the block between the cheeks  
Turn clockwise to secure the block.

### 14. Universal cassettes clamp



Pull the lever forward  
Insert the Cassette horizontal or vertically  
Release the lever to clamp the cassette in the right place.

### 15. Knife holder basis



Knife holder basis contains side movement.

Knife holder basis, which has side movement resource. The Knife holder basis, which has side movement resource consists of two parts and can be adjusted in the North-South or East-West direction.

East-West adjustment

The side movement feature turns possible the use of the whole edge of the knife, without any need to change the knife holder adjustments.

To free the subjection mechanism turns the tension lever forward (located on the left side from the knife holder basis).

Adjust the knife holder basis / blade holder sideways.

To retighten the subjection mechanism, turn the lever backwards.

## **16. Accessories**

Knife holder for disposable blades

Standard specimen clamp

Universal cassettes clamp

Knife holder basis with side movement feature

Basic Microtome MRP 09

Permanent fixture for specimen clamps steerable

Standard Cassette

## **5-) Cleaning the equipment:**

Always remove the knife or the blade before detaching the knife holder from the equipment.

Always put the knives back into the knife protecting case when not in use!

Never place a knife anywhere with its cutting edge facing up and never try to grab a falling knife!

When using cleaning products, please comply with the manufacturer safety instructions and the laboratory labor safety regulations!

Do not clean the external surfaces with alcohol or cleaning products containing alcohol (glass cleaner), nor with abrasive products or solvent that contains acetone or xylene!

Enameled surfaces are not resistant to acetone or xylene!

No Liquid must enter the inside of the equipment during the cleaning!

Execute the following preparatory steps before each cleaning:

Move the specimen clamp until the highest and lock the handwheel.

Remove the blade/knife from the knife holder and insert it on container at the blade dispenser basis, or put it back in the knife case.

Remove the knife holder and the knife holder basis to cleaning.

Remove specimen from the specimen clamp.

Remove the section waste with a dry brush.

Remove the specimen clamp and clean the device and the external surfaces apart.

If necessary, the external enameled surfaces can be cleaned with a mild commercial product household cleaner or soap water; and then be wiped with a cloth.

Fold the knife protective case downwards.

Turn the tension lever downwards.

Remove the blade carefully.

Pull the tension lever sideway.

Clean with a humid cloth (but not wet). To clean, use only mild commercial household cleaner or soup water!

Dry the knife holder and make the re-assembly.

When making the re-assembly, check if the top edge from the pressure plate is parallel to the top edge from the back pressure plate and if it is in the same height of its edge.

If necessary, adjust the pressure plate (Chapter 5.8.9).

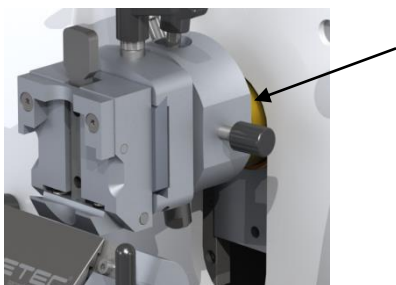
Detach the cassette clamp for thorough cleaning, removing all paraffin residues.

Keep cassette clamp in an oven heated to a maximum of 149 °F (65 °C) until the paraffin wax has liquefied and been drained out of the clamp.

Remove the paraffin waste with a dry cloth.

After this cleaning procedure in an oven, always make sure to lubricate the axis of the tension lever.

**Lubrication:** Every 15 days, advance the cannon until the farthest point, drip 3 lubricant oil drops that came with the Equipment and return the cannon into the initial position from two to three times.



#### **6-) Cleaning and Maintenance:**

Have the equipment inspected once a year by a qualified service technician authorized by Lupe. Provide a service contract at the end of the warranty period.

Clean the device daily.

Read the product handling instructions carefully and instruct with the technical details before use.

- For any repair or maintenance, the Authorized Service Center must be called.



**Solvent as Xylene and its derivatives does not have to be used for cleaning the equipment. This will cause irrecoverable damages to the Product!**

**Risk of fire!**

**Flammable fuels or substances should not be handled close to the product!**

#### **7-) Possible problems and troubleshooting:**

- Only Authorized and Qualified Service Personnel may access the internal components of the equipment for service and repair.

The equipment is basically maintenance-free. To ensure trouble-free operation of the instrument for a long period of time, we recommend the following:

- See below some problems that can occur and their causes and solutions.

- If the problem does not fit in these descriptions, please contact immediately our Service Center

- See more details in the end of the manual.

Problem	Cause	Solution
<p>Thick/thin sections</p> <p>The sections alternate between being thick and thin, or there is vibration in the sections, or the specimen is pulled out of the groove or it does not have sections.</p>	<p>Knife, knife holder or orientation is not clamped properly.</p> <p>The specimen is not clamped properly.</p> <p>The knife is dull.</p> <p>The clearance angle of the knife needs to be corrected.</p>	<p>Clamp the knife again or the knife holder.</p> <p>Check if the cassette is clamped safely on universal cassettes clamp.</p> <p>If the universal cassettes clamp is dirty with paraffin wax, clean it with kerosene.</p> <p>When using cassettes whose lid is molded on, make sure that the broken edge allows the cassette to be fixed securely.</p> <p>If necessary, clamp horizontally the universal cassette clamp instead of vertically.</p> <p>If the cassette still does not to clamp, contact our Technique Assistance.</p> <p>Move the knife holder sideways or put a new blade.</p> <p>Try on knife holder wide clearance angles, until you find the best angle.</p>
<p>Compressed sections.</p> <p>The sections are very compressed, show wrinkles or are squeezed together.</p>	<p>The knife is dull.</p> <p>The specimen needs to be cooled.</p> <p>The sectioning speed is too fast.</p>	<p>Use another area of the knife or a new knife.</p> <p>Cool the specimen before sectioning.</p> <p>Reduce the sectioning speed.</p>
<p>Noises during the sectioning.</p> <p>The knife "screeches" when sectioning hard specimens. The sectioning shows chatter marks.</p>	<p>The sectioning speed is too fast.</p> <p>The clearance angle is too wide.</p> <p>Insufficient clamping of specimen clamp or knife holder.</p>	<p>Turn the handwheel in a slower speed.</p> <p>Reduce the clearance angle of the knife until find the best angle.</p> <p>Check all screws and clamps connections in the specimen holder system. Press levers and screws if necessary.</p>

There is no advance movement and there is no sectioning.	The cannon has advanced up to the farthest position	Take the specimen backwards, turning the advancing handwheel counterclockwise.
High Knife Consumption.	Cutting strength applied is too much	Adjust the sectioning speed. Change the sectioning thickness. Turn the handwheel more slowly.

**8-) WARRANTY:**

- Warranty terms are attached to this manual.

**9-) SYMBOLS:**



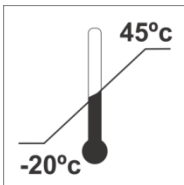
**Sensível ao calor**  
*No heat*



**Frágil**  
*Fragile*  
*Handle with care*



MANTER DISTANTE DA CHUVA  
Keep away from rain



**Guardar em temperatura:**  
*Recommended storage temperature:*  
**- 20° C to 45° C**



## Empilhamento máximo:

Stacking up recommended:  
**6 boxes.**



*ROTARY MICROTOME MRP2015*  
*Voltage: -----*  
*Power:-----*  
*Frequency: -----*  
*Serial No.: XXXXX*  
*Date of manufacture: XXXXXX*  
*Expiration: Indefinite*  
*Miguel João Street, 720 - Jd. Bandeirantes*  
*São Carlos - SP - Phone: +55 (16)*  
*33611125*



Voltage: -----  
Power: -----

Frequency: -----

CLASSE 1 EQUIPMENT

Tech. Manager: Luiz Ricardo Martins

CREA-SP: 5060262236

Date of  
manufacture:

Número de Série:

Operation:  
Continuous

IPX0



*Lupe Indústria Tecnológica de Produtos para Laboratório LTDA - ME*

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For more information and clarifications please contact our Technical Department +55-11- 2082-3178

*Technical Manager: Luiz Ricardo Martins – CREA SP 5060262236*

*This product is not considered a medical product by The Brazilian Health Surveillance Agency (Anvisa).*

*Non-perishable product.*

*Estimated useful life of 5 years.*

*EUROPEAN REPRESENTATIVE: CINTERQUAL – Soluções de Comercio Internacional, LTDA.*

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