

Haloes Caliper Instructions for Use

Inhibition zone reader



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INDICATION OF THE INTRODUCED MODIFICATIONS

If it's the first time that you use Haloos Caliper, please read the entire document carefully.

If it's not the first time that you use Haloos Caliper and you use it before, in the table below you can read the indication of the introduced modifications.

Revision	Description of change
06	Document format update

1. INTRODUCTION

Thank you for choosing the Haloes Caliper. We are confident that this instrument will become an integral part of your laboratory.

Before using the Haloes Caliper, it is essential that you read these Instructions for Use carefully. Following the instructions and safety information will ensure safe operation and maintain the system in a safe condition.

1.1. Intended use of the Haloes Caliper

The Haloes Caliper is an inhibition zone reader that meets all the requirements that may be necessary for a modern microbiology laboratory.

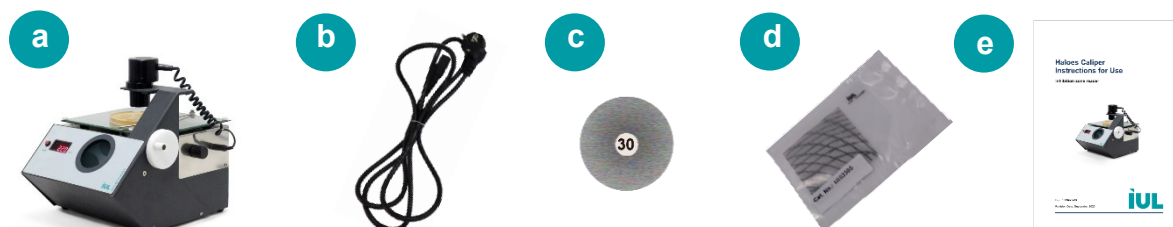
The Haloes Caliper works as a real caliper measuring distances with readability of 1mm but without touching the object to be calibrated.

The operator must only center the Petri dish containing the samples in the illuminated field, rotating the handle wheel the size appears on the display. It is easy to change the sample only by angular movement of the Petri dish.

1.2. General Information

1.2.1. Scope of Delivery

The delivery includes the following items:



- a. Haloes Caliper main unit.
- b. Power cord.
- c. 30 mm diameter verification disk.
- d. Millimeter grid.
- e. Haloes Caliper Instructions for Use.

1.2.2. Technical Assistance

At IUL SA we pride ourselves on the quality and availability of our technical support. Our Technical Service Department is staffed by experienced technicians with extensive practical and theoretical expertise in the use of IUL SA products. If you have any questions or experience any difficulties regarding the Haloes Caliper or IUL SA products in general, do not hesitate to contact us.

IUL SA customers are a major source of information regarding advanced or specialized uses of our products. This information is helpful to other customers as well as to the researchers at IUL SA. We encourage you to contact us if you have any suggestions about product performance or new applications and techniques.

For technical assistance, contact the IUL SA Technical Service Department (support@iul-inst.com), or local distributors.

1.2.3. Policy Statement

It is the policy of IUL SA to improve products as new techniques and components become available. IUL SA reserves the right to change the specifications of products at any time.

In our effort to produce useful and appropriate documentation, we appreciate your comments on this user manual. Please contact IUL SA Technical Service with any feedback.

1.2.4. Requirements for Haloes Caliper Users

Table 1 covers the general level of competence for the use and servicing of the Haloes Caliper.

Task	Personnel	Training and experience
Routine use	Laboratory technicians or equivalent	Training in techniques for laboratory instrument operation
Servicing	IUL SA Service Specialists only	Trained, certified, and authorized by IUL SA

2. SAFETY INFORMATION

Before using the Haloes Caliper, it is essential that you read these Instructions for Use carefully. Following the instructions and safety information in this user manual will ensure safe operation and maintain the system in a safe condition.

The following types of safety information appear throughout the Haloes Caliper Instructions for Use.

WARNING 	The term WARNING is used to inform you about situations that could result in personal injury to you or other persons. Details about these circumstances are given in a box like this one.
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CAUTION 	The term CAUTION is used to inform you about situations that could result in damage to the instrument or other equipment. Details about these circumstances are given in a box like this one.
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The advice given in this manual is intended to supplement, not supersede, the normal safety requirements prevailing in the user's country.

2.1. Proper Use

WARNING/ CAUTION 	Risk of personal injury and material damage Improper use of the Haloes Caliper instrument may cause personal injury or damage to the instrument. The instrument must only be operated by qualified personnel.
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CAUTION 	Damage to the instrument Avoid spilling water or chemicals onto the Haloes Caliper instrument. Damage caused by water or chemical spillage will void your warranty.
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In case of emergency, switch off the Haloes Caliper at the power switch and unplug the power cord from the power outlet.

2.2. Electrical Safety

If the operation of the Haloes Caliper is interrupted in any way (e.g., due to interruption of the power supply or a mechanical error), first switch off the instrument using the power switch, then disconnect the electrical cord from the power outlet. Contact IUL SA Technical Service after such an incident.

WARNING 	Electrical hazard Any interruption of the protective conductor (earth/ground lead) inside or outside the instrument or disconnection of the protective conductor terminal is likely to make the instrument unsafe. This must be checked after service or maintenance. Intentional interruption is prohibited. Lethal voltages inside the instrument When the instrument is connected to line power, its terminals may be live. Opening covers or removing parts is likely to expose live parts. This WARNING applies to routine users as well as to technical service users.
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To ensure satisfactory and safe operation of the Haloes Caliper:

- The line power cord must be connected to a line power outlet that has a protective conductor (earth/ground).
- No other power cords than the ones specified in Appendix A: Ordering Codes must be used. In case of replacement, this must be ordered to IUL SA.
- The instrument must not be operated with the cover removed.
- If liquid has spilled on the instrument, switch it off, disconnect it from the power outlet, and proceed to remove using a lightly moistened dry cloth or an antistatic cloth.
- If you suspect any instrument damage, contact IUL SA Technical Services.

If the Haloes Caliper becomes electrically unsafe, prevent other personnel from operating it, and contact IUL SA Technical Service.

The instrument may be electrically unsafe if:

- The instrument or the power cord appears to be damaged.
- The instrument has been stored under unfavorable conditions for a prolonged period.

- A different mains power cord is used other than the one provided by IUL SA.

WARNING 	Risk of electric shock In case of replacement of the mains power cord, these must be replaced <u>only</u> with the power cords listed in Appendix A: Ordering Codes and provided by IUL SA.
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CAUTION 	While the equipment is connected to the power supply, it may suffer voltage fluctuations over time caused by external elements. The Haloes Caliper equipment has a sufficient voltage supply range to withstand these fluctuations.
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2.3. Environment

Operating conditions

WARNING 	Explosive atmosphere The Haloes Caliper is not designed for use in an explosive atmosphere.
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WARNING 	Risk of overheating Slits and openings that ensure the ventilation of the Haloes Caliper must not be covered.
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2.4. Biological Safety

Use safe laboratory procedures as outlined in publications such as *Biosafety in Microbiological and Biomedical Laboratories*, HHS:

<http://www.cdc.gov/od/ohs/biosfty/biosfty.htm>

WARNING 	Samples containing infectious agents Some samples used with the Haloes Caliper may contain infectious agents. Handle such samples by the required safety regulations. The responsible person(s) (e.g., laboratory manager) must take the necessary precautions to ensure that the workplace is safe and that the instrument operators are suitably trained and not exposed to hazardous levels of infectious agents, as defined in the applicable
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	Safety Data Sheets (SDSs) or OSHA¹ ACGIH² or COSHH³ documents. Venting of fumes and disposal of wastes must be following all national, state, and local health and safety regulations and laws.
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2.5. Chemicals

WARNING 	Hazardous chemicals Some chemicals used with the Haloes Caliper may be hazardous. Always wear safety glasses, gloves, and a lab coat. The responsible person(s) (e.g., laboratory manager) must take the necessary precautions to ensure that the workplace is safe and that the instrument operators are suitably trained and not exposed to hazardous levels of toxic substances (chemical or biological), as defined in the applicable Safety Data Sheets (SDSs) or OSHA¹, ACGIH² or COSHH³ documents. Venting of fumes and disposal of wastes must be following all national, state, and local health and safety regulations and laws.
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2.6. Maintenance Safety

CAUTION 	Damage to the instrument Do not use spray bottles containing alcohol or disinfectant to clean the surface of the Haloes Caliper instrument or its parts. Spray bottles should be used only to clean items that have been removed from the instrument.
WARNING 	Risk of electric shock Do not open the panels on the instruments. Risk of personal injury and material damage Only perform maintenance that is specifically described in these Instructions for Use.

¹ OSHA: Occupational Safety and Health Administration (United States of America).

² ACGIH: American Conference of Government Industrial Hygienists (United States of America).

³ COSHH: Control of Substances Hazardous to Health (United Kingdom).

2.7. Waste Disposal

Used consumables may contain hazardous chemicals or infectious agents. Such waste must be collected and disposed of properly in accordance with local safety regulations.

For disposal of waste electrical and electronic equipment (WEEE) see Appendix A: Ordering Codes.

2.8. Symbols on the Haloes Caliper Instrument

Symbol	Location	Description
	Type plate on the back of the instrument	Waste Electrical and Electronic Equipment (WEEE), see Appendix D: Waste Electrical and Electronic Equipment (WEEE).
	Type plate on the back of the instrument	CE Mark, Declaration of Conformity, see Appendix E: EU Declaration of Conformity.

3. GENERAL DESCRIPTION

3.1. Instrument Overview

Front view

1. Lamp tube.
2. Reset push button.
3. Display of length.
4. Screen for sampling.
5. Handle wheel.
6. Dish spring.
7. Spring screw.

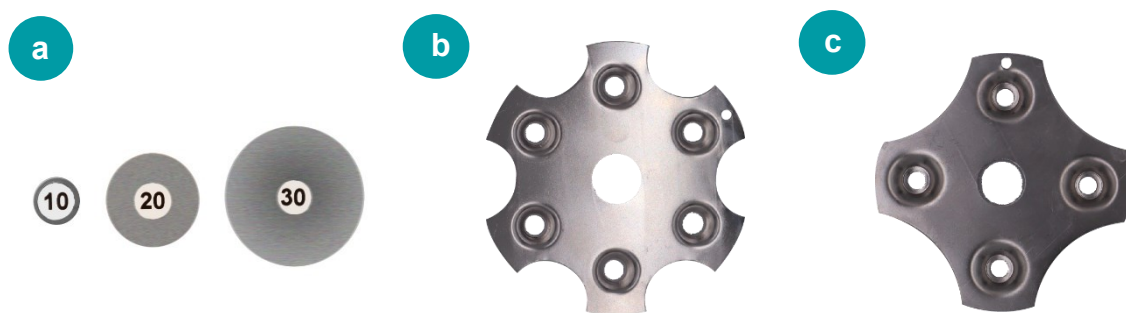


Rearview:

8. Fixing lamp screw.
9. Main power switch ON/OFF.
10. Cable for mains.
11. Light adjustment.



3.2. Accessories of the Instrument



- a. Diameter verification disks (10-, 20- & 30-mm diameter).
- b. Pattern for six halos (10 units).
- c. Pattern for four halos (10 units).

4. INSTALLATION

4.1. Unpack the Instrument

The packaging of the Haloes Caliper can be stored for reuse.



4.2. Site Requirements

Place the Haloes Caliper instrument on a level, stable surface, ideally a firmly secured benchtop, near an earthed/grounded electrical outlet. While operating, make sure that the instrument does not touch other objects. See Appendix B: Technical Data to see operational conditions.

4.3. Power Cord Connection

The socket for connecting the power cable is on the back of the Haloes Caliper instrument.

- Connect the supplied power cord to the socket on the instrument.
- Plug the instrument into the electrical outlet.
- Switch the instrument ON.
- While the main screen loads, a splash image will appear onscreen.
- Once the main screen has loaded, any of the operating parameters may be changed.

When the Haloes Caliper is not in use for a long period of time, we recommend disconnecting the power cable.

4.4. Setting up the Instrument

A. Connecting the Light:

- Locate the cable and connect it to the base on the right-hand side of the instrument.
- Insert the lamp tube into the designated hole as illustrated in the rear drawing. Secure the tube in place by tightening screw number 8 (see section 3.1 Instrument Overview). Once connected, the light should illuminate the instrument's screen.

B. Adjusting the Display:

- Gently rotate the handle wheel to test if the readout on the display changes accordingly.
- If the glass cover is dirty, clean it carefully to ensure visibility. Process to place the specific type of Petri dish you intend to use on the instrument.

C. Positioning the Petri Dish:

- The operator must determine the optimal location for the readout, specifically how far from the edge of the Petri dish the reading should be taken.
- Adjust both the position and the angle of the spring using screw number 7 (see section 3.1 Instrument Overview). This adjustment ensures the Petri dish remains securely in place during the reading process. The spring is designed to be thin enough to hold the Petri dish securely without touching its cover.

D. Adjusting the Light Intensity:

- To modify the light intensity for optimal visibility, turn the potentiometer labeled number 11 (see section 3.1 Instrument Overview). Adjust it until you find the most comfortable light level for your operations.

5. OPERATION PROCEDURE

5.1. Preparation

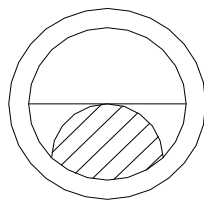
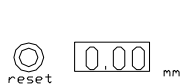
Before switching on the instrument, accommodate the instrument within its operating temperature range.

5.2. Performing a reading

1. Turn the handle wheel **5** (3.1Instrument Overview), counterclockwise, the platform now is in the back position.

WARNING 	Never force the edges when you turn the handle wheel.
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2. Place the Petri dish touching the positioning spring in such a way that the spot to be measured just appears in the down part of the screen.
3. Start to turn the wheel **5** (3.1Instrument Overview), clockwise until the spot is tangent to the horizontal fine line in the central part of the screen.
4. Push RESET button **2** (3.1Instrument Overview),, to obtain 00.0 on the display.
5. Continue to turn the rotation wheel **5** (3.1Instrument Overview), until the other edge of the spot is tangent to the central line of the screen.
6. You can now proceed in the opposite way placing the next spot in the upper part of the screen and counting counterclockwise.
7. Periodically check the adjustment by using the standard disk.



MOVE
THE
WHEEL →

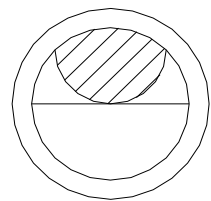


Fig. 1

Fig. 2

6. MAINTENANCE

6.1. Cleaning Procedure

To keep a high-performance level, cleaning Haoles Caliper will be necessary. Disconnect the Haloes Caliper from the power supply for cleaning. Use a lightly moistened cloth or an antistatic cloth. The device's outside can be cleaned using a water-soap moistened cloth. The device's light and crystal surfaces can be cleaned with an alcohol-soaked cloth for disinfection. Do not use cleaning agents or abrasive solvent products.

CAUTION 	Damage to the instrument Do not use spray bottles containing alcohol or disinfectant to clean the surface of the Haloes Caliper instrument or its parts. Spray bottles should be used only to clean items that have been removed from the instrument.
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APPENDIX A: ORDERING CODES

Spare Parts:

Product	Contents	Cat. #
Millimeter grid	1 unit	9000985

Optional Accessories:

The following accessories can be purchased separately. State the order number (Cat. #) when ordering the accessory.

Product	Contents	Cat. #
Verification disks (10-, 20- & 30-mm diameter)	1 unit each	9000919
Pattern for six halos	10 units	90002131
Pattern for four halos	10 units	90002132

APPENDIX B: TECHNICAL DATA

IUL SA reserves the right to change specifications at any time.

Specifications

Range of measurement:	35 mm
Resolution:	0.1 mm
Screen diameter:	55 mm
Magnifying factor:	2.25
Zero position:	Any point
Counting direction:	Up / Down
Maximum turns rot. Wheel:	10

Operating Conditions

Power range	100 - 240V ~
Frequency range	50 / 60 Hz
Maximum power	1.5 W
Overvoltage category	II
Air temperature	5°C - 40°C
Relative humidity	10 - 75 % (non-condensing)
Altitude	up to 2000 meters (6500ft.)
Place of operation	For indoor use only
Pollution level	2

Transportation conditions

Air temperature	5°C - 40°C (41°F - 104°F) In manufacturer's packaging
Relative humidity	Maximum 75 % (non-condensing)

Storage conditions

Air temperature	5°C - 40°C (41°F - 104°F) In manufacturer's packaging
Relative humidity	Maximum 75 % (non-condensing)

Dimensions and Weight

Dimensions (WxHxD)	270 x 230 x 270 mm / 10.6 x 9.0 x 10.6 in
Weight	3.5 Kg / 7.7 lb

APPENDIX C: WARRANTY

The Haloes Caliper instrument has a 12-month warranty period which starts when the instrument is purchased to IUL SA.

The warranty is void when misuse of the equipment can be proved. Damage or manufacturing faults caused by impacts, chemical or corrosive products, liquids, dampness, or other external factors, such as radiation, fire, or inadequate transport are not included.

In addition, the warranty will not apply if the equipment has been handled, repaired, or modified by unqualified or specifically designated personnel.

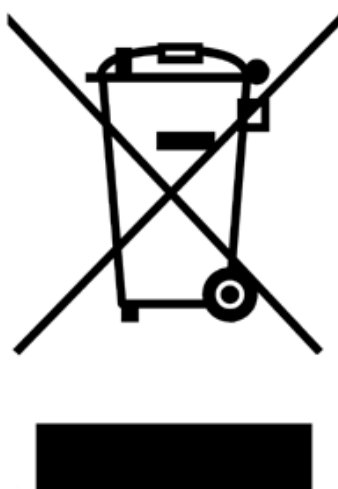
As part of this warranty, all shipping costs to the selected technical service are the responsibility of the Buyer.

APPENDIX D: WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

This section provides information about disposal of waste electrical and electronic equipment by users.

The crossed-out wheeled bin symbol (see below) indicates that this product must not be disposed of with other waste; it must be taken to an approved treatment facility or a designated collection point for recycling, according to local laws and regulations.

The separate collection and recycling of waste electronic equipment at the time of disposal helps to conserve natural resources and ensures that the product is recycled in a manner that protects human health and the environment.



APPENDIX E: EU DECLARATION OF CONFORMITY

Manufacturer Name:

IUL SA

Manufacturer Address:

Carrer de la Ciutat d'Asuncion, 4 08030 Barcelona Spain

Declares that the product Name:

Haloos Caliper

Catalog Number:

9000900

Conforms the Council Directives:

- Directive [2014/30/EU](#) of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast).
- Directive [2014/35/EU](#) of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (recast).
- Directive [2011/65/EU](#) of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment and its amendments.

Standards which Conformity is Declared:

- [EN 61326-1:2013](#) Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 1: General requirements (IEC 61326-1:2012)
- [EN 61010-1:2010](#) Safety requirements for electrical equipment for measurement, control, and laboratory use -- Part 1: General requirements.

Barcelona, January the 23rd 2024



A handwritten signature in blue ink, appearing to read 'Daniel Blanch'.

Daniel Blanch / Director of Electronical Engineering

APPENDIX F: ROHS STATEMENT

The following information has been made available to comply with The Restriction of Hazardous Substances Directive, (RoHS2 & RoHS 3), short for Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment.



Notes

