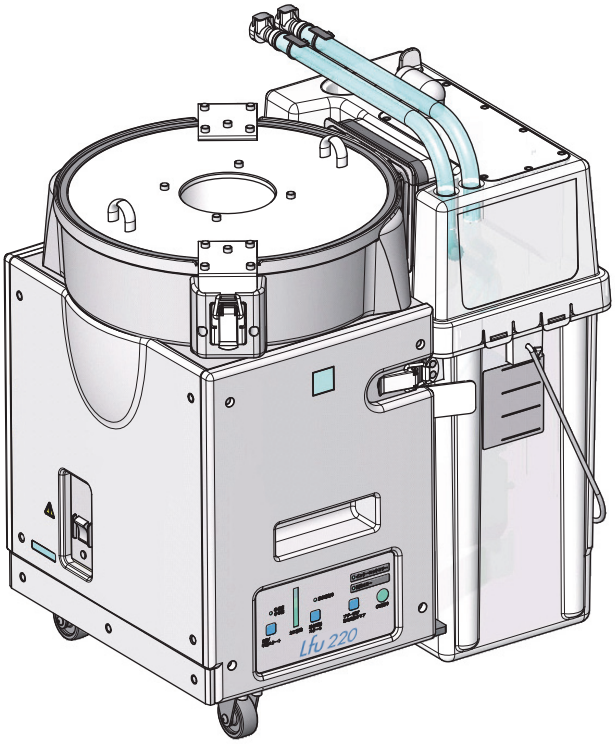
NIDEK

LENS DUST FILTRATION UNIT

Lfu 220

OPERATOR'S MANUAL



Original instructions

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Use this instrument properly and safely.

⚠ BEFORE USE, READ THIS MANUAL.

This operator's manual includes operating procedures, safety precautions, and specifications for the NIDEK LENS DUST FILTRATION UNIT, Lfu 220.

Cautions for safety and operating procedures must be thoroughly understood before using this instrument.

Keep this manual handy for reference.

If you encounter any problems or have questions about the instrument, please contact NIDEK or your authorized distributor.

Safety precautions

In this manual, signal words are used to designate the degree or level of safety alerting. The definitions are as follows.

⚠ **WARNING** • Indicates a potentially hazardous situation which, if not avoided, might result in death or serious injury.

⚠ **CAUTION** • Indicates a potentially hazardous situation which, if not avoided, might result in minor or moderate injury or properly damage accident.

Even situations indicated by ⚠CAUTION may result in serious injury under certain conditions. Safety precautions must be strictly followed at all times.

Usage precautions

Before Use

⚠ **CAUTION**

- **Do not use this instrument for other than the intended purpose.**
  NIDEK will not be responsible for accidents or malfunction caused by misuse.
- **Never disassemble nor touch the inside of the instrument.**
  This may result in electric shock or malfunction.
- **Install the instrument in an environment that meets the following conditions. The following conditions must be maintained during use.**
  Use conditions Temperature: 5 to 40ºC (41 to 104ºF)
  Humidity: 30 to 80%
  (Relative humidity must not exceed 50% at a maximum temperature of 40ºC)
  Maximum elevation: 2000 m
- **Be sure to use a wall outlet which meets the power specification requirements.**
  If the line voltage is too high or too low, the instrument may not perform properly. Malfunction or fire may result.
- **Do not overload the electrical outlet.**
  A multi-outlet supplying power to too many devices may become overheated and cause fire.
  Especially, the lens edger requires a measurable amount of power and is used concurrently. Make sure to connect to an outlet on a different circuit.
- **Fully insert the main power plug into the outlet.**
  Fire may occur if the instrument is used with a loose connection.
- **Do not place heavy objects on the cord.**
  A damaged power cord may cause fire or electric shock.
- **Install the instrument in area where the outlet that the power plug is inserted into is easily accessible during use. In addition, ensure that the power cord can be disconnected without the use of a tool.**
  Otherwise, it may interfere with disconnecting of the power from the input power source in case of abnormality.
- **Do not yank the power cord to disconnect it from an outlet.**
  This can damage the metal core of the cord and may result in short circuit or electric shock.
- **Be sure to properly ground the instrument.**
  Electric shock or fire may occur in the event of malfunction or power leakage.
- **Do not use a power cord other than the one provided. Also do not connect the provided power cord to any other device.**
  Failure or fire may result.

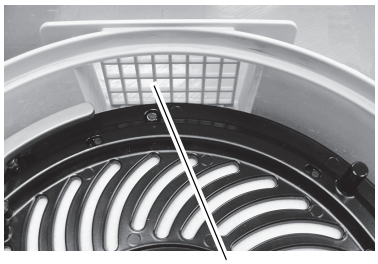
⚠ **CAUTION**

- **Install the instrument in a stable and level place where shock does not occur.**
  Tilting or vibration can prevent normal lens processing.
- **Move the instrument after removing all water and processing waste. When moving the instrument to a different location, be sure to remove the water tank and lift the instrument holding it by its base with both hands by at least two persons.**
  You may drop the instrument holding the body cover only and it may cause injury or malfunction.
  If the instrument is lifted with the water tank attached, fingers may get caught when set down.

During Use

⚠ **WARNING**

- **Never touch the rotor while it is rotating.**
  It may result in injury.
- **Be sure to use this instrument only for the filtering of the processing waste from spectacle lenses.**
  Filtering of other materials may cause malfunction.
- **Never open the cover while the rotor is rotating.**
  Processing waste may be released resulting in eye or skin damage. Water droplets may also be dispersed.
  Should the cover be opened, a buzzer sounds and the rotator comes to an emergency stop.
- **Be sure not to remove the finger guard (grid between rotor unit and water tank).**
  The finger guard protects fingers from entering the rotor when the water tank is removed to prevent injury.



Finger guard

⚠ **CAUTION**

- **The waste bucket and round filter are consumables.**
  The waste bucket is non-reusable.
  The round filter can be used twice by turning over the surface to be used.

- **Be sure to turn on the power switch of the Lfu 220 while processing lenses.**
  Processing lenses with the power switch of the Lfu 220 off may cause water overflow or malfunction.

- **When disposing of processing waste, refill water up to the water level indicated by the Max. line of the water tank.**
  If the water level falls below the top of the pump, the pump may rotate free and break.

- **It is recommended to rinse lenses processed by the lens edger with water before wiping them with a cloth or such.**
  Even though the filtered water is clean, fine processing waste in the processing chamber of the lens edger itself may become adhered to the lenses. Rinsing them in water prevents their surfaces from being damaged.

- **Immediately replace the power cord if the internal wires are exposed, the power turns on or off when the power cord is moved, or the cord and/or plug are too hot to hold.**
  This may result in electric shock or fire.

- **In the event of smoke or strange odors, immediately turn off the instrument and disconnect the power plug from the wall outlet. After you are sure that the smoke has stopped, contact NIDEK or your authorized distributor.**
  Usage of the instrument under such abnormal conditions may cause fire or electric shock. In case of fire, use a dry chemical (ABC) extinguisher to extinguish the fire.

After Use

⚠ **CAUTION**

- **Occasionally clean the prongs of the power plug with a dry cloth.**
  If dust settles between the prongs, the dust will collect moisture, and short circuit or fire may occur.
- **If the instrument will not be used for a long time, disconnect the power cord from the wall outlet.**
  If dust settles between the prongs, the dust will correct moisture, and short circuit or fire may occur.
- **Do not use organic solvents such as paint thinner to clean the exterior of the instrument.**
  This could damage the surface.
- **Do not store the instrument in an area that is exposed to rain, water or contains poisonous gas or where any liquids are stored.**
- **Verify that the following specified environmental conditions for transport and storage (packed condition) are met.**
  Environmental conditions •Temperature: -25 to 70ºC (-13 to 158ºF)
  •Humidity: 10 to 95% (non-condensing)
- **To transport the instrument, use the special packing materials to protect from shock and impact.**
  Excessive vibration or impact to the instrument may cause malfunction.

Disposal

⚠ **CAUTION**

- **Follow the local ordinances and recycling regulations regarding disposal or recycling of the components.**
  It is recommended to commission the disposal to a designated industrial waste disposal contractor. Inappropriate disposal may contaminate the environment.
- **For proper disposal of water from the water tank, follow the local ordinances.**
  This is an instrument that simply filters processing waste drained from the lens edger.It has no function to filter chemicals eluted in water from the lens processing waste. Inappropriate disposal may contaminate the environment.
- **When disposing of packing materials, sort them by material and follow local ordinances.**
  Inappropriate disposal may contaminate the environment.
- **When disposing of processing waste, follow the local ordinances.**
  Inappropriate disposal may contaminate the environment.
- **When removing the processing waste, be careful not to inhale particles. Always wear a mask, goggles, and other such protective devices as necessary.**
  There is a possibility that the particles are toxic depending on the lens materials.

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1. BEFORE USE

1.1 Outline of Instrument

The NIDEK Lfu 220 is a centrifuge filtration unit which is connected to a lens edger.
The rotor rotates at a high speed to separate the processing waste from water used during lens processing resulting in substantial reduction of the frequency of water replacement.
The unit consists of a rotor part for filtration and a water tank part for storing filtered water.
The water tank contains a pump to supply water to the lens edger.

Supported lens edgers

- Le 1000
- Lex 1000
- ME-1000 series
- Me 1200

○ Available lens materials

Lens material						
Plastic	**High index plastic**	**Polycarbonate**	**Acrylic resin**	**Trivex**	**Polyurethane**	**Glass**
○	○	○	○	○	○	△

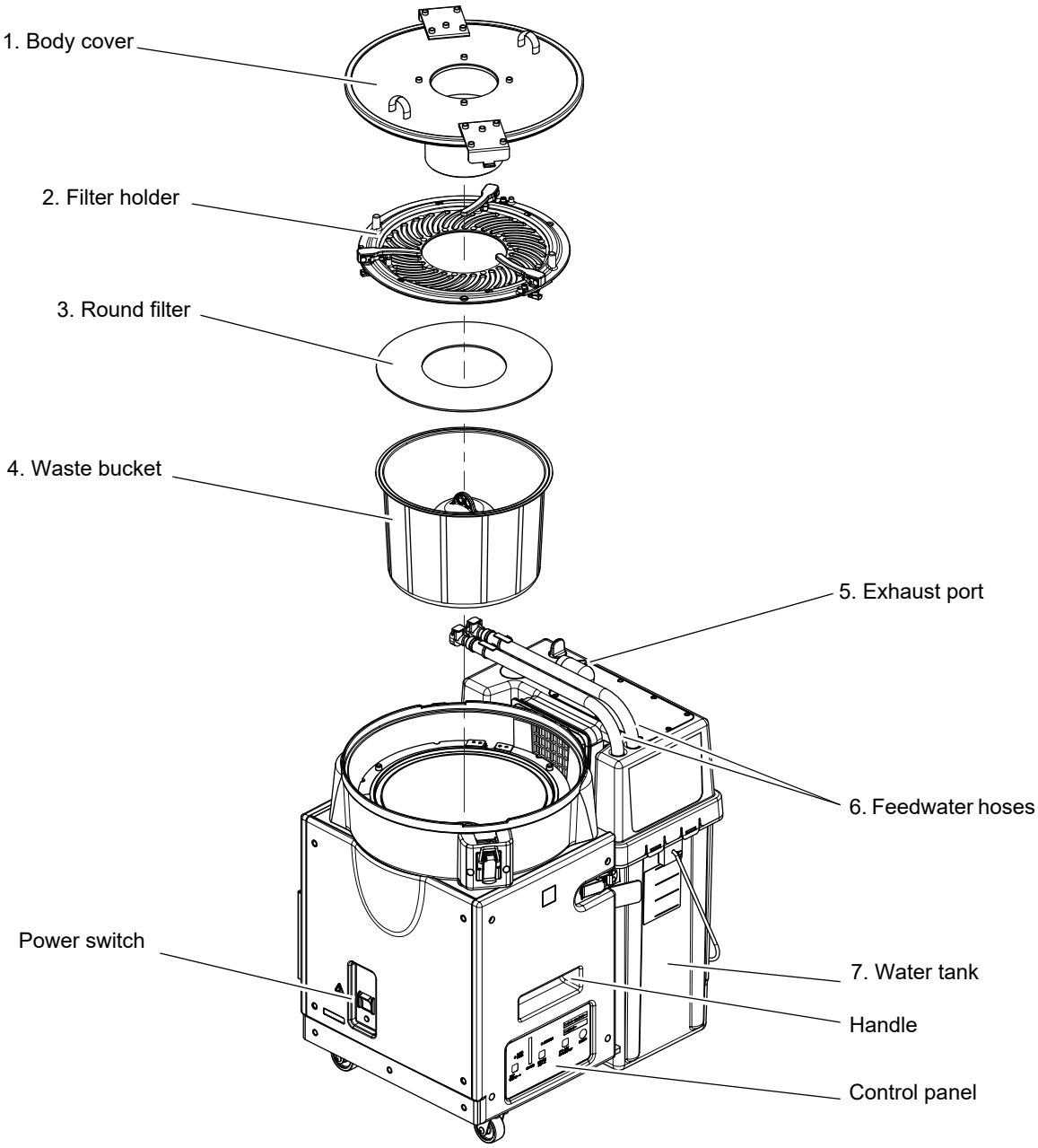
○: Available
△: If the glass lens processing amount is 10% or less of all processing, the instrument can be operated using standard conditions. For glass lens processing of 10% to 30%, replace the water more frequently during use. Do not process glass lenses in excess of 30% of all processing.

Note

- To connect with an older model NIDEK lens edger or that of another company, consult NIDEK or your authorized distributor. However, according to the usage or instrument conditions, connection may or may not be possible depending on the water replacement or other limitations.
  ex.) With the LE-9000 series, processing of polycarbonate and trivex lenses is not possible.

1.2 Configuration

○ General view



1. Body cover

There is a rotor to separate the processing waster from water. The top is provided with an aperture to connect the drain hose.

The rotor does not rotate unless the cover is closed.

⚠ WARNING • Never open the body cover while the rotor is rotating.

2. Filter holder

Cover that holds the round filter to the rotor

> ⚠ **CAUTION** • **Be sure to turn the three levers to lock the filter holder.**

3. Round filter

Covering filter that prevents the processing waste from coming out from the rotor

It can be used on both sides.

4. Waste bucket

Container set in the rotor for accumulating the processing waste

This is disposed with processing waste.

5. Exhaust port

A hose is connected to the deodorizer.

6. Feedwater hoses

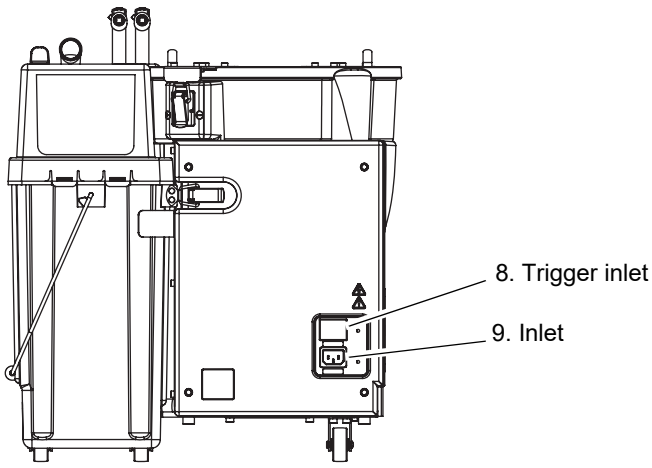
Hoses supplying water from the water tank to the lens edger

7. Water tank

This stores water from which processing waste was separated.

Replace the water periodically. See “3.3 Replacing the Water” (page 25).

○ Rear view



8. Trigger inlet (TRG)

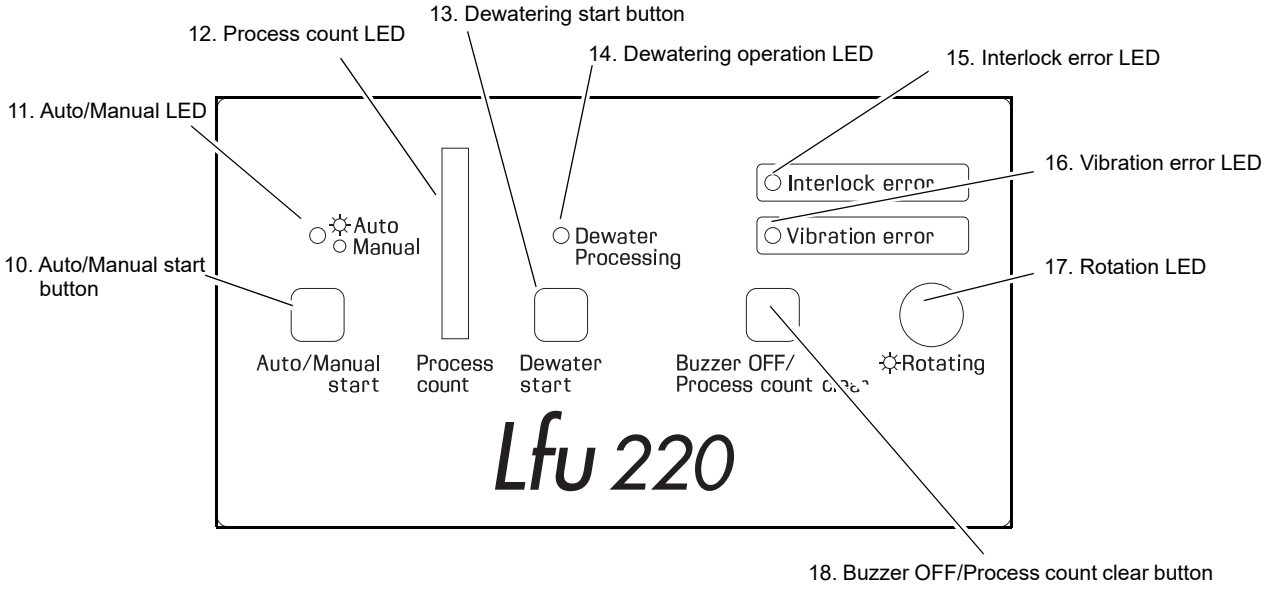
For connection with the lens edger outlet

The outlet to be connected depends on the model of the lens edger.

9. Inlet

The power cord is connected.

○ Control panel



10. Auto/Manual start button

Switches between auto operation mode and manual operation mode.

Used to activate the filtration unit manually. Press this button to switch between auto operation mode and manual operation mode.

Auto operation mode: Activated or deactivated in conjunction with the lens edger.

Manual operation mode: Continuously activated until reset to auto operation mode.

11. Auto/Manual LED

Lit while in auto operation mode.

12. Process count LED

Indicates the number of processed lenses in auto operation mode by the number of the lit LEDs. This is a guide for when to dispose of the processing waste.

Not lit: No lenses have been processed.

One lit: Less than 40% of the target process count

Two lit: 40 to 80% of the target process count

Three lit: 80 to 100% of the target process count

Four lit: 100% or more of the target process count

Note

- Depending on the lens edger, the number of retouched lenses is also included in the process count.

13. Dewatering start button

The rotor rotates for five minutes for dewatering.

Used when water remains at the removal of processing waste.

14. Dewatering operation LED

Lights while dewatering is performed by pressing the dewatering start button.

This LED does not light while the rotor is rotating in normal auto operation mode or manual operation mode.

15. Interlock error LED

Lights when an interlock error occurs.

An interlock error occurs when the following is detected.

- The body cover is opened while the rotor is rotating.
- With the body cover open, activation of the rotor is attempted.

16. Vibration error LED

Lights at the time of vibration error.

17. Rotation LED

Indicates that the rotor is rotating.

Blinks according to the speed of the rotor and lit at a constant speed.

18. Buzzer OFF/Process count clear button

Press this button to stop the buzzer while a buzzer sounds.

Pressing this button after the body cover has been opened for 20 seconds or more clears the process count.

Note

- The buzzer OFF/Process count clear button only stops the buzzer but does not recover from the error. To recover from the error, turn off the power.

○ Labels and indications on the instrument

To call attention to users, some labels and indications are provided on the instrument.

	Indicates that caution must be taken. Refer to the operator’s manual before use.
	Indicates that caution for electric shock must be taken.
	Indicates that entanglement should be avoided.
	Indicates that the state of the power switch. When the symbol side of the switch is pressed down, power is supplied to the instrument.
	Indicates that the state of the power switch. When the symbol side of the switch is pressed down, power is not supplied to the instrument.
	Indicates the date of manufacture.
	Indicates the manufacturer.
	Indicates that this product shall be disposed of in a separate collection of electrical and electronic equipment in EU.

1.3 Turn On the Power

Press the | side of the power switch to turn on the power.

Note

- Keep the power switch on at all times.

  Processing lenses with the power switch of the Lfu 220 off may cause water overflow or malfunction.

  When the instrument is not used for a long time, however, turn off the power switch and remove the power cord from the wall outlet.

2. OPERATING PROCEDURES

2.1 Filtration

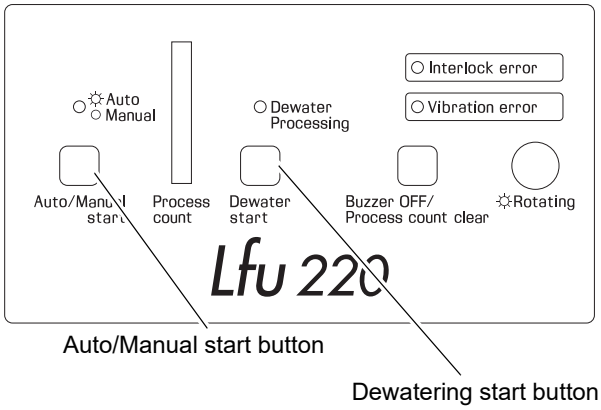
The Lfu 220 is normally used in auto operation mode. As the filtration unit is activated or deactivated by signals from the lens edger in auto operation mode, there is no need for operator supervision.
In auto operation mode, the Auto/Manual LED is lit.

Starting the lens processing activates the filtration unit automatically to separate the processing waste and water. The filtration unit stops automatically approximately five minutes after processing is complete.

The activation or deactivation of the filtration unit is determined by the ON/OFF trigger signals. These do not necessarily coincide with the actual processing. For the Le 1000, Lex 1000, ME-1000 series, and Me 1200, the signal for vacuum cleaner (VACUUM or 3) is used as a trigger signal.

For extended filtration, follow the procedure below.

- Press the dewatering start button. ⇒ The filtration unit runs for five minutes.
- Press the Auto/Manual start button. ⇒ The filtration unit continues to run in manual operation mode. Press the Auto/Manual start button again to return to auto operation mode. The filtration unit stops. (If the trigger signal is ON state, it does not stop.)



Note

- Never switch manual operation mode to auto operation mode during lens processing.

2.2 Processing Waste Disposal Time Notification Function

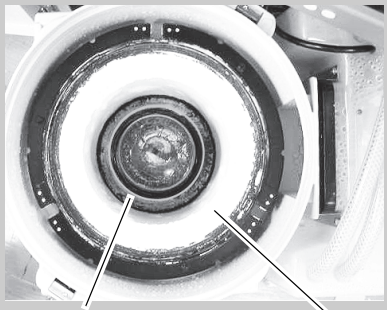
This function is used to notify a rough time for disposal of the processing waste.
When the specified process count is reached, a buzzer sounds repeatedly after processing is complete.

Note

- It is recommended to dispose of the processing waste after processing 70 to 100 mainly negative lenses or 130 to 160 mainly positive lenses.

  The disposal time depends on the lens material, thickness, and size. As the water becomes dirty, the time to disposal is reduced.

  Even if the specified number has not been reached, dispose of the processing waste when it has accumulated to the point that it reaches the replacement indication circle inside the waste bucket. After processing waste has accumulated to this point, filtration of the Lfu 220 does not function.



- Depending on the lens edger, resumption or retouching of a lens is counted as a separate process.

1 When a buzzer sounds repeatedly, press the Buzzer OFF/Process count clear button to stop the buzzer.

A continuous buzzer sound indicates an error. For confirmation procedures, see “3.1 Troubleshooting” (page 17).

2 Clear the process count after disposing of the processing waste.

See “3.2 Disposing of Processing Waste” (page 19).

If processing is continued without resetting the process count, a buzzer sounds again after processing four and eight lenses. The buzzer sounds every time subsequently.

Note

- The process count can be reset after the body cover has been open for 20 seconds or more. In this state, press the Buzzer OFF/Process count clear button to reset the process count.

  If processing is started once, the process count cannot be reset. In such a case, open the body cover again and wait for 20 seconds before resetting.

○ Changing the target process count

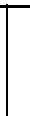
This is the setting of the target process count to sound a buzzer to indicate the need for disposal of the processing waste. The factory setting is 80 lenses. Change the setting as appropriate.

1 While the Auto/Manual LED is lit and the rotor is not rotating, press and hold the dewatering start button until a buzzer sounds.

The dewatering operation LED blinks to notify that the unit enters the setting mode of the target process count.

2 Press the dewatering start button to select the target process count.

The target process count is indicated by the lit status of the process count LED.

Process count LED status										
Target process count	No count	70 lenses	80 lenses	90 lenses	100 lenses	120 lenses	140 lenses	160 lenses	180 lenses	200 lenses

* When set to “No count”, the process count LED does not light and the processing waste disposal time notification buzzer does not sound.

Note

- The disposal time of the processing waste significantly differs according to the lens edger settings (measurement after roughing, retouching), lens material, and lens shape. Select the appropriate target process count to suit customer’s needs.

  * Depending on the lens edger, retouching a single lens increases the process count by two.

3 Press and hold the dewatering start button.

The setting of the target process count is stored and the setting mode is exited.

○ It is possible so as not to sound the processing waste disposal notification buzzer.

It is possible so as not to sound the processing waste disposal notification buzzer. Even in such cases, the process number is counted. When the specified process count is reached, all four of the process count LEDs light.

1 While the Auto/Manual LED is lit and the rotor is not rotating, press and hold the dewatering start button until a buzzer sounds.

The dewatering operation LED blinks to notify that the unit enters the setting mode of the target process count.

2 Press and hold the Buzzer OFF/Process count clear button until a buzzer sounds.

The dewatering operation LED and Interlock error LED blink to indicate that the notification buzzer ON/OFF setting mode is entered.

3 Press the Buzzer OFF/Process count clear button to select ON or OFF of the notification buzzer.

The ON or OFF setting is indicated by the number of the lit process count LEDs.

Number of lit process count LEDs	0	4
Notification buzzer	OFF (Does not sound)	ON (Sounds)

4 Press and hold the Buzzer OFF/Process count clear button.

The notification buzzer ON/OFF setting is stored and the setting mode is exited.

2.3 Changing the Buzzer Volume

The volume of the buzzer that sounds when the specified process count is reached, or an interlock or vibration error occurs can be changed.

1 While the Auto/Manual LED is lit and the rotor is not rotating, press and hold the Auto/Manual start button until a buzzer sounds.

The Auto/Manual LED blinks to notify that the unit enters the setting mode of the buzzer volume.

2 Press the Auto/Manual start button to select the buzzer volume.

The level of the sound volume is indicated by the number of the lit process count LEDs. The factory setting is High.

Number of lit process count LEDs	0	1	2	3	4
Buzzer volume	Mute	Low	Medium	High	Maximum

3 Press and hold the Auto/Manual start button.

The setting of the buzzer volume is stored and the setting mode is exited.

2.4 Daily Checks

2.4.1 Check before use

Check the following before every use each day. When the instrument is not used every day, check the following before every use.
It is recommended that a checklist is prepared and the check results are recorded.

A. Check whether the Auto/Manual LED is lit.

B. Check the lit status of the process count LED.

If the LED is lit up to the top red level, dispose of the processing waste.

See “3.2 Disposing of Processing Waste” (page 19).

C. Check to make sure that water is not leaking.

D. Check the water level of the water tank.

If the water level falls to less than the volume indicated by the Min. line, refill the water tank with water after confirming that no water remains in the rotor. If there is remaining water, check the water level after dewatering with the dewatering start button.

If the processing water is very dirty, replace the water. See “3.3 Replacing the Water” (page 25).

E. Check to make sure that the Lfu 220 does not contact the table on which the lens edger is installed.

If the Lfu 220 contacts the table, its vibration may affect the processing accuracy.

2.4.2 Check after use

Be sure to check the following after every use.
It is recommended that a checklist is prepared and the check results are recorded.

A. Check whether the Auto/Manual LED is lit.

B. Check the lit status of the process count LED.

If the LED is lit up to the top red level, dispose of the processing waste.

See “3.2 Disposing of Processing Waste” (page 19).

C. Check to make sure that no foam or water is leaking.

D. Check the water level of the water tank.

If the water level falls to less than the scale indicated by the Min. line, refill the water tank with water after confirming that no water remains in the rotor. If there is remaining water, check the water level after dewatering with the dewatering start button.

If the tank is full of foam or the water is badly soiled, replace the water. See “3.3 Replacing the Water” (page 25).

2.5 Periodic check

It is recommended to perform periodic check every one year in order to use the instrument for a long time under normal conditions. The periodic check contains the performance check of the whole instrument and replacement of maintenance parts.
Contact NIDEK or your authorized distributor if desired.

Periodic maintenance item	Contents of maintenance
Filter holder gasket	Check that the gasket is firmly attached and that there are no areas peeling away. Clean and firmly attach it if there is a problem. Check visually and by touch that there are no cracks or deterioration. Replace it if there is a problem.
Water tank gasket	Check visually and by touch that there are no cracks or deterioration. Replace it if there is a problem.
Water tank sealant	Check visually and by touch that there are no cracks or deterioration. Replace it if there is a problem.
Cover gasket	Check that the gasket is firmly attached and that there are no areas peeling away. Clean and firmly attach it if there is a problem. Check visually and by touch that there are no cracks or deterioration. Replace it if there is a problem.
Interlock switch	Check the operation and check visually that there are no damage or smudges. Replace it if there is a problem.
Inside of instrument	Check to make sure that no processing waste are in the instrument. If they are, clean the inside.
Feedwater and drain hoses (including feedwater hoses in the instrument)	Check visually and by touch that the feedwater or drain hoses have no cracks, deterioration, or clogging. Replace them if there is a problem.
Water tank	Check visually that there is no deformation. Replace it if there is a problem.

⚠ CAUTION • **Periodic checks must be performed by qualified personnel. Do not replace the parts other than the round filter and waste bucket nor disassemble the instrument. Failure to do so could cause malfunction.**

3. MAINTENANCE

3.1 Troubleshooting

In the event that the instrument does not work correctly, attempt to correct the problem according to the following table before contacting NIDEK or your authorized distributor.

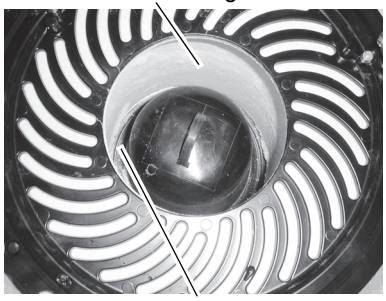
Symptom	Actions
The rotor does not rotate in conjunction with the lens edger.	• Check that the power switch is turned on. • Check whether the power plug is connected to a power outlet. • Check whether the cable is connected to the outlet of the rear side of the lens edger. • For the Lex 1000, check whether the “Vacuum” parameter is set to “Yes” or “Lfu”. • For the ME-1000 series, check whether the “Vacuum system” parameter is set to “EXEC”. • For the Me 1200, check whether the “Water system” parameter is set to “Lfu 220”.
A buzzer sounds repeatedly and four of the process count LEDs are lit.	• The process count has reached the specified target number of the processing waste disposal. Clear the process count after disposing of the processing waste. See “3.2 Disposing of Processing Waste” (page 19).
The Interlock error LED lights, a buzzer sounds continuously, and the rotor stops.	• An interlock error occurs. Turn off the power and check that the body cover is locked at two locations.
The Vibration error LED lights, a buzzer sounds continuously, and the rotor stops.	• A vibration error occurs. Turn off the power and confirm that the filter holder gasket does not become loose. If loose, clean and firmly attach the filter holder gasket. • A vibration error occurs. Turn off the power, remove the processing waste from the rotor, and set the new waste bucket and round filter. See “3.2 Disposing of Processing Waste” (page 19).
The Interlock error LED and Vibration error LED light and a buzzer sounds continuously.	• A rotor rotation error occurs. Turn off the power and confirm that the filter holder is locked at three locations.
An LED blinks.	• See “5.1 Instrument Status and LED Indications” (page 37).
Vibration is offensive.	• Turn off the power and confirm that the filter holder gasket does not become loose. If loose, clean and firmly attach the filter holder gasket. • Remove the processing waste from the rotor and set the new waste bucket and round filter. See “3.2 Disposing of Processing Waste” (page 19). • If the Lfu 220 contacts the table, move it so that it does not contact.
An unusual noise is heard.	• Turn off the power and check that the filter holder is locked at three locations.
Foam comes out from the bottom of the rotor.	• The rotor may not rotate. Referring to “The rotor does not rotate in conjunction with the lens edger.”, take a measure.

Symptom	Actions
The odor of water is offensive.	• Check whether the connection hose for the deodorizer does not become loose. • Close the processing chamber door while the lens edger is not in use. When a deodorizer is connected, check that the timer setting in installation is set to five minutes. • Replace the activated carbon in the deodorizer. • After dewatering, replace the water of the water tank. See “3.3 Replacing the Water” (page 25).
Foam or water comes out from the drain hose connection.	• See “The rotor does not rotate in conjunction with the lens edger.” (page 17). • Much processing waste may remain in the drain hose connection. Remove the cover of the main body and remove the processing waste.
Foam or water comes out from the cover of the main body.	• See “The rotor does not rotate in conjunction with the lens edger.” (page 17). • Check whether the cover gasket is not peeled away. If it is, firmly attach the gasket.
Water remains in the waste bucket.	• Repeat dewatering. If water remains after dewatering is repeated or there is no time to wait until dewatering is complete, set a new waste bucket and empty the remaining waste water into it for dewatering. • Note: Water may remain in the waste bucket after dewatering is performed several times because of the processed lens material, processing method, and such other conditions. Even in such a case, there are no problems in filtration.
Water leaks from where the main body and water tank are connected.	• With the water tank attached to the main body, check that the water tank gasket is flush maintaining a proper seal. In addition, if a considerable amount of processing waste adheres to the gasket inner edges, after the processing waste is removed, wipe away any moisture with dry cloth and attach the water tank.

* If the symptom cannot be corrected with the above actions, contact NIDEK or your authorized distributor.

3.2 Disposing of Processing Waste

Processing waste gradually accumulates from the waste bucket inner wall toward its center. Processing waste needs to be disposed of before it accumulates to the replacement indication circle inside the waste bucket.
Filtration is not performed properly beyond this point.



Note

- It is recommended to dispose of the processing waste after processing 70 to 100 mainly negative lenses or 130 to 160 mainly positive lenses. After processing 80 lenses (This setting is changeable), a buzzer sounds repeatedly to prompt for disposal.
  The disposal time depends on the lens material, thickness, and size. As the water becomes dirty, the time to disposal is reduced.

⚠ CAUTION

- **Even though disposal is possible without touching the processing waste directly, wear rubber gloves, goggles, a mask, and other such protective devices during disposal just in case.**

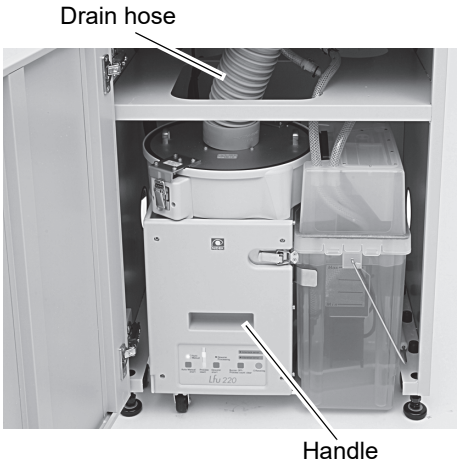
Note

- Do not turn off the power switch while disposing of the processing waste.
  The process count cannot be reset while the power switch is turned off.
- When disposing of the processing waste, be sure to refill water up to the water level indicated by the Max. line of the water tank.
  If the water level falls to less than the top of the pump, the pump may be damaged.
- Dispose of the processing waste, waste bucket, and round filter as industrial waste. For details, consult the local government.

1 Check that the rotor is stopped.
Check that the rotation LED is off.

2 Disconnect the drain hose from the Lfu 220.

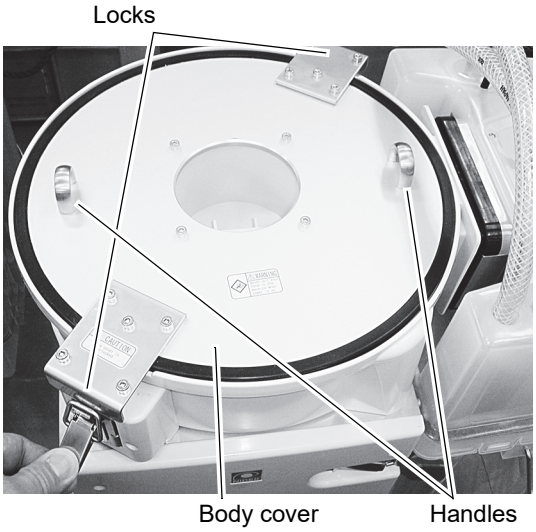
3 Pull out the Lfu 220 forward.
Use the handle to pull it out.



4 Check that no processing waste remains in the drain hose aperture (hole in body cover with drain hose disconnected).
If processing waste remains in the drain hose aperture, clean off the processing waste. If processing waste is not cleaned off, water leakage may result.

5 Release the two locks and use the two handles to remove the body cover.

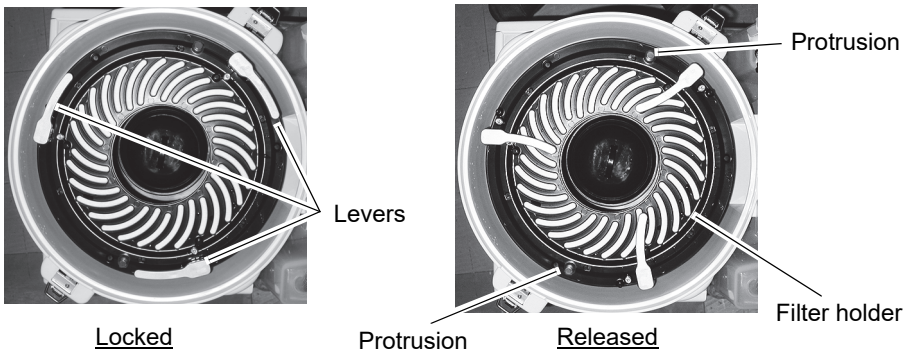
Put the body cover upside down.



6 Check that no water remains in the rotor.

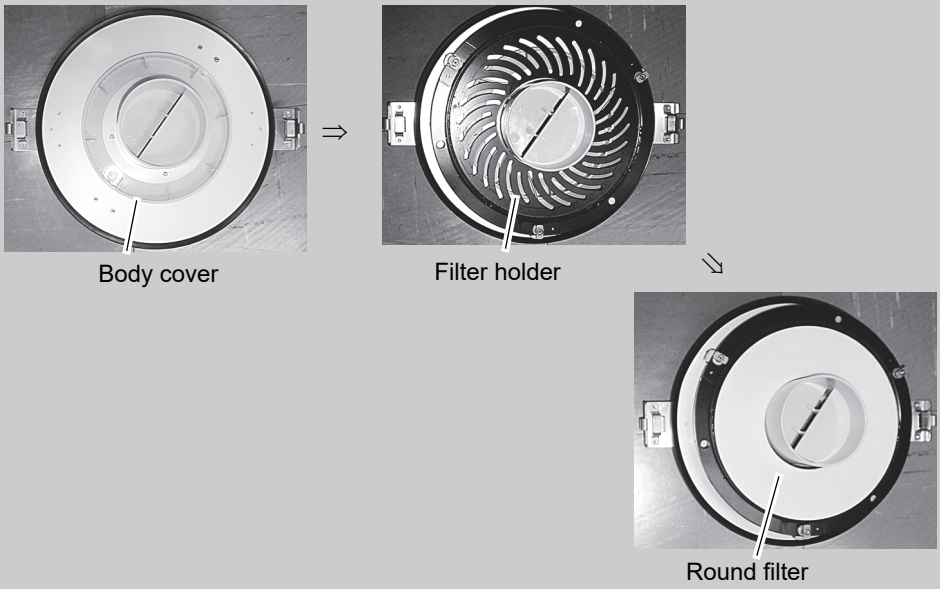
If the water remains, reattach the body cover, lock the cover, and press the dewatering start button. When the rotor is stopped in five minutes, remove the body cover again.

7 Fully turn the three levers clockwise to unlock and hold the two protrusions to remove the filter holder.



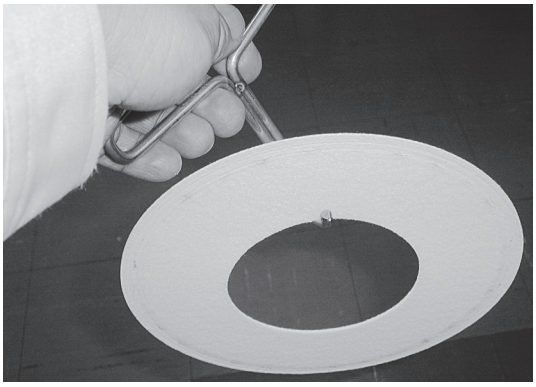
Note

- The removed filter holder and round filter can be placed on the body cover so as not to make the surrounding area dirty.



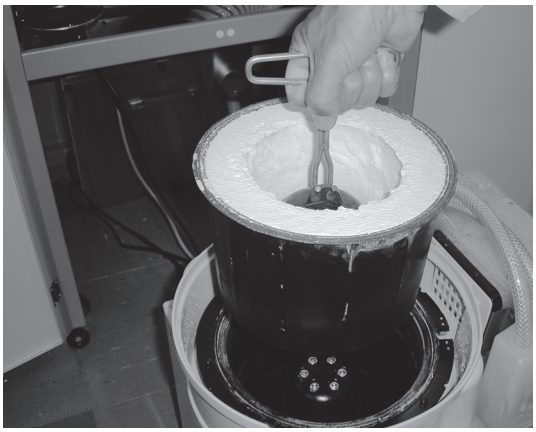
8 Remove the round filter using the waste bucket removal jig.

The round filter can be used twice by turning over the surface to be used.



9 Remove the waste bucket containing the processing waste using the waste bucket removal jig and dispose of it.

1) Prepare a plastic bag, bucket, or such for the processing waste around the Lfu 220.
2) Hook the waste bucket removal jig to the two holes in the center of the waste bucket to remove it.



3) Dispose of the waste bucket containing the processing waste in the plastic bag prepared in step 1).

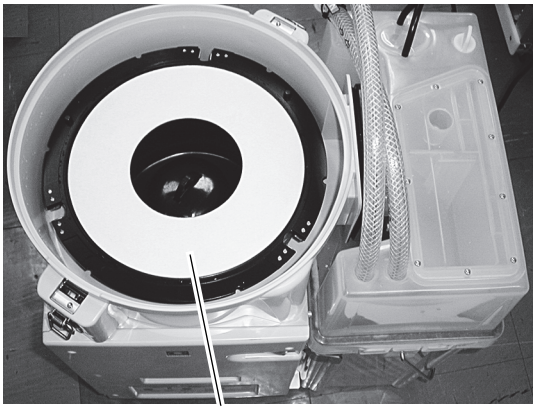
10 Put the new waste bucket in the rotor.

If the inside of the rotor is badly soiled, clean the rotor with a tissue before putting the new waste bucket in.

To put the new waste bucket into the rotor, push it so that the top of the waste bucket stays in the rotor.

11 Set the round filter so that it does not overlap the rotor.

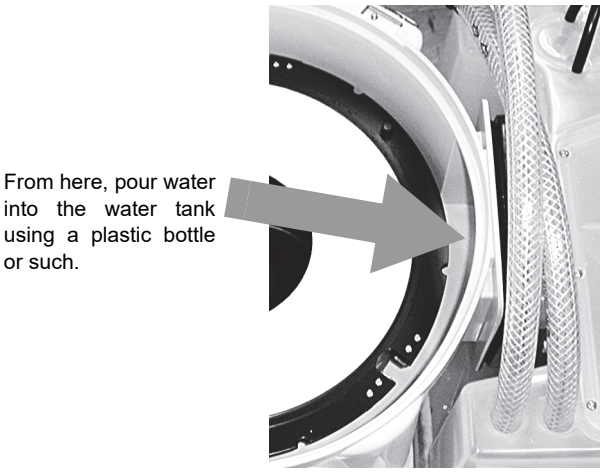
The round filter can be used on both sides. After one side is used, set the surface which has not been used face down.



12 Refill the water tank with water.

Pour water into the gap on the right side of the rotor to fill the water tank using a plastic bottle or such.

Refill water up to the water level of the scale indicated by the Max. line.



⚠ CAUTION • **When replacing the processing waste, be sure to refill water.**

If the water level falls to less than the top of the pump, the pump may be damaged. Normally approximately 1 to 2 liters of water must be refilled per processing waste removal. (One scale of the water tank corresponds to approximately 1 liter.)

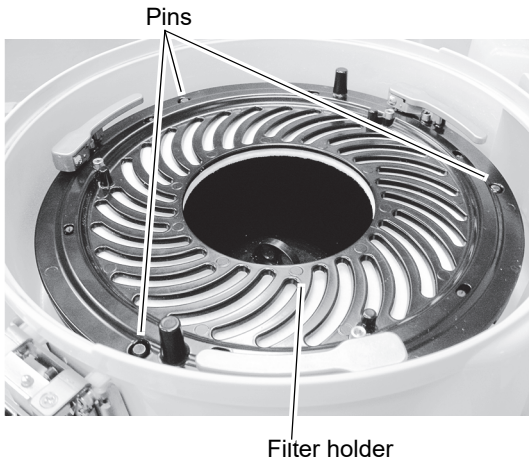
Water refill without noticing that water remains in the rotor may cause water overflow. It is the optimum time to refill water when removing the processing waste with no water left. Check that no water remains in the rotor at other timings before refilling water. If the water remains, press the dewatering start button for dewatering.

Note

• Be sure to use tap water when refilling water in the water tank.

13 Set the filter holder so that the holes of the filter holder fit in the three pins on top of the rotor and then fully turn the three levers counterclockwise to lock.

Check that the filter holder is secured to the rotor.



Note

- After setting the filter holder with the three levers fully turned clockwise (Figure A), turn the levers counterclockwise to lock (Figure B).

  The filter holder cannot be set properly unless the levers are fully turned clockwise (Figure A). With proper setting, the holes of the filter holder fit in the three pins on top of the rotor.

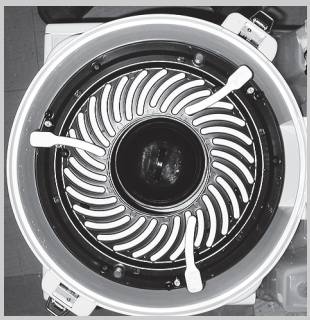


Figure A

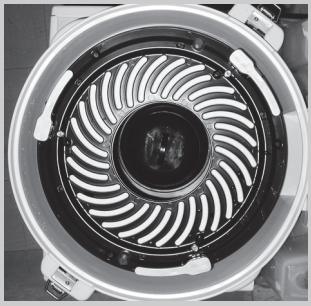


Figure B (locked)

⚠ CAUTION • **Check that the filter holder is securely locked by the three levers.**

14 Press the Buzzer OFF/Process count clear button to clear the process count.

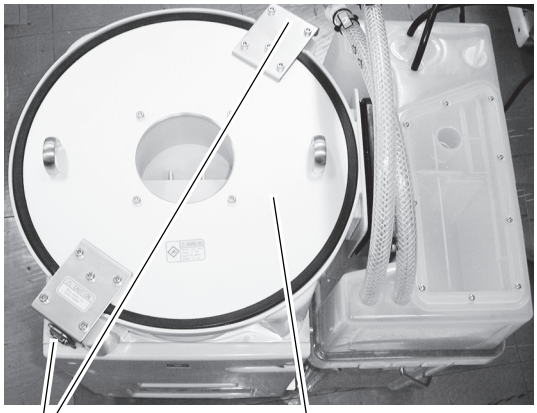
All of the process count LEDs go out.

Note

- The process count can be reset after the body cover has been open for 20 seconds or more by pressing the Buzzer OFF/Process count clear button.

15 Attach the body cover and secure the two locks.

If the body cover does not fit, check whether the three filter holder levers are fully turned counterclockwise.



16 Restore the Lfu 220 to the table and reconnect the drain hose.

Note

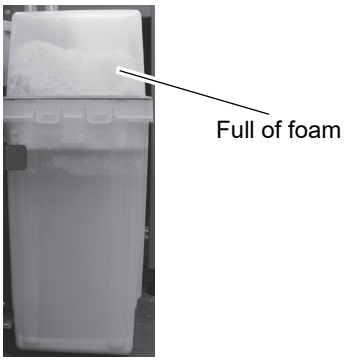
- Be sure not to contact the Lfu 220 with the table.

  If the Lfu 220 contacts the table, its vibration may affect the processing accuracy.

3.3 Replacing the Water

Replace the water in the water tank periodically.
It is recommended to replace the water after normal processing of 1000 lenses or once a month whichever comes first. When any of the following conditions occurs, however, replace the water even if it is before the target time.

- The water tank becomes full of foam.
- Foaming or water leakage occurs.
- The odor of water is offensive.



Note

- The replacement time of water depends on the lens materials or such. Particularly for 10% or more glass lens processing of all processing, replace the water more frequently.

  This is an instrument to simply filter processing waste drained from the lens edger. It has no function to filter chemicals eluted in water from the lens processing waste.It should be assumed that repeated use of the filtered water for processing will cause a high concentration of chemicals in the water.Chemicals are particularly easy to be eluted from glass lenses. When a large number of glass lenses are processed, replace the water more frequently. Do not process glass lenses in excess of 30% of all processing.

  For proper disposal of water, follow the local ordinances.
- There are no functions to indicate the need for water replacement so take note of when the water has been replaced.
- If the water level falls to less than the top of the pump, the pump may be damaged.

1 Disconnect the drain hose from the Lfu 220.

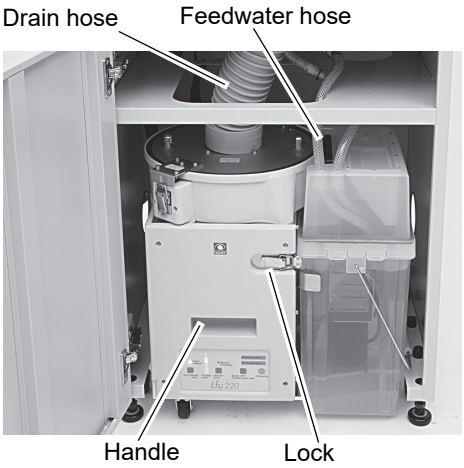
2 Pull out the Lfu 220 forward.

Use the handle to pull it out.

3 Remove the relay hoses connected to the two feedwater hoses.

Press the gray button on each feedwater hose to disconnect.

4 Remove the exhaust nozzle from the exhaust port.(only when the deodorizer is connected)

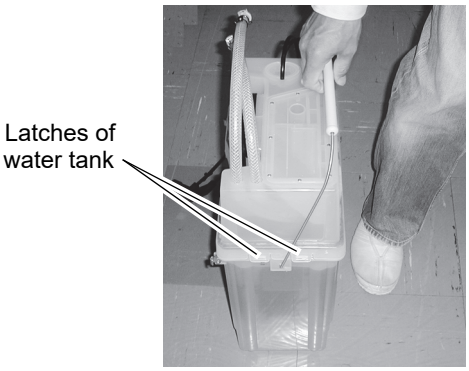


5 Disconnect the power cord of PUMP 1 and PUMP 2 from the connectors.

6 Release the locks on the front and rear sides.

7 Remove the water tank.

8 Pull the four latches of the water tank to release and remove the cover of the water tank.



⚠ CAUTION • **Gently set down the cover to avoid jarring the pump.**
If the pump attached to the cover is jarred, the pump may be damaged.

9 Put the supplied filtration bag into a commercial bucket and open the bag.

Use the bucket of 17 liters or more.

10 Pour water from the water tank into the filtration bag.

11 Drain the water filtered by the filtration bag.

Dispose of the processing waste remained in the filtration bag as industrial waste. For details, consult the local government.

Note

• Filtration bags can be reused after washed.
Filtration bags can be reused an average of five times. However, torn or bored filtration bags need to be replaced with new ones.

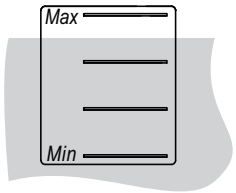
12 If the inside of the water tank is soiled, use a scrubbing brush to clean it out.

Check processing waste in the stocking filter. When the amount of processing waste becomes fist sized, remove the waste.

Check for tears in the stocking filter. If it is torn, replace the stocking filter with a new one.

See “3.4 Replacing the Stocking Filter” (page 28).

13 Fill water up to halfway between the Max. line and one scale below.



Note

- Be sure to use tap water when refilling the water tank.
- The water needs to be filled to a level that is less than the volume of the submerged pump attached to the cover (half of one scale) so that the water level reaches the Max. line when the water tank cover is attached.

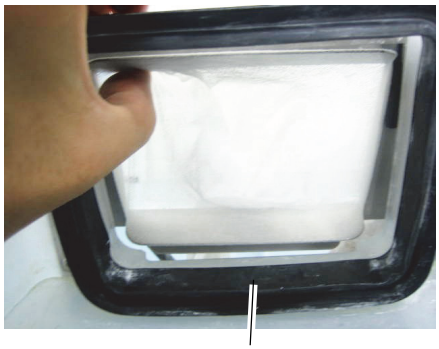
14 Put the cover of the water tank and check that the four latches are engaged.

15 Reattach the water tank and secure the two locks.

3

⚠ CAUTION

- **Attach the water tank gasket taking care that the gasket is flush with the main body maintaining a seal. If the gasket is not flush with the main body, water may leak from where they connect.**
  In addition, if a considerable amount of processing waste adheres to the gasket inner edges, after the processing waste is removed, wipe away any moisture with dry cloth and attach the water tank.



Water tank gasket

16 Reconnect the power cord of PUMP 1 and PUMP 2 to the connectors.

17 Connect the exhaust nozzle to the exhaust port (only when the deodorizer is connected).

18 Connect the two feedwater hoses to the relay hoses labeled the same number.

Push the hose until it clicks.

19 Restore the Lfu 220 to the table and reconnect the drain hose.

Exhaust nozzle

Deodorizer

Transparent drawing viewed from the right side

3.4 Replacing the Stocking Filter

The stocking filter is used to filter out any fine processing waste suspended in the water to prevent clogging in the hose, pump, or tank of the lens edger when a light material lens (such as polycarbonate or trivex) is processed.
Normally, remove the stocking filter holder and dispose of processing waste when replacing water in the water tank. Replace the stocking filter as necessary.

1 Follow Steps 1 to 12 on “3.3 Replacing the Water”.

See “3.3 Replacing the Water” (page 25).

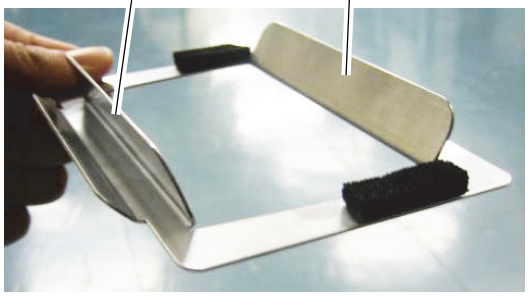
Note

- The stocking filter can be replaced by only detaching the stocking filter holder without removing the water tank cover when water in the water tank does not need to be replaced.

  See Steps 1 to 7 on “3.3 Replacing the Water” and Steps 2 to 5 in this section.

2 Set the stocking filter to the stocking filter holder.

1) Check the upper flange and lower flange of the stocking filter holder.

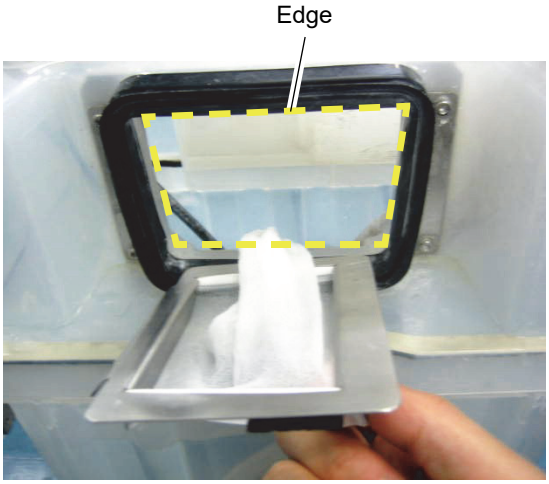


Stocking filter holder

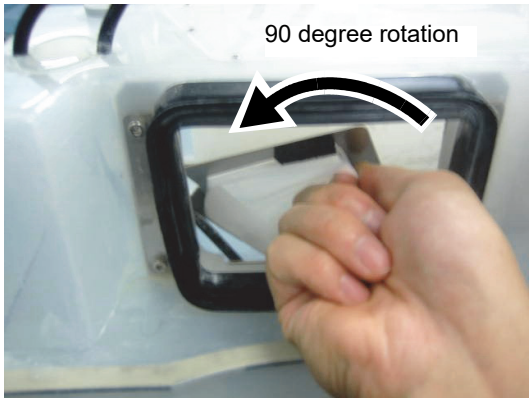
2) Set the stocking filter on the upper and lower flanges of the stocking filter holder as the figure to the right.

3) While holding the upper flange, first put the stocking filter into the tank and then insert the stocking filter holder into the tank positioned as in the figure to the right.

Note: Be sure not to brush against the edge of the tank aperture (dashed line in the figure to the right). The stocking filter may be torn.

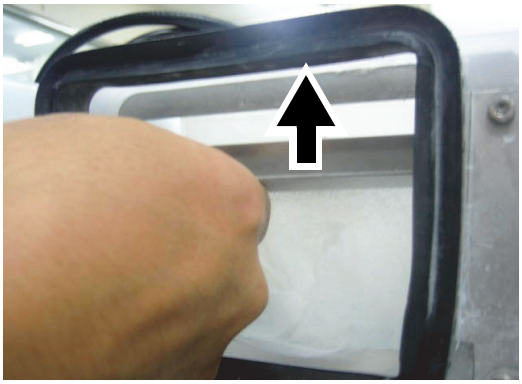


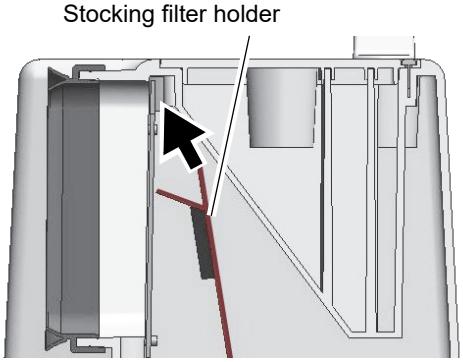
3 After the stocking filter holder is completely within the tank, rotate it 90 degrees counter-clockwise.



4 Move up the stocking filter holder to insert the upper side into the back of the sheet metal on the tank inlet.

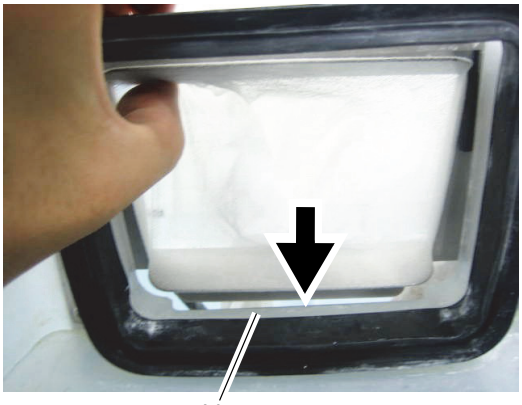
See the figure to the right and sectional view to the lower right.



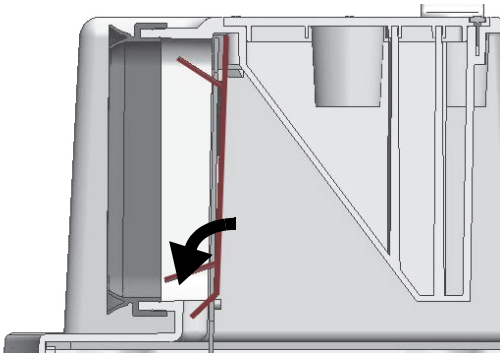


5 Pull the lower side of the stocking filter holder forward (in the direction of the tank aperture) and put it down.

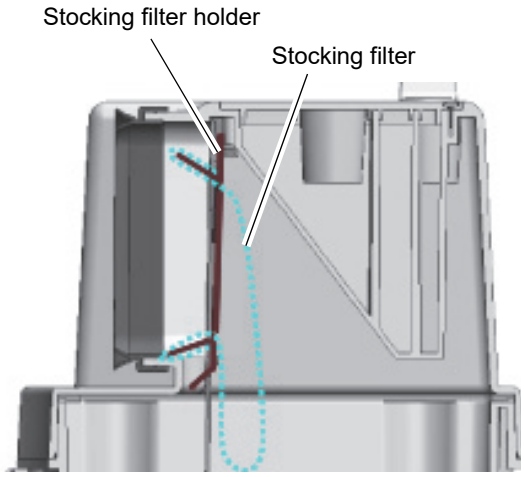
See the figure to the right and sectional view to the lower right.



1) Pull the lower part of the stocking filter holder forward (in the direction of the tank aperture).
2) Move the stocking filter holder downward until the lower flange of the stocking filter holder becomes level with the lip.



3) When the stocking filter holder and stocking filter are positioned as shown in the sectional view to the right, the procedure is complete.



3.5 Cleaning the Exterior

When the cover of the instrument becomes dirty, clean it with a soft cloth. For severe stains, soak the cloth in a neutral detergent, wiring well, and wipe. Finally dry with a soft, dry cloth.

Note

- Do not use organic solvents such as paint thinner to clean the exterior of the instrument.
  This could damage the surface.

3.6 List of Consumables and Maintenance Parts

Item	Order number	Remarks
Round filter set	44730-0310	Usable two times once on each side (5 units packed)
Round filter set	44730-0320	Usable two times once on each side (30 units packed)
Waste bucket set	44730-0210	Non-reusable (10 units packed)
Stocking filter	40377-M061	Replaced when torn (20 units packed)
Filtration bag	44301-M604	Usable five times of water replacement on average (1 unit packed)

4. SPECIFICATIONS AND ACCESSORIES

4.1 Safety Features

For safe use, the instrument is provided with the following features.

[Interlock switch]

An interlock switch is provided so that the rotor does not rotate with the body cover open.

If even one of the locks of the body cover is released during rotor rotation, a buzzer sounds continuously and the rotor comes to an emergency stop.

[Abnormal vibration sensor]

When an abnormal vibration is detected in the rotor, a buzzer sounds continuously and the rotor comes to a stop.

4.2 Specifications

○ General specifications

- Processing waste maximum collection capacity
  2.7 liters
- Tank capacity 10 liters (when water is filled up to the position indicated by the Max. line)
- Filtration efficiency 85% (target)

○ Power requirements

- Power source AC 100 to 120 / AC 230 V (±10%) 50/60 Hz
- Power consumption 400 VA at the maximum (excluding pumps)

○ Dimensions and mass

- Dimensions 444 (W) × 357 (D) × 464 (H) mm (excluding protrusions)
- Mass 24 kg or less

○ Environmental conditions (during use)

- Installation location Indoors
- Temperature 5 to 40ºC (41 to 104ºF)
- Humidity 30% to 80% (Relative humidity must not exceed 50% at a maximum temperature of 40ºC.)
- Maximum elevation 2,000 m
- Overvoltage Category II
- Pollution degree 2

○ Environmental conditions (during transport and storage)

- Temperature -25 to 70ºC (-13 to 158ºF)
- Humidity 10 to 95% (non-condensing)
  * The conditions during transport and storage apply to the instrument when packed.

4.3 Standard Configuration

4.3.1 Standard accessories

• Round filter	5 units
• Waste bucket	10 units
• Waste bucket removal jig	1 unit
• Filtration bag	1 unit
• Stocking filter	2 units
• Stocking filter holder	1 unit
• Processing unit connection cable	1 set
• Processing unit connection hose	1 set
• Exhaust nozzle	1 unit
• Operator’s manual (this manual)	1 volume
• Installation manual	1 volume

4.3.2 Optional accessories

- LE-9000 Connection Kit
- LE-700 Connection Kit
- Deodorizing Enhancement Kit

To connect a lens edger other than NIDEK’s, contact NIDEK or your authorized distributor.

5. APPENDIX

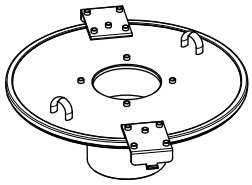
5.1 Instrument Status and LED Indications

Auto/ Manual LED	Dewatering operation LED	Interlock error LED	Vibration error LED	Rotation LED	Buzzer	Instrument status
ON	OFF	OFF	OFF	OFF	-	Standby state in automatic operation mode
ON	OFF	OFF	OFF	Blinks in conjunction with rotor rotation	-	Operational state in automatic operation mode
OFF	OFF	OFF	OFF	Blinks in conjunction with rotor rotation	-	Manual operation mode
ON	ON	OFF	OFF	Blinks in conjunction with rotor rotation	-	Dewatering by pressing the dewatering start button
OFF	Blinks	OFF	OFF	OFF	-	Setting mode of target process count See “○ Changing the target process count” (page 11).
OFF	Blinks	Blinks	OFF	OFF	-	Notification buzzer ON/OFF setting mode See “○ It is possible so as not to sound the processing waste disposal notification buzzer.” (page 12).
Blinks	OFF	OFF	OFF	OFF	-	Setting mode of buzzer volume “2.3 Changing the Buzzer Volume” (page 13)
ON / OFF	OFF	OFF	OFF	OFF	Repea-tedly	The process count has reached the specified target number of the processing waste disposal. See “3.2 Disposing of Processing Waste” (page 19).
OFF	OFF	ON	OFF	OFF	Contin-uously	Interlock error
OFF	OFF	OFF	ON	OFF	Contin-uously	Vibration error
OFF	OFF	ON	ON	OFF	Contin-uously	Rotor rotation error

5.2 Glossary

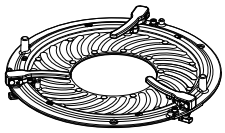
- Body cover

  Used to cover the rotor. The rotor does not rotate unless this cover is closed.



- Filter holder

  Used to hold the round filter to the rotor.



- Interlock error

  This is the state when the release of the lock on the body cover has been detected during rotor rotation.

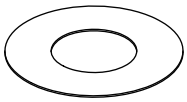
  A buzzer sounds continuously, the Interlock error LED lights, and the rotor comes to an emergency stop.

  When activation of the rotor is attempted with the lock on the body cover released, the same state is encountered and the rotor does not rotate.

- Round filter

  Covering filter so that the processing waste does not come out from the rotor.

  Both sides can be used once. When the processing waste is disposed twice, the filter needs to be replaced once.

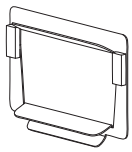


- Stocking filter

  Filter to prevent light material processing waste containing air from flowing into the water tank

- Stocking filter holder

  Used to attach the stocking filter to the water tank.



- Vibration error

  This is the state when an abnormal vibration has been detected.

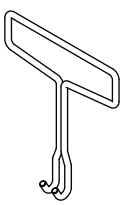
  A buzzer sounds continuously, the Vibration error LED lights, and the rotor comes to a stop.

- Waste bucket

  Set inside the rotor. Processing waste is accumulated in this container.

- Waste bucket removal jig

  Used to remove the waste bucket from the rotor.



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