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Original manual printed in English.

These are the original instructions for the Semi-Automated Cap Capper.



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## **Revision History**

Revision	Date
Revision A	05 MAR 2020
Revision B	26 OCT 2021
Revision C	23 SEP 2022

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# **1. Introduction**

#### **Intended Use**

The semi-automated cap mat applicator is able to cap 96 rack tubes by compressing a cap mat against tube rack.

The supported range of tubes for "shallow" style closures are:

- Azenta/Micronics
- Matrix

The supported range of cap mats are:

- Micronics
- Matrix
- Azenta

The cap mat is made up of two parts: the caps and the holder. The holder aligns the caps in a grid of 96 and has to be removed after the capping operation.

The Semi-Automated Septum Cap Capper is programmable for the number of compression cycles. It is easy to use with simple steps:

- a. Open the drawer and insert the adapter, the tube rack, and the cap mat.
- b. Close the drawer in order to start the cap cycle.
  - The mat is compressed in order to cap the tubes.
  - An acoustic signal will advise the operator that the cycle has ended.
- c. Open the drawer and remove the rack.
- d. Remove the cap holder from the rack.

The semi-automated cap mat applicator must be used in a professional environment and only by properly trained users that know the specific hazards of this technique and of its specific application. The semi-automated cap mat applicator must be used according to the regulations in place regarding the safety in testing laboratories.

## Symbols

Please carefully review the following table before using your unit. These symbols are used throughout this manual.

Symbol	Description
	Warning hazard
	High voltage hazard
	Pinch, crush, and cut hazard
$\bigotimes$	Biohazard: indicates the possible presence of biological or hazardous substances

### Warnings

Read the following warnings before unpacking or using the unit.





Image: A state of the second		
Image: Note: The replacement of parts and other service operations must be performed only by a technician that has been qualified by the manufacturer. If a part needs to be replaced, only use spare parts supplied by the manufacturer or its agent.Image: Note: N		Contact the Technical Assistance Center if, for technical reasons, it is necessary to work on cap mat applicator parts that require tools to access. Violation of this directive implies the immediate invalidation of the warranty and service contract.
Image: A solution of a cold accidents, use good laboratory practices while handling solvents, reagents and consumables. Observe the safety regulations of any chemicals being used, as indicated in their specific safety data sheets (MSDS), and know the physical and chemical properties of the substances before use.Image: A cold cold accidents, use good laboratory practices while handling solvents, reagents and consumables. Observe the safety regulations of any chemicals being used, as indicated in their specific safety data sheets (MSDS), and know the physical and chemical properties of the substances before use.Image: A cold accidents, use good laboratory practices while handling solvents, reagents and consumables. Observe the safety regulations of any chemicals being used, as indicated in their substances before use.Image: A cold accident of the cap mat applicator with flammable substances.Image: A cold accident of the drawer indicates the possible presence of biological or other brazerdous substances. This depends on the types of substances being used with the cap mat applicator.Image: A cold accident of the drawer indicates the possible presence of biological or other brazerdous substances. This depends on the types of substances being used with the cap mat applicator.Image: A cold accident of the drawer indicates the possible presence of biological or other brazerdous substances. This depends on the types of substances being used with the cap mat applicator.Image: A cold accident of the drawer indicates the possible presence of biological or other brazerdous substances. This depends on the types of substances being used with the cap mat applicator.Image: A cold accident of the drawer indicates the possible presence of biological or other brazerdous substances.Image: A cold accident of the drawer indicates the possible presence of biological or		The replacement of parts and other service operations must be performed only by a technician that has been qualified by the manufacturer. If a part needs to be replaced, only use spare parts supplied by the manufacturer or its agent.
Image: Note of the section of the s		Avoid contact with the cap mat applicator while it is running.
Image: A state of the cap mat applicator with flammable substances.Image: A state of the cap mat applicator with flammable substances.Image: A state of the cap mat applicator with flammable substances.Image: A state of the cap mat applicator with flammable substances.Image: A state of the cap mat applicator.Image: A state of the cap mat applicat		To avoid accidents, use good laboratory practices while handling solvents, reagents and consumables. Observe the safety regulations of any chemicals being used, as indicated in their specific safety data sheets (MSDS), and know the physical and chemical properties of the substances before use.
Image: Non-State in a manner not specified by the manufacturer, the equipment may be damagedImage: Non-State in a manner not specified by the manufacturer, the equipment may be damaged		Do not use the cap mat applicator with flammable substances.
Image: Section 1.1The biohazard warning label on the drawer indicates the possible presence of biological or other hazardous substances. This depends on the types of substances being used with the cap mat applicator.Image: Section 1.1Image: Section 1.1		The warning label on the drawer indicates the presence of moving parts. Use caution to avoid bumps or cuts.
Image: Second	$\bigotimes$	The biohazard warning label on the drawer indicates the possible presence of biological or other hazardous substances. This depends on the types of substances being used with the cap mat applicator.
All operators should know and observe the safety precautions and warnings in this section before using the unit.         Image: the unit is used in a manner not specified by the manufacturer, the equipment may be damaged		It is essential that users know the potential hazards associated with the equipment.
If the unit is used in a manner not specified by the manufacturer, the equipment may be damaged		All operators should know and observe the safety precautions and warnings in this section before using the unit.
and become unsafe to use.		If the unit is used in a manner not specified by the manufacturer, the equipment may be damaged and become unsafe to use.





The autosampler complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- a. This device may not cause harmful interference.
- b. This device must accept any interference received, including interference that may cause undesired operation.



This autosampler has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment can emit radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at thier own expense.

#### **Applicable Rules**

- 2006/42/EC: Machinery Directive
- 2014/35/EU: Low-Voltage Equipment Directive.
- 2014/30/EU: Electromagnetic Compatibility Directive.
- 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) Directive.
- 2015/863/EU: Delegated Directive amending Annex II to Directive 2011/65/EU regards the list of restricted substances (Restriction of DEHP, BBP, DBP and DIBP).

### **Technical Specifications**

#### **Mechanical Dimensions**

Specification	Measurement
Height	310 mm
Depth	275 mm
Width	171 mm
Weight	10 kg

#### **Electrical**

Specification	Measurement
Voltage	115/230 ±10% Vac
Frequency	50/60 Hz
Power	100 VA

#### **Environmental**

Specification	Measurement
Temperature range	Operative: 18°C - 35°C Storage: -20°C - 40°C
Relative humidity	20% - 80% not condensing
Maximum altitude	2000m

#### Sound Pressure Level

Specification	Measurement	
Maximum measured level	Negligible (below the limits of 85 dbA as defined by established regulations)	

#### **Safety Information**

The cap mat applicator is classified as follows:

- Pollution degree 2
- Overvoltage category II
- Devices for use indoors

#### **Setup Parameters**

Cycle number:

c: 1-10

### **Regulatory Compliance and Declaration of Conformity (DoC)**

The Semi-Automated Septum Cap Capper meets the requirements of the European Union's Machinery Directive 2006/42/EC and 2014/30/EU as a completed machine. In accordance with the Directive, Azenta Life Sciences has issued a Declaration of Conformity and the Semi-Automated Septum Cap Capper has a CE mark affixed.

DOCUMENT NUMBER:	TITLE:		0	
342674	Declaration of	Conformity, Machinery Directive	)	<b>ΔΖΕΝΤΔ</b>
REVISION: B	DOCUMENT CLASSIFIC	CATION:		LIFE SCIENCES
ECO# EC132455	04-Form, Template or	Other		3
	D	ECLARATION OF CONFORM	ITY	
Description:	Semi-Automa	ated Septum Cap Capper		
Function: The device is a compact, semi-automatic tube capper, designed to cap 96 racked tubes by compressing a cap mat against the tube rack. It supports a wide range of cap mats and caps. The device can be program for the number of compression cycles.				
Product code:	46-2004, 46	-2004-115V, 46-2004-230V		
Business name and full ad Azenta Life Scien	ddress of the manufacture ces, Northbank, I	er of the machinery: Irlam, Manchester M44 5AY, Un	ited Kingdom	
Name and address of the Azenta Life Scien	person, established in the ces (Germany) Gi	e Community, authorized to compile the relevant mbH, Im Leuschnerpark 1B, 643	t technical documen 347 Griesheir	<sup>tation:</sup> n, Germany
Infacting machine in administration in a constraint of the infacting	00:2010 Safetyo fn 14121-2:2012 ED2 is 10-1:2010+A1:201 pry use. General red 10-2-081:2015 Safe pry use. Particular re- er purposes	evant provisions of birecture 2006/42 nachinery. General principles for desig Safety of machinery. Risk assessmen 9. Safety requirements for electrical equirements ety requirements for electrical equipm quirements for automatic and semi-au	y Ec(Machinery n. Risk assessm t. Practical guida quipment for me ent for measure utomatic laborat	ent and risk reduction ance and examples of easurement, control, and ement, control and ory equipment for analysis
<ul> <li>That this machino EN 613 Genera</li> </ul>	nery fulfils all the rele 26-1:2021 Electrica I requirements	evant provisions of Directive 2014/30 equipment for measurement, control	/EU (EMC Direct and laboratory (	tive) use. EMC requirements.
<ul> <li>That this machinery is in conformity with 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 amendment 2015/663/EU.</li> <li>BS EN IEC 63000/2018. Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.</li> </ul>				
YearCEMarkingAff	xed to Product:	2012		
Signed for and on the	e behalf of Azenta Li	ife Sciences:		
Rob Woodward ( Print name: Rob Woodward ( Position: Senior Vice Pres Place: Irlam, Manchester	Ct 25, 2021 05:5 dent. Global Quality Exect	8 GMT+1) utive Management		
Confidential: The Azenta and no p	e information is con art of it is to be dis	nfidential and is to be used only in closed to others without prior writte	connection wi en permission	ith matters authorized b from Azenta.
			,	

# 2. General Description

### **Parts Definition**

The Semi-Automated Septum Cap Capper is composed of the following main components:

- Cabinet
- Control panel
- Rear Power Interface
- Electronic circuit
- Handling system (motor, sensors)
- Rack adapter
- Tube rack
- Cap mat



Figure 2-1: Semi-Automated Septum Cap Capper Unit

#### **Control Panel**

The Semi-Automated Septum Cap Capper Control Panel is composed of the following main components:

- Display
- LED
- Function keys

Refer to Figure 2-2 for the Control Panel component locations.



Reference Number	Description	Function
1	Amber LED	Status indicator
2	<b>M</b> key	Set-up/Run mode selection
3	Three digit LED display	GUI information
4	Up Arrow key	Direction up
5	Down Arrow key	Direction down

Figure 2-2: Control Panel

#### **Rear Power Interface**

Refer to Figure 2-3 for the location of the *Rear Power Interface* components:



Reference Number	Description
1	Power setting 115/230 Vac and fuse holder
2	I/O power switch
3	Main power plug

Figure 2-3: Rear Power Interface

# **3. Installation**

### **Preliminary Operations**

**NOTE:** After unpacking, make sure all packaging and fixtures are retained, as the unit must always be transported in the original packaging to avoid damage. The manufacturer accepts no responsibility for damage incurred if the unit is not correctly packed and transported in this way.

Step	Action
1.	Remove the Semi-Automated Septum Cap Capper unit from its packaging.
2.	Place the unit on a level surface away from direct sunlight and ensure access to the power switch on the back of the unit.
3.	Ensure that the vents on the cabinet are not obstructed.
4.	Check the main voltage selector switch to ensure that the voltage has been set at the correct value.
5.	Connect the unit to the main power supply and switch on the Rear Power Interface I/O power switch.

### Voltage Check



On the back of the Semi-Automated Septum Cap Capper, there is the connection panel with:

- Power setting 230/115 Vac and fuse holder
- I/O power switch
- Main power plug

The voltage setting is written in white on a red background on the top of the power setting and fuse holder.

### Voltage Setting Procedure

Step Action	
<text></text>	

Voltage Check

Step	Action
2.	Use the screwdriver to extract the fuse holder.
	Remove the two fuses and replace them with two more fuses that correspond to the desired voltage
3.	setting (see Table 3-1).
4.	Re-insert the fuse holder, keeping the currently set voltage label at the top.
5.	Press gently to close the fuse compartment. <b>NOTE:</b> If the fuses are correctly inserted, you will be able to read the selected voltage.

#### Table 3-1: Fuse Usage Table

Power Voltage	(EN 60127)
115V	T2A L 250V, 5x20 mm
230V	T1A L 250V, 5x20 mm

# 4. Setup

## Set-up Operating Mode

Step	Action
1.	Power on the unit.
2.	Enter Set-up mode by pressing and releasing the <b>M</b> key. <b>NOTE:</b> The three digit LED will display a flashing letter "c" and the most recently set cycle number.
3.	Decrease or increase the cycle number using the <b>Down Arrow</b> and <b>Up Arrow</b> keys. <b>NOTE:</b> "c" can be set from 1 to 10, with incremental steps of 1.
4.	Press the <b>M</b> key again to store the new cycle number value and to exit from the setup menu. <b>NOTE:</b> The unit will return to "run cycle."

# **5. Basic Functions**



## Run Cycle

#### **Theory of Operation**

After the unit is powered on:

Step	Action
1.	The display shows the firmware version.
2.	<ul><li>The unit automatically goes to the home position with:</li><li>The open drawer sensor and the low handler sensor activated.</li><li>The drawer released.</li></ul>
3.	The display shows "Rdy." This means that the unit is ready for capping and the amber LED remains on permanently.

Step	Action	
4.	<ul> <li>The loading procedure can then be executed (The loading procedure is further explained in the section "Loading Operation"): <ul> <li>a. Open the drawer.</li> <li>b. Load the adapter.</li> <li>c. Place the tube rack over the adapter and then place the cap mat above.</li> <li>d. Close the drawer.</li> <li>e. Keep the drawer pressed closed until the unit emits an audible sound that signals that the close drawer sensor is activated and the drawer is blocked.</li> </ul> </li> </ul>	
5.	The handler motor pushes the cap mat over the rack, applying the appropriate pressure.	
6.	During the capping operation, the display shows the "Bsy" and the amber LED flashes.	
7.	When the unit has completed all of the set compression cycles it emits an audible sound, the display shows "Rdy", and the amber LED returns on permanently.	
8.	The handler motor returns to the home position and the drawer is released.	
9.	The operator can then remove the cap holder and remove the capped rack (see "Loading Operation").	
10.	A new cycle can be started.	

### **Loading Operation**



The loading procedure must be carried out according to the following steps:

**Loading Operation** 



#### 5. Basic Functions

Loading Operation

Step	Action
	Place the cap mat above the tube rack.
4.	
	Close the drawer.
5.	

#### 5. Basic Functions

Loading Operation

Step	Action	
6.	After the capping procedure is completed, open the drawer and remove the cap holder from the tube rack.	
	WorkWorkMork </th	

# 6. Troubleshooting

### **Troubleshooting Introduction**

The possible errors that could occur while operating the Semi-Automated Septum Cap Capper are summarized in this chapter.

If the provided solutions do not solve the problem, please contact your supplier or the Technical Assistance Center.

Before calling the Technical Assistance Center, please check the following:

- All instructions were carefully followed.
- All the options listed were tried.
- All cables are connected correctly.

### **Errors and Troubleshooting**

When an error occurs, the display shows the error code, an intermittent audible sound is emitted, and the amber LED is switched off.

Error Code	Cause	Corrective action
Er1	The system cannot reach the home position within a defined time after start up.	Power the machine off and back on, and then retry the operations.
Er2	The motor cannot reach the compression force within a defined time.	Check that the adapter, the tube rack, and the cap mat have all been loaded correctly (see "Loading Operation"). If one of those parts was not loaded, or was loaded incorrectly, correct the problem and retry. If the problem is not resolved, power the machine off and back on, and then retry the operations.
Er3	The motor cannot reach the low handler sensor within a defined time.	Power the machine off and back on, and then retry the operations.
Er4	Motor over current after the capping operation, before reaching the low handler sensor.	Power the machine off and back on, and then retry the operations.
Er5	Open drawer sensor active during rise movement.	Retry the operation ensuring that the drawer is pressed closed for the necessary amount of time required to block it, according to the instructions detailed in the "Run Cycle" section. If the problem is not resolved, power the machine off and back on, and then retry the operations.
Er6	Low handler sensor is not activated during the capping operation within a defined time.	Power the machine off and back on, and then retry the operations.

#### Table 6-1: Errors and Troubleshooting

**NOTE:** If any of these problems persist after attempting the provided corrective actions, contact your supplier or the Technical Assistance Center.

# 7. Maintenance



Power off the unit and disconnect the power cable before cleaning the equipment.



### **Periodic Maintenance**

The unit requires the following periodical maintenance:

#### Cleaning

*NOTE:* Any cleaning procedure must be executed with the unit powered off and the power cable disconnected.

- Clean the cap mat applicator with a cloth dipped in water or ethanol (methanol or formaldehyde can also be used).
- The unit should not be immersed in solvents.
- Do not use acetone or abrasive cleaners.
- No parts are to be autoclaved.
- In case of radioactive spillages, be sure to use an appropriate cleaning agent.

#### **Preventive Maintenance**



#### Table 7-1: Operation Type and Frequency

Operation	Frequency
Lubrication of the gearing	Every 3000 Cycles
Lubrication of the runners	Every 3000 Cycles

### Advanced Maintenance



For any other maintenance operations not covered in this manual, please contact your supplier or Technical Assistance Center. The user is not authorized to perform any operations outside of the normal operation of this unit.

The technician must read the following warnings before performing any operations on the instrument, in addition to the "Warnings" listed in the Introduction section of this user guide.



Wear personal protective equipment (PPE) provided by the regulation in force.
Use utmost caution when working on a powered machine. Keep away from moving parts and hazardous live parts.
After performing maintenance, always check that all the parts that were removed have been replaced correctly,especially the safety-related parts.
Check that all the caution labels that should be on the machine according to the user manual are present, clean and in good condition. Replace non-conforming labels as necessary.
Verify the safe state of the equipment after maintenance by performing a continuity test between the earth pin of the appliance inlet and all accessible conductive parts on the other side according to the regulation in force in your country.
The potential risks to service personnel are:
<ul> <li>Electric shock due to contact with hazardous live parts.</li> <li>Cuts, crushed body parts, or penetration of the skin due to contact with moving parts.</li> <li>Contamination due to spilling of hazardous substances.</li> </ul>
Follow the protective measures covered in this section to reduce the risk of injury to an acceptable level.

# 8. Recycling and Disposal

# NOTICE

Before recycling or disposing of the cap mat applicator, be sure to power off the unit, remove the plate, and decontaminate the instrument in accordance with national and international safety regulations. The operator is responsible for the substances used for the decontamination. These substances must not create dangerous reactions with other poured substances. If you have any doubt about the substances used to decontaminate the equipment, contact your sales representative.

### **Uninstalling Instructions**

To uninstall the cap mat applicator, perform the following sequence of operations:

Step	Action
1.	Open the drawer.
2.	Remove the plates and adapter inserted in the cap mat applicator.
З.	Close the drawer.
4.	Switch off the unit.
5.	Unplug the external power supply from the main power.
6.	Remove the power cord from the cap mat applicator.

### **Shipping Instructions**

Step	Action
1.	Perform the uninstalling procedure described in "Uninstalling Instructions".
2.	Repack all parts of the unit in the original packaging, ensuring that all the components are placed in the packaging.
3.	Close the box using suitable adhesive tape.

### **Disposal Instructions**

#### **Information For the Users**

The following information is according to Directive 2002/95/CE, 2002/96/CE, and 2003/108/CE, concerning the restriction of the use of certain hazardous substances in electrical and electronic equipment and the waste disposal thereof.



The symbol of the crossed bin shown on the equipment or on its packaging indicates that the product is to be collected separately from the other waste. The user must deliver the equipment to the appropriate collection points for electrical and electronic waste or to the user's sales representative (if new, similar equipment is bought).

The appropriate separated collection allows for recycling, treatment, and disposal. It helps to avoid possible negative effects on the environment and on human health and allows the recycling of the materials from the equipment.

**NOTE:** Improper disposal of the product causes administrative sanctions in accordance with all applicable laws.