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Date of creation Mar. 9, 2020

MODEL

NEX-101

(Nanofiber Electrospinner for Experiments)

OPERATION MANUAL

- Be sure to read this manual before operating the equipment.
  Please read the safety instructions thoroughly before operation.
- Please keep this manual to review anytime.

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Introduntion

This document describes the handling of NEX-101.

NOTICE

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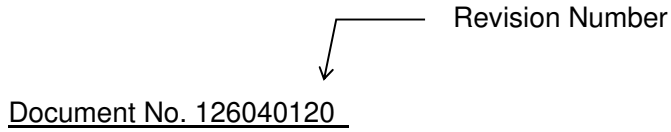
(2) Contents of this document may change without a prior notice.
(3) We at MECC try our best efforts in creating this document. However, if incorrect, missing or unclear descriptions are found, please do not hesitate to let us know.

HISTORY OF REVISION

The last number of the document number on the cover sheet represents the revision number of the document.



Revision number	Date of revision	Revised page / Description
0	Mar. 9, 2020	1st edition

Table of Contents NEX-101 Operation Manual

For Safety Operations

(1) Symbols for safety operations in this document

In this document warns dangerous operations to protect human bodies and properties from hazards and damages with the following symbols. Read through all the contents for full understanding.

	Death or serious injuries may result if mishandling of the equipment is made by ignoring this symbol.
 **CAUTION**	Injuries or damage on properties may result mishandling of the equipment is made by ignoring this symbol.

(2) Descriptions of symbols

	⃠ represents “Prohibition”. This symbol means “Don’t disassemble”.
	△ represents “Caution” (including warning) . Contents to be pay attention to is shown in the triangle. This symbol means “Be careful of electric shock.”
	△ represents “Caution” (including warning) . This symbol means “(general) Caution.”
	The symbol represents a protective ground terminal. Be sure to connect it to the ground (earth) before operations.
	This symbol represents a “Functional ground terminal”. Do not use as a “Protective ground terminal”.
	This symbol means “POWER ON”.
	This symbol means “POWER OFF”.

For Safety Operations

Safety Precautions

WARNING

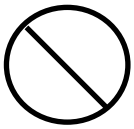
Stop operations if the equipment generates smoke, odd smell or strange noise. It may cause electric shock and/or fire.
Shut off the power immediately and disconnect the AC power plug.
Contact our sales representative shown at the end of this manual.
Note: Don't try to disassemble and repair the equipment by yourself.
It is very dangerous!

Don't touch any terminals while power is on.
It may cause electric shock.

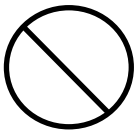
Don't disassemble the equipment or touch the inside of the equipment while power is on.
It may cause electric shock.

Don't disassemble or modify the equipment except as mentioned in this manual.
It may cause injuries, electric shock and/or fire.

Do not use the power source out of the rated range.
It may cause electric shock and/or fire.
Secure rated voltage inputs in unstable power-supplying environments.



This equipment employs a three-prong plug with a ground terminal.
Be sure to connect the plug to a receptacle with a protective ground terminal. If a two-prong plug has to be used, be sure to ground the protective ground terminal of the equipment to avoid electric shock and/or fire by leakage.



For Safety Operations

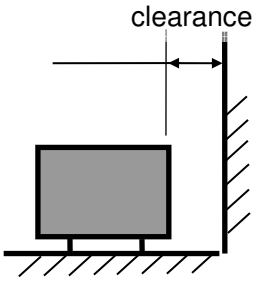
CAUTION

Do not block the ventilator when an exhaust hose is not fixed to the NANON.
Blocking of the ventilator may hinder smooth exhaust inside of the spinning chamber.

Do not put an article, especially flammable materials such as paper and plastics, on the intake duct.

Do not turn the equipment upside down or over sideways.

Have a certain clearance for ventilations when the equipment is installed along the wall.



Do not insert or drop any metal or flammable articles in the rear of the main unit/ inside of mounting boards unit. It may cause electric shock and/or fire.
If any articles enter the equipment, shut off the power immediately and disconnect a power plug from the receptacle.
Then, contact our sales representative shown at the end of this manual.

ELECTRIC SHOCK

Spilling water or chemical over in the rear of the main unit/ inside of mounting boards unit may cause electric shock and/or fire. If some liquid is spilled, shut off the power immediately and disconnect a power plug from the receptacle.
Then, contact our sales representative shown at the end of this manual.

ELECTRIC SHOCK

Do not use a damaged power cord to avoid electric shock and/or fire.
Follow the instructions below.

- Do not modify the power cord.
- Do not put heavy objects on the power cord.
- Do not strain or bend the cord forcedly.

If the cord is damaged, please contact our sales representative shown at the end of this manual.

ELECTRIC SHOCK

Don't connect too many power cords to one receptacle.
It may cause fire.

FIRE

Mishandling of an AC power plug may cause fire.
Follow the instructions below.

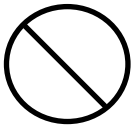
- Don't insert a plug with dust to a receptacle.
- Insert a plug to a receptacle until the end securely.

FIRE

For Safety Operations

CAUTION

Be careful so as not to involve something with a rotating collector when the collectoris used. Otherwise, involved things flew apart.
It may cause break of parts or injury.

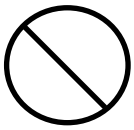


INJURY

Be sure to use original power cords and connection cables. Use of substitutes may cause short circuits, discharge, electric shock, fire and/or malfunctions.

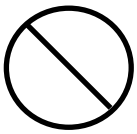
ELECTRIC SHOCK

Be sure to wear safety glasses, dust mask and chemical resistant gloves for safety when handling solutions, as well as containers with solutions such as tubes, tanks, pumps, and spinnerets.



INJURY

Do not apply negative voltages when using conductive substrates.
High voltage is applied through substrates, which may cause electric shock.

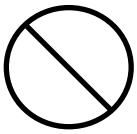


ELECTRIC SHOCK

Do not pile two pieces of the substrates.
Discharge in a small gap between substrates may cause fire.

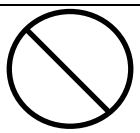
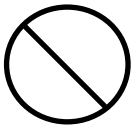
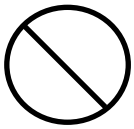
FIRE

Please do not block the upper space of the window to release blast with objects such as an intake hose.
The blast will not go out upward and the explosion may effect the human body.

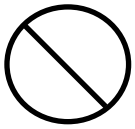
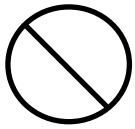
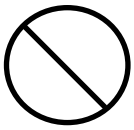
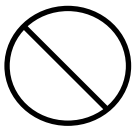
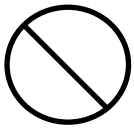


INJURY

For Safety Operations

CAUTION	
Do not install the equipment on unstable places such as on unstable tables or inclined locations. It may cause rollover of the equipment and injuries.	 **INJURY**
Do not put heavy articles on the equipment. Do not ride or stand on the equipment. It may cause rollover of the equipment and injuries.	 **INJURY**
Do not operate in the area of high humidity or with much dust. It may cause electric shock and/or fire.	 **INJURY**
Be sure to use original power cords and connection cables. Use of substitutes may cause short circuits, discharge, electric shock, fire and/or malfunctions.	 **ELECTRIC SHOCK**
Don't handle power plugs with a wet hand. It may cause electric shock.	 **ELECTRIC SHOCK**
Don't strain the AC cord forcedly to disconnect. Damage on the cord may cause fire and/or electric shock. Grab the plug to disconnect the cord.	 **ELECTRIC SHOCK**
Each connection cable has a part of high voltage output. Be sure to turn off the power before connecting/disconnecting cables. It may cause electric shock. Be sure to confirm that cables are locked before connecting/disconnecting cables.	 **ELECTRIC SHOCK**
Be sure to shut off the power, pull out the AC plug and disconnect all the cables before moving the equipment. Otherwise, it may damage cables and cause electric shock and/or fire due to damages on cables.	 **ELECTRIC SHOCK**

For Safety Operations

 **CAUTION**	
Install the equipment on the floor with no vibrations from other machines. It may cause injuries by moving or fall of the equipment.	 **INJURY**
Unpack and/or carry the equipment by more than two persons as it is heavy. Otherwise, it may cause injury due to fall or rollover of the equipment.	 **INJURY**
Do not open the door of spinning chamber during spinning. Otherwise, it may cause leakage gas ,which is inside of the spinning chamber, in the laboratory.	 **INJURY**
Pay close attention to the transporting route so that a human body will not be caught between the wall and the device during transportation, which may cause serious injury.	 **INJURY**
Hold spinnerets firmly when replacing them. Dropping on a foot or, a part of a body will cause injury.	 **INJURY**
Please do not place combustibles, such as an organic solvents on a collector when electro spinning. Electric discharge may cause ignition. We at MECC cannot owe any responsibility for damage and injury occurred in the above usage.	 **FIRE**

Chapter 1. Before Operation NEX-101 Operation Manual

Chapter1: Before Operation

Please use the device following articles described in this chapter.
Please wear an anti-toxic mask, gloves and protective glasses when as the device is for quick and simple experiments.

1-1. Confirmation of main unit and accessories

Check the NANON and accessories external and internal damages.

Refer to the attached sheet about accessories.

1-2. Description of terms

The following table shows the terms used in this document.

Terms	Description
Substrates	The materials that is a nonwoven fabric or aluminum foil and spun on it.
Solvent	A liquid, a component of a solution, that dissolves a polymer (material).
Solution	A liquid to be spun, in which polymer is dissolved in a solvent.
Spinning unit	Equipment and parts mounted on the device that acts directly on spinning such as high voltage power supplies, sliders, pumps, spinnerets and collectors, also described just as “unit”.
Spinning Stop Status	Indicated a status in which all spinning units are stopped. Some article describe the status as “stopped”.
Home position	To be used to describe positions of a slider and a syringe pump. The home position of the slider is the position that stops after power-on, the upper right viewing from the front of the device. For the home position of the syringe pump, see the instruction manual of the syringe pump to be used.

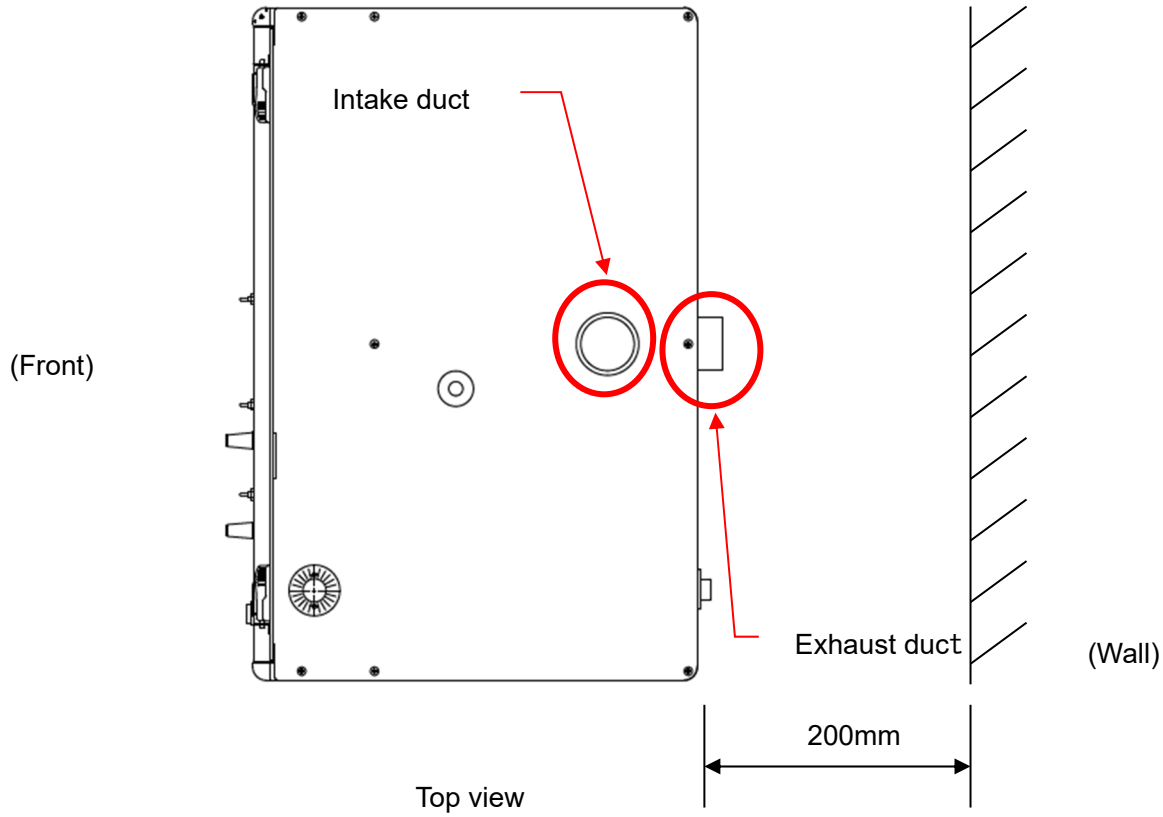
1-3. Installation of the main body

When installing or relocating the main unit, read this section and install it in the appropriate location.

Do not block the intake duct or exhaust duct or the inside of the device will be heated, causing malfunctions.

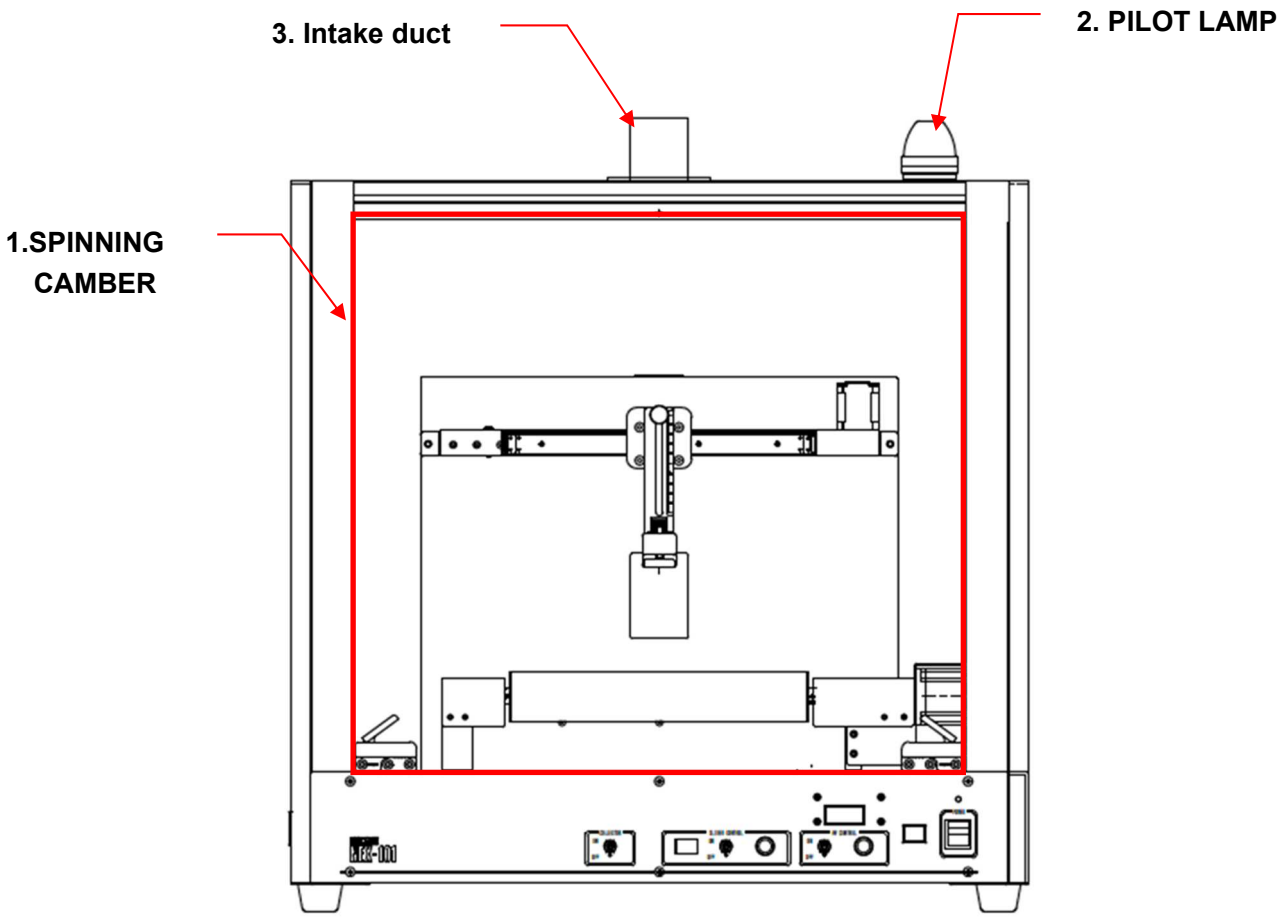
Leave a space for 200mm in front of the exhaust duct.

Connect the exhaust duct to an organic exhaust treatment system if necessary.



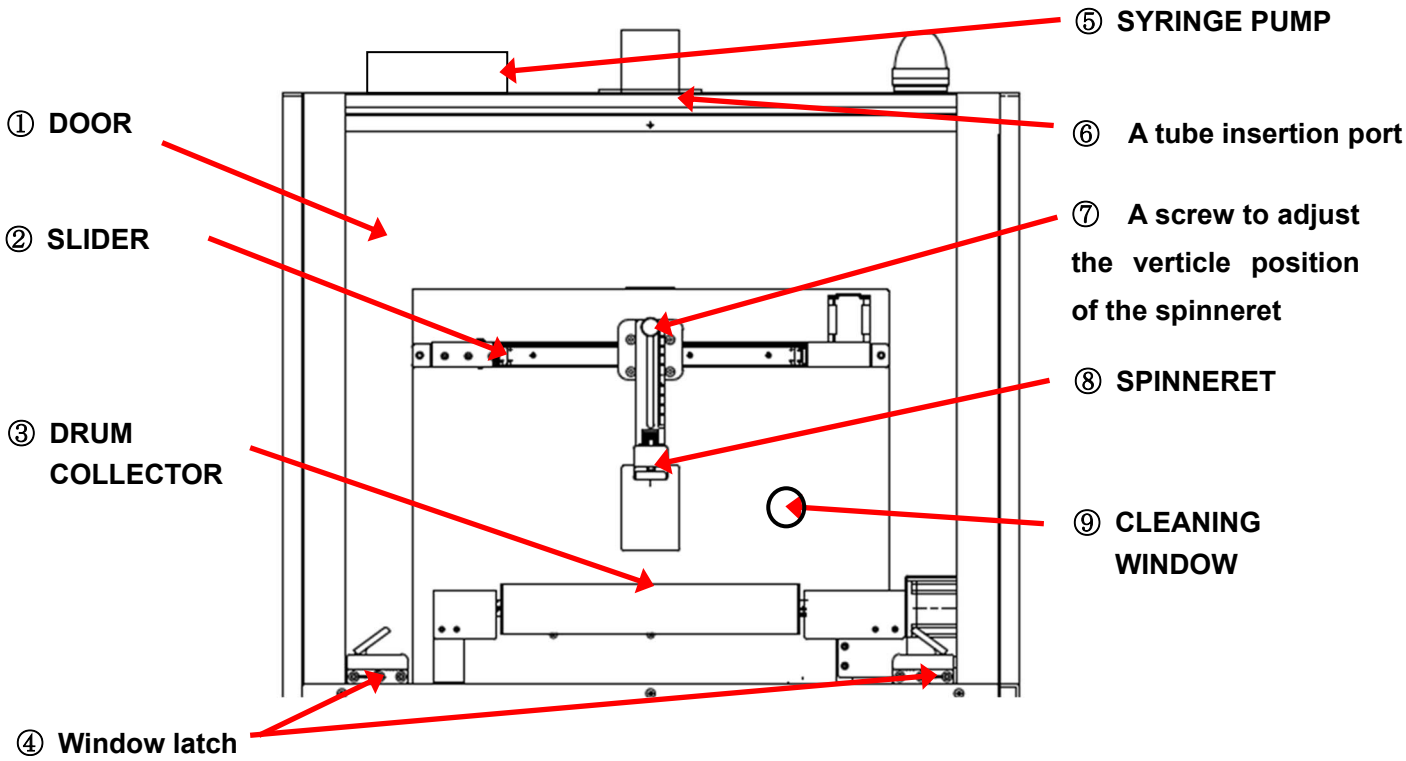
1-4. Function and name of each part

Names and functions of each part are described in the following sections.



1. Spinning Chamber

A spinning space in the center of the device.



Number	Name	Overview
①	Door	The door of the spinning chamber. Press and hold the lever of the 2. window latch that is attached to both sides, and slide the door upper and lower to open and close it. Be sure to closethe door to start spinning or operate a movable unit such as a slider, or the device cannot start operation or spinning.
②	Slider	The spinneret attached to the slider traverses to the left and the right.
③	Drum Collector	The drum collector at a rotates at the speed of 50rpm.
④	Window latch	When opening or closing the door, press and hold the lever and slide the door upper or lower to open and close it.
⑤	Syringe pump (optional)	A pump that quantitatively feeds solutions from syringes to spinnerets. Press the plunger (presser) of the mounted syringe. See the instruction manual as for operations of the syringe pump.
⑥	A tube insertion port	A tube insertion port to supply solutions from an external syringe pump(optional) to a spinneret in the chamber.

Number	Name	Overview
⑦	A screw to adjust the verticle position of the spinneret	A screw that adjusts the vertical pisition of the spinneret. Adjust the position properly from the spinning status.
⑧	Spinnaret	Discharges solutions from the tip of the nozzle. A high voltage is applied to the entire spinneret.
⑨	Cleaning window	A window for cleaning the tip of the spinneret. Remove the grommet when cleaning. ⚠ Do not use conductive rods to avoid electric shock.

2. Pilot lamp

Pilot lamp illuminates in red when a high voltage is applied to the spinneret.

3. Intake duct

Inlet of air into the inside of the spinning chamber.

Connect the intake hose. The outer diameter of the connecting duct is φ75 mm.

4. Exhaust duct

Outlet of gas from the spinning chamber.

Connect the exhaust fan. The outer diameter of the connecting duct is 75 mm.

A air volume of the exhaust fan is recommended to be 14 ㎥/h or more.

Connect it to an organic exhaust gas processor if necessary.

5. Emergency stop button

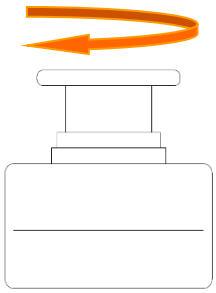
A red mushroom button to stop operations in an emergency.

When abnormality occurs on the device oroperations must be stopped due to dangerous situations, press it strongly with a palm.

All power is shut down and the device stops immediately.

To release it pinch the button with fingers and turn it to the right (in the direction of the arrow).

Then, perform the ordinary power-on operation.



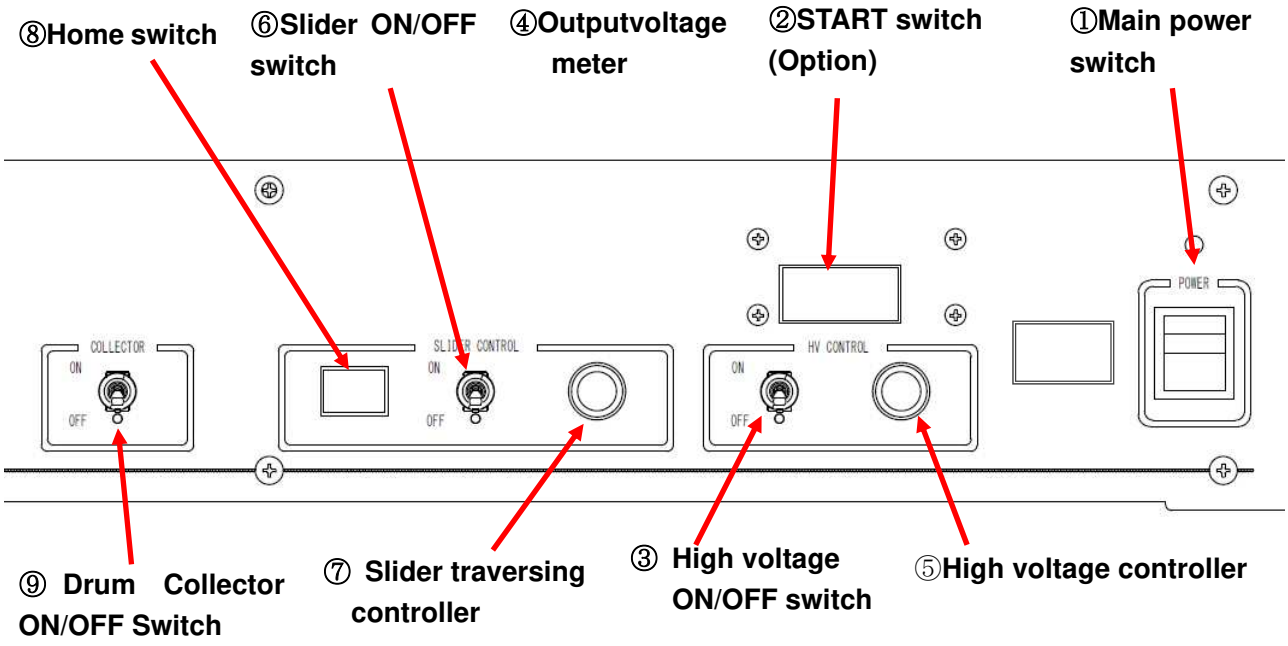
6. GND terminal

A protective ground terminal. Be sure to connect it with the ground.

7. AC connector

Power input connector. Input AC 85-264V with a 3-pin AC cable.

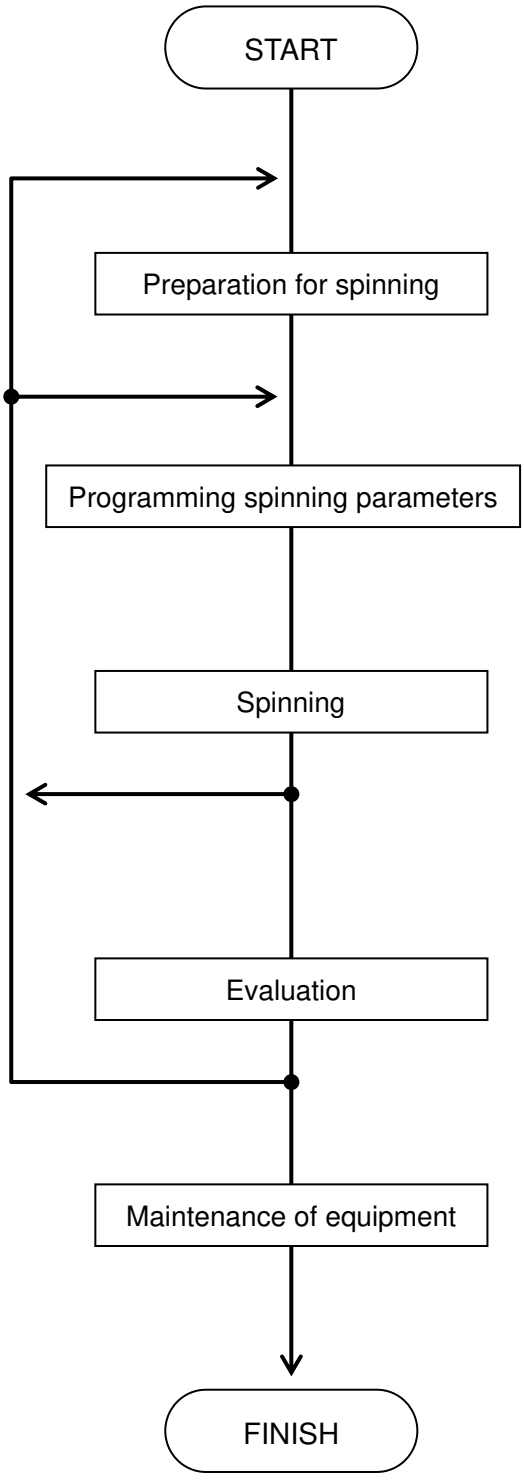
8. Operation Unit



Number	Name	Overview
①	Main power switch	A switch that turns the main power of this device on and off. Make sure the AC cable is inserted into an outlet that matches the rated voltage and turn it on. Turn it off when the power has to be shut off in such a case as the device not being operated for a long time.
②	START switch	Make sure the emergency stop button is turned off. Press the START switch to energize the device after turning on the main power switch on. (The START switch is added only when the emergency stop button is added as a manufacturer's option.)
③	High voltage ON/OFF switch	A switch to turn the high voltage power supply on and off. No voltages will be applied to the spinneret when the door is open.
④	Output voltage meter	A meter to display the voltage output from the high voltage power supply.
⑤	High voltage controller	A potentiometer to control output voltage of a high voltage power supply. High voltages will not output when the high voltage ON/OFF switch is off or the door is open.
⑥	Slider ON/OFF switch	A switch to turn the slider on and off. It does not work when the door is open.
⑦	Slider traversing controller	A potentiometer to control the amplitude of the slider in the range from 100 to 200mm.
⑧	Home switch	A switch to move the spinneret to the home position (the right end).
⑨	Drum Collector ON/OFF Switch	A switch to turn rotations of on and off.

1-5. Flow of spinning

Here is a brief description of the flow of spinning and chapters to be referenced.



Install spinning units to the device and set solutions and substrates.
⇒ 2-1. Turning on the power supply
2-2. Installation the spinneret

Program parameters to be spinning conditions.
⇒ 2-3. Programming spinning parameters

Run the device and start spinning.
Watching the status, change preparations of solutions and programming of spinning parameters.
⇒ 2-4. Starting spinning
⇒ 2-5. Finishing spinning

Evaluate spun nanofibers.
From the results, change preparations of the solutions and programming of spinning parameters.

Clean and check the device and spinning units.
⇒ 2-6. Care after spinning
Chapter3 Maintenence

Please refer to Chapter 4 Trouble shootings for failure or abnormalities.

Chapter 2 Operation

CAUTION

When using the solution, wear protective equipment such as gloves and glasses.

2-1. Turning on the power supply

1. Before power on, make sure that the three following switches are "off".
   a) High voltage ON/OFF switch
   b) Slider ON/OFF Switch
   c) Drum Collector ON/OFF Switch

2. Make sure the door is closed.
   If the door is open, press and hold the lever strapping on both sides and slowly slide the door lower to close it.

3. Insert the AC cable into an outlet that matches the rated voltage.

4. Turn on the main power switch in the lower right corner of the front of the device.

5. Make sure the emergency stop button is released.

6. Press the START switch. (When there is the emergency stop button)

7. The POWER lamp illuminates and the spinneret moves to the home position (the right end).
   While the spinet is moving to the home position (the right end), the lamp on the home switch blinks.

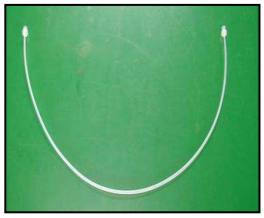
8. Make sure the lamp on the home switch illuminates and open the door.

2-2. Installation the spinneret

1. To supply solutions to the spinneret, prepare the following parts.

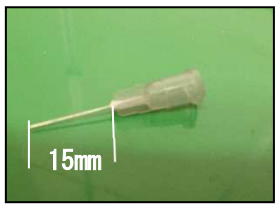
a) Syringe
b) Tube ***(Recommended length : 660mm)***
c) Lure lock connector
d) Nozzle ***(15mm)***
e) Metal connector

a) Syringe



b) Tube

c) Lure lock connector

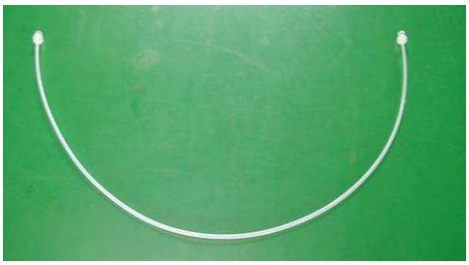


d) Nozzle

e) Metal connector

※ Recommended products :
(Tube) Product name: Teflon BT tube 1/8B 10m
Manufacturer: Nichias Co., Ltd., model number: 7-304-01
(Lure lock connector) Product name: Lure lock connector female 1/16" (1.6mm) ID,
Seller: Azwan, Model Number: VPRF106
(Nozzle) Product name: Telmo needle 27G, 15mm needle
processed by MECC
(Syringe) Product Name: All Plastic Disposyringe,
capacity 2-20ml
(Metal connector) Product name: Metal connector,
Manufacturer: MECC, Part Number:115390550/CL

2. Insert the lure lock connectors at both ends of a tube.
Be careful not to apply too much stress on the junction of the lure lock connectors and the tube.



3. Insert the first lure lock connector and the metal connector.

4. Insert the metal connector and the nozzle.

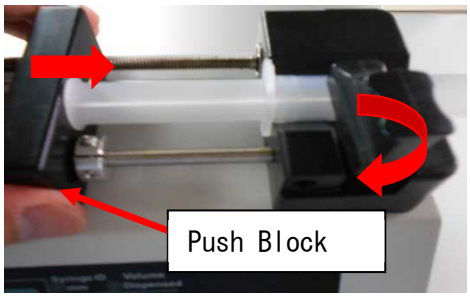
5. Pour solutions used for spinning in the syringe.
Prevent air or foreign articles from entering the syringe when pouring solutions.
Wipe off leaked solutions completely with paper cloths.

6. Insert the syringe with solutions and the second lure lock connector.

7. For solutions to reach the tip of the nozzle, press the syringe pusher (plunger).

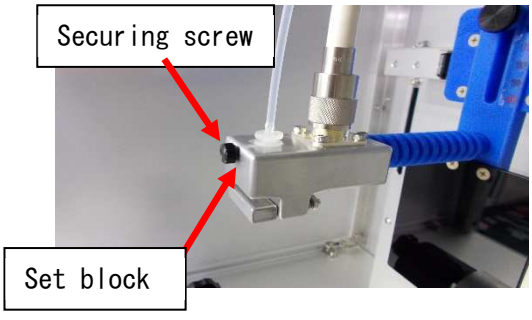
8. Set the syringe to the syringe holder of the syringe pump.

9. Move the push block of the syringe pump to the pusher of the syringe.
See the instruction manual as for operations of the syringe pump.



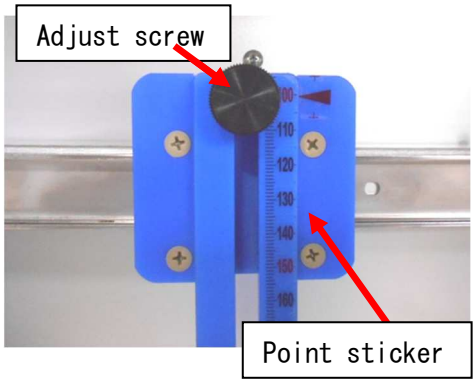
10. Bring the nozzle to the chamber through the tube insertion hole.

11. Set the nozzle to the hole in the center of the spinneret.
Loosen the securing screw and pull the set block to pinch the needle.
Then, tighten the securing screws to secure the metal connector.



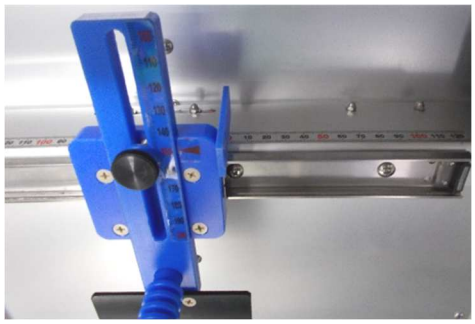
2-3. Programming spinning parameters

1. Adjust the height of the spinneret according to the spinning parameters.
   Adjust the height by loosening the adjustment screw and with the point sticker.



2. Program the feed amount of solutions according to the spinning parameters.
   See the instruction manual as for operations of the syringe pump.

3. Adjust the traversing distance of the spinneret with a controller knob while checking the scale.
   The maximum distance is 200mm by rotating the controller clock wisely to the end.

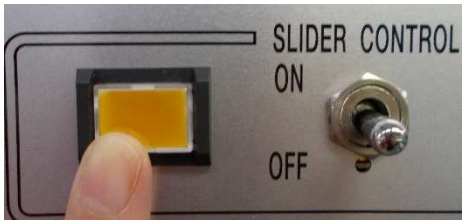


4. Adjust the output voltage with the high voltage controller knob.

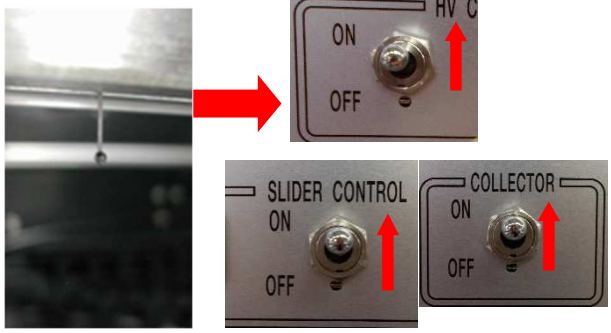
2-4. Starting spinning

1. Make sure the door is closed.
   If the door is open, press and hold the lever strapping on both sides and slowly slide the door lower to close it.

2. Press the home switch.



3. Start the syringe pump and confirm that a certain amount of solution is discharged stably from the tip of the nozzle (about 30 seconds to 1 minute), then turn on the high voltage ON/OFF switch, the slider ON/OFF switch and the drum collector ON/OFF switch.



4. Adjust the voltage applied to the spinneret with the high voltage controller knob.
   The maximum output is 30.0kV by rotating the knob clock wisely to the end.

5. While visually checking the spinning condition, adjust the high voltage output and the feeding amount of solutions to find the optimal spinning parameters.

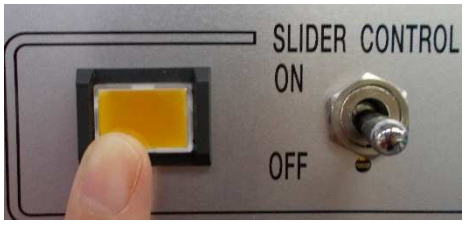
6. When fibers are attached to the tip of the needle, turn off the slider ON/OFF switch and press the home switch.
   When the spinneret comes to the right end, wipe off the needle tip by inserting a resin rod wrapped with paper cloths from the cleaning window.

CAUTION

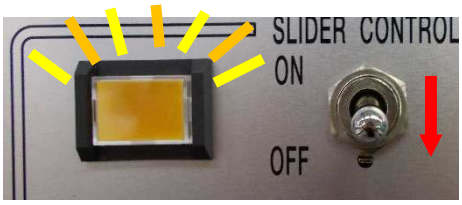
Do not use conductive rods to avoid electric shock.
Do not move the arm position during cleaning.

2-5. Finishing spinning

1. To finish spinning “turn off” the syringe pump and press the home switch to move the spinneret to the home position.



2. When the home switch starts blinking, turn off the slider ON/OFF switch.



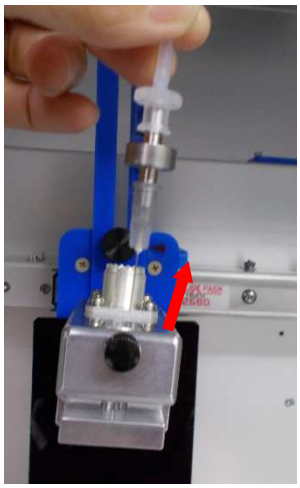
3. When the spinneret returns to the home position and the lamp on the home switch illuminates, turn off the high voltage ON/OFF switch and the drum collector ON/OFF switch.

4. When the high voltage meter reading becomes zero, open the door and remove the spun sample.

2-6. Care after spinning

1. Turn off the main power switch.

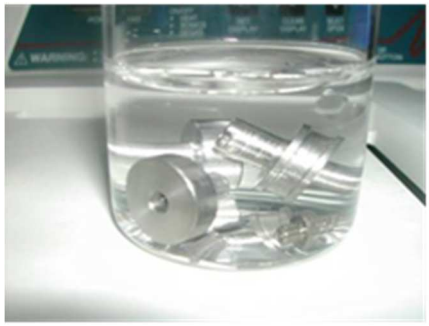
2. Remove the nozzle from the spinneret and take it out of the chamber.



3. Remove the nozzle from the lure lock connector and extrude remaining solutions in the syringe and tube entirely.

4. Soak the metal connector in a container with solvents of the spinning solutions and wash it with an ultrasonic cleaner for about 1 hour.

   In case stains cannot be removed extend the cleaning time period while watching the status. After washing with solvents, then wash it using the ultrasonic cleaner with water.



5. After washing, dry it thoroughly in the oven (set at 60 degree C).

6. Cleaning of the inside of the device after spinning is recommended.

Chapter3: Maintenance

We recommend periodical maintenance to keep the device clean and in good condition.

3-1. Cleaning

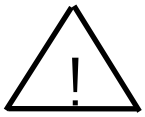
3-1-1. Outside

(1) Clean with a soft brush after POWER OFF.

(2) Prepare washing included detergent a little.
Wipe outside after dipping and squeezing a piece of soft clothes.
Wipe a piece of dry clothes after that.

CAUTION

Clean not to leak moisture inside or electrical circuit is shorted and it may cause malfunction, fire and/or electric shock.

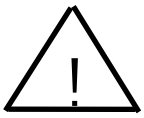


CAUTION

Do not use hard brush and/or detergent.
The coated surface may be damaged or printed letters may come off.

3-1-2. Inside

- Clean with an air gun (blower) or a soft brush.
- Clean inside at least once a year to avoid fire and /or malfunction.
  We recommend to clean before the rainy season.



CAUTION

Refrain from using any solvent or detergent of cleaning as the parts may possibly be damaged in some cases.

3-1-3. Lubrication

- All the mechanical parts such as switches or relays in this equipment require no lubrication.
- Refrain from lubricating each contact or from using any contact activator. Replace any parts which go out of order

Chapter4: Troubleshooting

Troubleshooting method is as follow.

Please consult to our engineers for more details.

1) Events that occurred and the status of the device

Let us know details of the event and unordinary status of the device if any, such as the illumination of the display light, blinking of the voltage meter, and the operation of the spinning unit when malfunctioned.

2) Operating procedures and frequencies of event occurrence

Provide operation procedures in order as specifically as possible.

As for frequencies of occurrence, provide it in as specific as possible such as once every five times or once an hour.

3) Other information about the event as in detail as possible

4-1 Malfunctions and troubleshooting

Symptom	Cause of the problem	Counter-measure
Even if the main power switch is turned on, the device cannot be energized. (When there is no emergency stop buttons.)	Is the power plug disconnected in or incomplete?	Insert the power plug.
	Is the fuse blown or unmounted?	Mount a rated fuse.
After turning the main power switch on and pressing the START switch the device cannot be energized. (When there is an emergency stop button.)	Is the power plug disconnected in or incomplete?	Insert the power plug.
	Is the fuse blown or unmounted?	Mount a rated fuse.
	Is the emergency stop button pressed?	Hold the button with fingers and turn it to the right (in the direction of the arrow).
	Is the emergency stop button connected with a connector to the main body of the device?	Connect the emergency stop button to the main body of the device.

Symptom	Cause of the problem	Counter-measure
The spinning unit does not work.	The door is open.	Close the door.
	The voltage meter is blinking.	Turn off the device and restart it. When restarting, wait for about 30 seconds to turn on the power.
The voltage meter is blinking.	The high voltage output was shut off because a current exceeding the rating flew in the spinning chamber.	Turn off the device and restart it. When restarting, wait for about 30 seconds to turn on the power.
High voltage power does not output.	The door is open.	Close the door.
	The voltage meter is blinking.	Turn off the device and restart it. When restarting, wait for about 30 seconds to turn on the power.
The center of the traversing of the spinneret is dispositioned from the center of the drum collector.	The spinneret was operated by hand from side to side.	Turn off the device and restart it. When restarting, wait for about 30 seconds to turn on the power.
Solutions does not discharge from the syringe pump.	The syringe pump is not in contact with the pusher (plunger).	Move the push block of the syringe pump to the pusher of the syringe.
Jets are not generated when voltages are applied.	Is the voltage cable or the jet outlet/nozzle securely secured to the spinneret?	Check the connections of the spinneret and the voltage cable and the jet outlet/nozzle once again.
	Is the jet outlet/nozzle clogged?	Clean or replace the jet outlet/nozzle.
	Solutions are not properly conveyed.	Program the syringe pump correctly.
		The viscosity of the solution is too high, and the capacity of the pump may be insufficient. Try with a different solution or make the concentration of the solution.

Symptom	Cause of the problem	Counter-measure
The solution becomes droplets and jets are not generated.	The high voltage cables and the spinneret are not firmly attached to the spinneret holder.	Check the installation of the high voltage cable and the spinneret.
	Setting of voltages, distances, and feed rates are not appropriate.	While checking the jet during spinning, adjust feed rates, voltage values and spinning distances to calculate appropriate spinning conditions.
When the spinneret moves out of the specified range.	The spinneret was operated from side to side by hand before spinning.	Turn off the device and restart it. When restarting, wait for about 30 seconds to turn on the power.

Limited Warranty Policy Revision

Limited Warranty Policy

This product is guaranteed for 12 full months after shipping from our factory in Fukuoka, Japan. When it is malfunctioned during the period, its repair will be done at our factory or a facility of our representative free of charge.

■ This warranty policy is only to promise free repair service of a purchased product.
- We will not be responsible for any damages or accidents by troubles with the product or by the use of the product.
- This warranty policy will never limit any legal rights of a user.

■ Price and/or warranty service of this product does not include any of the following items.
1) Cost for dispatching engineers for troubleshooting including travel expense
2) Freight to send repair parts
3) On-site installation and adjustment fee
4) Operation training fee
5) Observation fee after installation of this product
6) Periodical check, adjustment and/or calibration fee
7) Technical training and/or consultation fee
8) Spinning of samples on site or at our facility in Japan

■ Exceptions of the warranty policy
Following items will not be covered by the limited warranty policy.
1) Malfunctions or damages by operations not described in the operation manual of this product.
2) Damages or loss during transportation on a user's responsibility.
3) Malfunctions or damages caused by the repair or the modification made by a user.
4) Malfunctions or damages caused by disasters such as earthquake, typhoon and flood, lightening, salt damage, fluctuation of voltage, use of out-of-range powers.
5) Physical damages or malfunctions caused by strike, falling or mechanical shock.
6) Malfunctions or damages caused by the connection with external devices not described in the operation manual.
7) Consumable parts (e.g. batteries and filters)

■ Ownership of malfunctioned parts replaced in repair work belongs to MECC.

■ We will not be responsible for any damages or loss of integrated software, memory data or firmware.
** Periodical backup to be recommended.*

■ Repair work may take a long time of period due to late delivery, shortage or discontinued production of parts and there may be a case we cannot accept a request for repair.

Limited Warranty Policy Revision

■ Request for a repair service

Please tell the following items to our representative when repair service is needed.

- Name and contact (telephone number and e-mail address) of a user
- Product name (e.g. Electrospinning system)
- Model name (e.g. NANON-01A)
- Serial number (e.g. 27123J789)
- Symptom of the trouble (as in detail as possible)
  (e.g. No high voltage output more than 11.5kV. Programming can be made but no actual output.)
- Situation of operation when the trouble happened (as in detail as possible)
  (e.g. The trouble was found when starting the system in the morning. It worked normally yesterday.)

CAUTION

This product is designed to be operated by a personnel who has knowledges and technique safely to handle electronic equipment, attachments, consumable parts and chemicals for spinning.
We will not be responsible for any damages or accidents by an unauthorized personnel's access or use of the product.

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